

Canadian Auto Recyclers' Environmental Code (CAREC)

The Canadian Auto Recyclers' Environmental Code was developed by Summerhill Impact and the Automotive Recyclers of Canada as a follow-up and legacy to the *Retire Your Ride* program.

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Table of Contents

1.0 INTRODUCTION	4
2.0 EXPECTED BENEFITS	4
2.1 ENVIRONMENTAL	4
2.2 ECONOMIC AND SOCIAL	5
3.0 DEFINITIONS	5
4.0 ENVIRONMENTAL CONSIDERATIONS	7
4.1 DISCHARGE OF HAZARDOUS MATERIALS	7
4.1.1 Refrigerants	7
4.1.2 Oil, Antifreeze, and Other Hazardous Fluids	8
4.1.3 Lead.....	8
4.1.4 Tires.....	8
4.1.5 Mercury.....	8
4.1.6 Nickel and Lithium Batteries	9
4.2 REUSE OF HIGH-QUALITY USED TIRES, BATTERIES AND PARTS.....	10
4.3 RECYCLING OF MATERIALS	10
5.0 SUMMARY OF LEGAL AND OTHER REQUIREMENTS	10
5.1 FEDERAL LAWS	11
5.2 PROVINCIAL AND TERRITORIAL LAWS	12
5.3 INDUSTRY ENVIRONMENTAL PROGRAMS	13
5.3.1 Quebec	13
5.3.2 Ontario.....	14
5.3.3 Alberta.....	15
5.3.4 British Columbia.....	15
5.4 LOCAL GOVERNMENTS.....	15
6.0 CANADIAN AUTO RECYCLERS' ENVIRONMENTAL CODE	16
6.1 REUSE AND RESALE	16
6.2 ADMINISTRATION	16
6.2.1 Records	16
6.2.2 Training.....	17
6.2.3 Licences and Approvals	17
6.3 SPILLS	17
6.3.1 Leaks	17
6.3.2 Small Spills.....	17
6.3.3 Large Spills.....	18
6.4 HAZARDOUS MATERIALS	18
6.4.1 Waste Oil.....	18
6.4.2 Waste Antifreeze.....	19
6.4.3 Refrigerants.....	19
6.4.4 Other Fluids	19
6.4.6 Lead and Waste Lead-Acid Batteries	19
6.4.7 Tires	20
6.4.8 Mercury.....	20
6.4.9 Soils, Absorbents and Rags	20
6.4.10 Hybrid Batteries.....	21
6.5 AUTOMOTIVE RECYCLER PROCESSING AREAS	21
6.5.1 Receiving Area	21

6.5.2 Dismantling Area	21
6.5.3 Hulk Storage Area.....	22
6.5.4 Crushing Area.....	22
6.5.5 Wet Parts Storage Area.....	22
6.5.6 Hazardous Fluid Storage Area	22
6.6 EQUIPMENT AND INFRASTRUCTURE	23
6.6.1 Spill Kit(s).....	23
6.6.2 Oil/Water Separators	23
6.6.3 Solvent Tanks	23
6.6.4 Pressure Washers.....	23
6.6.5 Equipment	24
6.7 RUNOFF.....	24
6.8 METAL RECYCLERS.....	24
7.0 BENEFITS OF CAREC.....	25
7.1 REGULATORY:	25
7.2 REDUCE OPERATING COSTS:	25
7.3 FINANCIAL:	25
7.4 REDUCE ENVIRONMENTAL LIABILITY:	26
7.5 ONGOING SUPPORT	26
APPENDIX 1: FEDERAL ENVIRONMENTAL LAWS AND REGULATIONS	27
INTRODUCTION	27
APPLICATION.....	27
APPLICABILITY OF FEDERAL POLICIES, ACTS, AND REGULATIONS.....	28
FEDERAL POLICIES	28
<i>Treasury Board of Canada Secretariat</i>	28
<i>Indian and Northern Affairs Canada</i>	28
FEDERAL LEGISLATION	29
<i>Transportation of Dangerous Goods Act, 1992</i>	29
<i>Canadian Environmental Protection Act, 1999</i>	29
<i>Indian Act</i>	32
<i>Fisheries Act</i>	33

1.0 Introduction

The Canadian Auto Recyclers' Environmental Code (CAREC) was developed in 2008 for automotive recyclers participating in the National Vehicle Recycling Program - Retire Your Ride/Adieu Bazou. The code (formerly known as the *National Code of Practice for Automotive Recyclers Participating in the National Vehicle Recycling Program or CoP*) was developed to ensure that recyclers have the most relevant information and tools to prevent hazardous materials contained in end-of-life vehicles from contaminating our water, land, and air during and after the vehicle recycling process.

CAREC summarizes the existing legal requirements for the management of hazardous wastes from end-of-life vehicles and has been adopted by the Automotive Recyclers of Canada for use by all of its members.

CAREC has three goals:

- convey the legal and mandatory requirements before, during, and after the recycling process and promote best management practices within the industry;
- promote the pollution prevention and the 3R's in the vehicle recovery industry to reduce the ecological impact of the automotive sector; and
- ensure that there is a consistent set of practices that are consistent with federal, provincial, and municipal laws and regulations and promotes industry stewardship.

The automotive recyclers that are members of the Automotive Recyclers of Canada are committed to understand, respect, and demonstrate compliance with CAREC.

2.0 Expected Benefits

There are a variety of environmental, economic and social benefits associated with a network of environmentally certified automotive recyclers.

2.1 Environmental

Every year, members of the Automotive Recyclers of Canada, retire approximately 400,000 vehicles. Collectively, these vehicles contained the following quantities of hazardous materials:

- 3,428,560 litres of oil and lubricants;
- 1,457,120 litres of antifreeze;
- 8 million kilograms of lead;
- 2,000,000 tires;
- 400,000 litres of windshield washer fluid;

- 108,000 kilograms of refrigerants equivalent to approximately 137,143 tonnes of carbon dioxide; and
- 40 kilograms of mercury.

** Numbers above are estimates.

In addition, the Automotive Recyclers of Canada promote the used automotive parts through its Green Recycled Parts Program. There are over 4 million Green Recycled Parts sold every year to Canadians and collectively those Green Recycled Parts reduce carbon dioxide emissions by reducing the demand for new parts.

2.2 Economic and Social

While a vehicle may have reached the end of its life, there are many parts that can be resold or reused such as tires, batteries and parts. In addition, raw materials such as copper, lead, aluminum and steel can be recycled.

In addition, the 400 automotive recyclers that follow CAREC employ 3,000 employees and generate approximately 600 million dollars of economic activity.

Finally, many Canadians also benefit from having access to inexpensive parts to repair their vehicles.

