



**BCUOMA**

British Columbia Used Oil  
Management Association

**STEWARDSHIP PLAN**

**FOR**

**USED OIL, ANTIFREEZE, OIL FILTERS AND OIL AND  
ANTIFREEZE CONTAINERS**

**Prepared and submitted by the BC Used Oil Management Association**

On

September 30, 2010 and revised on February 17, 2011

# BCUOMA Stewardship Plan

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## 1. RECYCLING REGULATION REQUIREMENTS

Section 17 (2) of the *Recycling Regulation* (Regulation) states the following:

*A producer whose existing plan is deemed to be an approved plan under subsection (1) must submit a plan or amendments to the existing plan for approval in accordance with this regulation as follows:*

*(b) if the plan is in respect of products in the lubricating oil, empty oil container and oil filter product categories, within 3 years of this regulation coming into force.*

In a Regulation Amendment dated December 10, 2009, automotive antifreeze and antifreeze containers were included in the product category. A Stewardship Plan is to be submitted on or before October 1, 2010, and the Stewardship Plan is to be operational on July 1, 2011.

This stewardship plan is submitted in accordance with the above regulation.

## 2. Overview

The British Columbia Used Oil Management Association (BCUOMA) is a not-for-profit Society formed under the British Columbia *Society Act* in 2003. BCUOMA's role is to perform on behalf of each producer (brand-owner) member of BCUOMA certain duties required under the Regulation. Effective August, 2010, there were 194 producer members of BCUOMA. As of September, 2010, 53 companies have authorized BCUOMA to act as their Agency in preparing a Stewardship Plan and in carrying out the duties of a Producer, under Part 2 of the Regulation.

A nine member Board of Directors manages BCUOMA, with representatives from the manufacturing, retailing, local government and a non-governmental organization. The 9th member was elected in June 2010 as the automotive antifreeze manufacturing representative. An Executive Director reports to the Board and is responsible for operations management, financial management, communications, staff management and general administrative oversight. In order to streamline operations and minimize costs, BCUOMA shares an office in Edmonton with the Alberta Used Oil Management Association (AUOMA).

Producers, through networks of both company-owned and independently-owned retail and wholesale facilities, bring lubricating oil, automotive antifreeze and filters into the province for sale or distribution. Retail facilities range from self-serve gas bars to mass merchandise marketers, quick lubes, radiator shops, and automotive, farm, marine and commercial equipment dealers. Wholesale lubricating oil facilities comprise both branded bulk plants,

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and independently owned and brand owner warehouses. Oil is sold in containers as small as less than a litre bottles, and as large as 205 litre drums, 1600 litre “lube cubes”, 30,000 litre tank trucks and 50,000 litre rail cars. Automotive antifreeze is mainly sold in 4 - 5 litre containers with very little, if any, sold in containers larger than the tote size (1000 litres). For oil and automotive antifreeze containers, the Regulation applies only to the containers 30 litres or less in size.

As required by regulation, BCUOMA has operated a province-wide collection and recycling program for used oil, oil filters and used oil containers since August 2003 for both the do-it-yourselfer market, as well as the commercial and industrial markets. This is similar to the tire stewardship program, but different from some of the other stewardship programs such as Product Care and the Medications Programs, which do not serve the commercial and industrial markets.

The BCUOMA program is funded by an Environmental Handling Charge (EHC). As of October 1, 2009, it is a condition of membership in BCUOMA that producer Members remit to BCUOMA, on a quarterly basis, an EHC of \$.05/litre of oil, \$.10/litre of oil container, \$.55 for a filter less than 8 inches, and \$1.25 if the filter is 8 inches or longer. The EHC for automotive antifreeze and antifreeze containers will be determined by the Members in early 2011, when better information is available on expected recovery rates for antifreeze. Whether or not the producer passes on the EHC down the distribution chain to the wholesaler, retailer, and consumer is up to the producer member.

### **3. Stakeholder Consultation**

On May 8, 2007, stakeholders were sent an email letter advising them of the BCUOMA consultation process with a copy of a Discussion Document attached. Stakeholders included all Regional Districts, collectors and processors, producer members, Recycling Council of BC email list, SWANA BC Chapter mailing list, and all others who we were made aware had an interest in the consultation process.

