



**SOLID WASTE MANAGEMENT  
Annual Operations and Monitoring Report  
Sicamous Refuse Disposal Site MR-00514  
2014**



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## **1.0 EXECUTIVE SUMMARY**

This report has been prepared in accordance with Section 4.4 of Operational Certificate MR-00514. The main objective of the report is to provide the Ministry of Environment with an overview of the operations at the Sicamous landfill for 2014 and to address the specific requirements outlined in Section 4.4.

In 2014 approximately 2,775 tonnes of waste was directed to the active face and landfilled, which represents an 8% increase over 2013.

The CSRD hired a new environmental consultant, Western Water, in 2014 to conduct all monitoring and reporting for CSRD landfills in 2014, as per the requirements of the Operational Certificate

## **2.0 INTRODUCTION**

The Sicamous refuse disposal site (hereinafter referred to as “the site”) is located approximately 2.5 km south of Sicamous and 900 metres east of Mara Lake along Highway 97A. The legal description of the property is Block A of Section 30, Township 21, Range 7, West of the Sixth Meridian, Kamloops Division of the Yale District. The 10.2 acre site provides solid waste disposal and residual processing services to residents, businesses, and institutions located within the municipality of Sicamous and portions of Electoral Area 'E'. The site is operated under an Operating Certificate issued by the Ministry of Environment (MR-00514) and is governed in operating and closure standards by Provincial criteria.

The landfill is operated in accordance with an approved Design and Operations Plan (D&O Plan). An ongoing groundwater monitoring program is conducted at the site from downstream monitoring wells and from a surface water sample on nearby Sicamous Creek. Data collected from the monitoring program has been compared to historical record to determine whether the respective landfills have affected groundwater quality and, if so, to what extent.

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 in the 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.

## **3.0 BACKGROUND**

The site has been in operation since 1971 when the Ministry of Environment, Lands and Parks issued Permit PR 514 to the Sicamous Waterworks District. In 1977, the permit was transferred to the Columbia Shuswap Regional District (CSRD). The property is leased to the CSRD by the Crown and in 2012 was operated under contract by Darin Northway.

With the exception of Christmas, New Years and Remembrance Day, the site is open on the following schedule:

Year Round - Friday through Tuesday 10:00 am to 4:00 pm.

The site is fully enclosed with an electrified fence, contains a lockable gate, a truck scale with electronic weighing and reporting software, a scale house and marshalling areas for mattresses, wood waste, gypsum, asphalt shingles, refrigerators and air conditioners, white goods and other metal wastes, concrete and asphalt, propane bottles, and auto batteries. A swap shed for reusable items and a recycling bin for mixed paper, newspaper, tin cans, plastics and glass jars and bottles are also provided.

