# Beverage Container Program Review

**MGM Management (BC)**

**NorthWays Consulting (NWT)**

**CM Consulting (ON)**

## FINAL REPORT

**November 17, 2011**

# Executive Summary

The Beverage Container Program (BCP) was the first program to be implemented under the Waste Reduction and Recovery Act (WRRA) which was passed in October 2003. The Department of Environment and Natural Resources (ENR) administers the program bringing container recycling services to communities across the Northwest Territories (NWT).

The BCP undertook a review of the program which is presented in this report.

The BCP has been implemented in a rational and effective manner. Program policies are effective in most cases, to allow the program to operate. We note that there are some areas where policy changes could make the program more effective or financially sustainable.

**Highest density of depots**

The program is ambitious in attempting to provide services in all communities in the NWT due to a low population density and the relative remoteness of many communities. The number of return locations per 1000 persons in the NWT is the highest in Canada. The NWT Beverage Container Program offers more depots per capita than any other deposit-return program in the country, at 0.62 depots per 1,000 persons.

We note that 5 or 6 depots (Yellowknife, Hay River, Inuvik, Fort Smith, Behchoko, Fort Resolution, and Fort Simpson) regularly recover 90% of all containers in the NWT. When Norman Wells, Fort Providence, Fort Liard and Tuktoyaktuk are added to this list these 10 depots account for 95% of container returns.

**Depot handling fee low**

The depot handling fee which was set when the program began has not changed since 2005. The depot handling fee in the NWT program is the lowest in Canada compared to similar programs. The median Canadian handling fee is 3.75¢ per unit, which is 33% higher than in the NWT, where the weighted average depot handling fee for the BCP is 2.5¢ per unit returned. The Annual Operator Support Program is designed to supplement the handling fee paid to depot operators. This program provided $100,223 of support to depots (average past 3 yrs), on 26,078,000 containers per year recovered,

or 0.384 ¢ per unit in the past 3 years; which effectively increases depot payments to 2.884¢ per unit returned. Increasing the depot handling fee by 0.866¢ per unit, to bring it to the Canadian median would increase program expenses by approximately $217,000 annually.

**Recommendation 1:**

The BCP should rationalize its delivery of the program recognizing that 10 depots account for 95% of container returns. The BCP should consider setting performance criteria for levels of delivery, in the remaining 18 depot communities, namely:

i. Redemption volumes > X containers per year, allows a depot license
ii. Between return volumes < X >Y ; satellite program only
iii. Less than a given redemption level (<Y); no BCP services

**Recommendation 2:**

Review depot handling fees, considering amendments to the existing handling fees schedule.

**BCP Does not Pay Depots Directly**

Allowing a commercial enterprise to pay depots directly, without independent reconciliation or at least a random audit (Quality Control) program in place is problematic. This is especially true when the processors fee is per container, and high counts will benefit that business. Depots are not likely to question higher than declared counts if this occurs since they too will benefit.

**Recommendation 3:**

We recommend that payments to depots originate from the BCP administrators and not from PCs.

**Depot documentation**

We suggest creating an operation manual for depots, to augment the videos that are currently used. We understand that ENR has used written documents in the past and determined that more success was achieved with visual materials. In our experience, providing depots with a video of how to run a depot is an excellent training tool

Depot Operations Manuals have proven to be useful in other deposit return programs in Canada to formalize program policies and procedures and to standardize how depots operate. They often help identify and minimize risks, on a proactive basis. The BCP is developing an updated manual, which will be used in conjunction with the training videos.

**BCP staffing**

BCP staffing is limited, and we note that visits to community depots appear to happen on an ad hoc basis when some issue requires attention. When a depot operator changes, or there is an issue to be resolved, there is a visit from program staff or from processing centre staff to provide guidance and training. Routine visits do not happen on a regular and consistent basis. Routine visits might enhance efficiency and effectiveness by ensuring standardization in the program, identifying risks and ensuring accountability. The level of staffing that ENR has available for the program is a limiting factor in how many visits to the depots are possible.

**Pre-processing not beneficial**

We examined if there are advantages to having depots do some pre-processing of materials in their communities. Due to the limited staffing, limited community infrastructure and human resources available to many depots we conclude that this approach would not be materially beneficial to the program.

**Recommendation 4:**

No change to depots pre-processing is recommended

**Reconciliation and audit procedures: Quality Control (QC)**

Opportunities for improvement also exist to initiate new BCP procedures to reconcile (count) containers. Processing centres reconcile on an on-going basis, using weight conversion factors whereas the norm in the deposit-return industry in Canada is using count reconciliation methods. We note that hand-counting is used in the NWT to reconcile those containers that are not weighed. Counting the incoming containers by hand has proven to be inaccurate in the deposit-return industry for verification purposes. In other jurisdictions, deposit-return programs rely on spot-audits of declared containers versus containers received at processing centres. These spot audits utilize various mechanically or electrically aided counting procedures. NWT should implement similar reconciliation methods.

Internal BCP documentation acknowledges that Processing Centres “could financially benefit from high container counts”. Reflecting this possibility in program documents, whether it be through errors or through intentional means, is not consistent with standard practices within established deposit-return systems.

To-date the BCP has not developed an independent reconciliation or verification procedure of counts within the program. The BCP has conducted spot audits on specific container types as required.

Internal BCP documentation acknowledges that Processing Centres “could” financially benefit from high container counts”. Artificially high counts, whether through errors, or intentional miss-counting, are not consistent with standard practices within established deposit-return systems.

**Depot Record Keeping Varies**

Depot record keeping varies from depot to depot. Some depots appear to handle the paperwork well, while others struggle with monthly reports. We observed that small depots may not have the capacity, or find it advantageous to operate a BCP cash register.

BCP policy indicates that where there is a discrepancy between a depot count and the refunds paid, that the refunds paid is used. This approach is not consistent with checking that refunds are correct and correspond to paying for only eligible containers received for recycling. The BCP should consider instituting a quality control procedure as an on-going function within the program.

**Lack of independent reconciliation or Quality Control (QC) measures**

The PC's do not routinely undergo independent reconciliations (Quality Control (QC)), either for their own depots or for their satellite depots. QC or count checking is considered standard best practice within Canadian deposit-return systems.

**Recommendation 5:**

Initiate the design and implementation of a Quality Control program, to reconcile and check counts from depots. This should be done with either ENR resources or the QC function contracted out to independent contractors. PCs that own large depots should not reconcile their own counts prior to processing. As part of this recommendation BCP staff should investigate QC programs in BC, AB, NS, and NB as examples of existing QC methodologies to assist in a workable and cost effective QC program in the NWT.

**Apparent conflict of interest**

There is an apparent conflict of interest in processing centres reconciling container counts from their own depot operations. Processing centres (PCs) could financially benefit from high container counts, since they get paid a processing fee on a per container basis. The three processing centres are also the largest depots in the NWT. Reconciling container counts from their own depot businesses is not appropriate. Opportunities for improvement exist in removing this apparent conflict.

**Ownership of PC Equipment**

The BCP owns the processing equipment within the NWT program.

We note that entities responsible for deposit-return beverage container programs in Canada (government or the beverage industry administrators) do not usually own processing equipment operated by third parties.

**PC Costs High**

NWT processing centres (PCs) are well paid for their services. Regulated processor handling fees paid to PCs are 2.181 ¢ per container on a weighted average basis, compared to an average of 0.77 ¢ per container across Canada. These fees are very

generous, considering NWT's PC overhead should be relatively lower than commercial processors in southern Canada since they do not pay for (acquisition or rent) their processing equipment. Examining operational and maintenance costs to determine if these operations are similar to southern locations is difficult, requiring additional investigation beyond the scope of this review. It may be beneficial to the BCP to initiate audits of the Processing Centres to determine the level of profitability under current contract conditions.

**Ownership of Scrap**

A somewhat unique feature of the BCP is that the Processing Centres own the scrap and sell that material retaining those revenues. In most of the deposit-return programs operating in Canada, the administrators of the deposit-return program own the scrap and use those revenues to offset operating costs.

We have estimated that the scrap revenue accrued to the processing centres have provided those companies with additional revenue in the range of 1.8 ¢ to 2.3 ¢ per container, over and above the processor handling fee they were paid. Processing centres have realized between 3.0 – 4.0 ¢ per container with combined processor fees plus scrap revenues, since the program began. This level of remuneration is considerably higher than what other deposit-return systems normally pay for processing services.

**Lack of Separation of Commercial Roles**

The Beverage Container Regulation allows depots and processing centres to be owned by the same company or person. This is not normal practice within the deposit-return programs across Canada, where the functions of depot operators, transport hauling and processors are separate. This division in roles has become standard operating practice because it prevents any actual or perceived conflicts of interest from occurring.

**Recommendation 6:**

Separate the roles of commercial entities within the program.

**Recommendation 7:**

PCs which own large depots should not reconcile their own counts. An independent Quality Control procedure should deal with any PC-owned depot container reconciliations at PCs.

**Recommendation 8:**

Review the cost of processing containers in the NWT (processor fees). These costs should be brought in line with those costs experienced in the rest of Canada.

**Recommendation 9:**

The BCP should divest itself from owning processing equipment. In future RFP / tenders respondents should be required to bid on the depreciated value of BCP equipment assets, and build those costs into their fee-for-service bid.

**Transportation costs are appropriate**

Freight costs for the BCP appear to be reasonable. The BCP will be able to reduce costs by continuing to negotiate back-haul freight whenever possible. Additional cost savings may be experienced by either removing non-refundable glass, now disposed of and not recycled, from the program or more appropriately recycling this material with costs accruing to users of these containers through CRF mechanisms. These materials add to freight charges and do not result in revenues for the program.

We note that the BCP is paying freight costs for transporting refillable bottles to Edmonton. Brewers pay these hauling costs in Atlantic Canada and in western provinces.

Transportation costs in the Hay River region, which return 30% of the NWT containers, account for 48% of transportation spending. This is because this PC handles 18 depots in remote communities. The benefits of spending half of the transportation budget in the Hay River PC service area ought to be reviewed considering the number of containers recovered from this region and the population base. It is recognized that these costs are directly attributable to winter road and barge transportation activities required in this region.

**Recommendation 10:**

We recommend that the BCP own the container scrap, and use the revenues from their sale to partially off-set operating costs. PCs would be required to report on all shipments of BCP-owned scrap to southern markets. Scrap revenues should be paid directly to the BCP.

**Recommendation 11:**

The BCP should renegotiate its memorandum of understanding with brewers, to shift the transportation costs of shipping refillable bottles to BDL in Edmonton to brewers.

**Recommendation 12:**

Renegotiate a more appropriate refillable beer bottle depot handling fee, which is now 18 ¢/ dozen to bring the NWT rates in line with refillable bottle depot handling fees paid across Canada.

**Recommendation 13:**

Investigate whether there are opportunities to sell NWT aluminum can bales as part of a national co-operative marketing program

## Grants & Loans

The BCP grants and loans programs have been helpful in promoting the program. It appears from our review that depot advance loans have been properly accounted for and repaid as per their agreements.

The Annual Operator Support Program has benefited the program since inception. We note that in 2010/2011 only 57% of the funds were applied for by depots, and that 10 of 28 depots received no funding, suggesting that no returns were reported from those depots for many months. Thirteen depots received 100% of their eligible funding and 7 received partial funding for the months they reported.

We found that the Depot Development Grants have benefited the program by allowing some depot assets to be purchased on a shared cost basis.

**Recommendation 14:**

The grants and loans programs should remain in place.

**Financial Stability**

The BCP should consider re-evaluating who owns the scrap revenues from redeemed containers. Scrap revenues could be used as operating revenues for the program. The BCP might also consider redesigning its distributor fee setting procedures by using a Container Recycling Fee (CRF) model. If these two policy changes were implemented, the financial sustainability of the program would be enhanced.

On-going surplus funds could be used to pay for QC or independent audit programs (container counts and distributor remittance audits) as on-going procedures within the BCP.

**Recommendation 15:**

Fully evaluate the possible benefits of using a Container Recovery Fee (CRF) fee setting approach.

**Recommendation 16:**

Embark on a detailed examination of restructuring its fee setting procedures. This review should include legislative considerations to amend existing legislation (or the Regulations) to be more flexible in setting fees.

**Recommendation 17:**

A program to conduct periodic distributor remittance audits should be designed and implemented.

**Accepting Containers**

On some occasions depots accept their customers word, on occasion, on how many containers are in a given bag or box of containers being presented for refund. This is understandable recognizing that many depots operate in very small communities where not taking a person's word on the number of containers being presented may be seen

as impolite or as a personal affront. However, depot operators have a responsibility to the BCP to account for every container for which they issue a refund.

**Recycle or Exempt Containers**

There are scrap markets available for all recyclables recovered in the BCP, including glass. Glass is not recycled as a policy decision. The issue is not whether the materials can be recycled, but rather the cost to move these materials to markets which in some cases (like non-refillable glass) is considered to be too costly.

Irrespective of costs there may be environmental and energy conservation benefits that warrant consideration of shipping glass to Alberta markets. It appears contradictory to include non-refillable glass containers in the BCP, and then ship that glass to regional processing centres only to have the material discarded in a landfill, or used as land reclamation material in the processing centre's community. Deposit-return container materials ought to be recycled or discontinued as a designated container under the BCP.

**Recommendation 18:**

Glass should be recycled rather than broken and disposed of. The environmental benefits of recycling glass should be considered, and the costs evaluated to determine if recycling this material meets BCP goals. If a CRF funding approach is adopted, these costs could accrue back to distributors selling beverage products in glass bottles.

**Payment Terms from BCP**

Depots and processing centres indicated their general satisfaction with their terms of payment and with the timeliness of payments. We note that the BCP does not have a formal dispute resolution policy in place. A formal dispute resolution policy should be considered.

**Container Sorts**

The number of container sorts in the BCP is not excessive, when viewed against common practice in other deposit-return programs in Canada. There may be opportunities to consolidate more container types to reduce the number of container

categories used in the program. There is a distinction between container sorts (like materials shipped) and refund categories. The BCP has 14 container sorts and 20 refund categories. Reducing the number of refund categories is a function of changing refund levels, which is difficult to do. BCP staff has indicated that they are in the process of rationalizing the container categories in to simplify the current system.

**PC Locations Appropriate**

The locations of processing centres are appropriate. Yellowknife, Hay River and Inuvik are the logical locations for these centres, with Fort Simpson acting as a semi-processor for refillable beer containers. Each of the existing PC's exhibited adequate business capabilities to meet their obligations under their Processing Centre licenses.

**Cost per container is high**

The BCP is the highest cost per container deposit-return program operating in Canada, with the exception of the Ontario wine / liquor bottle program. The Ontario program is expensive due to a higher "service" fee which was negotiated upon the start of the program in 2006. This fee is higher because it only covers the most expensive containers in the system – wine/spirits and imported beer containers, 98% of which are made from glass. In addition, the Ontario fee provides free collection from licensees, and return-to-retail province-wide.

Our estimated per container cost for the BCP is 8.4-cents per container (based on a 5-year weighted average), and 9.5-cents per unit for fiscal year 2010-2011. This high cost is due to the small volume of containers distributed and returned, the low population density, and the high container processing costs. Consider for example that British Columbia's net cost per container is 6.2-cents, but that system handles well over 1.5 billion containers per year, which provides significant economies of scale for offsetting program costs.

**Tendering Practices**

The tendering policies of the program which follow the rules set out by normal GNWT procurement procedures are appropriate. The BCP has had and may continue to have challenges finding depot operators to run the program in some communities, therefore some sole sourcing, within the rules of such procurement, may be required from time to time.

**Extended Producer Responsibility (EPR) may be achievable**

The Beverage Container Program in the Northwest Territories is not an EPR program within the definition of EPR. We note that models are in operation for beverage container recycling in six Canadian provinces, that more closely meet the objectives of EPR, with the beverage industry being responsible for the container recycling program in those provinces.

The BCP could consider transitioning closer towards an EPR program for beverage container recycling which could move the GNWT closer to participating in what is envisioned by the Canadian Council of Ministers of the Environment (CCME) in the Canada-wide Action Plan for Extended Producer Responsibility.

**Managing Revenue Streams**

Unredeemed deposit revenues are negatively affected by inflated redemption counts, which may have occurred in fiscal year 2009 – 2010, when the reported recovery rate was 93%.

Unredeemed container revenue can be augmented by increasing the monetary value of the refund, hence increasing surplus funds generated by each unredeemed deposit.

Our review shows that at the current 5-year average; recovery rate (85%); expense levels ($2.1million); and sales (30,000,000), surcharge net revenue are sufficient to financially sustain the program. Under the current financing model, increases in recovery and/or a decline in sales could undermine the economic sustainability of the program.

**Amending Non-Refundable Handling Fee Rates**

There are various ways to adjust non-refundable handling fee policies so that the financial sustainability of the program is maintained. BCP fee schedules are currently set by the Beverage Container Regulation and any changes require an amendment to the Regulation. Amending the regulation to allow for more flexibility, to allow administrators to make changes to the surcharge schedule would benefit the program.

Variable Container Recycling Fees (CRFs), which can be adjusted as required ensures program financial sustainability.

Using multiple-variable CRFs (a separate fee by container type and size) is more complicated but the fairest method of setting distributor surcharges. Single-variable CRFs also assure financial stability and are easier to administer, while being less fair to

high performing and valuable scrap containers. A flat tax appoach can also be used, but must be set high enough to generate sufficient revenue. Half-back financing schemes are resisted by the beverage industry as an unfair tax.

**CRF Fees to Sustain the Program**

It is recommended that NWT consider setting annual or bi-annual single-variable fees. These include 6-cents/unit on all containers or 7-cents/unit on all containers, or two-tiered fees of 5-cents on all non-glass & 10-cents on glass containers as examples. This would provide the BCP with the ability to use forecasted sales and expenses to set the non-refundable handling fee accordingly. It also allows BCP to make-up for any surplus or deficit resulting from the previous year's operation.

Using a multi-variable CRF from 6-cents to 15-cents for example, would meet or slightly exceed the revenue requirements for the BCP but may require new accounting systems to be set-up to measure the actual revenue and expenses specific to each container type and size.

**Regulation limits flexibility**

The procedural requirements of the BCP are set out in the Beverage Container Regulations. Changes to policies such as separating the roles of depots and processors, setting of the depots' handling fees; deposit levels and distributor surcharge rates, can only be changed upon an amendment to the Regulations. Regulatory frameworks limit flexibility to make operational or policy changes.

In some other Canadian jurisdictions governments have found ways of maintaining regulatory oversight, while delegating operational flexibility to a designated agent or a crown agency to operate the deposit-return program effectively, while expanding the flexibility of rule setting. This should be reviewed further.

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## 1.0 Introduction

The Beverage Container Program (BCP) was the first program to be implemented under the *Waste Reduction and Recovery Act* (WRRA) which was passed in October 2003.

The WRRA provides a broad framework for recovery, reuse and recycling efforts of various materials throughout the Northwest Territories (NWT). The BCP program began operation in November 2005. The design of the BCP properly estimated the volumes of beverage containers, at more than 28 million beverage containers sold each year in the NWT. A goal of the BCP was to recover between 75 and 90 percent of these containers for reuse or recycling.

The program was designed to be a territory-wide initiative, providing all NWT residents with the opportunity to recycle designated beverage containers and to reduce waste, litter and greenhouse gas emissions. The program also endeavoured to encourage a conservation ethic among NWT residents. A primary goal of the program from its inception was that it be financially self-sustaining. The BCP was designed as a beverage container deposit-return program to include beer, wine and spirit containers that were previously being recovered in a deposit-return program operated by the NWT Liquor Commission. A secondary benefit of the BCP was the creation of socio-economic benefits for communities taking part in the program. Additional employment and the availability of refund cash to spend within the community are ancillary benefits of the deposit-return program.

## 2.0 Background

Upon returning an eligible container to a licensed depot, consumers receive a cash refund for the deposit they paid at the time of purchase.

Depots are paid a Depot Handling Fee for each eligible container they accept. Depots are eligible for supplementary grants, provided that they operate their depots and report on a monthly basis. There are 28 operating depots in the NWT, and 3 satellite or temporary depots operated in remote communities. Permanent depots and satellite depots serve all communities with the exception of Kakisa, Jean Marie River, and Dettah. The proximity of these communities to larger ones with permanent depots means they can be serviced by nearby centres.

Once beverage containers are received from consumers, the depots consolidate container loads in specified shipping containers (large plastic mega-bags or in cardboard boxes) for transport to three processing centers (Yellowknife, Hay River & Inuvik). Processing centres receive shipments from depots, count containers, break the non-refillable glass containers, trans-ship refillable beer bottles and prepare other recyclables for shipment to markets outside of the NWT.

Table 1 provides in detail the deposits and non-refundable handling fees paid, depot handling fees, and administration fees.

## Table 1 - Deposits, Non-Refundable Surcharges and Fee Schedule

### Refundable Deposits and Non-refundable Handling Fees

| Contents | Volume | Material | Refundable Deposit | Non-refundable Handling Fee* | Surcharge |
|---|---|---|---|---|---|
| Beverages other than milk and liquid milk products, wine or spirits | Less than 1 litre | Materials otherthan glass | $0.10 | $0.05 | $0.15 |
| Beverages other than milk and liquid milk products, wine or spirits | Less than 1 litre | Glass | $0.10 | $0.10 | $0.20 |
| Beverages other than milk and liquid milk products, wine or spirits | More than or equal to 1 litre | Glass or other material | $0.10 | $0.10 | $0.20 |
| Milk and liquid milk products | Less than or equal to 1 litre | Glass or other material | $0.10 | $0.05 | $0.15 |
| Milk and liquid milk products | More than 1 litre | Glass or other material | $0.25 | $0.10 | $0.35 |
| Wine or spirits | Any size | Glass or other material | $0.25 | $0.10 | $0.35 |

* GST is applicable on the handling fees of products that are taxable.

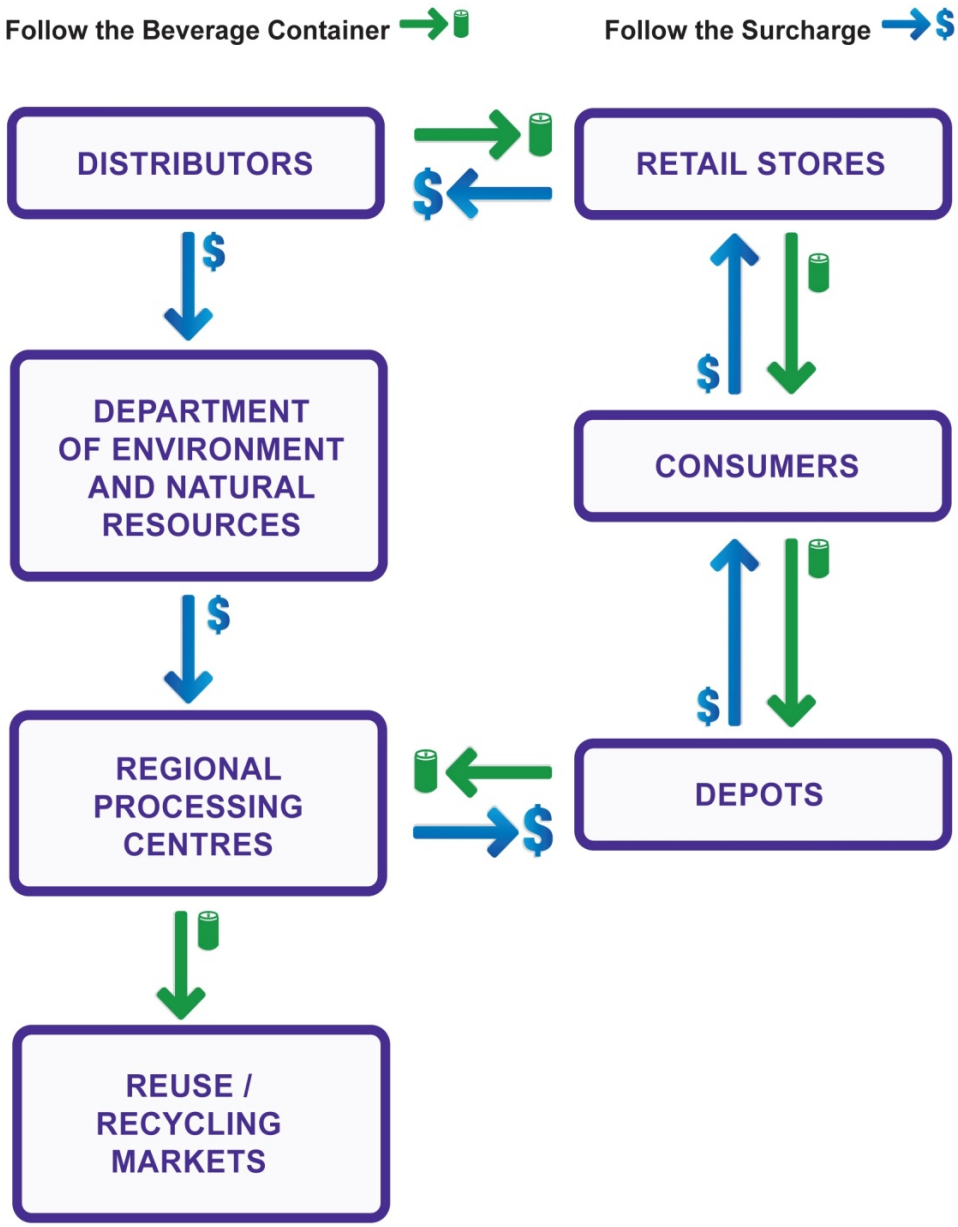
## Non-refundable Handling Fees

| Contents | Volume (Litres) | Material | Non-Refundable Handling Fee Components* | | | Total Non-refu nda b le Handling Fee* |
|---|---|---|---|---|---|---|
| | | | Depot Handling Fee | Processing Centre Handling Fee | Adminis - tration Fee | |
| Beverages other than milk and liquid milk products, wine or spirits | Less than 1 litre | Material other than glass | $0.022 | $0.02 | $0.008 | $0.05 |
| Beverages other than milk and liquid milk products, wine or spirits | Less than 1 litre | Glass | $0.035 | $0.025 | $0.04 | $0.10 |
| Beverages other than milk and liquid milk products, wine or spirits | More than or equal to 1 litre | Material other than glass | $0.045 | $0.037 | $0.018 | $0.10 |
| Beverages other than milk and liquid milk products, wine or spirits | More than or equal to 1 litre | Glass | $0.035 | $0.025 | $0.04 | $0.10 |
| Milk and liquid milk products | Less than or equal to 1 litre | Glass or other material | $0.020 | $0.02 | $0.01 | $0.05 |
| Milk and liquid milk products | More than 1 litre | Glass or other material | $0.035 | $0.045 | $0.02 | $0.10 |
| Wine or spirits | Any size | Glass or other material | $0.035 | $0.025 | $0.04 | $0.10 |

* GST is applicable on the handling fees of products that are taxable.

Figure 1, below shows the flow of materials and funds through the BCP system.

## Figure 1 – Flow Chart of Containers and Funds



## 3.0 Approach & Project Methodology

The project team identified and evaluated the key components of the program described above.

The project team compared the BCP program components to similar program attributes operating in deposit-return programs in Canadian provinces, and the Yukon Territory, including:

- Operation of the depot network, including satellite depots / programs
- Comparison of NWT handling fees compared to other Provinces
- Consider container recycling market opportunities
- Management of scrap, and how salvage materials are marketed
- Review revenues and expenditures
- Examine BCP revenue inputs & expenditure outputs
- Examine the BCP cost per container of recycling
- Compare BCP container recycling costs to other Canadian jurisdictions
- Examine the Depot – Annual Support Program (monthly operating grants)
- Examine the Depot – Advance Program (for start-up of depots)
- Examine the Depot Development Program (for capital expenditures)
- Review current surcharges including how handling fees are set
- Review mechanisms in place to make adjustments to Handling Fees in the NWT
- Consider Processing Centre arrangements including:
- Tendering policies
- Location of processors
- Consideration of densification upstream of processors, at depot level
- Processing operations, including current equipment and optimizing processing to meet market standards for sale of recyclables
- Processors role in container count verification
- Quality control checks (both on material quality & count verification, and potential for automating QC verification checks)
- Examine container streams being handled and compare to other provinces
- With comments upon combining sorts or refund categories
- Review BCP operational policies
- Depot standards and licensing
- Quality control (verification of counts/ fraud prevention)
- Where payments are made within the current system
- Examine program cash flow policies and
- Consideration of grants, loans and subsidies to operate recycling programs
- Transportation review including:
- Truck transport
- Self-delivery of beverage containers by certain depots to processors
- Barge and/or ship transport
- Opportunities for optimizing back-haul charges for freight

The work plan commenced with an initial meeting with Department of Environment & Natural Resources (ENR) staff which occurred on Monday January 24, 2011, in Yellowknife. At this meeting an overview of the BCP was provided by ENR staff.

## *3.1 Field Visits to Depots and Processing Centres*

Commencing on January 24, 2011 and resuming on March 8, 2011 a project team member (MGM Management) visited depots and processing centres. Site visits were made to:

- Yellowknife – The Bottle Shop depot & the Yellowknife processing centre
- Hay River – Tri R Recycling depot & processing centre
- Behchoko - depot
- Fort Smith - RTL Recycling – depot
- Norman Wells – depot
- Tulita - depot
- Inuvik – depot and processing centre
- Tuktoyaktuk - depot

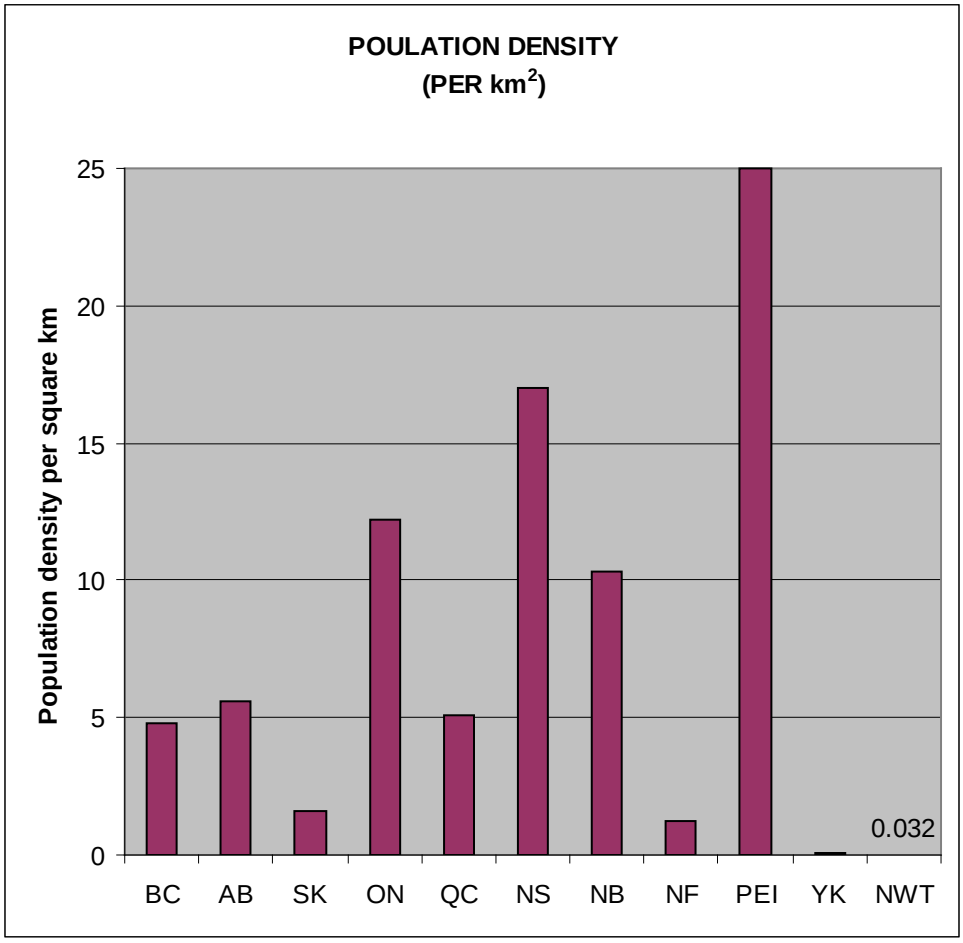
These visits represent 8 of the 28 depots operating in the NWT. These depots handle 86% of the total volume of containers recovered in the Territories.

# 4.0 Depot Collection Network

## *4.1 Location and Distribution of Depots*

The Northwest Territories (NWT) has a unique challenge associated with recovering empty beverage containers, based on its low population density. The NWT has the smallest population density (number of people per $km^2$) compared with any other province or territory in Canada operating a deposit return program. Measuring 0.032 persons per $km^2$, this is considerably lower than the population density of the Yukon (0.1 per sq. km.) or Newfoundland and Labrador at 1.3 persons per square kilometre.

### Figure 2 - Population Density



NWT containers are taken to one of 28 licensed depots for redemption. These depots collect, sort and bag or box the redeemed containers, then ship them to a processor who processes the containers for sale to salvage markets.

As of March 31, 2010, the 28 communities which have depots service 98% of the NWT population.

## *4.2 Comparing the BCP to Other Deposit Programs*

### British Columbia

In British Columbia, beverage containers are redeemed at depots, retail outlets and Liquor Distribution Branch (LDB) stores. Brewers Distributors Ltd. (BDL) provides for retail returns of beer containers at 1270 locations including 676 private liquor stores, 197 government run liquor stores, 227 rural agency stores, and 170 independent depots. 78 percent of British Columbia's population lives within two kilometres of a BDL return depot.

For containers other than beer, Encorp Pacific – Return-it centres include 170 independent depots and thousands of retail outlets. Independent transporters collect the containers and ship them to several processing sites across the province. Encorp Pacific recycles approximately 1.1 billion beverage containers per year through their deposit-return program. Encorp Pacific owns the scrap from the beverage containers and the salvage revenues, which are used to partially off-set operating costs.

Processors receive bags of containers from depots and prepare them for the appropriate recycling market by sorting, crushing and/or baling the aluminum, glass, plastic and other materials.

In the case of all domestic beer, cider and coolers, the Brewers Distributors Limited collects these containers from LDB stores, licensees, cold beer and wine stores, agency stores and about 28 depots. In general, bottle depots accept empty domestic beer containers as well as non-beer containers, but discount part of the refund as handling fee revenue for accepting them. Empty containers are then hauled to the various distribution centres where recyclables are baled and sent to market. Refillable bottles are sorted and sent back to the brewers for washing and refilling.

Milk containers are accepted without a refund at 144 bottle depots as part of a voluntary program financed by the dairy industry and administered through Encorp Pacific. Notwithstanding the ability to return milk containers through Return-it depots the majority of milk jugs are collected through municipal recycling programs.

## Alberta

In Alberta, consumers return empty containers to privately owned and operated registered “universal” bottle depots. There are 216 depots province-wide which collect containers and refund deposits to consumers. There are also 66 “Class D Beer Depots” that accept only beer containers and provide consumers a refund.

There are two parallel collection agent organizations operating in Alberta. These agents operated under agreements with a government appointed oversight agency, the Beverage Container Management Board. This Board is appointed by the Minister of the Environment, having representatives from the beverage industry, the Alberta Liquor Board, the Alberta Depot Owners Association and the brewing industry.

Alberta Beverage Container Recycling Corporation (ABCRC) recycles approximately 1.5 billion beverage containers per year through their deposit-return program. Both ABCRC and Alberta Beer Container Corporation (ABCC) own the scrap containers and the salvage revenues accrued from their sale, which is used to partially off-set operating costs.

Alberta’s program includes milk as part of their regulated program, with these containers being regulated into the program in June 2009. Only Alberta and the NWT regulate milk containers as part of their deposit-return programs. Milk containers are managed under voluntary programs, or through curbside recycling programs in other provinces.

Bottle depots collect and sort the containers for the ABCRC, who is the collection agent for all non-beer beverage distributors. Additionally, the ABCC represents brewers and collects refillable beer bottles and other domestic beer containers except imported non-refillable beer bottles. In the past few years, the ABCC has contracted ABCRC to handle their beer cans for them, allowing economies of scale in the management of all beverage cans in that province.

ABCRC and ABCC pick up and transport containers to two processing facilities in the province where the materials are prepared for recycling end-markets. Refillable beer bottles are washed then sent to brewers for refilling.

## Saskatchewan

In Saskatchewan, containers are returned to 71 province-wide depots in the 62 communities. These depots are operated by SARCAN, an agency that is part of the Saskatchewan Association of Rehabilitation Centres, which supports the creation of

meaningful employment for persons with physical and mental challenges. Remote communities rely on bringing empty containers to the nearest SARCAN depot.

SARCAN depots sort containers, which are picked up by SARCAN trucks, then transported to SARCAN operated processing facilities for preparation to sell as salvage to end-markets. SARCAN depots also accept rinsed milk containers on a voluntary basis but offer no refund for them.

The Saskatchewan program has been in operation since 1972, and is well received by the citizens of that province. The Saskatchewan deposit-return program handles about 350 million containers per year.

SARCAN operates an audit / quality control program at their Saskatoon processing facility to count samples of incoming loads from their depots.

Refillable beer containers are returned to Saskatchewan Liquor and Gaming Commission (SLGC) stores, hotels, and four depots. All SARCAN depots and all SLGC stores use a “discounting” method to off-set their costs by keeping a 6-cent portion of the 10-cent refund as a handling fee. Brewers Distributors Ltd. collects these empty beer containers, hauls them, at their cost, to various distribution centres where recyclables are baled and sent to market. Refillable bottles are sorted and sent back to the brewers for washing and refilling.

## Manitoba

Beverage containers from the residential sector are collected via municipal curbside recycling or municipally operated depot drop-off recycling centres. In 2010, Multi-Material Stewardship Manitoba (MMSM) began the operation of a packaging and printed paper “extended producer responsibility“(EPR) program.

This program requires all users of packaging and printed paper in the province to pay a levy into a fund, from which 80% of the net operating costs to operate municipal curbside recycling are paid. Beverage containers are part of this program. The non-alcoholic beverage container users have created the Canadian Beverage Container Recycling Corporation (CBCRA) which is developing programs to recover 75% of containers used outside of homes in public spaces.

Prior to the creation of the MMSM program beverage container distributors were regulated under the *Waste Reduction & Prevention Act* (WRAP) (1990). This legislation required non-alcoholic beverage manufacturers to pay a 2-cent per container tax for each ready-to-drink containerized beverage sold in the province. These funds were

collected and are in turn provided to municipalities to pay for a portion of curbside recycling costs. The introduction of the MMSM program has brought all manufacturers that use packaging and printed materials into a funding program which supports curbside recycling in Manitoba. The WRAP Act tax of 2-cents on non-alcoholic beverage manufacturers was repealed in 2010.