3.0 Definitions

Certified refrigerant technician means any person who has successfully completed a CFC/HCFC/HFC refrigerant disposal training program approved by Environment Canada and / or Provincial/Territorial government as applicable.

Automotive recycler means any person or commercial enterprise that crushes, flattens, or dismantles for parts more than five end-of-life vehicles within a twelve-month period.

Crusher means a mobile or stationary mechanical device that crushes or flattens hulks prior to transportation.

Dismantling area means a covered area with secondary containment where wet parts and hazardous materials are removed.

End-of-life vehicle means a vehicle that has been offered through the program.

Hazardous materials include but are not limited to the following materials (solid, liquid or gas):

- oils, greases, solvents, brake fluid, fuel, and other liquid hydrocarbons;
- active ingredients in antifreeze and windshield washer fluid;
- refrigerants;
- lead–acid batteries, lead tire weights, lead battery cables;
- tires;
- mercury switches; and
- soils, absorbents, and other solids (e.g., sludges) containing hazardous materials.

Hulk means an end-of-life vehicle with hazardous materials removed and whose vehicle identification number (VIN) has been reported to the provincial/territorial authority responsible for de-registering VINs.

Licensed transporter means a transporter that is licensed or registered by the provincial/territorial government to transport waste and/or hazardous solid and/or liquid materials from the vehicle recycling facility to the proper handling/recycling facility.

Primary container means any part or container containing liquid hazardous materials.

Sealed part means a part that contains liquid hazardous materials that is sealed and not leaking. Sealed parts include:

- differentials; and
- shock absorbers.

Secondary containment means an impervious retainer or container that has been designed to hold 110% of the maximum volume of liquid hazardous materials stored within a primary container or 25% of the maximum volume of liquid hazardous wastes stored in the area, whichever is larger.

Water bodies means freshwater (e.g., ditch, stream as defined by provincial acts), groundwater (e.g., aquifer), or marine environment on, adjacent to, or underneath the automotive recycler's property. Definition does not apply to runoff or standing water found on the property.

Wet part means a part that contains or contained liquid hazardous material or a sealed part that is leaking. Excludes empty:

- fuel tanks that have been drained and fuel pump removed;
- windshield washer fluid containers; and,
- radiator overflow containers.

4.0 Environmental Considerations

The 3 R's (Reduce, Reuse, Recycle) are guiding principles of environmental management.

In the context of CAREC, the 3R's are set up in a hierarchy meaning that REDUCE is the highest priority followed by REUSE and then RECYCLE.

Within the context of CAREC, the 3R's mean:

- the reduction (or elimination) of hazardous materials being discharged to the environment;
- the reuse of good quality used tires, batteries and parts;
- the recycling of the vehicle's residual materials – primarily metals.

The following three sections outline the integration of the 3R's within the CAREC.

4.1 Discharge of Hazardous Materials

End-of-life vehicles contain a range of substances that are hazardous to the environment if they are not properly recovered from end-of-life vehicles. The following is a summary of the impact these hazardous materials can have on the environment.

4.1.1 Refrigerants

Refrigerants found in the air conditioning systems of vehicles typically contain the refrigerants HFC134a (1,1,1,2-tetrafluoroethane) and to a lesser extent CFC-12 (dichlorodifluoromethane), commonly known as R-12 or Freon-12.

CFC-12 was commonly used in vehicle air conditioning units prior to 1996. Its use was banned because of its significant depleting impacts on the Earth's stratospheric ozone layer. The stratospheric ozone layer is important in filtering out the harmful UVB wavelengths of ultraviolet light. Increased UVB radiation is generally accepted to be a contributing factor to skin cancer and increased ground-level ozone, both of which are significant health risks to humans. Increased UVB radiation also affects the growth of plants on land and of phytoplankton in the water.

CFC-12 is a powerful greenhouse gas. Its global warming potential is 10,900. This means that 1 kilogram of CFC-12 is equivalent to 10.9 tonnes of carbon dioxide gas.

Since 1996, HFC134a has replaced CFC-12 in air conditioning units because it does not deplete the Earth's ozone layer; however, HFC-134a is also an important greenhouse gas. Its global warming potential is 1,180, meaning that 1 kilogram of HFC134a is equivalent to 1.18 tonnes of carbon dioxide gas.

4.1.2 Oil, Antifreeze, and Other Hazardous Fluids

Hazardous fluids include waste oils, fuels, other lubricants, antifreeze, brake fluid, solvents, and windshield washer fluid. Failure to remove the hazardous fluids could result in contamination of soils and/or water, resulting in impacts on drinking water supplies and fish habitat.

4.1.3 Lead

There are three main sources of lead in end-of-life vehicles: lead-acid batteries, battery cable ends and tire weights. In addition, lead-acid batteries contain concentrated sulphuric acid and are a hazard to the environment and worker safety.

Lead is a toxic compound and, if it is left unmanaged, it can contaminate soil and groundwater. People are mainly exposed to lead by breathing it from the air or by ingesting food, water, soil, or dust that had been contaminated with lead. Small amounts of lead can be harmful, especially to infants, young children, and pregnant women. Symptoms of long-term exposure to lower lead levels may be less noticeable but are still serious. Anemia is common, and damage to the nervous system may cause impaired mental functions. Other symptoms are appetite loss, abdominal pain, constipation, fatigue, sleeplessness, irritability, and headaches. Continued excessive exposure, as in an industrial setting, can affect kidney function.

4.1.4 Tires

On their own, tires do not constitute an environmental threat. However, a tire fire has significant impacts on air, land, and water quality. As well, tire piles provide an excellent breeding ground for mosquitoes that may carry the West Nile virus.

4.1.5 Mercury

Small amounts of mercury are contained in the convenience light switches under the hood and trunk as well as in anti-lock brake sensors and tire balancing products.

The health effects of elemental mercury depend on the length and type of exposure. For example, if you were to swallow liquid elemental mercury accidentally from a broken fever thermometer, little mercury would be absorbed by your body. However, if you were to inhale the vapour from that mercury spill, it would be more easily absorbed into

your body, potentially causing health problems. At higher concentrations, mercury vapour can cause damage to the mouth, respiratory tract, and lungs, and it can lead to death from respiratory failure.

As little as 0.07 milligrams of mercury can have harmful effects on humans. Mercury is especially toxic to young children and women of childbearing age because it inhibits the development of the brain and nervous system.

Mercury can contaminate soils and water bodies, and it poses an air quality problem during the shredding of vehicle hulks by steel recyclers/manufacturers. If mercury switches are not removed prior to arrival at steel recyclers, the contained mercury is released to the air when the vehicle is shredded. Further, 1 gram of mercury, the amount contained in a mercury switch, mixed evenly in a body of freshwater, could contaminate as much as 3.8 million litres beyond safe limits for the protection of aquatic life (0.26 micrograms of mercury per litre of water).