The purpose of the Discussion Document, which was also posted on [www.usedoilrecycling.com](http://www.usedoilrecycling.com), was to be both informative as well as pose questions and stimulate debate and discussion on possible revisions to the existing stewardship plan. Meetings were held in Prince George, Kelowna, Nanaimo and Delta to enable stakeholders to provide comments on the Discussion Document. All comments provided at these meetings were recorded. In addition, written comments were received from stakeholders via email, fax and through the mail.

All of the comments received were summarized in a Comments Document that was posted on [www.usedoilrecycling.com](http://www.usedoilrecycling.com). Following this, the issues were summarized in a document,

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with the proposed BCUOMA response to the issues. This document was submitted to the Ministry of Environment in mid-October and discussed with the Ministry in early November, 2007.

Since such an extensive consultation process was conducted such a short time ago and the Stewardship Plan approval was received on November 25, 2009 for a program that will be almost identical to the existing program, a more streamlined public consultation process was undertaken. The first part of the consultation process was to have the Ambassador Team visit almost the entire province from May 1st till the end of August, 2010.

During these 4 months, the Ambassador Team visited or spoke about the proposed antifreeze program, to about 480 Return Collection Facility operators, 21 local governments, 8 community events and had over 40 media interviews. From the Return Collection Facility operators we learned how much antifreeze they generate per month and whether or not they would consider being a Return Collection for antifreeze as of July 1, 2011. From the local governments we received input on the proposed antifreeze program.

For the Regional District officials the Ambassador Team were unable to visit, the BCUOMA Executive Director placed a phone call to each of them to discuss the proposed program and to receive their input. The results of the discussions with Regional District officials are summarized in Appendix A.

## **4. Collection System**

The used oil, oil filters and oil containers are regularly picked up from over 4,000 generators across British Columbia by BCUOMA Registered Collectors (collectors). Many of these same generators will also generate automotive antifreeze. Many of the antifreeze containers are already being mixed in with the oil containers and are being collected and recycled. BCUOMA pays the collectors Return Incentives (RIs) twice a month, provided the collector has supplied BCUOMA with the required supporting information, and has shipped the collected materials to a BCUOMA Registered Processor (processor) for an approved end use. For an approved end use to be eligible, the end use must be environmentally sound and be substantially in compliance with environmental requirements.

The amount of the RIs vary depending upon in which zone of the province the used oil materials are generated. The more remote the area of the province, the higher the RI that is paid to the collector to pick up the used oil, oil filters and oil containers. Since everyone pays the same EHC for the purchase of oil, oil filters and oil containers, the intent of the program is that people living in the populated south-west area of the province help support the collection and recycling in most of the rest of the province. In general, the RIs are set

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high enough that under most market conditions, there is a payment made by the collectors to the generators of a portion of the RI for their used oil materials. However, volume, quality, amount of competition and location are all determining factors as to how much, if any of the RI, is passed on to the generator from the collector. In addition, in the last year the markets for used oil have lessened to the point where there is little or no flow through to the generator. These conditions will be taken into account in determining the RI for automotive antifreeze. Since antifreeze containers are already mixed in with the oil containers, the RI on antifreeze containers will likely be the same.

**Table 1**

<b>ZONE</b>	<b>USED OIL (\$/litre)</b>	<b>USED OIL FILTERS (\$/kg)</b>	<b>USED ANTIFREEZE &amp; OIL CONTAINERS (\$/kg)</b>	<b>USED AUTOMOTIVE ANTIFREEZE (\$/litre)</b>
1	0.05	0.68	1.19	Determine in early 2011
2	0.09	0.76	1.46	Determine in early 2011
3	0.11	0.94	1.46	Determine in early 2011
4	0.08	0.74	1.37	Determine in early 2011
5	0.16	1.19	1.67	Determine in early 2011
6	0.13	0.90	1.50	Determine in early 2011
7	0.08	0.74	1.37	Determine in early 2011
8	0.11	0.94	1.46	Determine in early 2011
9	0.11	0.94	1.67	Determine in early 2011
10	0.16	1.19	1.67	Determine in early 2011
11	0.27	1.50	5.40	Determine in early 2011

Table 1 above shows how the RI paid for oil, filters and oil containers varies significantly from one zone to the next. As shown on the Zone Map below, for Zone 11 (Queen Charlotte Islands) about \$6.00 is paid to the collector to pick up an empty 20 litre oil pail. Since spent antifreeze is often collected in drums in smaller quantities than used oil, and has a greater processing cost, the RIs for collecting will be higher than it is for used oil.

