



**SOLID WASTE MANAGEMENT  
Annual Operations and Monitoring Report  
Golden Refuse Disposal Site MR-17006  
2012**



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## **1.0 INTRODUCTION**

The Golden refuse disposal site (hereinafter referred to as “the landfill site”) is located at 350 Golden-Donald Upper Road, Golden, BC approximately 2 km northeast from the core of Golden. The legal description of the property is Subdivision 12 of Section 18, Township 27, Range 21, West of the 5<sup>th</sup> Meridian, Kootenay District. The landfill site is approximately 1.2 km north of the Kicking Horse River, the nearest major surface water body. 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 Crown and covers an area of approximately 17 ha. The waste footprint currently covers an area of approximately 4.4 ha. The landfill site is operated by Franklin Strain under contract with the CSRD.

The landfill site provides solid waste disposal and residual processing services to residents, businesses, and institutions located within the municipality of Golden and to the CSRD Electoral Area 'A'. CSRD operated 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, in accordance with Operational Certificate 17006, issued by the Ministry of Environment on May 5, 2003 and amended on August 29, 2012.

Environmental monitoring at the site is being conducted by Summit Environmental consultants and their report will be available on the CSRD’s website in May, 2013. Results from 2012 indicate that landfill indicator parameters do not show a significant increasing trend at any of the wells.

In accordance with the user-pay principles of the Solid Waste Management Plan, fees are charged for the disposal of all waste materials. The disposal fee for co-mingled municipal solid waste across scaled sites is set at \$70 per tonne, as per changes made in 2009 in accordance with the new Solid Waste Management Plan. Furthermore, in 2010 a differential tipping fee was introduced to encourage recycling by creating disincentive fees for loads which are not separated into appropriate marshalling areas.

## **2.0 BACKGROUND**

With the exception of statutory holidays, the site is open to the public on the following schedule:

Year Round                      Monday to Saturday from 10:00 am to 4:00 pm

The site contains a lockable gate, a single truck scale with electronic weighing and reporting software, a scale house, and an internal transfer station. The site operates on a user pay system where payment is collected on a load weight bases.

### 3.0 OBJECTIVES

The objective of this report is to provide information required to meet the annual reporting requirements in Section 5.1 of Operational Certificate MR- 17006 issued by the BC Ministry of Environment on August 29, 2012.

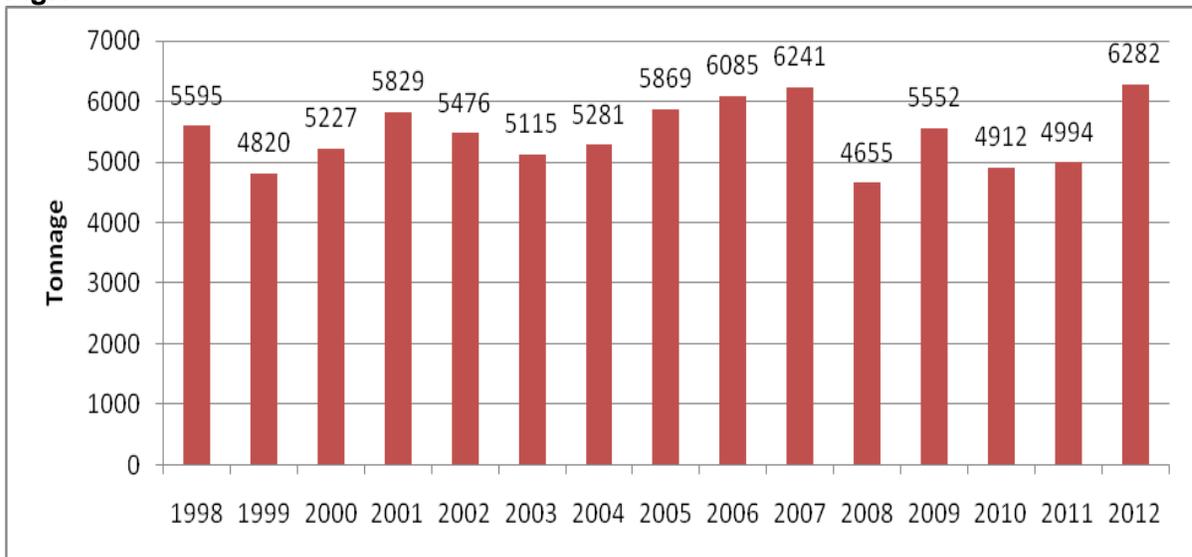
#### 3.1 Total Tonnage of Waste Landfilled (Fig.1)

In 2012 approximately 12,139 tonnes of refuse and recoverable wastes were managed at the Golden landfill. The quantity of municipal solid waste landfilled at the site in 2012 was 6,282 tonnes, which represents a 26% increase over 2011. Using the most recent census date (2011) the per capita disposal rate for 2012 was 0.93 tonnes/person/year, based on a population of 6,766 for the service area.