4.1.6 Nickel and Lithium Batteries

While the vehicles in the National Vehicle Recycling Program are not late-model hybrid vehicles, CAREC includes hybrid batteries as a general guide to automotive recyclers and dismantlers.

A nickel-metal hydride cell (NiMH) is similar to nickel hydrogen cell. The NiMH battery uses a hydrogen-absorbing alloy for the negative electrode instead of cadmium. As in nickel-cadmium (NiCd) cells, the positive electrode is nickel oxyhydroxide (NiOOH).

Nickel is a ubiquitous metal that can be toxic in the environment at high concentrations. All foods and water contain some nickel and the human body is generally able to regulate the level of nickel through normal excretory processes. Most industrial nickel is recycled due to the relatively easy retrieval of the metal from scrap and its high value.

Lithium-ion batteries will likely be the next generation of vehicle batteries because it is more powerful than the NiMH and NiCd batteries. The cathode contains lithium and the anode is made of a type of porous carbon. During normal operation, Li⁺ ions move through the non-aqueous electrolyte and separator diaphragm to the carbon cathode. During charging the opposite reaction occurs.

Studies on the affects of lithium in the environment are minimal so its impact on the environment is not well understood.

4.2 Reuse of High-Quality Used Tires, Batteries and Parts

The reuse of high-quality tires, batteries and parts from vehicles is also an important environmental consideration. Tires and lead-acid batteries from vehicles can be re-used for their original intended purpose and the reuse of these products is an important environmental consideration.

Also, parts such as alternators, windshields and headlights can fail or break and need to be replaced. Rather than manufacture new parts, the reuse of parts is not only cheaper for the consumer, it defers the need to manufacture new parts. Consequently the reuse of parts from end-of-life vehicles is good for the environment.

4.3 Recycling of Materials

The recycling of the metals from end-of-life vehicles has environmental benefits because the ecological footprint of recycled commodities (especially metals) is smaller than unused commodities.

Metals such as lead from lead-acid batteries, tire weights and battery terminals, iron (as steel), copper in the wiring, aluminum from wheels and engine components and rare earth metals in the catalytic converter are the primary metals recovered from vehicles.

The recycling of rubber from tires is also important. Tire stewardship programs across Canada produce crumb rubber that is used in a variety of speciality products such as athletic tracks, mats and asphalt.

Plastic recycling from end-of-life vehicles is limited because of the low price of recycled plastic and the composite nature of plastics used in vehicles – composite plastics are harder to recycle because of the mixture of plastic types.

5.0 Summary of Legal and Other Requirements

Automotive recyclers that are certified to CAREC have been determined by an independent auditor to follow CAREC. Although CAREC itself is not mandated by any particular law or regulation, it takes into account a wide variety of policies, acts, regulations, and requirements.

An automotive recycler who is not in compliance with federal, provincial / territorial, or local laws and regulations could be financially liable for the activities

and could face federal charges under the *Transportation of Dangerous Goods Act, 1992*, the *Canadian Environmental Protection Act, 1999* and its regulations, or the *Fisheries Act*.

That is why it is important for automotive recyclers to know and understand the laws and regulations that govern their business as well as to work within CAREC developed by the Automotive Recyclers of Canada.

5.1 Federal Laws

There are a variety of federal acts affecting vehicle dismantling and recycling:

- *Transportation of Dangerous Goods Act, 1992*;
- *Canadian Environmental Protection Act, 1999* (CEPA); and,
- *Fisheries Act*.

Within CEPA, there are four regulations that are germane to automotive recyclers:

- *Ozone-depleting Substances Regulations, 1998*;
- *Federal Halocarbon Regulations, 2003*;
- *Interprovincial Movement of Hazardous Waste Regulations* (2002); and
- *Export and Import of Hazardous Waste and Hazardous Recyclable Material Regulations* (2005).

In addition, on December 29, 2007, the Minister of the Environment published a notice under CEPA in the *Canada Gazette* requiring that vehicle manufacturers and steel mills prepare and implement pollution prevention plans to deal with releases of mercury from mercury switches in end-of-life vehicles processed by steel mills. The focus will be on the recovery of mercury switches located in hood and trunk convenience lights and in anti-lock brake sensors.

In addition to the above acts and regulations, automotive recyclers located on reserves as defined in the *Indian Act* are subject to the *Indian Reserve Waste Disposal Regulations* (IRWDR). The regulations require the Minister of Indian Affairs and Northern Development (or the council of a band if authorized by the Minister) to issue a permit for the storage of waste. Finally, automotive recyclers located on reserves subject to the *Indian Act* must adhere to the Contaminated Sites Management Policy of Indian and Northern Affairs Canada.

Appendix 1 has a more detailed explanation of the federal environmental laws that are incorporated into CAREC.

5.2 Provincial and Territorial Laws

All provincial and territorial jurisdictions manage hazardous residual substances. The primary legislation for provinces and territories is summarized below.

British Columbia:	Environmental Management Act
Alberta:	<i>Environmental Protection and Enhancement Act</i>
Saskatchewan:	<i>Environmental Management and Protection Act, 2002</i>
Manitoba:	<i>The Dangerous Goods Handling and Transportation Act</i>
Ontario:	<i>Environmental Protection Act</i>
Quebec:	<i>Environment Quality Act</i>
New Brunswick:	<i>Clean Environment Act</i>
Nova Scotia:	<i>Environment Act</i>
Prince Edward Island:	<i>Environmental Protection Act</i>
Newfoundland and Labrador:	<i>Environmental Protection Act</i>
Northwest Territories:	<i>Environmental Protection Act</i>
Yukon:	<i>Environment Act</i>
Nunavut:	<i>Environmental Protection Act</i>

Additionally, four provinces require automotive recyclers to register with the government or to obtain approval to operate.

- In Prince Edward Island, automotive recyclers are governed by the *Automobile Junk Yards Act*.
- In Quebec, automotive recyclers that began operations after December 2, 1993 are required to obtain a certificate of authorization issued by the Ministère du Développement durable, de l'Environnement et des Parcs in accordance with section 22 of the *Environment Quality Act*. The same applies to any business wishing to modify its activities already in progress. The Quebec government has issued a guide for automotive recyclers to help them obtain regulatory approvals.
- In British Columbia, automotive and steel recyclers are governed by the *Vehicle Dismantling and Recycling Industry Environmental Planning Regulation*. The B.C. Ministry of Environment has published a guide for automotive recyclers to help them obtain regulatory approvals. For more information on the guide for automotive recyclers, go to www.env.gov.bc.ca/epd/industrial/regs/vehicle/index.htm#1.
- In Nova Scotia, commercial salvage yards operating in an area of 0.25 hectares or greater are required to obtain approval from the N.S. Ministry of Environment.