Refillable and non-refillable beer containers are collected through beer vendors, Manitoba Liquor Commission and rural agency stores. Brewers Distributors Ltd. collects these empty beer containers, back-hauls them at their cost to various distribution centres where recyclables are baled and sent to market. Refillable bottles are sorted and sent back to the brewers, at BDL's cost for washing and refilling.

## Ontario

Beverage containers from the residential sector are collected in the municipal curbside recycling program or depot drop-off centres. Fifty percent of the net operating costs of municipal curbside recycling are paid for through a packaging and printed paper support program funded by industry and administered by Stewardship Ontario.

Stewardship Ontario collects funds from all users of packaging and printed paper products, and remits 50% of the net curbside recycling costs to municipalities.

In October 2008, the then Minister of the Environment, John Gerretsen requested that Waste Diversion Ontario (WDO) conduct a review of the Blue Box Program Plan (BBPP). In his letter, the Minister requested that "principles of Extended Producer Responsibility (EPR) should form the framework for the review". Among his requests, were that the WDO;

> "Recommend how to move the BBPP towards full EPR funding. Since different collection and processing systems for Blue Box wastes are the result of decisions made by local municipalities, in your review and recommendation, please consider the potential impact to the management of municipal recycling programs as industry moves to full EPR funding."

In July 2010, after significant public outcry over new consumer-based eco-fees on some household special waste products (under the hazardous waste program administered by Stewardship Ontario), the Environment Minister was replaced, and the entire BBPP review was ostensibly put on hold. The government is expected to revisit the BBPP review after the upcoming provincial election this fall (2011).

Wine, spirit, beer containers and associated packaging are collected through 437 Beer Stores, 39 breweries, 141 retail partner stores, 75 Liquor Control Board of Ontario (LCBO) agency stores, and 131 empty bottle dealers (EBDs are similar to satellite depots).

The Beer Store trucks collect these empty beer containers, back-haul them to various distribution centres where recyclables are sent to a processing facility for sorting, baling and shipping to market. Refillable bottles are sent back to the brewers for washing and refilling.

## Quebec

In Quebec and Nunavik, soft drink and beer containers are returned to over 40,000 grocery stores, convenience stores, service stations, pharmacies, or other retail establishments that sell ready-to-drink beverages in containers. Upon return, consumers are provided with a full refund. In Quebec the distributors are responsible for recycling approximately 1.0 billion beverage containers per year through their deposit-return program.

The non-alcoholic beverage industry pays retailers a commercially negotiated handling fee of 2-cents per container for collecting containers and storing them for pick-ups.

Distributors are required to collect redeemed containers from the retail vendors. Two thirds of the containers collected by grocery stores are back-hauled on dedicated third party vehicles.

About one third of soft drink containers are collected using the same trucks that deliver full goods (reverse logistics). Companies like Pepsi Cola and Coca-Cola back-haul empties to their distribution centres, then trans-ship the empties to processors for processing.

In Quebec distributors (brand owners like Pepsi-Cola and Coca-Cola, and other beverage distributors) own the container scrap.

Refillable beer bottles are sent back to the brewers for washing and refilling.

The Quebec deposit-return program is a very limited one in terms of the beverage containers recovered. Only non-alcoholic soft drinks, and some juice products (brought in voluntarily) and all beer containers are regulated under the program. Water bottles, wine and liquor containers are not part of the Quebec program. The other feature of the Quebec program is that all returns are through retail stores. There are no depots

accepting returns in Quebec. As such, returns occur even in remote communities through retailer networks.

## Nova Scotia

Nova Scotia, along with the other Atlantic Provinces operates a “half-back” deposit system. This type of deposit program refunds half of the deposit paid by consumers. A portion of the remaining funds that are collected are used to off-set the costs of operating the deposit-return program, and some of the funds go into revenue programs designed to support municipal recycling in the province.

Half-back deposit programs are generally opposed by the beverage industry, as they generate surplus funds for non-beverage container recycling programs such as curbside recycling.

There are currently 83 privately owned and operated Enviro-Depot™ locations in Nova Scotia. Each owner/operator must sign a standard form agreement with Resource Recovery Fund Board (RRFB) Nova Scotia to become an Enviro-Depot™. RRFB Nova Scotia is a crown-appointed agency that is tasked with operating the beverage container recycling program as well as the tire program, a used paint program and the Nova Scotia electronics recycling program in that province.

RRFB Nova Scotia handles approximately 390 million beverage containers per year through their deposit-return program. RRFB Nova Scotia owns the scrap salvage revenue, which is used to partially off-set operating costs.

Consumers bring their empty redeemable beverage containers directly to any Enviro-Depot™ for a five or ten cent refund (depending on container type and size). The depot sorts containers by material type, size and colour, storing them in bulk polypropylene mega-bags or large storage tubs (for glass). RRFB arranges for transportation of full mega-bags and large plastic tubs (for glass) from the depots to the nearest of three Regional Processing Centres (RPCs). Plastic, aluminum and glass are all marketed by the RRFB.

Enviro-Depot™ locations are required to accept leftover paint and any other material designated by RRFB from time to time. Some individual operators also accept cardboard, newsprint, metals and auto/marine batteries but at their own discretion. Enviro-Depot™ operators have a separate arrangement with the breweries to accept refillable domestic beer bottles from consumers which are sorted and hauled back to the brewers, at their cost for washing and refilling.

## New Brunswick

There are 78 privately owned and operated depots in the province. All depots are licensed by the New Brunswick Department of Environment. Consumers bring used beverage containers directly to these depots, where they are sorted, and the refund provided to the customer. New Brunswick also operates a "half-back" deposit system. This type of deposit program refunds only half of the deposit paid by the consumer.

Encorp Atlantic manages approximately 305 million beverage containers per year through their deposit-return program. Encorp Atlantic owns the scrap and the scrap salvage revenue, which is used to partially off-set operating costs.

Encorp Atlantic is a privately owned beverage industry company, that organizes the collection of all non-alcohol containers from the depots, arranges to have then hauled to one processing centre in the province, who in turn prepares the materials for sale to salvage markets. Rayan Investments organizes collection of all alcohol wine and liquor bottles on behalf of the New Brunswick Liquor Commission. These containers are predominantly glass, which are collected from the depots, and hauled to Rayan's central location for storage or processing, or for marketing the glass when markets are available.

Refillable beer bottles are sorted and sent back to the brewers, at their cost, for washing and refilling.

## Newfoundland & Labrador

Multi-Materials Stewardship Board (MMSB) operates the deposit-return program in Newfoundland and Labrador (NL). In NL consumers bring empty deposit bearing containers to 39 Green Depots, 18 Sub depots and 10 mobile units within the province. The sub depots and mobile depots are wholly owned and operated by licensed depots. Currently, 88 percent of the province's population is within 20 kilometres of one of these depots. Residents, not serviced by either a Green Depot or a Sub Depot, redeem their containers when they are in a community with these services.

The Sub Depot program in NL has established 18 satellite locations, which have been reported by MMSB as being very effective in rural locations. These areas must be at least 20 km. from an existing depot. MMSB decides where Sub Depot operations can be located, and which Green Depots are eligible to operate them. There are minimum standards that MMSB requires for creating a Sub Depot including:

- 600 square feet of heated space
- MMSB signage
- 20 hrs per week operating times (with a minimum of 4 hrs. on a Saturday)
- 1 sort table
- Receipts must be provided to all customers
- Telephone with answering service
- Minimum of 4 parking spaces
- Insurance, comply with Occupations Health & Safety regulations
- Personnel file for each employee
- Daily cleaning schedule

MMSB offers the following subsidies to Green Depots:

- Presence Fee - Green Depots with annual volumes less than 3 million are eligible to receive this monthly subsidy (ranges from $400 to $1000 per month )

- Sub Depot Presence Fee - Green Depots that operate Sub Depots are eligible to receive a monthly subsidy of $800. Both the Green Depot and Sub Depot must remain in compliance with the prescribed standards at all times

- Transportation Rebate - Green Depots receive $1 per km return from any Sub Depot or Mobile Service they operate. Rebate forms are submitted on a monthly basis. A depot can qualify for both the Presence Fee and the Transportation Rebate during the same month if a mobile service is provided in that month.

MMSB conducts regular inspections of Green Depots and Sub Depots to ensure compliance with depot operating standards.

MMSB manages 200 million beverage containers per year through their deposit-return program. Brewers manage their own containers which add to this provincial volume. The NL deposit system is a “partial-back” deposit system where consumers pay a full deposit and are refunded only part of it when the container is returned.

MMSB and brewers own the scrap and the salvage revenue, which are used to partially off-set operating costs.

Brewers operate an independent deposit-return system in NL. Refillable beer bottles are exempt from the depot system under the *Waste Management Regulations*. These containers are handled through an independent return-to-retail system, operated and paid for by brewers. Refillable beer bottles are sold through retail stores and two Brewers Retail Inc. (BRI) stores in St. John's. Beer is sent to 27 wholesalers who then deliver to the retail stores and the BRI outlets. Refillable beer containers are fully refunded at these locations. The wholesalers are paid a handling fee for the empties which are picked up at the retailer. MMSB is not responsible for the management or administration of refillable beer bottles; however the brewers contract collection service through Green Depots. Green depots are paid a handling fee of 24 cents per dozen for collecting the beer containers, and the brewers pay for hauling to processing centres or washing / refilling locations.

## Prince Edward Island

The deposit-return program in Prince Edward Island (PEI) is administered by the Department of Environment Energy & Forestry (DEEF).

All non-refillable beverage containers that are subject to deposits can be returned to 10 province-wide depots. The deposit program in Prince Edward Island (PEI) is a “half-back” deposit system, as other Atlantic Provinces. This type of deposit program refunds half of the deposit paid by the consumer.

Refillable beer bottles are not part of the PEI half-back deposit-return system. PEI’s half-back system applies to all 'recyclable' containers, including beer cans and import glass bottles that are not refilled.

Both refillables and recyclables are included in the Beverage Container Act, the difference being that the full deposit is required to be refunded on refillables, while consumers returning recyclables receive a half-back (half of the deposit fee). The PEI legislation is silent on handling fees, which are negotiated separately between the Government and the Depots for recyclables. The Brewers Association sets the handling fee for refillable bottles, and this fee is paid directly by the Brewers to the Depots.

In PEI, the Depot handling fee for recyclables is 3.905 cents/container. Depots that handle refillable bottles are paid fee by the Brewers of 2.814 cents/container (33.8 cents/dozen). The deposit is 10 cents per beer bottle ($1.20/dozen) for refillables, which is the same as the majority of the half-back containers managed under the program.

Brewers pay the shipping for return of empties to their reconditioning plant.

The deposit-return program is operated through the Department of Environment, Energy & Forestry who manages approximately 55 million beverage containers per year

Containers used for milk and other exempted beverages are collected through the Island's extensive Waste Watch curbside recycling program available to all island residents, on a fee for service basis. Each resident pays $175 per year for a variety of collection services including packaging and paper recycling, organics collection, and household hazardous materials disposal.

## Yukon

The Yukon beverage container deposit-return program has operated since 1992. In the Yukon approximately 22 million containers per year are sold with about 17 million, or 80% returned for refunds. The program includes all beer containers and soft drinks, as well as all plastics and glass containers. In 1996 steel juice cans and aseptic containers were added to the program.

The Yukon program is a hybrid system that refunds a portion of the deposits to consumers. The table below illustrates these deposits and refunds.

There are two processing centres operating in the Yukon, both of which are located in Whitehorse. Processors are paid a “processing fee” for each container received from a depot. Each load of refundable beverage containers must be shipped from the community depots with a ‘Depot Claim’ form that records the number of each type of container on that load. Those figures are the basis of the refunds, handling fees and processing fees paid out to the depots and processors.

In the Yukon, processors are also eligible for a “re-processing fee”. This is an additional 1¢ per container for refillable beer bottles to re-palletize them when necessary. This fee was provided to the processors for receiving the refillable beer bottles from community depots to re-stack pallets.

Brewer’s Distributing Ltd (BDL) only pays their 10¢ refund, so the 1¢ comes directly from the Recycling Fund (the revolving fund set up specifically for receiving surcharges on designated materials). The Recycling Fund pays for transportation of the containers, including refillable beer bottles from community depots to one of the Whitehorse processors. BDL pays for the transportation of refillable beer bottles from the Whitehorse processors to the BDL reclamation facilities in BC or Alberta.

The Yukon Liquor Commission (YLC) is responsible for returning ISB’s to BDL.YLC receives 34.5 cents per dozen out of which they pay all processing fees and transportation costs (through sub-contractors such as Raven Recycling).

## Table 2 - Yukon Deposit – Refund Rates & Handling Fees

| Deposits and Refunds on Recyclable Items | | |
|---|---|---|
| **CONTAINER TYPE** | **DEPOSIT** | **REFUND** |
| **Aluminum cans** | $0.10 | $0.05 |
| **Large Glass, Plastic, Tin or Tetrapak (1001 ml or more)** | $0.35 | $0.25 |
| **Small Glass, Plastic, Tin or Tetrapak (1000 ml or less)** | $0.10 | $0.05 |
| **Large Liquor Containers (500 ml or more)** | $0.35 | $0.25 |
| **Small Liquor Containers (200 ml - 499 ml)** | $0.15 | $0.10 |
| **Refillable Beer Bottles** | $0.10 | $0.10 |

Containers are taken to one of 19 depots in the territory to receive the refund portion of the initial surcharge. The depots send containers to one of the two processing facilities located in Whitehorse that processes the containers further. Processors own the scrap container material and sell it into the commodities markets.

Handling and processing fees in the Yukon are shown below:

**Processing and Depot Handling Fees in Yukon**

| **Processing Centres** | |
|---|---|
| Aluminum cans | 2.25¢ |
| Liquor containers (small) | 2.00¢ |
| Liquor containers (large) | 4.00¢ |
| Small non-alcoholic containers | 2.00¢ |
| Large non-alcoholic containers | 4.00¢ |
| | |
| **Depot Handling Fees** | |
| Aluminum cans | 2.50¢ |
| Liquor containers (small) | 4.00¢ |
| Liquor containers (large) | 7.50¢ |
| Small non-alcoholic containers | 2.50¢ |
| Large non-alcoholic containers | 4.00¢ |
| | |

Table 3 below, describes deposit-return programs across Canada.

## Table 3 - Summary of Deposit Return Programs in Canada

| PROVINCE | POPULATION (Statistics Canada Estimate for 2010) | AREA IN KM2 | POULATION DENSITY (PER km2) | COLLECTION SYSTEM | | | # of RETURN LOCATIONS | POPULATION PER RETURN LOCATION | CONTAINERS PROCESSED (2008-2009) | CONTAINERS PER LOCATION (MILLIONS OF UNITS ) | RETURN LOCATIONS : POPULATION (PER 1000 PEOPLE) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Retail | Depot | Curbside | | | | | |
| BC | 4,510,900 | 944,735 | 4.8 | | | | 23,000 | 196 | 1,577,595,973 | 0.1 | 5.10 |
| AB | 3,724,800 | 661,848 | 5.6 | | | | 216 | 17,244 | 1,611,804,957 | 7.5 | 0.06 |
| SK | 1,041,700 | 651,036 | 1.6 | | | | 71 | 14,672 | 410,115,849 | 5.8 | 0.07 |
| ON | 13,167,900 | 1,076,395 | 12.2 | | | | 775 | 16,991 | 2,125,000,000 | 2.7 | 0.06 |
| QC | 7,886,100 | 1,542,056 | 5.1 | | | | 40,000 | 197 | 1,023,600,000 | 0.0 | 5.07 |
| NS | 940,500 | 55,284 | 17.0 | | | | 83 | 11,331 | 388,657,306 | 4.7 | 0.09 |
| NB | 751,300 | 72,908 | 10.3 | | | | 78 | 9,632 | 305,412,057 | 3.9 | 0.10 |
| NF | 510,900 | 405,212 | 1.3 | | | | 76 | 6,722 | 255,170,421 | 3.4 | 0.15 |
| PEI | 141,600 | 5,660 | 25.0 | | | | 10 | 14,160 | 54,915,472 | 5.5 | 0.07 |
| YK | 34,426 | 482,443 | 0.1 | | | | 19 | 1,812 | 17,426,893 | 0.9 | 0.55 |
| NWT | 43,700 | 1,346,106 | 0.032 | | | | 27 | 1,619 | 26,339,706 | 1.0 | 0.62 |

***NOTE: Precise number of collectors in BC and QC are unavailable due to the fact that grocery and convenience stores may act as return locations. Neither Encorp Pacific, nor Recyc-Quebec can provide the exact number of these locations. For Quebec, 40,000 is an estimate from Recyc-Quebec and 23,000 in BC were estimated using locations per population from QC. For BC, Encorp Pacific collects from 170 depots and 275 grocery locations. Other retail establishments either redeem their containers at depots, or direct consumers to those depots for refunds.***

Data includes all beverage containers recovered. Soft drinks, water, juices, non-refillable beer, wine & liquor and refillable beer where applicable. Because both use a return to retail system the population per return location cannot be fairly compared with provinces where only depots are used. Shaded cells indicate the collection method or location for recovering containers.

## 4.3 Collecting Containers through Depots

### *4.3.1 Distribution and Size of Depots Compared to Other Provinces*

As described earlier, the BCP operates in 28 communities which have depots in locations representing 98% of the NWT population, with an additional 3 communities serviced by part-time satellite depots.

The NWT faces challenges in providing container recycling services to all its citizens. The NWT has the lowest population density in Canada where a deposit-return program is being operated. The BCP offers more depots per capita than any other deposit-return program in the country, at 0.62 depots per 1,000 persons. Comparing this to the southern programs in British Columbia, Alberta or Saskatchewan which average 0.056 depots per 1,000 persons (11 times smaller) it is clear that the NWT deposit-return program provides extraordinary coverage for its citizens to return used beverage containers.

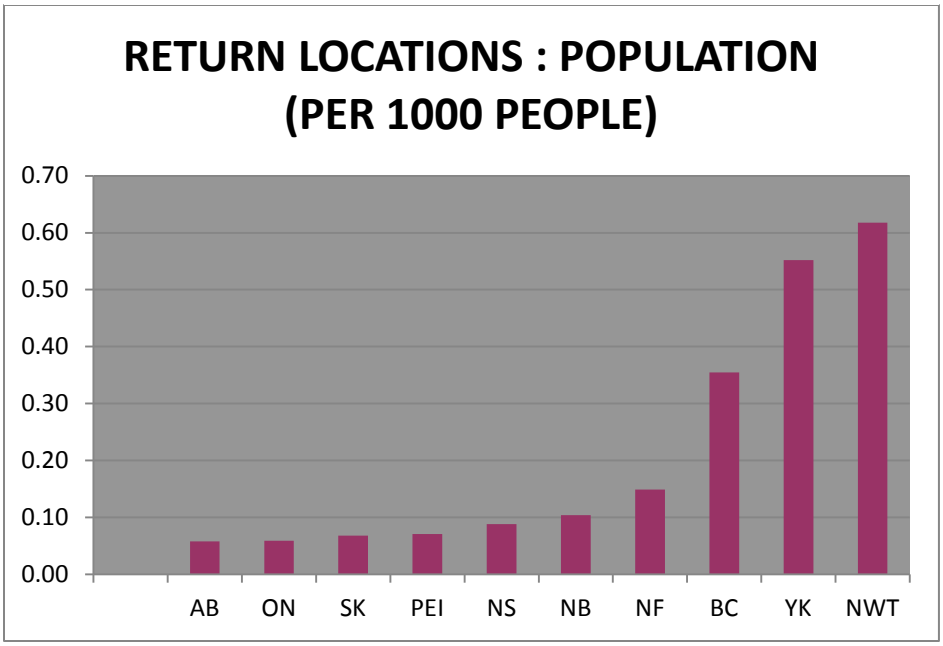
A note is warranted about British Columbia and Quebec. Both British Columbia and Quebec operate a partial return-to-retail or a full return to retail program. This makes direct comparisons with depot systems difficult.

In British Columbia, the Regulations require retail stores that sell ready-to-serve beverages in a container to take back containers if a consumer requests a refund. In actual fact, only about 5% of the estimated 23,000 stores do this; instead they direct customers to depots or bring containers to depots themselves as a service to their customers. Encorp Pacific collects containers from 170 depots and only 275 retail stores across the entire province. We used an estimate of 1100 stores (5%) for our analysis.

In Quebec the deposit systems is entirely a return-to-retail system, with at least 40,000 outlets, and cannot be fairly compared, hence its absence from this analysis.

Figure 3, below illustrates the depots per capita data as discussed.

**Figure 3 – NWT Depots per Thousand Residents**




The average depot density in programs across Canada is about 1 depot per 10,000 people. At that rate, this would mean that the NWT can rationally support between 3 – 4 large depots, with additional depots due to the unique geographical particularities of the Northwest Territories. Obviously, the NWT requires more than just 4 depots to service its population, but operating 28 may be operationally inefficient .The decision to offer beverage container recycling services to all communities was a decision that the government made to allow residents to return their containers at a community depot. This decision has proven to be effective in providing recycling service to these communities, but this comes with the high cost of operating the program in very small and remotely located locations.

We examined the volumes of containers by community. A small number of depots provide the majority of container returns in the NWT. Six depots account for 90% of the container returns. Depots in ten communities provided > 95% of the returned containers during the same period.

Table 4, below describes these container returns by major community.

## Table 4 – Most Significant BCP Depot Returns by Volume

**Rankings by Volume of Container Returns**

Listed in order of % of total volume recovered, by depot per year.

| | 2008-09 | % of Volume | | | 2009-10 | % of Volume | | | 2010-11 | % of Volume | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | **Higher Volume** | | | | **Higher Volume** | | | | **Higher Volume** | | |
| 1 | **Yellowknife** | 47% | | 1 | **Yellowknife** | 47% | | 1 | **Yellowknife** | 49% | |
| 2 | **Inuvik** | 18% | | 2 | **Hay River** | 16% | | 2 | **Hay River** | 14% | |
| 3 | **Hay River** | 15% | | 3 | **Inuvik** | 15% | | 3 | **Inuvik** | 13% | |
| 4 | Fort Smith | 5% | | 4 | Fort Smith | 4% | | 4 | Fort Smith | 6% | |
| 5 | Bechoko | 5% | | 5 | Fort Simpson | 4% | | 5 | Fort Simpson | 4% | |
| 6 | Fort Simpson | 3% | 92% | 6 | Bechoko | 4% | 89% | 6 | Bechoko | 3% | 90% |
| | **Lower Volume** | | | | **Lower Volume** | | | | **Lower Volume** | | |
| 7 | Norman Wells | 2% | | 7 | Norman Wells | 2% | | 7 | Norman Wells | 2% | |
| 8 | Fort Providence | 1% | | 8 | Fort Providence | 1% | | 8 | Fort Providence | 1% | |
| 9 | Tuktoyaktuk | 1% | | 9 | Aklavik | 1% | | 9 | Fort Resolution | 1% | |
| 10 | Fort Liard | 1% | 98% | 10 | Tuktoyaktuk | 1% | 94% | 10 | Fort Laird | 1% | 95% |

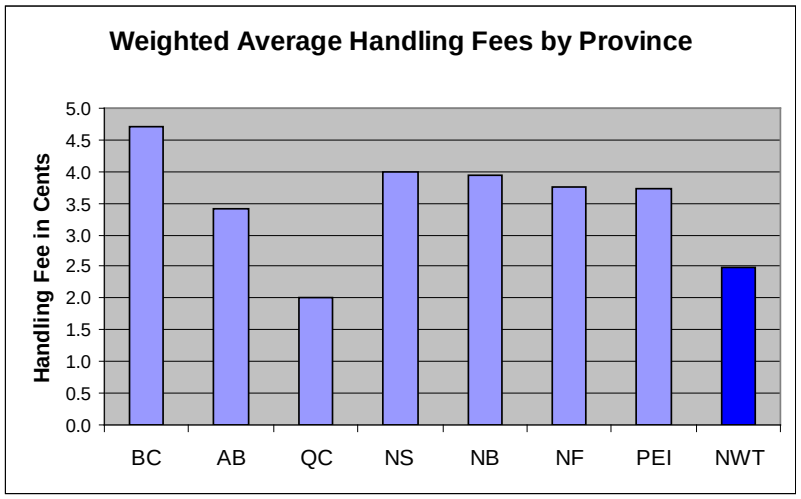
## 4.4 Depot Handling Fees

Depots are paid a Depot Handling Fee (DHF) by the BCP. This fee is paid on each container a depot receives from the public, and is paid on a per container basis. The DHF vary from 2.2¢per container (aluminum cans, small plastic containers, aseptic cartons, and small juice containers), to 3.5¢per unit for glass bottles, to 4.5¢per unit for large size containers.

The 2010-2011, weighted average handling fee paid in NWT was 2.5¢ per container returned. This handling fee is significantly lower than handling fees paid in other Canadian deposit-return programs. The Annual Operator Support Program is designed to supplement the handling fee paid to depot operators. This program provided $100,223 of support to depots (average past 3 yrs), on 26,078,000 containers per year recovered, or 0.384 ¢ per unit in the past 3 years; which effectively increases that depot payments to 2.884¢ per unit returned. In fact, other than Quebec (which mainly handles

aluminum cans and PET bottles at retail stores through commercially negotiated agreements for 2-cents) NWT's handling fees are the lowest in the country.

## Figure 4 – NWT Handling Fees Compared to Rest-of-Canada




Using the weighted averages for the provinces shown above, the median Canadian handling fee is 3.75¢ per unit, which is 33% higher than NWT, and the average handling fee is 3.5¢ per unit, which is 29% higher than the average handling fee in NWT. These estimates are based on the weighted average (i.e. total handling fees paid in a given year divided by the number of units handled). It is noteworthy that BC, AB and NWT all have variable handling fees by the type and size of containers, while some of the Atlantic Provinces have across-the-board handling fees for all containers in their systems.

Raising the depot handling fee to the national average of 3.5¢ per container would increase BCP costs by $251,492 (based upon 2010/2011 returns of 25,149,183 containers).

Table 5 below is a schedule of handling fees for both refillable and non-refillable containers for all deposit-return programs in Canada.

Depot Handling Fees in NWT are higher for containers over 1 litre – 4.5-cents per unit, but these categories are numerically small numbers of containers for depots. While these fees are higher, they are still lower than those same handling fee categories in BC and AB, but are higher than the fixed handling fees charges in the Atlantic Provinces. In addition, on a category basis, handling fees are lower across the board when compared to Yukon.

# Table 5 – Depot Handling Fees – All Canadian Programs

| Handling fees in cents per unit recovered | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Province** | **BC** | **AB** | **QC** | **NS** | **NB** | **NF** | **PEI** | **YK** | **NWT** |
| Aluminum Cans | 3 | 3.02 | 2 | 3.99 | 3.94 | 3.75 | 3.74 | 2.5 | 2.2 |
| PET up to 1L | 4.5 | 3.94 | 2 | 3.99 | 3.94 | 3.75 | 3.74 | 4 | 2.2 |
| PET over 1L | 7 | 7.23 | 2 | 3.99 | 3.94 | 3.75 | 3.74 | 7.5 | 4.5 |
| PVC up to 1L | 4.5 | 7 | | 3.99 | 3.94 | 3.75 | 3.74 | 4 | 2.2 |
| PVC over 1L | 7 | 12 | | 3.99 | 3.94 | 3.75 | 3.74 | 7.5 | 4.5 |
| HDPE up to 1L | 4.5 | 6 | | 3.99 | 3.94 | 3.75 | 3.74 | 4 | 2.2 |
| HDPE over 1L | 7 | 12 | | 3.99 | 3.94 | 3.75 | 3.74 | 7.5 | 4.5 |
| Polypropylene up to 1 L | 4.5 | 6 | | 3.99 | 3.94 | 3.75 | 3.74 | 4 | 2.2 |
| Polypropylene over 1 L | 7 | 12 | | 3.99 | 3.94 | 3.75 | 3.74 | 7.5 | 4.5 |
| Sealed Polystyrene Cups | 4 | 6 | | | | | | | |
| Polystyrene up to 1L | 4.5 | 8 | | 3.99 | 3.94 | 3.75 | 3.74 | 4 | 2.2 |
| Polystyrene over 1L | 7 | 8 | | 3.99 | 3.94 | 3.75 | 3.74 | 7.5 | 4.5 |
| Pouch (Up to 1L in AL) | 4 | 6 | | 3.99 | 3.94 | 3.75 | 3.74 | 4 | 2.2 |
| Plastic up to 500ml | 4.5 | | | 3.99 | 3.94 | 3.75 | 3.74 | 4 | 2.2 |
| Plastic 501ml to 1L | 4.5 | | | 3.99 | 3.94 | 3.75 | 3.74 | 4 | 2.2 |
| Plastic over | 7 | | | 3.99 | 3.94 | 3.75 | 3.74 | 7.5 | 4.5 |
| Glass bottles up to 1L | 6 | 5.08 | 2 | 3.99 | 3.94 | 3.75 | 3.74 | 4 | 3.5* |
| Glass bottles over 1L | 7 | 11 | 2 | 3.99 | 3.94 | 3.75 | 3.74 | 7.5 | 3.5* |
| Drink box up to 500ml | 4.5 | 3.81 | | 3.99 | 3.94 | 3.75 | 3.74 | 4 | 2.2 |
| Drink box | 5.5 | 3.81 | | 3.99 | 3.94 | 3.75 | 3.74 | 4 | 2.2 |
| Drink box | 5.5 | 10 | | 3.99 | 3.94 | 3.75 | 3.74 | 7.5 | 4.5 |
| Gabletop up to 1L | 6 | 6 | | 3.99 | 3.94 | 3.75 | 3.74 | | 2.2* |
| Gabletop over 1L | 10 | 10 | | 3.99 | 3.94 | 3.75 | 3.74 | | 4.5* |
| Bag in the Box over 1L | 10 | 12 | | 3.99 | 3.94 | 3.75 | 3.74 | | 3.5 |

| Handling fees in cents per unit recovered | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Province** | **BC** | **AB** | **QC** | **NS** | **NB** | **NF** | **PEI** | **YK** | **NWT** |
| Bi-metal up to 1L | 4.5 | 6 | | 3.99 | 3.94 | 3.75 | 3.74 | 4 | 2.2 |
| Bi-metal over 1L | 10 | 10 | | 3.99 | 3.94 | 3.75 | 3.74 | 7.5 | 4.5 |
| Imported beer bottles | 4.5 | 4.87 | | 3.99 | 3.94 | 3.75 | 3.74 | 4 | 3.5 |
| Liquor and wine ceramic | | 12 | | 3.99 | 3.94 | 3.75 | 3.74 | | |
| Sleeman bottles | | 4.12 | | 3 | 3.94 | 3.75 | 3.74 | | |
| Big Rock Bottles | | 3.87 | | 3.99 | 3.94 | 3.75 | 3.74 | | |
| Moosehead Green Bottle | | | | 2.568 | | | | | |
| Import beer up to 1L | | 6 | | 3.99 | 3.94 | 3.75 | 3.74 | | |
| Import beer cans bi-metal | | 6 | | 3.99 | 3.94 | 3.75 | 3.74 | | |
| Refillable Beer (ISB) | [1] | 3.96 | 0.5 | 2.735 | 2.814 | 5 [4] | 2.735 | 2.5 | |
| Milk up to 1 litre | | | | | | | | | 2 |
| Milk over 1 litre | | | | | | | | | 3.5 |
| Milk jugs | [2]~3.75 | | | $417 tonne | | | | | |
| Milk cartons | | | | | | | | | |

| LEGEND | |
|---|---|
| | Container included in another category. For example, in AB, Plastic milk jugs are included in Plastic bottles instead of milk jugs |
| | These containers are not handles in the deposit system |

NOTES

[1] In BC bottle depots independently negotiate handling fees directly with the beer industry. The average rate is about 29-cents/doz or 2.42 -cents/bottle

[2] About 144 Depots in BC are paid a handling fee for collecting milk jugs and carton. They are paid $1.75 per bag for jugs and $2.25 per bag for cartons. The fee shown in the table is based on 60 units per bag.

[3] Saskatchewan does not charge handling fees. SARCAN depots are paid a contracted rate per year, which is generated through the Environmental Handling Charge (EHC).

[4] In Saskatchewan and Newfoundland a handling fee charged on refillable beer is charged at the back-end from the refund. In SK it is 6 cents at SARCAN depots and 2 cents at SLGA stores who also receive an additional subsidy of 2.6 cents per ISB bottle from BDL.

* Not including milk. In NWT, separate handling fees apply to milk containers.

## 4.5 Depot Standards

The consultant visited eight BCP depot operations in large and small communities. There is a range of operating practices at BCP depots.

At larger volume depot operations (Yellowknife, Hay River, Inuvik, and Behchoko) these locations have adequate operating practices, with:

- Adequate hours of operation (Monday – Friday (business hour) , plus Saturday)
- Adequate parking for customers
- Good lighting, ventilation and cleanliness
- Staff on hand to serve customers
- Proper signs and program information for the public
- Appropriate cash handling procedures to pay the public
- Adequate counter space to receive containers from the public
- Adequate warehouse space to store containers prior to processing

The consultant noted some deficiencies in the small to medium sized depots visited during this review (these depots included: Fort Smith, Norman Wells, Tulita, and Tuktoyaktuk). These deficiencies include:

- Depot may be located in an open air building / or operating from sea cans (Fort Smith / Fort McPherson[1])
- Limited counter space for customers to present containers (Fort Smith / Norman Wells)
- Lack of signage representing eligible containers (Tulita, Tuktoyaktuk)
- Unclear unscheduled days / hours of operation (Tulita, Tuktoyaktuk)
- Lack of knowledge of BCP program, (reporting rules, eligible containers)
- Lack of understanding of how to complete remittance / grant forms for payment
- Lack of consistency in how records of returns maintained

Deficiencies common to large and to small depots include:

- Inconsistencies in how depot staff assists the public. At least one large depot operator stated that counting the containers was the customer's responsibility, not his.

[1] Fort McPherson program operates out-of-doors from a sea can, it appears to be a well run deposit-return depot program.

- Several depot staff / owners informed the consultant that they often accepted customers declarations of how many containers were in a plastic bag or a box of incoming containers, at face value without checking the counts.

Ineligible containers may be received at some depots. Some ineligible containers were observed by the consultant during the field visits.

It was clear from the field visits that in the smaller communities, for the container recycling program to be successful, there needs to be a community champion to take charge of the program to make it work.

In Fort McPherson and Fort Smith the depot operators are examples of this, were clearly a champion for the program has emerged to make the recycling program work in those communities. In some of the other communities visited, it was unclear who the driving promoter for the recycling program was or if there was significant community support for the program.

### 4.5.1 Depot Standards in Other Provinces

Depot standards vary from province to province but most Canadian deposit-return programs have similar operating standards. These standards relate to start-up capital, container storage, shipping procedures, depot territory, operating hours, depot cleanliness, customer service, advertising, and public notifications.

The BCP regulations do not specifically describe terms for customer service at Depots. Some operating conditions have been included as conditions of BCP license renewals. These conditions vary from depot to depot.

Depot standards are applied across all depots in British Columbia (Encorp Pacific), Alberta (through the Beverage Container Management Board), Nova Scotia (RRFB Nova Scotia) and in Newfoundland & Labrador (Multi-Material Stewardship Board). In these provinces, the operating authority has developed written manuals for depot operators, and enforces these standards to varying degrees. The main objectives of depot standards are to specify the roles and responsibilities of the depots, and to assist in making the administration of the program.

Implementing operating standards may improve consumer experience in returning containers leading to increased recycling of beverage containers.

In addition to having written depot standards, some deposit-return program authorities regularly hold seminars and meetings with depot operators to allow dialogue with depots, and to provide instructions on system deficiencies (i.e. Encorp Pacific, ABCRC, and RRFB Nova Scotia).

A document entitled “BCP *Operational Guideline* - November 30, 2010” has been written by ENR as an internal document ENR reports that audio visual materials have been more effective training tools than written instructions. . A second training video, which deals with handling milk containers, can be accessed through icarenwt.ca - website. ENR advises that an updated and revised version of the training video is planned for the summer of 2011.

New depot operators / organizations are provided with the training video. Upon acquiring a new depot, most operators receive face-to-face training by BCP staff or staff from a regional processing centre. A depot start-up kit is provided to each new depot, consisting of the video, an ENR owned cash register with basic operating instructions (and/or receipt books), posters, promotional items (fridge magnets etc.) fibre mega-bags and reusable boxes (glass). ENR staff provide the necessary forms (form BCP4 - the depots need to submit monthly) in hard copy and as a printable file on a CD); along with instructions on how to complete the report forms and who to send them to. Depot operators are also encouraged to contact the BCP office or their regional processing centre if they have a problem or have questions, and they can call the BCP staff by collect call.

ENR staff visits to depots occur on an as needed basis. This may be a practical approach for the NWT; however we note that when regular visits occur in other provinces, it encourages the development of standards. Many deposit-return program administrators across Canada believe that staff resources allocated for this purpose have proven to be an effective way to improve depot performance.

Encorp Pacific in BC has three full-time staff responsible for visiting each depot at least twice a year. Small volume depots are visited every second year. Additionally, Encorp Pacific hosts an Annual Depot Operators Conference and holds annual regional depot operators meetings in five regions across the province.

In Nova Scotia, RRFB Nova Scotia’s full-time Operations Supervisor is responsible for visiting every depot several times per year. RRFB Nova Scotia also has quarterly meetings with the depot owners association to discuss matters of mutual interest.

In Newfoundland the 39 licensed “Green Depots” receive a minimum of two visits per year from a full-time Field Services Officer, employed by MMSB. This person will visit a depot more frequently should an issue arise between regular visits.

## 4.6 Capacity for Depots to Pre-Process Containers

The consultant examined whether depots have the capacity to do some pre-processing prior to shipping to processing centres. Due to the geographical challenges of operating recycling programs in the NWT due to distances, lack of roads and weather conditions it was postulated that pre-processing might provide savings.

In section 4.3.1 we discussed that since 2008, six depots account for 90% of the redeemed containers in the BCP. The next most significant depots (Norman Wells, Fort Providence, Fort Smith, Fort Simpson, Fort Liard and at times Tuktoyaktuk) return an additional 5% of the containers. The remaining 18 small community depots return the balance (~ 1.3 million containers – an average of <100,000 per depot per year).

Visits to Behchoko, Norman Wells, Fort Smith, and Tuktoyaktuk confirmed that those depots have limited space or the human resources available to operate pre-processing equipment. It is our view that pre-processing aluminum cans, plastic containers, wine/ liquor bottles and aseptic / gable cartons would have limited or no financial benefit to the program based upon the small volume of units from the 18 smaller depots.