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**ZONE MAP OF BRITISH COLUMBIA**



The purpose of Table 2 below is to compare the quantities of used oil, oil filters and oil containers coming from each of the 11 zones of the province for the years 2006 to 2009. The litres of oil are expressed in millions, and the kg of oil filters and oil containers are also expressed in millions. It is expected that the same zones will apply for automotive antifreeze and that the amount recovered for automotive antifreeze will be in the range of about 10% of what is being collected for used oil.

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**TABLE 2**

<b>Zone</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b>	<b>10</b>	<b>11</b>
<b>Oil 09 (L)</b>	21.03	2.24	2.88	7.03	1.22	2.20	4.36	2.21	1.00	0.37	0.001
<b>Oil 09 (%)</b>	47.22	5.04	6.47	15.78	2.74	4.93	9.78	4.97	2.25	0.83	0.00
<b>Oil 08 (L)</b>	21.76	2.51	3.40	8.25	1.45	2.67	4.47	2.70	1.23	0.45	0.01
<b>Oil 08 (%)</b>	44.5	5.13	6.96	16.87	2.97	5.46	9.14	5.51	2.52	0.93	0.01
<b>Oil 07 (L)</b>	21.71	2.51	3.35	7.97	1.51	2.49	4.69	2.98	1.36	0.45	0.00
<b>Oil 07 (%)</b>	44.3	5.12	6.84	16.25	3.07	5.07	9.56	6.09	2.78	0.92	0.00
<b>Oil 06 (L)</b>	21.42	2.46	3.17	7.52	1.42	3.00	4.61	2.89	1.21	4.35	0.00
<b>Oil 06 (%)</b>	44.48	5.18	6.58	15.62	2.94	6.23	9.56	5.99	2.51	0.90	0.00
<b>Filter 09 (kg)</b>	1.98	0.20	0.125	0.663	0.047	0.223	0.352	0.187	0.088	0.023	0.002
<b>Filter 09 (%)</b>	50.92	5.11	3.22	17.03	1.20	5.73	9.06	4.80	2.25	0.60	0.07
<b>Filter 08 (kg)</b>	2.05	0.217	0.161	0.754	0.056	0.241	0.423	0.228	0.113	0.030	.0002
<b>Filter 08 (%)</b>	47.91	5.09	3.76	17.68	1.30	5.65	9.91	5.34	2.65	0.71	0.01
<b>Filter 07 (kg)</b>	2.005	0.191	0.127	0.570	0.034	0.207	0.454	0.245	0.105	0.022	0.00
<b>Filter 07 (%)</b>	50.64	4.82	3.20	14.39	0.85	5.23	11.47	6.19	2.66	0.56	0.00
<b>Filter 06 (kg)</b>	1.854	0.201	0.157	0.628	0.054	0.226	0.425	0.240	0.110	0.015	0.004
<b>Filter 06 (%)</b>	47.36	5.16	4.01	16.04	1.39	5.76	10.84	6.13	2.82	0.38	0.11
<b>Cont 09 (kg)</b>	0.717	0.092	0.061	0.252	0.011	0.072	0.119	0.072	0.028	0.007	0.003
<b>Cont 09 (%)</b>	50.01	6.44	4.23	17.61	0.75	5.00	8.30	4.99	1.97	0.47	0.24
<b>Cont 08 (kg)</b>	0.678	0.108	0.074	0.276	0.010	0.081	0.110	0.081	0.040	0.007	0.003
<b>Cont 08 (%)</b>	46.20	7.33	5.04	18.79	0.70	5.48	7.46	5.48	2.77	0.49	0.23
<b>Cont 07 (kg)</b>	0.655	0.110	0.069	0.218	0.012	0.081	0.116	0.079	0.38	0.006	0.002
<b>Cont 07 (%)</b>	47.25	7.92	5.00	15.73	0.85	0.583	0.839	0.570	0.272	0.45	0.16
<b>Cont 06 (kg)</b>	0.574	0.113	0.074	0.176	0.017	0.063	0.115	0.077	0.44	0.005	0.002
<b>Cont 06 (%)</b>	45.46	8.97	5.87	13.98	1.36	5.01	9.15	6.13	3.51	0.42	0.13

BCUOMA registers the collectors and processors before they are eligible to receive RIs. Under the *Hazardous Waste Regulation*, used oil, automotive antifreeze and oil filters are considered a hazardous waste. As well, the oil and antifreeze containers often contain a certain amount of new oil or antifreeze, and measures are required to ensure that proper equipment and vehicles are used to pick them up. As a result, it is important that any

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collectors and processors handling used oil and antifreeze materials are doing so in compliance with the required environmental standards.