Most provinces and territories do not consider automotive recyclers to be waste management facilities or require them to obtain consignor identification numbers or approvals in order to operate. These exemptions are primarily because the quantity of hazardous materials recovered by automotive recyclers in a 30-day period is below the registration threshold set by each province/territory.

Finally, most provinces and territories manage hazardous residuals in similar ways. The common approaches of the provinces and territories are as follows.

- Hazardous fluids must be stored in a safe and secure manner, transported by licensed carriers to recycling facilities, and manifested. Spills over thresholds specific to each province/territory must be reported to the provincial/territorial emergency program. The recovered materials are recycled or refined by waste management companies into new products.
- Refrigerants must be tested and removed by a qualified technician.
- Hazardous solids such as contaminated soils and lead products must be manifested and transported by licensed transporters. The contaminated soils are either disposed of in a secure landfill or reclaimed through various decontamination processes. Lead products are recycled into new lead products.
- Used tires are recycled through provincial/territorial stewardship programs. The recovered steel is recycled, and the recovered rubber is processed into new products.
- Runoff or discharges to the environment from automotive and steel recyclers must not have an impact on the aquatic environment. Discharge levels are typically set by each province/territory.

5.3 Industry Environmental Programs

In response to provincial laws, ARC requires all of its provincial associations to be compliant with the CAREC by 2013. Ontario and the Atlantic Provinces already have all of their members audited to a 75% score or greater. Over 90% of the auto recyclers within ARC are now audited to CAREC.

The programs operated by provincial associations are summarized below.

5.3.1 Quebec

Quebec was one of the first provinces to require automotive recyclers to be certified. In Quebec, automotive recyclers that began operations after December 2, 1993 are required to obtain a certificate of authorization, issued by the Ministère du Développement durable, de l'Environnement et des Parcs in accordance with section 22 of the *Environment Quality Act*. The same applies to any business wishing to modify its activities already in progress.

An operator applying for a certificate of authorization under the *Environment Quality Act* must also get a certificate from the registrar or the secretary-treasurer of the municipality where the site is located. In the case of an unorganized territory, the applicant must get a certificate from the regional county municipality confirming that the project is in accordance with all bylaws. In addition, in order to trade scrapped road vehicles and parts from these vehicles, the company must hold a dealer and recycler licence issued by the Société de l'assurance automobile du Québec.

L'Association des Recycleurs de Pièces d'Autos et de Camions (ARPAC) is the largest organization of vehicle recyclers in Quebec, with 85 members. These automotive recyclers are inspected on an annual basis. ARPAC uses a comprehensive guide called *Guide de bonnes pratiques pour la gestion des véhicules hors d'usage*, prepared by the Ministère du Développement durable, de l'Environnement et des Parcs, when completing an inspection of an automotive recycler.

The ARPAC inspection focuses on the removal, storage, and management of the following hazardous materials:

- waste oils;
- fuels;
- antifreeze;
- windshield washer fluid;
- lead–acid batteries;
- oil filters;
- automobile components containing mercury;
- air conditioning system refrigerants;
- non-deployed airbags;
- used solvents;
- contaminated absorbents;
- sandblasting residues; and,
- sludge, accumulated in the oily water treatment systems.

5.3.2 Ontario

The Ontario Automotive Recyclers Association had implemented a voluntary program for its Members entitled O-CAR – the Ontario Certified Auto Recycler supported by a code of practice based on the province's environmental legislation.

The Ontario code focused on all the hazardous residuals outlined in the CAREC. As with all provincial associations, OARA Members, through

their affiliation with the Automotive Recyclers of Canada, now follow the CAREC and have been audited to attain a 75% score or greater.

More information on O-CAR is available at <http://oara.com/>

5.3.3 Alberta

The Alberta Automotive Recyclers and Dismantlers Association has developed a comprehensive Best Yard Guide to help automotive recyclers and dismantlers.

The guide outlines best management practices for:

- fuels (gasoline, diesel, propane);
- motor oil;
- transmission fluids;
- brake fluids;
- power steering fluids;
- antifreeze;
- air conditioning fluids;
- batteries;
- tires; and
- spill response and equipment.

5.3.4 British Columbia

The Automotive Recyclers' Environmental Association (AREA) has developed and implemented CAREC, in order to meet all the federal and provincial regulatory requirements.

Under the *B.C. Vehicle Dismantling and Recycling Industry Environmental Planning Regulation*, automotive recyclers are required to prepare an environmental management plan that:

- describes how the hazardous materials listed in Section 5 are stored, treated, recycled, or disposed of, in compliance with the *Environmental Management Act* and applicable regulations;
- sets out the management processes for minimizing or eliminating the discharge of wastes to the environment and includes a contingency plan documenting procedures to be followed during an emergency; and
- has been reviewed and approved by a qualified professional.

For more information about AREA's Environmental Program in British Columbia, go to www.area-bc.ca.

5.4 Local Governments

In addition to the federal and provincial/territorial laws, there are a variety of bylaws enacted by local governments as part of solid waste management planning requirements. Recyclers should be aware of and comply with local bylaws that affect their business. Local government environmental bylaws typically focus on:

- non-hazardous materials such as cardboard, paper, and brush;
- discharge levels to storm or sewage systems; and
- aesthetic or noise requirements.

6.0 Canadian Auto Recyclers' Environmental Code

The Canadian Auto Recyclers' Environmental Code (CAREC) is organized by hazardous material and then by processing area.

6.1 Reuse and Resale

The automotive dismantlers and recyclers should reuse high-quality tires, batteries and parts from vehicles as part of the Green Recycled Parts program.

6.2 Administration

6.2.1 Records

Records/documents relating to the transportation and manifesting / documenting of waste oil, waste antifreeze, and lead-acid batteries must be kept and accessible on site for two years.

Because waste oils, antifreeze and lead-acid batteries are considered Dangerous Goods under the Transportation of Dangerous Goods Act or hazardous waste (or equivalent terminology) under Provincial/Territorial regulations, the recycler must use a licensed transporter for all shipments. A licensed transporter will have trained drivers, appropriate licensing and most importantly environmental insurance in the event of an accident or spill. The licensed transporter must describe the quantity of hazardous materials transported from the site and the recycler must keep those records on site for two years.

For those Provinces that require certified refrigerant technicians, records of the technicians must be kept on site for a minimum of two or three years depending on the Province.

Recycler must disclose number of vehicles processed in a year so that waste volumes can be calculated and compared to the quantities of hazardous wastes transported by licensed transporters.

