



BCUOMA

British Columbia Used Oil
Management Association

ANNUAL REPORT

2007 CALENDAR YEAR

Submitted to:

The Director of Waste Management
Environmental Quality Branch
Ministry of Environment
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1. Executive Summary

The Table below is taken from the BCUOMA three year Business Plan and summarizes the sales and recovery numbers for 2007 for oil, filters and oil containers, as well as estimates for 2008 to 2010.

Product	Year	Sales	Recoverable Portion – Millions	Percentage Recovered	Quantity Recovered – Millions
Oil:	2007	99.69 Million L	69.7 L	70.3%*	49.0 L
	2008 projected	99.00 Million L	69.2 L	70.5%*	49.0 L
	2009 projected	99.00 Million L	69.2 L	70.5%*	49.0 L
	2010 projected	99.00 Million L	69.2 L	70.5%*	49.0 L
Oil filters:	2007	6.241 Million (4.708 million kg)	6.241	83.9%	5.235
	2008 projected	6.200 Million (4.677 million kg)	6.200	85.0%	5.270
	2009 projected	6.200 Million (4.677 million kg)	6.200	85.5%	5.301
	2010 projected	6.200 Million (4.677 million kg)	6.200	86.0%	5.332
Oil containers:	2007	39.10 Million L (2.187 million kg)	2.187 kg	63.4%	1.386 kg
	2008 projected	37.55 Million L (2.100 million kg)	2.10 kg	66.0%	1.386 kg
	2009 projected	37.55 Million L (2.100 million kg)	2.10 kg	68.0%	1.428 kg
	2010 projected	37.55 Million L (2.100 million kg)	2.10 kg	70.0%	1.470 kg

2. Program Outline

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 June 9, 2008, there were 169 producer members of BCUOMA. The producer members are listed in alphabetical order on www.usedoilrecycling.com/en/bc/members.

An eight member Board of Directors manages BCUOMA, with representatives from the manufacturing, retailing, local government and a non-governmental organization. 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). Contact information for BCUOMA's offices is listed on www.usedoilrecycling.com/en/bc/contactus.

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Producers, through networks of both company-owned and independently-owned retail and wholesale facilities, bring lubricating oil and filters into the province for sale or distribution. Retail facilities range from self-serve gas bars to mass merchandise marketers, quick lubes and automotive, farm, marine and commercial equipment dealers. Wholesale lubricating oil facilities comprise both branded bulk plants 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. The Regulation applies only to the containers 30 litres or less in size, as required by the Regulation.

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 used oil, oil filters and oil containers are regularly picked up from over 4,000 generators across British Columbia by BCUOMA Registered Collectors (collectors). BCUOMA pays the Collectors Return Incentives (RIs) twice a month, provided the collector has provided 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 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 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. The RI zone map and the rates paid per zone for each of the three used oil materials can be found on www.usedoilrecycling.com/en/bc/collectors.

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

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BCUOMA requires as a condition of registration, and annually 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 annually submit a current Business Licence. If either of these two conditions is not met, BCUOMA will not register the collector or processor.

The Report to the Director will be posted on the BCUOMA website in early July 2008 at www.usedoilrecycling.com/en/bc/aboutus.

3. Educational Materials and Strategies

In the development of a communication and education program for BCUOMA, there are a number of different key groups that BCUOMA is trying to reach. They include the 4,000 commercial generators of used oil materials (including the return collection facilities for the do-it-yourselfers), local governments, and the British Columbians that change their own oil.

The key elements of the consumer awareness and education program for 2007 include the following:

- 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 materials.
- b. A Summer Ambassador Program where a team of young people in a hybrid vehicle toured the province to meet with return collection facility operators, local governments and the general public at special events. The purpose of their visits is to ensure that the return collection facilities are up-to-date with information, brochures and signs, and that local governments and the general public are informed about the program. In 2007 BCUOMA partnered with the Medications Group to hand out their brochures and information when meeting with local governments and the general public.