Large scale cleanup projects by CP Rail in Golden contributed significant tonnage in 2012, which have inflated the numbers for the year. For example, a four day cleanup project in April resulted in 1,100 tonnes being directed to the active face for landfilling.

Nearly half of all incoming materials, 5,857 tonnes, were diverted to marshalling areas for recovery. Existing diversion programs include; drywall, asphalt shingles, concrete, contaminated soil, wood waste, metal and reusable items.

Fig.1



#### 3.2 Design Volume/Life Expectancy

The Golden Design and Operations Plan was prepared by EBA Engineering Consultants Ltd. in November, 2007. According to the plan, the site will be constructed and progressively closed in four phases which is estimated to consume an overall 750,000 m<sup>3</sup> of air space.

Before the Plan was created, waste was placed across much of the landfill site. The CSRD is currently completing the construction of the pre-phase of the landfill which will then accommodate phased development. According to projections in the Plan, phase 1 will reach capacity by 2037 with overall capacity being exhausted by 2104.

It was determined by survey that 11,246 m<sup>3</sup> of air space was consumed at the site in 2012, representing a 38% increase over 2011 and a 8% increase over 2010 consumption data.

### **3.3 Accomplishments in 2012**

The Golden landfill had four site inspections done in 2012. The contractor was found to be in compliance with the contract and the design and operations plan during all inspections.

Site improvement and repair projects were completed at the Golden landfill in 2012. Refuse had begun to migrate upwards through the intermediate cover on some areas around the active filling area. Large items exposed at the surface were removed and deposited at the active face. New gravel was added to high traffic areas around the scale and transfer area.

CSRD staff had many interactions with a neighbor who was complaining about odors at the site. There are several potential contributing factors to the odor issues including; materials received from CP Rail clean up consisted of rotten grain, which may not have been properly buried and covered, the metal plates used as alternative daily cover may be causing odors and finally food was from grocers may not have been adequately covered. CSRD staff worked with the contractor to rectify these site management issues and are hoping that with better management the odor issues will be mitigated.

### **3.4 Occurrences or Observations of Wildlife**

There were no reported observations or occurrences of wildlife in 2012.

### **3.5 Closure Planning**

Each spring the CSRD's Finance Department assesses closure reserves, future closure projects and landfill capacity to ensure adequate reserve funds are available for planned closure work. A copy of this assessment work has been included as Appendix 'A'.

### **3.6 Plans for 2013**

Plans for 2013 include putting a final grade on the west and south slopes and adding intermediate cover material to finished slopes. Plans to further develop drainage ditches and create new ones on site will help control surface water

running through the site. New marshalling areas for some materials will be created to make room for landfilling operations.

In order to meet Section 2.1 of the Operational Certificate the CSRD has budgeted funds to hire a qualified professional to conduct a review and update of the existing Design and Operating Plan in 2013. The Plan will be submitted to the Director for approval in 2013. It is anticipated that results of the updated plan will be used by staff to; develop the report required by the Ministry to satisfy Section 5.2 of the Operational Certificate (Five Year Report), guide future site improvements and define capital projects in 2014.

### **3.7 Training Programs**

Although no formal training was completed by the contractor in 2012, CSRD staff continue to work with the contractor and advise on best landfilling practices. Training plans for 2013 include the development of a CSRD operations guide, based on Conestoga-Rovers & Associates recommendations and research completed in 2012.

## **4.0 ENVIRONMENTAL MONITORING**

The CSRD retained Summit Environment Consultants (Summit) to conduct environmental monitoring at the site, as per the requirements of the Operational Certificate. Summit has provided conclusions and recommendations based on the 2012 data collected, which will be posted on the CSRD website for public review in May, 2013.

## **5.0 WASTE HIERARCHY**

The CSRD emphasizes and encourages the 6R Hierarchy of Rethink, Reuse, Reduce, Recycle, Recovery and Residual management and continually strives towards a higher 'R' in waste management practice. The programs offered within each category along with successes and challenges experienced in 2012 are indicated below.

