



Healthy Villages Project
Solutions for Hazardous Waste in Alaska
Native Villages



Native Village of Selawik
December 2006





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Native Villages

Prepared by
Zender Environmental Science and Planning Services

For
The Native Village of Selawik


Funded by the Environmental Protection Agency
December 2006



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Introduction/Overview



December 30, 2006

Dear Reader,

The community of Selawik welcomes you to this guide and we hope you find it helpful. As Inupiat, our environment is who we are. Like Villages throughout Alaska, we care deeply about how our community affects the environment. It is very difficult for us to manage wastes properly here. We have no gravel access, and are on a tundra boardwalk system. We are isolated from roads, the barge can be unpredictable and expensive, and our regional infrastructure for recycling and backhauling is not developed. But after we learned more about how our wastes can affect our community health, and how concerns about our wastes affect our peoples' subsistence way of life, we began to build a hazardous waste program.

The USEPA kindly gave us funding to develop this guide for other villages so that they could begin their programs as well. We have a long way to go before our community is fully safe from wastes. But we feel good about what we have accomplished. We will continue to work on the all the obstacles we face daily. Those obstacles are well-known to most of our Alaska Native villages. Only those who live in a village can appreciate how big each step can be and how long it can take.

Sincerely,

The Native Village of Selawik



Funding and Development



This Guide has been funded by the Native Village of Selawik through the EPA Tribal Hazardous Waste Program Management Grant. We wanted to develop a guide that would be useful for rural Alaska Villages. So we gathered information by talking to Native Villages around Alaska and listening to their hazardous waste issues and concerns.

The materials in this guide were developed by Zender Environmental. Some of the materials were funded through Central Council of Tlingit and Haida Indian Tribes of Alaska SWAN (Solid Waste Alaska Network) program, and ITEP's Solid Waste Technical Assistance program. Some time and materials were donated additionally by Zender Environmental.



How to Use This Guide



How to find information

This guide is organized into different sections based on hazardous wastes topics. For an overview of all the sections, see our Table of Contents on page 1. We have also included an A-Z index in the back of this guide if you want to look up specific hazardous waste information quickly. **CLICK HERE** to go to the index.

Because there is a lot of useful information about hazardous wastes on the web, we have included several weblinks in this guide. If you are reading this guide on a computer (either from a cd or from a website) you will be able to click on the links. This will take you to the websites. If you are reading this guide on a paper hardcopy, you can type in the links into your computer. However, if you would like to view the weblinks by just clicking, you may obtain an electronic version of the guide by:



- 1) To access the internet this Guide on the internet, go to <http://www.zendergroup.org/haz.htm>
- 2) If you don't have access to the internet, or your connection is too slow to download, request the **cd version** of this guide. Please email either raven.sheldon@akuligag.org or ssebalo@zendergroup.org.

Note: To read the **cd or internet** Guide you must have a program called **Adobe Reader** on your computer (because this guide is a "pdf" document). If you don't have Acrobat Reader, go to <http://www.adobe.com> - it's free and doesn't take long to download. If you are not sure you have it, it is okay to download it anyway.

Once you click a weblink, you will leave the Guide and go to that website. If you want to get back to the Guide, click the "back" button on your computer screen. You may need to click back a few times if you have gone to several other webpages.



Whom to Contact for Hazardous Waste Assistance



Whom to Contact for Hazardous Waste Assistance

Emergencies

If ever you have an emergency with hazardous wastes, you can call **911** or the Poison Control Center in Alaska at **1 (800) 222 1222**.

Spill Emergencies

The State of Alaska operates the Division of Spill Prevention and Response. They help communities respond to spills. Contact them at the nearest Response Office:

Area	Phone	FAX
Central (Anchorage)	269-3063	269-7648
Northern (Fairbanks)	451-2121	451-2362
Southeast (Juneau)	465-5340	465-2237



Outside business hours at 1-800-478-9300. For more information on spills, see their website at: <http://www.dec.state.ak.us/SPAR/index.htm> .

If you can't find the answers to your hazardous waste questions in this Guide, or you would like to talk to someone in person, you can call the people listed below.

Agencies

The State of Alaska does not have a hazardous waste program, so federal hazardous waste regulations apply. The federal program is managed by EPA. For general hazardous waste questions, you can call **271-6329** or **(206) 553-1128**. You can also call the toll free number **1 (800) 424-4EPA** and ask for **Jon Jones** or **Maria Tartaglia** (they are the designated hazardous waste staff for EPA Region 10). Their direct contacts are:

Jon Jones (Anchorage): (907) 271-6329 jones.jon@epa.gov

Maria Tartaglia (Seattle) (206) 553-1128 tartaglia.maria@epa.gov

For specific hazardous waste questions, you can use the list below:

Note: you can also call the toll free number **1 (800) 424-4EPA** and ask for any of the people listed below

Program/Topic	Name	Phone Number
24 Hour Emergency Cleanup Response		1 (800) 424-8802
Report Illegal Dumping Activity		1 (206) 553-8306
Hazardous Waste Complaints	Jon Jones	1 (907) 271-6329
Hazardous Waste Technical Assistance	Jon Jones	1 (907) 271-6329
Asbestos in School Buildings	John Pavitt Jayne Carlin	(907) 271-3688 1 (206) 553-8512

Asbestos in Demolished or Renovated Buildings	Armina Nolan	1 (206) 553-0530
Lead	Barbara Ross Bob Kirkland	1 (206) 553-1985 1 (206) 553-8282
PCB's (polychlorinated biphenyls)	Michelle Mullin	1 (206) 553-1616
Underground Storage Tanks	Robert Rau	1 (206) 553-6285
Voluntary Cleanup Action Assistance	Jan Palumbo	1 (206) 553-6702

Other Villages

Often, talking to Villages about their hazardous waste solutions can be the best way to get information. We have a couple of suggestions when looking to contact other Villages.

- 1) **Call people you know in your neighboring communities.** You may be able to get some good tips from local communities. This can be a good way to find out about regional resources.
- 2) **Look at the SWAN Database.** The Solid Waste Alaska Network (SWAN) website has a list of solid waste contacts in all Villages. You can look up contact details by Village name at: <http://www.ccthita-swan.org/dbase/communityinfo.cfm>
- 3) **Post a message on the SWAN Village-to-Village Messaging System.** You can share hazardous waste ideas or ask questions on the SWAN's Message Board 24 hours-a-day! Your ideas or questions can be posted for all Villages to read. Other Villages can post replies to your ideas or questions. Messages can be posted without your name if you'd prefer. Here is the website: <http://members.boardhost.com/SWAN/>
- 4) **Call Larry Zirkle at Total Reclaim.** Total Reclaim in Anchorage has been assisting Villages with a few different types of hazardous wastes. They are accepting some wastes free-of-charge. Call them at (907) 561-0544 to ask them if they accept the types of wastes you have and if there is a fee. If they don't accept your wastes, they may be able to give you a name and number of someone that can help you. You can also email them at larryz@totalreclaim.com
- 5) **Call Zender Environmental.** Zender Environmental has worked with Villages state-wide on many waste projects. They will give you any information they have on-hand that can assist you, or they may know of another Village or person that can help you. Zender Environmental's contact details are: Phone: 907 277-2111 Email: lzender@zendergroup.org or ssebalo@zendergroup.org









Basics of Hazardous Wastes



Basics of Hazardous Wastes

What is a hazardous waste?

In the field of waste management, a waste is called "hazardous" if it has one or more of the following properties:

	<p>Flammable/Combustible/Ignitable: Can be easily set on fire.</p> <p>Examples: gasoline, kerosene, alcohol, oil</p>
	<p>Explosive/Reactive: Can detonate or explode through exposure to heat, sudden shock, or pressure.</p> <p>Examples: chlorine, drain cleaner</p>
	<p>Corrosive: Chemical action can burn and destroy living tissues or other materials when brought in contact.</p> <p>Examples: acid from lead-acid batteries</p>
	<p>Toxic: Capable of causing injury or death through ingestion, inhalation or skin absorption. Some toxic substances cause cancer, genetic mutations and fetal harm.</p> <p>Examples: pesticides, lead, antifreeze, oil</p>

You need to know: When hazardous wastes are combined, their properties can change. They can often become even more hazardous. An example is combining bleach and ammonia-based cleaners. **Never do this** - it can cause an explosion.

You need to know: The above definitions are what agencies use when they look at funding hazardous waste projects. But **waste doesn't need to be classified as "hazardous" to be hazardous to your health.** Honeybucket wastes, unclassified clinic wastes, and other wastes that attract disease vectors, might contain viruses and bacteria that can be very hazardous to your health if you are exposed to them. Handling them carefully and reducing exposure to them is very important. Many wastes create hazardous smoke when burned - on the ground or in a burnbox or burn-cage. Many of our wastes these days contain chemicals that are released when they are burned. Plastics are an example.

Why do we care about hazardous wastes?

When chemical products are poured on the ground or thrown into an unlined dump, they can drain through the soil or flow above-ground. Rain or snow can carry the toxic chemicals to ground or surface water. This water could be your drinking water source, a water source for animals, or a home for fish and marine mammals.



AND

Almost all of our communities have open dumps where people throw out their household hazardous wastes with their trash. So these chemicals can mix together, or be lit on-fire, outside of our control. A fire with hazardous waste will release very toxic smoke and often be more difficult to put out. Explosive reactions from mixed chemicals can injure people at the dump. Even when the dump doesn't catch fire, household hazardous wastes are typically placed into a burnbox. Burnboxes help some, but they still create **toxic smoke**, and are not intended for any hazardous wastes.



AND

Subsistence activities can be changed by FEAR ALONE of possible hazardous waste contamination. This serious concern is based on a health study by the Central Council of Tlingit and Haida Indian Tribes (CCTHITA) in YR 2001, and other surveys carried out in 2004 and 2006.

So it doesn't matter if the hazardous wastes are actually getting into our lands and waters. Seeing them at the dump and seeing people dump their batteries and used oil in subsistence areas is enough for people to change or reduce their subsistence activities. Subsistence cannot be separated from who we are. If we control our hazardous wastes, handle them properly, and educate our communities about their impact, **people might start practicing their subsistence activities more often** or be able to return to their traditional subsistence locations and practices. To view the health study, go to: http://www.ccthita-swan.org/main/site_closure_pdf/appB.pdf





Examples of Village Hazardous Waste Programs





What kind of hazardous waste programs other Villages have started?

A good way to start a hazardous waste program in your community is to see what other Villages have done. A few examples are listed below and in the following pages. Also check out the Village Success Story page on SWAN at <http://www.zender-engr.net/story.htm>

Our Hazardous Waste Program

Selawik has been building up their hazardous waste program over the past few years. We now have a used oil burner, materials exchange, and have backhauled out lead-acid batteries, fluorescent lights and computers. We trained 28 people in HAZWOPER using a Brownfield Job Training Grant through our City. In 2006, our Environmental staff put together an evaluation of our program so far. See http://www.zender-engr.net/sel_haz.htm for our Hazardous Waste Plan that we are working to implement fully over the next few years.

Staff Evaluation of the Selawik Hazardous Waste Program

How it Works

- Program is advertised on TV Scanner and VHF radio throughout community.
- Workers are hired to collect hazardous waste from homes and businesses.
- No drop-off is advertised because we don't want people just leaving stuff outside the shop.
- Materials are collected at heated shop then transferred to our storage and share Connex. Re-usable materials like household cleaners and recyclable backhaul wastes like batteries and lights and computers.

Batteries

- Boat and other lead acid batteries are double-bagged, picked up by staff and stored on palettes
- Household batteries are also picked up by staff.
- All batteries stored on shelves in Connex until backhauled.

Fluorescent Lights

- Picked up by staff and stored on shelves in Connex.

Used oil

- About 70 gal collected for the first year of program. We are getting more now.
- Bobcat is used to set 4-wheeler over used oil catchment barrel.
- The guys can easily undo the oil drain plug and refill oil tank.
- Fresh replacement oil supplied by owner.



- Staff will pick up oil from business owners.

What works

- Advertising program on Scanner (TV) and VHF
- Need to schedule a regular one day/month to accept or collect hazardous materials; this maximizes efficiency of labor costs
- If people have vehicles, they can bring own hazardous materials to shop
- If no vehicle, they can call ahead of collection day to schedule pick up
- Do as much collection as possible before freeze-up
- Host materials collection at shop, where it's warm and then move collected items to a Connex for storage
- Need to have a phone at shop (we don't yet)

What does not work

- Advertising acceptance of haz wastes and having no place ready to receive and process materials or no one available to manage collection.
- We can't let people use shop for personal vehicle repair. Vehicles left longer than one day makes shop unusable because it is small. Cannot remove vehicle to outside because we are then liable for damage to vehicle. Need to get people to sign waiver: so they can use one day; but if vehicle is not removed at end of day, it will be moved outside and IRA not be held liable for damages.
- Staffing the hazardous materials storage/exchange Connex in winter to accept materials is too cold (use shop to collect wastes, but during winter, this has to be limited)

If you would like more information about Selawik's hazardous waste program and setup, contact: Raven Sheldon, 907 484-2006 raven.sheldon@akuliqaq.org
Below and on the next page are photos of Selawik's hazardous waste program.



Photos of setting up the used oil burner and Selawik's storage shed



Photos of Selawik's Hazardous Waste Program, Continued





Togiak's Hazardous Waste Program

The Togiak Environmental Program has made a lot of progress with backhauling and recycling over the past couple of years. Clara Martin, Environmental Coordinator, and Phyllis Ayojiak, Environmental Assistant, have worked with the City of Togiak Solid Waste Department to institute a battery recycling program. Last year Togiak collected and flew out 3,300 pounds of batteries from their community. They are also flying crushed aluminum cans out through the ALPAR program. Residents can dispose of used oil by bringing it to the operator on staff at the City, as a used oil burner was purchased and heats the City shop. Twenty-one people in Togiak have had HAZWOPER training, and several have also been trained in Freon removal. They are looking for a funding source for a shed to store materials that are awaiting backhaul, as materials are currently stored in the environmental office and at the City.

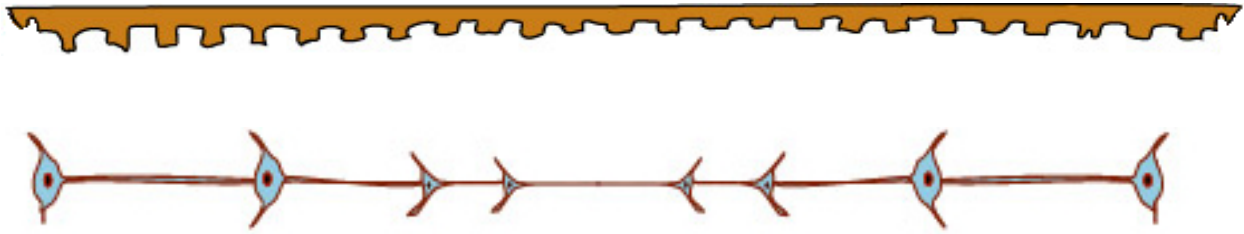
Togiak Haz waste program—Call Environmental Program at 493-5821.

Clara Martin, IGAP Coordinator

Phyllis Ayojiak, IGAP Assistant

togiakenvironmental@starband.net





Venetie

Through cooperation of many entities, the Native Village of Venetie Tribal Government has instituted a comprehensive backhaul and hazardous waste program. Venetie's Environmental Programs Coordinator joined forces with the Council of Athabascan Governments (CATG) to initiate the backhaul of white goods, lead-acid batteries, and hazardous wastes. Venetie's environmental staff attended Freon-removal training in Fort Yukon and began a **freezer pick-up service** in Venetie. He works independently or with CATG staff to remove Freon from the freezers, band, and palletize the white goods in preparation for transport. Residents can drop off other hazardous, batteries of all sizes, and electronics waste at a **village recycling center/transfer station** in Venetie. In addition, Venetie is a receiving organization for rechargeable batteries, and **they receive free shipment for rechargeable batteries** from RCBC (<http://www.rbcc.org/call2recycle/>).



Once prepared, all **materials are staged at the airport garage to be shipped**. There are generally three Everts cargo flights per year in the summer for a housing project in Venetie, and the **backhaul goods are sent out on the return flights to Fairbanks**. The Venetie Village Housing Organization equipment operator loads the goods onto the aircraft. From Fairbanks, the Yukon River Inter-Tribal Council (YRITC) transports the goods to Yutana Barge lines in Nenana, which ship the goods to Seattle for recycling.

Two electrical transformers containing PCBs have been found in Venetie. These were properly packaged in over-pack drums and shipped out. These appear to be the only PCB-containing transformers, but the environmental staff is still investigating the situation. The Native Village of Venetie also recently purchased a used oil burner. Heat produced from the burner heats a building at the airport that stores snow removal equipment.



If you would like more information about Venetie's hazardous waste program and setup, contact: Lance Whitwell, NVVTG/ANA Tribal Energy Programs, 907-849-8165 lancewhitwell@yahoo.com



Kiana

The Native Village of Kiana has a diversity of components in their environmental program including recycling/backhaul, hazardous waste collection, and re-use. Kiana's environmental staff has reduced litter in the village by collecting and brightly painting 53 drums and placing them around the village. The staff also transport accumulated scrap metal from the beach to the dump and hosts a spring clean-up event each year. **Households, businesses, and offices have been convinced to stop open burning in community through public education.** Now burn barrels are burned at the gravel pit outside of the village or the burn box located at the dump.



A building owned by the City of Kiana has been made into a temporary recycling center. Recyclables are stored here including aluminum cans, lead acid batteries, all types of appliances, electronics, ink cartridges, and plastic bottles. The aluminum cans are recycled through the ALPAR flying cans program. **Funds generated from the recycling go towards the annual spring clean up event, recycling containers, can crushers, and a community rewards program for recycling efforts.** Household battery collection containers were made out of plastic soda bottles and given to all households, and **boxes were built out of plywood for backhauling the batteries** by air back to Anchorage.