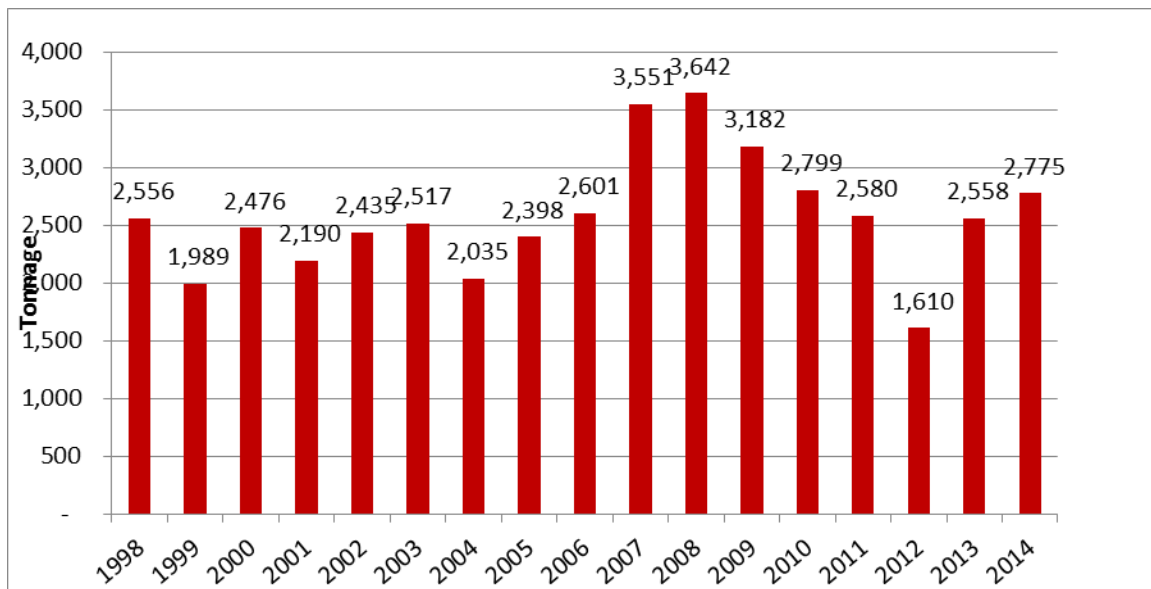
#### 4.0 OBJECTIVES

The objective of this report is to provide information required to meet the annual reporting requirements in Section 4.4 of Operational Certificate MR-00514 issued by the BC Ministry of Environment on December 21, 2007 (most recent).

#### 4.1 Total Tonnage of Waste Discharged (Fig.1)

In 2014 approximately 3,926 tonnes of refuse and recoverable wastes were managed at the Sicamous landfill. In 2014 approximately 2,775 tonnes of waste was directed to the active face and landfilled, which represents an 8% increase over 2013.

Fig.1



Approximately one third of all incoming materials, 1,151 tonnes, were diverted to marshalling areas for recovery. Existing diversion programs include; mattress, drywall, asphalt shingles, concrete, contaminated soil, wood waste, metal and reusable items.

#### **4.2 Design Volume/Life Expectancy**

The Sicamous D&O Plan was prepared by Gartner Lee Ltd in August, 2006. According to the plan, the site will be constructed and progressively closed in four phases which would consume an overall 353,000 m<sup>3</sup> of air space.

Phase 1 reached capacity by 2007, and approximately 50,000 cubic meters of excavated material from phase 2 was temporarily placed on the crest of phase 1. This soil material was excavated to provide airspace for the placement of waste in phase 2 and cover requirements for phase 2 and phase 3. Therefore according to the D&O Plan phase 1 closure would occur with the closure of phase 3 when the soil stockpile was exhausted.

It was determined by survey that 9,340 m<sup>3</sup> of air space was consumed at the site in 2014. This represents a 27% increase in air space use over 2013. There is approximately 20 years of air space remaining in phase 2/3 with closure anticipated in 2031.

#### **4.3 Projects and Plans for 2015**

The CSRD has put forward a budget initiative to install an additional groundwater monitoring well downstream of the Sicamous landfill in 2013. Unfortunately the installation of the well was unsuccessful due to the use of an undersized drill rig. As a result there are plans in place to try again in 2015, sometime in April, to establish a new monitoring well to replace the one destroyed by flooding in 2012.

The Sicamous Landfill had four site inspections done in 2014. The contractor was found to be in compliance with the contract and the design and operations plan during all inspections. No major projects were completed at the Sicamous landfill in 2014. Projects for 2015 include improvements to the marshalling areas.

Landfill contracts expired on June 30, 2014 and new contractors were hired. The Cover and Compaction contract was won by Gary Reading and the Scalehouse Operations contract was won by Debbie Reading.

#### **4.4 Wildlife Occurrences**

According to the scale attendant and the site contractor, there were no reported occurrences of wildlife at the site in 2012. In order to ensure that the electric fence is being maintained at adequate voltage the CSRD has a fencing testing/maintenance kit from our fencing contractor. The kit is used to test the fence voltage and make minor repairs during site inspections.

#### **4.5 Closure Fund**

A detailed overview of landfill closure and post-closure liability has been provided in Appendix A, prepared by the CSRD Finance Department for 2014 auditing purposes.

## 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 2014 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 2014 in Sicamous and Electoral Area "E" 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 option to attend a 30 minute training seminar given by CSRD staff.

#### **5.1.2 Reuse Website**

The CSRD, in partnership with the Recycling Council of BC, had been promoting a reuse website, called [www.csr.d.reuses.com](http://www.csr.d.reuses.com). The website allowed users to post items for sale, or post wanted items for free, up to a maximum value of \$99.00. However, the site was receiving minimal use, so in 2014, the site was discontinued.

### 5.2 Reduce

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

The CSRD continues to utilize local radio advertisements aired on the EZ Rock Network (FM Stations – 91.5) and newspaper advertisements in the local paper (Eagle Valley News, Shuswap Market) to make residents aware of special events, and to promote various waste reduction themes. Social media (Facebook, Twitter, and website) is also used to help promote waste reduction. The CSRD also published The Loop Newsletter in the Shuswap Market, which included information regarding the upcoming transition to the Multi Materials BC program for packaging and printed paper.