## 4.7 Depot Terms, Flow of Payments to Depots, Operating Practices

Depots receive containers from the public placing them into shipping containers for transport to processing centres. For containers other than glass containers, polypropylene cubic metre mega-bags are the preferred shipping container. These bags are easily handled by depot staff and can be loaded onto trucks without mechanized equipment. Glass is placed in cardboard boxes, palletized, wrapped with plastic and transported to the processing centres. In five depots refillable beer containers are palletized preferably in their original boxes to brewers (BDL) specifications and wrapped with plastic for shipping.

Redeemed containers are supposed to be counted by depot staff before a refund is issued. The consultant heard anecdotally from several depot staff and depot owners during the field visits that direct counting may not always occur. Depot staff and owners told the consultant that they accept customer's declarations of counts on occasion. If this practice is widespread, it is a cause for financial concern for the BCP.

After containers are accepted from customers, and the refunds paid, the containers are placed into mega-bags or boxed in cases of glass bottles. Some depot operators (Fort Smith) were very diligent in labelling boxed glass as to how many containers (or dozens of containers) were on each pallet.

Other depots that were visited did not do this labelling, nor were some of them as careful in building pallets in an orderly manner. We observed loosely packed boxes of glass bottles without any indication of how many units were on a pallet. In one case pallets of glass had a mix of sizes of shipping boxes, and even plastic crates within a pallet load.

In these cases the depot relies solely on the Depot Monthly Reporting Form to declare the refunds remitted to customers, and these poorly built pallets of glass make checking the shipment at the processing centre more difficult.

The depots that do palletize refillable beer skids, have been supplied with written instructions on how to build pallets, from Brewers Distributing Ltd. (BDL), but at times may not meet these specifications. If pallets of beer containers are received in sub-standard shape, the PC must re-palletize the refillable beer cases to the specification acceptable to BDL. The only depots that build pallets of refillable beer bottles are: Fort Smith, Normal Wells, Fort Providence and Fort Simpson.

Sea can shippers use BCP boxes for refillable beer bottles. The Fort Simpson depot operates as a pre-processor for refillable beer bottles collected within that community. This depot builds pallets of refillable beer bottles which are then shipped directly to BDL in Edmonton. This eliminates the need to ship to Hay River, then transport right past Fort Simpson en route to BDL in Alberta. This depot is paid the Depot Handling fee plus 18 cents per dozen for this service, by BDL.

Each depot is required to fill out a Monthly Reporting Form. This completed and signed Depot Monthly Reporting Form is then faxed to the regional Processing Centre. For Depots that are not on the all-weather road system, they are required to fax the Monthly Reporting Form to ENR as well. Where there is discrepancy on the Z2 slips between the container quantity and refund paid, quantity is derived from the refund paid. e.g. Glass<1L = 125 containers; Refund paid = $12.30; Quantity reported = 123

The depot then mails ENR the original Depot Monthly Reporting Form ***and*** the associated paper backup to verify the numbers they report in the Depot Monthly Reporting Form , this can be cash register generated Z2 slips, or copies of customer receipts.

When containers arrive at the regional processing centre, they are received and the reconciliation process begins. Bags that contain non-alcohol plastic and aluminum, and alcohol aluminum <1L, containers are weighed (containers may be mixed by size, but not by material).

ENR has developed formulas to estimate the average number of containers per pound for each material (i.e. 1 lb = 30 aluminum cans, or 18 plastic bottles <1L). The rationale for this approach is to relieve the Processing Centre from having to manually count every individual plastic or aluminum container. Milk containers are manually counted by Process Centre staff. The BCP recently (March 2011) revised its formulas for converting cans to unit counts, based upon new information they received. If the redemption figures reported by a Depot vary significantly from what the Processing Centre weighs / convert or counts (i.e. milk containers) the Processing Centre's numbers are used by ENR to process payment to the depot. See Appendix D for details on the conversion factors used by the BCP.

Once the incoming shipment from a depot is reconciled by the PC, the containers are baled or briquetted in the case of aluminum, or baled if PET/ HDPE plastic and the glass is broken to destroy the container's redemption value (cannot be redeemed again if broken).

The BCP makes payments to depots through the Processing Centres. For depots that are on the permanent or semi-permanent road system, depots are paid by the PCs as soon as the load is reconciled. For depots that are not on the permanent road system, ENR authorizes the PCs to pay the depots based on the Z2 and monthly reports reviewed and authorized by ENR staff. These depots are usually paid within seven to ten business days following ENR authorization.

One depot operator did complain that on occasion the regional Processing Centre appeared to be slow in remitting payments that had been reported and, authorized for payment to the depot. BCP staff has taken steps to improve depot payment turnaround times in that region. This matter has been resolved.

The consultant questioned depot operators about their satisfaction with the payment terms and timeliness of the payments from ENR. No significant complaints were recorded, and in general depot operators appear satisfied with the financial administration and payment terms in place.

The consultant asked about how disputes are resolved. Depot operators generally stated that they have not had significant disputes to resolve, thus this has not been an

issue for them. There does not appear to be a formal policy in place stating how disputes would be resolved should they occur. The current practice is that ENR resolves issues and disputes as they arise.

### 4.7.1 Audits and Quality Control for Counts

The procedures used within the BCP to check counts of containers declared by depots were examined. There are weaknesses in the reconciliation procedures observed.

In 2008 BCP staff became concerned with unexplained redemption figures being reported especially for small sizes of non-refillable glass containers. Staff undertook a series of small size glass audits, conducted by BCP staff with the assistance, in some cases, of Environmental Protection Officers from the ENR Regional offices. These audits were undertaken as resources became available, and are not part of routine procedures within the BCP.

Our experience in working with other deposit-return programs convinces us that routine reconciliation and audit procedures, often called a Quality Control (QC) program, are essential in deposit-return programs.

In our view a QC program should be part of all beverage container deposit-return programs. Each container should be viewed with the same scrutiny that a cash program would attract, since every container carries a monetary value. Deposit-return programs in other Provinces have concluded that without independent audit controls, counts may not be accurate nor relied upon. These programs have experienced financial abuse and accounting errors which were reduced by implementing strict audit controls.

Every deposit-return program in Canada, with the exception of the Yukon and the NWT, operates some form of on-going QC routine within their program.

Saskatchewan does some internal auditing, but they operate their own depots and processing centres, as well as operating their own trucking services. SARCAN is funded by a yearly grant provided by the Department of Finance. They are not paid on per container basis, but as an unconditional grant, thus some counting errors may not be as important to this organization.

The deposit-return programs in Newfoundland, Nova Scotia, New Brunswick, PEI, Quebec, Saskatchewan, Alberta and British Columbia operate a QC program or count reconciliation procedures on an on-going basis.

As an example, in BC, Encorp Pacific's QC program is used to determine which depots require closer scrutiny and staff support to encourage better compliance to counting standards. Encorp has discovered regular errors from some depots, and have the ability to perform more QC audits on those depots until performance is improved.

In 2009, Encorp Pacific took legal action against a depot operator that was wilfully defrauding the program. A court case ensued, resulting in significant punitive damages being awarded to Encorp Pacific. The depot operator in connection with this abuse had their operating agreement cancelled, and is no longer in the depot business.

There is no on-going QC audit program operating within the current NWT Beverage Container Program. This ought to be considered as an essential part of the program. These activities could be financed from the program, especially with policy changes to using a container recycling fee and with the BCP retaining ownership of scrap revenues. We suggest that if the BCP considers implementing a QC program that staff visit Encorp Pacific, ABCRC, RRFB Nova Scotia and Encorp Atlantic to determine if some of the procedures effective in those provinces can be adapted to the BCP.

In our view, the reconciliation activities conducted by the Processing Centres are to normal deposit-return system best practice; due to:

- Using weight conversion formula to convert to container counts are inaccurate
- Processing Centres check their own depot weights and convert to counts, reporting the figures to ENR
- These same 3 companies, also operate depots, which represent 78% of all redemptions in the NWT
- There is no independent reconciliation of their own containers from these depots
- We view this as a conflict of interest within the program
- Processing centres could benefit from "high container counts", since they are paid a processing fee on a per container basis
- Where a discrepancy exists between the PC reconciliation and the depot reports, the PC reconciliations are used to pay the depots.

### 4.7.2 Reported Recovery Rates

Recovery rates reported in the BCP Annual Reports appear to be high when compared to those reported by deposit-return programs in other provinces.

The average recovery rate for the past five years for all containers within the Beverage Container Program is 85% recovery.

In 2009 – 2010 the recovery rate was reported as 93%. ENR staff initiated an immediate investigation. BCP staff undertook audits to examine small sizes of non-refillable glass containers. After several glass audits, the 2010 – 2011 redemption figures have proven to be more normal with the recovery rate of the program returning to expected levels.

The 2010 – 2011 recovery rate has fallen back to 81%; which is a figure that is more credible. However, we still point out that the quality of the return numbers cannot be verified without proper QC reconciliation processes in place. Provinces such as Alberta and British Columbia have recovery rates in the low 80% range, but this has occurred after 30 years of operation. The BCP ought to be conservative in promoting that the NWT recovery rates are higher than the national average, when returns are not being reconciled in an on-going QC program, and where there are no procedures in place to check distributor's remittance reports of sales.

Part of the review team, CM Consulting, completed an analysis several years ago for Recyc-Quebec (the Crown agency that has oversight responsibilities for recycling programs in Quebec) which included a regression analysis for the Alberta-based regulator, the Beverage Container Management Board of refund (deposit) levels measured against recovery rates.

CM Consulting found that the level of the deposit charged influences the recovery rates. Table 6 presents the total samples for refund levels used; the mean (average of recovery rates); and the median for 5, 10, 20 and 40-cent refunds.

## Table 6 – Deposit Levels & Recovery Rates

| | Refund Levels | | | |
|---|---|---|---|---|
| | 5-cents | 10-cents | 20-cents | 40-cents |
| Total Samples | 37 | 15 | 19 | 1 |
| Mean (average of averages) | 60.6% | 83.5% | 72.5% | 99.9% |
| Median | 64.2% | 85.2% | 81.0% | 99.9% |

It should be noted that while the refund level is an important incentive to encourage container return, it is not the only factor that contributes to performance. Other factors that impact recovery performance include:

- Convenience - method of return (i.e. return to retail and/or return to depot);
- Whether or not the material is a 'traditional beverage material' (i.e. glass, aluminum, PET);
- Duration of program (i.e. program in place for more than a decade); and/or
- Whether or not the beverage is a 'controlled substance' (i.e. beer, liquor, wine, and spirits which are consumed either at home or in a licensed establishment).

In the case of 20-or 40 cent refund containers, most of the "poor performers" are containers that are non-traditional deposit containers (bag-in-the-box, gable top, aseptic, HDPE and PVC plastic).

A possible error in the recovery rates could be associated with incorrectly high counts of container being recorded due to the potential errors listed above. These errors may be simple counting mistakes, or these high counts may be symptomatic of some intentional fraud within the system with counts being exaggerated. There may also be some under-reporting from distributors, which would also help inflate the rates.

Without distributor audit procedure and an independent QC audit program it is difficult to determine whether the recovery rates are credible.

In Table 7, we list the reported recovery rates of deposit-return programs in the other jurisdictions in Canada.

## Table 7 – NWT Recovery Rate vs. Other Programs

**Comparison of Recovery Rates in Canada** [1]

| Province / Territory | Recovery Rate [2] | Refillable Beer |
|---|---|---|
| British Columbia | 81% | 94% |
| Alberta | 77% | 95% |
| Saskatchewan | 87% | 94% |
| Ontario (alcohol) | 91% | 99% |
| Ontario (curbside) | 40% | |
| Quebec | 82% | 98% |
| Nova Scotia | 83% | 101% |
| New Brunswick | 81% | 102% |
| Newfoundland | 78% | 99% |
| Prince Edward Island | 81% | 101% |
| Yukon | 78% | 94% |
| Average | 78% | 98% |
| **Northwest Territorie** | **85%** | **97%** |

1. Source: Who Pays What Report , 2010; CM Consulting
2. Operating years vary from Jan 1 - Dec. 31, 2008; April 1 - March 31, 2009; May 1, 2008 - April 30, 2009
3. Considers all containers, not including refillable beer
4. NWT Average Recovery Rate 2006/2007-2010/2011 BCP Annual Reports

In Table 8, below we show the recovery rate calculations for each type of container managed under the BCP from fiscal year 2006 /2007 to 2010/2011.

Those recovery rates highlighted in yellow on the table support the cautions expressed above about the BCP recovery rates not appearing to be in line with those observed in other deposit-return programs.

Table 8 below, illustrates issues with accounting for glass containers within the system. Glass bottle <1 litre has been represented with recovery rates of greater than 100% since the program started.

We also note that aluminum cans are reported at 101% recovery in 2009 – 2010; for < 1 litre non-alcoholic cans and 88% for alcoholic aluminum containers. Averaging these two aluminum can recovery rates provides a recovery rate >95%, which seems unusually high for fiscal 2009-2010. This is of concern since soft drink and beer cans represents 50% of the containers in the program.

Concern also arises from the 2009/2010 accounting of refillable glass bottles which yielded a recovery rate of greater than 100%, for a container stream representing 9% of the total number of containers distributed in the NWT that year.

Non-refillable glass bottles have had calculated recovery rates > 100% since the start of the BCP, noting that numerically this represents only 3% of containers. While non-refillable glass containers represent only about 9% of total containers within the system, this container group has continually been difficult to account for and additional scrutiny is warranted on an on-going basis.

## Table 8 – Recovery Rates by Container Type (2006 – 2011)

| Container Material and/or Type Sold | | | Recovery rates 10/11 | Recovery rates 09/10 | Recovery rates 08/09 | Recovery rates 07/08 | Recovery rates 06/07 | % of Total Containers |
|---|---|---|---|---|---|---|---|---|
| NON-ALCOHOL BEVERAGES | < 1.0 Litre | Glass | 63% | 117% | 139% | 111% | 106% | 1.2% |
| | | Aluminum | 97% | 101% | 84% | 81% | 87% | 27.0% |
| | | Plastic | 88% | 93% | 83% | 78% | 79% | 16.0% |
| | | Tetra Pak and Drink Pouch | 63% | 57% | 46% | 44% | 44% | 6.0% |
| | | Gable Top | 38% | 50% | 86% | 52% | 46% | 0.1% |
| | | Bi-Metal | 42% | 43% | 35% | 33% | 37% | 0.1% |
| | ≥ 1.0 Litre | Glass | 181% | 1716% | 1168% | 68% | 33% | 0.0% |
| | | Plastic | 64% | 72% | 62% | 64% | 69% | 2.5% |
| | | Tetra Pak and Drink Pouch | 66% | 63% | 52% | 53% | 51% | 1.1% |
| | | Gable Top | 61% | 40% | 41% | 40% | 40% | 0.4% |
| | | Bi-Metal | 27% | 36% | 37% | 29% | 65% | 0.0% |
| | | Bag-in-a-Box | 0% | 0% | 0% | 12% | 218% | 0.0% |
| | Milk ≤ 1.0 Litre - Any Material | | 26% | 9% | 0% | 0% | 0% | 4.3% |
| | Milk > 1.0 Litre - Any Material | | 61% | 56% | 0% | 0% | 0% | 2.0% |
| ALCOHOL BEVERAGES | < 1.0 Litre | Glass - Refillable Bottle | 91% | 103% | 97% | 94% | 103% | 9.0% |
| | | Glass - Non Refillable Bottle | 100% | 123% | 138% | 154% | 175% | 3.0% |
| | | Aluminum | 73% | 88% | 81% | 76% | 82% | 23.0% |
| | ≥ 1.0 Litre | Glass - Other Than Wine or Spirits | 11% | 286% | 120% | 0% | 0% | 0.4% |
| | Any Size | Any Material - Wine or Spirits | 81% | 105% | 13% | 99% | 0% | 4.0% |
| | | | | | | | | |
| | | Recovered | 25,149,183 | 26,742,954 | 26,341,654 | 24,863,613 | 24,937,517 | 100% |
| | | Distributed | 30,983,279 | 28,687,452 | 31,158,984 | 30,674,996 | 29,049,967 | 5 yr AVERAGE |
| | | | 81% | 93% | 85% | 81% | 86% | 85% |

Note: Highlighted recovery rates appear to be data anomolies. ENR undertook investigations of most of these following 2009-2010 after which recovery rate results in 2010 - 2011 came into line. Additional investigation is still warranted on some of the 2010-2011 categories (i.e. < 1L; & > 1 L Glass non-refillable and non-alcoholic and non-alcoholic <1L, aluminum cans.

## 4.7.3 Reconciliation Practices – Other Provinces

***British Columbia (BC)***

In BC, depots keep detailed records of the count of all containers that they redeem, using either manual systems or a "Point of Return" (POR) cash register. Only large volume depots (approximately half of the depots in BC) have PORs. Depots are required to place like containers in shipping bags. Depots must ship containers in three kinds of shipping containers – a mega-bag (approximately 1 cubic metre designed for glass containers), a Big Bag (slightly bigger than a mega bag designed for high volume containers such as aluminum or plastic), or a small transparent plastic bag (used especially in urban depots). For example, small plastic bags must contain 288 cans, whereas Big-bags are to contain 2,880 aluminum cans (ten times as many).

When a redemption transaction is completed at a depot using a POR, a receipt is issued to the customer showing the number of containers and deposit value refunded and a set of reports can be created, which can reconcile daily inventory received, shipped or in storage. The POR system creates a shipping manifest indicating the number of bags shipped out. In addition to the number of bags, the shipping manifest indicates quantities of containers by container type being shipped out of the depot. PORs are connected to the Internet with shipping manifests automatically downloaded to Encorp Pacific on a daily basis. These depot declarations are later used to reconcile with transportation company records of how many shipping units (bags) were picked up and delivered to the processing centres.

Depots that do not have a POR are required to place a pre-determined number of containers in a shipping bag using standard counts by container type. For instance, a small transparent plastic bag has to contain either 288 aluminum cans, or 150 small plastic containers, or 600 pouches. Since the depot is required to load only a set number of containers in each type of shipping bag, a calculated count can be generated. This count can be reconciled against depot reports or can be checked by Encorp Pacific's QC program.

When a depot places a set number of containers into a shipping bag they "close off" the bag and affix a shipping label to it. The label identifies the depot to facilitate the Quality Assurance audits. If a POR system is being used, the cash register signals the depot to "close off" the bag and affix a shipping label to it which identifies the depot and the type and the quantity of containers in the shipping containers.

Containers are picked up by transport companies, who create a way-bill (Movement Authorization (MA form)) which is an important document in the BC reporting system. Encorp Pacific uses contracted transportation services to move all containers from 170 depots and 275 grocery stores.

The transporter generated waybill document can be a paper form, or in some cases an electronic form created by a hand-held computing device which records the type of container, shipping container size and which depot is shipping the redeemed containers. The transporter counts the number and types of shipping containers they are loading from each depot. Transporters get paid by the number of bags hauled, thus an accurate count is important to them. Encorp cross-references the declared number of bags that a depot reports that they have shipped, versus the transporter's count of number of bags they have loaded for shipment.

The transporter hauls the containers to a processor, who counts the bags coming off the truck. The processor signs off on the MA forms and sends them to Encorp Pacific. Encorp then enters the MA documents into their accounting system. Encorp Pacific pays the depots (deposit refunds and handling fees) and transporters directly through Electronic Funds Transfer (EFT) to their respective bank accounts.

A percentage of all received bags are diverted to Encorp Pacific's QC facility for detailed counting. Encorp Pacific's counting reconciliation is all done by their own staff in an on-going program that operates year round, and attempts to check 5% of shipments.

Encorp Pacific uses mechanical and electronic counting devices to count the number of containers in the samples of shipped bags from a given depot. If counts are incorrect within a certain variance, depots are notified and payments to that depot are deducted. If there is apparent and wilful misrepresentations of counts Encorp Pacific can suspend or withdraw the operating contract of the problem depot.

Encorp Pacific has invested in staff (five to eight), plant and equipment to develop a robust and procedurally durable QC program. They believe that miscounts and fraud have been reduced significantly by these investments, which have a short return-on-investment period, for this company.

***Alberta***

The Alberta Beverage Container Recycling Corporation (ABCRC) operates the largest portion of the beverage container deposit-return program in Alberta. They handle over 1.6 billion containers per year, with cash flows exceeding $150 million annually. Reconciliation and audit control is of paramount importance with that amount of money circulating within the Alberta deposit-return system.

ABCRC uses predetermined codes for the multiple number of sorts that they have. ABCRC has 27 possible sorts, based on material types and the sizes of containers. In operational terms about 12 – 15 of these sorts comprise 95% of the container volume moved in Alberta.

ABCRC provide numbered Bill of Lading forms to depots. This form (Appendix C) is used by each depot to declare the number of containers being shipped in any sort. In Alberta counts are in “dozens shipped” rather than numerical counts. This is a historic aberration of this system. Shipping is done in cubic metre mega-bags, with a set number of containers required to go into each bag based on the size and material type of the container. For example, 1800 aluminum cans, 960 PET 1 L or less, 300 PET bottles > 1 L size etc. go into a mega-bag. Once that number of containers is placed in a shipping bag, the bag is closed off, and a label affixed. This label identifies the depot, the declared count placed in the bag, and the sort number of the shipment identifying which type/size of container is in the bag.

Contracted transport companies pick up bags of containers from depots. The driver does a manual check of the bags being loaded, against the printed Bill of Lading that the depot provides them upon commencement of loading. The driver signs the Bill of Lading and leaves one copy with the depot. Upon arriving at the processing centre (PC) the driver provides the PC office a copy of the Bill of Lading. PC receiving dock staff then off-load the bags, and enter the label information of each bag into their receiving dock computer system. The receiving dock information is then reconciled with the Bill of Lading information the office has obtained upon arrival of the shipment. In this way, the Receiver is doing a “blind count: of the bags entering the facility and this can be cross-checked with the declared shipment that appears on the Bill of Lading.

Off-loaded containers are either directly processed into bales or broken glass, or staged for processing when equipment is available.

ABCRC has a rigorous quality control program in place. They try to examine 5% of all bags in the system annually. They have several levels of checking the counts declared by depots. They do random checks on bags, meaning they are not targeting any Particular depot, but just checking bags. Another level is a more directed check where QC staff selects more bags to check from a given depot for various administrative reasons (i.e. history of incorrect counts). ABCRC staff does the QC check and they do this in different ways for different materials. For aluminum cans (60% of total volume in AB) they use mechanical / electronic counting machines to check counts. For most of the other container materials they have electric counting devices (i.e. light curtains or other devices) that can count containers quickly and in some cases automatically.

ABCRC do not normally do manual counts to reconcile shipments as they have found this to be unreliable. ABCRC has invested in mechanical and electronically aided counting machines to aid in accurately reconciling counts.

ABCRC have a gradient deduction system in place whereby depots with variances beyond agreed upon tolerances (agreed with the Depot Owners Association and the Beverage Container Management Board) are deducted the redemption value and the Container Recycling Fee (CRF) for inaccurate declarations of containers shipped. In the worst case situation this gradient policy can result in a deduction being made against an entire load of containers shipped from a depot.

This Quality Control program is well documented, and has resulted in more accurate counts in Alberta. This is a full time on-going program operated by ABCRC staff. ABCRC has invested considerable funds into their QC program and believe that the return-on-investment for doing so is well worth it in terms of data accuracy and fraud reduction.

***New Brunswick***

Encorp Atlantic works with 13 sorts within their deposit-return system. All containers are redeemed at depot level, with no return to retail in the province. Depots place redeemed containers into cubic metre bags which once full are tagged, with a label. The label has the depot identification number printed on it. The label identifies which sort the containers in the shipping container belong to, and the depot declares the quantity of containers they have placed in the mega-bag, which is printed on the label. Each label has a distinct barcode which is the identifier for the bag of redeemed containers. (label appears in Appendix C)

Bags are collected from depots on a regular basis by a contract hauling company. The transport driver scans the barcode with a hand-held device at the time of pickup and enters quantity and the sort number for each tag. The driver leaves a paper pickup receipt at the depot, which is printed from the hand-held computer unit, which lists the bags by label number, the quantity declared and sort identification. Depots are paid based upon the scans taken at time of pickup at their depots.

The transporter delivers bags to one central processing centre in New Brunswick. At the time of off-loading the labels on each bag are once again scanned. This is called the unload scan. This scan identifies any bags the driver may have missed in loading and confirms that all bags leaving the depot have been delivered to the processing centre.

At the time of processing the container bags are scanned as they are emptied into the baler or glass crusher. The processor is paid based upon the scanned bags entering the processing equipment. A final scan is done as processed scrap product is taken out of baler or glass crusher to track which materials are in each bale or bin of scrap salvage material. Once this final scan is done, a scrap salvage product shipping label is affixed to each individual bale or box of glass, which can be used to track material as it leaves the processor. These steps are important to Encorp Atlantic since they own the scrap material, and its subsequent salvage revenue.

All scanned data is uploaded to Encorp Atlantic on a daily basis. Depots are paid by electronic fund transfer (EFT) to their bank accounts within 5 working days after their initial pickup date. Payment by EFT is the only option for payment offered to depots. This has not been an issue in NB since the start of the program. At the time a depot's payment is made to their bank accounts Encorp Atlantic also sends a payment letter to them via postal mail which summarizes the pickup to the number of units and the breakdown between refund, handling fee, tax and adjustments if applicable.

Encorp Atlantic operates a comprehensive QC program. Encorp Atlantic has two full-time staff operating this program, who work inside the processing centre. All transport and processor scanners have been pre programmed with a random sampling table, which determines which bags are to be sampled. Encorp also has the ability to force more QC checks to be done on depot shipments from depots where there have been historically inaccurate container counts. When the unload scan is performed, the scanner tells the receiver at the processing centre to pull certain bags, based upon the random sampling program that is programmed in to that scanner. Bags are selected randomly from the incoming shipment to be sent to QC. Encorp Atlantic's QC staff will

count the containers declared to be in the bags, using combinations of mechanical and electrically aided counting devices. QC personnel record their counts in a QC scanner which is uploaded to Encorp's server each day and automatically reconciled with declared container counts originating with the depots.

The QC program has two modes of random sampling: accelerated and monitored. In the accelerated mode, Encorp Atlantic selects 100 bags of aluminum, 100 bags of PET and 25 bags of other, over a given period of time.

In the monitored mode, Encorp Atlantic selects 19 bags from a given depot over approximately 6 months for detailed auditing. At the end of the detailed monitoring mode examination, Encorp reports the results to the depot reporting on their accuracy. If a depot has been placed on the "accelerated mode" of QC checks, depot payments will be adjusted if they are outside of a +/- 2 % tolerance limit on their counts.

The regularly monitored depot centers (not on accelerated mode) receive a report but no adjustment occurs if variances are found. If continued variances above the tolerance are noted, the depot may be placed on the accelerated QC program and face deductions. The monitoring mode lets Encorp evaluate whether or not to send a center to the accelerated mode. Note if QC finds that an adjustment in favour of the depot is warranted, it is paid promptly.

# 5.0 Processing Containers & Salvage Markets

## *5.1 Location and Distribution of Processing Centres*

BCP Processing Centres (PC) are located in Yellowknife, Hay River and in Inuvik. These are logical and appropriate locations for the PC's as they meet regional needs, serve the largest population areas, and optimize transportation services.

The PC communities are also where 78% of the volume of containers is recovered, from the depots operating in these three communities.

Performing refillable beer bottle re-processing (building marketable pallets to BDL specifications) is an effective way of handling those containers in Fort Simpson.

## *5.2 Processing Centres - Business Capacity*

Each of the three Processing Centres are privately owned. In the past the BCP has issued RFP's for processing services, and awarded five year contracts to the successful bidders. In 2010, the contracts were due for another round of a RFP and for a subsequent five-year award or renewal. The BCP chose to renew the existing contracts for the PCs for one year, which will expire in November, 2011, pending review of the program.

The capital equipment used by the PC is purchased by and owned by the BCP. The PC operator in some cases has taken advantage of a BCP loan programs to make improvements to their operations. All PC loans have been repaid to the program.

PC operators are paid on a per container basis, based on Processing Centre Handling Fees schedule, established by the Beverage Container Regulation.

Each PC was inspected by the consultant. We offer the following observations in connection with the Processing Centres:

- Equipment is of good quality:
  - Harmony balers , PC operators report few break-downs
  - Glass crushers appropriately sized
  - Briquetting machine(s) good quality, appear well maintained
  - Scales, fork-lifts, pallet jacks, other equipment in operational condition
  - The capacity of all equipment appears adequate for the processing required

- Building locations are well situated & suitable for container processing
  - Yellowknife PC and Hay River PC are close to the downtown areas
  - Inuvik PC is located somewhat away from the downtown area. This PC had a fire in its original building in 2010, and was relocated to leased premises. Whether this PC will continue on in the leased location is undetermined.
  - Lighting, high ceilings and adequate space are available at all PC's
  - Dock doors for receiving and shipping are adequate

- Processors business capacity
  - Based upon interviews with each of the three PC operators our view is that each owner exhibits strong business skills, and has the capacity to operate a well run processing centre
  - Each owner operates more than one business in their respective municipalities
  - Each PC company has been in business for many years
  - In interview discussions each owner displayed an entrepreneurial attitude when discussing potentially new EPR designated materials coming under a NWT recycling program
  - In discussions with PC owners, no serious concerns or complaints were voiced about the BCP when discussing the program with the consultant.

## 5.3 Processing Centre Operations

### 5.3.1 Receiving & Counting Containers

At the Yellowknife PC, all aluminum cans and plastic soft drink, juice and water bottles are off-loaded and weighed, and then a count is calculated based upon a conversion factor that was for aluminum cans, 30 containers per pound. As of March 15, 2011 this conversion factor was amended by authority of BCP staff to 32 cans per pound. This adjustment was made upon receiving updated weight information, provided by the consultant, based upon conversions used by similar programs in southern Canada and from information received from the can scrap buyers (markets in the USA).

The PC's apply a conversion factor to all PET received by weighing it and applying a factor of 18 containers per pound. PC staff record the depot location being off-loaded and weight of the mega-bags of cans and plastic bottles. They then record the weights of the bags, and calculate a count based upon a weight conversion factor.

At the Yellowknife facility all gable cartons, tetra/aseptic juice containers, pouches, all plastic alcoholic containers, and milk containers of all sizes are manually counted. Manual counting of these containers was observed during field visits. Staff were emptying mega-bags onto the baler conveyor then PC staff members were manually counting the containers as they went by on the conveyor to the throat of the baler.

Hay River has a slightly different procedure. Aluminum cans and plastic soft drink, juice and water bottles are off-loaded and weighed. Plastic non-alcoholic > 1 L (soft drink, juice & water) is weighed separately from plastic <1L; and two different conversion factors are accordingly applied. Small alcoholic plastic bottles use a conversion factor of 11 containers per pound. Hay River uses a number of conversion factors: Tetra (small) @ 50 per lb; Tetra (large) @ 12 per lb, Gables, all sizes @ 8 per lb; Tetra (milk, long life) 1 L and under @ 12 per lb; Gables (milk) 1 L and under @ 12 per lb; Gables (milk) 2 L @ 8 per lb; Plastic (milk) 4 L @ 7 per lb and Plastic "milk to go" @ 7 per lb. It is unclear to the consultant a) who developed these conversion factors, or b) what methodology was used to develop them. There are no written procedures within the BCP to establish, routinely check or revise these conversion factors.

Most of the deposit-return systems operating in Canada use weight to count conversion factors only as a ***rough*** check on the number of containers being received. These conversion factors are developed using total monthly or annual weights of container scrap materials sold versus the declared redemptions made by depots. Most Canadian deposit-return programs operate QC programs as their on-going day-to-day method of

checking declarations of containers from depots against what is actually received at processing centres.

As an example, SARCAN in Saskatchewan continues to use weight conversions for every load received at their two processing plants. SARCAN's current weight conversion factors are:

- aluminum 31.7044/ lb.,
- under 1 litre PET 17.6234/lb.,
- large PET at 7.9697/lb.
- tetra 21.6776/lb.,
- gable-top at 6.0767/lb.,
- glass under 1 litre1.677/lb. and
- glass over 1 litre .6730/lb.

SARCAN's conversion factors are updated semi-annually by their staff audit counts versus weights. SARCAN reports that the weakest conversion correlation is on the glass where individual loads have a lot of variance. In addition to weight conversion verifications, fully manual audit counts are conducted weekly on random depot loads or depots not meeting the conversion numbers, by SARCAN staff. SARCAN owns both the depots and the processing centres in Saskatchewan, thus they are not as concerned about fraud as some other deposit-return programs are.

At the Inuvik PC aluminum cans and plastic soft drink, juice and water bottles are off-loaded to be weighed and a count calculated based @ 30 containers per pound (as of March 21, 2011 @ 32 per lb). Plastic, under 1 L is weighed and a count calculated based @ 18 per lb (alcohol and non-alcohol) while plastic 1 L and over is weighed and a count calculated based @ 8 per lb (alcohol and non-alcohol).

At the Inuvik facility all plastic alcoholic containers, tetra/aseptic and gable cartons, all glass (alcoholic & non-alcoholic) and all milk containers are counted by hand. During the field visit, the PC was not processing containers since they were working on their new equipment to make it operational at the time of our inspection.

Reference is made to Section 4.7.3 above, where we reported on methods of counting and reconciling container redemptions in other deposit-return programs in Canada. Deposit-return programs have tried using conversion factors to speed up the calculation of the number of containers that are redeemed in their systems, with limited confidence in the results.

Experience has shown that while conversion factors can be used as a guide to flag significant discrepancies between actual counts and estimated redemptions, conversion factors are a rough tool at best.

Internal evaluations by ABCRC in Alberta, Encorp Pacific in BC and Encorp Atlantic in New Brunswick have led these organizations to repeatedly demand accurate counting at depots, followed by rigorous reconciliation efforts through their Quality Control (QC) programs. These QC programs cross-check that the counts to ensure they are reasonably accurate within a certain range. Most deposit-return programs in Canada use a 2% to 5% tolerance for miscounts, thereafter depots receive deductions for miscounting. Deposit-return programs must view container counting and reconciliation to be as important as counting money – which in essence is what every redeemed container represents.

We believe that the reconciliation methods currently used in the BCP:

- Could be improved if policies were created stating how the reconciliation is to be standardized (i.e. Yellowknife appears to have some different practices compared to Hay River. We are uncertain about how Inuvik does this since they were not able to show us at the time of the field visit)
- Reconciliation is not independent
    - Processing centres do the reconciliations
    - PC's cannot be viewed as independent parties, as they are paid a fee for every container they process. They have a vested interest in processing as many containers as possible to optimize their revenues (the consultant saw no evidence that any of PC's were inflating counts)
- Weight conversion practices are not reliable because:
    - There is no written policy of the methodology of how conversion factors are arrived at, amended , confirmed or applied
    - An independent analysis of potential errors in using weight to count conversions has not been done by the BCP
    - In our view weight conversions are inherently inaccurate because:
        - Liquid in containers can add significantly to weight measurements
        - Foreign materials can be present and not detected until after weighing
        - Different sized mega-bags can be used over the years, with different weights
        - Dirty mega-bags gain weight over time
        - Moisture (rain or snow) on or in mega-bags is an uncontrollable variable affecting weight measurements
        - Inaccurate, un-calibrated, dirty or poorly maintained scales

- Hand counting **is** inaccurate and unreliable. This has been proven in practice by deposit-return programs across Canada. Most deposit-return programs with effective reconciliation / QC programs use mechanical or electronically assisted counting devices for Quality Control checks of counts.
- There is no set number of containers that must be placed in each shipping bag – the depot declares how many of a type / size have been redeemed and reports these in a Depot Monthly Report
- Incorrect undercounts short pay depots / processing centres while high counts pay for nonexistent containers for which no distributor revenues were received into the program, depleting BCP financial resources

The QC and reconciliation procedures of the BCP do not meet deposit-return best practices when compared to similar programs in Canada.

### 5.3.2 Processing Glass

Non-refillable (NR) glass containers are received at PCs, reconciled for their counts by hand counting, then destroyed (broken) and the glass discarded. Refillable beer containers are reconciled by counting the number of cases of beer bottles on a given pallet and trans-shipped on those pallets to BDL in Edmonton.

NR glass bottles represent 9% of the total volume of containers (2009 – 2010 Annual Report), or about 2.37 million containers. Refillable glass bottles represent 10% or 2.8 million containers per year.

Once non-refillable glass is broken at the processing centres it is shipped to landfill or discarded. At the Yellowknife and Inuvik PCs, the operators are charged a fee for the disposal of the glass at the municipal landfill. Hay River disposes of their broken glass on their own property as land reclamation fill, at no additional cost to them.

Having NR glass containers in the deposit-return program, then not recycling the glass appears to be counterproductive to the environmental objectives of the program. Having large and small non-refillable glass in the system, where consumers pay a total surcharge 35 cents with a 25 cents refund appears to be financially and environmentally inefficient, since this glass is ultimately landfilled.

In Section 5.3.3, below we examine the environmental impacts of current practice for NR glass, and discuss recycling the glass instead of disposing of it. We recognize that

under current financial conditions it would be more costly to ship the non-refillable glass to an end-market in the south, however we discuss the environmental and energy benefits of doing so. Later in this review we examine financial models (use of a CRF) which might offer a feasible alternative for NR glass to be recycled.

If a decision was made to remove non-refillable glass from the program, that would remove less than 10% of the total containers from the program. We doubt that a significant shift to more glass packaging would occur if this material type were removed from the program. This is because there are few alternative packaging choices of beverages available to replace those in glass (i.e plastic or metal cans). Removing glass would also reduce revenues with wine and spirits unredeemed deposits not being available to the BCP.

We noted that the BCP pays the freight for refillable beer bottles which are transported from the NWT to Brewers Distributing Ltd in Edmonton. It is our understanding that BDL pays the freight charges for shipping from depots and processing centres in every Province in western Canada. We have also confirmed that brewers pay these freight charges in the deposit-return jurisdictions in Atlantic Canada. The BCP may wish to review the current memorandum of understating between the brewers representatives (BDL) to determine if this cost can be transferred to the brewers.

### 5.3.3 Impacts of Handling Non-refillable Glass

We have estimated some of the environmental consequences of moving glass in the NWT program to a southern market, to give the BCP a preview of the environmental benefits that may be available in recycling NWT NR glass. Currently non-refillable glass bottles (~890 tonnes annually based on a 5-year average of returns) are being shipped to processing centres in Yellowknife; Hay River and Inuvik, being broken and then being disposed of in the PC municipalities.