### **5.1 Rethink**

#### ***5.1.1 Composter Incentive Program***

In the fall of 2009, the CSRD launched a Region-wide Composter Incentive Program. The CSRD purchased a number of Earth Machine outdoor compost units at a cost of \$45 per unit. These composters were then offered to residents in the spring of 2012 in Golden and Electoral Area 'A' for the same price. To ensure that all residents receiving a composter understood the benefits of home composting as well as how to properly use the Earth Machine composter, all individuals purchasing a composter were given the opportunity to attend a 30 minute training seminar given by CSRD staff.

Staff also conducted a Master Composter training session in Golden, which was attended by 10 individuals who are now working towards becoming Master Composter/Recyclers in the community.

### **5.1.2 Reuse Website**

The CSRD, in partnership with the Recycling Council of BC, continues to promote our reuse website, [www.csr.d.reuses.com](http://www.csr.d.reuses.com). The website allows users to post items for sale, or post wanted items for free, up to a maximum of value of \$99.00. The site has seen exchanges ranging from clothing, furniture and appliances, to musical instruments and construction materials. By the end of 2012, over 74 new members had signed up with 69 exchanges taking place.

## **5.2 Reduce**

### **5.2.1 Media Communications and Advertising**

The CSRD continues to utilize local radio advertisements aired on the EZ Rock Network (AM Stations – 1400 Golden) and newspaper advertisements in the local paper (Golden Star, The Force) to make residents aware of special events, and to promote various waste reduction themes. The CSRD also published The Loop Newsletter in the Golden Star, which included local event information, as well as ways to reduce household waste and promote sustainability in our communities. More recently the CSRD has entered into the social media world, utilizing Facebook to grow a network of engaged residents.

## **5.3 Reuse**

### **5.3.1 Marshalling Areas at Refuse Disposal Sites**

The Golden Refuse Disposal Site contains reuse marshalling areas for wood waste and propane tanks. A large portion of wood waste material is chipped and reused as alternate daily cover (in a soil/wood blend) or placed on the unloading pads of the active face when the ground is saturated and un-drivable.

### **5.3.2 Woodwaste grinding**

In 2012, 1,968 m<sup>3</sup> of wood waste was chipped at the site. 310 tonnes of wood waste and 250 tonnes of yard waste were received at the site in 2012.

### **5.3.3 Propane Tank Collection**

Propane tanks had not been collected at the site since 2009; however 206 tanks were removed from the site for recycling in 2012.

#### **5.3.4 Reuse Centre**

The CSRD installed a Reuse Centre at the site in the fall of 2009. In 2012, over 120 items were salvaged from the Reuse Centre by residents. Items include household items, sports equipment, building material, and appliances. Residents are required to pay the regular disposal rate for items, but can chose to place items that are in good working order in the Reuse Centre for someone to take home free of charge.

### **5.4 Recycling**

#### **5.4.1 Marshalling Areas at Refuse Disposal Sites**

All CSRD landfills contain recycling marshalling areas for auto batteries (except Salmon Arm), metal wastes including white goods and scrap metal, gypsum, asphalt shingles, concrete, and household recyclables, including mixed paper, newspaper, tin cans, glass containers, plastics #1 to #7 and corrugated cardboard.

#### **5.4.2 Scrap Metal Recovery**

In 2012 the CSRD added free metal drop off to the 12 week yard and garden free days in the spring and fall. This site recycled approximately 140 tonnes of scrap metal in 2012, compared to 160 tonnes in 2011, which includes source separated metal wastes deposited at the site from commercial and residential sources, as well as metal transferred from the Parson Transfer Station. 190 tonnes were received at the site in 2012.

#### **5.4.3 Ozone Depleting Substance Removal**

Ozone depleting substances were removed from 153 refrigeration units before they were recycled.

#### **5.4.4 Household and Automotive Battery Recycling**

In 2012, 119 automotive batteries were collected from the site for recycling.

#### **5.4.5 Gypsum/Asphalt Shingles/Concrete**

Marshalling areas for gypsum, asphalt shingles and concrete have been established at the site. 104 tonnes of shingles and 117 tonnes of drywall were transported for recycling in 2012. Concrete stockpiles had not accumulated enough to crush in 2012. 46 tonnes of drywall, 202 tonnes of shingles, and 960 tonnes of concrete were marshaled at the site in 2012.

### 5.4.6 Residential Recycling Service

The Town of Golden, in partnership with the CSRD, implemented a curbside residential recycling program in July of 2011. The Town opted to provide an automated cart collection program with bi-weekly pick up. The program allows for the collection of mixed paper, newspaper, tin food cans, corrugated cardboard, plastics #1-7, and film plastic.