By collecting appliances such as washing machines and stoves at the recycling center, **Kiana residents are able to browse for spare parts** without having to go to the dump. **Environmental staff worked with the Kiana school and residents to collect computer,**

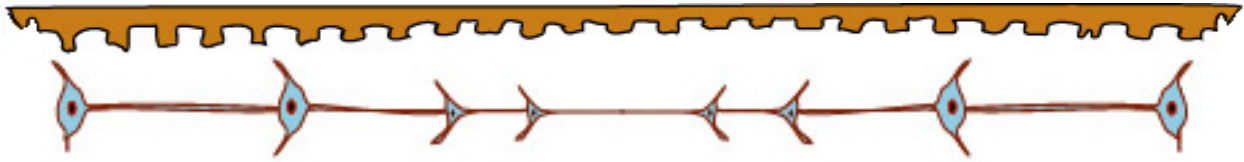
keyboards, monitors and other electronics to prevent them and the metals they contain from going into the dump. In addition, ink cartridges are collected from businesses, schools, households, and the clinic. These cartridges have been sent to a couple of vendors, the favorite being **Free Recycling** in California (www.freerecycling.com). For now, **plastic bottles are stored in recycling center** until they can be backhauled from Kiana at a later date. The temporary recycling center is so popular that it is in fact nearly full and some items are palletized outside. A grant was obtained from the BIA to help develop Kiana's recycling program.

Used oil has been collected since 2004. A waste oil burner was purchased with IGAP funds and heats the fire hall. **Cardboard from the village store are made into cardboard logs** to help heat residents' homes and the environmental building. Scrap wood is also located at the old fuel farm for people to use for heating or home projects. Permission was granted from the City to store scrap wood at this location for this purpose.

The Kiana Environmental staff is planning to host a Freon-certification program in the near future. **They are also in the process of installing a used oil blender system (WOTEC).**

If you would like more information about Kiana's hazardous waste program and setup, contact: Gloria Shellabarger, 475-2109 gshellabarger@zender-engr.net





Newtok

The Native Village of Newtok received an EPA Tribal Hazardous Waste grant in 2005 and has been working on building their program every since. **Newtok hosted a Freon Removal course** in their Village. Larry Zirkle from Total Reclaim was the trainer and several people from Newtok and surrounding Nelson Island Villages attended the training and got certified in Freon removal. **Newtok purchased Freon removal equipment through their grant and they have visited near-by Villages to remove Freon** from their freezers and refrigerators. See photos of their Freon removal course below or on the next page. Also through this grant, they got several staff HAZWOPER certified.



Newtok's certified technician getting ready to remove Freon, and photos from the training.



Through their hazardous waste program, Newtok has been collecting several different types of hazardous waste from the community and shipping it out for recycling. To this day, their hazardous department has sent away:

- 24 fluorescent bulbs - which contain mercury
- 23 e-wastes - which contain lead
- 57 e-waste accessories and still counting

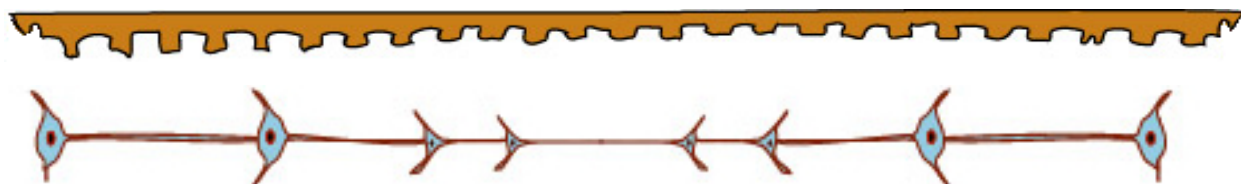
As hazardous wastes are collected, they are stored in a designated shed (see photos below). Batteries, used oil containers, e-wastes, lights, used paint, and aerosol cans are being collected and stored. With their grant funding, Newtok was also able to purchase an antifreeze recycler (brand: Kleen-tec/Kleer-flo). They are working on setting it up and looking for a trainer to properly train the staff on how to use it.

If you would like more information about Newtok's hazardous waste program and setup, contact: Dominic Charles, 237-2320 ilandxc@yahoo.com



Photos of Newtok's Hazardous Waste Shed





Chenega Bay

The Native Village of Chenega Bay has active backhaul and hazardous waste collection programs. With their annual Village Spring Clean-up, environmental staff held an electronics and household hazardous materials collection day. **Electronic equipment** such as computers, monitors, keyboards, copiers, TV's and VCR's were collected during this event. **Household hazardous wastes**, including old paints, solvents, and batteries, were also collected at this time. **Elders and those with health related problems could call the Environmental Office** to get their items picked up at their homes. This event has been successful for two years and is expected to continue. **Many community entities participate**--the Clinic has donated rubber gloves, the Chugachmiut and Chenega Corp. donated gifts and prizes, and the Chenega Tribal Council loaned their ATV and trailer.

With the assistance of a certified HazMat technician from PSC Environmental, all the materials collected were separated by type, counted, properly packaged for shipping, and stored in the Haz Mat Shack until the summer. IGAP funds were used to purchase HazMat collection barrels to package household hazmat for backhauling. Valdez Fuel & Freight will backhaul battery totes when they have space available, and Interstate Battery picks up the batteries in Anchorage. The *Alaskan Challenger* ship was contracted to backhaul the metals, electronics and other hazmat using IGAP funds. The ship will likely backhaul these materials again in the future.

Chenega Bay's Haz Mat Shack was created by renovating an existing building in 2000. An ANHB Solid Waste Demonstration Grant was obtained, and a new roof, siding and flooring spruced up the old building. The ANHB grant also provided shelving for storage of hazmat materials and materials such as lime for packing old batteries.

To further the ability of Chenega Bay residents to prepare white goods for backhaul, environmental staff used IGAP funds to bring Larry Zirkle of Total Reclaim to Chenega in summer 2006. Three people were trained to remove CFC's from old appliances. The landfill had accumulated over a dozen refrigerators and freezers. CFC's were removed from five appliances and the rest were certified as empty. These goods will be backhauled in summer 2007. See photos of the hazardous waste program on the next page.

If you would like more information about Chenega's hazardous waste program, contact: Kate McLaughlin 907 573-5092 akbirdwm@hotmail.com

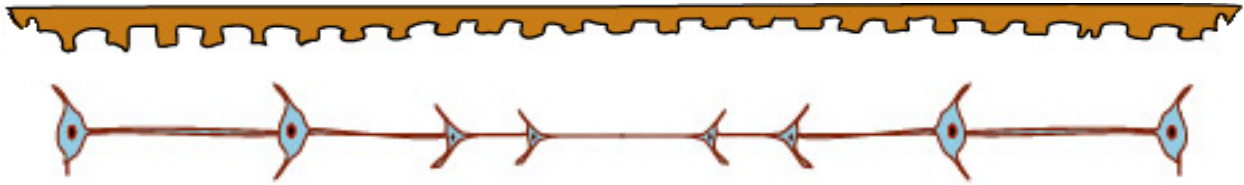




Chenega Bay 2004 Backhaul project. Collected scrap metals, old vehicles, electronics, household hazmat, etc. in two barge-loads to hazmat storage area or recycling facility.



Freon removal.



Fort Yukon's Hazardous Waste Program

Fort Yukon has organized a good storage and backhaul program for hazardous wastes and recyclables. Through an EPA grant, Fort Yukon leases out a garage in the community to store recyclables and to operate a small scale used clothing/goods store. Used oil from businesses in the community fuels a **used oil burner in the garage which provides heat for customers and staff**. Used oil from residences is collected in labeled drums located under a shelter next to the garage. For more information about Ft. Yukon's used oil burner and general information about used oil burners, see the used oil section of this guide.




Ft. Yukon Used oil burner and thrift store

The **hazardous waste shelter** was built locally using a simple design and inexpensive parts (two by fours, posts and tin roofing) and protects the hazardous waste from rain and snow. The whole structure only cost a couple hundred dollars. Here is a picture of it:



Fort Yukon's Haz Waste storage structure





Batteries are also stored under the shelter in labeled plastic totes and soon labeled drums will be available for people to drop off their antifreeze and transmission fuel. **Fort Yukon also ordered liners to be placed underneath the drums** to prevent leakage to the ground. The liners were ordered from www.newpig.com and other types of safety products can be found at their website. For more information about safety products see the safety gear section of this guide.

Once the plastic totes, drums and recycle containers are full, they are taken to a Connex container which sits next to their barge landing. Fort Yukon is serviced by Yutana Barge Lines and when they stop at the community, they pick up the hazardous wastes and recyclables and take them away for free! For more information about the Yutana/DEC hazardous waste backhaul program and the Crowley (Northland/Yutana) /Yukon River Intertribal Watershed Council program that replaced it, see the shipping section of this guide.

Fort Yukon also organized a community cleanup and education campaign for hazardous wastes and recyclables.

If you would like more information about Fort Yukon's hazardous waste program and setup, contact: **Vicki Thomas, Fort Yukon Village Council at 662-2581.**



Kodiak - Hazardous Waste Program for: Junk automobiles, used oil, household haz waste, and haz waste storage sheds.

Six Villages on the island of Kodiak have started a hazardous waste program: Port Lions, Ouzinkie, Karluk, Larsen Bay, Old Harbor, and Akhiok. Funding for the program is coming from Exxon Valdez (EVOS) funds which have already been used to produce a hazardous waste management plan for the Villages. The program collects and recycles junk automobiles, batteries, household hazardous waste, used oil, and antifreeze.

Training

One of the first steps taken for this program was to **arrange training for at least one staff member** from each of the Villages. Deric Marcorelle and Dennis Lundine from DEC traveled to Kodiak to give the hazardous waste training. DEC is no longer offering the training, but you can see the training section of this guide to find other trainers.

Hazardous waste sheds

Hazardous waste sheds will also be purchased in the near future for each Village. Ouzinkie has already purchased and constructed their shed. The shed is about 18'x10' and is located at their landfill for people to drop off their hazardous wastes. **They used spruce for the main structure and siding and roof materials were salvaged from local projects. A geosynthetic liner was purchased to line the floor** of the shed and a double door was installed on the side. Lastly, a sign was put up to let people know what they can and cannot drop-off.

If you would like to talk to Ouzinkie about their hazardous waste shed contact: Tom Quick at 680-2209

For more information about hazardous waste sheds, see our Storing hazardous wastes section of this guide.

Drum crushers

Each of the Villages will also receive drum crushers. They are purchasing the drum crushers from Oberg Industries and they will be **retrofitted to run on diesel or gasoline** (as opposed to electric). They will be able to use the crushers anywhere. **Drum crushers will crush empty 55 gallon drums down to 8 inch high disks** and the disks can then be shipped out as scrap metal. Crushing the drums will greatly reduce storage space requirements and significantly reduce transport fees.

For more information about drum crushers, see the drum crusher section in this guide.



Photo source: Oberg

Junk auto recycling

Port Lions has already started their junk vehicle recycling program. They have set up a staging area where the fluids are drained from the cars and batteries are removed. The ready-to-go cars are then set in a separate area.

If you would like to talk to Port Lions about their junk auto recycling contact: Wayne Lukin at 454-2234

For more information about junk auto recycling, see the junk car section of this guide.

Used Oil

Used oil that is collected in the Villages fuels used oil burners housed in all six Villages. For more information about used oil, see the used oil section of this guide.

Shipping

Once the Villages have stockpiled a good amount of junk cars, batteries and antifreeze **the Villages will work with the Kodiak Borough to ship them down to Seattle.** They are looking into Samson Barge or Philip Services to ship their hazardous wastes.

For more information about shipping hazardous waste, see the shipping section of this guide.





Contacts

For more information about the Kodiak Village Hazardous Waste Program, contact:

Tracy Mitchell

Kodiak Island Borough

Phone: 907 486 9348

Email: tmitchell@kib.co.kodiak.ak.us



Louden Village Council - Junk automobile recycling and hazardous waste program

Louden Village Council helped design a **backhaul program for junk automobiles with five other tribes in the summer of 2002**. The junk automobiles were shipped out of the communities through the Yutana Barge/DEC backhaul program for free. Here's how they did it:

1. Louden Council first contacted **Metal Recycling Alaska** in Anchorage (who accepts cars and various types of metals) to let them know how many cars they had for recycling.
2. Next, they contacted **Yutana Barge** to sign up for their free backhaul service for shipping junk automobiles to Nenana.
3. Finally they contacted **Alaska Railroad** who offered them free transportation to ship the cars from Nenana to Metal Recycling Alaska in Anchorage.

Lynden Transport had also offered free transport services but since Alaska Railroad stops right at the doorstep of Metal Recycling Alaska, no other transportation was needed.

To prepare the automobiles for recycling, Louden Council, in cooperation with the City of Galena, gathered volunteers with HAZWOPER training and removed all batteries and tires. Then all fluids were drained from the cars and put into containers with labels for free shipping on Yutana Barge. Finally, **basketball-sized holes were made in the fuel tanks so any remaining vapors could escape**.



Louden Council also has a Household Hazardous Waste (HHW) program. A Connex container is located at their barge landing for people to drop off HHW's in labeled containers. Also once their solid waste transfer station is constructed in town, labeled

drums will be available at the transfer station locations for people to drop off HHW's. Louden also operates a used oil burner for disposal of the communities used oil.

Contact Details:

Carol Holly
Louden Village Council
Phone: 656 1711



Alaska Railroad
Lyle Madson
Anchorage 907 265 2448 or main number 907 265-2300
www.akrr.com/

Metal Recycling Alaska
Anchorage 907 349-4833
www.alaskametalrecycling.com

- ◆ For more information about the Yutana hazardous waste backhaul program, see our "shipping hazardous waste" section in this guide. Note this program" is now coordinated by the Yukon River Inter-Tribal Watershed Council. If you are a Yukon River Tribe, you can contact the Council first to see what they are backhauling, and they will help you ship out these items. For more information, see the "shipping hazardous waste" section of this guide.



Safety Gear Information



Safety gear and protective clothing are important to protect operators and others working with wastes.

Hazardous substances enter your body in four ways: through **breathing, eating and touching** them, or **absorbing** them through the skin. These "exposure pathways" are called: inhalation, ingestion, direct contact, and absorption.









Pathway		Websites with Important Information ¹
Inhalation		Inhalation Prevention/Respiratory Protection http://www.purdue.edu/dp/envirosoft/housewaste/src/inhale.htm Also see Respiratory Protection section.
Ingestion		Ingestion Prevention http://www.purdue.edu/dp/envirosoft/housewaste/src/ingest.htm
Direct contact		Eye and Skin Protection http://www.purdue.edu/dp/envirosoft/housewaste/src/absorp.htm Also see Eye, Hand, and Body Protection sections.
Absorption through the skin		Absorption Prevention http://www.purdue.edu/dp/envirosoft/housewaste/src/absorp.htm

¹ Source of 'Important Information' column: *Guide to Hazardous Products Around the Home, Second Edition, 1989. Missouri Household Hazardous Waste Project; Purdue Research Foundation, 1996 West Lafayette, Indiana; EPA Region 5; <http://www.purdue.edu/dp/envirosoft/housewaste/src/safeuse.htm>*

Because these are the only ways that hazardous substances can reach your body to harm you, **if you block these pathways, you will prevent any harm.**

How do you do that?...By using some common sense and some simple safety equipment.

The safety gear you need depends on the tasks you perform and the type of hazardous materials you work with. Read the Table on the next page and you will see what we mean.

Types of safety gear	When to use them	Further Information
Respirator mask 	If burning or when there is a possibility of toxic chemicals	See the Respiratory Protection and Guide to Respirators section.
Leather gloves and rubber liner gloves 	If handling wastes or batteries	See the Hand Protection and Guide to Gloves section.
Eye protection 	If working with batteries or liquid hazardous wastes	See the Eye Protection and Guide to Goggles section.
Tyvek suit 	For walking on piled up wastes if you have to	See the Body Protection section.
Steel-toed boots 	All the time. Remember to get your tetanus shot too. Nails and sharp objects can puncture even thick soled boots.	
Ear plugs 	If using heavy equipment	
Hardhat 	If walking through unstable wastes. You can also use a strapped-on bicycle helmet.	
Medical kit 	Have one handy all the time	

Also - if you plan on ever walking around a **dumpsite**, remember to get your tetanus shot from the clinic first! Nails and other sharp objects are all around. If you are a waste collection technician or a dump site operator, be sure to get your hepatitis shots, especially if you have honeybucket households.



Respiratory Protection

The information in this section has been printed with permission from the Purdue Research Foundation <http://www.purdue.edu/dp/envirosoft/housewaste/src/inhale.htm>



Ventilation: Good ventilation is essential when using hazardous products. If possible, work outside. If you work inside, use a fan to direct air away from the work area to open windows. Be sure that you are not directing the toxic chemical to others who may be working inside. Air conditioners do not provide sufficient ventilation because they recirculate air, even on "vent", and do not remove contaminants from the air. If you can smell a toxic chemical, then your ventilation is not sufficient (although not all harmful chemicals have an odor) and so you probably need a mask or respirator to protect yourself.

Respirators: There are several different types of masks and respirators to protect you from specific toxic materials. The protection you choose should be approved by the National Institute for Occupational Safety and Health (NIOSH) for the particular contaminant to which you will be exposed. All respirators with NIOSH approval can be identified by their approval number, which consists of the letters "TC" followed by two sets of three digits. When you go to buy safety equipment, tell the salesperson what products you will be using, so you are sure to have sufficient protection.