We estimate that the transportation emissions for moving glass from the NWT depots to the three processing centres, is equivalent to ~ 20 tonnes (20,000 kgs) of greenhouse gas emissions (CO2e). (Source: CN Greenhouse Gas calculator tool)

In our analysis, recycling the NR glass would involve shipping this material to the nearest viable market, for which we chose as the glass recycler in Airdrie, Alberta. This recycler processes glass bottle cullet (broken glass) which in turn is used to make fibreglass insulation.

If the BCP decided to recycle the glass rather than dispose of it, some of the environmental consequences of doing so are outlined below.

In our analysis, we assumed 45 truckloads (carrying 20 tonnes each or 890 tonnes annually) would be shipped annually from the NWT to Airdrie, AB. This includes:

- Yellowknife: 27 trucks annually travelling 1,759 kms one-way
- Hay River: 13 trucks travelling 1,352 kms one-way, and
- Inuvik: 5 trucks travelling 3,483 kms one-way

The analysis did not consider alternative transportation methods, if relevant, such as barge or railway transport or whether that is a reasonable possibility.

The total incremental new mileage (via road) would equal approximately 79,049 kms of truck transport to haul 890 tonnes of glass for recycling. This is equivalent to an additional 87 tonnes of GHGs or to adding an additional 16 cars to NWT roads each year.

But the environmental benefits of recycling glass go well beyond simply diverting waste from landfill or preventing litter.

Recycling a glass bottle, into a new container or into fibreglass saves a significant amount of energy which would have otherwise been generated, usually by burning carbon based fuels thus generating green house gases. Additional resources are expended to create that energy to extract, transport and process raw materials needed to produce the glass to make new bottles. In terms of production alone, for every ten percent increase in glass cullet used, greenhouse gases and other common pollutants are reduced. Specifically[2],

- 6 Celsius reduction in furnace operating temperature with a resulting reduction in particular matter of about 7 percent and a significant extension of furnace operating life;
- 3 % reduction in fossil fuel requirements which directly translates into a 3 percent reduction in CO2 emissions;
- 6 % reduction in Nitrogen Oxide emissions resulting from lower operating temperature and fossil fuel use;
- 17 % reduction in CO2 associated with the conversion of raw materials into glass, and

[2] Source: Owens Illinois Inc.; a major glass container manufacturer

- Similar environmental benefits result from recycling glass bottles into fibreglass

According to Environment Canada's Waste GHG Calculator (2009), the benefit from recycling 890 tonnes of glass bottles into new bottles or fibreglass insulation is equal to avoiding 106 tonnes GHGs. Therefore the 87 tonnes created by the transportation are being off-set by the 106 tonnes of GHG savings, resulting in a positive impact on GHG emissions (avoiding 19 tonnes of GHGs) resulting from recycling these containers rather than disposing of them in landfill.

With this in mind, the challenge for Northwest Territory is to find the most economically efficient methods of transporting quantities of glass to a recycling market, rather than disposing of the glass in landfill. Alternately the BCP could find a mechanism to charge distributors selling their products in NR glass a surcharge equivalent to meeting the costs recycling those containers.

In another part of this report we discuss using multiple-variable Container Recycling Fee models to finance the BCP, with each container paying its own way. One model assigns a separate fee to each class of material and container size. This model limits the amount of cross subsidization between material types. A simpler multiple-variable model has only two fee levels (10-cents for glass, and 5-cents for non-glass).

This may impact the packaging choices made by distributors and/or users and favour the use of, cheaper to manage, aluminum cans and PET. However, most NR glass beverages (liquor / wine/ juices) have no alternative packages available to market their products, so we do not believe a market shift is possible.

It should be noted, however, that setting non-refundable fee rates based on the cost of managing the system alone does not take into account that one container type, such as a refillable glass bottle, may actually be the most environmentally efficient packaging. A more thorough review of the environmental and economic benefits (i.e. jobs) associated with the packaging, from cradle-to-grave, should be considered.

There may be opportunities to move this glass by barge or by rail once in a province, or some combination of both. Moving freight by rail can reduce greenhouse gas emissions by as much as 75%. We are not aware whether rail connections from Hay River might be suitable for this type of bulk transportation. This would require a longer period of storage for the glass with annual or bi-annual shipments out of the NWT by rail to Alberta or other selected end-markets.

This option could be investigated with input from key recyclers like Owens Illinois and Saint Gobain (glass bottles and jars); Owens Corning or Johns Mansville (fibreglass) providing guidance.

**Refillable Beer Bottles**

We also looked at the green house gas impacts of shipping refillable beer bottles (one-way) to Edmonton.

Refillable glass beer containers are now shipped on trucks on an as needed basis, and result in about 77 additional tonnes of GHGs emitted to the atmosphere.

However, these bottles are reused about 15 times each. Reuse (and recycling un-usable refillable bottles) avoids the production of about 475 tonnes of new glass. This has a net benefit of roughly 398 tonnes of avoided GHGs. Supporting the use of refillable beer bottles in the NWT is environmentally beneficial.

A more detailed table on the environmental benefits of reusing and recycling aluminum cans, PET, and glass containers is presented in Section 6**.**

### 5.3.4 Processing Handling Fees

Processing centres are paid on a per container basis. Processing Centre Handling Fees (PCHF) range from 2¢ per container (small containers, aluminum, and plastic other) to as high as 3.7¢ per container (for large sizes of large PET plastic, and glass containers), and 4.5¢ per container for processing all milk containers > 1 litre.

In Appendix E, we present detailed data which calculates a weighted average Processing Centre Handling Fee, based upon 2008/2009 and 2009/2010 fees paid (where detailed data was available), to show how we calculated the weighted average. The average PCHF paid is 2.181¢ per container.

Table 9 below illustrates the handling fees paid in the previous fiscal years for which PC data was available.

## Table 9 - Processing Handling Fees Paid 2007 - 2010

| Processor Centre Analysis | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | 2007/2008 | | 2008/2009 | | 2009/2010 | | |
| | Region | Depots / Satellites Serviced | Containers Received | Processor Handling Fees Paid [1] | Containers Received | Processor Handling Fees Paid | Containers Received | Processor Handling Fees Paid | Average |
| Yellowknife | North Slave | 5 | 12,276,878 | $270,261.49 | 13,389,307 | $291,226.27 | 13,477,889 | $290,308.51 | |
| | | | per container | 2.201¢ | per container | 2.175¢ | per container | 2.154¢ | 2.177¢ |
| Hay River | Deh Cho / Satu / South Slave | 18 | 7,323,119 | $154,392.43 | 7,516,719 | $163,362.32 | 8,126,213 | $179,117.92 | |
| | | | per container | 2.108¢ | per container | 2.173¢ | per container | 2.204¢ | 2.162¢ |
| Inuvik | Inuvik | 8 | 5,263,616 | $116,271.33 | 5,310,385 | $118,411.19 | 4,767,755 | $105,825.05 | |
| | | | per container | 2.209¢ | per container | 2.230¢ | per container | 2.220¢ | 2.219¢ |
| | | 31 | 24,863,613 | $540,925.25 | 26,216,411 | $573,006 | 26,371,857 | $575,258 | |
| | | | | 2.176¢ | | 2.186¢ | | 2.181¢ | 2.181¢ |
| Notes: Processor Handling Fees Paid data from BCP Annual Reports, 2007 to 2010 | | | | | | | | | |

For comparison purposes we have compiled processing cost information from seven of the eight deposit-return provincial programs, and the Yukon program operating in Canada. We excluded Quebec from this analysis as their program differs from depot based system, and also because processing cost information were not available.

See Table 10 – below.

## Table 10 – Processing Cost Comparison

| Comparison Processing Costs - Canada [1.] | | | | | |
|---|---|---|---|---|---|
| | Total Containers Processed | | Processing Cost | | Cost Per Container |
| **Northwest Territories** | 26,371,857 | | $575,258 | | 2.181¢ |
| Yukon Territory [2.] | 17,869,938 | | $372,702 | | 2.086¢ |
| Nfld_ Labrador | 157,454,000 | | $1,874,000 | | 1.190¢ |
| British Columbia | 1,072,600,000 | | $10,400,000 | | 0.970¢ |
| New Brunswick | 166,105,000 | | $1,503,000 | | 0.905¢ |
| Prince Edward Island | 43,386,000 | | $370,000 | | 0.853¢ |
| Saskatchewan | 351,995,000 | | $3,000,000 | | 0.852¢ |
| Nova Scotia | 300,519,000 | | $1,829,000 | | 0.609¢ |
| Alberta | 1,472,700,000 | | $8,500,000 | | 0.577¢ |
| | | | | | |
| | 3,564,759,000 | | $27,476,000 | | 0.771¢ |
| 1. Processing costs are rounded, data supplied by each deposit return program | | | | | |
| Costs for 2009 - 2010 | | | | | |
| 2. Yukon reported 22,337,422 containers sold in 2009, financials not yet available, assume 80% recover | | | | | |

The weighted average processing fees paid in the Northwest Territories (2.181¢ per container) are significantly higher than the average processing fees paid in similar deposit-return programs across Canada, but similar to those paid in the Yukon.

### 5.3.5 Estimated Processor Salvage Revenues

The BCP in the NWT is unique in that the PCs own the scrap and get the revenue from the salvage materials sold to southern markets. In all other deposit-return programs operating in Canada, except for the NWT and the Yukon, deposit-return system administrators own the scrap and the PC is paid a fee for service to process containers. Scrap revenues in other deposit-return programs in Canada are viewed as an important revenue stream used to off-set operating costs to run those programs.

We examined salvage tonnage information voluntarily provided to BCP staff by the Processing Centres. No salvage tonnage information was available from the Inuvik PC, as those records were destroyed in a fire in 2010.

We estimated the value of BCP scrap salvage over the past several years, based upon our knowledge of container scrap markets. Scrap prices for the major container volumes, namely aluminum cans and PET plastic bottles, were the focus of our attention. Other materials such as glass, aseptic containers and gable carton materials are of little or no scrap value and are not relevant to this analysis.

We used scrap prices based upon aluminum bale prices received by ABCRC in Alberta, at their Edmonton processing plant. ABCRC markets their aluminum bales as part of a national co-marketing program which brings together seven provincial deposit-return programs from across Canada which collectively sell over 50 million pounds of aluminum can bales annually to one buyer. ABCRC sells all their plastic scrap to Calgary-based Merlin Plastics Inc. To estimate the value of the scrap from the NWT container recycling program we made the following assumptions:

- Aluminum cans, as bales, are sold at a delivered Edmonton price; assuming 33,000 pound (15,000 kg) loads; road delivery cost to Edmonton ~ $2,000 cost or 6-cents per pound freight from Yellowknife
- Prices available to NWT seller of aluminum cans, as bales also discounted an additional 6-cents per pound as not having premium prices available to them, as part of a national co-marketing arrangement (like ABCRC has)
- PET prices as offered to Alberta program, discounted 6-cents per pound for freight costs
- Mixed plastics (PET, Polypropylene, Polystyrene, HDPE, other) estimated a 50% price of PET bales, delivered Edmonton

Table 11 summarizes the estimated revenues from BCP scrap that NWT salvage materials should have generated based on available scrap price data from 2008 to the start of 2011.

## Table 11 – Estimated value of BCP Scrap

| | | 2008 Estimated Revenue | 2009 Estimated Revenue | 2010 Estimated Revenue | 2011 [1., 2.] Estimated Revenue | Total |
|---|---|---|---|---|---|---|
| **Yellowknife PC** | Aluminum | No data | No data | $373,037 | $62,109 | |
| | PET & HDPE Plastic | $8,322 | $9,320 | $29,984 | $15,131 | |
| | | **$8,322** | **$9,320** | **$403,021** | **$77,240** | **$497,903** |
| Estimated aluminum revenue per can | | No data | No data | 1.77¢ | 2.34¢ | |
| Estimated revenue per plastic bottle | | 0.29¢ | 0.36¢ | 0.94¢ | 0.16¢ | |
| **Hay River PC** | Aluminum | $13,667 | $69,742 | $51,500 | $7,236 | |
| | Mixed Plastic | -$1,282 | -$3,354 | $1,626 | $2,240 | |
| | | **$12,384** | **$66,388** | **$53,126** | **$9,476** | **$141,374** |
| Estimated aluminum revenue per can | | 1.47¢ | 1.24¢ | 1.63¢ | 1.80¢ | |
| Estimated revenue per plastic bottle | | -0.25¢ | -0.10¢ | 0.09¢ | 0.23¢ | |
| Inuvik PC | No data | No data | No data | No data | No data | |

1. For 2011, Yellowknife PC shipped 2 loads of aluminum, and 2 loads of plastic bales to March 31, 2011.
2. Hay River shipped one load of aluminum, of mixed plastics to March 31, 2011

Details of our estimates of these scrap revenues appear in Appendix F.

The combination of the processing fee costs per container coupled with the revenue that processors receive from the sale of container scrap, provide very strong revenues for the PC companies.

NWT PCs receive between 3.0 – 4.0 ¢ cents per container in combined Processor Handling Fee payments and scrap revenues. When comparing this figure to the average paid for processing across Canada (of less than 1-cent per container (Table 11, above)), this is a high price that is paid for the services provided.

For the BCP to not own the scrap is a loss of potential revenue as the value of the scrap now goes to the processors rather than being used as a revenue source within the BCP. We know of no other deposit-return program in Canada, other than the Yukon, that forfeits scrap revenues to processing service providers.

In other provinces processors are contracted service providers that own their own processing equipment and other assets, and get paid a fee for their services.

Processors in the NWT are provided balers, forklifts, pallet jacks, briquetting machines, cash registers, and glass breakers paid for by the BCP. Processors in the NWT have

relatively low overhead costs, compared to other deposit-return system processors in Canada, due to the capital equipment costs being borne by the BCP.

The three PC companies also operate the three largest redemption depots in the Northwest Territories. Together these three companies represent 78% of the total returns in the NWT. Combined they receive about $500,000 in depot handling fees each year, in addition to their processing fee revenue.

## Table 12 – Summary of Revenue Streams for Processors Centres

**Processor Revenue Summary**

| | Average Containers Processed | Processor Handling Fees Paid | Average Revenue Plastic | Average Revenue Aluminum | Blended Revenue Per Container [2.] | Total Paid to PC |
|---|---|---|---|---|---|---|
| | per Year | ¢ per Container | ¢ per Container | ¢ per Container | ¢ per Container | ¢ per Container |
| Yellowknife | 13,048,025 | 2.177¢ | 0.548¢ | 2.050¢ | 1.228¢ | 3.405¢ |
| Hay River | 7,655,350 | 2.162¢ | -0.020¢ | 1.540¢ | 0.827¢ | 2.989¢ |
| Inuvik [1.] | 5,113,919 | 2.169¢ | 0.264¢ | 1.795¢ | 1.027¢ | 3.196¢ |

1. Scrap revenues for Inuvik were not calculated, as data was not available. Use average of Yellowknife / Hay River to apply to Inuvik
2. Blended scrap revenue - considers revenues for alum & plastic, minus non-revenue for glass, cartons

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | Alum 54% | Alum Rev | Plastic 22% | Plastic Rev | Total Rev | Blended Per Cntr |
| YK | 13,048,025 | 7,045,933 | $144,442 | 2,870,565 | $15,731 | $ 160,172 | 1.228¢ |
| | | Alum 54% | Alum Rev | Plastic 22% | Plastic Rev | Total Rev | Blended Per Cntr |
| HR | 7,655,350 | 4,133,889 | $63,662 | 1,684,177 | -$337 | $ 63,325 | 0.827¢ |
| | | Alum 54% | Alum Rev | Plastic 22% | Plastic Rev | Total Rev | Blended Per Cntr |
| IVK | 5,113,919 | 2,761,516 | $49,569 | 1,125,062 | $2,970 | $ 52,539 | 1.0274¢ |

The Beverage Container Regulations allow a depot operator to also be a processing centre. This concentrates the business of recycling containers in the NWT to a very small number of companies (three).

Most container deposit return programs in Canada have separated some of the business functions of depots, processors and even transportation companies to avoid conflicts of interest. For example, we are not aware of any large depots operating in Canada that are allowed to reconcile their own counts because they also act as the receiving processor.

Currently there is no BCP policy to separate the business functions of depots, processors or transportation providers in the BCP. Indeed the Regulation allows such circumstances which could lead to problems for the program.

## 6.0 Recycling & Reuse of Containers

Understanding the Environmental Benefits of Reuse and Recycling Beverage Containers in NWT is worthy of some discussion.

A significant amount of energy goes into making the primary materials used to produce beverage containers made from aluminum, glass and PET plastic. When these containers are discarded, all that energy is lost. However, when a product is **reused** (i.e. refillable glass bottles) or made into a new container, from **recycled** materials, much less energy is required to produce it.

For example, using recycled aluminum saves 95% of the energy required to make a new can using virgin aluminum. Recycling aluminum also saves other natural resources by avoiding bauxite & coal mining, alumina refining and aluminum smelting; it also eliminates the need for caustic soda, chlorine, crude oil, petroleum coke, and carbon anode.

Virgin PET production requires natural gas production, refining, and catalytic reforming to name a few of the many stages of virgin production. Glass production requires mining several minerals like feldspar and silica which is energy intensive due to the high temperature required ( provided by burning fossil fuels) in the melting processes of a glass or fibreglass plant.

Avoiding these “up-stream” processes means significantly reduced energy usage and associated reductions in greenhouse gas (GHG) emissions. In one year alone, from simply reusing glass bottles and recycling aluminum; glass and PET containers in NWT, the BCP avoids 2,895 tonnes of greenhouse gas emissions on average. That is equivalent to taking 568 vehicles off of NWT roads each year.

The following table provides a summary of the net environmental benefits of reuse and recycling of the primary beverage containers redeemed annually in NWT’s BCP. The return estimates are based on the five-year average of returns by container type. The table presents the amount of emissions (GHGs) from shipping these containers by truck from processors in Yellowknife; Hay River and Inuvik to southern markets for recycling.

The analysis demonstrates that even though the shipping distances are significant (>1500kms one-way on average), the negative impacts caused by shipping are offset by the upstream environmental benefits of reuse and recycling.

## Table 13 – Environmental Benefits of Re-Use & Recycling

| | 5-year average returns in units | Weight per unit in grams* | Estimated Tonnes | Net Emissions from Reuse & Recycling** | Net Emissions incl. truck transport |
|---|---|---|---|---|---|
| REFILLABLE BOTTLES | 2,905,060 | 263 | ***764*** | **-475** | **-398** |
| ALUMINUM CANS | 13,915,116 | 14.8 | ***206*** | **-1991** | **-1964** |
| PET BOTTLES | 5,196,163 | 28 | ***145*** | **-528** | **-514** |
| N/R - Non-alcohol<L GLASS | 467,679 | 190 | 89 | | |
| N/R - Non-alcohol>L GLASS | 38,569 | 420 | 16 | | |
| N/R Alcohol<L GLASS | 1,323,583 | 230 | 304 | | |
| N/R Alcohol> L GLASS | 4,052 | 420 | 2 | | |
| N/R Alcohol - wine/spirits GLASS | 1,139,537 | 420 | 479 | | |
| TOTAL N/R GLASS | | | ***890*** | **-106** | **-19** |
| ***TOTAL*** | | | ***1241*** | ***-3100*** | ***-2895*** |
| | | | | | |
| Edmonton for **refillable bottles** (kms) | | | 1840 | **77** | |
| Vancouver for **aluminum cans** (kms) | | | 2347 | **27** | |
| Calgary for **PET** (kms) | | | 1806 | **14** | |
| Edmonton for **N/R glass bottles** (kms) | | | 1771 | **87** | |
| MRFs to Market (Edmonton; Vancouver; and Calgary)**** | | | | ***205*** | |
| ***TOTAL NET ENVIRONMENTAL BENEFIT (Avoided GHGs)*** | | | | ***(2,895)*** | |
| EPA Stats of 5.1 MTCO2e/vehicle. | | | | 568 | |
| ***NOTES*** | | | | | |
| *Based on weight-to-unit data from other programs in Canada | | | | | |
| (October 2009) - note: negative values are "avoided" emissions. Avoided emissions for glass reuse were calculated | | | | | |
| ****Shipping emissions were calculated using CN Greenhouse Gas Calculator. Www.cn.ca | | | | | |

In Section 5.3.5; we discussed the practices of current PCs selling scrap container materials to southern markets. In this section we will discuss recyclable scrap markets in general to provide an outline of the current status of markets for container material commodities.

## 6.1 Aluminum - A High Grade Commodity

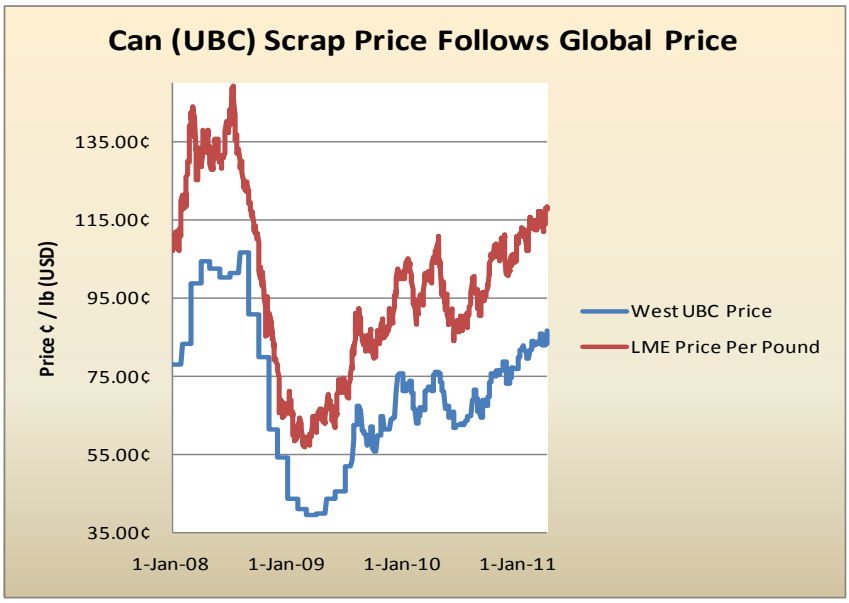
The most valuable scrap material recovered within the BCP is aluminum. Aluminum is a high value commodity metal that is globally traded. Accurate public pricing of this commodity metal is readily available from information published daily by the London Metals Exchange (LME) in the United Kingdom.

The price of virgin (99.9% pure metal) is quoted twice daily on the LME. The term "used beverage containers" (UBC) is used to describe aluminum cans in the aluminum scrap trade. UBC's are a highly sought after source of aluminum metal used for making new aluminum cans. Because 95% less energy is required to melt and remanufacture a can using UBCs is an economic driver for the aluminum can sheet and can manufacturing industries.

Across North America, approximately 1.5 billion pounds of aluminum beverage cans are recycled back into new beverage cans each year. There are direct correlations between the price of virgin aluminum and the prices quoted by scrap buyers for aluminum can bales. This is a complex industry with many participants, including scrap dealers, brokers, hedge fund managers, major aluminum recycling companies, private investors and speculators. The UBC scrap price follows the LME aluminum price.

Aluminum bale prices over the past several years are illustrated below, in Figure 5

### Figure 5 – Aluminum Salvage Prices



## 6.2 Plastic Scrap

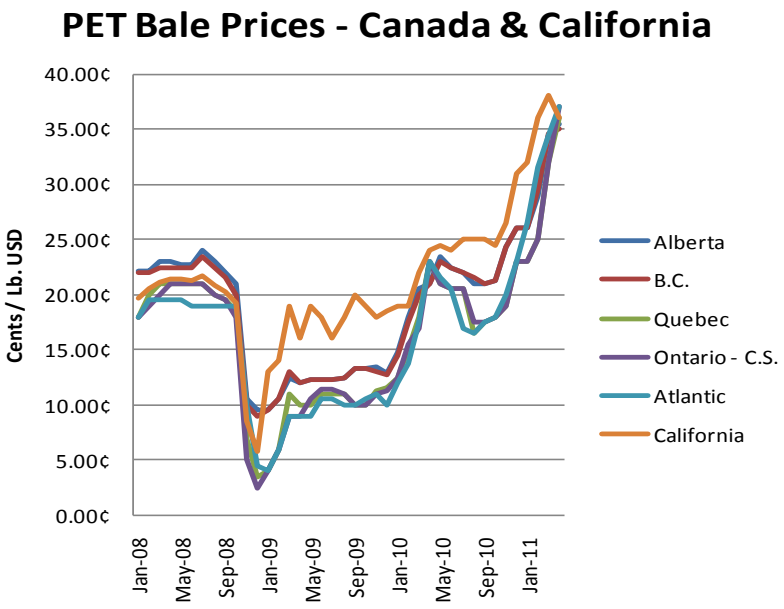
Plastic scrap from beverage container programs are valuable materials, because contamination levels are low compared to other large volume scrap sources. Deposit-return system bales of PET (polyethylene teraphthalate) and HDPE (high density polyethylene) plastic are the second most valuable scrap streams in a deposit-return program. Soft drink bottles and water bottles are the most common uses for PET, whereas milk jugs are made from HDPE. Other forms of plastic such as polypropylene, polystyrene, polycarbonate, plastic pouches and other miscellaneous plastics are viewed by recycling markets as contaminants. The presence of these contaminants in plastic bales devalues them.

Plastics markets have undergone a considerable roller coaster price curve in the past 4 years. PET and HDPE scrap prices reflect the price of petroleum products (natural gas and crude oil), but also the supply-demand dynamics in the market. In recent months both PET and HDPE scrap bales have been in short supply across North America, hence their value has been bid up by buyers seeking supplies to operate their recycling plants. PET scrap is used to make a variety of useful products including: fiber for textile use, new bottles and jars, thermoformed blister packaging, trays, strapping, and engineered plastics.

Merlin Plastics Inc. operates one of Canada's largest plastics recycling companies, with facilities in Calgary and in Delta, BC. This company purchases scrap materials from as far east as Manitoba and south along the Pacific coast as far as California, and has been a buyer of bales from the NWT for some time. There are no other western Canada recycling facilities of any size for scrap plastics. Other options for suppliers to sell their bales are through brokers or scrap dealers with smaller scales than Merlin Plastics, and they usually offer poorer prices and service than an end market buyer.

Prices for PET are illustrated below. We include the California prices, as these prices usually set the pace of price increases or decreases for this commodity plastic in western Canada.

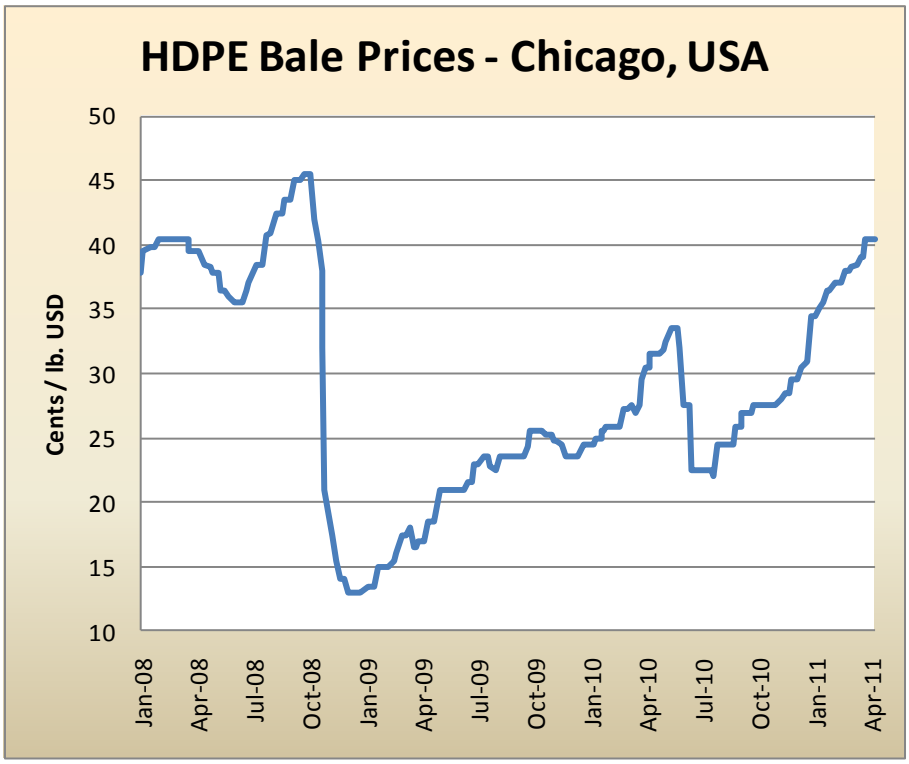
## Figure 6 – PET Salvage Prices




High density polyethylene prices have followed a similar up and down trend as petroleum feed stocks and demand has oscillated in North America. We illustrate the Chicago prices for HDPE, as they are the normal price trend setter for HDPE scrap prices in western Canada.

HDPE is used to make a variety of useful products, including non-food and food grade packaging, plastic pipe, injection molded products (lawn furniture, toys, household products).

**Figure 7 – HDPE Salvage Prices**




## *6.3 Glass Scrap*

Glass is a difficult material to handle, to process and to sell as scrap salvage. Glass is heavy and brings with it safety issues when broken. Usually glass cannot be transported very far to achieve any economic value for the materials. However, despite these costs there are greenhouse gas emission and energy saving benefits to recycling glass whenever possible. This was discussed more fully in Section 5.3.3.above.

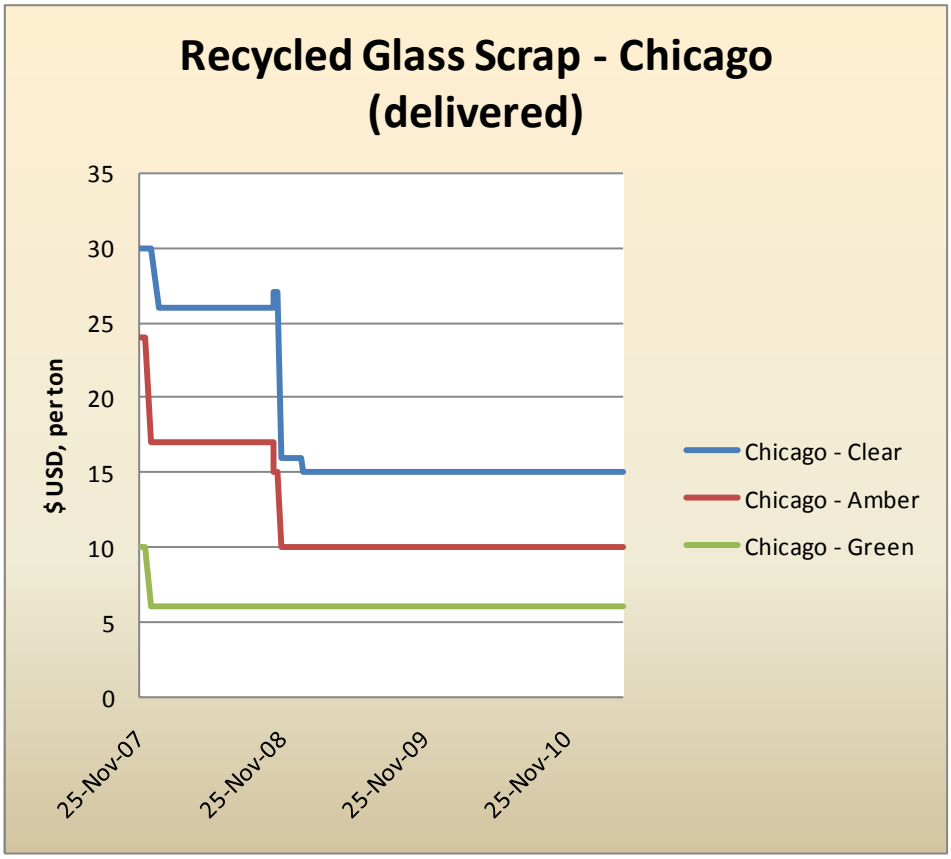
Glass markets are dependent upon large tonnage users, such as the fiberglass industry to provide a demand for the scrap material. That market has undergone a major down-turn since 2008, with a drop in new housing starts across North America, especially in the USA. Other uses are important as well, such as sand blasting aggregates, industrial fillers, reflecting products (highway signs, beads etc), and as a raw material source

for making new bottles and jars. The glass bottle and jar industry is economically dependent upon using a certain portion of scrap “cullet” (glass) in their new bottle and jar furnaces.

A good deal of research and work has been done to find local uses for glass scrap. Most of these have proven to require small tonnages of glass or have not been technically acceptable. Uses include: mining back-fill, landfill cover, replacement for aggregate in civil engineered construction, use as aggregate replacement in sewer and water line construction, glass-asphalt pavement, foamed glass ceiling tile manufacturing and other uses.

There are many grades and types of scrap glass. Buyers will specify whether they require clear glass, clear and coloured, mixed, or mixed broken glass which is usually from single stream municipal curbside programs. Each grade is used to make products for different buyers of the end products, and each grade is subject to the economic conditions of those customers markets. Below we present historic pricing (per ton) for glass scrap in Mid-western North America.

**Figure 8 – Glass Salvage Prices**




## *6.3 Other Beverage Container Scrap*

Containers such as polyvinyl chloride bottles (some juice), polypropylene bottles (some juice) and polycarbonate (some water) are considered contaminants and there are few viable markets in Canada for this scrap. Merlin Plastics (Calgary) and Plastrec Inc. (Jolliet, QC) sort these plastics from PET and HDPE bales, and market these plastics. They can do this using highly sophisticated sorting machinery which is only economical because of the large volumes of plastics bales they process (minimum of >50 million pounds per plant per year).

Drink juice boxes, known in the BCP as tetrapaks (Tetra Pak Inc owns the trade name of one type of aseptic container) or technically as aseptic containers, have some markets but these are in the USA or off-shore in Asia. The prices paid by buyers

historically have not recouped the cost of freight from southern Canada origins. When these containers are recycled the recycling program may lose money.

Gable carton materials also have some markets in the USA and Asia, but as with aseptic containers the cost of freight normally only pays the freight costs or may be a losing proposition for deposit-return programs that collect them.

In March 2011 the Canadian Carton Association was announced. One of the stated goals of this association is to assist in the development of markets for recycled cartons, including aseptic boxes. How this may change the markets for these materials remains unclear at this point.

In April 2011, most Canada deposit-return administrators were selling their aseptic and gable (polycoat) bales to Paper Tigers Brokers LLC, for $50.00 - $100 /ton US funds delivered to Cheboygan, Michigan, USA.  NWT bales of aseptic and polycoat are relatively small tonnages and are currently sent to market with materials shipped by ABCRC in Alberta.

## 6.3 Ownership of Deposit-Return System Scrap Revenues

In almost all cases in Canada, except in the NWT and the Yukon, the deposit-return system administrators or the distributors of the beverages own the scrap, and receive revenues from the scrap materials sold. The chart below illustrates this point:

### Table 14 – Ownership of Deposit-Return System Scrap

| | | | | |
|---|---|---|---|---|
| Ontario | Deposit-Return, for beer & wine & liquor; remainder municipal curbside | The Beer Store, Ontario Municipalities | Contracted out, or municipalities | The Beer Store, Ontario Municipalities |
| Quebec | Deposit-Return | Boissons Gazeuses Environnement / Brewers | Contracted out | Beverage Distributors |
| New Brunswick | Deposit-Return | Encorp Atlantic, NB Liquor Board/ Brewers | Contracted out | Encorp Atlantic / Beverage Distributors |
| Nova Scotia | Deposit-Return | RRFB Nova Scotia/ Brewers | Contracted out | RRFB Nova Scotia/ Brewers |
| Prince Edward Isl. | Deposit-Return | Department of Environment Energy & Forestry / Brewers | Contracted out | Department of Environment Energy & Forestry / Brewers |
| Newfoundland | Deposit-Return | MMSB / Brewers | Contracted out | MMSB / Brewers |
| Yukon | Deposit-Return | Yukon Government | Raven Recycling and P&M Recycling | **Processors** |
| NWT | Deposit-Return | NWT Government | 3 PC in NWT | **Processors** |

Notes:

ABCRC refers to Alberta Beverage Container Recycling Corp

BDL refers to Brewers Distributing Ltd.

CBCRA refers to Canadian Beverage Container Recycling Association

SARCAN is subsidiary of Saskatchewan Rehabilitation Association

MMSB refers to Multi-material Stewardship Board

# 7.0 Costs & Expenditures

The BCP was the first program created under the Waste Reduction and Recovery Act. The Environment Fund is a special fund which was set up under the Waste Reduction and Recovery Act.

## *7.1 Environment Fund Summary of Revenue & Expenses*

The Environment Fund handles all revenue received from regulated distributors and pays all BCP expenses connected with the Beverage Container Regulations. The GNWT may use surplus revenues from the Environment Fund to create new waste reduction and recovery projects. In 2010, a new bag program began operation in the NWT. Regulated single-use retail bag distributors pay into the fund accordingly. The portion of the funds attributed to the single-use retail bag program is considerably smaller compared to the Beverage Container Program

On the next page, we present the financial statement summaries, reported for the Environment Fund from the period 2005/06 to 2010/2011 (note 2010 / 2011 are preliminary and unaudited data).