BCUOMA requires as a condition of registration, and every two years thereafter, that each collector must engage an independent third party qualified professional to conduct an environmental audit of their operations, and state in a Letter of Regulatory Compliance that the operation is in substantial compliance with all applicable provincial and federal environmental legislation and regulations. In addition, the collector and processor must submit a current Business Licence. If either of these two conditions is not met, BCUOMA will not register the collector or processor.

Of the over 4,000 used oil generators in the province, about 490 of them are return collection facilities for the do-it-yourselfer to take back small quantities of used oil materials at no cost. For used antifreeze materials, it is expected that the number of generators will be somewhat less than for used oil materials. The return collection facilities list can be accessed on [www.usedoilrecycling.com](http://www.usedoilrecycling.com) or by calling the Recycling Council of BC toll free hotline number.

Most of the province is well served with return collection facilities for the do-it-yourselfer to return their small quantities of used oil materials at no charge. Of the return collection facilities, there are approximately 38 sites that are either run by local government or not-for-profit groups at their landfill sites, transfer stations or recycling centers. All of the Canadian Tire Stores, Mr. Lube Stores, and many other commercial automotive service centers are included in the locations available to the do-it-yourselfer to take back their used oil materials.

In the 2003 approved stewardship plan, it was stated that a minimum of 100 collection facilities will be established and operational by the end of December 2003, and after the first year of operation there will be a minimum of 200 collection facilities. BCUOMA has exceeded that number by almost 300 collection facilities. BCUOMA would like to ensure that a target of 400 to 500 return collection facilities for used oil materials be maintained. Since there are fewer antifreeze do-it-yourselfers, and the frequency of radiator flushes is lower than for used oil changes, it is expected that as of July 1, 2011 there will be 350 Return Collection Facilities for antifreeze and that number is expected to grow to about 400 Return Collection Facilities within the first two years of operation.

There are a few remote areas of the province where coverage could be improved. In most of these remote areas, there are few automotive service centers that sell oil or service vehicles. This has been the source of concern by some local governments.



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As a result, in the last several years BCUOMA has implemented a financial assistance program for local governments to assist them in the purchase of an oil tank or other relevant infrastructure for the collection of the used oil materials. To ensure that Local Government needs are considered and addressed, BCUOMA has a Local Government representative, appointed by the Union of BC Municipalities, on its Board of Directors.

In 2010, BCUOMA introduced a program to assist local governments in holding Household Hazardous Waste (HHW) community collection events by providing up to \$500 per community for the expenses incurred for the used oil materials. One additional proposal that is currently under consideration is for BCUOMA to pay Return Collection Facilities directly for used oil if they collect oil, filters and oil containers, and to pay them directly for the antifreeze, if they collect both antifreeze and antifreeze containers from the do-it-yourselfers.

BCUOMA will continue to work with the other BC Stewards and the Local Government Stewardship Council to identify concerns about under-served areas, communications, and reporting on performance through waste composition studies.

## 5. Recovery Rates

Prior to the commencement of the BCUOMA program in 2003, it was estimated that the recovery rates for used oil, oil filters and oil containers were 60%, 18% and 12% respectively. In 2009, the recovery rates for used oil, oil filters and oil containers were 76.9%, 90.7% and 80.9% respectively. For the first 2 quarters in 2010, it appears that the recovery rates for used oil (81%) and oil containers (91%) have again risen substantially, and for filters it is still close to 90%.

### a. Used Oil

In determining the recovery rate for used oil, it is estimated that 30.1% of the oil sold is consumed-in-use and not available for collection. This number was determined by a Consumed-In-Use Study that was undertaken on behalf of BCUOMA by a consultant in 2005. The report is available on [www.usedoilrecycling.com](http://www.usedoilrecycling.com). In order to better determine where the unaccounted for oil was going, BCUOMA engaged a consultant. In April 2006, an Unaccounted For Used Oil Study was released that gave estimated uses of 18.75 million litres. A copy of this report is posted on [www.usedoilrecycling.com](http://www.usedoilrecycling.com).