Respirator
Mask

Cartridge

Guide to Respirators

The best way to select the respirator you need for the hazardous wastes you're dealing with is to **call any of the Safety Gear companies** listed in this guide. Let them know what you'll be using the respirators for and all the hazardous wastes you think you may come across and they will help you select the best respirator mask and cartridges for your job.

Particle masks are inexpensive and provide minimal protection from dusts, but are inadequate for use with products that produce vapors, fumes, or mists.



Maintenance-free respirators provide more complete protection. They are air-filtering devices that contain fibers to trap particles or sorbents that trap and hold gases and

vapors. Maintenance-free respirators have two straps, in contrast to particle masks, which only have one.

Reusable gas and vapor respirators also provide better protection than particle masks. These respirators are air purifying devices which are used with cartridges and pre-filters to provide protection. Pre-filters trap airborne particles in a fibrous filtering material. Cartridges contain activated carbon or other substances that absorb, and in some cases neutralize, the chemicals in vapors, fumes, or mists.

Gas and vapor respirators cost between \$8.00 and \$35.00 and are worth the investment. They can be purchased at safety equipment stores and some hardware stores.

Correct Fit: A respirator should be comfortable and have a correct fit so that it is leak-proof. Different people have different face sizes and shapes so try on respirators until you find one that fits you. To test the fit, cover the cartridge or filter inlets with the palm or your hand (or put on their seals), inhale gently until the respirator collapses slightly, and hold your breathe for 10 seconds. If the fit is not adequate, the respirator will resume its normal shape because air leaks back in while you are holding your breathe. In addition, test the fit by blocking the exhalation valve and then gently breathing out. This should cause the mask to expand. If air leaks past the edge of the mask (particularly near the eyes), the mask will collapse back to its normal shape and the fit is not correct. If your eyeglasses fog up while trying these tests, then the respirator has a poor fit. If the respirator fails any of these tests, try adjusting the straps and face piece. The salesperson can help you determine the correct fit. Men with facial hair may not be adequately protected by a face respirator because of poor fit.

Replacement: The pre-filters and cartridges of reusable respirators have to be replaced regularly. When it is difficult to breathe through a filter, the filter is likely clogged and needs replacing. If you can smell the toxic chemical through the respirator, the purifying chemicals are used up and the cartridge needs to be replaced. Some general rules of thumb are to change cartridges after two weeks, after 8 consecutive hours of use, or if the contaminant can be smelled. If you rely on odor as a cue to replace the cartridge, be sure that the toxic material is odor-producing. Chemicals that do not produce an odor warning include methyl alcohol and carbon monoxide. Follow the directions given with each respirator.

A way to avoid replacing cartridges and filters is to replace the whole respirator. There are disposable respirators on the market with specific filters and cartridges in place. The disposable respirators cost between \$8.00 and \$20.00 and have to be replaced as often as cartridges on respirators. Replacement cartridges by themselves typically cost between \$4.00 and \$6.50.

Hand Protection

The information in this section has been printed with permission from the Purdue Research Foundation <http://www.purdue.edu/dp/envirosoft/housewaste/src/absorp.htm>



The skin of the hand and fingers is the area most exposed to hazardous products. To protect your hands, wear the right type of gloves for the product you are using. The specific material the glove is made from will resist different types of toxic chemicals. The appropriate glove prevents the absorption of the toxic chemicals through your skin and subsequent entry into your bloodstream. Nitrile gloves (can be found in most clinics) are effective protection against most household products.

Your gloves will last longer if they fit properly (avoids stretching and improper wear) and will help you handle the hazardous product better. The life of your gloves can be extended by washing them with warm water and soap and allowing them to air dry after each use.

Guide to Gloves

The table below lists the types of gloves (by number) available to use when handling hazardous wastes. The table on the next page then lists specific types of hazardous products and the type of glove you should use when handling that product. These tables should be used as guides only. **The best way to select the type of glove you need for the hazardous wastes you're dealing with is to call any of the Safety Gear companies listed in this guide. Let them know what type of hazardous wastes you will be handling and they will help you select the most appropriate gloves for your job.**

List of Glove Types

#	Glove Types
1	Natural Rubber or Latex glove
2	Neoprene Rubber glove
3	Latex/Neoprene glove
4	Butyl Rubber glove
5	Buna-N or NBR Rubber glove
6	Nitrile glove
7	Polyvinyl chloride glove

Type of Glove to Use

PRODUCT BEING HANDLED	TYPE OF GLOVE						
	1	2	3	4	5	6	7
PAINTS & SOLVENTS							
Lacquer thinner					●		
Paints (oil-based)			●			●	
Paints (water-based), acrylics, latex,	●	●	●	●	●	●	●
Paint thinner and mineral spirits		●	●		●	●	
Paint and varnish remover						●	
Tar (asphalt and roofing)		●	●		●	●	
Turpentine		●	●		●	●	
Wood filler and putty					●	●	
Wood stains and varnish		●	●		●	●	
AUTOMOTIVE							
Battery acid		●	●	●			
Gasoline, Motor oil, and Transmission fluid					●	●	●
Kerosene and Diesel fuel		●	●		●	●	
Windshield wiper fluid	●	●	●	●	●	●	●
HOBBIES							
Adhesives and Cements					●	●	
Dyes, fiber reactive				●	●		
Photographic solutions (black and white)	●	●				●	●
CLEANERS							
Acetone (ketones)	●	●	●	●			
All-purpose and ammonia-based cleaners	●	●	●	●	●	●	●
Aluminum cleaner (with hydrofluoric acid)		●	●	●			
Ammonia	●	●	●	●	●	●	●
Bleach		●				●	●
Degreasing solutions						●	●

Eye Protection

The information in this section has been printed with permission from the Purdue Research Foundation <http://www.purdue.edu/dp/envirosft/housewaste/src/absorp.htm>

Eyes are especially open to injury from hazardous products. Many hazardous products can cause eye damage if splashed into the eye (e.g., oven cleaners, drain openers, paint thinners). Wrap-around safety goggles should be worn to protect the eyes from chemical splashes, mists, and vapors and scratches from particulate materials. Standard eyeglasses do not provide adequate protection. **Do not wear contact lenses** (especially soft lenses) when working with hazardous products. The hazardous vapors or mists may be absorbed by the contact lenses, holding the irritant against your eye and thus increasing the potential for eye damage.



Safety goggles are inexpensive and can be purchased from safety equipment stores and many hardware stores. The best way to select the type of goggles you need for the hazardous wastes you're dealing with is to call any of the Safety Gear companies listed in this guide. Let them know what type of hazardous wastes you'll be working with and they will help you select the most appropriate goggles for your job.

Body Protection

The information in this section has been printed with permission from the Purdue Research Foundation <http://www.purdue.edu/dp/envirosft/housewaste/src/absorp.htm>

It is important to protect more than just your hands and face when using some hazardous products (e.g. spraying pesticides and mists, applying solvents). Wear clothing other than your everyday clothes when working with hazardous products. The clothing will protect your body from contact with the toxic chemicals, preventing absorption through your skin. Ideally it is best to wear a pair of Tyvek overalls, which fit over your clothes, to give your body maximum protection from hazardous wastes.



For more information about safety and hazardous wastes, check out the CDC's NIOSH website at: <http://www.cdc.gov/niosh/homepage.html>

Where to purchase safety gear

Anchorage

Spill Shield International

Ask for Kris (she has worked with several Native Villages)
 P.O. Box 93009 4735 Gambell Street
 Anchorage, AK. 99509-3009
 Phone: 561-6033
 Web: www.spillshield.com
 e-mail: spillshield@ak.net

Alaska Safety

7521 Old Seward Hwy, Unit C
 Anchorage, Alaska 99518
 Phone: 561-5661
 E-mail: info@alaskasafety.com
 Web: www.alaskasafety.com

Fire and Safety Equipment and Clothing

1100 W. Diamond Blvd
 Anchorage, AK 99515
 Phone: 1 (800) 478-5312
 Web: www.firehouseinternational.com

Workplace Safety Products

9191 Old Seward Hwy
 Anchorage, AK
 Phone: 1 (800) 478-9192

Eagle Enterprises Inc.

700 W. International Airport Rd
 Anchorage, AK Phone: 562-2331
 Email: eagleent@alaska.net
 Web: www.ultimategear.com

Airgas

6000 Arctic Blvd
 Anchorage, AK
 Phone: 1 (800) 369-4856
 Web: www.airgas.com

Army Navy Store (safety clothing)

320 W 4th
 Anchorage, AK
 Phone: 1 (888) 836-3535
 Web: www.army-navy-store.com

Fairbanks

Airgas

641 Hughes Avenue,
 Fairbanks, AK 99701
 Phone: 456-3400

Big Ray's Store (safety clothing)

507 2nd St
 Fairbanks, AK 99701
 Phone: 452-3458

Arctic Fire and Safety

702 30th Av
 Fairbanks, AK 99701
 Phone: 1 (800) 260-FIRE

Fairbanks Safety Inc

3516 Intl Way
 Fairbanks, AK 99701
 Phone: 451-1994

Juneau

Fireman's Extinguisher Service

8800 Glacier Hwy Suite 111B
 Juneau, AK 99801
 Phone: 789-1300

Ketchikan

Tongass Trading (safety clothing)

201 Dock Street
 Ketchikan, Alaska 99901
 Phone: 1 (800) 235-5102
 Web: www.tongasstrading.com



Spill Cleanup and Response Information



Cleaning Up Spills

If you have a hazardous waste spill in your community:

- 🚫 Remove children and pets from the area where the spill occurred
- 🚫 Mark off the area so people don't come into contact with the spill
- 🚫 Ventilate the area if the spill happened inside
- 🚫 Wear appropriate safety equipment when cleaning up the spill
- 🚫 Contain the spill by soaking it up with absorbents (you can purchase absorbent pads or use clay-based kitty litter)
- 🚫 Put the absorbed material into a plastic bucket or drum and label it with the date and what's in it

See ADEC's spill response website for more information about hazardous material spills <http://www.state.ak.us/local/akpages/ENV.CONSERV/spar/index.htm> . You can contact the spill department at ADEC at (907) 269-7500.

Emergency Spills

Please see the Whom to Contact section at the beginning of this guide for contact information. If you need help to contain the spill, or it is a big spill, as soon as all non-HAZWOPER trained residents are safely away from the area, and someone is safely guarding the area to prevent people coming in by mistake, call the **ADEC Spill Response Team for your region**. The ADEC Spill Response Team will help assess the situation, and be able to send out appropriate materials and/or technical staff depending on the nature of the spill. The Spill Response Team is part of the Spill Prevention and Response Program (SPAR) at DEC.



Reporting Spills

It is a good idea to use the State Spill and Release Reporting system for all spills that happen with your hazardous waste program (unless they are very minor - the kind that might happen in a household). Using this system helps the State assess its emergency response needs, and to learn more about the types of spills and releases that occur. The information that is learned by the state and recorded in their database can then help

villages in the future because the most appropriate Response Team, System, and Equipment for isolated villages can be planned.

The State requires the reporting of spills and releases that meet the following criteria:

1. Hazardous Substance Releases

- ◆ **Any** release of a regulated hazardous substance **must be reported** as soon as the person has knowledge of the discharge.

To know what is meant by a hazardous substance, see the RCRA Chapter. The main rules are:

- ◆ **This does not include used oil or petroleum product spills or releases - see the next subsection for oil spill reporting.**
- ◆ **Next, use common sense in assessing the nature of the spill. An individual household hazardous waste product that is spilled does not need to be reported**, if it is the type of spill or release that would happen in a typical household. If you have a household hazardous materials exchange shed, and someone spills a few **drops** of the substance by mistake, the spill should be cleaned up according to the procedures at the beginning of this chapter. But the spill does not need to be reported. It is considered "de minimus". The spill should be recorded however, and the staff should go over what happened so that they may implement any new rules or policies to prevent or minimize these types of insignificant spills in the future.
- ◆ **Spills and releases of a significant quantity, or releases of multiple products, should be reported.** For example, if a storm damages a Staging/Hazardous Product Exchange Shed and containers are ruptured or spilled, a report would be required. Such a mixture of even small quantities of household hazardous wastes is complicated in properly cleaning up. This would be an event where only HAZWOPER trained staff with safety gear should be working. Significant leakage or spillage of drums of stored ethylene glycol (or other product) is another example that should be reported. Usually when this occurs, proper **Prevention Steps** were not taken in planning storage and checking drum condition. See the SPAR website for Prevention tips.

The Rule: If the spill or release is something concerning, then it is something to report.

2. Oil/ Petroleum Releases and Spills

For oil/petroleum products, ADEC relies on where the release happens. That is because if the oil is released to water, it spreads quickly and also contaminates drinking water and

can harm aquatic life. If it spills to land, it spreads less quickly and can be partially or fully treated before it does any harm, via natural soil processes or soil remediation techniques.

Report to ADEC releases that meet the following

- ◆ **TO WATER:** Any release of oil to water *must be reported* as soon as the person has knowledge of the discharge.
- ◆ **TO LAND:** Any release of oil in *excess of 55 gallons* must be reported as soon as the person has knowledge of the discharge. Any release of oil in *excess of 10 gallons but less than 55 gallons* must be reported within 48 hours after the person has knowledge of the discharge. A person in charge of a facility or operation shall maintain, and provide to the Department on a monthly basis, a written record of any discharges any discharge of oil *from 1 to 10 gallons*.
- ◆ **TO IMPERMEABLE SECONDARY CONTAINMENT AREAS:** Any release of oil in *excess of 55 gallons* must be reported within 48 hours after the person has knowledge of the discharge.



How to report a spill

ADEC has a spill report form to fill out. For emergency spills, **CALL FIRST**. Do not fill out the form until the spill is under control, call ADEC SPAR immediately (see Section 14.3 above). You can file the report form later. If it is minor or non-emergency spill, you may fax a spill report form to 269-7648.

To Get or Print Out a Spill Reporting Signs

Go to : http://www.dec.state.ak.us/spar/perp/docs/placard_may2005.pdf

Spill Report Form Spill report forms are at: Go to:

http://www.dec.state.ak.us/spar/perp/docs/spfrm_e.pdf

Additional Information DEC has a very good spill response website about hazardous material spills in general, with contact and procedures that are required for Alaska at <http://www.state.ak.us/local/akpages/ENV.CONSERV/spar/index.htm> . If you have questions that the website cannot answer, SPAR staff can be contacted at (907) 269-7500. EPA also operates a spill response program in cooperation with DEC, as part of a Homeland Security Program. For more information on their services, call Mary Goolie at 271-3414, goolie.mary@epa.gov

Where to purchase clean up, spill containment, containers, and safety Equipment:

<p>Spill Shield International P.O. Box 93009 4735 Gambell Street Anchorage, AK. 99509-3009 Phone: 561-6033 Web: www.spillshield.com e-mail: spillshield@ak.net</p> <p>New Pig One Pork Avenue Tipton, PA 16684-0304 Phone: 1 (800) 468-4647 Email: hohogs@newpig.com Web: www.newpig.com</p> <p>Interstate Products, Inc. 511 Interstate Court Sarasota, FL 34240 Phone: 1 (800) 474-7294 Web: www.interstateproducts.com</p>	<p>Lab Safety Supply, Inc. PO Box 1368 Janesville, WI 53547-1368 Phone: 1 (800)-356-0783 Web: www.labsafety.com</p> <p>ASA Industries, Inc. 1520 South Grand Avenue Santa Ana, CA 92705 Phone: 1 (800) 314-8719 Web: www.hazmatstorage.com</p> <p>Denios, Inc. 7000 International Drive Louisville, KY 40258 Tel: (502) 933-7272 Web: www.thehazmatpro.com</p>
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HAZWOPER and Related Training



The most common type of training available for working with hazardous wastes is HAZWOPER training. **HAZWOPER** stands for **Hazardous Waste Operations and Emergency Response** and is what you need to know to work with hazardous wastes.



Who needs HAZWOPER Training?

The federal Occupational Safety and Health Administration (OSHA) ruled that people must be HAZWOPER trained if they work with, or are around, hazardous wastes. The purpose of the training is to make sure that people are as safe as possible when potential or actual contact with hazardous wastes is likely.

How much training do you need?

There are three kinds of HAZWOPER training.

40hr training is the most comprehensive training and is what most people need. Usually this training is given over 5 days (8 hours each day).


24hr training is only for "occasional site workers" that have very limited contact with hazardous wastes. The main difference between the 24 hour and 40 hour course is that the 24 hour training student should not be involved in activities where a face mask or breathing help might be needed.

8hr training is known as "refresher training" and is for people who have already taken the 40 hr or 24hr training but need to update their certification. HAZWOPER certification from 40 hr and 24 hr training is valid for 1 year, so as long as you take an 8 hr refresher course before the year is up, you will continue to be HAZWOPER certified.

Where can I get HAZWOPER training?

The table on the next two pages lists agencies and private companies that offer HAZWOPER training. Private companies offer trainings for individuals at their company location and will also come to your location for group trainings. Group trainings can be more cost effective if you know 8 or more people that are looking for HAZWOPER training.

Wanda Ballot in Noorvik organized a very successful group HAZWOPER training for people in her community and nearby communities. If you are considering a group training in your community, it might be helpful to call Wanda for some advice at **636-2144** or **636-2224**, or email wanda.ballot@nuurvik.org. The Native Villages of **Selawik** (contact **Raven Sheldon** at **484-2006**) and **Toksook** (contact **Noah Lincoln** at **427-7114**) also hosted on-site 40 HAZWOPER courses and invited nearby Villages to attend. Contact them for advice/opinions on how their courses went, and about the companies they hired to teach the courses. YRITWC has also hosted a HAZWOPER course for member Villages and you can call them to see if another one is planned that you could attend - contact Jon Waterhouse at 258-3337.