Opportunities to deposit recyclable items such as: newspaper, mixed waste paper, food cans, glass containers, plastic containers #1,-7, and corrugated cardboard exist at all Regional District Refuse Disposal sites and in depots found in downtown municipalities. In Golden, the downtown recycle depot location is shared with a local bottle depot which also collects refundable beverage containers including milk containers, and electronics.

#### 5.4.6.1 Depot Recycling

Recycle depots exist at all refuse disposal sites and within the municipalities of Salmon Arm, Sicamous, Revelstoke and Golden. In the fall of 2009, the recycling collection changed to a comingled collection system. A total of 200 tonnes of mixed waste paper, tin food cans, newspaper glass jars and bottles, corrugated cardboard and plastics #1 to 7 were collected in 2012 from the Golden landfill and downtown depot. This in an increase of 1.7% over 2011.

Figure 1 represents recycling quantities collected region wide since 1991 in the depot collection program. A 7% decrease in recycling was noted in the depot collection program in 2012 region wide. This decrease was expected because of the introduction of community curbside collection programs.

Figure 1-Recycling Collected in Depots Region Wide



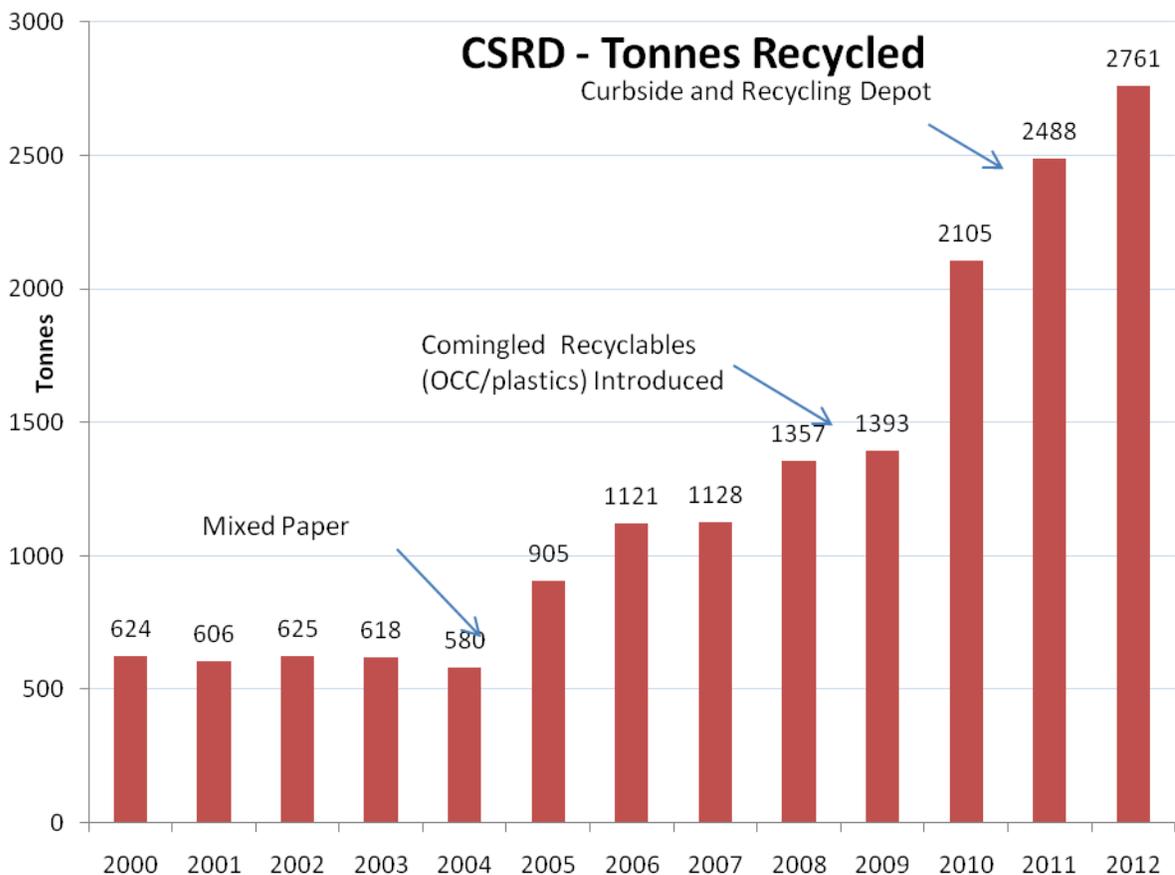
**5.4.6.2 Curbside Recycling**

Recycling is collected through an automated curbside collection system from all single family dwellings within the Town of Golden. The material is delivered to a reload facility operated by VP Waste Solutions, baled, and sent to Cascades Recovery in Kelowna. In 2012, 117 tonnes of material was collected through the cart program.