Approximately 15.5 million litres of this used oil was estimated to be used for burner fuel for used oil furnaces, other energy uses in industrial facilities and ships, explosives manufacturing, and other industrial uses. A total of 3.25 million litres was estimated to be

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soaked in floor dry and rags, road oiling, weed control, fire starter, ground pits and illegal dumping by do-it-yourselfers and others. Since the Study was done, the amount of used oil used for other purposes has been reduced to about 13.5 million litres/year.

BCUOMA will update the Consumed-In-Use Study and the Unaccounted For Used Oil Study within the next 5 year period to track any changes that may have occurred since the studies were last done. It is planned to update these two studies every five years thereafter.

### **b. Used Oil Filters**

Potentially all used oil filters are recoverable. As with used oil, the biggest user of oil filters in British Columbia is the industrial user. It is considered that the biggest contributing factor to increasing the recovery rate for oil filters in future years is for local governments to put a ban on filters going to disposal. Each filter that is incorrectly discarded to the landfill, contains about 1/4 of a litre of oil.

### **c. Used Oil and Antifreeze Containers**

During 2008, a study of the oil container program was undertaken. Of the two categories of plastic collected, approximately 30% of the overall weight of plastic is comprised of 20 litre pails, and the remaining 70% of weight consists of oil containers ranging in sizes from 5 litres down to less than 0.50 litres, which are collected and shipped in large, clear plastic bags. For each oil container that is incorrectly discarded to a landfill, there is approximately 9% (by weight) of oil still remaining in the container. The consulting company which performed the oil container study surveyed 1,000 of these bags, located at two of BCUOMA's larger plastic processors.

It was determined that the average weight of the bags was 6.4 kg, of which 4.6 kg (72%) was composed of eligible oil containers; nearly all of the remaining 28% was composed of other automotive fluid containers, such as antifreeze, windshield washer and oil/fuel additive containers. These other "ineligible" plastic containers are naturally used in conjunction with the eligible containers and are found at the same generator sites. Rather than force the generators to sort these plastic bottles out of the clear plastic bags, the preferred option was to approach the Ministry of Environment to amend the *Recycling Regulation* and reclassify these containers as eligible, making them a part of the BCUOMA program.

From this study and sales figures obtained from most producers, it was determined that about 50% of the antifreeze containers were already being collected in 2008. While it is expected that the recovery rate for antifreeze containers will increase when the program is operational, a good portion of these containers are already being collected.

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The oil container study also reported the findings of the use of a clear plastic PET container. Well over 95% of oil containers are made from HDPE plastic. As a result, the PET containers must be hand sorted and recycled separately, at an additional cost to the recycler. The company using the PET containers has recently informed BCUOMA that a working group has been appointed to consider the phase-out of these containers.

## **d. Used Antifreeze**

Based on sales numbers for 2009 from most of the antifreeze producers in BC, it appears that approximately 11 to 12 million litres of 50/50 antifreeze was sold. Assuming a consumed-in-use number of 55%, based on a best estimate from industry to date, it appears that about 5 to 5.4 million litres of antifreeze is available for collection.

Most used oil collectors in BC also collect antifreeze from a number of their customers. Recently they provided information to BCUOMA indicating that about 2.7 to 2.9 million litres of antifreeze was collected in 2009. It is hoped that in early 2011, the amount collected in 2010 will be available, and a five year projection for litres of antifreeze collected and recovery rates can be made. This information is essential in making a recommendation to the Board and the Members on setting the EHC for antifreeze.

BCUOMA will undertake a consumed-in-use for antifreeze in 2012; if possible, it will be done in collaboration with some of the other provinces with antifreeze programs.

## **6. Consumer Awareness**

The goal of the consumer awareness program is to continue to try to educate motorists and the over 4,000 generators of used oil and antifreeze materials. About a quarter of the motorists in British Columbia change their own oil, although it doesn't appear that as many flush their radiators.

With the introduction of the antifreeze recycling program on July 1, 2011, there will be a significant emphasis in all elements of the communication strategy to emphasize that generators no longer have to pay collectors to pick up their antifreeze, and that do-it-yourselfers will have places where they can return their used antifreeze and antifreeze containers at no cost. The following communications elements are planned during the years 2011 to 2015:

- a. A partnership with the Recycling Council of BC for the Recycling Hotline, and a website to inform the do-it-yourselfers of the nearest location to take back their used oil and antifreeze materials.