## Table 15 – Environment Fund Summary

| **Revenues** | **2010/11** | **2009/10** | **2008/09** | **2007/08** | **2006/07** | **2006/05** |
|---|---|---|---|---|---|---|
| Beverage Container Program | $5,246,025 | $4,689,680 | $4,992,580 | $5,228,797 | $4,869,929 | $1,878,356 |
| Recovery - BCP | $43,392 | $0 | $0 | $0 | $0 | |
| **Total Revenues** | **$5,289,417** | **$4,689,680** | **$4,992,580** | **$5,228,797** | **$4,869,929** | **$1,878,356** |
| | | | | | | |
| **Expenditures** | **2010/11** | **2009/10** | **2008/09** | **2007/08** | **2006/07** | **2006/06** |
| Refundable Deposit Fee | $2,847,352 | $2,893,387 | $2,809,650 | $2,673,861 | $2,615,588 | $684,774 |
| Depot Handling Fee | $652,783 | $657,421 | $689,731 | $642,183 | $647,555 | $175,229 |
| Processing Centre Handling Fee | $548,777 | $588,444 | $573,942 | $529,574 | $541,070 | $171,380 |
| Wages and Benefits | $396,634 | $288,988 | $246,625 | $156,778 | $169,261 | $58,085 |
| Freight | $282,758 | $224,936 | $214,914 | $233,199 | $266,958 | $43,956 |
| Grants and Contributions | $122,814 | $140,508 | $74,890 | $101,220 | $91,588 | $0 |
| Contract Services - Satellite Depots | $62,521 | $62,397 | $98,612 | $99,835 | $85,535 | $6,400 |
| Storage | $47,391 | $58,085 | $60,511 | $61,941 | $51,439 | $6,474 |
| Travel and Training | $55,166 | $39,723 | $29,051 | $25,543 | $22,028 | $1,581 |
| Equipment, Supplies and Maintenance | $157,921 | $19,581 | $46,257 | $31,918 | $30,003 | $0 |
| Professional Fees | $24,568 | $18,769 | $13,825 | $27,525 | $58,461 | $0 |
| Insurance | $12,000 | $14,000 | $15,000 | $15,699 | $8,425 | $0 |
| Advertising and Promotion | $20,209 | $3,046 | $1,942 | $30,171 | $56,459 | $0 |
| Office | $8,950 | $536 | $1,462 | $15,182 | $37,772 | $6,077 |
| Miscellaneous Contracts | $10,702 | $0 | $0 | $40,400 | $0 | $0 |
| Minor Equipment Purchases | $0 | $0 | $0 | $0 | $61,474 | $0 |
| **Total Expenditures** | **$5,250,546** | **$5,009,821** | **$4,876,412** | **$4,685,029** | **$4,743,616** | **$1,153,956** |
| | | | | | | |
| Excess (deficiency) of revenue from operations | -$4,521 | -$320,141 | $116,168 | $543,768 | $126,313 | $724,400 |
| | | | | | | |
| Other Revenue | | | | | | |
| Interest Income | $22,902 | $9,254 | $45,245 | $59,818 | $25,866 | $0 |
| NWT Liquor Commission | $0 | $0 | $0 | $0 | $0 | $51,408 |
| Total | $22,902 | $9,254 | $45,245 | $59,818 | $25,866 | $51,408 |
| | | | | | | |
| Excess (deficiency) of revenue over expenditur | $18,381 | -$310,887 | $161,413 | $603,586 | $152,179 | $775,808 |
| (Discrepancy from Audited Financial Statements are a result of rounding) | | | | | | |

## *7.2 Costs - Compared to Other Jurisdictions*

We examined the costs of the BCP compared to other beverage container deposit-return programs in Canada. Comparing the costs on a program to program basis cannot be done without understanding some of the differences in deposit-return programs in Canada. Program variables include elements like performance levels, depot density, the level of customer convenience provided, the economies of scale of the programs and population density etc., all of which impact the cost of programs.

Consider for example the per capita cost of Saskatchewan's program which is about $14 per person. Saskatchewan reports having one of the highest performance rates in the country, in terms of recovery rates. Another variable which can significantly impact the cost per container is related to which container types are handled in the program.

Ontario's wine and liquor deposit-return program has relatively high costs per container at 10.4-cents per unit. This higher cost is associated with this system handling only wine and spirit containers rather than a broad mix of containers in that Province. The majority of packaging and paper products in Ontario is handled by  by municipalities using curbside recycling programs. The program covers over 5 million households and is partially funded by users of packaging and printed paper (50% of net municipal curbside recycling costs).

The Ontario wine and liquor deposit system has a high level of consumer access, to make returns, which adds to costs (through returns at hundreds of retail beer stores). The Ontario program also covers the cost of licensee (bars and restaurants) container pick-ups, which is not done in most Provinces.

Quebec's relatively low system costs are due to the fact that the program covers only soft-drink and non-refillable beer, which are mostly aluminum cans and PET bottles, that are lower costs to recycle. In addition, Quebec's commerically negotiated handling fee with grocers is the lowest in the country at 2¢ per container recovered.

Excluding Ontario's wine and spirit program, Quebec's soft-drink and beer program, and New Brunswick (where financial data was not available), the average cost per container recovered in Canadian programs is 5.8¢ per unit (5.5-cents is the median), which is lower than NWT at 8.4¢ per unit recovered (5-year average).  The Ontario wine/liquor deposit-return program, with its higher costs, is not directly comparable to the BCP for the reasons described above.

The NWT's program is more expensive due to economies of scale including high levels of depot service in every community; low population density; high processor costs, lack of scrap revenue and restrictive transportation options.

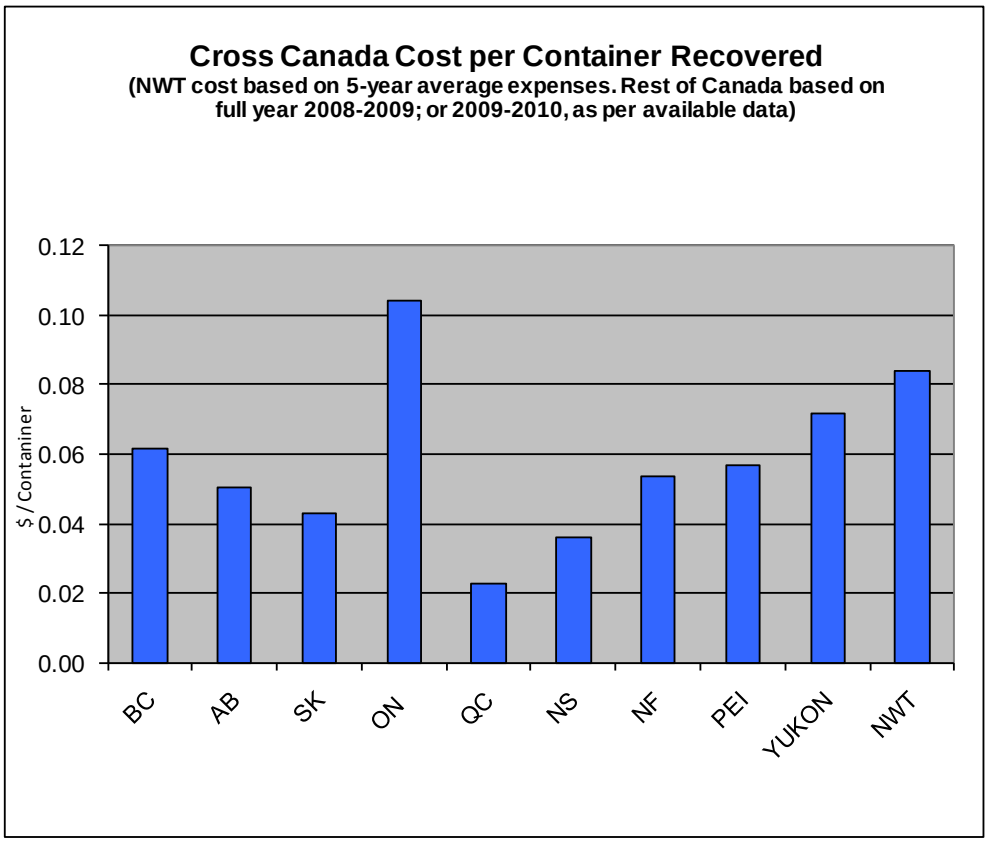
Given these considerations, the per container cost for the BCP of 8.4¢ per unit (based on a 5-year average), and 9.5¢ per unit (2010-2011), it is not unreasonable based on the small volume of containers returned, combined with the low population density. Consider for example that British Columbia's net cost per unit is 6.2¢, but that system handles well over 1.5 billion containers per year, which provides far better economies of scale for program costs.

Should the BCP decide to increase the depot handling fee, towards the national average, it would impact total expenses. This is because BCP handling costs make-up approximately 31% of total expenses.

NWT's costs are driven down relative to other provinces primarily due to the lower handling fees in NWT, which in 2009-2010 are a weighted average of 2.5-cents per unit recovered. This depot handling fee is the lowest in Canada except for Quebec, where that fee is a commercially negotiated fee between beverage distributors and their retailer customs. The Quebec system is a return-to-retail system and a direct comparison with a depot system like the one operating in the NWT would be misleading.

Handling fees usually make-up well over half of the total deposit-return in other programs in Canada. In the BCP depot handling fees are a significantly lower proportion of costs than in other provinces, at 31% of the total operating cost for the average of the 5 full program years.

## Figure 9 – Cost Per Container Recovered



Details of costs per container recovered appear in Table 16, below.

## Table 16 – Cross Canada Cost per Container

**Table 15 – Cross Canada Cost per Container**

| Province | Containers Covered | UNITS SOLD | UNITS RECOVERED | EXPENSES | COST PER UNIT SOLD | COST PER UNIT RECOVERED |
|---|---|---|---|---|---|---|
| BC | All excluding beer | 1,353,133,342 | 1,072,598,248 | $ 66,249,181 | 4.896¢ | 6.177¢ |
| AB | All excluding non domestic beer | 1,504,662,900 | 1,472,694,000 | $ 74,055,600 | 4.922¢ | 5.029¢ |
| SK | All beverage containes | 385,153,163 | 326,671,065 | $ 13,975,993 | 3.629¢ | 4.278¢ |
| ON | Wine, Spirits, and Imported beer only | 355,000,000 | 274,000,000 | $ 28,496,000 | 8.027¢ | 10.400¢ |
| QC | Beer and Soft Drink only | 1,506,832,771 | 1,023,628,739 | $ 23,017,263 | 1.528¢ | 2.249¢ |
| NS | All excluding refillable beer | 373,229,258 | 292,904,129 | $ 10,485,842 | 2.809¢ | 3.580¢ |
| NF | All non refillable containers | 221,346,132 | 149,746,294 | $ 8,005,643 | 3.617¢ | 5.346¢ |
| PEI | All non refillable containers | 58,096,538 | 45,010,981 | $ 2,565,626 | 4.416¢ | 5.700¢ |
| YUKON | All beverage containes | 22,404,125 | 17,426,893 | $ 1,249,795 | 5.578¢ | 7.172¢ |

## 7.3 BCP Costs - Since Inception

In the NWT, the costs of the Beverage Container Program were in decline relative to the amount of containers collected for the first four years of the program. In year one of the program, the per container cost was 8.5-cents per unit; in 2007/2008 it was 8.81-cents; in 2008/2009 it dropped to its lowest at 7.85-cents per unit; while in 2009/2010 per unit cost increased slightly to 7.91-cents per container. In 2010-2011, the per container cost increased significantly to 9.5 cents per unit recovered. The initial drop in costs is understandable considering that the first few years of program implementation may carry greater levels of initial program costs. The increase incurred in the last program year is explained by a dramatic drop in units recovered (a 6% reduction) and increases in expenses, most notably a 25% increase in freight costs; nearly 40% increase in wages and benefits; and a $130,000 increase in equipment related costs.

The costs per container for the BCP are illustrated in Figure 10, below.

### Figure 10 – Cost per Container from Program Start

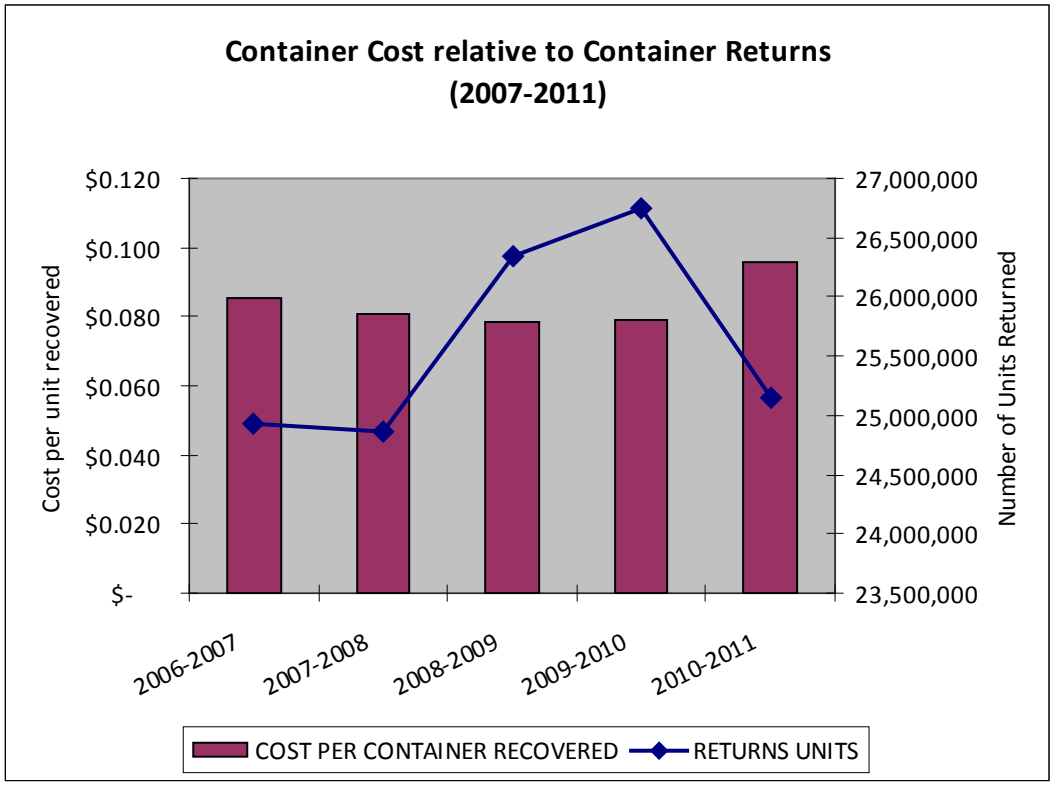


Table 17 below shows variations in costs year over year, with the greatest impact being an increase in wages and benefits from $169,000 to $237,000 (60% of Environment Fund expenses for wages and benefits are for the BCP) over five years, a 71% increase. The BCP has also been required to increase its training and travel expenses to meet the requirements of the program. Grants and contribution saw a 53% increase from $91,000 to $123,000. Freight on the other hand experienced a 16% decrease since year one (2006-2007), but a 26% increase from 2010/2011 compared to the previous year.

## Table 17 – Environmental Fund since Inception

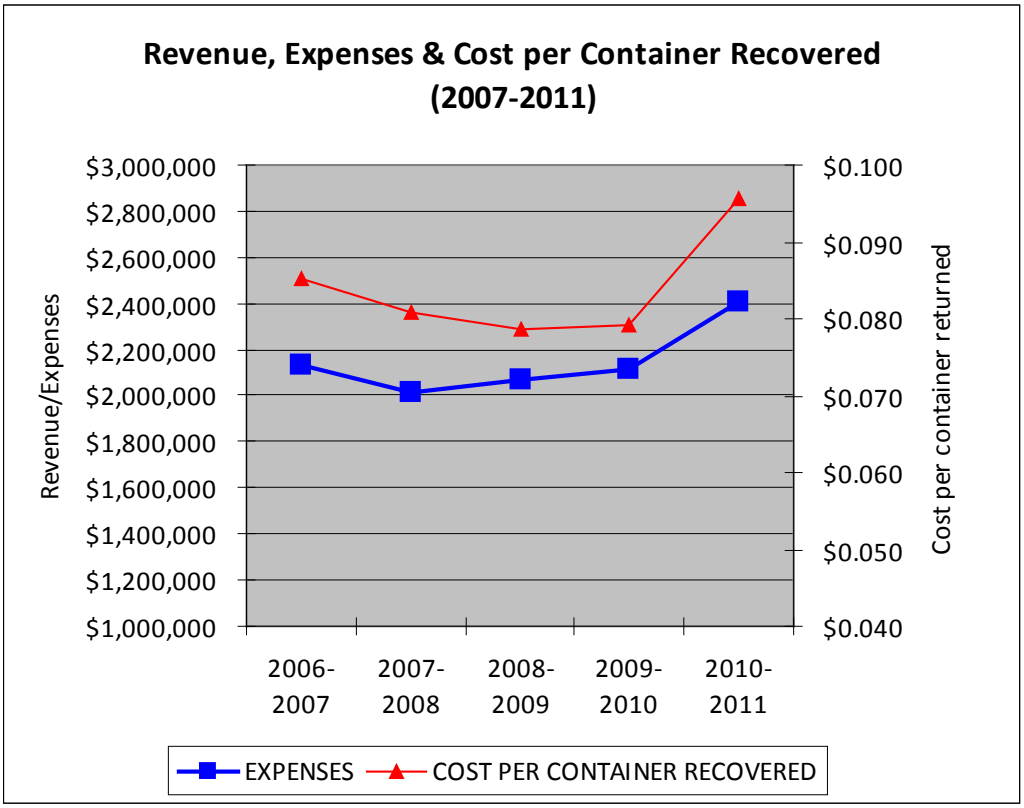
**Environment Fund - Expenses**

| | 2006/2007 | 2007/ 2008 | | 2008 / 2009 | | 2009 / 2010 | | 2010 / 2011 | | From Inception |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Change from previous yr. | | Change from previous yr. | | Change from previous yr. | | Change from previous yr. | Change from Inception |
| Refunds | $2,615,588 | $2,673,861 | 2.2% | $2,809,650 | 5.1% | $2,932,286 | 4.4% | $2,847,352 | -2.9% | 12% |
| Depot handling Fees | $ 647,555 | $ 642,183 | -0.8% | $ 689,731 | 7.4% | $ 657,421 | -4.7% | $ 652,783 | -0.7% | 2% |
| Processor handling fees | $ 541,070 | $ 529,574 | -2.1% | $ 573,942 | 8.4% | $ 588,444 | 2.5% | $ 548,777 | -6.7% | 9% |
| Freight | $ 266,958 | $ 233,199 | -12.6% | $ 214,914 | -7.8% | $ 224,936 | 4.7% | $ 282,758 | 25.7% | -16% |
| Wages and Benefits | $ 169,261 | $ 156,778 | -7.4% | $ 246,625 | 57.3% | $ 288,986 | 17.2% | $ 396,634 | 37.3% | 71% |
| Grants and Contributions | $ 91,588 | $ 101,220 | 10.5% | $ 74,890 | -26.0% | $ 140,508 | 87.6% | $ 122,814 | -12.6% | 53% |
| Contract services (satellite depots) | $ 85,535 | $ 99,835 | 16.7% | $ 98,612 | -1.2% | $ 62,397 | -36.7% | $ 62,521 | 0.2% | -27% |
| Equipment purchases/ Misc contra | $ 61,474 | $ - | 0.0% | $ - | 0.0% | $ - | 0.0% | $ 10,702 | 0.0% | -100% |
| Professional fees | $ 58,461 | $ 27,525 | -52.9% | $ 13,825 | -49.8% | $ 18,769 | 35.8% | $ 24,568 | 30.9% | -68% |
| Ads $ promos | $ 56,459 | $ 30,171 | -46.6% | $ 1,942 | -93.6% | $ 3,046 | 56.8% | $ 20,209 | 563.5% | -95% |
| Storage | $ 51,439 | $ 61,941 | 20.4% | $ 60,511 | -2.3% | $ 58,085 | -4.0% | $ 47,391 | -18.4% | 13% |
| Office | $ 37,772 | $ 15,182 | -59.8% | $ 1,462 | -90.4% | $ 536 | -63.3% | $ 8,950 | 1569.8% | -99% |
| Equipment Supplies & maintenace | $ 30,003 | $ 31,918 | 6.4% | $ 46,257 | 44.9% | $ 19,581 | -57.7% | $ 157,921 | 706.5% | -35% |
| Travel and Training | $ 22,028 | $ 25,543 | 16.0% | $ 29,051 | 13.7% | $ 39,723 | 36.7% | $ 55,166 | 38.9% | 80% |
| Insurance | $ 8,425 | $ 15,699 | 86.3% | $ 15,000 | -4.5% | $ 14,000 | -6.7% | $ 12,000 | -14.3% | 66% |
| Misc. contracts | - | $ 40,400 | 0.0% | $ - | 0.0% | $ - | | $ - | | |
| | | | | | | | | | | |
| Operating Expenses | $2,128,028 | $1,970,768 | | $2,066,762 | | $2,116,432 | | $2,403,194 | | 12.9% |
| Expenses + Refunds | $4,743,616 | $4,685,029 | | $4,876,412 | | $5,048,718 | | $5,250,546 | | |

Note : Wages & Benefits include costs for BCP and for Single-use Retail Bag Program (SRBP)

Figure 11, shows that expenses have increased since the start of the BCP. Compared with year one of the program, there has been an overall 12.9% increase in total program expenses. With increased returns the per container cost declined over the first four years of the program but increased between year four and five.

## Figure 11 – Revenue, Expenses & Cost per Container Recovered




We examined the administrative costs of the BCP, and compared those costs to other deposit-return programs operating in Canada. For this analysis we examined the BCP administrative costs for fiscal years ending 2009, 2010, and 2011. The administrative costs of the Single-Use Retail Bag Program were backed out of these data, and a administrative cost per container calculated. This figure was then compared with deposit return programs in the rest of Canada.

The average administration costs of deposit return programs (2009 data) across Canada was 0.482¢ per container. The three year BCP administrative costs were 0.746 ¢ per container. However, it should be noted that unlike other provinces or territories, administration costs for the BCP also include program development, implementation, consultation, evaluation, etc. These activities are normally not

considered administration cost for other provinces or territories. Table 18 presents these administrative cost data.

**Table 18 – Administration Cost Comparison**

**Administrative Costs**

| | British Columbia | Alberta | Saskatchewan | NFLD & Labrador |
|---|---|---|---|---|
| Administration Costs | $2,957,000 | $2,936,476 | $1,413,435 | $1,717,644 |
| Total Containers: | 1,072,598,000 | 1,472,693,625 | 350,994,672 | 157,453,993 |
| Cents / Container | 0.276¢ | 0.199¢ | 0.403¢ | 1.091¢ |

| | Nova Scotia | New Brunswick | PEI | NWT [1, 2] |
|---|---|---|---|---|
| Administration Costs | $1,548,326 | $533,741 | $248,122 | |
| Total Containers: | 300,519,481 | 166,104,844 | 43,385,560 | 26,077,930 |
| Cents / Container | 0.515¢ | 0.321¢ | 0.572¢ | 0.746¢ |

| | |
|---|---|
| Average Rest-of-Canada | 0.482¢ |

1. BCP admin costs, average of FY-ending 2009, 2010, 2011 = 0.746 ¢/ container (3 yr returns averaged)
   2008/09 – 70% BCP, 30% other (e.g. Single-use Retail Bag Program (SRBP), program expansion) = 0.655 ¢/ container
   2009/10 – 60% BCP, 40 % other (e.g. SRBP development and operation, other initiatives) = 0.648 ¢/ cntr
   2010/11 – 60%BCP, 40% other (SRBP development, expansion, and operation and other initiatives) = 0.948 ¢/ cntr
2. No administative cost data was available for the Yukon program, other Provinces 2009 data

## 7.4 Payment Procedures

### 7.4.1 Payments to Depots

Payments to depot operators were discussed during field visits. Depot owners / operators were asked their views whether they are paid promptly and accurately. We heard no serious complaints, however one depot operator did mention that authorized payments have been slow from time to time and they would prefer improvements in payment timelines. BCP staff was aware of this issue and have rectified the situation.

The flow of payments in the NWT is unique in Canada, except for in the Yukon. The NWT procedure for who within the system pays depots is set out in the Beverage Container Regulations.

Depots pay consumers the refundable deposit for each container they receive. Depots then collect, sort, store, and ship the beverage containers to one of three regional processing centres. Depot operators prepare a Daily Reconciliation Report to summarize the number of empty beverage containers collected and refunds paid out for the containers accepted. These daily reports can be in the form of a hand written report or a Z2 report which is generated by one of the BCP cash registers. These daily reports are then used to develop the Monthly Depot Report (BCP4) which forms the basis of how the depots are paid.

Depots that ship containers by road to a processing centre fax the regional Processing Centre a completed, signed, Depot Monthly Reporting Form each month. Depots that are not on the all weather or the ice road highway system, are required to fax a copy of their monthly reports to BCP staff each month as well. On a monthly basis all depots are expected to report returns made within the month to ENR. Since 2009/2010 these reports are the basis of calculating monthly Annual Operating Depot Grants for depots that have taken containers in for refunds during a monthly period.

Where there is a discrepancy on the Z2 between the container quantity and refund paid, quantity is derived from the refund paid, rather than a reconciled count of the containers received at the processing centre.

We view using the refunds paid as the default to define the number of containers received as a problem. This method pays for declared refunds which may not have been fully reconciled or received at the PC in some circumstances. This procedure is not consistent with checking that refunds correspond to the number of containers received for recycling. ENR has the ability to check PC reports of payment against

Depot Monthly Reports, however, if there is a discrepancy, payment for containers declared may have already been paid out by the PC.

We examined internal ENR documentation[3] which indicates that for Depots that are on the road system, the Processing Centre reconciles the reported numbers immediately and may issue payment to the Depot without involving ENR (i.e. they must count/ or weigh the containers ***before*** they pay the Depots).

For Depots that are not on the road system, ENR verifies the transaction from the submitted paperwork. The declared container refund is then authorized by ENR for the Processing Centre to issue payment. It is unclear from our examination what independent means exist to verify the reported container redemption numbers, other than by cross-referencing the counts calculated by the weight method or by hand-counts at the processing centres. This procedure involves matching paperwork that has been submitted in some cases months before a shipment from a remote depot to the arrival of containers at the processing centre for handling.

When the containers are shipped to the Processing Centre, the Processing Centre weighs or counts the containers and reconciles the numbers on the Depot Monthly Reporting forms. The Processing Centre compares the reconciled counts (based on conversion factors or PC counts) to what the Depots has declared that they have shipped. The amounts can be adjusted if necessary, with ENR then authorizing the Processing Centre to either hold back money if counts are low or to pay the Depot more refunds and depot handling fee payments if the counts are high. The Processing Centres are not required to complete Reconciliation Reports for the satellite Depots that they themselves operate.

BCP internal documentation states:

> ´ *In all normal circumstances, if the numbers reported by a Depot vary significantly from what the Processing Centre weighs or count, the Processing Centre's numbers are used. It is rare that a Processing Centre counts are lower than the Depot Counts, and the Processing Centres have nothing to gain by under-reporting (because they then lose the processing fees)."*

This statement is an acknowledgement that the BCP recognizes that Processing Centres "could" financially benefit from high container counts. Acknowledging this possibility, whether it could occur through errors or intentionally, while not having an

[3] BCP Operational Guideline, November 2010, unpublished.

independent audit procedure is not consistent with best practices for financial control used in deposit-return systems elsewhere in Canada.

The only other Canadian deposit-return system that allows processing centres to pay depots directly is the Yukon. In the Yukon program processors pay the depots directly according to the declaration forms of how many containers were received and refunds issued by that depot. In the Yukon processors are allowed to be depot operators as well, similar to the policy in the NWT. Processors pay the depots on their declared returns then are reimbursed by the Yukon Department of Community Services who administer the program. Processors' claims can be subject to inspection/audit. We have no information about the frequency of such audits in the Yukon.

In reviewing deposit-return systems in southern Canada, in all cases the deposit-return system administrators pay the depots directly, and cross reference depot declarations to processor container count declarations, which are checked using QC methods.

In Quebec, distributors pay retailers directly through a trade association.

### 7.4.2 Payments to Processing Centres

Processing centres report to the Department of Environment and Natural Resources either once or twice per month depending on the centre.

Each of the three processing centres is also a major depot operator, so they submit both a Depot Monthly Reporting Forms, as well as Processor Monthly Reporting Forms to ENR.

On the Processor Monthly Reporting Form, the PC attaches the corresponding Depot Monthly Reports, along with Z2 (or chits for Depots without BCP cash registers) for all the depots that they service within their region. If there is discrepancy between the container quantity reported in the Depot Monthly Reports and refund paid quantity for that given depot it is determined by the amount of the refunds paid out to the depot.

In each Processor Monthly Reporting Form the processing centre declares the number and type of each container they have processed. From this data the processor is paid based upon the processor handling fees set by the Beverage Container Regulation.

Processors own the scrap materials and have not normally reported the weights or the value of the scrap sold. This changed in 2010, with PCs reporting the weight of scrap materials marketed to the BCP.

Once received and reconciled non-refillable glass is broken at the processing centre. The broken glass is land filled, thus no cross-checking of the number of containers received is possible. Since mid-2009 the weight of the glass that has been broken is recorded and reported to BCP officials.

In our interviews Processing Center owners indicated satisfaction with the payment administration process, and the time lines in which they are paid from the BCP. When asked about dispute resolution on payment issues none of the PC owners any serious disputes with ENR since the program began.

### 7.4.3 Tendering Policies and Practices

The BCP issues licenses to depots and processing centres on a five year renewal basis. Establishing permanent depots in some communities in the NWT is a challenge for the BCP. The program has been able to find individuals or organizations willing to take on the job of container recycling in most communities, although community support for the program varies.

When the BCP was created the GNWT offered NWT individuals, organizations and businesses the opportunity to respond to a tender for both depot operations and for processing centre operators. Once the initial depots were licensed ENR has had challenges to provide depot services in some communities. In some cases, ENR staff from the BCP has solicited individuals, organizations or companies to take on the container recycling business in a community.

An example is Norman Wells, which has had three depot operators run the program since 2006 - 2007. In this community of 761 residents (Canada Census 2006), one of those operators was not meeting their obligations under their license; causing ENR to revoke their license and seek another supplier for the services. MATCO Transport now operates the depot and has done so for two years.

MATCO reported being under pressure from their head office to reconsider being a depot, since their depot operation is not profitable. During a meeting with the Manager of MATCO the consultant was informed that depot handling fee revenues are not meeting costs.

We examined the Monthly Depot Report data for container returns from each depot from 2006/07 to 2010/ 11. It appears that some small communities are hard pressed to operate their container recovery programs on a regular basis. In 2010/2011 several depots in small communities did not report refunding containers during some months while some received no containers for the majority of the year. Operating effective on-

going container recycling programs in these communities will continue to be a challenge for the program.

Tendering for the processing centres followed a similar route at the start of the program. A public tender was responded to by a number of businesses, some of which had been previously operating some recycling services for the NWT Liquor Commission, which had operated a wine/liquor bottle collection program for some time prior to the BCP starting.

The three Processing Centre's are operated by private NWT companies. These companies were the successful respondents of a tender, which awarded then licensed them to establish a processing centre for their region. The original five year license was renewed in November 2010, for one year while the GNWT is reviewing the program.

It is anticipated that once the BCP has considered the review of the program that future processing centre services will be tendered again, in the normal course of events. The tendering practices and procedures are set out in GNWT procurement policy, with appropriate controls and safeguards in place.

## 7.5 Grants - Loans - Capital Subsidies

### Program Grants and Loans

Due to the nature of the many remote communities within the NWT, the Beverage Container Program operates grant programs to financially encourage individuals, communities or companies to take on the job of being a depot. To incentivize this program the BCP has created several types of grants or loans.

Processing Centres are not eligible for support under the Annual Support Program, but are eligible for an annual payment of $5,000 for processing milk containers.

### Depot Advance Program

The Depot Advance Program is an interest free advance offered through the Environment Fund to help newly licensed depot operators with start-up funding for payment of deposits on returned empty beverage containers. These funds are a loan and are paid back to the BCP over an agreed period of time. The BCP has the ability to recover these funds by reducing depot handling fee payments to a recipient, if required.

Funds provided under this program are available only to new depot licensees, and the funds are exclusively for paying consumer refunds.

The BCP has a written policy document setting out the rules of this advance program.

### Annual Operator Support Program

Financial support is available to all licensed depot and processing center operators, except where the Chief Environmental Protection Officer has determined that the depot/processing centre is not eligible. To be eligible for these grants the depot or processing centre operators must be operating according to the Terms and Conditions of their license. This financial support program has been developed to provide funding to off-set costs directly associated with operating and maintaining licensed beverage container depots and processing centres. There are written policies in place for this program.

The calculation of the level of these grants is based upon four factors:

- NWT Food Price Index
- Population served
- School or non-profit organization
- Milk container subsidy

These funds are unconditional grants which can be used by the recipient to pay wages, rental costs, supplies etc. Payments are made on a monthly basis, upon receipt of submissions of Depot Monthly Reporting Forms. All payments from this program are subject to the Terms and Conditions of the Depot License and to the requirements of the Beverage Container Regulations. Payments are made to a maximum of twelve payments per year.

These grants have been available to the depots since the start of the program in fiscal year 2005 / 2006. For the first four years of the program $86,300 per year was the budgeted amount for these grants. Annual operating grants paid to depots averaged about $3,000 per depot per year or $250 per month over this period. Annual operating grants were paid to licensed depots based on the formula discussed above, and these funds were paid to the depot operator regardless of whether they reported refunding containers or not. In Fiscal year 2010 / 2011 the BCP made a policy change where depots are now paid only for the months in which they report refunding containers under the program.

Table 19 below presents the eligible grants that a depot can receive and the take up on those grants since 2005 /2006.

## Table 19 – Annual Operator Support Program

| | 2010/2011 | 2009/2010 | 2008/2009 | 2007/2008 | 2006/2007 |
|---|---|---|---|---|---|
| | Total Eligible Grants | Total Eligible Grants | Total Eligible Grants | Total Eligible Grants | Total Eligible Grants |
| All BCP Depots | $209,820 | $155,820 | $121,060 | $86,300 | $86,300 |
| | | | | | |
| | Average Eligible Grant per Yr. | Average Eligible Grant per Yr. | Average Eligible Grant per Yr. | Average Eligible Grant per Yr. | Average Eligible Grant per Yr. |
| | | | | | |
| North Slave | $5,982 | $4,978 | $2,662 | $2,662 | $2,662 |
| South Slave | $5,463 | $3,856 | $1,540 | $1,540 | $1,540 |
| Deh Cho | $6,017 | $4,767 | $2,750 | $2,750 | $2,750 |
| Sahtu | $10,030 | $7,930 | $4,450 | $4,450 | $4,450 |
| Inuvik | $7,610 | $6,911 | $4,171 | $4,171 | $4,171 |
| | | | | | |
| | Average Eligible Grant per Month | Average Eligible Grant per Month | Average Eligible Grant per Month | Average Eligible Grant per Month | Average Eligible Grant per Month |
| | | | | | |
| North Slave | $499 | $415 | $222 | $222 | $222 |
| South Slave | $455 | $321 | $128 | $128 | $128 |
| Deh Cho | $501 | $397 | $229 | $229 | $229 |
| Sahtu | $836 | $661 | $371 | $371 | $371 |
| Inuvik | $634 | $576 | $348 | $348 | $348 |
| | | | | | |
| | Grants Paid | Grants Paid | Grants Paid | Grants Paid | Grants Paid |
| All BCP Depots | $119,230 | $108,800 | $72,640 | $71,600 | $71,600 |
| Paid % of total | 57% | 70% | 60% | 83% | 83% |

In examining the Annual Operator Support Program for 2010/2011of the $209,820 of eligible grants available to depot operators, only $119,230 (57%) of this funding was paid to depots.

Thirteen of the 30 eligible depots received 100% of their eligible operating assistance by reporting within the program rules. Seven depot operators received part of their eligible funding receiving on average about half (51%) of the assistance available. Ten depots (33% of all depots) did not receive funding under this program, because they did not report making refunds to the BCP during the 2010/2011 fiscal year.

The Annual Operating Support Program has merit for those communities where depots are participating in the container recycling program. However, we note that for 1/3 of the depots monthly payments were not made to operate the BCP in those communities. Some of these depots, such as Lutselk'e and Trout River operated their depots but did not report to BCP thus were not eligible for an Annual Operator Support Program payment.

## Depot Development Program

The Depot Development Program has been in place since the start of the program. This is capital assistance program which supports capital projects for depot up to 50% of eligible costs. The maximum budget in any fiscal year for these grants in total is allocated at $50,000.  A written policy outlines the rules of the program.  For private individuals or businesses 50% funding is available, and for non-profit organizations this limit can be extended to 75% funding from the program.

Table 20, below lists the capital programs for depots supported since the program began.

## Table 20 – Depot Development Grants

| | Fiscal Year | Amount | Purpose |
|---|---|---|---|
| | | | |
| Tuktoyaktuk Community Corporation | 2006/2007 | $23,000 | Move and renovate an existing building donated by the North West Company. On completion of renovations the building will become the Tuktoyaktuk Community Beverage Container Collection Depot and future Community Recycling Centre. |
| Mabel Gon - Gameti | 2007/2008 | $21,100 | Renovations of building which is to become Gameti Recycling Depot |
| F.C. Services Ltd - Behechko | 2007/2008 | $20,534 | Purchase of a pre-constructed building to be the depot |
| Frank Lafferty - Ft Resolution | 2008/2009 | $2,250 | Construction of 16 ' x 22' building, to become Rocky's Recycling Depot |
| Billy Archie - Aklavik | 2009/2010 | $11,086 | Moving and renovating an existing building to meet local zoning requirements so as to continue to provide recycling services in the community of Aklavik. |
| Chief T'Selehye School - Ft. Good Hope | 2010/2011 | $15,000 | Purchase an existing building and necessary equipment and supplies to continue to provide recycling services in the community of Fort Good Hope. |
| | | **$96,220** | |

The Depot Development Program has been helpful in promoting the BCP and assisting in developing capital infrastructure. We cannot comment on the delivery of all the applicants' projects, except for Norman Wells and for Tuktoyaktuk which were visited during the field visit portion of this review.

In Norman Wells the grant recipient had his depot license revoked due to non-performance and a new depot operator has been licensed in this community. The original grant to the first licensee was for a relatively small amount.

The Tuktoyaktuk Community Corporation received a $23,000 grant in fiscal year 2006/2007 to move and renovate a building in the community which was to be the recycling depot. This building was visited on March 11, 2011 by the consultant and ENR staff. At that time the building was undergoing renovations and being readied to be a carving shop and community building. The Acting Community Manger was unaware of the grant contribution provided by the Depot Development Program towards the improvements of this building. This person did not know that the building was to be used as the community recycling depot. In fairness to the Acting Community Manger, he had been in his position for a very short time. Following the BCP visit in March 2011, this building has been put into service as the community recycling depot.

We note that all grants should be audited by ENR on a routine basis to assure that the recipients have met the rules of the grant agreement.

## Capital Equipment Subsidies

The Beverage Container Program has purchased and owns the capital equipment used by the Processing Centres. Table 21 below lists these assets, along with those purchased by the BCP for depot operations.