6.2.2 Training

All automotive recyclers must attend (either online or in person) the training program provided through the program. The training program will summarize the legal and operational requirements and will provide practical best management practices for participants to continually improve their business. Ideally, all employees involved in the management of hazardous materials will take the environmental training.

6.2.3 Licences and Approvals

Certified automotive recyclers must keep on site a copy of all Provincial (e.g., Alberta recyclers must keep a copy of their AMVIC licence) and local government licenses (e.g., business licenses).

6.3 Spills

All automotive recyclers experience leaks and spills as part of the day-to-day operation of their yard. However, they should also take action to prevent leaks and spills by developing an Emergency Management Plan and training their staff to clean up spills and modifying their operations to prevent spills. It takes time to clean up leaks and spills and to dispose of the contaminated soils and absorbents and it costs money for disposal. Prevention of leaks and spills will save money and time!

6.3.1 Leaks

Leaks must be cleaned up on a regular and frequent basis so that surface runoff or groundwater is not contaminated.

If the leak occurs on an impermeable surface, absorbent material should be used to recover the hazardous liquid. If the leak occurs on a permeable surface, the soil should be dug up with a shovel and managed in an appropriate manner.

Normally, the soils containing hazardous materials are considered Contaminated Soils and recyclers are required to clean up leaks and so that runoff and groundwater is not contaminated.

6.3.2 Small Spills

A small spill is defined as a small volume of hazardous fluid that is not required to be reported to Provincial authorities. Like leaks, small spills must be cleaned up immediately.

If the small spill occurs on an impermeable surface, absorbent material should be used to contain and recover the hazardous liquid. If the spill occurs on a permeable surface, the soil should be dug up with a shovel and managed in an appropriate manner.

Employees should be trained to notify the owner or manager if they discover or cause a small spill.

Owners and managers should review the effectiveness of existing operating and emergency procedures after each small spill. Changing an operation so as to prevent small spills will save time and money for a recycler.

6.3.3 Large Spills

Large spills must be reported to provincial/territorial and municipal authorities. If the spill occurs in a fish-bearing stream or it damages fish habitat, it must be reported to federal authorities as well.

Every site must have a current Emergency Management Plan.

Every effort should be made to contain large spills and prevent hazardous liquids from leaving the property and entering the environment. Berms or secondary containment systems are the best method of preventing large spills from migrating off site.

If a large spill occurs on an impervious surface, absorbent material should be used to recover the hazardous liquid. If the spill occurs on a permeable surface, the contaminated soil should be disposed of in an appropriate manner.

Employees should be trained on how to respond to all spills and should have access to adequate protective equipment.

Provincial/territorial department of environment and municipal emergency phone numbers should be posted in a conspicuous place for easy reference during an emergency.

6.4 Hazardous Materials

6.4.1 Waste Oil

There are approximately 8 to 10 litres of waste oil in the average vehicle. Most provinces have a used oil management program that will assist automotive recyclers to transport and recycle the oil safely.

- Leaks and spills of waste oil must be cleaned up.
- Shipments of waste oil must be manifested (and/or recycling dockets manifested or equivalent) and transported by a licensed transporter if the quantities exceed provincial/territorial thresholds.

- Waste oil must be recycled or burned for energy recovery in an approved provincial/territorial facility.
- Records relating to the transportation of waste oil must be accessible on site for two years.
- The offsite discharge from an oil/water separator must be clear and meet provincial/territorial/local government guidelines and standards if applicable.

6.4.2 Waste Antifreeze

Antifreeze that can be resold or reused is not considered waste and is not subject to the transporting, reporting, or documenting sections of CAREC.

- Leaks and spills of waste antifreeze must be cleaned up.
- Shipments of waste antifreeze must be manifested (and/or recycling dockets manifested or equivalent) if the quantities exceed provincial/territorial thresholds.
- Records relating to the transportation and manifesting of waste antifreeze must be kept on site for two years.

6.4.3 Refrigerants

All end-of-life vehicles with air conditioning units must be tested for the presence of refrigerants by a Certified Refrigerant Technician and all refrigerant must be removed as per the provincial/territorial regulations relevant to their facility.

At a minimum, recyclers must track and identify the vehicles have had refrigerants and be able to demonstrate if the refrigerant was reused or disposed.

6.4.4 Other Fluids

There are a variety of other fluids (i.e., brake fluid, transmission fluid, power steering fluid, and windshield washer fluid reservoirs) that must be recovered and recycled.

- Windshield washer fluid that can be resold or reused is not considered waste and is not subject to the manifesting and reporting requirements of the code.
- Brake, transmission, and power steering fluid must be removed and should be mixed with waste oil.

6.4.6 Lead and Waste Lead–Acid Batteries

Lead–acid batteries, tire weights, and lead battery cable connectors are the primary sources of lead in end-of-life vehicles.

- Reusable lead–acid batteries should be resold and reused where possible.
- A licensed waste transporter must be used for shipments of waste lead–acid batteries and a shipment manifest (and/or recycling docket or equivalent) if required by the Provincial authorities.
- Lead battery cable-ends must be removed before hulk crushing and must be recycled.
- Lead tire weights must be removed before hulk crushing and must be recycled.

All lead products must be stored in containers under cover.

6.4.7 Tires

Tires come in a variety of shapes and sizes and can be resold if there is sufficient tread.

- piles of scrap tires should contain less than 500 tires and less than 1,000 scrap tires should on site at any given time.
- Tires must be removed from the hulk before shredding.
- Scrap tires must be sent to an appropriate recycling facility for processing.
- Space-saver tires must be treated in the same manner as scrap tires.

6.4.8 Mercury

Mercury switches are common in convenience lights under the hood and in the trunk as well as in some ABS anti-lock brake sensors.

Import automotive and North American manufacturers ceased using mercury convenience switches in the mid-1990s and in 2003, respectively.

Automotive recyclers must be enrolled in the Mercury Switch-Out Program or equivalent.

Switches must be submitted to Mercury Switch-out every 6 months.

6.4.9 Soils, Absorbents and Rags

Every automotive recycler will accumulate a variety of materials that contain oil, lubricants, and antifreeze.

- soils, absorbents and rags that contain oil, antifreeze, or other hazardous fluids must be stored in appropriately covered and labelled containers.
- Soil, absorbents, and rags can be stored together if allowed by Provincial regulation.

- Disposed oils, absorbents and rags must be managed appropriately.

6.4.10 Hybrid Batteries

Automotive recyclers should sell used hybrid batteries or return them to the local dealership and receive a core charge for the valuable metals within the battery. The local dealership will also provide important safety information on the disconnecting and removal of hybrid batteries.

Hybrid batteries must be removed before crushing or shredding.

