



**SOLID WASTE MANAGEMENT**  
**Annual Operations and Monitoring Report**  
**Golden Refuse Disposal Site MR-17006**  
**2018**



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## EXECUTIVE SUMMARY

The Golden refuse disposal site (hereinafter referred to as “the site”) is located at 350 Golden-Donald Upper Road, Golden, BC approximately 2 km northeast from the core of Golden. The site has been in operation since the early 1970’s as a natural attenuation landfill. In the late 1970’s the permit was transferred to the Columbia Shuswap Regional District (CSRD). The property is leased to the CSRD by the Province and covers an area of approximately 17 ha. The waste footprint currently covers an area approximately 4.4 ha.

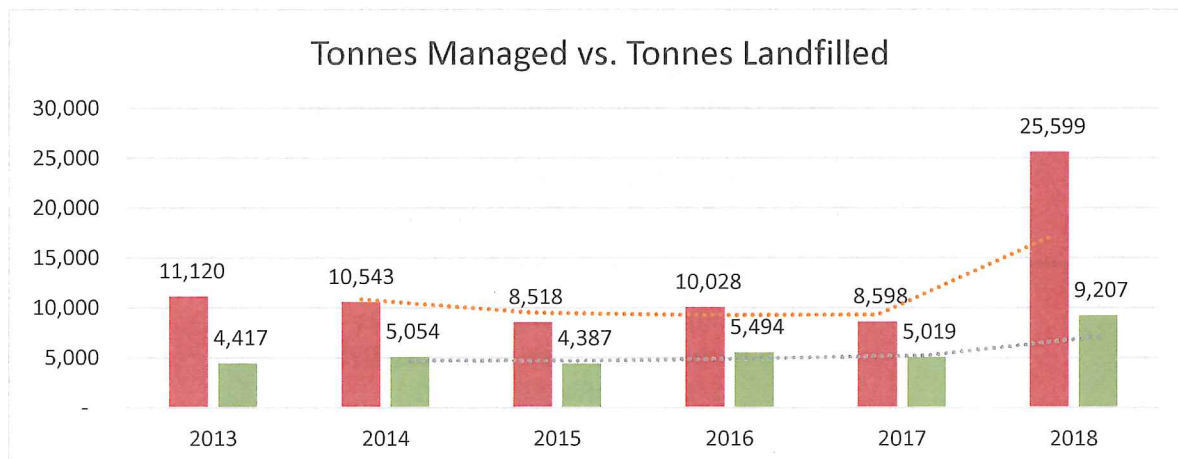
The landfill site provides solid waste disposal and residual processing services to residents, businesses, and institutions located within the municipality of Golden and to CSRD’s Electoral Area A. CSRD manned transfer stations in Parson and a transfer station located in Field (owned and operated by Parks Canada) deliver solid wastes to the site in 50 yrd<sup>3</sup> containers on a regular frequency. The site is operated under an approved Design and Operations Plan (D & O Plan), in accordance with Operational Certificate No. 17006, issued by the Ministry of Environment on May 5, 2003 and amended on August 29, 2012.

In 2008, environmental monitoring included groundwater sampling, analysis and reporting. Data collected from the groundwater monitoring program has been compared to the historical record to determine whether the site has adversely affected groundwater quality and, if so, to what extent. The qualified professional’s report is posted separately on the CSRD’s website [www.csr.bc.ca](http://www.csr.bc.ca).

## 2018 OPERATIONS

In 2018, approximately 25,599 tonnes of refuse and recoverable wastes were managed at the site. The quantity of municipal solid waste landfilled at the site in 2018 was 9,207 tonnes, which represents a 45% increase over 2017. Using the most recent census date (2016) the per capita disposal rate for 2018 was 1.34 tonnes/person/year, based on a population of 6,856 for the service area. In 2018, large scale clean-up projects associated with rail derailments resulted in a significant increase in landfilled waste compared to previous years. The graph below identifies tonnes of waste managed and tonnes of waste landfilled between 2013 and 2018.

In 2018, 16,392 tonnes were diverted to marshaling areas for recovery. The majority of diverted material was clean soil from clean-up projects in and around the Golden area. Existing diversion programs include; hazardous waste, mattresses, asphalt shingles, concrete, contaminated soil, clean soil, wood waste, yard and garden waste, metal and reusable items.





In 2018 there were no changes to the Design and Operation Plan. Changes to the environmental monitoring program included the installation of two new ground water monitoring wells in an effort to better assess and understand groundwater flow and direction, which will help to define future groundwater monitoring programming.

A significant change in operations in 2018 was the CSRD's implementation of the new acceptance criteria related to gypsum wall board. This change was based on Work Safe recommendations which identified that due to the potential existence of asbestos in older gypsum, that existing stockpiles of drywall should be landfilled under strict controls. The CSRD continues to explore options to create a recycling program for gypsum, which would be restricted to new construction gypsum only.