A total of 57 municipalities throughout BC were visited during the 13 week program. During that time the team:

- i. visited 221 return collection facilities, connected by phone with another 35 sites and determined that another 45 sites required further follow-up by BCUOMA;

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- ii. met with officials from 9 regional districts and 9 municipalities and provided them with a BCUOMA brand CD toolkit to create custom signage and provided them with brochures;
- iii. 26 media hits across the province yielding more than 1 million media impressions; and
- iv. attended 5 community events, reaching approximately 5,000 people.

A detailed report on the 2007 program can be accessed at www.usedoilrecycling.com/en/bc/communicationspublicity.

- c. In late 2007, BCUOMA sent out an E-Newsletter to all Regional Districts, collectors, processors and as many return collection facilities and municipalities as possible. It is planned to send out the E-Newsletter twice a year to better inform stakeholders about best practices, available signage and other information about the program, and to receive their input on how the program can be improved. The 2007 newsletter can be accessed at www.usedoilrecycling.com/en/bc/communicationspublicity.
- d. In 2007 BCUOMA introduced new radio ads as a means of reaching the do-it-yourselfer and the smaller generators of used oil materials who still are not fully aware of how they can have their used oil materials collected and recycled in a responsible way. An important message for British Columbians is to return their uncontaminated used oil materials during regular business hours, since one litre of spilled used oil can contaminate a million litres of drinking water.

A total of 2,606 – 30 second radio spots were aired through much of BC, on many of the most popular radio stations. More than 19.7 million impressions were made in the areas where the markets could be measured. The radio ad can be accessed at www.usedoilrecycling.com/en/bc/communicationspublicity.

- e. BCUOMA will continue to use the website, brochures, table top displays, other visual displays and relevant public hand-outs as a means of spreading the message to the public on used oil material recycling. In this messaging, BCUOMA emphasizes that the EHC is not a government tax.

In communication with generators of used oil who charge oil change service 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 prominently shown on www.usedoilrecycling.com/en/bc/aboutus.

4. Collection System Information

Of the over 4,000 generators in the province, as of December 31, 2007 there were about 530 of them that are return collection facilities for the do-it-yourselfer to take back small quantities of used oil materials at no cost. This is a reduction of about 20 sites from the previous year. The return collection facilities list can be accessed on 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 530 return collection facilities, there are approximately 28 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, most Great Canadian Oil Change 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 over 300 collection facilities.

However, 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. BCUOMA will explore options with local governments for collecting the used oil materials and shipping them to the nearest markets. In these instances, BCUOMA will consider providing financial assistance for the purchase of an oil tank or other relevant infrastructure for the collection of the used oil materials. In 2007 BCUOMA assisted the community of Atlin by paying for their purchase of the oil tank.

5. Life Cycle Management

a. Oil

Despite British Columbia's booming economy, the rise in registered vehicles and the increase in industrial activity, there was only a slight increase in the oil sold in the province from 99.7 million litres in 2007 compared to 97.6 million litres in 2006. The newer vehicles and industrial engines have a longer driving distance and/or time period between oil changes than in the past. 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 Containers

For oil containers, the number sold has decreased from 2.24 million kg in 2006 to 2.19 million kg in 2007. In the last several years there has been a trend for oil companies to ship more of their oil in lube cubes, drums and by truck and rail, to the point where about 60% of the oil is shipped in bulk. 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.

c. Oil Filters

For oil filters, the number sold in 2007 was about the same as in 2006 at 6.2 million. 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.

6. 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 BCUOMA registered 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 explosives in mining or exploration drilling.

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 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.

Currently, about half of the used oil generated in the province is re-refined at the re-refineries in North Vancouver and Breslau, Ontario. The other half is mainly used as a fuel in pulp mills in Washington State and in asphalt plants in British Columbia and Alberta.

b. Used Oil Containers

The plastic oil containers are processed at approved facilities in both British Columbia and Alberta. The main challenge in processing oil containers is separating the oil 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 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.