### 5.3 REUSE

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

The Sicamous 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 2014, 5,324 m<sup>3</sup> of wood waste and yard waste was chipped at the landfill site. 330 tonnes of wood waste and 447 tonnes of yard waste were received at the site in 2014.

### **5.3.3 Propane Tank Collection**

There were 307 propane tanks collected from the site in 2014, compared to 72 collected from the site in 2013.

### **5.3.4 Reuse Centre**

The CSRD installed a Reuse Centre at the Sicamous landfill in 2010. In 2014, over 255 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 choose 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, mattresses, and household recyclables, which include packaging and printed paper collected through Multi Materials BC.

### **5.4.2 Scrap Metal Recovery**

This site recycled approximately 109 tonnes of scrap metal in 2014, compared to 113 tonnes in 2013, which includes source separated metal wastes deposited at the site from commercial and residential sources. 86 tonnes were received at the site in 2014.

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

In Sicamous, 136 refrigeration units were serviced to have the ozone depleting substances removed before recycling, compared to 125 in 2013.

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

In 2014, 6 automotive batteries were collected from the Sicamous landfill for recycling, compared to 42 the previous year. Battery theft accounts for the reduction in batteries collected.

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

Marshalling areas for gypsum, asphalt shingles and concrete have been established at the Sicamous landfill. 105 tonnes of gypsum and 32

tonnes of shingles were recycled in 2014. Concrete stockpiles had not accumulated enough to crush. 93 tonnes of gypsum and 59 tonnes of shingles, as well as 60 tonnes of concrete were received at the site in 2014.