In addition to the table on the next couple pages, the EPA has a list of companies that offer HAZWOPER in the Region 10 area on their website at <http://yosemite.epa.gov/R10/OMP.NSF/webpage/Alaska> Also check out <http://www.regionxoti.org/catalog.cfm> . And finally, look at the calendar on the [SWAN website](#), for **HAZWOPER trainings** that come up, and see the [SWAN Village message board](#) for postings by communities that plan to hold their own in-Village HAZWOPER training.

	Contact	Type of training	Costs	When offered
Agencies				
EPA	Mary Goolie 271-3414 goolie.mary@epa.gov	Occasionally EPA offers a 2-day <i>Above Ground Storage Tank Operator Training</i> course which counts as the 8hr HAZWOPER refresher course.	The training is free and includes materials. Participants will have to cover their own travel, lodging, and meals.	Contact EPA for training dates.
DEC	Mike Jaynes 451 2117 mike_jaynes@dec.state.ak.us	Currently DEC is not offering any HAZWOPER training. DEC may offer Above Ground Storage Tank Operator Training in the future which would count as the 8hr HAZWOPER refresher course . Contact Mike for information.	The training would be free and would include materials. Participants would have to cover their own travel, lodging, and meals.	Contact DEC for training dates.
Non-profit entities:				
CCTHITA	http://www.ccthita-vtrc.org/	Occasionally offers HAZWOPER and hazardous waste related trainings.	See the calendar for upcoming training classes and dates http://www.ccthita-vtrc.org/vtrcVOCTRNG/VT_HOME.htm	
Total Reclaim	Larry Zirkle (907) 561-0544 larryz@totalreclaim.com	Offers Freon removal training in Anchorage and on-site in Villages	Contact for training dates and costs.	
AVCP	Jill Maynard 1 800-478-3521 jmaynard@avcp.org	Occasionally offers hazardous waste-related trainings.	Contact for training dates and costs.	
TCC	Jerry Sam 1-800-478-6822	Occasionally offers hazardous waste-related trainings.	Contact for training dates and costs.	
YRITWC	Jon Waterhouse 451-2530 jwaterhouse@yritywc.com	Occasionally offers hazardous waste-related trainings.	Contact for training dates and costs.	
Anchorage Fire Dept	www.muni.org/fire1/training.cfm	Occasionally offers hazardous waste-related trainings.	See their website for training information.	

	Contact	Type of HAZWOPER training	Costs	When offered
Nana Training Systems	Ira Doty 565-3310 341 W Tudor Rd, Suite 202 Anchorage, Alaska, 99503 Phone (general): 565-3300 Email: training@nana-dev.com Website: www.nana-nts.com	Nana Training Systems offers 40hr, 24hr and 8hr refresher HAZWOPER training. They offer individual training (in Anchorage) or on-site group training (once a group is arranged, they come to you). For group trainings, there is a 20 student maximum and no minimum student requirement (a group of 10-15 students is recommended).	Individual training (in Anchorage) 40 hr \$525/person; 24 hr \$350/person; 8 hr refresher \$125/person (The costs above include the training and materials. Participants cover their own travel, lodging, and meals.) On-site group training 40 hr \$1000/day plus \$50/student (for materials) plus travel, lodging, and meals for the instructor 8 hr \$1500 total, plus \$20/student (for materials) plus travel, lodging, and meals for the instructor Note: the material taught on the last day of the 40 hr course is the same material required for the 8 hr refresher course. People needing only the 8 hr course could attend on the last day for no extra charge aside from a \$25/student fee for materials.	Call or look on their website for training dates.
North Star Industrial Contractors	Contact: Bud Bennett Phone: 376-0868 Fax: 376-0869 www.followthenorthstar.com	Most of North Star's training work is within Native Alaska Communities throughout the state (rural training is their specialty).	Contact Bud for course costs. North Star's office is in Wasilla but they travel to any place where needed. They prefer to train in the home Villages of the people receiving the training because they go out and see for themselves what the real issues are.	
Environmental Management Inc.	Larry Bethel 272-8852 206 E. Fireweed Ln, Suite #201 Anchorage, Alaska 99503 Phone (general): (800) 458-2580 Website: www.emi-alaska.com	EMI offers 40hr, 24hr and 8hr refresher HAZWOPER training. They offer individual training (in Anchorage and sometimes Fairbanks) or on-site group training For group trainings, there is a 20 student maximum and no minimum student requirement (10-15 students is recommended).	Individual training (in Anchorage/Fairbanks) Costs are approximately the same as Nana Training above. On-site group training 40 hr \$1000/day plus \$50/student (for materials) plus travel, lodging, and meals for the instructor 8 hr \$2500 total, plus \$20/student (for materials) plus travel, lodging, and meals for the instructor (The costs above include the training and materials. Participants cover their own travel, lodging, and meals.)	Call or look on their website for training dates.
Joint Regional Environmental	Jenneane Oliva 428-2242 Building 655, Richardson Drive	The JRETC offers 40 hr and 8 hr individual training classes at	Individual training (at Fort Richardson -near Anchorage) 40 hr \$475/person; 8 hr refresher \$110/person	Call or look on their website

<p>Training Center</p>	<p>Fort Richardson, Alaska 99505 jenneane.oliva@richardson.army.mil Website: www.jretc.org</p>	<p>Ft Richardson (near Anchorage) and at Ft Wainwright (near Fairbanks). They also offer on-site group trainings and require a minimum of 10 students.</p>	<p>(The costs above include the training and materials. Participants cover their own travel, lodging, and meals.) Individual training at the Fort Wainwright location may be more expensive. Call to get latest prices. On-site group training Once a group training is requested, the JRETC puts the training request out for a competitive bid. The best training for the best price is then presented to you for review. Call to get further information.</p>	<p>for training dates.</p>
<p>SEAPRO</p>	<p>SEAPRO 1(888) 225 7676 540 Water St., Suite 201 Ketchikan AK 99901</p>	<p>SEAPRO offers the 24 & 8 hour HAZWOPER in Southeast Alaska most months of the year.</p>	<p>Individual training 24 hour \$300/person 8 hour refresher \$100/person</p>	<p>Check out www.seapro.org for schedules.</p>
<p>Iguana Training</p>	<p>1(800) 418 6773</p>	<p>8 hr refresher course offered on-line. See website for details.</p>	<p>8 hour \$100/person www.hazwopertraining.com</p>	
<p>Region 10 OSHA</p>	<p>Training Institute Education Center OTIEC (206) 685-3089 or (800) 326-7568</p>	<p>8 hr refresher course offered on-line. See website for details.</p>	<p>8 hour \$59.95/person http://www.regionxoti.org/catalog.cfm</p>	



Funding for Hazardous Waste Programs



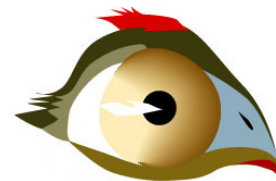
There are a few different sources of funding that can be used for starting or operating Hazardous Waste Programs. Three of these sources are listed below and on the next page. Also look at the following funding pages on SWAN:

List of grants	http://www.ccthita-swan.org/funding/funding1.cfm
Calendar (for latest deadlines)	http://www.ccthita-swan.org/main/calender.cfm
Overview of funding	http://www.ccthita-swan.org/funding/funding.cfm

1) IGAP and Special IGAP/Unmet Needs Funds





IGAP funds can be used to implement solid and hazardous waste activities. For example you could use IGAP funds to start a battery recycling program, or to ship out electronic waste (e.g. computers) that your community has collected. These are just two examples, but there are a lot of different activities that IGAP could fund. Talk to your IGAP project officer if you have questions about what IGAP funds can be spent on. For information about IGAP or to see who the IGAP project officer is for your community, see the IGAP page on the SWAN website at: <http://www.ccthita-swan.org/funding/IGAP.cfm> or call Michelle Davis, EPA at 271-3434.

Your Village could also apply for **Special IGAP/Unmet Needs** funds to implement hazardous waste programs. These grants can be used to fund solid/hazardous waste projects that aren't covered by IGAP. The application process is similar to IGAP. Contact your IGAP coordinator for further details of these grants. To look up your IGAP coordinator, go to <http://www.ccthita-swan.org/funding/IGAP.cfm#2>



2) EPA's Tribal Hazardous Waste Grant

EPA has a Tribal Hazardous Waste Grant Program which offers capacity building grants for:

-  Developing and implementing hazardous waste activities;
-  Developing Tribal organizational infrastructure;
-  Achieving economic sustainability of tribal hazardous waste programs;
-  And building partnerships among tribes, federal agencies, states and local communities.

Grants given are usually under \$75,000. Applications are usually due sometime in spring (although dates vary year to year). Contact Maria Tartaglia, EPA Seattle at (206) 553-1128 or tartaglia.maria@epa.gov for further information about this grant and deadlines. To view the 2005 RFP for this grant, go to http://www.ccthita-swan.org/pdf/grants/Tribal_Hazardous_Waste_Grants_2005.pdf

3) Brownfields Grants

Brownfields grants could be a way to clean up your old dump (or other hazardous site). A Brownfield is property (land and its water) that a community or person wants to use for something different, but they can't because the property might be, or is, contaminated. The different use (called "Reuse") can be for community well-being, health, recreational, subsistence/cultural, or economic development reasons.

Alaska Tribes can't apply directly for the [Revolving Loan, Cleanup, or Job Training Brownfield grants](#). But municipalities, Tribal corporations, and non-profit organizations can apply for these grants, so that **partnerships are possible**. For example, the City of Selawik applied for, and received, a Job Training grant that the Selawik Tribe is overseeing. We used an MOA to show that our Tribe and City were partners in the grant. We used the grant to train 28 of our residents in HAZWOPER training, and to help them become more eligible for hire in environmental cleanup jobs.

Alaska Tribes are eligible for [Brownfield Response Program Grants](#). Response program grants are intended to help Tribes identify their sites of concern, and prepare for a cleanup that meets the community's needs. While there are requirements to complete in the first year of the grant, **they can fund community education** as well, including culturally appropriate translation and compilation of contaminant materials. So it can be a good way to integrate subsistence and values protection into your environmental program.

Alaska Tribes are also eligible for [Targeted Brownfield Assessments \(TBA's\)](#). The TBA's are not exactly grants. The EPA contracts directly with a qualified company to come to your Village to sample, analyze, and write up an assessment report for your site. While you don't receive money, you do receive valuable information. If your site is contaminated, or requires further investigation, you are in a better position to find funding with the report. If the site is not contaminated, you can tell the community and work on your next problem. **You can apply at any time for the TBA program and the application is very short and easy.** [Click here](#) for the TBA application and information. You can contact the Brownfield Response and TBA contact for EPA Region 10 at mccauley.anne@epa.gov, tel (206) 553-4689 or labaw.joanne@epa.gov tel (206)553-2594.



DEC operates a similar TBA program for assessing sites that you can apply for. You can contact the State Brownfield Coordinator: John B. Carnahan (907) 451-2166 to find out more. You can also go to the **State Brownfield Website** at <http://www.dec.state.ak.us/spar/csp/brownfields.htm>. This website is really good and highly recommended.



Starting a Hazardous Waste Program in Your Community



Starting a Community Hazardous Waste Program

So what can we do with our hazardous wastes?? Follow these three steps for starting a community hazardous waste program....

1 Educate your community about hazardous wastes

The first step to starting a community hazardous waste program is to **educate** the people in your community about hazardous wastes. It is important to let people know of the dangers associated with hazardous wastes, and the need to dispose of the wastes properly.

Educating kids

Teaching our kids about hazardous wastes is one of the best ways to get the word out about the potential dangers of hazardous wastes. Go to your school and see if you can add the study of hazardous wastes to the topics they teach.

- ◆ Talk about the reason a product is "hazardous" (Using or disposing the product poses a threat to human health and the environment).
- ◆ Discuss how to determine which household products are hazardous (reading warning labels and looking for words like: poison, toxic, flammable etc.)
- ◆ Talk about why it's important to protect the environment from hazardous wastes (subsistence, drinking water sources etc.)

Educating the Community

Spread the word about hazardous wastes! Put up flyers around the community and at the dump/landfill to remind people of the risks posed by hazardous wastes.

Encourage people to **REDUCE** the amount of hazardous wastes in the community

- ◆ Ask households to purchase less hazardous products and/or use less toxic alternatives. See the list of safe alternatives in this guide.
- ◆ Ask stores to order less toxic alternatives. This includes glass bottles or aluminum cans instead of plastic bottles, and paper instead of Styrofoam.
- ◆ Ask businesses and government to use less toxic alternatives-- such as using propylene glycol instead of ethylene glycol for antifreeze whenever possible.

For more ideas and information on how to educate your community about hazardous wastes, see SWAN's Education pages at <http://www.ccthita-swan.org/Educating/educating.cfm> .

2 Set up a collection/storage center for hazardous wastes

Pick a good location in your community that is **convenient** for people to take their hazardous wastes. This could be a central place in your community where access is easy. Your dump/landfill can be one of the best places if it is staffed and fenced off during closed hours.

Some communities choose to have **drop-off centers** that are open and accessible every day and other communities choose to have monthly or annual **collection days** where an event is planned for everyone to bring their hazardous wastes.



Whether you decide to set up a drop-off center or hold a collection day, the hazardous wastes should be **securely stored** so they cannot be easily accessed by children. The storage/collection center can be simple or fancy. For information about selecting a good storage/collection center and to see examples, see the storing haz waste section in this guide.

Once your storage/collection center is set up, **place signs** around the community and at the dump/landfill to tell people:

- ◆ What kind of hazardous wastes are being collected,
- ◆ Where (and when) they should take their hazardous wastes, and
- ◆ The importance of not dumping hazardous wastes on the ground or in waterways.



3 Recycle/ship out/dispose of hazardous waste properly

Ok so now that you've gathered all your hazardous wastes, what should you DO with them??

Recycle/store/dispose properly

For information about how to recycle/dispose of different types of hazardous wastes including used oil, antifreeze, etc., see the A-Z list of hazardous wastes in this guide. Some hazardous materials are not counted as hazardous wastes by EPA if they are recycled. This means a lot less paperwork AND less waste.



Store/Stage/Then ship out hazardous wastes from your community

For information about how to ship out hazardous wastes, including FREE shipping programs in place, see the shipping hazardous wastes section in this guide.





Storing Hazardous Wastes






Introduction

Storing hazardous wastes safely is a simple way to help protect your community's health. Hazardous wastes should be stored up off the ground, in containers, and under cover. This will prevent any leakage to the ground. And it will protect the containers from weather degradation.

Ideally, the wastes should be stored so they cannot be accessed by the public. Remember to prepare and manage the wastes properly before storing them.

Guidelines for Safe Storage

1. Separate different types of hazardous wastes:




-  Keep products in their original containers if possible.
-  Don't mix any products together.
-  Don't store a hazardous product in a container that was previously used for a different product.

2. Label all containers:





-  Label, identify, and date all containers to the best of your knowledge.
-  The labels don't need to be fancy - in fact a pen marker can be used to write on the container (write big and use clear lettering).
-  You can also write on a piece of paper and cover it with clear tape for a label.
-  DEC also has pre-made stickers for used oil, antifreeze, batteries, and gasoline. Contact DEC and ask for these stickers:
Deric Marcorelle, DEC (907) 262-5210 x249
 35390 Kalifornsky Beach Rd. Soldotna, AK 99669
 Email: deric_marcorell@dec.state.ak.us
-  You can also click on the label to the right for pre-made labels for various hazardous wastes which you can photocopy, cover with clear tape, and secure to your container, or go to http://www.ccthita-swan.org/main/labels_haz.cfm



3. Keep containers in good condition:

-  Keep containers dry to prevent corrosion.
-  If a container is beginning to corrode and/or leak, place the container into another sturdy container and label this new container.
-  Check the containers regularly for deterioration. You can make the first day of each month a walk-through storage day

4. Other storage tips:

-  Make sure lids and caps are sealed tightly.
-  Keep hazardous wastes **away** from sources of heat, spark, flame, or other ignition methods. This is especially important with flammable wastes and aerosol cans.
-  Store corrosive, flammable, reactive, and toxic products on separate shelves.
-  Store wastes containing volatile chemicals in a well-ventilated area. Volatile chemicals are the usually the ones where the odor spreads out quickly from the container.



REMEMBER - IF YOU CAN SMELL IT, YOU ARE BREATHING IT!

Drum storage and containment

Any container used to store hazardous wastes, such as a 55-gallon metal drum or a 5-gallon plastic bucket with a lid, should be:

- ◆ In good condition,
- ◆ Rust-free,
- ◆ Free of holes, and
- ◆ Clean and free of water, dirt, rocks, rags and other trash.

**NEVER MIX ANY HAZARDOUS WASTES TOGETHER—
EVEN ONE DROP IS TOO MUCH.**

If your community is unable to store the hazardous wastes, it is very important that the containers are up off the ground (on tarps on wooden pallets) and are covered (with tarps or visqueen) to keep rain and snow melt out of the containers.



Secondary Storage Containers

One of the safest ways to store hazardous waste is in secondary storage containers.



Four drum storage container with flip lids
(also comes in 2-drum or 1- drum size)



Single drum containment

What are they? Secondary containers hold containers that hold wastes. That way you have double insurance for your community.

How much are they? Stand-alone portable drum containers range from \$150 to \$800. You can purchase them from the companies listed below.

Where to get them? The companies listed below and on the next page all sell drum containment systems.