## Table 21 – Capital Equipment & Depot Supplies

**Capital Suport for Equipment & Supplies**

**YELLOWKNIFE PROCESSING CENTRE**

| UNITS | COST* | DESCRIPTION | REPLACEMENT COST |
|---|---|---|---|
| 2 | $45,200 | HARMONY S60XDRC VERTICAL BALER WITH CONVEYOR | $90,400 |
| 1 | $35,000 | HARMONY S60XD VERTICAL BALER | $35,000 |
| 1 | $44,000 | DENS-A-CAN DENSIFIER DAC 800 | $44,000 |
| 1 | $17,000 | DENS-A-CAN GB1 GLASS BREAKER | $17,000 |
| 1 | $31,000 | TOYOTA GU20 4000 LB FORK LIFT | $31,000 |
| 1 | $28,000 | ROLAND ELECTRIC FORK LIFT (EXTENDED LIFT) | $28,000 |
| 1 | $2,400 | 5000 lb SCALE | $2,400 |
| 3 | $975 | 2 CU YD SELF TIPPNG HOPPER | $2,925 |
| | | | **$250,725** |

**HAY RIVER PROCESSING CENTRE**

| NUMBE | UNIT COST* | DESCRIPTION | REPLACEMENT COST |
|---|---|---|---|
| 2 | $45,200 | HARMONY S60XDRC VERTICAL BALER WITH CONVEYOR | $90,400 |
| 1 | $17,000 | DENS-A-CAN GB1 GLASS BREAKER | $17,000 |
| 1 | $36,000 | JOHN DEERE S205 SKID STEER LOADER | $36,000 |
| 1 | $2,400 | 5000 lb SCALE | $2,400 |
| 2 | $975 | 2 CU YD SELF TIPPNG HOPPER | $1,950 |
| | | | **$147,750** |

**INUVIK PROCESSING CENTRE**

| NUMBE | UNIT COST* | DESCRIPTION | REPLACEMENT COST |
|---|---|---|---|
| 2 | $51,500 | HARMONY S60XDRC VERTICAL BALER WITH CONVEYOR | $103,000 |
| 2 | $49,500 | DENS-A-CAN DENSIFIER DAC 800 | $99,000 |
| 2 | $20,000 | DENS-A-CAN GB1 GLASS BREAKER | $40,000 |
| 2 | $34,000 | TOYOTA GU20 4000 LB FORK LIFT | $68,000 |
| 2 | $3,200 | 5000 lb SCALE | $6,400 |
| 2 | $1,250 | 2 CU YD SELF TIPPNG HOPPER | $2,500 |
| | | | **$318,900** |

**ASSETS SUPPLIED TO DEPOTS**

| NUMBE | UNIT COST* | DESCRIPTION | REPLACEMENT COST |
|---|---|---|---|
| 31 | $1,100 | SHARP ER520 PRE-PROGRAMMED CASH REGISTER | $34,100 |
| 1100 | $36 | FIBRE BAGS (REUSEABLE, SHIPPING OF UBC'S) | $39,600 |
| 2500 | $2 | WAXED CARDBOARD BOXES (REUSEABLE, SHIPPING OF UBC'S) | $5,750 |
| 200 | $11 | BLUE RECYCLING BINS | $2,200 |
| 10 | $6,500 | USED SEA-CANS (STORAGE) | $65,000 |
| 3 | $7,500 | USED HI-WAY TRAILERS (STORAGE) | $22,500 |
| 8 | $495 | PALLET JACKS - 5,500 lb | $3,960 |
| | | | **$173,110** |

**Estimated replacement costs, Spring 2011*

NOTE: Do Not include machinery installation or electrical

Inuvik equipment replaced in 2011, as result of fire in 2010

The arrangement whereby the deposit-return system administrator (the BCP in the case of the NWT) owning third party capital equipment is unusual compared to normal practice across Canada.

At program start-up it was deemed by ENR to be too expensive for potential PC operators to provide a building and equipment for the new program, with only estimated income revenues. ENR paid for the processing equipment to get the program started and to have the flexibility to move the equipment if a PC operator failed to provide the required service.

In most deposit-return programs in Canada, processors bid on a contract to provide processing services with all overhead including capital equipment being owned by the processor. The costs of that equipment is borne by the processor and built into their pricing quotation to bid on the processing tender. In this way the processor also assumes any maintenance and general liability issues associated with the use and operation of the equipment they use for processing.

The BCP lists assets, of approximately $888,000 which are owned by the program. Replacement equipment for the Inuvik was recently received and was being commissioned in early 2011. The BCP has accepted the responsibility of owning the processing equipment for the NWT program. Liability insurance (accident, legal action) is the responsibility of the PCs. Equipment insurance is covered by ENR (and is now a different policy than the GNWT policy in place at the time of the Inuvik Fire. ENR provides liability insurance covering accidents and legal action) for all depots that are not PCs.

Normal practice for deposit-return program in Canada is not to own equipment operated by third parties.

# 8.0 Revenue Streams

The BCP deposit-return system has two sources of funding to off-set system costs.

All of the funds to operate the BCP are remitted by distributors of beverage products. Distributors remit a surcharge which includes the refund and a “non-refundable handling fee”, which includes the depot, the processing fee and an administrative fee. For the purposes of this section we term these funds to be the “non-refundable handling fee”. Distributors are able to recoup the total surcharge from the retailer, and the retailer in turn recoups them from consumer when containerized beverages are sold.

When deposits are refunded to consumers by the depots, there is a portion of funds left over called the “unredeemed revenue” which is often referred to as “unredeemed deposits”. These are the refunds where consumers paid deposits but chose not to return the containers for a refund. This is the second revenue stream which is used by the BCP to off-set system costs.

The table below provides a summary of the cash flow for five years of BCP operations. The table demonstrates that net program revenue (non-refundable handling fee + unredeemed revenue) varied from a low of $1.95 million to a high of $2.49 million over the last four operating years. Non-refundable handling fee revenues provide the bulk of funds to run the program, between 77%-90% of total program revenue. The unredeemed revenues contributed from a low of $188,000 to a high of $582,000, which are 10%-23% of total program revenue.

## Table 22 – Revenue Generated

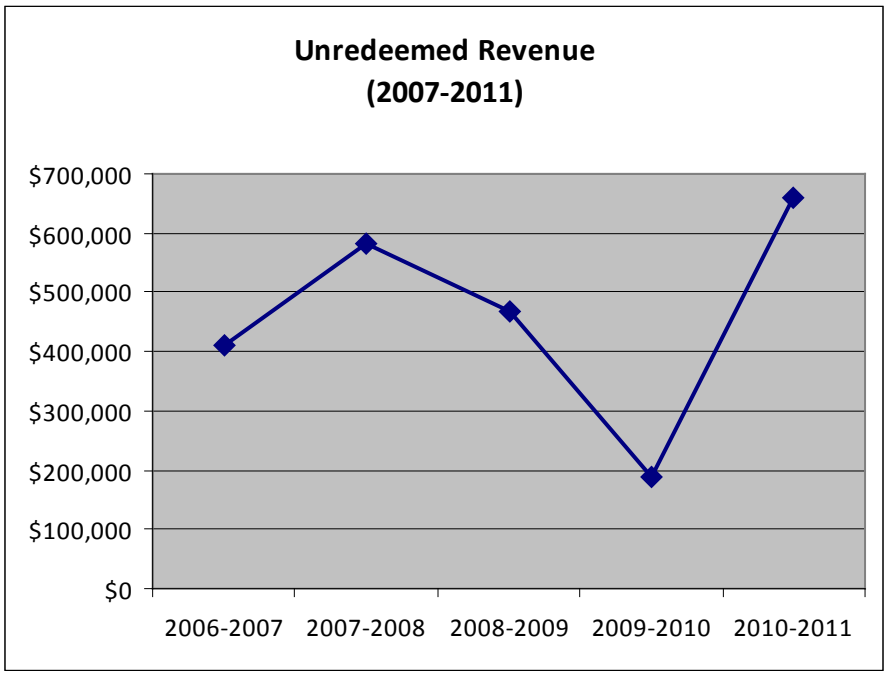
| Cash Flow | | | | | |
|---|---|---|---|---|---|
| | 2006/07 | 2007/08 | 2008/09 | 2009/10 | 2010/11 |
| Revenue (deposit + surcharge) | $4,869,929 | $5,228,797 | $4,992,580 | $4,777,829 | $5,296,239 |
| | | | | | |
| Refunds on deposits | $2,615,588 | $2,673,861 | $2,809,650 | $2,932,286 | $2,847,352 |
| Operating costs | $2,128,028 | $2,011,168 | $2,066,762 | $2,116,432 | $2,403,194 |
| Surplus/deficit | $126,313 | $543,768 | $116,168 | -$270,889 | $45,693 |
| | | | | | |
| | | | | | |
| Net program revenue (unredeemed + CHF) | $2,222,070 | $2,488,346 | $2,389,076 | $1,954,395 | $2,568,769 |
| Unredeemed Revenue | $ 410,852 | $ 582,207 | $ 467,626 | $ 188,682 | $ 659,538 |
| CHF Revenues | $1,811,218 | $1,906,139 | $1,921,450 | $1,765,713 | $1,909,231 |
| % of unredeemed | 18% | 23% | 20% | 10% | 26% |
| % of CHF revenue | 82% | 77% | 80% | 90% | 74% |

## *8.1 Unredeemed deposit revenue*

Unredeemed revenue, are determined by the amount of refunds charged and the recovery rate. The lower the recovery rate the greater the unredeemed revenue. The reported recovery rates have fluctuated from a low of 81% in 2007- 08 to 93%% in 2009-10, to return to 81% in 2010-2011. The five year average recovery rate is 85%, averaged across all container types.

Managing unredeemed container revenue is always a challenge for deposit-return programs. This revenue stream is inversely proportional to the success of the program, with revenues dropping as recovery increases. In the illustration below we show that without making any changes to the deposit-refund levels or the distributor remittances the amount of unredeemed deposit revenue in the program has increased from a historical low of $188,000 in fiscal 2009/2010 to a high point of $659,538 in 2010/2011.

## Figure 12 – Unredeemed Deposit Revenues Have Dropped



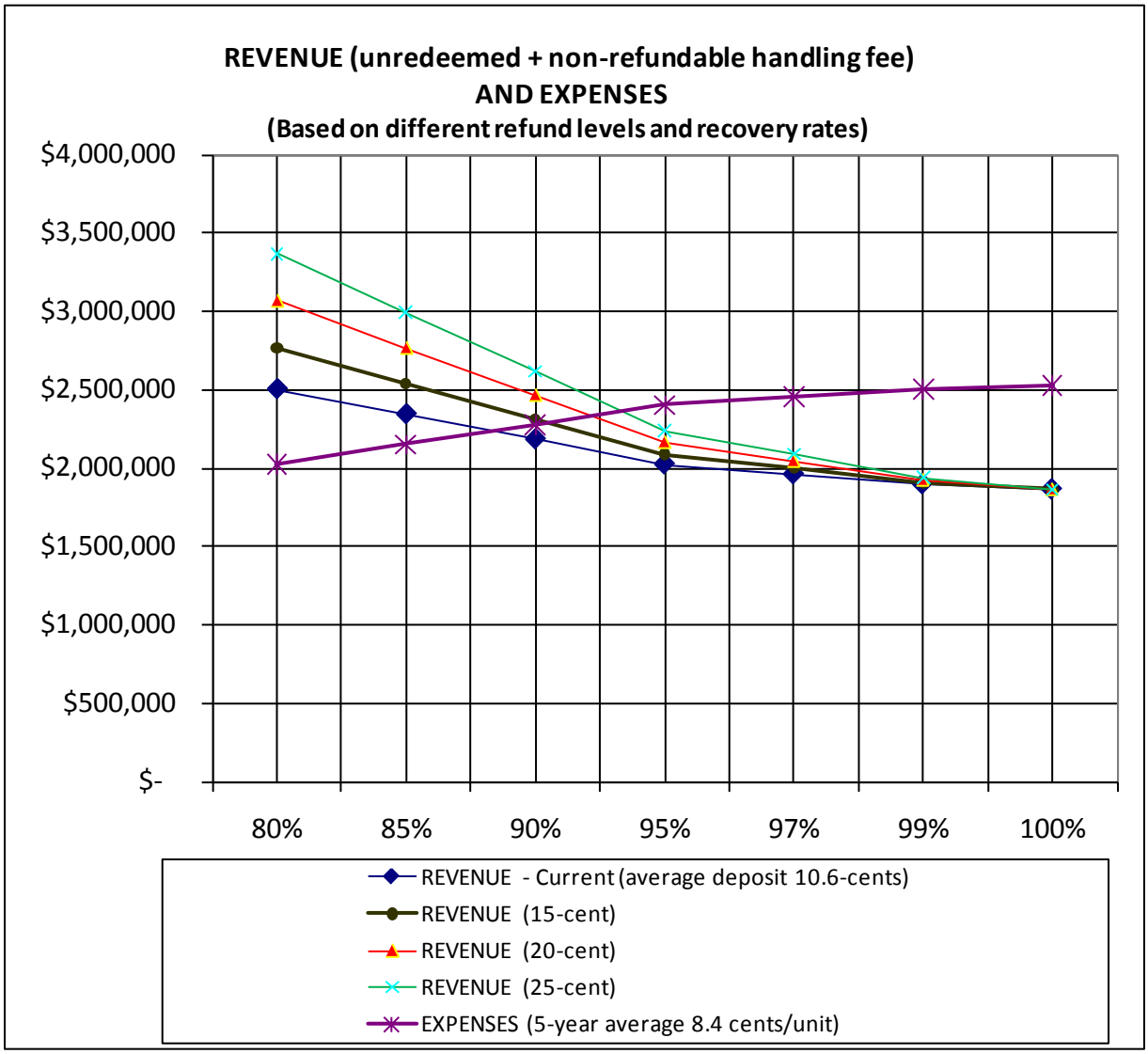

Unredeemed container revenue can grow by increasing the monetary value of the refund, hence increasing the surplus funds generated by each unredeemed container. An increased monetary value of the refund has been proven to drive more recovery in other deposit-return programs, (usually about a 10% point increase for every 5-cent increase in the refundable deposit level), but such an increase can also increase the value of unredeemed deposit pool. Raising deposit levels is one way the program can generate more revenue to finance operations. However the financial relief provided by such a policy change will sustain the BCP only until higher recovery rates again erode unredeemed revenues. This will then require policy intervention once again to adjust the cash flows within the program to sustain financial viability.

Figure 13 below shows the relationship between increased recovery and expenses using different recovery scenarios. Using a fixed cost per unit of 8.4-cents/unit recovered (based on a 5-year average of expenses), a fixed-non-refundable handling fee revenue stream ($1.86 million); and assuming different collection rates (80%, 85%, 90% and 95%) the results show that system “breaks even” between 88%-93% depending on the deposit level.

The non-refundable handling fee revenue remains fixed in this illustration because the sales do not change; only the number of recovered containers increases. Therefore,

expenses continue to increase (8.4-cents per unit cost) and total revenues decline as there is less unredeemed deposit revenue available.

## Figure 13 – Revenue & Expenses Using 5-Year Average

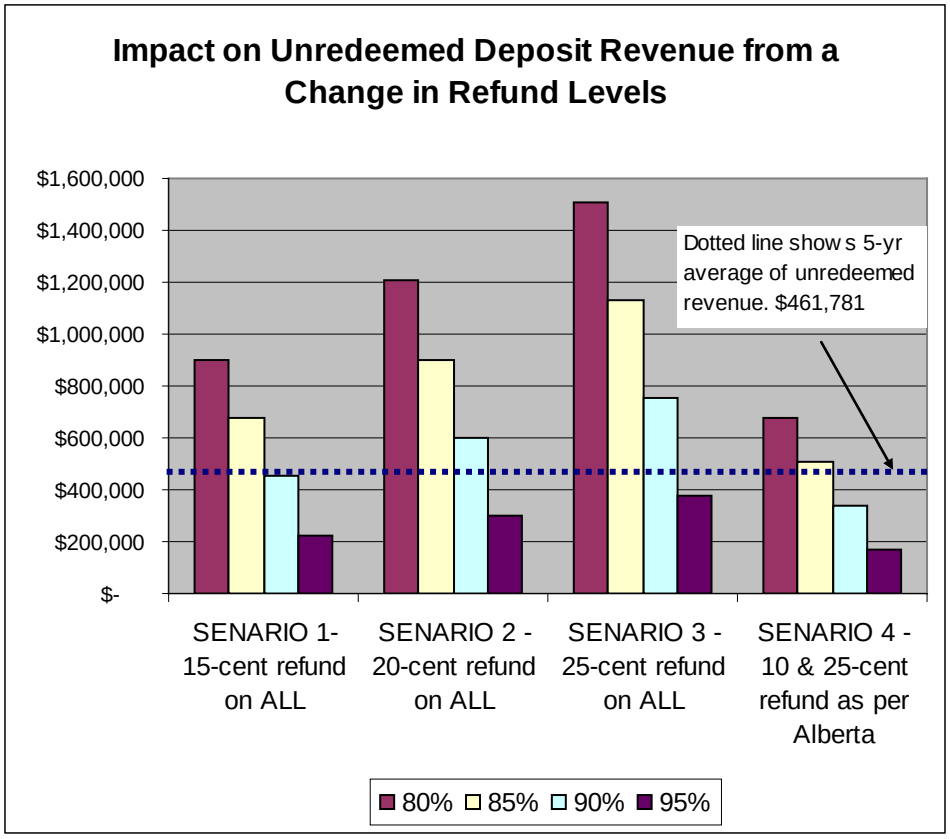



Examining the impact on unredeemed revenue is informative. The chart below provides several scenarios that apply different monetary deposit levels. Each scenario applies a higher deposit level, 15, 20 & 25-cents to all containers or in one scenario we use the same deposit-refund levels as are in use in Alberta (10-cents and 25-cents).

This analysis demonstrates the range of potential unredeemed deposit revenue that can be generated to help off-set system costs. Clearly, a lower recovery rate of 80% will generate the highest levels of unredeemed revenue, while the highest recovery rate of 95% generates the lowest amount of unredeemed revenue.

To put this into perspective, because the NWT's program recovery rate has decreased in the last operating year (2010-2011), the unredeemed deposit revenue has hit a 5-year high.

## Figure 14 – Impact on Unredeemed by Changing Deposit Level




Realistically only some of the scenarios presented above are plausible. For example, high deposit levels of 20-cents and 25-cents will likely achieve high recovery rates of 90%-95%, while lower container deposit levels like those currently charged in Alberta (10-cents and 25-cents) will likely achieve recovery rates of 80%-85%. The table below presents the unredeemed scenarios again, but identifies which scenarios are more likely given reasonable deposit level changes.

This exercise is intended to demonstrate that unredeemed revenues can be augmented if monetary deposit levels are increased. According to the scenarios provided, the current 5-year average ($462,000) can be realistically be increased to anywhere from ~$505,000 annually (using Alberta's deposit levels at 85% recovery) to ~$677,000 annually (using a 15-cent deposit at 85% recovery).

For planning purposes, as NWT moves forward with its program, the BCP should recognize that additional revenues can be generated by managing unredeemed deposit revenues.

### Table 23 - Managing Unredeemed Revenues

| IMPACT ON UNREDEEMED REVENUE | 80% | 85% | 90% | 95% |
|---|---|---|---|---|
| SENARIO 1- 15-cent refund on ALL | $ 903,328 | $ 677,496 | $451,664 | $225,832 |
| SENARIO 2 - 20-cent refund on ALL | $1,204,437 | $ 903,328 | $602,219 | $301,109 |
| SENARIO 3 - 25-cent refund on ALL | $1,505,547 | $1,129,160 | $752,773 | $376,387 |
| SENARIO 4 - 10 & 25-cent refund as per Alberta | $ 674,485 | $ 505,864 | $337,242 | $168,621 |

Note: Cells shaded in grey present scenarios which are more likely to occur given the deposit level.

The BCP could benefit from having policies and procedures to manage its unredeemed revenues (unredeemed deposits) in a proactive manner.

## *8.2 Non-Refundable Handling Fee Revenue*

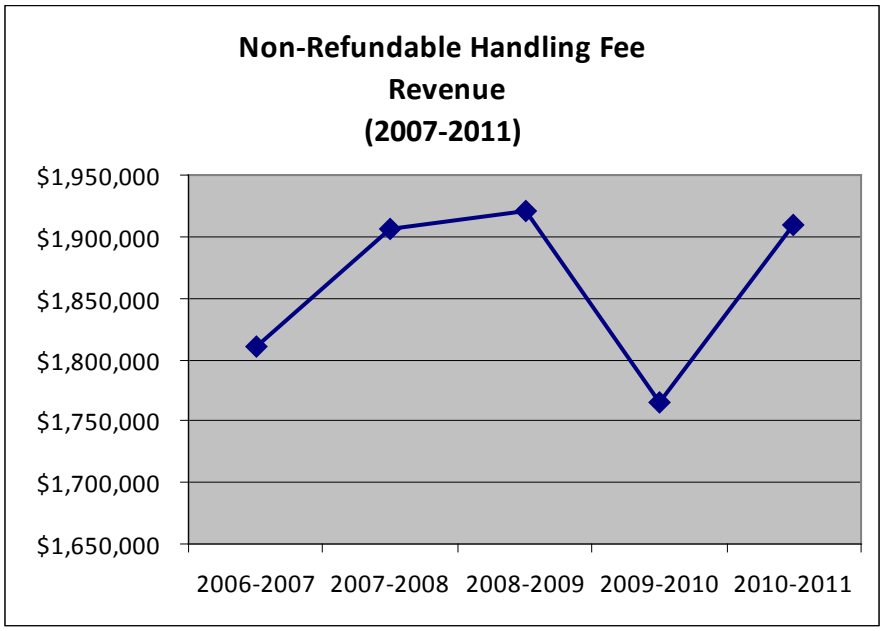
The second source of funding available to the BCP is from the non-refundable handling fees, levied on each container.

These fees are remitted by distributors then recouped from retailers, who in turn receive them back from consumers when then buy containerized beverages. Collectively these 5 and 10-cent per unit fees generate on average, about $1.86 million of net revenue per year after refunds are made back to consumers (6.2-cents per weighted average container). This revenue is entirely dependent on sales. The higher the sales, the higher the net non-refundable handling fee revenue.

In 2010-2011 non-refundable handling fee revenue provided 74% of the program's net revenue. This revenue is dictated by the volume of sales and value of the surcharge paid on each container. The figure below shows surcharge revenue for the five full program years, from 2007-2011. The table shows that there is no consistency in trending, in fact, surcharge revenue declined in 2009-2010 to levels lower than they were in 2006-2007 due to a decline in sales and then increased by over 8% in 2010-2011.

Figure 15 below illustrates the revenue available to the BCP from the non-refundable handling fee .

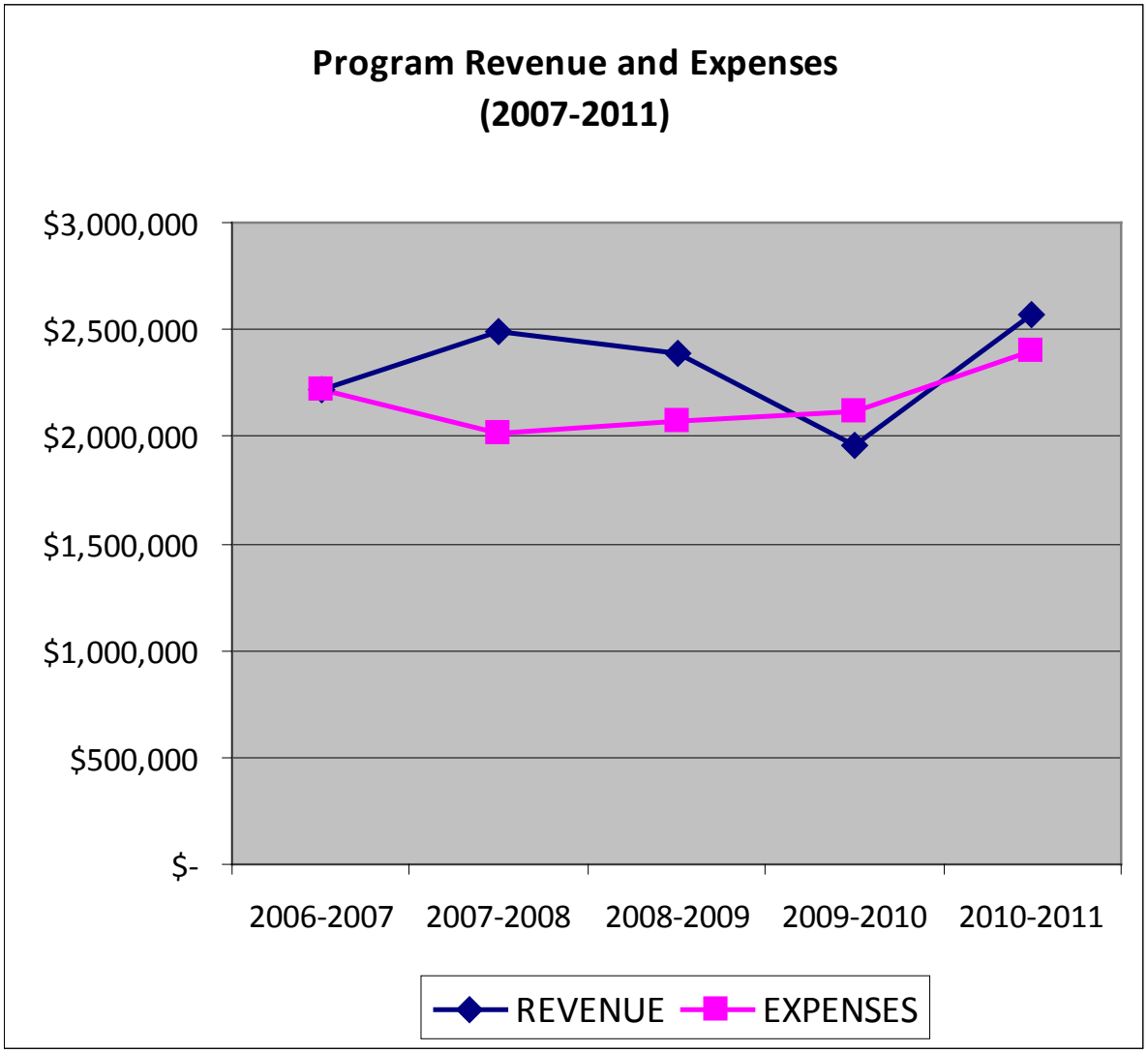
## Figure 15 – Non-Refundable Handling Fee Revenue




At the average recovery rate (85%) the average expense levels (8.4 cents per unit; and sales (30M units), non-refundable handling fee revenues are a sufficient source of revenue to financially sustain the program. Significant increases in the recovery rate (similar to the experience in 2009-2010); or a decline in sales, or both, could result in the program again running a deficit.

Figure 16, below illustrates this situation. The figure shows the total program net revenue (which includes unredeemed deposits) as indicated by the blue line against the program expenses as indicated with the magenta line. The figure shows that 2009-2010 was the first year that the program ran a program deficit. In 2010-2011, revenues were higher than expenses; however, they are much closer to each other than they were from 2007-2009, indicating smaller surplus funds available.

**Figure 16 – BCP Expenses Exceeded Revenue in 2009 / 2010 but recovered in 2010-2011**




In an effort to offer optional funding solutions for the BCP, we have calculated different funding options which are modeled based upon existing financing regimes used in other deposit-return programs in Canada.

Each section describes the funding model and provides a discussion of applicability and possible advantages of other models should the NWT program wish to consider them. Further in the analysis, we model potential funding scenarios based on existing sales to determine the impact that such financing models could have on program funding.

One caveat to the reader is that this analysis is presented for illustration purposes only. Should any of these options or combinations of these options be of interest to the BCP to consider for program policy changes, we recommend additional detailed analysis and modeling be undertaken to confirm on-going positive revenues for the program.

### 8.2.1 Multiple Variable Container Recycling Fee (CRF)

The deposit-return programs in both British Columbia and in Alberta have implemented a “Container Recycling Fee” (CRF).

BC instituted a CRF in 2000 while Alberta followed in 2002. CRF’s were not opposed by consumers who recognize this funding approach as a fair user-pay mechanism. These programs have continued to run with positive cash flows without interruptions since the CRF’s were instituted.

Like the BCP surcharge discussed above, a CRF is merely a fee which is remitted by beverage distributors and recouped from retailers and then from consumers. The CRF represents the net cost per unit (after unredeemed and material revenues are netted out) and is set annually or even bi-annually if necessary. The CRF varies by container type depending on:

- the scrap value of the material (and the value of material revenues as scrap which are gained);
- the actual costs for that operating year (i.e. the cost of collecting, transportation, processing, administration, by container category (size/material type) and
- the value of the unredeemed deposit revenue.

Materials with high scrap values and revenue (i.e. aluminum cans) pay no or a very small CRF, whereas low value/low revenue materials like glass pay higher CRF’s.

High recovery rates generate less unredeemed deposit revenue, and therefore attract a higher CRF, while lower recovery rates generate greater unredeemed deposit revenue and lower CRF. In BC and Alberta, the CRFs currently range from zero per container to as high as 14-cents for a limited number of expensive to recycle container types, all of which are dependent upon the size and the material type of the container. Some containers, like drink pouches and gabletop containers, do not carry a CRF because they generate higher surplus revenues for their container type stream, from their unredeemed deposits, due to their lower recovery rates compared to other containers.

In British Columbia due to changes in sales and expenses Encorp Pacific (who adminsters the CRF), has in the past changed the CRF schedule more than once a year. For example, in Feb 2009, the CRF on a 1L-glass bottle went from 5-cents to 7-cents. A few months later (Oct 2009) the CRF increased again to 10-cents. In Feb 2007, the CRF on a 1L plastic bottle went from 4-cents down to 3-cents and in October 2009 went to up to 5-cents. What is important to note is that the CRF is a fexible financing mechanism that allows program administrators to make adjustments within the program to keep the program solvent.

The benefit of the variable CRF is that it guarantees that the program cannot loose money. Because the CRF is based on the "net cost" after unredeemed revenue, it is considered "fair" because it reflects the actual cost of operations for the specific container type. No cross-subsidization by container type is allowed, with each container type paying its own way within the program. CRF financing systems are true user pay models.

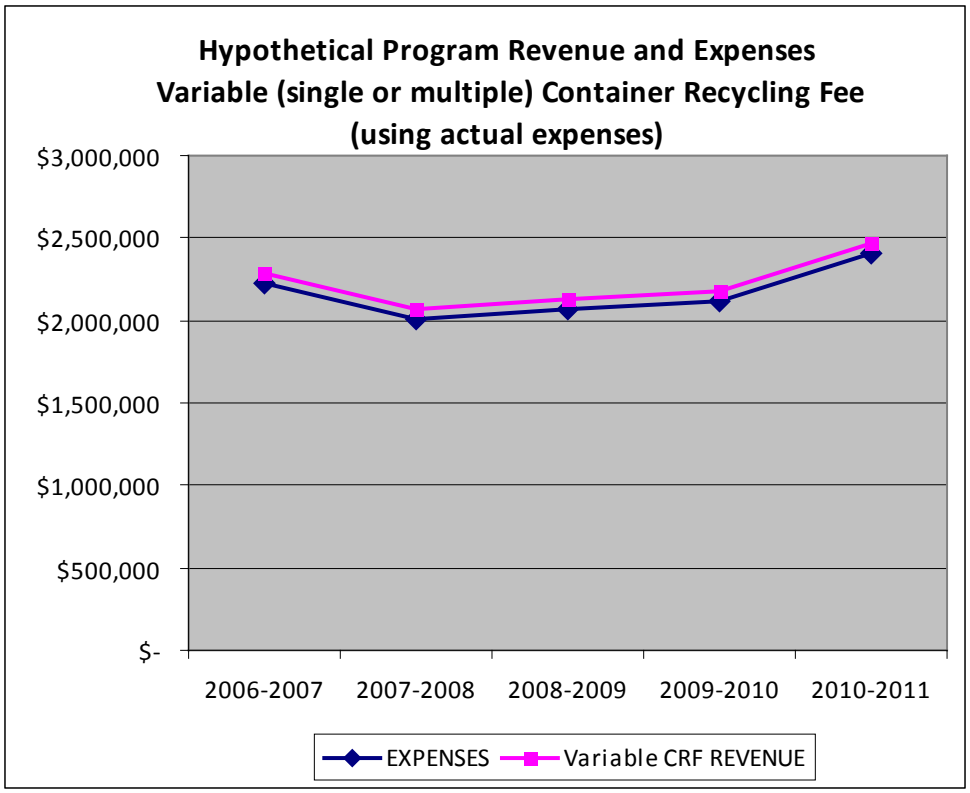
The downside is that such a policy scheme is that it requires notification to distributors and the public from time to time as CRF's are amended. Distributor notifications are done electronically through email notifications. The public is notified through newspaper advertisements, and by the retail sellers of beverage products reflecting changes in the prices in stores. Usually the CRF is refelcted on the customer receipt as a fee that is visible. For this reason deposit-return systems that use CRFs only change these rates when absolutely necessary.

Another downside of this form of financing is that it requires multiple CRFs to be calculated. This may expand the level of container categories that distributors must report on, when reporting which will incorporate material types (glass, plastic, aluminum etc.) and container sizes. This is because different container types (materials) and sizes (large vs. small) have different costs to manage. Notwithstanding the above, distributors in BC and Alberta have managed to handle CRF reporting successfully for a decade without oposition from distributors.

The figure below provides a conceptual illustration of how the CRF revenue can be maintained close to or slightly above program expenses in a given operating year. In the event that a program runs a surplus or deficit in a given year, CRFs can be ajusted up or down to ensure that the surplus or deficit is managed through the CRF schedule the following year.

It has been the policy of deposit-return programs that use the CRF model to keep surpluses low, with only enough funds to cover costs plus refunds, and a contingency so as to not overcharge distributors, and hence consumers.

## Figure 17 – Revenues Managed to Meet Expenses




## 8.2.2 Single Variable Container Recycling Fee (CRF)

A single variable CRF is similar to the multiple CRF, but places one single CRF charge on all containers. Like the multiple-variable CRF, it is set annually or even bi-annually, or on an as needed basis if the program can accommodate in-year changes. Like the multiple variable CRF, it can be increased or decreased depending upon actual expenses and sales, and reflects the net costs (after unredeemed) for all containers as one group.

The benefit of the single variable CRF is that it can also guarantee that the program will not loose money. It is also more simplistic in its implementation than a multiple CRF regime, because one fee is placed on all contianer types and sizes allowing for limited container categories and is relatively easy for distributors to manage.

The downside is that because the CRF is based on the “net cost” after unredeemed revenue for all containers, it may be seen as treating high performance containers unfairly because lower system cost containers (i.e. aluminum cans) will carry the same fee as higher cost containers like glass bottles. It is often argued by high volume container distributors (i.e. distributors in aluminum cans, and PET and HDPE - which make up > 70% of the total number of containers in the BCP) that it is unfair for their high value / high recovery rate containers to subsidize low scrap value / poor recovery rate containers (i.e. bi-metal cans or glass bottles).

It is also argued that single variable CRF’s do not encourage use of more economical containers like aluminum cans compared to glass bottles.

Like the multiple variable CRF changes will require notifying distributors and the public, when changes are made. Consumers usually see the CRF as a fee for service which is added to the cost of their beverages and visible on cash register receipts.

### 8.2.3 Flat Container Recycling Fee (CRF)

Manitoba’s Container Recycling Fee, was repealed in 2010, but it is worth mentioning. This is a form of CRF which is a 2-cent per container flat fee tax which was paid by industry and used to finance recycling of beverage containers both through municipal curbside and an away-from-home collection program. It was one fee which did not change and was placed on all non-alcohol containers containers in that province

There are several benefits to the Manitoba style CRF. Firstly, it is easy to implement and understand (it is a flat tax). This approach requiries limited or no public notification as it is a commercial tax on the distributors. This type of CRF is also easy for distributors to administer when remitting their CRF payments because it is one fee for all of their non-alcohol sales in Manitoba.

The downside to the flat CRF is that the fee may not generate enough revenue unless the rate is placed at a high enough level (similar to the current CHF), and this scenario may treat some containers unfairly (cans versus glass bottles for example), similar to the single variable fee metioned above.

### 8.2.4 Half-Back Deposit-Return

The Half-Back deposit-return financing system (Half-back) is being used in Nova Scotia, New Brunswick, Newfoundland and Prince Edward Island. In a Half-Back system consumers pay the full deposit but are refunded only a portion (normally half) of those fees upon returning the container to a depot.

This is very similar to the existing BCP funding approach which involves a two part surcharge, one refundable and one non-refundable. To call it a half-back may make it sound simple, but for NWT to implement a half-back program would require NWT to amend all of their deposit levels, and revamp their distributor remittance policies, by amending the Beverage Container Regulation.

Another practical point about half-back deposit return programs is that distributors roundly oppose this form of revenue generation. In the Atlantic Provinces about 50% of each fee charged is refunded to the consumer, about 25% is used to run the program, roughly 25% (or more) enter general revenues of the Province. Distributors oppose these systems which they view as an unfair tax created by governments to generate additional general revenue income.

### 8.2.5 Analysis of Potential Revenue Scenarios

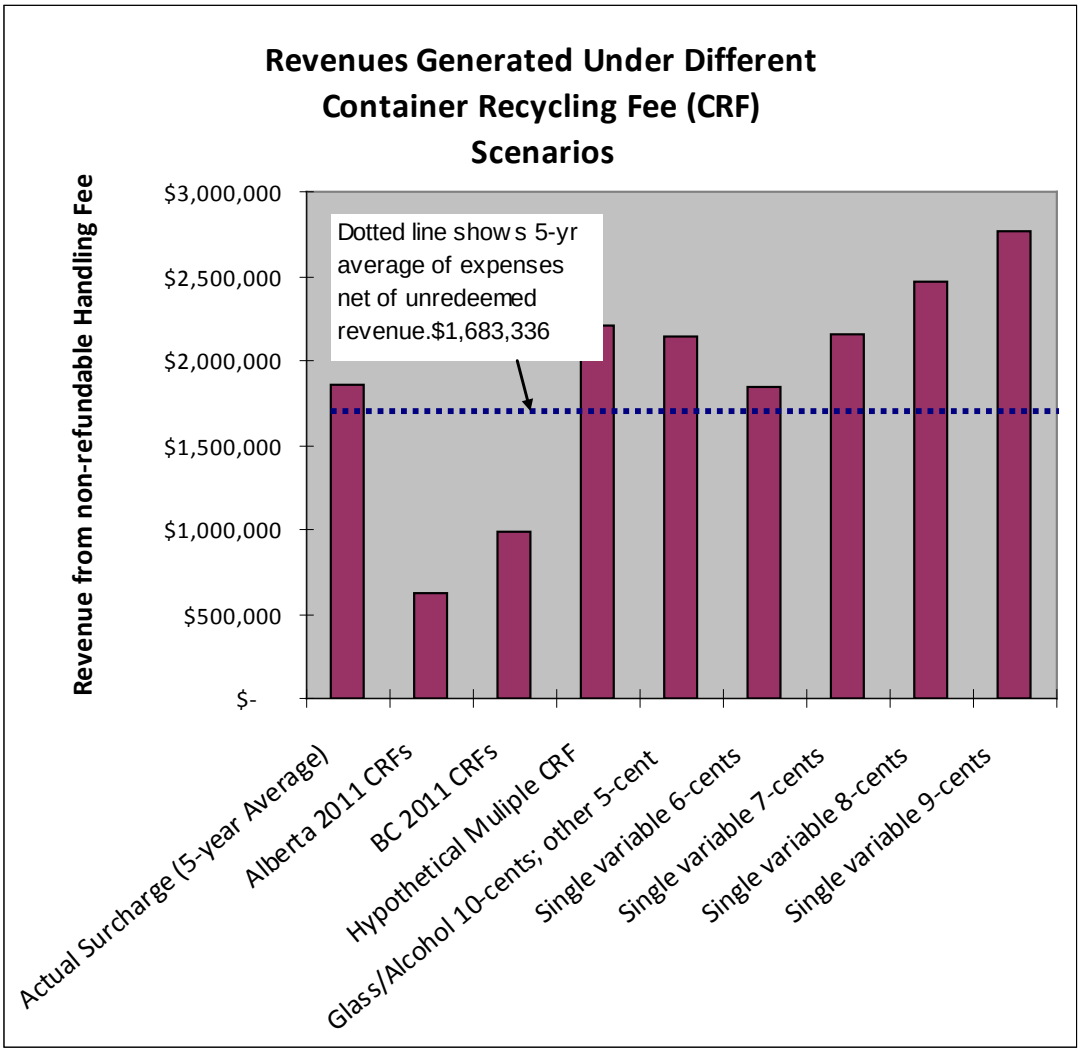
To help illustrate how possible funding schemes could impact the revenue stream in the NWT beverage container program, a series of “scenarios” have been modelled against a five year average of sales. These scenarios have been prepared to illustrate the impact that various revenue options could have on program revenue.