Most of the plastic oil containers are made of HDPE (#2 resin), which is highly recyclable. One oil company makes one product line using a PET (#1 resin), which is also a highly recyclable plastic resin. However, because these products can't be mixed if the shred is pelletized, some of the PET plastic collected is currently landfilled. It is planned to conduct a study in 2008 to determine the extent of this problem, and to determine what solutions may be available.

In addition, the oil container study will determine the percentage of antifreeze, windshield washer, fuel additive and other similar vehicle related containers that are mixed in with the oil container stream. The antifreeze and windshield washer containers are also sold in the HDPE (#2 resin) and are high recyclable, together with the oil containers. However, many of the smaller fuel additive containers appear to be made from other plastics and have to be hand sorted and disposed of elsewhere.

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.

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 considers 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 for recycling 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.

There are a small percentage of paper filters from a few processors with plastic inner tubes which can't be mixed in with the steel filters. These filters are currently being sent to a secure landfill in Alberta. BCUOMA will work with these filter processors to determine if they can be used as an energy source like some processors are currently doing.

For 2007, BCUOMA does not have any greenhouse (GHG) emission data during the manufacturing of the new product and any emission reductions by reusing-recycling the product as part of the BCUOMA program. However, BCUOMA will attempt to obtain this data for the 2008 operating year.

7. Recovery Rate

a. Oil

For used oil in 2007, 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, and the report is available on www.usedoilrecycling.com/en/bc/aboutus. In 2007, 99.7 million litres of oil was sold and based on the above report, 69.7 million litres was considered available for collection. Of the 69.7 million litres, 49.0 million litres was collected and recycled through the BCUOMA system.

In order to better determine where the additional 20.7 million litres of oil was going, BCUOMA engaged a consultant to make that determination. In April 2006, an Unaccounted 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/en/bc/aboutus.

Approximately 15.5 million litres of this used oil was estimated to be used as 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 soaked in floor dry and rags, road oiling, weed control, fire starter, ground pits and illegal dumping by do-it-yourselfers and others.

Based on the above information, there does not appear to be much potential to increase the recovery rate a significant amount above the current rate of 70.3%. Only about 24% of the oil sold in the province is for passenger car and light trucks, and of that amount only about 25% of motorists change their own oil. Therefore, the amount of used oil generated by the do-it-yourselfer market that is available for collection is about 3.6 million litres per year.

b. Oil Containers

Of the 2.187 million kg of oil containers sold in 2007, all of them are potentially recoverable. There has been a steady increase in the recovery rate since the program began in August 2003, from 12% to 63.4% in 2007.

There may be a small percentage of the 20 litre pails that are re-used by some of the farmers, fishers and loggers, although the percentage of use is unknown at this time.

c. Oil Filters

Of the 6.241 million oil filters (4.708 million kgs) sold in 2007, all of them are potentially recoverable. As with oil containers, there has been a steady increase in the recovery rate since the program began, from 18% to 84.9%.

d. Recovery Rate by Zone

In the Table below the amount of used oil, oil filters and oil containers collected by zone is shown. The zone map can be accessed by going to www.usedoilrecycling.com/en/bc/collectors. However, it is only possible to determine recovery rate by province since the sales can only be determined province-wide. In almost all of the zones there is more than 1 Regional District. To determine the amount collected in a particular Regional District, you can multiply the percentage of the population for that Regional District in that zone, by the amount collected for that zone.