6.5 Automotive Recycler Processing Areas

This section presents CAREC based on the different processing areas at a typical automotive recycler. As some automotive recyclers do not crush or store hulks on their property, relevant sections of CAREC do not apply to them.

6.5.1 Receiving Area

The receiving area is where the vehicles are parked and wait to be moved into the dismantling area for processing.

- All leaks and spills must be cleaned up;
- Oil-contaminated absorbents and soils from spills must be managed in an appropriate manner;
- Runoff from the receiving area must not be contaminated;
- Adequate spill kit must be accessible;
- All vehicles must be checked for leaks when they arrive.

6.5.2 Dismantling Area

The dismantling area is the primary location where fluids and wet parts are removed.

- The area must have an impermeable surface (typically concrete).
- The area must have at least one covered dismantling area to keep precipitation away from the inevitable spills and leaks;
- The area must be high enough to avoid flooding during normal precipitation events.
- Oil-contaminated absorbents and rags must be managed in an appropriate manner.
- Gasoline can be removed outside the dismantling area to avoid risk of fire. Fuel should be removed in a well-ventilated area, and spilled fuel must be cleaned up immediately. Propane or natural gas that cannot be reused should be flared outside the dismantling area.
- All leaks and spills must be cleaned up;

- Adequate spill kit must be accessible.

6.5.3 Hulk Storage Area

Once the hazardous materials have been removed in the dismantling area, the hulk is either crushed or, in the event a part or component can be sold, stored in the hulk storage area. The hulk storage area cannot be located in or connected to a wetland or watercourse.

- Hazardous materials must have been removed from the hulk before it is stored in the hulk storage area.
- Leaks and spills must be cleaned up.
- Runoff from the hulk storage area must not be contaminated with oil, antifreeze, or other fluids.

6.5.4 Crushing Area

Most of the larger automotive dismantlers and recyclers have an area where they stack hulks and crush prior to transportation to the steel recycler. Smaller automotive recyclers simply transport vehicle hulks to the metal recycler without crushing. The crusher area cannot be located in or connected to a wetland or watercourse.

- All hulks being crushed must have had all hazardous materials removed.
- Spills of fluids in the crusher area must be cleaned up;
- Runoff from the crusher area must not be contaminated with oil, antifreeze, or other fluids.
- Adequate spill kit must be accessible.
- Oil-contaminated absorbents and soils from spills must be managed in an appropriate manner.

6.5.5 Wet Parts Storage Area

Wet parts are parts that have contained hazardous liquids, such as engines, radiators, transmissions, and power steering units. Note that leaking differentials must be treated as wet parts and that drained wet parts can be left on hulks in the hulk storage area.

- Wet parts storage areas must be covered.
- All leaks and spills must be cleaned up.
- Adequate spill kit must be accessible.

6.5.6 Hazardous Fluid Storage Area

The storage of hazardous fluids is of primary concern to automotive recyclers because of the risk of small and large spills. Hazardous fluids should be stored in secure area to prevent accidents and vandalism.

Hazardous fluids must:

- be stored in labelled containers with secondary containment;
- spills in the Hazardous Fluid Storage Area must be cleaned up;
- Adequate spill kit must be accessible.

6.6 Equipment and Infrastructure

6.6.1 Spill Kit(s)

Automotive recyclers must have a spill kit in the receiving, dismantling, wet parts storage and hazardous fluids storage areas that is adequate to deal with a small or large spill.

Contaminated spill supplies must be managed in an appropriate manner.

6.6.2 Oil/Water Separators

Many automotive recyclers have oil/water separators on site. In general terms, oil/water separators are used to intercept runoff from a site and to separate any oil and allow solids to settle.

- Debris and sludge must be removed as required and transported to a disposal facility (if required) by a licensed transporter and records kept for two years.
- Discharge must be visually inspected twice per year to ensure the oil/water separator is working properly.
- The discharge from an oil/water separator must be below applicable provincial/territorial water quality thresholds.

6.6.3 Solvent Tanks

Many automotive recyclers use solvents to clean parts prior to shipping.

- Spills from the solvent tank must be cleaned up.

6.6.4 Pressure Washers

Many automotive recyclers have pressure washers to clean parts prior to shipping.

- Oil and grease from the over-spray must be cleaned up and managed in an appropriate manner.
- Emulsifying agents (soaps) must not be used if the waste water discharges to an oil-water separator.

6.6.5 Equipment

Every automotive recycler has equipment such as loaders or forklifts to load and move vehicles and hulks in the yard. The forklifts and loaders frequently leak oil, antifreeze, and hydraulic fluid.

- Leaks and spills from equipment must be cleaned up and the soils managed in an appropriate manner.

6.7 Runoff

Rain and snow management are important considerations for automotive recyclers. Heavy precipitation events, snow accumulation, and fire fighting activities can result in surface runoff that causes hazardous materials and deleterious substances to migrate to sewer systems or the environment.

With respect to snow, automotive recyclers must ensure that snow contaminated with hazardous materials should be cleaned up immediately. Contaminated runoff should be treated prior to discharge to sewer or the environment. Filtration of contaminants through absorbent pads or oil/water separators is considered adequate.

With respect to rain, automotive recyclers must ensure that runoff from the property does not contain hazardous materials or deleterious substances. Contaminants must be filtered through a treatment system, oil/water separator, or absorbent pads to prevent the off-site migration of hazardous materials.

With respect to fire fighting activities (e.g., runoff from a tire fire), automotive recyclers must work with responding municipal, provincial/territorial, and federal officials to minimize the amount of deleterious material that migrates off site and enters the environment.

6.8 Metal Recyclers

Metal recyclers collect vehicle hulks from automotive recyclers and scrap processors, and shred the hulks into fist-sized pieces. The output from the shredder is ferrous metal, non-ferrous metal (including copper and aluminum), and shredder residue. The shredder residue from automobiles consists of glass, wood, rubber, and plastics (including foam).

Automotive recyclers should sell vehicle hulks only to metal recyclers that are approved through the Automotive Recyclers of Canada.

The approved metal recyclers will:

- be in compliance with all federal, provincial/territorial, and local government laws and regulations;

- ensure all vehicles, regardless of their source, are free from waste materials identified in this code;
- properly dispose of automotive shredder fluff and automotive shredder residue; and,
- have programs in place to minimize automotive shredder fluff and automotive shredder residue.

7.0 Benefits of CAREC

There are a variety of benefits of CAREC. The top five benefits are outlined below. In short, good environmental practice and prevention of pollution is good for business!

7.1 Regulatory:

CAREC is an invaluable tool to translate the Federal and Provincial legal requirements associated with the removal, storage and transportation of hazardous materials into plain language.