Four drum containers with spill catchment bottom and flip down lids



Interstate Products, Inc.
www.interstateproducts.com
511 Interstate Court
Sarasota, FL 34240
Phone: 1 (800) 474-7294

Denios, Inc. www.thehazmatpro.com
7000 International Drive
Louisville, KY 40258
Phone: 1 (502) 933-7272

Lab Safety Supply, Inc.

www.labsafety.com

PO Box 1368

Janesville WI USA 53547-1368

Phone: 1 (800) 356-0783

New Pig www.newpig.com

One Pork Avenue

Tipton, PA 16684-0304

Phone: 1 (800) 468-4647

ASA industries, inc.

www.hazmatstorage.com

1520 South Grand Avenue

Santa Ana, CA 92705

Phone: 1 (800) 314-8719

Fish Totes

Fish totes are available in many of our communities. They work as spill catchments for 55-gal drums and you can store and cover 5-gal drums and batteries.



Photo Source: DEC

REMEMBER - ONCE YOU USE A FISH TOTE FOR HAZARDOUS WASTES - DON'T USE IT FOR FISH (OR ANY OTHER FOOD) AGAIN.

You can buy new fish totes for about \$200 each (with lids) from:

Arctic wire and rope

6407 Arctic Spur Road. Anchorage, AK Phone: 562 0707T

Totes are also sold at the following locations (make sure you get the thicker/stronger type of tote that they sell):

Juneau

Western Auto and Marine 780-4909

Outdoor Headquarters 789-9785 or 1-800-478-0770

Harri's Plumbing Heating and Marine 586-3190

Sitka

Murray Pacific Supply 1-800-478-3171

Ketchikan

Murray Pacific Supply 1-800-478-3138

Cordova

LFS Marine Supplies 424-5495 or Toll Free in Seattle 1-800-647-2138



Hazardous Waste Storage Buildings

Least Expensive Option

Construct your own basic shelter

On the next few pages are three examples of communities that have built their own hazardous waste buildings.

Fort Yukon

Fort Yukon constructed a basic structure to shelter their batteries and used oil containers (see picture below). They built locally using a simple design and inexpensive parts (two by four's, posts, and tin roofing). The shelter keeps out rain and snow so containers stay in good condition longer. The whole structure only cost a couple hundred dollars. If you would like to find out more information about the structure built at Fort Yukon, you can contact Vicki Thomas at the Fort Yukon Tribal Council at 662 2581.



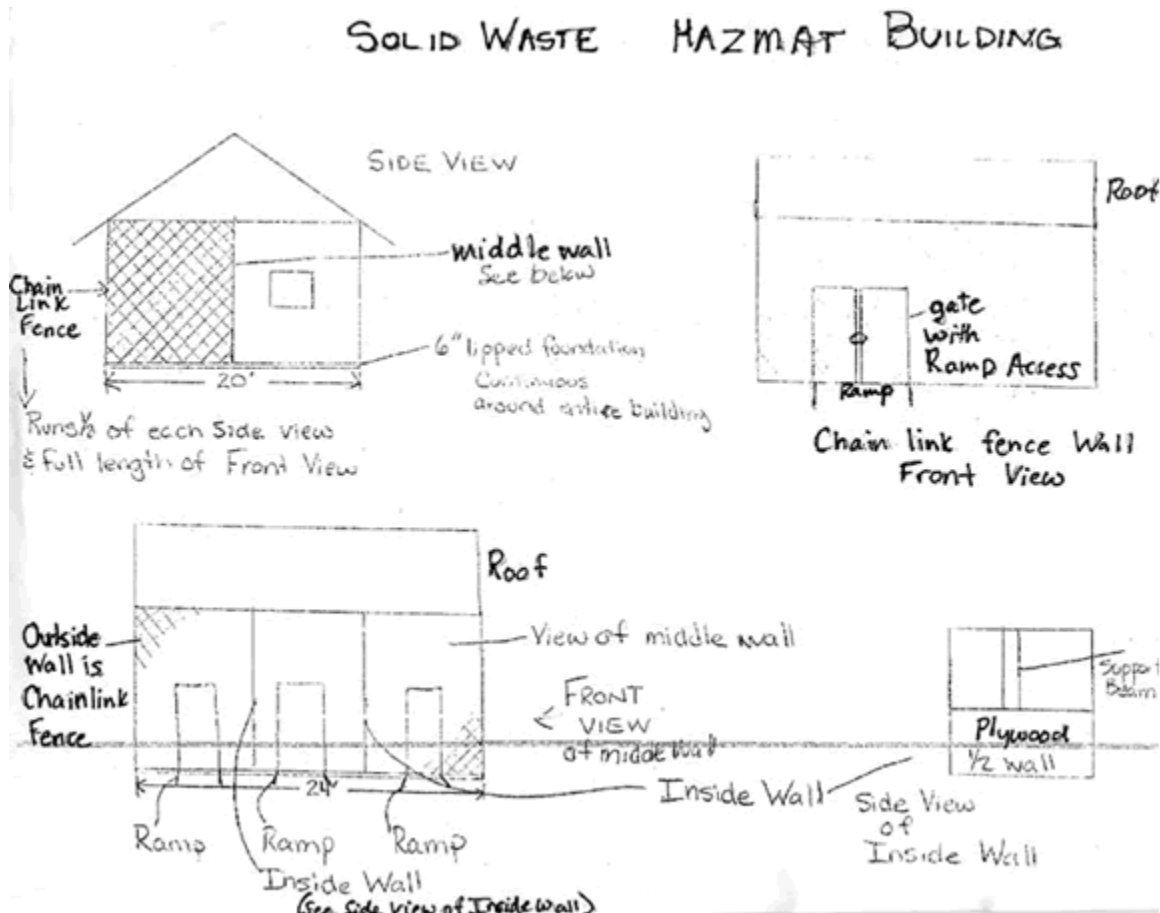
Fort Yukon's Haz Waste storage structure

Ouzinkie

Ouzinkie constructed a hazardous waste shed a few years ago. This basic shed is about 18'x10' and is located at their landfill. People can drop off their hazardous wastes during open hours. They used spruce for the main structure and siding. Roof materials were salvaged from local projects. A geosynthetic liner was purchased to line the floor of the shed and a double door was installed on the side. Last, a sign was put up to let people know what they can and cannot drop-off. If you would like to talk to Ouzinkie about their hazardous waste shed contact: Tom Quick at 680-2209.

Thorne Bay

The City of Thorne Bay built a hazardous waste storage building with some bonus features. See the design plan below. Their shed is divided into three separate storage areas. The separate areas are for storing wastes that should not be placed together. This shed has spill gutters, venting, and fencing. People can store materials inside the fence, but outside the shed. The roof extends over part of the outside fenced area, for extra sheltered space. It cost about \$5,000 to build back in YR 2001, including labor. Local businesses donated materials. Call Russ Staton at the City of Thorne Bay to ask about their design. Phone: 828 3380.



Here are some other examples of simple hazardous waste storage sheds:



Photo Source: DEC



Photo Source: DEC



Photo Source: DEC



Hazardous Waste Storage Buildings

Moderately Expensive Option

Convert or purchase a used shipping container for storage

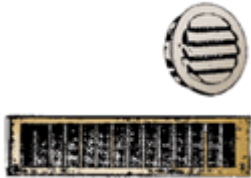


Modifications

You can modify the containers to suit your community's needs. For example, you can order a lock box to put on the container to keep it secure. Spill catchments can be installed on the floor to collect any wastes that spill or leak. Shelving can be added to increase storage room and organize smaller items. This is what our community of Selawik did. We have a Connex with shelves that make it much more convenient to store household hazardous products for exchange.

Whatever else you do - it is a good idea to install air vents. Hazardous waste vapors need a way to escape and not build up.

Side vents are generally called "louvered vents" and they look something like this:



Vents on top of the container are "turbine vents" and look like this:

Listed below are a few companies that sell used containers. Give them a call to find out about their current container and modification prices.

A note on shipping the containers

Some communities have been able to get **FREE** container shipping when the container is used for a shipment coming already to the community. If a barge shipment is planned for your community, contact the barge company to see if the **container you buy can be used to hold the goods you are shipping**. The barge companies generally require the containers to be "normal" size (because they stack the containers on the barge in a certain way). So, containers with some modifications (like lock boxes that stick out), may make it more difficult to get free shipping. But you can purchase the materials for the modifications and install the parts yourself once the container arrives. Talk to your school, store, and housing department about arranging to buy the Connex they order up.

Who sells the containers?

Listed below or on the next page are a few companies that sell used containers, including

modifications.

McKinney Trailers and Containers

20 foot containers range from \$1900-\$2400
40 foot containers are approx \$2000
Address: 4450 B St. N.W. Auburn, WA 98001
Phone: 1 (800) 773-0903
Web: www.e-mckinney.com

Northland Barge

20 foot containers range from \$1500-\$2000
Contact Mike Hamm or Robert Jones to check for container availability
Phone: 276 4030

Pacific Northwest Equipment

20 foot containers are approx \$2000
40 foot containers are approx \$2400
Address: 3161 Elliott Ave. Suite 340 Seattle, WA 98121
Phone: 1 (800) 659-0147 or 1 (206) 286-3177
Web: www.pnwgroup.com

Modern Motor Used Equipment

20 foot containers are approx \$1800-\$2000
40 foot containers are approx \$2200-\$2400
They also sell insulated ex-refrigerator containers for approx \$2100
Address: 701 E 104th Ave Anchorage, AK
Phone: 344-3008

Alaska Cargo Transport Inc

20 foot containers are approx \$2500
Address: 825 Whitney Rd Anchorage, AK
Phone: 276-3535



Hazardous Waste Storage Buildings

Most Expensive Option
Prefabricated storage buildings

If you have a large budget for a hazardous waste storage system, you may want to purchase a prefabricated hazardous waste storage building.



Companies construct these portable buildings specifically for storing different types of hazardous wastes. Basic safety features are built into these storage systems. You can purchase a variety of additional options such as lighting, fire suppression systems, hi-tech ventilation systems, etc. These "pre-fab" buildings start at about \$10,000 for a very basic model. If you are looking to purchase one, you can start by calling one of the companies below. Ask them about their various models and costs.

Who sells them?

Safety Storage Inc.

2301 Bert Drive
Hollister, CA 95023
Phone: 1 (800) 344 6539
Web: www.safetystorage.com

Environmental Compliance Products

8907 Warner Ave., Suite 122
Huntington Beach, CA 92647
Phone: 1 (800) 643-7065
Web: <http://www.ecpenvironmental.com>

Want to talk to someone who used a pre-fab storage building?

The Glacier Bay National Park Landfill purchased one from Safety Storage and they use it to store materials such as paint, cleaners, etc. The materials are available for re-use and anyone in the community can drop by and pick out what they might use. (see pictures below).

You can contact Jason Parks at the Glacier Bay National Park Landfill in Gustavus, Alaska at 697-2327 to ask them how they like it.



Glacier Bay National Park Landfill Hazardous Waste Storage Unit

Jason Parks at Glacier Bay shows the inside of the storage unit



Shipping Hazardous Wastes



Existing Lower Cost or Free Shipping Services

Crowley (Northland/Yutana)/Yukon River Inter-Tribal Watershed Council (YRITWC) Backhaul Project

If you're on the Yukon, you may be familiar with the free Yutana Barge scrap metal and hazardous waste backhaul program that they started with DEC, and continued on their own. YRITWC is now working with Crowley (Northland/Yutana), other transporters, and end recyclers, to coordinate backhaul with several communities on the Yukon, Koyukum, and Innoko Rivers. Several recyclable materials are being staged, drained, and backhauled, such as vehicles, heavy equipment, and other scrap metal, as well as some hazardous "universal" wastes such as lead-acid batteries. They have also backhauled used electronic items (e.g. computers) from some communities. If you are in their region, you can find out what they are able to backhaul from your community, and how to become involved by contacting them.

[Click here to see their website](#)

[Click here to see their newsletter with information about the backhaul project](#)

Or Contact Jon Waterhouse, YRITWC at 907-258-3337. They may also be able to give out some advice for communities that they do not serve.

Southeast Tribes Scrap Metal Backhaul

CCTHITA used Special Project funds to organize and collect junk cars in Southeast Alaska and barge them to Seattle to be recycled in 2004. CCTHITA contracted Channel Construction Inc., in Juneau, AK to go to each IGAP community and load junk cars on the barge. With the help of the Tribal Environmental staff in each IGAP community they were able to successfully recycle about 1,000 junk cars throughout Southeast (about 2,000,000 pounds). Contact Ray Paddock at CCTHITA to see if they are doing another backhaul in the Southeast area: 1800 344 1432.

Copper River Backhaul

NRCS and the Copper River Tribes used EPA Multimedia funds for doing a junk car and refrigerator removal in 2005-2006. They removed 650 cars from southern Villages and a total of 1000 were removed from the area (approximately 2,000,000 pounds). Contact Arlene Rozencrantz at NRCS to see if they are doing another backhaul in the Copper River area: arlene.rosenkrans@ak.usda.gov

Northwest Arctic Villages and Northern Air Cargo

NAC will backhaul out electronics, fluorescent, batteries from villages where they have projects. Contact Maniilaq (442-7693), Total Reclaim (561-0544), and Northern Air Cargo.

Dillingham Landfill

Contact the Dillingham Landfill to see what types of hazardous wastes they accept and the costs (if any): 842-1666 or 842-2885

Bethel Recycling Center

Contact the Bethel Recycling Center to see what types of hazardous wastes they accept and the costs (if any): 543-7072

How do I manage and prepare wastes for shipping?

Hazardous wastes must be managed the right way for the plane or barge to accept them. Contact YRITWC for latest details, but in general you can follow this information:



1. Separate hazardous wastes into different types

- Keep products in their original containers if possible
- Don't mix any products together

2. Label all containers!

- Label and identify all containers to the best of your knowledge
- The labels don't need to be fancy - a pen marker can be used to write on the container. Write big and use clear lettering. You can also write on a piece of paper and cover it with clear tape for a label.
- You can also click on the link below for pre-made labels for various hazardous wastes which you can photocopy, cover with clear tape, and secure to your container, or go to http://www.cthita-swan.org/main/labels_haz.cfm.



3. Keep containers in good condition until they are collected

- Properly store all containers
- Place any leaking container inside another container
- Containers should be **stored under cover** to avoid degradation from weather.

4. Be prepared for the barge/plane's arrival

- It is important to know when the barge will be arriving so the wastes are properly packaged, labeled, and ready to go.

- It is also important to set the prepared hazardous wastes at a location agreed-to by the Barge. Talk with YRITWC about the best "pick-up" location for your community.
- Some communities have **Connex containers** at their barge landing which they use to store their hazardous wastes. For more information about storing wastes and storage equipment, see our Storing Hazardous Wastes section in this guide.



DEC/Southeast Household Hazardous Waste Collection Program

The Alaska Department of Environmental Conservation, the Southeast Conference, and the Alaska Marine Highway System used to sponsor a hazardous waste pick up service for communities in the Southeast. A "Hazmobile" van was transported by Alaska Marine Highway to Southeast communities once a year (during the summer) for a household hazardous waste collection day.

The participating communities were responsible for the shipping and disposal costs of the hazardous wastes, however these costs were one-third of what they would be without the donated contributions by DEC, Alaska Marine Highway, and the Southeast Conference. Ten Southeast communities participated in the 2002 collection event and another event occurred in Summer 2003. For now, the funding for this program has been cut. However you can contact Deric Marcorelle at DEC to see if the program will continue in the future or if he knows of any other household hazardous waste programs happening.



State of Alaska Southeast Household Hazardous Waste Collection Program
(Source: DEC)

Contact Name 1: Deric Marcorelle, DEC

Phone: 262-5210 x249 Address: 35390 Kalifornsky Beach Rd. Soldotna, AK 99669

Email: deric_marcorell@dec.state.ak.us



State of Alaska Southeast Household Hazardous Waste Collection Program: Hazmobile (Source: DEC)

Shipping Companies

Finding your own hazardous waste shipping/disposal companies

There are companies you can hire to ship out and dispose of your hazardous wastes. However, this can be expensive. The costs will vary greatly depending on what you want to ship, how much material you have, and the location of your Village. A great place to start is to give any of the hazmat shipping/disposal companies a call and talk to them about what you want to ship and how much it might cost.

Contact Details

Total Reclaim (contact: Larry Zirkle)
12101 Industry Way, Unit #C4 Anchorage 99515
(907) 229 0183 Email: larryz@totalreclaim.com

Emerald Services www.emeraldncw.com
800 East Ship Creek Avenue
Anchorage, AK 99501
(907) 258-1558
(See sample prices below or on next page)

Alaska Pollution Control
8040 Hartzell Rd Anchorage
(907) 344 5036

Charge \$3/gallon for used antifreeze;
\$0.25/gallon for used oil with a \$75 minimum
(plus the oil must be tested which runs around \$200)

Phillips Services
Anchorage 1 800 478 9008 (907) 272 9007

Disposal Costs

The hazmat companies will give you cost estimates to dispose of the hazardous wastes at their Anchorage/Seattle facilities. Below are some sample disposal costs from Emerald Services. Remember, these are just estimates, and the actual costs may be more or less depending on your specific hazardous materials, quantities, and location.