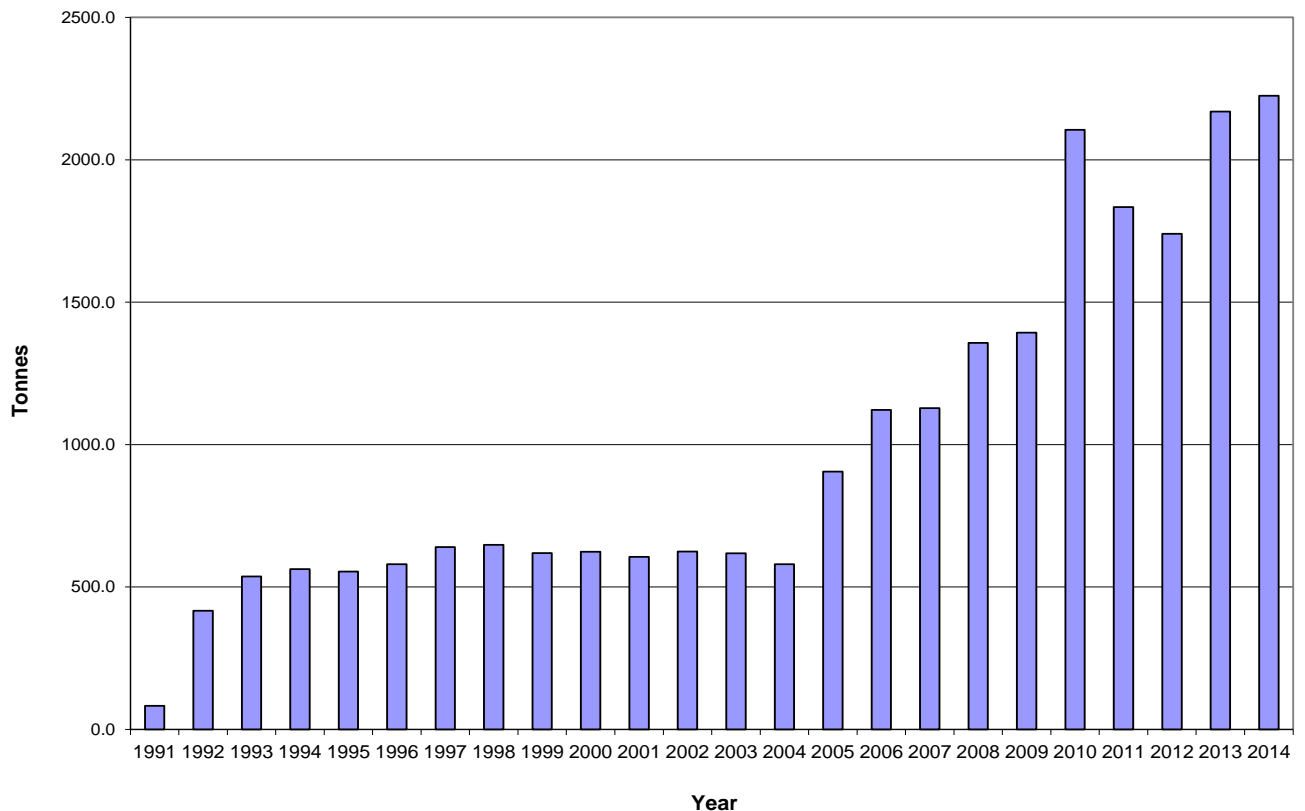
**5.4.6 Mattress Recycling**

In June of 2014, the CSRD started a mattress recycling program. Mattresses are deconstructed, with metal springs being added to scrap metal, and wood material added to wood waste. The remaining foam and textile portion of the mattress is landfilled. In 2014, 297 mattress were collected at the site for recycling.

**5.4.6.1 Depot Recycling**

Opportunities to deposit residential recyclables exist at all Regional District Refuse Disposal sites and depots found in downtown municipalities. In Sicamous, the downtown recycle depot is located in the parking lot of the previous hardware store. The District of Sicamous does not offer a curbside collection program. In the fall of 2009, the recycling collection changed to a comingled collection system. A total of 162 tonnes of mixed waste paper, tin food cans, newspaper glass jars and bottles, corrugated cardboard and plastics #1 to 7 were collected in 2014 from the Sicamous landfill and downtown depot. This is a 13% increase over the previous year depot collection program for Sicamous only.

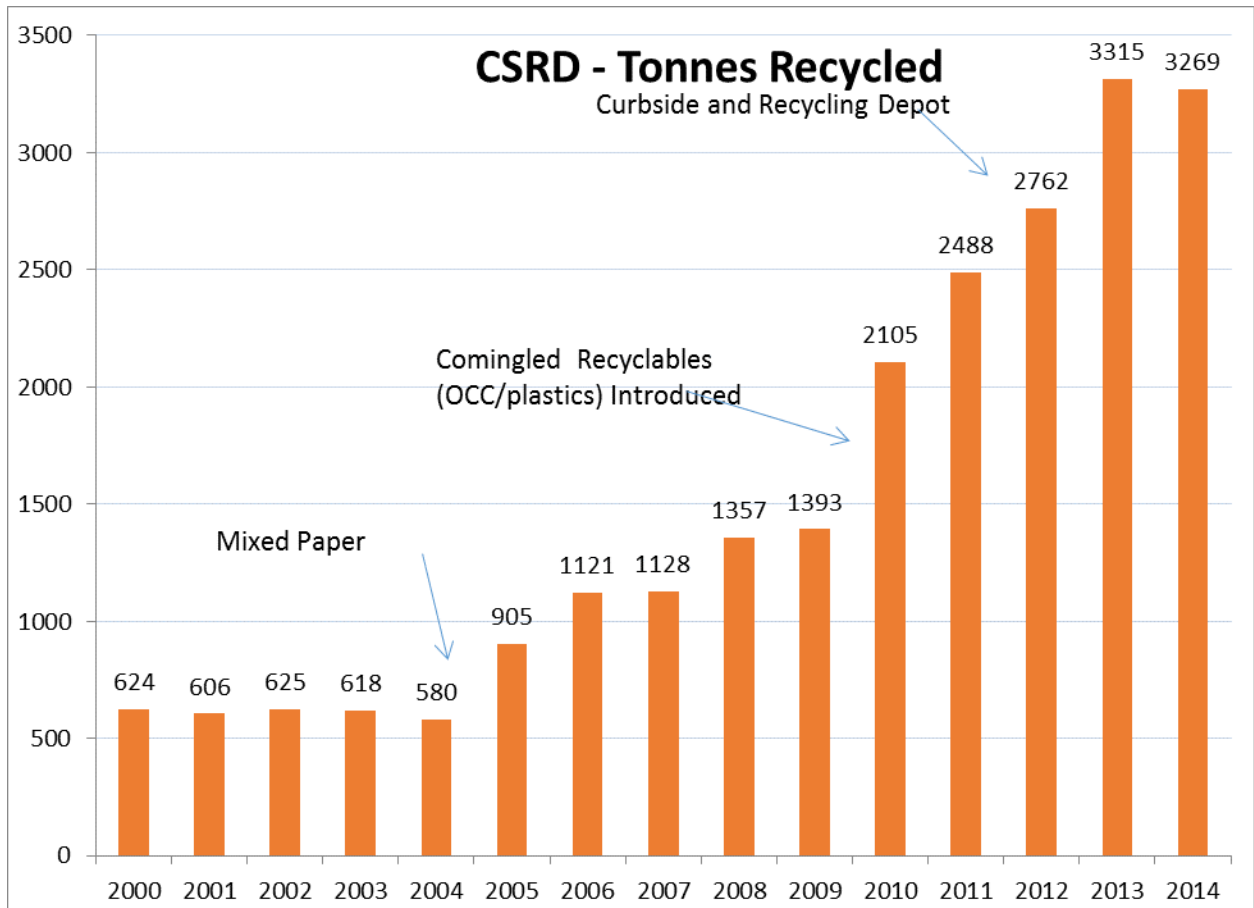
Figure 1-Recycling Collected in Depots Region Wide