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- b. A Summer Ambassador Program where a team of two university students, being trained in related disciplines, tour the province to meet with return collection facility operators, local governments and the general public. The purpose of their visits is to ensure that the return collection facilities are up-to-date with information and signs, and that local governments and the general public are informed about the program. In 2009 BCUOMA partnered with the Medications Group to hand out their brochures and information when meeting with local governments and the general public.
- c. As more stewardship programs continue to be developed, there will be an even greater need for Stewards to work together. To meet that need, BCUOMA partnered with a number of the BC Stewards to develop a common brochure; and it is planned to have this brochure updated and expanded as more stewardship programs are added in 2011, including antifreeze. In addition; BCUOMA is working with other Stewards and the RCBC on a common website URL for the public to access all the stewardship programs in BC.
- d. BCUOMA will continue to consider using radio ads and newspapers as a means of reaching the do-it-yourselfer, and the smaller generators of used oil and antifreeze materials who still are not fully aware of how they can have their used oil and antifreeze materials collected and recycled in a responsible way. An important message for British Columbians is to return their uncontaminated used oil and antifreeze materials during regular business hours, since one litre of spilled used oil can contaminate a million litres of drinking water.
- e. BCUOMA will continue to use brochures, municipal recycling calendars, table top displays, other visual displays and relevant public hand-outs as a means of spreading the message to the public on used oil and antifreeze material recycling. In this messaging, BCUOMA emphasizes that the EHC is not a government tax. In communication with generators of used oil and antifreeze materials who charge fees that are incorrectly termed “environmental handling charges”, BCUOMA will continue to emphasize that if they do show these charges, they should fairly represent the EHC that BCUOMA requires the producers to remit. This message is clearly shown on the BCUOMA website. Another message that will be emphasized is that used oil and antifreeze material recycling is an important element in dealing with climate change.

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## 7. Program Performance

Each May, BCUOMA prepares a Business Plan that outlines its Vision, Mission, Mandate, Program Framework and its Objectives, Goals and Performance Measures. The Annual Business Plan is posted on [www.usedoilrecycling.com](http://www.usedoilrecycling.com).

The four key objectives of the Program are:

- a) Accountability to brand-owner members;
- b) Optimal recovery rates;
- c) Informed and participating end users; and
- d) Environmentally responsible management of used oil materials.

For accountability to brand-owners, one of the goals is to maximize the flow through of EHCs to the payment of RIs and Infrastructure Development Incentives (IDIs). This is regularly tracked and reported on in the Business Plan.

The projected sales and recovery rates for used oil materials are reported in Table 3 below. The projected sales and recovery rates for used antifreeze materials for half of 2011 and 2012 will be developed in the next six months.

**TABLE 3 – Projected Recovery Rates for Used Oil Materials**

Product	Year	Estimated Sales Millions	Recoverable Portion – Millions	Percentage Recovered	Quantity Recovered - Millions
<b>Oil</b>	2010	85.22	59.57	74.0	44.08
	2011	87.78	61.36	74.0	45.41
	2012	89.54	62.59	74.0	46.32
<b>Filters (units)</b>	2010	5.914	5.914	92.0	5.441
	2011	6.032	6.032	92.0	5.549
	2012	6.153	6.153	92.0	5.661
<b>Oil Containers (kgs)</b>	2010	1.755	1.755	83.0	1.457
	2011	1.755	1.755	83.0	1.457
	2012	1.755	1.755	83.0	1.457
<b>Antifreeze Containers</b>	2011				
<b>kg</b>	2012				
<b>Antifreeze litres</b>	2011				
	2012				

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BCUOMA's Communication Consultant has advised that with recent problems with phone solicitations and web spam mail, the public is increasingly reluctant to participate in phone surveys. As a result, BCUOMA will continue to work with local governments who conduct waste composition studies to determine the amount of used oil and antifreeze material waste that still goes to disposal. BCUOMA will consider financially contributing to waste composition studies that break out the amount of used oil and antifreeze materials in the waste stream. This may be the most accurate way of determining how effectively the used oil and antifreeze materials are being collected and recycled.

In addition, as outlined in Section 4 above, BCUOMA will continue to monitor the number of return collection facilities available for the do-it-yourselfer, and keep it in the range of 450 to 500 for used oil materials and 350 to 400 for used antifreeze materials. For the commercial facilities that generate used oil and antifreeze materials, BCUOMA works to maintain a minimum of 2 registered collectors in almost every area of the province.