Figure 18 below, shows the level of revenue that would be raised using different variable container recycling fees (CRFs). The models are based upon 5-year average of sales in the BCP. The dotted blue line shows the 5-year average net program expenses (total expenses minus unredeemed revenue).

This means that the dotted line represents the level of revenue required to break even.

1) The first bar provides the 5-year average revenues raised from the existing surcharge schedule of 5-cents and 10-cents or “status quo”. ($1.86M)
2) The next four bars show examples of multi-variable CRFs using actual CRF rates by container type applied to NWT container sales (5-year average by unit type and size) from:
    - British Columbia;
    - Alberta;
    - a hypothetical schedule of CRFs, which range from a low of 6-cents on aluminum cans and a high of 15-cents on glass containers; and
    - a hypothetical schedule of CRFs which charge 10-cents on all glass bottles and alcohol containers, and 5-cents on other containers.
3) The last four bars provide revenues from single-variable CRFs using single rates for all container types and sizes. Specifically
    - 6-cents/unit;
    - 7-cents/unit;
    - 8-cents/unit, and
    - 9-cents/unit

## Figure 18 – Revenue Streams Using CRF Models




As mentioned earlier the existing surcharge schedule in NWT's program is sufficient to provide enough revenue ($1.86 million annually) to cover expenses (5-year average net of unredeemed is $1.68 million) and provide a small surplus. The chart shows that neither of the current CRF schedules being used in Alberta or British Columbia would generate sufficient revenue to keep the program solvent because their CRFs on the most commonly use containers like cans are very low.

Both hypothetical scenarios (a multi-variable CRF from 6-cents to 15-cents; and a 10-cent CRF on glass and alcohol containers) exceed the revenue requirements, and would provide sufficient funding to operate the BCP with a reasonable program surplus.

In the case of applying a single-variable CRF, charging a 6,7,8, or 9-cent fee on each container would in an average year, generate enough revenue to meet expenses.

Given the fluctuations of expenses and unredeemed revenue, it is recommended that NWT adopt a CRF model. NWT is not currently set up run multiple variable fees as is done in BC and AB because individual material types are not accounted for separately. This would require new systems in place to measure the revenue and expenses by type. This could be onerous. It is therefore recommended that NWT consider annual or even bi-annual single-variable fees review and possible bi-annual CRF changes, (as per the last five scenarios in Figure 18).

The CRF could begin at 5-cents on all non-glass & 10-cents on glass containers; or 6-cents/unit on all containers, or 7-cents/unit on all containers etc, depending upon what level of surplus the BCP wishes to maintain. This will provide the BCP with the ability to forecast sales and expenses and set the non-refundable handling fee accordingly.

We repeat the caution expressed above, that if the BCP wishes to embark on a CRF funding approach detailed analysis is recommended. Such an analysis must incorporate any program policy changes that the BCP determines are appropriate as a result of this review (i.e. depot handling fees, processor fees, scrap ownership etc).

## *8.3 Distributor Payments*

Each month, distributors of ready to serve beverages sold in containers, are required to report their sales within the NWT to the BCP. As at March 31, 2010 there were 41 beverage container distributors registered in the program.

Distributor Monthly Reporting Forms are required from distributors of non-alcohol beverages, and also from the Liquor Commission who submit a Liquor Commission Monthly Reporting Form, for alcohol beverages.

We note that the program has several challenges with reference to obtaining timely reports from distributors. Some distributors and some of the major retailers may view the NWT beverage container program as a relatively small program that is perhaps less of a priority for them to deal with compared to large programs in large southern provinces.

In some cases BCP staff has had to call a distributor to remind them that their remittance report is overdue. It is also noted that there is no formal reporting date included in the regulation, so this is just an internal policy of the BCP staff. Subsection 25(2) of the

Regulations and the Terms and Conditions of a distributor license state that reports and fees have to be paid “within 30 days at the end of each month for the previous month”. Ticketable offences are now available for ENR use. Late payments and reports offences now may carry a penalty of $500 per occurrence.

The BCP does not conduct regular distributor audits to determine if all the required remittances have been submitted. In 2006 an independent audit of one distributor highlighted certain procedural issues in the remittance procedures. That audit found that at least one distributor was remitting a number of months late with no consequences which may reflect that that distributor may not have felt that the program is of sufficient importance for them to pay attention. The 2006 audit report mentioned that there was an apparent lack of distributor accountability, since there is no remittance audit process in place.

Without some form of checking that the remittances reflect the true number of containers being sold in the NWT it is difficult to determine the recovery rates with certainly. This is especially critical when coupled with weak container counting procedures.

## 9.0 Container Categories

Comparing container sorts between one provincial deposit-return program and another is difficult because each program handles containers in various ways. For example, some provinces (i.e. British Columbia and Alberta) define their sort categories on the refund levels refunded and the handling fees corresponding to certain sizes and material types. Other provinces have sort categories based upon alcoholic or non-alcoholic containers while others have a very restricted list of container types such as the Quebec system which handles only soft drink and juices.

The BCP makes a distinction between container “categories” and container “sorts”. Categories are based on the refund categories that are paid to consumers, whereas sorts are based on the different types of materials that are shipped from depots to PCs.

The BCP requires NWT depots to sort containers into the following categories:

- Aluminum, bagged – alcohol / soft drink mixed (some bi-metal cans may end up in the aluminum bags. Processing Centres operate magnetic separators to remove steel from the aluminum cans prior to processing)
- PET plastic bottles are bagged in mega-bags – all types and sizes mixed (other than liquor)
- PET plastic liquor bottles, are bagged in mega-bags – all types and sizes (this is relatively new category reflecting an increased use of PET plastic for liquor containers. This is an important trend as the BCP pay a refund of 25 cents for liquor, regardless of the container size)
- Tetra boxes / aseptic boxes, are bagged in mega bags – all types and sizes mixed (Note: Tetra’s are sometimes co-mingled with gable cartons or vice versa)
- Gables, bagged in mega bags – all types and sizes are mixed together
- Milk, plastic, are bagged in mega bags
- Milk, gables, bagged in mega bags
- Glass, all types into cardboard boxes , and palletized
- 2 sorts - Non-liquor small & large
- 2 sorts - Liquor glass – small and large
- Refillable beer bottles are boxed, in distributor boxes, and palletized
- Bi-metal, all types into cardboard boxes (usually evaporated milk)

The BCP operates with 14 potential container sorts, and 20 refund categories that could be shipped from a depot to their processing centre.

As Table 24, below illustrates the sorts in the BCP, which are not an unusually large number of sorts compared to other deposit-return systems operating in other provinces.

## Table 24 – Sorts – NWT Compared to Rest of Canada

**Sorts By Container Type**

| | NWT [1.] | BC [2.] | AB | NB | NS |
|---|---|---|---|---|---|
| Aluminum cans (beer, soft drink & juices) | * | * | * | * | * |
| All PET mixed (liquor) | * | | | | |
| All PET mixed (non-liquor) | * | | | | |
| Plastic PET 0 - 1 Litre | | * | | | |
| Plastic PET under & over Litre (clear & light blue) | | | * * | | |
| Plastic PET > 1 Litre | | * | | | |
| Plastic PET > 2 Litre | | Mix with above | | | |
| Plastic PET Clear (non-liquor) | | | | * | * |
| Plastic PET Blue (non-liquor) | | | | * | * |
| Plastic PET Coloured (non-liquor) | | | * * | * | |
| Plastic HDPE Clear or Colours (Milk if considering NWT) | * | | * * * * | * | * |
| Other plastics | | | * * | * * | * |
| Polypropylene (under & over 1 Litre) | | | | * * | |
| Corrugated cardboard | | | | | * |
| Glass 0 - 1 Litre | * on pallets | * | * | | |
| Small liquor glass | * on pallets | | | | * |
| Large wine/ liquor (clear) | * on pallets | | | | * |
| Large wine/ liquor (coloured) | | | | | * |
| Glass - Clear (non-alcoholic) | | | | * | |
| Glass - Coloured (non-alcoholic) | | | | * | |
| Glass > 1 Litre | * on pallets | Mix with above | * | | |
| Bi-metal 0 - 1 Litre | | * | * | * | * |
| Bi-metal >1 Litre | * mixed | * | * | | |
| Pouches | * | * | * | * | * |
| Aseptic 0 - 500 ml | | * | * | | |
| Aseptic > 500 ml | * mixed | * | * | * | * |
| Gable cartons 0 - 500 ml | | * | * | | * |
| Gable cartons 501 - 1 Litre | | * | * | | |
| Gable cartons > 1 Litre | * mixed | * | | * | |
| Gable cartons (milk) | * | | | | |
| Small Glass 0 - 1 Litre | | * | | | |
| Glass 0 - 1 Litre | | Mix with above | | * | |
| Small Clear liquor glass | | | | | * |
| Small Wine/Liquor <1 L | | * | | | * |
| Large Wine/Liquor >500 | | Mix with above | | * | * |
| Plastic liquor 0 - 1 Litre | | * | | | * |
| Plastic liquor >1 Litre | | * | | | * |
| Bag in a Box | | * | * | | * |
| Liquor other | | | | | * |
| Brown glass | | | | | * |
| Refillable glass | * | * | * | * | * |
| Ceramics | | | * | | |
| Aerosols | | | * | | |
| Caps | | | * | | |
| Number of Sorts | 14 | 18 | 27 | 13 | 20 |

1. NWT depots co-mingle PET, HDPE milk, gables, aseptics, other plastics
2. BC depots with automated cash registers have 10 or 11 sorts instead of 18
2. Where * * appear - means multiple sorts mixed together

When the sorts and the refund categories are examined further, the number of categories may also be reviewed and reduced at that time.

## Table 25 – BCP Sorts vs. Refund Categories

| Sorts Versus Categories | | | |
|---|---|---|---|
| | Sorts | Code | Categories |
| | NWT [1] | | |
| Aluminum cans (soft drink & juices) | * | 101 | * |
| Aluminum can (beer) | | 302 | * |
| All PET mixed (liquor) | * | | |
| All PET mixed (non-liquor) | * | | |
| Plastic > 1 L | | 202 | * |
| Plastic < 1 L | | 102 | * |
| Plastic HDPE Clear or Colours (Milk if considering NWT) | * | | |
| Glass 0 - 1 Litre | * | 300 | * |
| Glass >1 Litre | | 200 | * |
| Small liquor glass | * | | |
| Large wine/ liquor (clear) | * | | |
| Glass > 1 Litre | * | 400 | * |
| Glass < 1 Litre | | 301 | * |
| Bi-metal 0 - 1 Litre | | 105 | * |
| Bi-metal >1 Litre | * | 205 | * |
| Pouches | * | | |
| Aseptic < 1L | | 103 | * |
| Aseptic > 1L | | 203 | * |
| Aseptic all | * | | |
| Gable cartons 501 - 1 Litre | | 104 | * |
| Gable cartons > 1 Litre | * | 204 | * |
| Any Milk > 1 L | | 601 | * |
| Any Milk< 1 L | | 600 | * |
| Gable cartons (milk) | * | | |
| Glass 0 - 1 Litre | | 100 | * |
| Bag in a Box | | 206 | * |
| Refillable glass | * | | * |
| Other materials > 1L | | 500 | * |
| | | Refund | |
| Sorts | 14 | Categories | 20 |

## 10.0 Legislative Authority and Operating Policies

The Beverage Container Program was the first program to be implemented under the *Waste Reduction and Recovery Act* (WRRA) which was passed in October 2003. The WRRA provides a broad framework for recovery, reuse and recycling efforts of various materials throughout the Northwest Territories (NWT). The Beverage Container Regulations (the Regulations) were authorized under authority of the Waste Reduction and Recovery Act (WRRA). The BCP program began operation in November 2005.

## *10.1 Legislative backdrop of BCP program*

Beverage containers include bottles, cans, plastic jugs, or other containers made from any materials that hold ready-to-serve drinks. Ready-to-serve drinks are those that require no preparation. These include soft drinks, ready-to-drink juice, bottled water, sports drinks, milk and liquid milk products, beer, wine, and all other alcohol.

The BCP, as per regulation, does not include:

- Containers for infant formula
- Milk and liquid milk product containers that have a capacity of less than 30 mL
- Containers sold empty
- Containers filled when the beverage is sold (i.e. fountain drinks)

The Regulation requires that depots be licensed, and an application and approval process has been created to review applications of those persons wishing to establish a depot business. Upon satisfactory review, the Chief Environmental Protection Officer can issue a license authorizing the person to operate a depot.

Another key feature of the BCP is the creation of the Environment Fund, which is a special purpose fund set up under the NWT *Waste Reduction and Recovery Act*. The Environment Fund is used to receive all income authorized by the Regulation and to pay all expenses connected with the Beverage Container Regulations, and the BCP. The GNWT has used some surplus revenue in the Environment Fund for additional waste reduction and recovery initiatives in recent years. In 2010, the BCP added milk containers to the program, making it the second provincial or territorial jurisdiction in Canada to do so under a Regulation.

Like other GNWT funds, the Environment Fund is administered according to the Financial Administration Act, the Financial Administration Manual and other GNWT financial policies. Furthermore, the Regulations require audited financial statements of

the fund on an annual basis. The Regulations are silent about container reconciliation requirements. The regulation allows a person or company to own and operate both a depot and a processing centre or both, and is silent as to whether a transportation service provider can also operate one of these other components of the BCP. Day to day financial management of the BCP is vested within the Department of Environment and Natural Resources.

Depot and processing centre licenses are issued for five year terms, however the Chief Environmental Protection Officer has discretion to amend or cancel licenses as he or she deems advisable, or if that decision is in the public interest to do so (Regulation, Section15).

The Regulation is the legal authority by which distributors are required to report and pay their total surcharge payments for each container distributed in the NWT each month, which includes the refundable deposit, the depot handling fee, the processing centre handling fee and an administration fee. These funds are held in the Environment Fund.

The setting of the total surcharges payable, the depot handling fees, the processing fees and the administrative fees are authorized by the Beverage Container Regulation. Making changes to any of these financial elements of the program requires an amendment to the Regulation, as initiated by ENR.

## *10.2 Regulatory Framework Limits Flexibility*

The regulatory framework of the Beverage Container Regulation does not allow BCP staff to make major financial administration changes to the program without an amendment to the Regulations. Amending a regulation is a cumbersome procedure for any government and is not something that happens often.

For example, as discussed in Section 4.4, in 2009-2010, the weighted average handling fee paid to licensed depots in NWT was 2.5¢ per unit returned. This handling fee is significantly lower than handling fees paid to depots in other Canadian deposit-return programs. If the BCP wished to amend these handling fees for depots, an amendment to the Regulation would be required.

### 10.2.1 Flexibility Options

The setting of handling fee rates in other jurisdictions in Canada is done either through regulation amendments or is delegated to others in some way.

For example, in Atlantic Canada, handling fees are set by government regulation on a regular basis after review. Often the setting of the handling fees is delegated by the Minister of the Environment to a crown agency (i.e. RRFB Nova Scotia or the Multi-Material Stewardship Board in Newfoundland). In this way changes to the financial requirements of the program are administrative in nature, and can be done without an amendment to the enabling regulation. These two crown agencies in turn, enter into negotiations with depot owners and recommend changes on handling fees to the Government. Handling fee increases are often set for a 3 to 5 year period with increases scheduled throughout the time period.

In British Columbia, Encorp Pacific is entrusted in accordance with an approved Beverage Container Recycling - Stewardship Plan, to negotiate a fair handling fee schedule with depots. Should an amicable agreement not be possible either the administrator (Encorp Pacific) or the depots can appeal to the Minister of the Environment for resolution. This has not been necessary for many years in BC.

Another model is operating in Alberta, where the government has created the Beverage Container Management Board (BCMB). This delegated administrative organization (DAO) has oversight of the container recycling programs for beer, non-alcoholic and wine/ liquor containers. BCMB has representation from the beverage industry sectors and the depot operators. BCMB issue depot standards and licenses. This body sets handling fees as required, after consultation with the affected parties.

Alberta and British Columbia also use an independent financing mechanism (CRF) that is un-regulated and has proven to be very effective. Those provincial governments allow the collection agents (Encorp Pacific and Alberta Beverage Container Recycling Corporation) to set a “Container Recycling Fee” (CRF), as discussed above. The CRF charged to consumers covers the full system cost of each container stream within the deposit-return program.

## 11.0 Transportation

In reviewing the BCP one of the operating components of keen interest to BCP staff was to examine transportation costs. With the NWT's unique system of all weather roads, ice roads, barge transportation and the occasional use of air freight this is one expense category that is of interest to BCP program staff.

The NWT transportation system services all of its communities. All weather roads connect the Upper and Lower Slave regions with point's south through Alberta and west through British Columbia. Winter ice roads complete the truck freight highway system with service north of Yellowknife and Behchoko to Gameti, and Whati; and to several communities north of Wrigley to Colville Lake. In the Inuvik area, the Dempster Highway connects regional communities such as Inuvik, Tsiigehtchic, and Fort McPherson to the Yukon, and points south. Additionally, winter roads in the Inuvik region provide winter access to Aklavik, and Tuktoyaktuk.

Barge services are an important part of the transportation network in the NWT. These companies provide freight services to many communities by barge up and down the Mackenzie River (Hay River to Tuktoyaktuk) and along the Arctic Ocean coast of the NWT as far east as Paulatuk, then on to Nunavut destinations. The BCP rents sea containers (sea cans) from NTCL and contract freight hauling of containers with this company to bring containers to processing centres.

Additionally, the NWT is well serviced by a network of airports, which in some cases allow for shipments of BCP supplies into a community or the shipment of containers to a regional PC, on rare occasions.

Our review examined the freight costs as reported in Annual Reports from March 2006 to March 2011. Freight has experienced a 16% decrease since year one (2006-2007), but a 26% increase from 2010 / 2011 compared to the previous year.

We also tabulated the costs reported in other deposit-return program in southern Canada as a comparison. These data are illustrated in Table 26 below.

## Table 26 – Transportation as a Portion of System Cost

| | NWT | British Columbia | Alberta | Sask. | NFLD & Labrador | Nova Scotia | New Brunswick | PEI |
|---|---|---|---|---|---|---|---|---|
| Total operating costs | $2,244,539 | $76,400,000 | $72,570,000 | $22,300,000 | $11,200,000 | $17,600,000 | $9,900,000 | $2,600,000 |
| BCP only (SRBP excluded) | 2010/ 2011 FY | | | | | | | |
| Total Transportation Costs | $282,758 | $12,600,000 | $5,670,000 | $1,420,000 | $1,780,000 | $2,310,000 | $1,700,000 | $180,000 |
| | | 16% | 8% | 6% | 16% | 13% | 17% | 7% |
| Transport costs NWT as a % of total operting costs | 13% | | | | | | | |
| Average other Provinces | 12% | | | | | | | |

| BCP S U M M A R Y | | |
|---|---|---|
| | Transportation | % of Total Costs |
| Year ending March 31, 2006 | $43,956 | 9.4% |
| Year ending March 31, 2007 | $266,958 | 12.5% |
| Year ending March 31, 2008 | $233,199 | 11.6% |
| Year ending March 31, 2009 | $214,914 | 10.4% |
| Year ending March 31, 2010 | $224,936 | 10.6% |
| Year ending March 31, 2011 | $282,758 | 12.6% |
| Average as % Total Operating Costs | | **11.2%** |

Since the BCP started in late 2005, the program has spent $1,267,000 on transport costs.

A feature of the transportation costs in the BCP system is that some depots are allowed to haul refunded containers to their regional processing centre, upon the authorization of a BCP official. Table 27 presents the costs of this transportation, which is a relatively small component of the annual transportation costs (~10%).

## Table 27 – Alternate Transportation to Processing Centres

**BCP Self-Hauling**

| | 2005/2006 | 2006/2007 | 2007/2008 | 2008/2009 | 2009/2010 | 2010/2011 |
|---|---|---|---|---|---|---|
| Behchoko | $600 | $5,250 | $15,600 | $10,000 | $9,700 | $10,000.00 |
| Aklavik | $1,750 | $4,100 | $0 | | $4,600 | $3,500.00 |
| Ft. Resolution | $1,000 | $2,500 | $1,000 | $5,250 | $4,000 | $5,775.00 |
| Ft. McPherson | | | $1,500 | $5,250 | $4,500 | $4,500.00 |
| Tsiigetchic | | | | | $900 | |
| | | | | | | |
| | **$3,350** | **$11,850** | **$18,100** | **$20,500** | **$23,700** | **$23,775** |

We note that the BCP pays the freight for transporting refillable beer bottles from NWT processing centres to BDL in Edmonton. In discussions with deposit-return programs in southern Canada we find that brewers normally pay depots a handling fee of between 18-cents per dozen to 33-cents per dozen, then the brewers pick up their own bottles and pay their own freight to bottle processing centres. This is a potential cost that the BCP may be able to remove from the system if new arrangements with the brewers can be negotiated.

We also note that a significant portion of the total transportation costs paid in the NWT program is spent in the Hay River processing centre area. About 19% - 20% of the NWT population resides in the communities serviced by the Hay River PC. The volume of container recovered from the Hay River service area is about 30% of the Territorial total each year, but half (48%) of the total transportation costs are from this Region. The Hay River PC services 18 depots that send containers to this PC for processing.

The BCP may wish to review the financial effectiveness of these arrangements, which spends nearly half of the transportation budget on < 30% of the recovered containers.

In examining the freight costs for the BCP we find that costs appear reasonable. The BCP may be able to save some funds with continuing to negotiate back-haul freight whenever possible and to continue to source contracts where possible to achieve the best available rates.

We note that NTCL freight costs may increase substantially as this vendor has indicated that free freight or in some cases back-hauls may no longer be available.

## 12.0 Extended Producer Responsibility

On October 29, 2009, the Canadian Council of Ministers of the Environment (CCME) adopted a Canada-wide Action Plan for Extended Producer Responsibility (EPR). This plan puts forward common coordinated policies and commitments for government action and common key elements for building producer responsibility through the adoption of EPR approaches to identified priority products. Extended Producer Responsibility is defined as: " an environmental policy approach in which a producer's responsibility for a product is extended to the post-consumer stage of its life cycle".

In plain language, this means having producers take responsibility, and paying for their end-of- life products and packaging to be handled, requiring that taxpayer funds are not used for managing producer's end-of-life materials.

EPR programs see that the costs of the end-of-life management of products are treated similarly to other factors of production and with those costs incorporated into wholesale and retail product prices. Successful EPR programs shift the costs associated with product end-of-life management from taxpayers to producers and consumers and may reduce the amount of waste generated and going to disposal. The CCME "action plan" suggests a 6 year implementation phase to include a number of types of materials – such as: printed materials, mercury containing lamps, other mercury-containing products, electronics and electrical products, household hazardous and special wastes, automotive products – and relevant to this report - packaging.

The "action plan" recognized the unique situation that northern territories occupy, stating that given their unique circumstances of geography, population and infrastructure, it is recognized that EPR may not be an appropriate instrument for all products or product categories in the northern Territories. Within six (6) years of ministerial concurrence Territorial jurisdictions are asked to review their progress toward the development of EPR frameworks for all product categories and provide an update to CCME.

The BCP in the Northwest Territories is not an EPR program within the definition of EPR, even though a portion of the costs of administering the program are reflected in the surcharges charged to distributors. The BCP is administered by a government department (ENR), with all BCP expenses, with the exception of some staff time from the Finance Department preparing information for the audited financial statement of the Environment Fund, being paid from the Environment Fund. Below we discuss how producer run EPR programs for beverage containers have been organized in British Columbia and in Alberta.

In British Columbia, producer responsibility legislation requires that designated material users (i.e. beverage containers) submit a stewardship plan every five years. In October, 2004, the Provincial Government enacted the Recycling Regulation which repealed the Beverage Container Stewardship Program Regulation 406/97 and placed beverage containers as a Schedule under the new Recycling Regulation. The Regulation requires producers of product categories named in a Schedule to file a stewardship plan with the Minister of Environment.

In BC, for most ready-to-drink beverages, the current 5 year stewardship plan covers the period from November 2007 to October 2012, after which the beverage industry as represented by Encorp Pacific Canada Inc, will go through the cycle again, creating a new plan, conducting province wide consultations and submitting a new plan to the Ministry of the Environment, by October 31, 2012.

Encorp Pacific (Canada) is an incorporated not-for-profit, product stewardship company established in October, 1998. The Board of Directors includes representation from the soft-drink, grocery, juice, and water industries as well as two unrelated directors with no connection to either the beverage or grocery industries. The Board of Directors of Encorp Pacific has an open governance structure which includes an Advisory Committee representing stakeholder groups which has the ability to send motions directly to the Board of Directors. Encorp was established by the beverage industry to develop and manage a common collection system for all non-alcohol used beverage containers (UBC) as required by British Columbia's environmental regulation. It is the industry's solution to regulatory requirements and not the result of regulatory prescription. In BC the government sets the requirements for industry to manage their end-of-life materials then allows those industries the opportunity to seek approval for the methods in which they propose in their Stewardship Plan to meet their legal obligations.

In British Columbia, Encorp Pacific is the designated common collection system operator who manages all aspects of the deposit-return system. Encorp negotiates business contracts with independently owned depots and pays them a negotiated handling fee for the services they provide. Encorp hires regional processors to receive containers and process them into saleable salvage materials. Encorp Pacific owns the scrap and its salvage revenues. All containers, except beer, are included; including wine and liquor bottles and non-alcohol used beverage containers, pouches, bags and mini-sip beverage containers. Brewers operate their own system, and independently pay depots for their services.

All costs of the deposit-return system are the responsibility of the common collection system operator (Encorp Pacific Canada Inc.), who has the flexibility to set negotiated handling fees, and to set a container recycling fee to cover costs and to generate sufficient revenues to keep the systems financially sustainable. Each year, Encorp Pacific must publish a public Annual Report of its activities.

A similar model, with the ready-to-serve beverage industry developing and managing a common collection system for all used beverage containers (UBC), is also in place in Alberta. The Alberta Beverage Container Recycling Corporation (ABCRC) (representing

non-beer beverage distributors) and the Alberta Beer Container Corporation (ABCC) (representing brewers), operate the beverage container deposit-return systems, under the supervision of the Beverage Container Management Board. In the Alberta system the beverage industry manages all aspects of the deposit-return program.

Some of the advantages of industry-run programs are:

- No public funds from taxpayers are used in the program
- Legislative authorization designates and authorizes an organization to run the program
- Government maintains oversight control – but not operational responsibility
- Financial risks belong to producers
- Producers have an incentive to keep costs low, since their customers pay all the costs to run the program
- Flexibility is improved, as the organization running the program can negotiate contracts, transportation cost, handling fees with depots and processing centres on a commercial basis
- Producers can rationalize costs of the program to be efficient while meeting government objectives
- Procurement and tendering practices meet best commercial practices

Negative aspects to consider if the NWT wished to consider an EPR approach for the BCP may include:

- Producers / distributors may actively resist taking the program over
- Changes to the Beverage Regulation would be necessary to allow designation of a “collection agent” (producers) to operate the container recycling program
- Perception that if business is taking over the program, that there is money to be made, especially if industry chooses to institute a new CRF regime (which may generate more revenue as demonstrated in the revenue generating scenarios in Figure 18).
- Transfer of capital equipment and assets owned by the BCP to the collection agent
- Assuring a smooth, fair and seamless transition from a publicly run program to an EPR program operated by the producers / distributors
- Producers would likely want to negotiate changes to the program including:
    - Sufficient timelines to take over the program without service disruption to consumers

- Introduction of some form of Container Recycling Fee to assure financial stability of the program
- Depots would be paid directly by the collection agent not processors
- Rigorous reconciliation program would need to be instituted
- Processing centres and the public would be invited to respond to a tender / or call for proposals for the business
- Scrap would be the property of the program and not belong to the processors, with revenues used within the program to off-set costs
- Consider including NWT scrap in national co-marketing pools if appropriate
- Hauling would be tendered and discussions with BDL initiated on freight costs
- Depot handling fees would be negotiated collectively with depot owners to determine fair remuneration for services (arbitration if required)
- Rationalizing the number of depots operating
- Find other ways to service remote communities (bottle drives, recycling events etc)

Extended Producer Responsibility models for beverage container recycling programs are in operation in several Canadian jurisdictions. These include:

- New Brunswick
  - Brewers for beer, Encorp Atlantic for non-alcoholic, NB Liquor Commission for wine/ spirit containers

- Quebec
  - Brewers for beer, Boissons Gazeuses Environnement for soft-drink & some juices

- Ontario
  - Brewers for beer, Liquor Control Board of Ontario (distributor) for wine/ spirit containers

- Manitoba
  - Brewers for beer, Canadian Beverage Container Recycling Association for out-of-home soft drink –water – juice container recycling

- Alberta

  - Brewers for beer, Alberta Beverage Container Recycling Corporation for soft drink –water – juice, milk containers and wine & liquor containers

- British Columbia
  - Brewers for beer, Encorp Pacific for soft drinks –water – juice container recycling, and wine & liquor containers. Encorp also recycles milk containers as a voluntary program funded by the dairy industry.

Government operated, or Crown Corporation administered, beverage container programs exist in:

- Newfoundland; Multi-Material Stewardship Board (crown agency )
- Nova Scotia; RRFB Nova Scotia (crown agency )
- Prince Edward Island; Department of Environment Energy & Forestry
- Yukon Territories; Department of Community Services
- Northwest Territories; Department of Environment & Natural Resources

Various oversight approaches exist across the country whereby the provincial government retains the regulatory role over the program, while producers operate the deposit-return system. We find that the BCP is not currently an EPR program within the normal definition. This program could be transitioned to a true EPR program which would move towards the GNWT participating under the spirit of the Canadian Council of Ministers of the Environment (CCME) - Canada-wide Action Plan for Extended Producer Responsibility.

# 13.0 Recommendations

1. The BCP should rationalize its delivery of the program recognizing that 10 depots account for 95% of container returns. The BCP should consider setting performance criteria for levels of delivery, in the remaining 18 depot communities, namely:

   i) Redemption volumes > X containers per year, allows a depot license
   ii.) Between return volumes < X >Y ; satellite program only
   iii.) Less than a given redemption level (<Y); no BCP services

2. Review depot handling fees, considering amendments to the existing handling fees schedule.

3. We recommend that payments to depots originate from the BCP administrators and not from PCs

4. No change to depots pre-processing is recommended

5. Initiate the design and implementation of a Quality Control program, to reconcile and check counts from depots. This should be done with either ENR resources or the QC function contracted out to independent contractors. PCs that own large depots should not reconcile their own counts prior to processing. As part of this recommendation BCP staff should investigate QC programs in BC, AB, NS, and NB as examples of existing QC methodologies to assist in a workable and cost effective QC program in the NWT.

6. Separate the roles of commercial entities within the program.

7. PCs which own large depots should not reconcile their own counts. An independent Quality Control procedure should deal with any PC-owned depot container reconciliations at PCs.

8. Review the cost of processing containers in the NWT (processor fees). These costs should be brought in line with those costs experienced in the rest of Canada.

9. The BCP should divest itself from owning processing equipment. In future RFP / tenders respondents should be required to bid on the depreciated value of BCP equipment assets, and build those costs into their fee-for-service bid.

10. We recommend that the BCP own the container scrap, and use the revenues from their sale to partially off-set operating costs. PCs would be required to report on all shipments of BCP-owned scrap to southern markets. Scrap revenues should be paid directly to the BCP.

11. The BCP should renegotiate its memorandum of understanding with brewers, to shift the transportation costs of shipping refillable bottles to BDL in Edmonton to brewers.

12. Renegotiate a more appropriate refillable beer bottle depot handling fee, which is now 18 ¢/ dozen to bring the NWT rates in line with refillable bottle depot handling fees paid across Canada.

13. Investigate whether there are opportunities to sell NWT aluminum can bales as part of a national co-operative marketing program.

14. The grants and loans programs should remain in place.

15. Fully evaluate the possible benefits of using a Container Recovery Fee (CRF) fee setting approach.

16. Embark on a detailed examination of restructuring its fee setting procedures. This review should include legislative considerations to amend existing legislation (or the Regulations) to be more flexible in setting fees.

17. A program to conduct periodic distributor remittance audits should be designed and implemented.

18. Glass should be recycled rather than broken and disposed of. The environmental benefits of recycling glass should be considered, and the costs evaluated to determine if recycling this material meets BCP goals. If a CRF funding approach is adopted, these costs could accrue back to distributors selling beverage products in glass bottles.