The plain language of the CoP provides a common understanding of the regulatory requirements to both the automotive recycler and the regulatory authorities. The common understanding will ensure a consistent and fair application of CAREC.

7.2 Reduce Operating Costs:

CAREC incorporates the concepts of Pollution Prevention. For automotive recyclers, the most important pollution prevention measure is the prevention of leaks and spills.

Having drip pans for receiving areas, secondary containment for waste fluids, removing fluids in covered dismantling area are all simple measures that can be implemented to prevent leaks and spills from entering the environment.

When implemented, pollution prevention strategies will reduce environmental costs associated with your business and that will prevent costly clean-up of the facility and make your business more profitable.

7.3 Financial:

The Canadian Bankers Association and the Insurance Bureau of Canada concluded several years ago that businesses with good environmental performance are a lower risk and that lower risk means these companies should receive lower interest and insurance rates. This means that automotive recyclers following CAREC are a lower risk and should receive lower interest and insurance rates.

7.4 Reduce Environmental Liability:

Every province has contaminated sites regulations that require the owner or the lease holder responsible for all contamination on site. Contamination of soils and groundwater occurs when leaks and spills are not cleaned up.

Unfortunately, leaks and spills are part of the day-to-day operations of an automotive recycler and frequently the primary source of leaks is the machinery (e.g., loaders and forklifts) – not necessarily end-of-life vehicles.

Implementation of pollution prevention practices at the facility and the regular clean up of leaks and spills that do occur will reduce the environmental liability of the property. Most automotive recyclers own their own property and the preservation of the property's value is a priority.

7.5 Ongoing Support

The Automotive Recyclers of Canada (ARC) are committed to helping automotive recyclers understand the legal requirements for your province. ARC members can receive ongoing support from ARC on any environmental question and how it pertains to your operation.

Appendix 1: Federal Environmental Laws and Regulations

Introduction

There are several federal legislative and policy requirements that automotive recyclers must respect in the code for automotive recyclers.

The federal acts that have a bearing on the activities of automotive recyclers are the:

- *Transportation of Dangerous Goods Act, 1992*;
- *Canadian Environmental Protection Act, 1999 (CEPA)*;
- *Indian Act*; and
- *Fisheries Act*.

Within CEPA , there are several regulations that could have a bearing on the work of automotive recyclers. The germane regulations under CEPA are:

- *Ozone-depleting Substances Regulations, 1998*;
- *Federal Halocarbon Regulations, 2003*;
- *Interprovincial Movement of Hazardous Waste Regulations (2002)*;
- *Export and Import of Hazardous Waste and Hazardous Recyclable Material Regulations (2005)*; and
- *Environmental Emergency Regulations (2003)*.

In addition, the automotive recyclers located on lands owned by the federal government (including reserves set apart for the use and benefit of a band under the *Indian Act* and treaty lands) are subject to the Treasury Board Federal Contaminated Sites and Solid Waste Landfills Inventory Policy. The automotive recyclers on reserves under the *Indian Act* are subject to the Contaminated Sites Policy of Indian and Northern Affairs Canada.

Application

The following text cites various federal policies, acts, and regulations that could have an impact on the work of automotive recyclers. Most automotive recyclers are located on provincial lands; however, some are located on federal lands, including reserves under the *Indian Act*. The following table provides a summary of the federal policies and legislation that apply, depending on the location of the property.

Applicability of Federal Policies, Acts, and Regulations

Jurisdiction	Federal Policies	Federal Acts	Federal Regulations
Provincial/territorial lands	Not applicable	Applicable	Applicable
Federal lands north of the 60th parallel (including reserves under the <i>Indian Act</i>)	Treasury Board Federal Contaminated Sites Policy; Indian and Northern Affairs Canada Contaminated Sites Management Policy	Applicable	Applicable
Treaty lands	Not applicable	Applicable	Applicable

Based on the above table, automotive recyclers located on either provincial/territorial or federal land must comply with federal acts and regulations. In addition, automotive recyclers located on federal lands north of the 60th parallel must comply with the Treasury Board Contaminated Sites Policy and the Indian and Northern Affairs Canada Contaminated Sites Management Policy (if applicable).

Federal Policies

Treasury Board of Canada Secretariat

The Treasury Board Federal Contaminated Sites and Solid Waste Landfills Inventory Policy is the only environmental policy that would affect automotive recyclers located on federal lands.

The policy requires that custodial departments establish and maintain a database of contaminated sites on their lands. The information is provided to the Treasury Board of Canada Secretariat for incorporation into the Federal Contaminated Sites Inventory.

Indian and Northern Affairs Canada

The Indian and Northern Affairs Canada (INAC) Contaminated Sites Management Policy provides an appropriate level of direction in order to meet

the requirements of the Treasury Board while supporting the principles of the INAC Sustainable Development Strategy.

The policy is intended to provide guidance on the management of contaminated sites located on reserve lands, on federal lands north of the 60th parallel, and on any other lands for which INAC has custodial responsibility. INAC is committed to managing contaminated sites in a cost-effective and consistent manner in order to reduce and eliminate, where possible, risk to human and environmental health and liability associated with contaminated sites.

Automotive recyclers on reserves under the *Indian Act* would be affected by this and related INAC policies.

Federal Legislation

Transportation of Dangerous Goods Act, 1992

In Canada, no person shall handle, offer for transport, transport, or import on Federal roads and highways any dangerous goods unless

- (a) the person complies with all applicable prescribed safety requirements;
- (b) the goods are accompanied by all applicable prescribed documents;
- and
- (c) the means of containment and transport comply with all applicable prescribed safety standards and display all applicable prescribed safety marks.

The federal *Transportation of Dangerous Goods Regulations* provide the specific requirements for automotive recyclers (or their contractor) that are transporting oils, mercury, or lead–acid batteries. Used oil is a Class 3 Dangerous Good, while mercury and lead–acid batteries are Class 8 Dangerous Goods. All three substances are categorized in Packing Group 3, indicating that while the hazard level is low, adequate precautions (as outlined in this code) are required by the licensed transporter.

The *Transportation of Dangerous Goods Act, 1992* is an important piece of legislation; however, the number of federal roads in Canada is limited. The Trans-Canada Highway is the best example of a federal road. Most other roads are under provincial jurisdiction; legislation at the provincial/territorial level provides equivalency.

Canadian Environmental Protection Act, 1999

The *Canadian Environmental Protection Act, 1999* (CEPA) has a variety of sections and associated regulations that are germane to activities carried out by automotive recyclers.

CEPA states that the protection of the environment is essential to the well-being of Canadians and that the primary purpose of CEPA is to contribute to sustainable development through pollution prevention. Pollution prevention includes the appropriate management of toxic products used by automotive recyclers and the toxic substances that should be removed from end-of-life vehicles.