In 2018, the CSRD conducted a waste characterization study. The results of this study are generally consistent with the characterization study that was performed in 2013. The 2018 study is posted on the CSRD's website for public review.

Also in 2018, the CSRD installed a hazardous storage facility to accept residential hazardous waste, unknowns, paints and oils. Partnerships with stewardship agencies helped to fund the construction of the facility.

The landfill was inspected 4 times in 2018 by CSRD staff. Operations contractors were found to be in compliance with the site maintenance contracts with the CSRD. Site operations complied with the design and operation plan and the operational certificate. The Ministry of Environment did not conduct an inspection of the facility in 2018.

## **RECYCLING AND REUSE PROGRAMS**

The CSRD has a number of programs which are aimed at reducing the regional solid waste stream being landfilled. The main objective of the Regional Solid Waste Management Plan is to work towards Zero Waste and to make efforts to turn waste into resources. The CSRD has introduced a number of programs to meet this objective over the years, including diverting the following materials from being landfilled; wood waste, yard and garden waste, metal, appliances, propane cylinders, concrete, mattresses, and asphalt shingles. In addition, the CSRD supports provincial EPR recycling collection programs at the site such as; printed paper and packaging, batteries, thermostats.

In 2018 the CSRD also constructed a hazardous waste storage facility to accept and store used oil, paints, and general household hazardous waste.

The following table provides an annual summary of materials received and separated for recycling or reused on the site for operational purposes (2014 – 2018):

GOLDEN LANDFILL - RESOURCE RECOVERY					
Recoverable Resource	2014	2015	2016	2017	2018
Wood Waste - Received (MT)	711	479	292	399	835
Wood Waste - Processed (m <sup>3</sup> )	1,956	1,193	2,949	6,262	8,907
Yard & Garden Waste - Received (MT)	423	313	349	725	N/T
Yard & Garden Waste - Processed (m <sup>3</sup> )	840	1,072	1,155	incl. WW	incl. WW
Metal Waste - Received (MT)	190	212	127	187	N/T
Metal waste - Salvaged (MT)	157	196	171	126	385
Gypsum Drywall - Received (MT)	43	48	56	57	25
Gypsum Drywall - Salvaged (MT)	53	51	75	130	Refuse
Asphalt Shingles - Received (MT)	106	112	146	121	85
Asphalt Shingles - Salvaged (MT)	102	24	105	308	83
Concrete/Brick/Porcelain - Received (MT)	1,012	733	318	394	577
ODS Units - Received	221	190	172	181	300
ODS Units - Processed	253	260	165	216	271
Propane Tanks - Salvaged	132	141	281	202	
Auto Batteries - Salvaged	112	112	159	135	211
Mattresses - Received	290	584	501	585	654
Mattresses - Salvaged	290	451	524	371	124
Contaminated Soil Received (MT)	2,544	1,118	1,914	906	13,126
Clean Soil Received (MT)	520	1,020	1,317	790	784
Wood Waste Chipped Received (MT)	3	29	3	-	1
Land Clearing Waste (MT)	-	-	-	1	2
		MT - Metric Tonne		N/A - Not Acceptable	
		m <sup>3</sup> - Cubic Metre		N/T - Not Tracked	