# Appendix A - CONTAINER CATEGORIES BY PROVINCE

| PROVINCE | CATEGORIES | FEES | DEPOSIT Refund | DEPOSIT CATEGORIES |
|---|---|---|---|---|
| BC | | | | |
| | Aluminum ≤ 1 litre | $ 0.02 | $ 0.05 | Non-alcohol ≤ 1 litre |
| | Plastic ≤ 1 litre | $ 0.04 | $ 0.05 | Non-alcohol < 1 litre |
| | Plastic > 1 litre | $ 0.05 | $ 0.20 | Alcohol ≤ 1 litre |
| | Polystyrene cup 0 - 500 ml | $ 0.04 | $ 0.05 | Alcohol > 1 litre |
| | Glass ≤ 1 litre | $ 0.10 | $ 0.05 | |
| | Glass > 1 litre | $ 0.10 | $ 0.20 | |
| | Bi-metal ≤ 1 litre | $ - | $ 0.05 | |
| | Bi-metal > 1 litre | $ - | $ 0.20 | |
| | Drink box 0 - 500 ml | $ - | $ 0.05 | |
| | Drink box 501 ml - 1 litre | $ 0.04 | $ 0.05 | |
| | Drink box > 1 litre | $ - | $ 0.20 | |
| | Gabletop 0 - 500 ml | $ - | $ 0.05 | |
| | Gabletop 501 ml - 1 litre | $ - | $ 0.05 | |
| | Gabletop > 1 litre | $ - | $ 0.20 | |
| | Pouch ≤ 1 litre | $ 0.05 | $ 0.05 | |
| | Bag-in-box | $ 0.20 | $ 0.20 | |
| | Alcohol ≤ 1 litre | as above | $ 0.10 | |
| | Alcohol > 1 litre | as above | $ 0.20 | |

| PROVINCE | CATEGORIES | FEES | DEPOSIT Refund | DEPOSIT CATEGORIES |
|---|---|---|---|---|
| AB | | | | |
| | Aluminum < 1 litre | $ - | $ 0.10 | Any container ≤ 1 litre |
| | PET Plastic ≤ 1 litre | $ 0.03 | $ 0.10 | Any container < 1 litre |
| | PET Plastic > 1 litre | $ 0.06 | $ 0.25 | |
| | Other Plastic ≤ 1 litre | $ 0.03 | $ 0.10 | |
| | Other Plastic > 1 litre | $ 0.05 | $ 0.25 | |
| | Polystyrene cup 0 - 500 ml | $ 0.01 | $ 0.10 | |
| | Glass 0 – 500 ml | $ 0.06 | $ 0.10 | |
| | Glass 501 ml - 1 litre | $ 0.06 | $ 0.10 | |
| | Glass > 1 litre | $ 0.09 | $ 0.25 | |
| | Drink box ≤ 1 litre | $ 0.02 | $ 0.10 | |
| | Drink box > 1 litre | $ 0.02 | $ 0.25 | |
| | Bi-metal ≤ 1 litre | $ 0.06 | $ 0.10 | |
| | Bi-metal > 1 litre | $ - | $ 0.25 | |
| | Bag-in-box | $ - | $ 0.25 | |
| | Gabletop ≤ 1 litre | $ - | $ 0.10 | |
| | Gabletop > 1 litre (non-milk/cream) | $ - | $ 0.25 | |
| | Gabletop > 1 litre | $ - | $ 0.25 | |
| | Pouch ≤ 1 litre | $ - | $ 0.10 | |

| PROVINCE | CATEGORIES | FEES | DEPOSIT Refund | DEPOSIT CATEGORIES |
|---|---|---|---|---|
| SK | | | | |
| | Aluminum / other metal cans 0 - 300 ml | $ 0.05 | $ 0.10 | material other than glass ≤ 1 litre |
| | Aluminum / other metal cans 301 - 999 ml | $ 0.05 | $ 0.10 | material other than glass over 1 litre |
| | Aluminum / other metal cans ≤ 1 litre | $ 0.05 | $ 0.20 | Glass Bottles (excluding beer) 0 - 300 ml |
| | Plastic bottles and jugs 0 - 300 ml | $ 0.06 | $ 0.10 | Glass Bottles (excluding beer) 301 - 999 ml |
| | Plastic bottles and jugs 301 - 999 ml | $ 0.06 | $ 0.10 | Glass Bottles (excluding beer) ≤ 1 litre |
| | Plastic bottles and jugs ≤ 1 litre | $ 0.06 | $ 0.20 | Juice boxes / cartons |
| | Glass Bottles (excluding beer) 0 - 300 ml | $ 0.07 | $ 0.10 | Refillable beer bottles |
| | Glass Bottles (excluding beer) 301 - 999 ml | $ 0.07 | $ 0.20 | |
| | Glass Bottles (excluding beer) ≤ 1 litre | $ 0.07 | $ 0.40 | |
| | Juice boxes / cartons | $ 0.03 | $ 0.05 | |
| | Refillable beer bottles | $ - | $ 0.04 | |

| PROVINCE | CATEGORIES | FEES | DEPOSIT Refund | DEPOSIT CATEGORIES |
|---|---|---|---|---|
| NS | | | | |
| | Non-liquor less than 5 litres | $ 0.05 | $ 0.05 | Non-liquor less than 5 litres |
| | Liquor ≤ 500 ml | $ 0.05 | $ 0.05 | Liquor ≤ 500 ml |
| | Liquor over 500 ml | $ 0.10 | $ 0.10 | Liquor over 500 ml |
| | Refillable beer bottles | | $ 0.10 | |

| PROVINCE | CATEGORIES | FEES | DEPOSIT Refund | DEPOSIT CATEGORIES |
|---|---|---|---|---|
| NB | | | | |
| | Non-alcoholic containers | $ 0.05 | $ 0.05 | Non-alcoholic containers |
| | Alcoholic containers over 500 ml | $ 0.10 | $ 0.10 | Alcoholic containers over 500 ml |
| | Alcoholic containers under 500 ml | $ 0.05 | $ 0.05 | Alcoholic containers under 500 ml |

| PROVINCE | CATEGORIES | FEES | DEPOSIT Refund | DEPOSIT CATEGORIES |
|---|---|---|---|---|
| NL | | | | |
| | Non-alcoholic containers | $ 0.03 | $ 0.05 | Non-alcoholic containers |
| | Alcoholic containers | $ 0.10 | $ 0.10 | Alcoholic containers |

| | | | | |
|---|---|---|---|---|
| | Beer (cans or bottles) and some ciders/coolers/mixed cocktails | $ 0.03 | $ 0.05 | Beer (cans or bottles) and some ciders/coolers/mixed cocktails |

| PROVINCE | CATEGORIES | FEES | DEPOSIT Refund | DEPOSIT CATEGORIES |
|---|---|---|---|---|
| PE | | | | |
| | Non-alcoholic containers under 5 litres | $ 0.05 | $ 0.05 | Non-alcoholic containers under 5 litres |
| | Alcoholic containers over 500 ml | $ 0.10 | $ 0.10 | Alcoholic containers over 500 ml |
| | Alcoholic containers under 500 ml | $ 0.05 | $ 0.05 | Alcoholic containers under 500 ml |
| | Refillable beer bottles | | $ 0.10 | Refillable beer bottles |

| PROVINCE | CATEGORIES | FEES | DEPOSIT Refund | DEPOSIT CATEGORIES |
|---|---|---|---|---|
| YK | | | | |
| | Aluminum cans | $ 0.05 | $ 0.05 | Aluminum cans |
| | Any material, any beverage ≤ 1 litre | $ 0.05 | $ 0.05 | Any material, any beverage ≤ 1 litre |
| | Any material, any beverage > 1 litre | $ 0.10 | $ 0.25 | Any material, any beverage > 1 litre |
| | Liquor containers 200 ml - 499 ml | $ 0.05 | $ 0.10 | Liquor containers 200 ml - 499 ml |
| | Liquor containers ≥ 500 ml | $ 0.10 | $ 0.25 | Liquor containers ≥ 500 ml |
| | Refillable beer bottles | $ - | $ 0.10 | Refillable beer bottles |

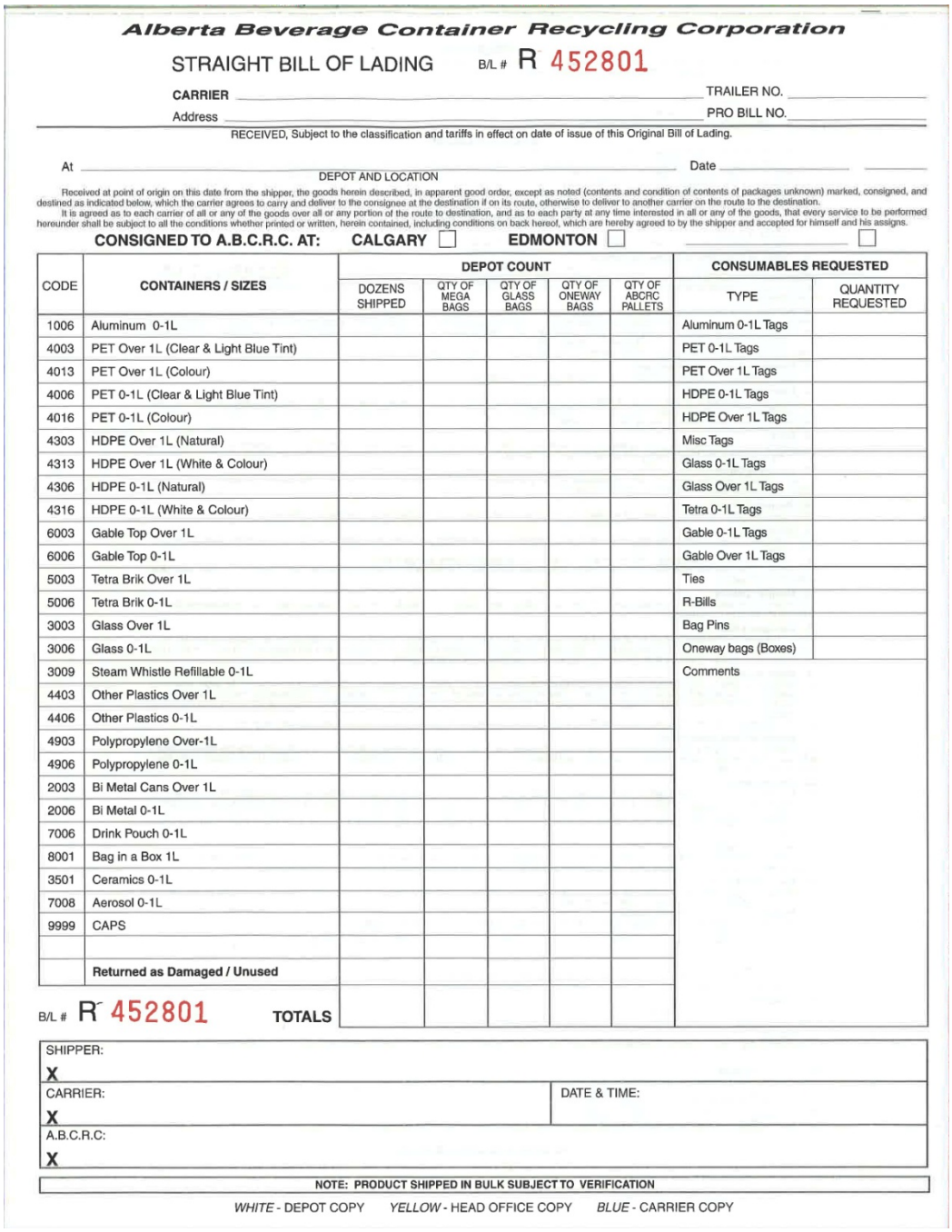
# Appendix B - Container Recycling Fee in British Columbia

## Container Recycling Fees (CRF)

| Container Type | Size | Deposit Rate | 1-Feb-05 | 1-Sep-05 | 1-Feb-06 | 1-Aug-06 | 1-Feb-07 | 1-Apr-07 | 1-Mar-08 | 4-May-08 | 1-Feb-09 | 1-Oct-09 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | 0-1 L | 5.0 cents | 1.0 cent | - | - | - | - | - | - | - | 1.0 cents | 2.0 cents |
| Plastic | 0 - 500 ml | 5.0 cents | 3.0 cents | 3.0 cents | 2.0 cents | 1.0 cent | 1.0 cent | 1.0 cent | 3.0 cents | 3.0 cents | 4.0 cents | 4.0 cents |
| Plastic | 500 - 1L | 5.0 cents | 3.0 cents | 3.0 cents | 2.0 cents | 1.0 cent | 1.0 cent | 1.0 cent | 3.0 cents | 3.0 cents | 4.0 cents | 4.0 cents |
| Plastic | > 1L | 20.0 cents | 4.0 cents | 4.0 cents | 4.0 cents | 4.0 cents | 3.0 cents | 3.0 cents | 3.0 cents | 3.0 cents | 3.0 cents | 5.0 cents |
| Polystyrene | | | 1.0 cent | 1.0 cent | 1.0 cent | 1.0 cent | 1.0 cent | 1.0 cent | 3.0 cents | 3.0 cents | 4.0 cents | 4.0 cents |
| Glass | 0 - 500 ml | 5.0 cents | 4.0 cents | 4.0 cents | 4.0 cents | 4.0 cents | 4.0 cents | 4.0 cents | 5.0 cents | 5.0 cents | 7.0 cents | 10.0 cents |
| Glass | 500 - 1L | 5.0 cents | 4.0 cents | 4.0 cents | 4.0 cents | 4.0 cents | 4.0 cents | 4.0 cents | 5.0 cents | 5.0 cents | 7.0 cents | 10.0 cents |
| Glass | > 1L | 20.0 cents | 5.0 cents | 5.0 cents | 5.0 cents | 5.0 cents | 5.0 cents | 5.0 cents | 5.0 cents | 5.0 cents | 7.0 cents | 10.0 cents |
| Bi-Metal | 0 - 500 ml | 5.0 cents | - | - | - | - | - | - | - | - | - | - |
| Bi-Metal | 500 - 1L | 5.0 cents | - | - | - | - | - | - | - | - | - | - |
| Bi-Metal | > 1L | 20.0 cents | - | - | - | - | - | - | - | - | - | - |
| Bag-in-Box | > 1L | 20.0 cents | - | - | - | - | - | - | - | - | - | - |
| Drink Boxes up to 500 ml | 0 - 500 ml | 5.0 cents | - | - | - | - | - | - | - | - | - | - |
| Drink Boxes 501 ml - 1L | 500 - 1L | 5.0 cents | 4.0 cents | 4.0 cents | 4.0 cents | 4.0 cents | 4.0 cents | 4.0 cents | 4.0 cents | 4.0 cents | 4.0 cents | 4.0 cents |
| Drink Boxes > 1L | > 1L | 20.0 cents | | | | | | | | | | |
| Gable Top up to 500 ml | 0 - 500 ml | 5.0 cents | - | - | - | - | - | - | - | - | - | - |
| Gable Top 501 ml - 1L | 500 - 1L | 5.0 cents | - | - | - | - | - | - | - | - | - | - |
| Gable Top > 1L | > 1L | 20.0 cents | - | - | - | - | - | - | - | - | - | - |
| Drink Pouches | 0-1 L | 5.0 cents | - | - | - | - | - | - | - | - | - | - |
| Glass Wine & Spirits ≤ 1L | 0-1 L | 10.0 cents | | | | | | 9.0 cents | 9.0 cents | 10.0 cents | 12.0 cents | 14.0 cents |
| Glass Wine & Spirits> 1L | > 1L | 20.0 cents | | | | | | 12.0 cents | 12.0 cents | 12.0 cents | 14.0 cents | 16.0 cents |
| Non-Refillable Beer, Cider, Cooler Glass ≤1L | 0-1 L | 10.0 cents | | | | | | 6.0 cents | 6.0 cents | 7.0 cents | 8.0 cents | 10.0 cents |
| Non-Refillable Beer, Cider, Cooler Glass > 1L | > 1L | 20.0 cents | | | | | | 7.0 cents | 7.0 cents | 7.0 cents | 8.0 cents | 10.0 cents |
| Liquor Plastic ≤ 1L | 0-1 L | 10.0 cents | | | | | | 2.0 cents | 2.0 cents | 2.0 cents | 4.0 cents | 4.0 cents |
| Liquor Plastic > 1L | > 1L | 20.0 cents | | | | | | 7.0 cents | 7.0 cents | 7.0 cents | 7.0 cents | 8.0 cents |
| Liquor Bag-in-Box | > 1L | 20.0 cents | | | | | | - | - | - | - | - |

# Appendix C - Examples of Transport Forms

## Bill of Lading form – Alberta Beverage Container Recycling Corporation



**Alberta Beverage Container Recycling Corporation**

STRAIGHT BILL OF LADING B/L # R 452801

CARRIER _____ TRAILER NO. _____

Address _____ PRO BILL NO. _____

RECEIVED, Subject to the classification and tariffs in effect on date of issue of this Original Bill of Lading.

At _____ Date _____

DEPOT AND LOCATION

Received at point of origin on this date from the shipper, the goods herein described, in apparent good order, except as noted (contents and condition of contents of packages unknown) marked, consigned, and destined as indicated below, which the carrier agrees to carry and deliver to the consignee at the destination if on its route, otherwise to deliver to another carrier on the route to the destination.
It is agreed as to each carrier of all or any of the goods over all or any portion of the route to destination, and as to each party at any time interested in all or any of the goods, that every service to be performed hereunder shall be subject to all the conditions whether printed or written, herein contained, including conditions on back hereof, which are hereby agreed to by the shipper and accepted for himself and his assigns.

**CONSIGNED TO A.B.C.R.C. AT:** **CALGARY** ☐ **EDMONTON** ☐ _____ ☐

| CODE | CONTAINERS / SIZES | DEPOT COUNT | | | | | CONSUMABLES REQUESTED | |
|---|---|---|---|---|---|---|---|---|
| | | DOZENS SHIPPED | QTY OF MEGA BAGS | QTY OF GLASS BAGS | QTY OF ONEWAY BAGS | QTY OF ABCRC PALLETS | TYPE | QUANTITY REQUESTED |
| 1006 | Aluminum 0-1L | | | | | | Aluminum 0-1L Tags | |
| 4003 | PET Over 1L (Clear & Light Blue Tint) | | | | | | PET 0-1L Tags | |
| 4013 | PET Over 1L (Colour) | | | | | | PET Over 1L Tags | |
| 4006 | PET 0-1L (Clear & Light Blue Tint) | | | | | | HDPE 0-1L Tags | |
| 4016 | PET 0-1L (Colour) | | | | | | HDPE Over 1L Tags | |
| 4303 | HDPE Over 1L (Natural) | | | | | | Misc Tags | |
| 4313 | HDPE Over 1L (White & Colour) | | | | | | Glass 0-1L Tags | |
| 4306 | HDPE 0-1L (Natural) | | | | | | Glass Over 1L Tags | |
| 4316 | HDPE 0-1L (White & Colour) | | | | | | Tetra 0-1L Tags | |
| 6003 | Gable Top Over 1L | | | | | | Gable 0-1L Tags | |
| 6006 | Gable Top 0-1L | | | | | | Gable Over 1L Tags | |
| 5003 | Tetra Brik Over 1L | | | | | | Ties | |
| 5006 | Tetra Brik 0-1L | | | | | | R-Bills | |
| 3003 | Glass Over 1L | | | | | | Bag Pins | |
| 3006 | Glass 0-1L | | | | | | Oneway bags (Boxes) | |
| 3009 | Steam Whistle Refillable 0-1L | | | | | | Comments | |
| 4403 | Other Plastics Over 1L | | | | | | | |
| 4406 | Other Plastics 0-1L | | | | | | | |
| 4903 | Polypropylene Over-1L | | | | | | | |
| 4906 | Polypropylene 0-1L | | | | | | | |
| 2003 | Bi Metal Cans Over 1L | | | | | | | |
| 2006 | Bi Metal 0-1L | | | | | | | |
| 7006 | Drink Pouch 0-1L | | | | | | | |
| 8001 | Bag in a Box 1L | | | | | | | |
| 3501 | Ceramics 0-1L | | | | | | | |
| 7008 | Aerosol 0-1L | | | | | | | |
| 9999 | CAPS | | | | | | | |
| | | | | | | | | |
| | **Returned as Damaged / Unused** | | | | | | | |
| B/L # R 452801 | **TOTALS** | | | | | | | |

SHIPPER:
X

CARRIER:
X

DATE & TIME:

A.B.C.R.C:
X

**NOTE: PRODUCT SHIPPED IN BULK SUBJECT TO VERIFICATION**

*WHITE* - DEPOT COPY *YELLOW* - HEAD OFFICE COPY *BLUE* - CARRIER COPY

## Encorp Atlantic – Depot Shipping Tag


**100,000 Tags**

- size: 4.75" x 2.5"
- 10pt synthetic material (as per samples provided)
- front: black print with Pantone Yellow tint
  - barcode/numbering: black print
    *(Code 39 symbology - 8 characters/no checksum)*
  - no'd: 02921001 to 03921000
- back: black print with Pantone Yellow tint
- eyeletted (metal)
- elastic strung (4" hole-to-knot)

# Appendix D – Material Count Procedures - Conversion Factors

**Yellowknife**

- Aluminum is weighed and a count calculated based @ 30 containers per pound (as of March 15, 2011 @ 32 per lb)
- Plastic, all sizes is weighed and a count calculated based @ 18 per lb (non-alcoholic beverages)
- Plastic, alcoholic beverages, all sizes counted by hand
- Tetra and juice pouches, counted by hand
- Gables, all sizes counted by hand
- Glass, alcohol and non- alcohol counted by hand
- Milk , all sizes and materials counted by hand

**Hay River**

- Aluminum is weighed and a count calculated based @ 30 containers per lb (as of March 21, 2011 @ 32 per lb)
- Plastic, under 1 L is weighed and a count calculated based @ 18 per lb (alcohol and non-alcohol)
- Plastic 1 L and over is weighed and a count calculated based @ 8 per lb (alcohol and non-alcohol)
- Plastic alcohol ("Mickey's") is weighed and a count calculated based @ 11 per lb
- All glass (wine, spirits & non-alcohol) counted by hand
- Tetra (small) @ 50 per lb
- Tetra (large) @ 12 per lb
- Gables, all sizes @ 8 per lb
- Tetra (milk, long life) 1 L and under @ 12 per lb
- Gables (milk) 1 L and under @ 12 per lb
- Gables (milk) 2 L @ 8 per lb
- Plastic (milk) 4 L @ 7 per lb
- Plastic "milk to go" @ 7 per lb

Hay River Processing Centre (PC) services up to 18 depots, hence the program has allowed this to count by weight (all container types) to verify containers received. A partial audit of the weight/container ratio took place in 2009, and counts were found to be acceptable. A second baler/conveyor is being installed at the Hay River PC, which will allow for more hand sorting and counting of UBC's .

The BCP staff are aware of the potential shortcomings of this type of count, and have reported that Hay River would benefit from a more robust counting/sorting system.

**Inuvik**

- Aluminum  is weighed and a count calculated based @ 30 containers per pound (as of March 21, 2011 @ 32 per lb)
- Plastic, all sizes is weighed and a count calculated based @ 18 per lb (non-alcoholic beverages)
- Plastic, alcoholic beverages, all sizes counted by hand
- Tetra and juice pouches, counted by hand
- Gables, all sizes counted by hand
- Glass, alcohol and non- alcohol counted by hand
- Milk, all sizes and materials counted by hand

# Appendix E - Weighted Average of Processing Centre Handling Fee

| BEVERAGE | SIZE | CONTAINER MATERIAL OR TYPE | RETURNS 2008-2009 (UNITS) | RETURNS 2009-2010 (UNITS) | Processing Fee | Total Fee by Container Type 2008-2009 | Total Fee by Container Type 2009-2010 |
|---|---|---|---|---|---|---|---|
| NON-ALC | < 1.0 LITRE | GLASS | 586,668 | 420,959 | $ 0.025 | $ 14,666.700 | $ 10,523.98 |
| NON-ALC | < 1.0 LITRE | ALUMINUM | 8,202,299 | 8,702,041 | $ 0.020 | $ 164,045.980 | $ 174,040.82 |
| NON-ALC | < 1.0 LITRE | PLASTIC | 4,510,186 | 4,759,992 | $ 0.020 | $ 90,203.720 | $ 95,199.84 |
| NON-ALC | < 1.0 LITRE | TETRA-PAK/DRINK POUCH | 986,495 | 988,353 | $ 0.020 | $ 19,729.900 | $ 19,767.06 |
| NON-ALC | < 1.0 LITRE | GABLETOP | 22,005 | 14,660 | $ 0.020 | $ 440.100 | $ 293.20 |
| NON-ALC | < 1.0 LITRE | BI-METAL | 8,955 | 9,142 | $ 0.020 | $ 179.100 | $ 182.84 |
| NON-ALC | ≥ 1.0 LITRE | GLASS | 80,955 | 55,650 | $ 0.025 | $ 2,023.875 | $ 1,391.25 |
| NON-ALC | ≥ 1.0 LITRE | ALUMINUM | 4 | 0 | $ 0.037 | $ 0.148 | $ - |
| NON-ALC | ≥ 1.0 LITRE | PLASTIC | 547,179 | 596,863 | $ 0.037 | $ 20,245.623 | $ 22,083.93 |
| NON-ALC | ≥ 1.0 LITRE | TETRA-PAK/DRINK POUCH | 199,633 | 209,783 | $ 0.037 | $ 7,386.421 | $ 7,761.97 |
| NON-ALC | ≥ 1.0 LITRE | GABLETOP | 42,292 | 46,984 | $ 0.037 | $ 1,564.804 | $ 1,738.41 |
| NON-ALC | ≥ 1.0 LITRE | BI-METAL | 4,734 | 2,864 | $ 0.037 | $ 175.158 | $ 105.97 |
| NON-ALC | ≥ 1.0 LITRE | BAG-IN-A-BOX | 340 | 83 | $ 0.037 | $ 12.580 | $ 3.07 |
| MILK | ≤ 1.0 LITRE | ANY MATERIAL | | 15,145 | $ 0.020 | $ - | $ 302.90 |
| MILK | > 1.0 LITRE | ANY MATERIAL | | 29,877 | $ 0.045 | $ - | $ 1,344.47 |
| ALCOHOL | < 1.0 LITRE | GLASS-REFILLABLE | 3,005,196 | 2,754,023 | $ 0.025 | $ 75,129.900 | $ 68,850.58 |
| ALCOHOL | < 1.0 LITRE | GLASS NON-REFILLABLE | 1,617,137 | 1,292,372 | $ 0.025 | $ 40,428.425 | $ 32,309.30 |
| ALCOHOL | < 1.0 LITRE | ALUMINUM | 5,242,819 | 5,633,864 | $ 0.020 | $ 104,856.380 | $ 112,677.28 |
| ALCOHOL | < 1.0 LITRE | OTHER | 1,952 | 2,622 | $ 0.020 | $ 39.040 | $ 52.44 |
| ALCOHOL | ≥ 1.0 LITRE | GLASS-OTHER THAN WINE OR SPIRIT | 3,354 | 2,611 | $ 0.025 | $ 83.850 | $ 65.28 |
| ALCOHOL | ≥ 1.0 LITRE | OTHER MATERIAL-OTHER THAN WINE OR SPIRITS | 1,640 | 1,026 | $ 0.037 | $ 60.680 | $ 37.96 |
| ALCOHOL | ANY SIZE | ANY MATERIAL-WINE OR SPIRITS | 1,277,811 | 1,204,040 | $ 0.025 | $ 31,945.275 | $ 30,101.00 |
| TOTALS | | | 26,341,654 | 26,742,954 | | $ 573,217.66 | $ 578,833.53 |
| **Weighted Average Processing Fee** | | | | | | **$ 0.02176** | **$ 0.02164** |
| | | | | | | 2008-2009 | 2009-2010 |

# Appendix F – Estimating Revenues of BCP Scrap

# Salvage Scrap Estimate of Value

## Yellowknife PLASTIC SCRAP VALUE

| | Clear PET | Edm. FOB | FOB YK $2000/weight deduct 6¢ | Revenue | Coloured PET | Edm. FOB deduct 4¢ from clear price | Revenue | HDP Milk | Edm. FOB | FOB YK $2000/weight deduct 6¢ | Revenue | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 27-Feb-08 | 33,603 | 10.50¢ | 4.50¢ | $1,512 | 1,803 | 0.50¢ | $9 | | | | | |
| 28-Mar-08 | 31,610 | 10.50¢ | 4.50¢ | $1,422 | | | | | | | | |
| 23-May-08 | 29,687 | 12.50¢ | 6.50¢ | $1,930 | 1,659 | 2.50¢ | $41 | | | | | |
| 25-Jul-08 | 29,571 | 12.50¢ | 6.50¢ | $1,922 | 1,063 | 2.50¢ | $27 | | | | | |
| 17-Nov-08 | 32,308 | 10.50¢ | 4.50¢ | $1,454 | 910 | 0.50¢ | $5 | | | | | **2008 total** |
| | **156,779** | | | **$8,240** | **5,435** | | **$82** | | | | | $8,322 |
| | | | | | | | | | | | | 5.13¢ Price per pound |
| 6-Aug-09 | 30,654 | 12.50¢ | 6.50¢ | $1,993 | 914 | 2.50¢ | $23 | | | | | 0.29¢ Price per container |
| 7-Aug-09 | 31,200 | 12.50¢ | 6.50¢ | $2,028 | 959 | 2.50¢ | $24 | 265 | 23.00¢ | 17.00¢ | $45 | (18/lb) |
| 9-Sep-09 | 30,223 | 13.25¢ | 7.25¢ | $2,191 | 1,823 | 3.25¢ | $59 | | | | | |
| 19-Nov-09 | 15,000 | 13.50¢ | 7.50¢ | $1,125 | | | | | | | | |
| 19-Nov-09 | 16,500 | 13.50¢ | 7.50¢ | $1,238 | 17,000 | 3.50¢ | $595 | | | | | **2009 total** |
| | **123,577** | | | **$8,574** | **20,696** | | **$701** | | | | $45 | $9,320 |
| | | | | | | | | | | | | 6.46¢ Price per pound |
| 2-Mar-10 | 30,690 | 20.50¢ | 14.50¢ | $4,450 | 950 | 10.50¢ | $100 | | | | | 0.36¢ Price per container |
| 17-Apr-10 | 18,149 | 21.00¢ | 15.00¢ | $2,722 | 958 | 11.00¢ | $105 | 985 | 27.00¢ | 21.00¢ | $207 | (18/lb) |
| 17-Apr-10 | 16,176 | 21.00¢ | 15.00¢ | $2,426 | | | | 2393 | 27.00¢ | 21.00¢ | $503 | |
| 22-Jul-10 | 30,143 | 22.00¢ | 16.00¢ | $4,823 | | | | | | | | |
| 28-Jul-10 | 20,497 | 22.00¢ | 16.00¢ | $3,280 | 2,991 | 12.00¢ | $359 | 9173 | 22.00¢ | 16.00¢ | $1,468 | |
| 25-Aug-10 | 28,505 | 21.00¢ | 15.00¢ | $4,276 | | | | 2311 | 22.00¢ | 16.00¢ | $370 | |
| 27-Oct-10 | 25,214 | 21.25¢ | 15.25¢ | $3,845 | 2,760 | 11.25¢ | $311 | 3526 | 27.00¢ | 21.00¢ | $740 | **2010 total** |
| | **169,374** | | | **$25,822** | **7,659** | | **$875** | | | | **$3,287** | $29,984 |
| | | | | | | | | | | | | 16.94¢ Price per pound |
| 22-Feb-11 | 29,794 | 29.00¢ | 23.00¢ | $6,853 | 245 | 19.00¢ | $47 | | | | | 0.94¢ Price per container |
| 23-Feb-11 | 24,180 | 29.00¢ | 23.00¢ | $5,561 | 3310 | 19.00¢ | $629 | 6586 | 37.00¢ | 31.00¢ | $2,042 | (18/lb) |
| | **53,974** | | | **$12,414** | **3555** | | **$675** | **25239** | | | **$2,042** | **2011 total** |
| | | | | | | | | | | | | $15,131 |
| Totals | 503,704 | | | | **37,345** | | | | | | | 2.80¢ Price per pound |
| Grand Total | **541,049** | | | **$55,050** | | | **$2,333** | | | | | 0.16¢ Price per container |
| | | | | | | | | | | | | (18/lb) |
| | | | | | | | | | | | | **$62,757** |
| | | | | | | | | | | | | 11.6¢ Price per pound |
| | | | | | | | | | | | | 0.64¢ Price per container |
| | | | | | | | | | | | | (18/lb) |

# Yellowknife ALUMINUM SCRAP VALUE

| | | Edm. FOB | | FOB YK | |
|---|---|---|---|---|---|
| Prices in ¢ USD & $ USD | | Contract Price [1.] | Adjusted Market Pricing [2.] | $2000/weight deduct 6¢ | Revenue |
| 18-Feb-10 | 40,220 | 64.90¢ | 58.90¢ | 52.90¢ | $21,276 |
| 18-Feb-10 | 41,768 | 64.90¢ | 58.90¢ | 52.90¢ | $22,095 |
| 18-Feb-10 | 40,707 | 64.90¢ | 58.90¢ | 52.90¢ | $21,534 |
| 18-Feb-10 | 40,436 | 64.90¢ | 58.90¢ | 52.90¢ | $21,391 |
| 18-Feb-10 | 41,861 | 64.90¢ | 58.90¢ | 52.90¢ | $22,144 |
| 18-Feb-10 | 41,492 | 64.90¢ | 58.90¢ | 52.90¢ | $21,949 |
| 24-Feb-11 | 41,464 | 67.07¢ | 61.07¢ | 55.07¢ | $22,834 |
| 24-Feb-10 | 41,688 | 67.07¢ | 61.07¢ | 55.07¢ | $22,958 |
| 26-Feb-10 | 42,453 | 67.07¢ | 61.07¢ | 55.07¢ | $23,379 |
| 26-Feb-10 | 41,672 | 67.07¢ | 61.07¢ | 55.07¢ | $22,949 |
| 5-Mar-10 | 42,153 | 71.25¢ | 65.25¢ | 59.25¢ | $24,976 |
| 5-Mar-10 | 41,302 | 71.25¢ | 65.25¢ | 59.25¢ | $24,471 |
| 8-Mar-10 | 42,810 | 71.25¢ | 65.25¢ | 59.25¢ | $25,365 |
| 10-Oct-10 | 39,515 | 75.14¢ | 69.14¢ | 63.14¢ | $24,950 |
| 15-Oct-10 | 39,172 | 75.14¢ | 69.14¢ | 63.14¢ | $24,733 |
| 15-Oct-10 | 41,230 | 75.14¢ | 69.14¢ | 63.14¢ | $26,033 |
| | **659,943** | | | | **$373,037** |
| | | Realized Blended price per pound | | | **56.53¢** |
| | | Realized Blended price per container (32/lb) | | | **1.77¢** |
| 31-Mar-11 | 41,500 | 86.83¢ | 80.83¢ | 74.83¢ | $31,054 |
| 31-Mar-11 | 41,500 | 86.83¢ | 80.83¢ | 74.83¢ | $31,054 |
| | **83,000** | | | | **$62,109** |
| | | Realized Blended price per pound | | | **74.83¢** |
| | | Realized Blended price per container (32/lb) | | | **2.34¢** |

1. Price quoted is price available to MAJOR Alberta supplier (selling >25 million lbs/yr)
2. We expect YK - Processor price to be 5¢ - 6¢ below Edmonton supplier
   - who is part of a national supply agreement with Evermore Recycling in USA

## Hay River Processor — PLASTIC SCRAP VALUE

| Prices in ¢ USD & $ USD | MIXED Plastic Bales 1. | Edm. FOB | FOB YK $2000/weight deduct 6¢ | Revenue | | |
|---|---|---|---|---|---|---|
| 29-Sep-08 | 10,500 | 1.58¢ | -4.43¢ | -$465 | | |
| 7-Nov-08 | 18,480 | 1.58¢ | -4.43¢ | -$818 | 2008 total | |
| | **28,980** | | | **-$1,282** | -$1,282 | |
| | | | | | -4.43¢ | Price per pound |
| 28-Jan-09 | 8,400 | 3.33¢ | -2.68¢ | -$225 | -0.25¢ | Price per container |
| 4-Mar-09 | 24,500 | 3.68¢ | -2.33¢ | -$570 | | |
| 3-Apr-09 | 5,600 | 4.20¢ | -1.80¢ | -$101 | | |
| 28-Apr-09 | 15,400 | 4.20¢ | -1.80¢ | -$277 | | |
| 8-May-09 | 18,200 | 4.29¢ | -1.71¢ | -$312 | | |
| 5-Jun-09 | 14,000 | 4.29¢ | -1.71¢ | -$240 | | |
| 9-Jun-09 | 29,069 | 4.29¢ | -1.71¢ | -$498 | | |
| 30-Jun-09 | 15,400 | 4.29¢ | -1.71¢ | -$264 | | |
| 29-Jul-09 | 11,200 | 4.29¢ | -1.71¢ | -$192 | | |
| 21-Aug-09 | 8,400 | 4.38¢ | -1.63¢ | -$137 | | |
| 18-Sep-09 | 10,500 | 4.73¢ | -1.28¢ | -$134 | | |
| 27-Nov-09 | 8,400 | 4.73¢ | -1.28¢ | -$107 | | |
| 19-Nov-09 | 16,500 | 4.73¢ | -1.28¢ | -$210 | | |
| 29-Dec-09 | 7,000 | 4.73¢ | -1.28¢ | -$89 | 2009 total | |
| | **192,569** | | | **-$3,354** | -$3,354 | |
| | | | | | -1.74¢ | Price per pound |
| 5-Feb-10 | 12,600 | 6.30¢ | 0.30¢ | $38 | -0.10¢ | Price per container |
| 12-Mar-10 | 4,900 | 7.18¢ | 1.18¢ | $58 | | |
| 23-Apr-10 | 16,176 | 7.35¢ | 1.35¢ | $218 | | |
| 21-May-10 | 11,200 | 8.23¢ | 2.23¢ | $249 | | |
| 11-Jun-10 | 11,875 | 7.70¢ | 1.70¢ | $202 | | |
| 9-Jul-10 | 10,250 | 7.70¢ | 1.70¢ | $174 | | |
| 29-Jul-11 | 10,725 | 7.70¢ | 1.70¢ | $182 | | |
| 3-Nov-10 | 6,050 | 8.49¢ | 2.49¢ | $150 | | |
| 14-Dec-10 | 11,425 | 9.10¢ | 3.10¢ | $354 | 2010 total | |
| | **95,201** | | | **$1,626** | $1,626 | |
| | | | | | 1.71¢ | |
| 22-Feb-11 | 29,794 | 10.15¢ | 4.15¢ | $1,236 | 0.09¢ | Price per pound |
| 23-Feb-11 | 24,180 | 10.15¢ | 4.15¢ | $1,003 | 2010 total | Price per container |
| | **53,974** | | | **$2,240** | $2,240 | |
| | | | | | 4.15¢ | |
| Totals | 178,155 | | | | 0.23¢ | Price per pound |
| Grand Total | **178,155** | | | **-$771** | | Price per container |
| | | | | Four Years | **-$771** | |
| | | | | Realized Blended price per pound | -0.4¢ | |
| | | | | Realized Blended price per container (18/lb) | -0.02¢ | |

Note: Hay River reported that they do not segregate different kinds of plastic & sell then to scrap markets as mixed plastic bales. Uuse 35% of PET price

## Hay River Processor

Prices in ¢ USD & $ USD

## ALUMINUM SCRAP VALUE

| | | Edm. FOB | | FOB YK | |
|---|---|---|---|---|---|
| | Shipped | Contract Price [1.] | Scrap Dealer Pricing [2.] | $2000/weight deduct 6¢ | Revenue |
| 29-Sep-08 | 10,500 | 74.00¢ | 64.00¢ | 58.00¢ | $6,090 |
| 7-Nov-08 | 18,480 | 57.00¢ | 47.00¢ | 41.00¢ | $7,577 |
| | **28,980** | | | | **$13,667** |
| | | Realized Blended price per pound | | | **47.16¢** |
| | Realized Blended price per container (32/lb) | | | | **1.47¢** |
| 28-Jan-09 | 10,500 | 38.50¢ | 28.50¢ | 22.50¢ | $2,363 |
| 3-Apr-09 | 11,760 | 40.50¢ | 30.50¢ | 24.50¢ | $2,881 |
| 28-Apr-09 | 9,240 | 40.00¢ | 30.00¢ | 24.00¢ | $2,218 |
| 8-May-09 | 7,140 | 45.50¢ | 35.50¢ | 29.50¢ | $2,106 |
| 5-Jun-09 | 8,400 | 46.50¢ | 36.50¢ | 30.50¢ | $2,562 |
| 30-Jun-09 | 9,240 | 49.50¢ | 39.50¢ | 33.50¢ | $3,095 |
| 29-Jul-09 | 11,760 | 54.50¢ | 44.50¢ | 38.50¢ | $4,528 |
| 21-Aug-09 | 13,400 | 57.50¢ | 47.50¢ | 41.50¢ | $5,561 |
| 18-Sep-09 | 9,000 | 56.50¢ | 46.50¢ | 40.50¢ | $3,645 |
| 27-Nov-09 | 13,500 | 63.50¢ | 53.50¢ | 47.50¢ | $6,413 |
| 29-Dec-09 | 13,440 | 68.00¢ | 58.00¢ | 52.00¢ | $6,989 |
| | **175,340** | | | | **$69,742** |
| | | Realized Blended price per pound | | | **39.78¢** |
| | Realized Blended price per container (32/lb) | | | | **1.24¢** |
| 5-Feb-10 | 6,300 | 62.25¢ | 52.25¢ | 46.25¢ | $2,914 |
| 12-Mar-10 | 15,750 | 71.00¢ | 61.00¢ | 55.00¢ | $8,663 |
| 23-Apr-10 | 8,550 | 73.50¢ | 63.50¢ | 57.50¢ | $4,916 |
| 21-May-10 | 10,350 | 63.39¢ | 53.39¢ | 47.39¢ | $4,905 |
| 11-Jun-10 | 9,900 | 62.41¢ | 52.41¢ | 46.41¢ | $4,595 |
| 9-Jul-10 | 11,700 | 63.16¢ | 53.16¢ | 47.16¢ | $5,518 |
| 29-Jul-11 | 10,800 | 64.27¢ | 54.27¢ | 48.27¢ | $5,213 |
| 3-Nov-10 | 13,950 | 74.75¢ | 64.75¢ | 58.75¢ | $8,196 |
| 14-Dec-10 | 11,250 | 74.50¢ | 64.50¢ | 58.50¢ | $6,581 |
| | **98,550** | | | | **$51,500** |
| | | Realized Blended price per pound | | | **52.26¢** |
| | Realized Blended price per container (32/lb) | | | | **1.63¢** |
| | | | | | |
| 24-Feb-11 | 10800 | 83.00¢ | 73.00¢ | 67.00¢ | $7,236 |
| | | | | | |
| | **10800** | | | | **$7,236** |
| | | Realized Blended price per pound | | | **57.50¢** |
| | Realized Blended price per container (32/lb) | | | | **1.80¢** |

1. Price quoted is price available to MAJOR supplier (>25 million lbs/yr)
2. We expect HR - Processor price to be 10¢ below, if sold to scrap dealer

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