On a region wide basis, the depot collection program increased 2.6% from 2013 to 2225 tonnes. The following graph represents recycling collection quantities collected region wide (from all depots) since 1991.

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



**5.4.6.3 Recycle Fair Events**

A spring and hazardous waste and Stewardship round up event was held in Sicamous in 2014. Hazardous waste, small appliances, electronics, power tools, lights and light fixtures, paint, pesticides, old gasoline, and batteries were accepted as Sicamous does not have permanent drop off facilities for most of these items.

**5.4.7 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.

**5.4.8 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 District of Sicamous.

**6.0 ENVIRONMENTAL MONITORING**

**6.1 Ground Water**

The CSRD hired a new environmental consultant, Western Water, in 2014 to conduct all monitoring and reporting for the Sicamous Landfill, as per the requirements of the Operational Certificate. Western Water has provided conclusions and recommendations based on the 2014 data collected, which will be posted on the CSRD website for public review in April.

**Appendix 'A' - Solid Waste Landfill Closure and Post-Closure Liability**

**COLUMBIA SHUSWAP REGIONAL DISTRICT**

**Notes to Consolidated Financial Statements**

December 31, 2014

**5. Solid Waste Landfill Closure and Post-Closure Liability**

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 Regional District 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. Post-closure care activities begin once the entire landfill site no longer accepts waste and continues on for a period of 25 years. As the date of the site closure is unknown, management estimates the liability to begin after the closure of the current active phase, assuming another phase will not be opened. In the event another phase is opened, the start date for the liability will be adjusted to begin upon closure of the newly opened phase.

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 1.00% (2013 - 0.00%) inflation and 3.00% (2013 - 3.85%) long-term borrowing rate (fall issue MFA 25 year rate). The amount remaining to be recognized in future years is \$983,900 (2013 - \$1,229,700). 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 \$899,720 (2013 - \$843,389) 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) on the open phases and the anticipated post-closure costs recognized on total site capacity used.

	Estimated Remaining Life (Years)	Estimated Total Expenditure for Closure	Cumulative Capacity Used (m <sup>3</sup> )	Total Estimated Capacity (m <sup>3</sup> )	Used (%)	Liability for Closure December 31, 2014
Salmon Arm (phase 2 of 5)	12	\$ 1,650,000	114,708	383,778	30	\$ 493,200
Golden (pre-phase)	14	268,600	613,416	613,416	100	268,600
Golden (phase 1 of 4)	14	307,000	56,591	157,000	36	110,700
Revelstoke (pre-phase)	1	292,000	70,000	70,000	100	292,000
Revelstoke (phase 1 of 4)	1	655,100	98,535	98,535	100	655,100
Revelstoke (phase 2 of 4)	13	541,900	13,067	156,212	8	45,300
Sicamous (phase 2 of 4)	11	220,000	73,706	166,000	44	97,700
Sicamous (phase 4 of 4)	29	257,600	110,000	125,000	88	226,700
<b>Closure liability subtotal</b>		<b>\$ 4,192,200</b>	<b>1,150,023</b>	<b>1,769,941</b>	<b>65</b>	<b>2,189,300</b>
<b>Post closure liability subtotal</b>						<b>1,019,000</b>
<b>2014 total liability</b>						<b>3,208,300</b>
Less: Expenses previously recognized						<b>(2,309,200)</b>
<b>2014 reduction in the liability for landfill closure</b>						<b>\$ 899,100</b>