As outlined in Section 4 above, the system that BCUOMA uses to track the environmentally responsible management of used oil materials is to require that every second year each registered collector and processor undergoes an environmental audit by an independent qualified auditor. The registration for the collector or processor is not approved unless the Letter of Regulatory Compliance signed by the independent auditor states that the operation is in substantial compliance with all pertinent government environmental requirements.

In addition, BCUOMA is working with the Ministry of Environment and the other BC Stewards in the development of an independent audit of some additional non-financial elements of the stewardship program, as an add-on to what is already being done by BCUOMA's independent auditor of the financial and recovery rate elements of the BCUOMA program.

BCUOMA will require the processors of used oil to report annually on the end uses of used oil, in one of the following categories; re-refining, pulp mills, cement plants, asphalt plants and other approved BCUOMA fuel uses. This information is reported to the Ministry annually. BCUOMA will similarly require the antifreeze producers to report annually on the end uses of the processed antifreeze, including how much is recycled in accordance with the automotive ASTM standards, industrial ASTM standards and other defined acceptable end-uses.

In addition, BCUOMA will annually report on:

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- the amount of used oil and antifreeze materials collected in each of the 11 zones of the province, and by Regional District, on a per capita basis, to better track the effectiveness of the program;
- the average % glycol in the antifreeze collected in each of the 11 zones of the province
- the tonnes of Green House Gas (GHG) savings realized by the recycling of used oil, antifreeze, filters and oil and antifreeze containers; and
- the cost in dollars per litre of oil and antifreeze; per kilogram of filters; and per kilogram of oil and antifreeze containers recovered.

## 8. Dispute Resolution

BCUOMA does not have any signed contracts with collectors, processors or generators, including return collection facilities. However, BCUOMA will not pay RIs to collectors and processors unless they are registered with BCUOMA and have agreed in writing to abide by its requirements, including the Manual for Collectors & Processors, and the Incentive Program for Collectors and Processors. Both of these documents are posted on [www.usedoilrecycling.com](http://www.usedoilrecycling.com).

If there is a dispute between BCUOMA and a collector or processor, the BCUOMA Board is the final decision maker. If the matter is not resolved at that level, collectors or processors can use normal commercial legal procedures. It is entirely voluntary if a return collection facility operates, and it is the collector that has the contract with the generator, including the return collection facilities.

BCUOMA is the only stewardship agency in British Columbia that has a local government representative and a member-at-large representative on its Board. This type of representative helps to provide the local government and not-for-profit group input directly at the Board level, including the resolution of any disputes or concerns by collectors and processors, local governments and producer Members.

## 9. Product Life Cycle Management

### a. Oil

The last several years have shown sharply reduced oil sales despite the fact that the population of BC continues to grow, with some of this decline attributed to the recent recession. However, much of this is due to the newer vehicles and industrial engines that have a longer driving distance and/or time period between oil changes than in the past. In

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In addition, it appears that the engines of today have been designed to leak much less oil. For motor vehicles that were made since 2000, it is estimated that only 5.3% of the oil is consumed-in-use. For older vehicles it is almost double that amount at 9.7%. The three main areas where consumed-in-use is high are in the railroad, natural gas and marine industries. These three industries alone consume almost one-half of the total consumed-in-use.

## **b. Oil and Antifreeze Containers**

For oil containers, in 2009 only 37.6% of the oil was sold in containers 30 litres or less in size. There has been a trend for oil companies to ship more of their oil in lube cubes, drums and by truck and rail. Given that there are no EHCs on containers larger than 30 litres, this may be a factor in encouraging oil companies to ship more of their oil in bulk. In addition, there is a cost saving in not having to pay for the cost of supplying and handling the bulky, messy oil containers. It is expected that in the coming years more of the antifreeze will be shipped in drums and plastic totes.

## **c. Oil Filters**

For oil filters, the decrease in sales has not been as significant as it has been for oil and oil containers. For many of the newer cars there is a trend to using smaller paper filters that take fewer resources to manufacture and cost less to ship and handle.

## **d. Antifreeze**

There is an indication from antifreeze producers that the trend is to produce longer life antifreeze, which will likely result in declining antifreeze sales in the next five years.