Sample Costs:

Emerald Alaska, Inc.
2121 Wilding Drive
Anchorage, AK 99501
Phone: (907) 258-1558 - Fax: (907) 258-3142
Facility EPA ID: AKR000 004 184
Transporter EPA ID: WAD 036 364647

ITEM	PRODUCT DESCRIPTION	PRICE
OIL	A - Used Oil - Oil Spcc < 1000 ppm chlorides	\$ 25/gallon
	B - Used Oil - Oil Spcc < 1000 ppm chlorides	\$ 25/gallon
	C - Used Oil - Oil Spcc > 1000 ppm chlorides	Call for quote
	D - Used Oil - PCB Contaminated	Call for quote
FUEL	A - Oil Spcc Diesel, Heating & Jet Fuels	N: Charge
	B - Oil Spcc Diesel, Heating & Jet	\$ 25/gallon
	C - Oil Spcc Gasoline	\$ 35/gallon
WASTEWATER	Petroleum Contaminated Wastewater	\$11.5/gallon
ANTIFREEZE	A - Ethylene Glycol	\$150.00/ton
	B - Propylene Glycol	\$125.00/ton
SLUDGES	A - Petroleum Sludge	\$380.00/ton
	B - Petroleum Solids (No Free Liquids)	\$125.00/ton
ABSORBENTS	Hydrocarbon Contaminated Absorbent Material	\$150.00/ton
OIL FILTERS	Oil Filter	\$150.00/ton
OTHER SERVICES	On-site Hazardous Testing (Chloride test)	\$15.00/test
	Drum Cleaning & Disposal	\$28.00/test
	Hazardous Waste Services	Call for Quote
	Spill Response	Call for Quote
	Tank Cleaning	Call for Quote
	Transportation	Call for Quote
	Vacuum Truck Services	Call for Quote
	Pesticide Program	Call for Quote
	Environmental Technology	\$30.00/hour

Shipping Costs

The hazmat companies will also give you cost estimates for the cheapest shipping option for your hazardous wastes. Shipping costs will again depend on what you're shipping and how much you're shipping. Transport companies charge different rates for different types of hazardous wastes. For example, barge lines often use a 'sliding scale' where they charge more money for more contaminated wastes. Airlines often only charge a small handling fee and then their shipping costs are the same as any non-hazardous item.

Your cheapest bet for shipping when you have to pay:

Often the most cost-efficient way to ship hazardous wastes through a private company is to **team up with a nearby community** and share the costs. Shipping in larger quantities and sharing the costs is generally cheaper than shipping small quantities on your own. If you store your hazardous wastes too long, you can run into regulation issues, and drums can go into disrepair. **The Kodiak Borough** is planning to ship out a large quantity of hazardous wastes which were gathered from 5 different communities on the island. To find out more about Kodiak's hazardous waste shipping program, see our Hazardous Waste Program Examples section of this guide.

Hints to Start Free or Reduced Price Shipping

If you have more than one transporter, you may be able to develop a good relationship with one better than another. Regardless, **like any relationship, developing a good relationship with the transporter can take time**. Shipping out hazardous wastes, even universal wastes is a liability for them and it can cost them time. **They need to trust that you are responsible so they do not lose money or get in trouble**. So:

Contact them regularly (every month or two), but briefly, to "touch bases". Be courteous and being to develop a familiar relationship that is enjoyable for both of you. They need to know you are serious about a backhaul program and are dedicated to making it work.

If you know someone that knows someone, use that connection. That is called **networking**.





Try to start small. You can ship out **one pallet** of batteries that is:

- ◆ Packed well,
- ◆ The barge/plane does not need to wait, and
- ◆ You have a company ready to accept at the other end.

Everyone wants to "do the right thing". The Council can **write a Thank you letter** or resolution, and the school kids can send pictures they draw. This lets the transporter know how much the community appreciates their assistance.

The next year, you might be able to ship out more for free, because the transporter will know that you know your job. And they will want to help your community because it makes them feel good.

Some Contacts

<p>Barge Transport</p> 	<p>Crowley (Northland/Yutana) Barge Matt Sweetsir or Endil Moore 907-832-5505 Clara Henry, Kotzebue Office 907 442 3212, Fax (907) 442 3627 Anchorage Office (907) 278-4978 www.crowley.com</p> <p>Naknek Barge Tim Kinkoff, Seattle (206) 762 1092 or (206) 658 0222</p> <p>Northland Services Steve Koponen, Anchorage 1 (800) 426 3113 ext 577 www.northlandservicesinc.com</p> <p>Alaska Marine Lines Seattle, Washington: 1 800) 326-8346 www.lynden.com/aml/</p>
<p>Land Transport</p> 	<p>Lynden Transport Ken hall, Anchorage 1 (800) 327-9390 www.ltia.lynden.com/</p>
<p>Air Transport</p> 	<p>Alaska Airlines Peggy McCluskey, Director of Environmental Affairs, Seattle, WA 206 574 1978 or main number 1 (800) 252-7522 www.alaskaair.com</p> <p>Northern Air Cargo Anchorage, 1-800-478-3330 www.nacargo.com</p> <p>Everts 1 866-242-0009</p>
<p>Rail Transport</p> 	<p>Alaska Railroad Lyle Madson, Anchorage (907) 265 2448 or main number (907) 265-2300 www.akrr.com/</p>

**Hazmat shipping
companies**

Total Reclaim (contact: Larry Zirkle)

Anchorage (907) 229 0183 Email: larryz@totalreclaim.com

Emerald Services

Anchorage, (907) 258-1558

www.emeraldnw.com

Alaska Pollution Control

Anchorage, (907) 344 5036

Phillips Services

Anchorage, 1 (800) 478 9008 or (907) 272 9007



Writing Ordinances for Hazardous Wastes



What is an ordinance?

"An ordinance is a statement of what's acceptable or not acceptable in your community. Because the ordinance becomes the local law, it should be written clearly so that everyone understands it. An enforceable ordinance is:



- ◆ In writing,
- ◆ Not in conflict with other state and federal laws,
- ◆ Signed by appropriate officials." *

** From Association of Village Council Presidents, Inc. (1998) "Landfills in the Bush: A Guide to Opening, Maintaining, and Closing Remote Solid Waste Sites"*

Examples of topics for hazardous waste ordinances

- 🚧 Hazardous waste disposal
- 🚧 Enforcement (fines for dumping etc.)
- 🚧 Pollution of beaches and riverbanks
- 🚧 Pollution clean up responsibilities: individuals and businesses
- 🚧 Illegal dumping
- 🚧 Construction & Demolition debris from local projects

Sample Tribal Ordinances and Codes

To see sample ordinances from Alaska Villages, go to <http://www.zender-engr.net/ordinances.htm> You can view the actual ordinances by Village or by the ordinance topic.

Writing Ordinances for Hazardous Waste From Construction Projects



For extensive information about construction and demolitions wastes, including information about writing ordinances for hazardous waste from construction projects, see the Construction waste section of this guide.



Educating Your Community about Hazardous Wastes



Education

An important step to start a community hazardous waste program is to **educate** the people in your community about hazardous wastes. It is our communities that control how hazardous wastes are handled (and if they are purchased). It is our communities that are impacted by hazardous waste disposal. So it is important to let people know of the dangers associated with hazardous wastes, and the need to dispose of the wastes properly.

Educating kids

Teaching our youth about hazardous wastes is one of the best ways spread the word about the potential dangers of hazardous wastes. Go to your school and see if you can add the study of hazardous wastes to the topics they teach.



- ◆ Talk about the reason a product is "hazardous" (Using or disposing the product poses a threat to human health and the environment).
- ◆ Discuss how to determine which household products are hazardous (reading warning labels and looking for words like: poison, toxic, flammable etc.)
- ◆ Talk about why it's important to protect the environment from hazardous wastes (subsistence, drinking water sources etc.)
- ◆ Talk about how these chemicals can get into the environment and places they care about.
- ◆ Talk about how manufacturers don't make their products to be disposed in unlined landfills or burned in burnboxes. They make them assuming that people can discard them properly. So it is up to the community to adopt the practices that make everyone safe.


Educating the Community

Spread the word about hazardous wastes. Put up flyers around the community and at the dump/landfill to remind people of the risks posed by hazardous wastes.

Encourage people to **REDUCE** the amount of hazardous wastes in the community

- ◆ Ask households to purchase less hazardous products and/or use less toxic alternatives. See the list of safe alternatives in this guide.
- ◆ Ask businesses and government to use less toxic alternatives, such as using propylene glycol instead of ethylene glycol for antifreeze whenever possible.




- 
- ◆ Ask Stores to order less toxic alternatives. This includes ordering aluminum cans and glass bottles or pop instead of plastic, and paper instead of Styrofoam.
 - ◆ Ask everyone to make sure they either use all of the hazardous products they have, or to share them with someone else. Only completely empty containers should be thrown out in the trash.

Go to SWAN's Education pages at <http://www.ccthita-swan.org/Educating/educating.cfm>
Here you will find information about how to educate about hazardous wastes including:
Links to helpful websites; Sample Village poster projects; and further information about how to educate kids. Also see EPA's Environmental Education website at <http://www.epa.gov/enviroed/index.html>. And finally, you can see how other Villages are educating their communities, and you can post an education question to other Villages, at the SWAN message board <http://members.boardhost.com/SWAN/>



Testing/Sampling Hazardous Wastes





If you are concerned about contamination from hazardous wastes in your community, there are a few options listed below and on the next pages for testing/sampling land or water for hazardous substances.

1. Apply for a TBA (Targeted Brownfields Assessment) Grant

(<http://yosemite.epa.gov/r10/cleanup.nsf/7780249be8f251538825650f0070bd8b/005df9235f56290e882567990080b48f?OpenDocument>)

This grant is designed to inventory, characterize, and assess brownfield sites using EPA contractors. There is no cleanup funded under this program. The TBA is designed to help states, tribes, and municipalities reduce their questions about whether and how their brownfields are contaminated. The TBA's are especially for those without EPA Brownfields Assessment Pilots/Grants. They also supplement and work with other efforts under EPA's Brownfields Program. Please see these links for eligibility requirements.

- EPA Targeted Brownfield Assessment Fact Sheet (http://www.epa.gov/swerosps/bf/facts/tba_0403.htm)
- EPA National Targeted Brownfield Website (<http://www.epa.gov/swerosps/bf/tba.htm>)
- Region 10 Targeted Brownfield Site (<http://yosemite.epa.gov/r10/cleanup.nsf/7780249be8f251538825650f0070bd8b/005df9235f56290e882567990080b48f?OpenDocument>)

2. Contact Your Soil and Water Conservation District (SWCD)


There are 12 SWCDs in Alaska—11 are local districts (Mid-Yukon-Kuskokwim, Fairbanks, Kenai, etc.). The 12th district is a catch-all district including all areas not served by a local district. This catch-all district is the Alaska SWCD, which covers most of rural Alaska. If you are an isolated village, this is probably your district.

To confirm which district serves your village, go to this website:

<http://www.alaskaswcds.org/-Districtinfo.html> . When you have determined your district, click the link at the bottom of the webpage to see "District Coordinator contact information." Write an email, letter, or fax to your District Coordinator to request sampling/technical assistance. Be as specific as you can. For example, requesting assistance with soil sampling beneath fuel tanks, water quality sampling of your river, etc. They may also be able to recommend other services available or suggest other agencies/organizations to contact.

3. Look up "laboratories" in your yellow pages

You can call a lab to talk about costs for sampling/testing for the specific chemical/substance that you're worried about. **Go to this site for a list of labs**



<http://www.dec.state.ak.us/eh/lab/labs.htm> Labs that are commonly used by Alaska Tribes are SGS Environmental, Analytica Group, and North Creek Analytical. Lab test costs can vary quite a bit between labs, so call around and ask for a price quote. Some labs offer **discounts to Villages**, so be sure to let them know that you are a Tribe. Also, your regional health corporation may be able to perform some testing (such as coliform bacteria presence/absence for drinking water).

4. Call the nearest university to your community and try contacting their lab.

1. University labs may have cheaper services for sampling/testing than private labs. It's worth giving them a call to see what they have available. If you find the main number for the university, ask for number(s) for their laboratories. The lab technicians may be able to get you in touch with an interested professor or graduate student that can test your samples for free. If this happens, ask them if they plan to do something with the data. If you don't feel comfortable giving them access to your data, you need to let them know. They may still want to assist you for free anyway. They should not be able to publish a study or "own" your data without your permission. It is against University policy. If you simply use the University lab services, you do not need to worry about your data being taken without your permission. If you are unsure what you are signing, ask the Alaska Inter-Tribal Council to review your paperwork, at 563-9334.

2. The lab at Cook Inlet Keeper in Homer has reasonable prices for nutrient and bacteria sampling. They may test heavy metal samples in the future. Contact John Plaskett, Cook Inlet Keeper Lab Manager, phone (907) 235-4068 Ext 29 / Lab Ext 32 or fax (907) 235-4069.

3. For private companies that do sampling/testing, look up Environmental Consultants in your yellow pages. You can often conduct your own soil and water sampling if you are just looking for the presence or absence of contamination in that soil or water, or you are looking for just general levels of contamination. Just follow the directions on the sample bottles, or given by the labs. However, if you want your data to be considered "scientifically sound", or want more accurate numbers, and you are not a well-experienced sampler, you need someone to come out with you to conduct the sampling. They can train you while they sample. Note, if the study is funded by EPA, they will likely require you to write and follow a QAPP, which must describe the qualifications of the sampler.

Hiring a consultant to sample will likely be an expensive option, but it doesn't hurt to phone a few people to see what their prices are and what they can do. To pay for someone to come out for a couple days may be worth it because you will get good numbers the first time and they can help you interpret what the numbers mean.

The numbers will be taken seriously by agencies if the sampling is performed strictly according to procedures. **So if you can't find free of charge assistance**, you can look up companies under the following headings in your yellow pages:

- "Environmental consultants"
- "Environmental services"
- "Water analysts"
- "Soil testing"
- "Water consultants"

4. Check out other hazardous waste grants (see funding section)

5. Contact NAFWS for testing water quality for contaminants

6. The NAFWS (Native American Fish and Wildlife Society) used to train Tribes in water quality, however funding has been cut and future trainings are unknown. Check out their website for updated information.

<http://www.tribalwaterquality.com/>

7. **Contact Alaska Community on Toxics.** They are interested in contaminants in Alaska Villages. They have been able to fund some contaminant studies by writing grants and partnering with Universities. They may be able to help you find a way to test contaminants. Go to: <http://www.akaction.org>

If you want to test subsistence foods for abnormalities....

If you've seen fish or other animals with abnormalities (tumors, discolorations, etc.), take these steps:

1. Begin a logbook. Write detailed information about what was found, when it was found, and where it was found (without giving away any private information).
2. Take a photograph(s) of it.
3. Each time an abnormality is found, write about it and take pictures. An example of a log is given on the next page. **The more information you can provide, the easier it will be to get help/funding to test.**
4. Contact Christian Zimmerman at USGS to report any fish abnormalities that you've seen. He can put you in touch with disease specialists that may be able to help you. His contact details are:

Christian Zimmerman, Ph.D. Research Fishery Biologist

USGS Alaska Science Center

1011 E. Tudor Road Anchorage, AK 99503

Phone: 907-786-3954 Fax: 907-786-3636 Email: czimmerman@usgs.gov



You can also try calling **Mike Bradley at the Alaska Native Health Consortium (907) 562-6006**. He may be able to send you information or put you in touch with people that can help you.

Log of reported fish problems (example)

Assigned Number	Date the fish was found (and time if possible)	Where the fish was found/caught (be as detailed as possible)	Pictures taken? List date, how soon the picture was taken after being caught, and what the pictures are of.	What kind of fish it is	What appears to be wrong with it (describe it as best as you can)	Was the fish or abnormal part able to be frozen in a safe place for future investigation? If so, where?
1	9/24/06 Early morning	By the bridge on the south end of town.	See Photo #1. 9/24/06, taken about 3 hours after catch, after being brought home. 1 picture of the whole fish, and 1 "close-up" of the abnormality	Tom cod	It appears to be infected of some kind and it's the first time we have seen.	No.
2						
3						



RCRA and Hazardous Wastes Regulations





RCRA and Hazardous Wastes Regulations

The information on the next five pages is adopted from Tanana Chiefs Conference Draft Solid Waste Management Guide by Diana Ervin, and EPA's website.

If you have questions about RCRA and hazardous waste regulations, contact Jon Jones at (907) 271-6329 jones.jon@epa.gov

“What Is RCRA?” In 1976, the U.S. Congress passed the **Resource Conservation and Recovery Act (RCRA)** that directed the U. S. Environmental Protection Agency (EPA) to develop regulations that would protect human health and the environment from improper waste management practices. In addition to proper management of solid wastes and landfills, these regulations are designed to control the management of hazardous waste from its generation to its ultimate disposal, or from “cradle-to-grave.”

Federal regulations that detail RCRA requirements for hazardous wastes are found in Title 40 of the Code of Federal Regulations, in Parts 260-279.

<http://www.epa.gov/epaoswer/osw/laws-reg.htm> . While normal solid wastes that are not “hazardous” are included in RCRA regulations, when professionals speak of “RCRA wastes”, they typically mean **regulated hazardous wastes**.

It is EPA that manages the Hazardous Waste Program in the State of Alaska. The State does not have a formal hazardous waste program so they work cooperatively with EPA.

“Cradle-To-Grave” Responsibility

Did you know you always remain liable for the hazardous waste you generate? The hazardous waste regulations are designed to assure that **businesses** generating hazardous waste take basic steps to assure that waste is managed in a protective manner. In fact, every handler involved in the process, from the generator to the ultimate waste disposal or treatment site, is responsible for assuring that the waste is managed in compliance with RCRA.

This “cradle-to-grave” responsibility is important. Your liability continues even if the waste is shipped to an approved recycling, treatment, storage, or disposal facility. You may still be financially responsible for a clean-up if your waste contributes to contamination of the environment. Of course, your liability in this situation should be a lot less if you make sure that you properly handled, staged, and shipped your waste when it was under your control.