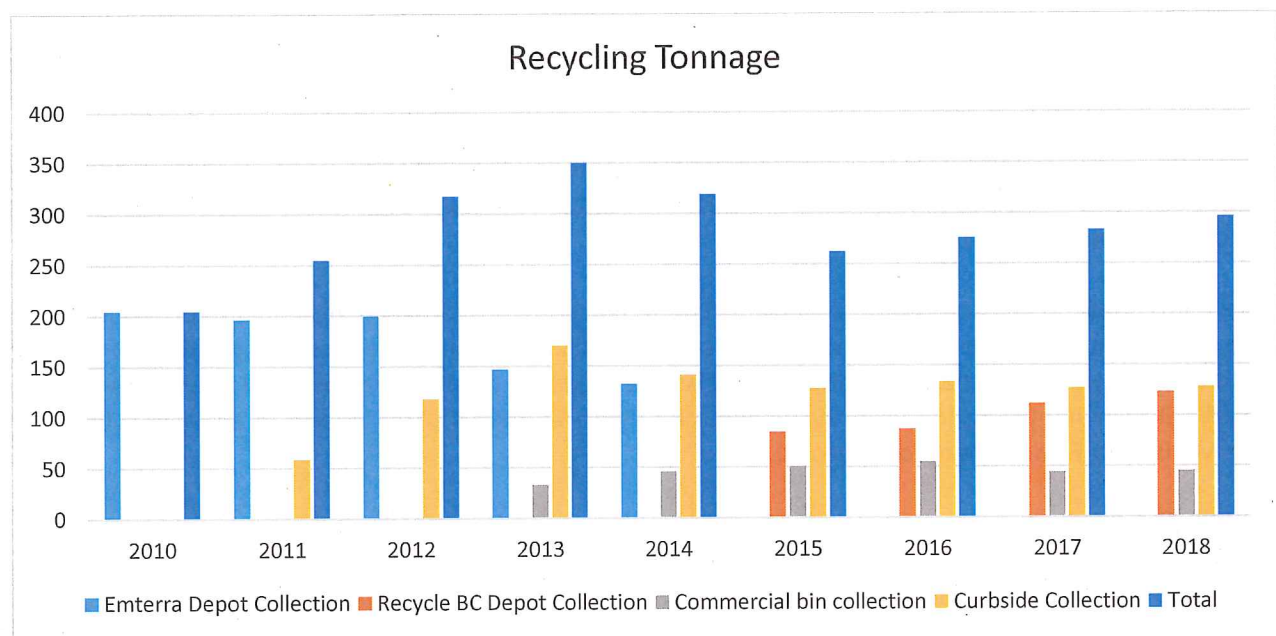


## RECYCLING - COMMERCIAL AND RESIDENTIAL PROGRAMS

In January of 2015, the residential recycling collection changed to the MMBC (now Recycle BC) Packaging and Printed Paper collection Extended Producer Responsibility (EPR) program. Prior to the MMBC program the depot recycling program was not staffed and monitored which contributed to illegal dumping and inflated tonnage results.

The CSRD maintains a recycling program for commercial users, which is tracked separately. In addition, the CSRD has been working to add other stewardship materials, such as power tools and electronics, where there is a lack of program accessibility and partnerships with stewardship groups can be achieved.

The following table is an overview of tonnage collected in Golden since 2010:



## ENVIRONMENTAL MONITORING PROGRAMS

In 2018, environmental monitoring at the site included groundwater sampling, analysis and reporting. Data collected from the groundwater monitoring program has been compared to the historical record to determine whether the site has affected groundwater quality and, if so, to what extent. Furthermore, the 2018 environmental monitoring report includes a summary of results collected from the newly installed wells at the Golden landfill. The CSRD also completed a Hydrogeological Characterization Report for the Golden landfill in 2018, and the results and recommendation from this report have been posted to the CSRD's website.

CSRD staff and consultants will present the findings of these reports at a Golden Town Council meeting in June 2019.

The CSRD continues to monitor landfill gas levels at the property boundaries of the landfill. The Golden landfill has two soil gas monitoring probes situated around the landfill property. Gas probe 6 is located on the west side of the property and gas probe 7 is located in the south west corner of the property.

Each monitoring probe has two nested gas sampling probes for shallow and deep sampling. Each probe has 3 metres of screened pipe and nested probes are isolated by a 1 metre bentonite plug. Shallow probes are screened from approximately 1 to 4 metres depth and deep probes are screened approximately 5 to 8 metres depth. The CSRD began monitoring for landfill gas in 2013.

Sampling was done annually using a Landtec GEM2000 portable gas analyzer. Each gas probe is purged for 10 minutes before the sample is taken. No evidence of landfill gas (methane and/or hydrogen sulphide gas) was present in either gas probe in 2018.

### MINISTRY OF ENVIRONMENT

The CSRD received a Ministry of Environment issued Warning Letter on July 27, 2018, based on an inspection of the site in the spring of 2017.

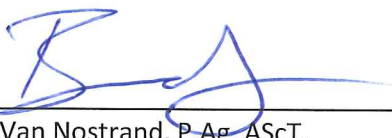
This letter requested that an Action Plan detailing what steps will be taken to ensure that the landfill is being operated in a manner that prevents surface water and groundwater exceedances of parameters distinctive of leachate at the landfill boundary.

The CSRD engaged Western Water Associates Ltd. to complete a Hydrogeological Characterization Report of the groundwater conditions surrounding the Golden landfill. The results and recommendations of the Golden landfill hydrogeological characterization report will be used by a Qualified Professional to prepare the Golden landfill Design and Operation Plan review and the Golden landfill Five Year Report in 2019 for submission to the Ministry of Environment for approval.

### PLANS FOR 2019

The CSRD has engaged Golder and Associates to conduct a review of the Golden Landfill Design and Operation Plan. In addition, Golder will conduct a conformance review with the 2016 Ministry of Environment BC Landfill Criteria and complete the necessary review work for submission to the Ministry of Environment in 2019.

This report was prepared by and is certified by a qualified professional.



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