Summary of Collections Jan - December 2007						
	Oil		Filters		Containers	
	<i>in litres</i>	<i>%</i>	<i>in kilograms</i>	<i>%</i>	<i>in kilograms</i>	<i>%</i>
Zone 1	21,712,657	44.30%	2,004,654	50.54%	654,697	47.25%
Zone 2	2,510,934	5.12%	190,655	4.81%	109,743	7.92%
Zone 3	3,352,461	6.84%	134,334	3.39%	69,207	5.00%
Zone 4	7,966,951	16.25%	569,809	14.36%	217,867	15.73%
Zone 5	1,505,558	3.07%	33,790	0.85%	11,809	0.85%
Zone 6	2,485,453	5.07%	206,974	5.22%	80,796	5.83%
Zone 7	4,686,648	9.56%	454,074	11.45%	116,234	8.39%
Zone 8	2,983,193	6.09%	244,935	6.17%	78,979	5.70%
Zone 9	1,361,191	2.78%	105,325	2.66%	37,704	2.72%
Zone 10	449,960	0.92%	22,066	0.56%	6,169	0.45%
Zone 11	-	0.00%	105	0.00%	2,270	0.16%
Total	49,015,006	100.00%	3,966,721	100.00%	1,385,475	100.00%

8. Fee Information

The BCUOMA program is funded by an Environmental Handling Charge (EHC). It is a condition of membership in BCUOMA that producer members remit to BCUOMA on a quarterly basis an EHC of \$.05/litre for oil, \$.05/litre of oil container and \$.50 for a filter less than 8 inches and \$1.00 if the filter is 8 inches or longer. 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. An explanation about the EHC is found on www.usedoilrecycling.com/en/bc/aboutus.

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The 2007 Annual Report, including the independently audited financial statements, has been posted on www.usedoilrecycling.com/en/bc/aboutus.

9. Performance Targets

Each May, BCUOMA finalizes a new three year Business Plan that summarizes the performance for the previous year and projects the recovery rates, financial performance and other targets for the current year and following two years. The 2008 Annual Business Plan is posted on www.usedoilrecycling.com/en/bc/members.

The key BCUOMA performance measures are recovery rates, number of Return Collection Facilities for the do-it-yourselfer, an adequate number of collectors & processors, amount of EHCs collected and the ratio of the flow-through of EHC to the payment of RIs to collectors. Each of these performance measures will continue to be tracked and reported in the Annual Business Plan.

2007 Target Set in Business Plan	2007 Target Achieved
Projected EHC revenue = \$10.23 million	Actual EHC revenue = \$10.39 million
Projected Administration costs as a % of EHC revenue = 4.35%	Actual Administration costs as a % of EHC revenue = 4.02%
Projected Oil Sales = 97.8 million litres	Actual Oil Sales = 99.7 million litres
Projected Oil Recovery Rate = 70.5%	Actual Recovery Oil Rate = 70.3%
Projected Filter Sales = 6.2 million	Actual Filter Sales = 6.2 million
Projected Filter Recovery Rate = 80.6%	Actual Filter Recovery Rate = 83.9%
Projected Oil Container Sales = 2.10 million kg	Actual Oil Container Sales = 2.19 million kg
Projected Oil Container Recovery Rate = 60.0%	Actual Oil Container Recovery Rate = 63.4%
Projected Number of Return Collection Facilities = 550	Actual Number of Return Collection Facilities = 529
Projected Number of Registered Collectors & Processors = 45	Actual Number of Registered Collectors & Processors = 41
Projected Excess Revenue Over Expenditures = (\$102,000)	Actual Excess Revenue Over Expenditures = \$460,000

The first eight performance targets were either basically achieved or exceeded. There was a drop of 21 Return Collection Facilities from 550 in 2006 to 529 in 2007; however, BCUOMA is still well above the 2003 approved Stewardship Plan target of 200 after the first year of operation. The main reason for this is due to an increasing number of auto servicing centers being converted to gas bars and grocery stores. The Ambassador Team regularly

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visits about half of the sites each year to confirm whether or not they are still accepting used oil materials from the do-it-yourselfer.

The number of Registered Collectors & Processors has dropped slightly from the 45 to 41. However, almost all areas of the province are adequately covered with Registered Collectors who regularly pick up used oil, filters and oil containers. Experience has shown that the requirement for an annual environmental audit by a third party qualified professional has resulted in some of the very small Collectors & Processors opting out of the Program.

The difference in excess revenue over expenditures was within 5% of projections. The main reason for the slight increase in excess revenue over expenditures was due to some extraordinary income that was received in 2007.