What Is A Hazardous Waste? As a result of doing business, a company may generate wastes that can cause serious problems if not handled and disposed of carefully. Such wastes could:

- ◆ Cause injury or death



- ◆ Damage or pollute land, air, or water

These wastes are considered "hazardous" and are regulated by federal environmental safety laws. If you identify the type and quantity of wastes your businesses generate, you can identify the hazardous waste requirements that apply to them. If you operate a hazardous waste program where you are collecting household hazardous wastes from households and small businesses, you still need to consider your program as a business. However, the types of wastes that most of our villages generate do not require a lot of paperwork. The exception would be if you have a commercial industry. Then your responsibility as an environmental department is to make sure that this industry is complying with RCRA laws.

Don't accept hazardous wastes from industries without preparing for a lot of paperwork and liability.

What is a "waste"? A waste is any solid, liquid, or contained gaseous material that you no longer use, and either recycle, throw away, store, treat, dispose of, or abandon. Regardless of whether it is liquid, solid, or compressed gas, **these wastes are known as "solid waste"**.

Business generators of solid waste are required to immediately determine if their wastes are hazardous waste. **Everyone generates solid waste, so this rule applies to all businesses.** However, businesses are allowed to use their knowledge to make this determination. Or they can use analytical laboratory testing data. But **they must keep a record of how this determination was made.** If they fail to determine that the waste is hazardous, then the waste may be managed or accumulated improperly. This is one of the most common mistakes found by EPA inspectors.

Keep in mind that there are **many exemptions** for certain types of wastes and processes. In fact, because we are small and don't have industries, for most of our villages, our businesses and our own hazardous waste programs do not have much RCRA paperwork to follow. You can refer to 40 C.F.R. 261.4 when making your hazardous waste determination to find out if your waste is excluded from the hazardous waste regulations or exempt from the solid waste definition. These regulations are very complex though. So if it is not obvious, then call the EPA hazardous waste staff at number 1 (800) 424-4EPA and ask for Jon Jones or Maria Tartaglia.



Summary of Hazardous Waste Identification

There are **two** ways a waste may be brought into the hazardous waste regulatory system: **listing**, and identification through **characteristics**.

1. Listed wastes. Your waste is considered hazardous if it appears on any one of the four lists of hazardous wastes contained in the RCRA's hazardous waste regulations. These wastes have been listed because they either exhibit one of the characteristics described below or contain any number of toxic constituents that have been shown to be harmful to health and the environment. There are four lists (which you can link to below) that identify over 400 chemical compounds that are hazardous wastes when discarded or spilled:

- **F listed wastes** are considered hazardous based upon the **process**. For example, spent trichloroethane used in degreasing is F-listed hazardous waste.
- **K listed wastes** are wastes regulated based on the specific **source**. Sludge from tanks used in refining leaded gasoline is an example of K-listed hazardous waste.
- **U listed wastes** are wastes regulated because they are a **discarded chemical** product or are spill-debris that contains a specific chemical compound which is considered toxic. Unused products like acetone, chloroform, and methylene chloride are examples of U-listed wastes.
- **P listed wastes** (Acute hazardous wastes) are also wastes regulated because they are a **discarded product** or are spill-debris that contains a specific chemical compound. But P wastes are also considered **acutely toxic**. **P listed wastes are dangerous, even in small amounts**, and are regulated the same way as larger amounts of other hazardous wastes. Dieldrin, endrin, epinephrine, and sodium cyanide are examples of P-listed wastes. Even the containers that hold these wastes are regulated as hazardous waste until they have been emptied and triple rinsed.

Mixtures of any listed hazardous waste with other wastes will require you to manage the **entire** mixture as a listed hazardous waste. Spills of listed waste that impact soils and other debris, are also regulated the same as the listed hazardous waste. So it is important that you take steps to prevent spills. If you have a spill of a listed hazardous waste, you should contact the DEC Spill Prevention And Response Program to determine how to best manage impacted soils or other debris that contain the listed waste. See the Spill Response Chapter of this guide for contacts.

2. Characteristic wastes. Even if a waste does not appear on one of the EPA lists, it is considered hazardous if it exhibits one or more of the following characteristics:

1. **Ignitable.** It is easily combustible or flammable with a flashpoint of less than 140 degrees F. This is called an **ignitable waste**. Examples are paint wastes, certain degreasers, or other solvents. The EPA waste code for ignitable wastes is "D001"
2. **Corrosive.** It dissolves metals, other materials, or burns the skin. This is called a **corrosive waste**. Examples are waste rust removers, waste acid or alkaline cleaning fluids, and waste battery acid. Corrosive wastes have a pH of <2.0 or >12.5. The EPA waste code for corrosive wastes is "D002"

3. **Reactive.** It is unstable or undergoes rapid or violent chemical reaction with water or other materials. This is called a **reactive waste**. Examples are cyanide plating wastes, bleaches, waste oxidizers, and waste explosives such as dynamite. The EPA waste code for reactive wastes is "D003"
4. **TCLP.** It exceeds the maximum regulatory level for certain chemicals including pesticides, heavy metals, and specific volatile compounds when tested using the Toxicity Characteristic Leaching Procedure (TCLP). This is a complicated laboratory test that you can read more about at <http://ehso.com/cssepa/TCLP.htm>

DETERMINING GENERATOR CATEGORY

Once you know which wastes are "hazardous waste", you will be able to count the hazardous waste a business generates or manages and identify the requirements that apply. Categories of hazardous waste generators are based upon the amount generated in a calendar month and by the amount accumulated on-site. **They are only applied to businesses. Households are exempt from regulation** when they use and dispose household hazardous wastes in a manner and quantity that would be expected. The three business categories are:



- Conditionally Exempt Small Quantity Generators (CESQGs)
- Small Quantity Generators (SQGs)
- Large Quantity Generators (LQGs)

Unless it is an industry or you are in a hub, your businesses are most likely CESQG's. Your hazardous waste program is most likely a CESQG, especially if you only handle Universal wastes, recycle used oil for heat, and operate a household hazardous waste exchange. That is good because CESQGs are exempt from RCRA reporting requirements as long as they meet the CESQG category and standards.

To determine for sure which category applies to your business, and what requirements you must meet, you must measure or "count" the hazardous wastes your business generates in a calendar month. In general, **you must add up the weight of all the hazardous wastes your business generates during each month.** The total will determine your generator category. The information below summarizes the kinds of wastes you must count.

COUNT:

The business must count all quantities of "Listed" and "Characteristic" hazardous wastes described above that they:

- Generate and accumulate on-site for any period of time.
- Package and transport off-site.
- Place directly into an on-site recycling unit.

HOWEVER, DON'T COUNT

Businesses do not have to count wastes that are:

- ◆ **Exempted Wastes:** RCRA lists specific wastes that you don't need to count in 40 C.F.R. 261.4. Examples of these exempted wastes are:
 - Spent **lead-acid batteries** that will be sent off-site for reclamation
 - **Used oil** that has not been mixed with hazardous waste, provided the used oil is recycled or burned for energy recovery
 - **Used oil filters** that have been crushed or punctured and hot drained
- ◆ **"Universal wastes"**, described further below, and covered in 40 C.F.R. 273.
- ◆ **Residual from "Empty Containers"**. Remain in the bottom of containers that have been completely emptied through conventional means, for example, by pouring or pumping. Containers that held an "acute hazardous waste" must be more thoroughly cleaned by triple rinsing with an appropriate solvent. See "What is Empty?" in the Construction waste chapter of this guide (around page 165) for more on how to tell if a container is "empty" under RCRA.
- ◆ **Wastes reclaimed continuously on-site** without storing the waste prior to reclamation. For example, a dry cleaning facility that incorporates a still unit to constantly clean solvent with the process. This is considered a "closed loop" system and waste is generated only when material is collected from the still
- ◆ **Wastes discharged directly (by piped water system) to a publicly-owned wastewater treatment facility** that has obtained an EPA Clean Water Act Permit. The waste cannot not be stored or accumulated first. The discharged waste must be approved by the treatment facility and may be required to meet pretreatment or other standards. Note for almost all of our villages, the water treatment pond/lagoon is not designed to accommodate hazardous wastes. It is unlikely that a discharge permit could be obtained.

ONCE YOU HAVE COUNTED THE WASTES THAT SHOULD BE COUNTED: See the summary table on the next page to determine your generator category. It depends on how much waste you make per month and how much you store (accumulate) at any one time.








Generator Category Table. The table is adopted from Tanana Chiefs Conference Draft Solid Waste Management Guide by Diana Ervin

Summary of the Hazardous Waste Generator Categories

Key: one 55 gallon barrel = about 440 pounds of hazardous waste (this assumes your waste weighs 8 lbs/gallon.)

		
<p>Conditionally Exempt Small Quantity Generator CESQG (generators of no more than 220 pounds/month.)</p>	<p>Small Quantity Generator SQG (generators of 220 – 2,200 pounds/month)</p>	<p>Large Quantity Generator LQG (generators of 2,200 pounds/mo. or more)</p>
<ul style="list-style-type: none"> • Generate less than 220 pounds of hazardous waste (about 1/2 of a 55 gallon drum) per month. • Generate less than 2.2 pounds (or 1 quart) of “acute hazardous waste” per month • Generate less than 220 pounds of material from the cleanup of a spill of an acute hazardous waste • Accumulate less than 2,200 pounds of hazardous waste at any one time • Accumulate less than 2.2 pounds of an “acute hazardous waste” at any one time • Accumulate less than 220 pounds of material from the cleanup of a spillage of acute hazardous waste at any one time 	<ul style="list-style-type: none"> • Generate 220 - 2,200 lbs (this is approximately 5 full 55 gallon drums) • Generate less than 2.2 lb of acute haz waste. • Generate less than 220 lb of spill cleanup of acute haz. • Accumulate less than 12,400 lb of hazardous waste at any one time • Accumulate less than 2.2 lb of an acute hazardous waste at any one time • Accumulate less than 100 kg of material from the cleanup of a spill of acute hazardous waste 	<p>Generate or accumulate more than SQG.</p>



Universal Wastes:

USEPA calls some hazardous waste a "Universal Waste". This waste does not count as hazardous waste for the purposes of generator categories and requirements. USEPA did this so the wastes would be much easier to transport and recycle. If a business generates or collects universal wastes, it is a "Handler of Universal Wastes". The collection and



backhauling programs for household and/or business batteries and fluorescent lights makes most Villages a Handler of Universal Wastes, along with the businesses in town that generate their own Universal Wastes. Households are not considered "Handlers of Universal Wastes" in the RCRA rules even if they use fluorescent bulbs and batteries.

Universal Wastes are limited to:

- ◆ Hazardous Waste Batteries (**lead-acid and household batteries** that are hazardous)
- ◆ Hazardous Waste Lamps (this includes **fluorescent lights**, neon lights, any other bulbs or the metal fixtures that contain mercury)
- ◆ Hazardous waste pesticides: (only certain classes and uses of pesticides.)
- ◆ Hazardous Waste Mercury-Containing Products (**thermometers, switches, sensors, etc.**).

Remember, none of these are considered "wastes" until they have been discarded or are completely used up.

There are two categories of Universal Waste Handlers.

- ◆ **Small Quantity Handlers of Universal Wastes - "SQHUW"** (RCRA 273, subpart B): Accumulates less than 11,000 pounds of universal wastes at any one time. This will be most villages and their businesses.
- ◆ **Large Quantity Handlers of Universal Wastes - "LQHUW"**: Accumulates more than 11,000 pounds of universal wastes at any one time.

The main difference is that **Small Quantity Handlers don't have to register with EPA or fill out any paperwork** to collect and ship these wastes. The *transporter/shipper* for these wastes must follow regulations in Part 273 Subpart D. The transporter would be the Post Office or the barge or plane company. They will know how to follow those regulations. Working with the Recycler, such as Total Reclaim for fluorescent bulbs, will ensure that these wastes are properly packaged for shipping. The Recyclers are great resources for help. See the appropriate Chapters in this guide for contact information.



The Table below adopted from the USEPA website summarizes EPA "Universal Waste" Rules.

Differences in the Regulations for Small and Large Universal Waste Handlers

	Small Quantity Handlers of Universal Waste	Large Quantity Handlers of Universal Waste
Classification	A universal waste handler who accumulates up to, 11,000 lb. on-site time (§273.9)*	A universal waste handler who accumulates more than 11,000 lb. on-site (§273.9)
EPA Identification Number	Not Required (§273.12)	Required (§273.32)
On-Site Accumulation Limit	Less than 11,000 pounds (§273.9)	No limit
Shipping Manifests and Record keeping	Not Required (§273.19)	Manifests Not required, but must keep basic shipping records (§273.39)
Employee Training	Basic handling and emergency procedures for these wastes (§273.16). Note proper handling, procedures, and packing for batteries and fluorescent bulbs and mercury products is available on-line at SWAN and also the end-recycler can help. HAZWOPER training is more than adequate for emergency procedure training.	Proper handling and emergency procedures geared towards employee responsibilities (§273.36)

Managing Universal Waste Programs. Most of us have battery and fluorescent bulb programs, or are trying to start one. The below table from USEPA summarizes the USEPA management requirements for these Universal Waste Programs for Small Quantity Universal Waste Handlers.

USEPA Universal Waste Management Requirements for Small Quantity Handlers

Issue	Rule
Waste Management	Must manage universal waste in a way that prevents releases into the environment Specific standards apply to each type. The handouts and materials available on SWAN and www.zender-engr.net provide basic management guides. For specific regulations see Part 273.13 and 273.33 of the Code of Federal Regulations (“CFR §273.13” and “§273.33”)
Labeling/ Marking	Must label or mark universal waste or containers of universal waste to identify universal waste type (CFR §273.14 or §273.34)
Accumulation Time Limit	One year unless for proper recovery treatment or disposal (CFR §273.15 or §273.35)
Response to Releases	Must immediately contain releases and handle residues appropriately and make hazardous waste determination on material resulting from release (§273.17 or §273.37)
Shipments	Must send universal waste only to other handlers, destination facilities, or foreign destination (§273.18 or §273.38). For example, Total Reclaim in Anchorage for fluorescent lights, and Interstate Batteries or Battery Specialists for lead-acid batteries.
Prohibitions	Disposing of, diluting, or treating universal waste - although some exceptions apply (§273.11 or §273.31)

RCRA Resources The links listed below contain further information about RCRA.

Site Title	Web address
EPA Region 10 RCRA site	http://yosemite.epa.gov/R10/owcm.nsf/7468f0692f73df9a88256500005d62e8/1a9900b8c988454b8825675f00775776!OpenDocument
RCRA Orientation Manual 2006	http://www.epa.gov/epaoswer/general/orientat/
EPA General Hazardous Wastes site	http://www.epa.gov/osw/hazwaste.htm
EPA Managing Hazardous Waste in Your Community	http://www.epa.gov/epaoswer/general/manag-hw/manag-hw.htm
A good one-page summary of generator requirements	http://www.cdphe.state.co.us/hm/generatortable.pdf



Hazardous Wastes from A-Z: How to Recycle / Properly Dispose of All Kinds of Hazardous Wastes



- ◆ Antifreeze
- ◆ Asbestos
- ◆ Automobiles
- ◆ Batteries
- ◆ Computers
- ◆ Computer Disks
- ◆ Construction and Demolition (C&D) wastes
- ◆ Drums (55-gallon etc.)
- ◆ Electronics (including TV's)
- ◆ Fluorescent lights
- ◆ Household hazardous waste (paint, cleaners, etc.)
- ◆ Lead containing products
- ◆ Mercury containing products
- ◆ Mining wastes
- ◆ Oil
 - ◆ Used oil burners
 - ◆ Waste oil burners (WOTEC/REOS)
 - ◆ Used oil filters
- ◆ Toner cartridges



Antifreeze



Used antifreeze is toxic to humans and animals and should be managed carefully. Disposing used antifreeze into a river or stream can cause serious water quality problems. Dumping antifreeze on the ground may contaminate groundwater and can also result in significant warming and/or melting of permafrost. Some of the contaminants that may be present in used antifreeze are benzene and heavy metals such as lead, mercury, cadmium, chromium, copper and zinc.



Tips

- ◆ **Don't change your antifreeze until it's necessary.**
- ◆ **Never mix your antifreeze with solvents, oils, or other wastes.**
If your used antifreeze is mixed with other wastes, it can't be recycled.
- ◆ **Use propylene glycol instead of ethylene glycol.**

Antifreeze/coolant is generally made from either ethylene glycol or propylene glycol. **Propylene glycol is far less toxic than ethylene glycol.** Propylene glycol is used in other products besides antifreeze such as food, cosmetics, and certain medicines. New propylene glycol has a lower toxicity to plants and animals. However, used propylene glycol may still contain some hazardous contaminants (gas and heavy metals). Propylene glycol appears to have a similar performance to ethylene glycol for freeze protection and some research has shown that propylene glycol may be less corrosive to cast iron. If projects or specific equipment in your Village require antifreeze, talk to the project manager or the manufacturer about using propylene glycol instead of ethylene glycol

What you can do with your used antifreeze

Purchase an antifreeze recycling machine: See below and the next few pages for information about antifreeze recycling machines.



Ship it out of your community: See the Shipping Hazardous Wastes section in this guide.



Antifreeze Recycling Machines

Why get one?

Using an antifreeze recycling machine can save your community money by:

- ◆ Reducing the amount of new antifreeze that needs to be purchased



- ◆ Avoiding disposal costs
- ◆ Avoiding cleanup and liability costs

How do they work?

There are different types of antifreeze recycling machines, but in a typical machine, here are the steps:

1. Used antifreeze is poured into the machine tank.
2. Antifreeze is pumped through the machine and special filters "clean" the antifreeze.
3. Once the antifreeze is cleaned, you add anti-corrosion chemicals.

You then have antifreeze which can be used as you need it!



Examples of antifreeze recycling machines
Photo source: Kleentec

How much do they cost?

The cost varies with different models. It is generally about **\$1,200-\$3,400**.