Schedule 1 of CEPA lists all substances that have been determined to be toxic as defined by the act. The following compounds that may be associated with automotive recycling are found in Schedule 1:

- chlorofluorocarbons (e.g., CFC-12);
- carbon tetrachloride solvents;
- lead;
- mercury; and
- volatile organic compounds, including methane and HFC-134a.

There are provisions in CEPA to manage toxic substances. These provisions include the authority to create regulations and to use non-regulatory management approaches such as pollution prevention planning (Part 4) and environmental emergency planning (Part 8).

On December 29, 2007, the Minister of the Environment issued a notice in the *Canada Gazette* requiring that vehicle manufacturers and steel mills prepare and implement pollution prevention plans to deal with releases of mercury from mercury switches in end-of-life vehicles processed by steel mills. The focus will be on the recovery of mercury switches located in hood and trunk convenience lights and in anti-lock brake sensors.

In addition to the recent notice for mercury, there are four regulations under CEPA that govern the management of hazardous materials by automotive recyclers. The four regulations are:

- *Federal Halocarbon Regulations, 2003*;
- *Ozone-depleting Substances Regulations, 1998*;
- *Interprovincial Movement of Hazardous Waste Regulations*; and
- *Export and Import of Hazardous Waste and Hazardous Recyclable Material Regulations*.

Federal Halocarbon Regulations, 2003

The *Federal Halocarbon Regulations, 2003* apply only to recovery systems that are owned by the Crown or are located on federal lands or lands subject to the

Indian Act. The regulations set the terms and conditions under which automotive recyclers on federal lands and lands under the *Indian Act* recover refrigerants in end-of-life vehicles. The regulations state that no person shall release or allow or cause the release of a halocarbon unless the release results from the purge system and emits less than 0.1 kg of halocarbons per kilogram of air purged to the environment.

The regulations cover both CFC-12 and HFC-134a.

Ozone-depleting Substances Regulations, 1998

The *Ozone-depleting Substances Regulations, 1998* are the primary implementation mechanism for *The Montreal Protocol on Substances That Deplete the Ozone Layer*. The regulations control the import and export of refrigerants from Canada; they apply to CFC-12 but not to HFC-134a.

The regulations state that no person shall:

- import a controlled substance (e.g., CFC-12) from a country or export a controlled substance to a country that has not signed the Montreal Protocol;
- import, without a permit (issued under paragraph 33(1)(a) of the same regulations), a controlled substance that is recovered, recycled, reclaimed, used, or for destruction; or
- export a controlled substance without a permit (issued under paragraph 33(1)(b) of the same regulations).

Automotive recyclers should ensure that if they (or their contractor) remove CFC-12 from end-of-life vehicles, the general provisions of the *Ozone-depleting Substances Regulations, 1998* are followed. This includes determining the fate of the CFC-12 after it is removed from the vehicle.

Fortunately, the use of CFC-12 was banned in 1995 and it is found only in vehicles that were manufactured prior to that year. As a result, vehicles with CFC-12 are becoming rare, and, in time, these sections of the regulations will not be relevant to automotive recyclers.

Interprovincial Movement of Hazardous Waste Regulations

The *Interprovincial Movement of Hazardous Waste Regulations* apply to the transport within Canada of hazardous waste. The regulations may apply to the interprovincial transportation of 5 litres or more of used oil or 5 kilograms or more of mercury or lead–acid batteries (*Transportation of Dangerous Goods Act, 1992* Class 8), among other substances.

The regulations require that no person shall transport the above quantities of used oil, mercury, or lead–acid batteries within Canada unless the waste is accompanied by a manifest in accordance with these regulations.

The vast majority of automotive recyclers contract the transportation and disposal of hazardous substances to waste management contractors. It is possible that the waste management contractors could transport the hazardous materials across provincial borders. As a result of this possibility, automotive recyclers must know the fate of the hazardous materials generated on site and ensure that waste management contractors are in compliance with the provisions of the *Interprovincial Movement of Hazardous Waste Regulations* if the materials are to be shipped across provincial borders.

Export and Import of Hazardous Waste and Hazardous Recyclable Material Regulations

The purpose of the *Export and Import of Hazardous Waste and Hazardous Recyclable Material Regulations* is to protect Canada's environment and the health of Canadians from the risks posed by the transboundary movement of hazardous wastes and hazardous recyclable materials through exports from and imports into Canada and to meet Canada's international obligations. The regulations replace the former *Export and Import of Hazardous Wastes Regulations* adopted in 1992 under the authority of the former *Canadian Environmental Protection Act* (1988).

Automotive recyclers typically contract with waste management companies to manage and dispose of their hazardous materials. It is possible that the waste management companies could export hazardous substances across international borders.

As a result of this possibility, automotive recyclers must know the fate of the hazardous materials generated on site and ensure that waste management contractors are in compliance with the provisions of the *Export and Import of Hazardous Waste and Hazardous Recyclable Material Regulations* if the materials are to be shipped across international borders.

Indian Act

The *Indian Act* is the primary instrument providing for the management of affairs on reserves. The *Indian Act* authorizes the government to make regulations concerning certain aspects of environmental protection.

Indian Reserve Waste Disposal Regulations

Waste disposal on reserves is currently regulated by the *Indian Reserve Waste Disposal Regulations*, which require a permit issued by Indian and Northern Affairs Canada or a band council to operate a dump, to use a site for waste disposal or storage, or to burn waste on reserves.

Automotive recyclers intending to establish waste disposal or storage areas on reserves under the *Indian Act* are required to obtain such a permit.

Fisheries Act

The *Fisheries Act* provides for the protection of fish and fish habitat in Canada. The act is the federal legislation that has the greatest bearing on the activities of automotive recyclers as it simply prohibits the deposit of substances that are deleterious or harmful to fish under normal circumstances into fish-bearing waters.

In addition, section 38(4) requires automotive recyclers to report spills that deposit a deleterious substance in water frequented by fish and spills that damage fish habitat. The spills must be reported to an inspector or appropriate authority.

Automotive recyclers need to be aware of the provisions of the *Fisheries Act* and understand that most hazardous materials used on site or recovered from end-of-life vehicles are harmful to fish. A simple rule of thumb is that if the product has or had a consumer or Workplace Hazardous Materials Information system (WHIMS) poison symbol on the label, the product is deleterious and harmful to fish.

Automotive recyclers must be aware that virtually every stream, tributary, and ditch is considered a fish-bearing stream by Fisheries and Oceans Canada. The runoff of hazardous products to ditches, storm drains, and small streams eventually ends up in fish-bearing waters, and the automotive recycler responsible for the release of the hazardous substance would consequently be in violation of the *Fisheries Act*.