## **10. Pollution Prevention Hierarchy**

### **a. Used Oil**

One of the conditions of payment of RIs to collectors is that they only deliver the used oil, oil filters and oil containers to processors that sell them for approved end uses. For used oil, approved end uses include re-refining and using it as a fuel for pulp mills, cement kilns, asphalt plants and other uses that meet the intent of the *Hazardous Waste Regulation* or applicable government standards in other states or provinces, such as for mining explosives or exploration drilling.



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In all cases, the oil must be analyzed in accordance with government-approved methods and shown to meet the required industry and/or government specifications. Application of used oil to any land for the purpose of road construction, repair or dust suppression is prohibited by the *Hazardous Waste Regulation*, and is not considered a BCUOMA approved end use. In addition, there are no emission controls on used oil furnaces, and the operators in almost all cases do not analyze the used oil to ensure it meets Ministry standards. As a result, the use of used oil in oil-fired furnaces is not considered a BCUOMA approved end use.

Based on most life-cycle analysis studies around the world, re-refining and using the used oil as a fuel for industrial operations like cement kilns and pulp mills, is considered to be very similar. It was also found that in a few European countries that favored re-refining over fuel use had lower overall collection rates. However, the recent Green House Gas (GHG) study that was conducted for BCUOMA in 2010 did show that considerably more GHG savings were realized for used oil that was re-refined than was realized when burned as a fuel in pulp mills and asphalt plants.

Currently, about 50% of the used oil generated in province is re-refined at the re-refineries in North Vancouver and Breslau, Ontario. The other 50% is mainly used as a fuel in pulp mills in Washington State and in asphalt plants in British Columbia and Alberta. The primary goals of the BCUOMA program in the next five years are to maximize the recovery of used oil, and to do it in a cost-effective and environmentally responsible manner.

## **b. Used Oil and Antifreeze Containers**

The plastic oil and antifreeze containers are processed at approved facilities in both British Columbia and Alberta. The main challenge in processing oil and antifreeze containers is separating the oil and antifreeze from the plastic. This is achieved by first shredding the containers, followed by centrifuging and washing the shredded plastic. Once a sufficient amount of oil and antifreeze has been removed from the shred, it can be pelletized to make new oil containers, drainage tile, parking curbs and other plastic products. The other option is to use the plastic shred to make items such as plastic lumber where some of the oil is still encased in the finished product and can't be leached out.

## **c. Used Oil Filters**

Since used oil filters are considered a hazardous waste and are quite costly to crush for use in a steel mill, BCUOMA does not pay the collector the RI until either a steel mill or a metal broker have signed off that they have received the crushed oil filters. BCUOMA wants to avoid the situation where a processor will simply sign-off the shipment as received, have the collector receive the RI and then simply store the un-crushed filters.

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If the processor sufficiently crushes the filters to the point where there is less than 3% oil by weight, and the Ministry of Environment no longer considers them a hazardous waste, BCUOMA accepts sign-off by the metal broker as sufficient to warrant payment of the RI to the collector. However, if the Ministry hasn't granted the exemption under the *Hazardous Waste Regulation*, and the crushed filters are still considered a hazardous waste, BCUOMA won't pay the RI to the collector until the steel mill has signed off as having received the crushed filters.

Most of the filters are mainly constructed of steel, and are highly recyclable by the steel mills into reinforcing steel, nails and other steel products. However, a filter study undertaken in 2007 has shown that about 8% of the filters recovered are made of paper. For most of the filter processors, they are still able to mix most of the paper filters in with the crushed steel filters. However, a major Lower Mainland filter processor has too many paper filters so that they have to be hand-sorted, crushed separately to less than 3% oil by weight and shipped to a waste to energy facility as a fuel source.

## **e. Used Antifreeze**

British Columbia is very fortunate to have three antifreeze processors already actively involved in processing used antifreeze to the point where an additive package can be added and the recycled antifreeze can again be sold as automotive antifreeze. The major antifreeze processor in the province is already achieving the required ASTM standards for re-processed automotive antifreeze, and the antifreeze manufacturers will be working with the other two processors in the coming months to assist them in achieving the required standards.

## **11. Plan Review**

In accordance with the requirements of the Ministry of Environment, BCUOMA will undertake and complete the review of this Stewardship Plan on or before November 2014.

Submitted by  
British Columbia Used Oil Management Association  
[www.usedoilrecyclig.com](http://www.usedoilrecyclig.com)

February 17, 2011

# BCUOMA Stewardship Plan

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