The curbside collection, combined with the depot program, resulted in an overall tonnage of 317, or a 24% increase overall for Golden.

Figure 2 represents depot collection tonnages and the curbside tonnages, combined for the entire region, showing an 11% increase in recycling.

Figure 2-Increase in Recycling Regional Wide Combining Depot and Curbside Amounts



#### **5.4.7 Recycle Fair Events**

Two Recycle Fair events were held in the municipality of Golden in 2012. The following items were collected at Recycle Fair Events:

- Fluorescent tubes (spring and fall)
- Product Care items (spring and fall)
- Tires (spring only)
- Hazardous Waste not accepted by Product Care (spring only: 25 drums and 13 pails)

#### **5.4.8 Extended Producer Responsibility**

Provincial Stewardship Programs such as the beverage container deposit-refund system, paint, pesticides and other residuals, waste oil and oil containers, tire recovery programs, pharmaceuticals and electronics contribute to diverting materials from local landfills. Unfortunately, the Province of British Columbia does not require Stewardship agencies to report quantities recycled on a regional district basis; therefore quantities diverted from CSRD landfills through extended producer responsibility programs are largely unknown.

#### **5.4.9 Private Sector Recycling**

At this time the Regional District does not have quantitative values of wastes collected through other programs and therefore cannot adequately determine the overall waste diversion rate from the Town of Golden.

Appendix 'A'

<b>Solid Waste Landfill Closure and Post-Closure Liability</b>						
The Environmental Management Act of B.C. and the Ministry of Environment of B.C. set out the landfill criteria to properly close and maintain all active and inactive landfill sites. Under the guidelines, there is a requirement for closure and post-closure care of solid waste landfill sites. Provisions are therefore made over the estimated remaining life of the CSRD landfill sites based on scalehouse records and through tipping fees.						
The main components of the landfill closure plans are: final capping using an engineered cap design and the implementation of a drainage and gas management plan. The post-closure care requirements may involve: cap maintenance; groundwater monitoring; gas management system operation and maintenance; inspections; leachate treatment and monitoring; and annual reports.						
The table below sets out the liability based on the estimated capacities used in cubic metres, multiplied by the estimated total expenditures, expressed as discounted present values, assuming 1.1% (2.4% - 2011) inflation and 1.06% (1.03% - 2011) investment rate (annual MFA money market fund). The amount remaining to be recognized in future years is \$ 3,831,100 (2011 - \$ 5,270,200). The annual provision is reported as an Operating Fund expense and the accumulated provision is reported as a liability on the Consolidated Statement of Financial Position. Reserve funds totalling \$ 830,505 (2011 - \$ 824,304) have been established to provide for this liability in the Landfill Closure Special Reserve Fund.						
The table also indicates the remaining landfill life in years and remaining capacity (100 minus % used). Post-closure care is estimated to continue for a period of approximately 25 years.						
			cubic metres			
Site	Estimated Remaining Life (yrs)	Estimated Total Expenditure for Closure	Cumulative Capacity Used	Total Estimated Capacity	% Used	Liability for Closure to Dec 31, 2012
Salmon Arm (phase 2 of 5)	11	2,063,700	60,273	383,778	15.7%	324,100
Golden (pre-phase)	0	371,600	613,416	613,416	100.0%	371,600
Golden (phase 1 of 4)	13	2,528,900	38,407	146,000	26.3%	665,300
Revelstoke (pre-phase)	0	293,900	70,000	70,000	100.0%	293,900
Revelstoke (phase 1 of 4)	2	659,300	84,408	83,991	100.5%	662,600
Sicamous (phase 2 of 4)	13	270,500	57,553	166,000	34.7%	93,800
Sicamous (phase 4 of 4)	31	454,000	110,000	125,000	88.0%	399,500
Total		\$ 6,641,900	1,034,057	1,588,185	65.1%	<b>2,810,800</b>
					less expenses previously recognized:	<b>2,954,800</b>
					2012 reduction in the liability for landfill closure:	<b>\$ (144,000)</b>