Coolant additives are necessary to use the recycled antifreeze. The price of coolant additives also varies with the brand of the antifreeze recycler. A good average cost to use is about **\$240 for every 80 gallons** of filtered antifreeze. Usually, coolant additives can be purchased from the same place where you order the antifreeze unit.

The filters in the antifreeze recycling unit will need to be replaced from time to time. Like the coolant additives, prices of filters vary with different brands of antifreeze recycling units. A good average cost to use is **\$60 for every 80 gallons** of antifreeze put through the unit

Remember- Although you have to buy the machine and coolant additives up front, **recycling antifreeze can save you money** in the long run. Your antifreeze expenses will end up lower.

You can even sell your recycled antifreeze to Projects!

You can pass an ordinance that says that contractors must use recycled antifreeze when available. You can also charge them to leave their used antifreeze with you! That money can pay for the coolant additives and you will have free antifreeze.

What about operation and maintenance?

All antifreeze recycling units will come with operation, maintenance, and set-up guides for you to read. One of the most important rules to follow is to make sure the antifreeze you're putting into your machine is **free of dirt, grit, and debris and that your used antifreeze is never mixed with solvents, oils, or other wastes**. If your used antifreeze is mixed with other wastes, it can't be recycled and it may need to be disposed of as hazardous waste. If your used antifreeze is full of grit and debris, breakdowns can occur and the internal filters will have to be replaced more frequently.

Pre-filtering your used antifreeze

It is a good idea to filter your antifreeze before it goes into your recycling unit. You can do this by pouring the used antifreeze through a piece of cheesecloth (the cloth will catch any debris etc.). You can also pour your used antifreeze through an inexpensive plastic or metal filter/strainer. Pre-filters/strainers can be purchased for under \$20 from Arctic Industrial Supply in Anchorage. Give Les Roe a call. He can help you find the size and type of strainer you need.

Les Roe

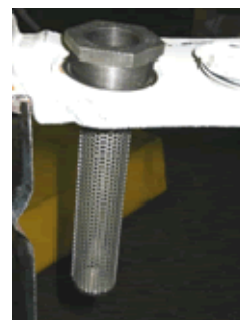
Arctic Industrial and Automotive Supply

360 E. International Airport Rd #10

Anchorage, AK 99518

Phone: 800 770 7075

Email: arcticindustrial@yahoo.com



Also, you can check out this website to view different types of strainers and filters www.flowezy.com

Do you have drums of used antifreeze that have been sitting around for some time? Definitely filter this antifreeze because the drums can collect dirt and grit over time. This grit usually settles to the bottom of the drum. So it is especially important to filter the used antifreeze in the bottom half of the drum. If it is still gritty, filter it again.

For information about container management and how to properly store used antifreeze, see our Storing Hazardous Wastes section in this guide.

Replacing the internal unit filters

As mentioned above, the filters in the antifreeze recycling unit will need to be replaced from time to time. How often you need to replace the filters also depends on how dirty the used antifreeze is. Like most things, the dirtier the used antifreeze, the more often the filters will need to be replaced. Filters can usually be bought at the same place where you order the antifreeze unit.

Tips on adding the coolant additives to your new antifreeze

As we mentioned before, you need to add some anti-corrosion chemicals, called "coolant additives" to the clean antifreeze that comes out of your machine. You can buy the coolant additives from the same company that you buy your recycling machine from. The amount of coolant additives you need to add depends on the amount of antifreeze you have. A measurement guide comes with the additives when you buy them.



If you can, it is helpful to purchase a new transparent drum to put your cleaned antifreeze into. This way you can see exactly how much antifreeze you have and how much of the coolant additives will need to be added. Whether you use a see-through drum or not, **make sure you use a new or clean drum.** You don't want to re-contaminate your newly cleaned antifreeze by using a dirty drum!

Transparent drums can be ordered through:


Lab Safety Supply

PO Box 1368
Janesville WI USA 53547
Phone: 1 (800) 356-0783

Where can I purchase an antifreeze recycling machine?

Call or visit the website of any of the distributors or vendors listed below. Ask them about the types of antifreeze recycling units they sell and their prices. Also ask how much the coolant additives and filters cost for the specific brand they sell. It never hurts to shop around!

Alaska Distributors	Phone	Brand they sell
Alaska Automotive Equipment	349 7750	Kleen-tec/Kleer-flo



Far North Supply	278 1553	Kleen-tec/Kleer-flo
Napa Auto Parts, Anchorage	563 3637	Solar
B&C Carquest, Anchorage	272 3444	Robinair
Hutchins Chevrolet, Soldotna	262 5891	Wynn's
Spill Shield International	561-6033	Kleen-tec/Kleer-flo

Vendors:

Kleentec/Kleer-flo www.kleentec.com

P.O. Box 91, 1212 Sykes Street, Albert Lea, MN 56007 Phone: 800-435-5336

Robinair www.robinair.com

655 Eisenhower Drive, Owatonna, MN 55060 800-628-6496

Solar www.solaronline.com 1-800-328-2921

Would you like to talk to people that currently use antifreeze recycling machines?

When you call the antifreeze recycling distributors or vendors, you can ask who else they've sold units to. They can give you references to call. Then you can ask people first-hand what they like or don't like about their recycling unit. You might get some good advice that the vendor doesn't know.

A few people that we know have purchased antifreeze recycling units are:

Newtok

The Native Village of Newtok purchased a Kleentec Antifreeze/Coolant Recycler in 2006. Contact Details: Dominic Charles, Phone: 237 2320

Ugashik

The Native Village of Ugashik uses a Kleentec Antifreeze/Coolant Recycler. It was purchased for about \$1,500 a few years ago.

Contact Details: Hattie Albeker, Phone: 797 2331

Selawik

The Native Village of Selawik purchased a Kleentec Antifreeze/Coolant Recycler in 2003. Contact Details: Raven Sheldon, Phone: 464 2006


TKD Auto, Anchorage

Contact Details: Randy, Phone: 522 5112

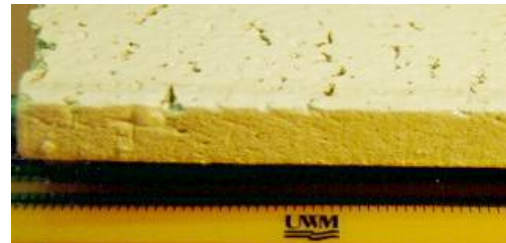


Asbestos





Asbestos is a generic name for several naturally-occurring minerals that are used commercially because of their resistance to heat, strength, and flexibility. See http://www.asbestosnetwork.com/asbestos/de_type.htm for more information about asbestos health risks and types. If



From <http://osc.olathe.k12.ks.us/training/ACBM.htm>
Picture is courtesy of University of Wisconsin-Milwaukee.

materials containing asbestos such as floor tiles and pipe insulation are kept in good condition and remain intact, asbestos poses minimal health risk. However, if materials are damaged or disturbed, the asbestos particulates can become airborne and inhaled into peoples' lungs. This can cause serious illness including lung and other cancers and non-malignant scarring of lung, chest, and abdominal tissues.

Asbestos looks different in different uses. You can see some pictures at: <http://osc.olathe.k12.ks.us/training/ACBM.htm>

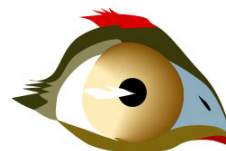
But for general asbestos information, check out the following links:

<http://www.osha.gov/SLTC/asbestos/>

<http://yosemite.epa.gov/r10/owcm.nsf/asbestos/asbestos?OpenDocument>

<http://www.epa.gov/asbestos/>

<http://www.dec.state.ak.us/eh/sw/Factsheets/Asbestos2.pdf>



Call the EPA Region 10 Asbestos Contact with any questions you have:

Carmen Caldwell

WCM-128 1200 Sixth Ave. Seattle, WA 98101

Tel: 206-553-4762


Fax: 206-553 8509

Email: caldwell.carmen@epa.gov

Asbestos is only a health risk if particles become airborne. So, when it's in good condition, it is best left undisturbed. Asbestos-containing materials may be addressed by covering asbestos-containing floor tiles with new flooring or by painting the surface (<http://www.swansea.gov.uk/index.cfm?articleid=2139>). If you have a concern about asbestos, contact Carmen Caldwell (contact information above), or consult a professional in your region to determine what you should do.

Do you need to find out if something might contain asbestos? You can take a sample. Keep in mind that you want to disturb the material as little as possible. Disposable gloves should be worn to take the sample. To prevent inhaling any particulates, wet the surface





to be sampled with a squirt bottle before you begin. Disposable dust masks may NOT be protective of the small particles. Dampening the surface is the best protection (aside from an expensive respirator). After collecting your sample, you can cover the area with putty/patch material once it is dry to protect it.

There are two main options for having a sample tested for asbestos:

- 1) **Order a kit on-line.** Take the sample following manufacturer instructions and send the sample to them for analysis. Make sure they perform a PLM (Polarized Light Microscopy) test, which generally run \$15-50 per test. Below are some places where on-line kits can be ordered.

<http://www.air-techinternational.com/Asbestos.html>

http://www.waralon.com/detail.asp?PRODUCT_ID=PLB-AS108&source=froogle

<http://www.doityourself.com/stry/sickhomeasbestos>

<http://prolabinc.com/products.asp?kit=asbestos>

- 2) **Work with White Environmental consultants**, an Anchorage lab that tests for asbestos. Becca is the person you should contact at White Environmental (phone 258-8661) before you collect the sample. Most likely, she'll tell you to take a small sample (enough to fill half of a 35-mm film canister), put it in a ziplock bag, and send it to her. Be sure you dampen the surface and wear gloves as discussed above. It costs \$50/sample, but is less if you send them several samples. The tests they perform tell you the type and concentration of asbestos. She will also ask you to include a piece of paper describing where the sample was taken from (ceiling texture, wall, flooring), your contact information, and the date the sample was collected.

The reason we didn't include lots of asbestos pictures is: **You cannot tell whether a material is asbestos by looking at it.** It must be analyzed in a lab.

When in doubt, assume it is asbestos and take the steps necessary to protect your community.





Automobiles



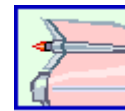
Junked cars and trucks are a big problem in many of our Villages. We will tell you here how to get them out of there. First -you need to make sure that you do what you can to use or reuse these vehicles as much as possible. It will save you money and it is even better for the environment:

- ◆ Can you repair any?
- ◆ Can you sell individual parts to be re-used?
- ◆ Can you do something else with them? Cars have been used for planters or children's playground equipment (after a safety inspection) and pickup beds have been used for burning trash at the dump.

Recycling Your Junk Automobiles

Did you know you can recycle your junk cars? A typical passenger car is about 75-80 percent recyclable. Some of the materials that can be recycled are:

Ferrous (Iron) metal products: steel frame, wheels, engine and body parts



Nonferrous metal products: aluminum trim, copper and brass radiators



Fluids: antifreeze, engine oil, gasoline, freon



Batteries, tires and other reusable items



Follow along to learn about how to recycle your junk automobiles

Where do I start?

Where and how you recycle your cars will depend on where you're located. There are three basic steps:

1. Find a company that accepts junk automobiles.

We list some companies at the end of this section. You can also look up local companies in your phone book yellow pages under "scrap metal", "automobile wreckers", and "junkyards". Call and ask them:

- How much they charge per car (they might not charge anything).
- If they offer a pickup service from a barge port or if they require you to bring the cars directly to them, and
- What sort of car preparation is required by them.

2.  Find your cheapest transportation option for shipping the cars to the recycler.

Find out if you can take advantage of existing lower cost or free shipping services available to communities. In particular, Crowley (Northland/Yutana) Barge Service has offered free shipping to any community it services for junk cars and some hazardous wastes. See our Shipping Hazardous Wastes section in this guide to get information about Crowley's (Northland/Yutana) service as well as other existing shipping services. YRITWC is working with Crowley (Northland/Yutana) Barge Lines on a backhaul project with several communities on the Yukon, Koyukum, and Innoko rivers. Contact Jon Waterhouse at YRITWC at 907-258-3337 to see if your Village is covered by the program.

If you are not able to take advantage of existing services, contact your local barge or transport company to find out how much it will cost to ship the cars. Also find out if they may be able to backhaul out the cars on their way back to Anchorage. If they have lots of room....and they are going there anyway, they may be able to give you a low rate - or possibly free services! We think it never hurts to ask when you are trying to do something good for your community!

3. Prepare your cars for shipping.

See below for details on preparing your cars for recycling.

How to prepare junk automobiles for recycling

Every company that accepts junk cars will have different requirements for what must be dismantled first. Find out ahead of time what the preparation requirements are. Also, the transportation companies may have their own preparation requests for the way the cars must be dismantled or packaged for shipping. So be sure to ask the transportation company what their requirements are as well.

Dismantling the automobiles

Anyone who will be dismantling should have HAZWOPER training. This training teaches you how to safely handle hazardous wastes. For information on how to get HAZWOPER training, see our Hazardous Wastes Training section in this guide.



As mentioned above, different companies will have different requests for what they want dismantled from the car. Most companies require the following:

Removing Batteries

You will probably need to remove the batteries from all cars that you are recycling. For information on what to do with your car batteries once they have been removed, see our Battery Recycling section in this guide.



Draining Fluids

You will probably need to drain all the fluids from the cars too. The fluids to drain include: motor oil, antifreeze, brake fluid, and power steering fluid. Often, the gas tank will need to be removed OR the gas tank will need to be drained and a basketball sized hole must be put in. Several small holes are not adequate. The reason you need a large hole in the gas tank is so that remaining gas fumes can vent out - otherwise these tanks can explode!

How to drain the fluids

Easy-to-use pumps can be purchased to drain the fluids out of vehicles. Below are some examples of fluid vacuum pumps:



Examples of Fluid Extractor Pumps

These pumps work by moving a handle up and down to pump the fluids through a small hose. The fluids then go to the clear 'holding cylinder' that you can see in the pictures above. The fluids can then be transferred to labeled containers for shipping/recycling/proper storage. If you have the money in your budget, it's a good idea to purchase 2-3 fluid pumps: one to use for gas, one for oil, and one for antifreeze. Then the fluids are kept clean and uncontaminated from one another.

What to do with the fluids?

- ◆ For information about how to properly store hazardous wastes see the storing waste section.
- ◆ For information about how to ship out hazardous wastes see the shipping waste section

- ◆ For information about how to recycle used oil see the oil section of this guide.
- ◆ For information about how to recycle used antifreeze see the antifreeze section of this guide.

How much do the fluid pumps cost and where can I purchase them?

These fluid pumps can be purchased for under \$100 from the following places.

Arctic Industrial

Contact Name: Les Roe
360 E. International Airport Rd,
Anchorage
Phone: 561 7075
1 (800) 770-7075

Mityvac

Lincoln Customer Service
One Lincoln Way
St. Louis, MO 63120
Phone: (314) 679-4200
www.mityvac.com

What kind of pumps are good to get?

The City of Kodiak recently prepared and shipped several cars for recycling and they recommend using the Mityvac Fluid Pump Evacuator, Model #07200 or the Fluid Evacuator Plus, Model # 07201. Both of these models can be found at this website:

www.mityvac.com/kits.html



Removing Tires

Often, the tires will need to be removed.

To flatten or not to flatten

Flattening the vehicles with a piece of heavy equipment before shipping might be required by the company. Give them a call to find out if flattening is required.

Car title waiver

Some car recycling companies will require you to show proof of a "title" for each car you are trying to recycle/dispose of. If you don't have the titles for the cars, just fill out this simple form and give it to the car recycler. See next page for the form (you can photocopy it!).

**NOTICE OF ACQUISITION
AND INTENT TO DISMANTLE OR JUNK**

ATTACH TITLE AND COMPLETE ITEMS NO. 1, 8, 11 & 12 (IF TITLE IS NOT AVAILABLE, COMPLETE IN ENTIRETY)

- | | |
|-----------------------------------|-----------------------------|
| 1. _____
VEHICLE SERIAL NUMBER | 7. _____
BODY STYLE |
| 2. _____
MAKE | 8. _____
ACQUIRED FROM |
| 3. _____
YEAR AND MODEL | 9. _____
STREET ADDRESS |
| 4. _____
LICENSE NUMBER | 10. _____
CITY AND STATE |
| 5. _____
STATE LICENSED IN | 11. _____
DATE ACQUIRED |
| 6. _____
PLATE YEAR | 12. _____
HOW ACQUIRED |

ATTACHED ARE: TITLE _____ REGISTRATION _____

The registration license plates have been mutilated and rendered unusable. I certify under penalty of perjury that the information herein is correct and true.

SIGNATURE

DATE

MAIL TO:
DIV OF MOTOR VEHICLES
P. O. BOX 100960
ANCHORAGE, AK 99510

FIRM AND ADDRESS:

DRIVERS' LICENSE #

Who to call? Contact details for auto recyclers

Below are a few companies that accept junk automobiles. Give them a call to find out about their latest requirements and prices. You can also look up local companies in your yellow pages under scrap metal, automobile wreckers, and junkyards.



Company Name/Contact Details	Prices/Requirements
<p>Alaska Metal Recycling 9705 King Street Anchorage, AK 99515 Phone: 349-4833 www.alaskametalrecycling.com</p>	<p>Alaska Metal Recycling is conveniently located by an unloading stop for Alaska Railroad. A few communities have backhauled their junk cars free-of-charge on Crowley (Northland/Yutana) Barge to Nenana, and then shipped the cars for free on Alaska Railroad to Alaska Metal Recycling. Alaska Metal Recycling accepts any vehicles for free but requires that all fluids be drained and batteries and tires removed.</p>
<p>AKME Auto Salvage Anchorage, Alaska Phone: 357-5865</p>	<p>AKME charges \$175/car but they will pick up all cars free -of-charge from the Anchorage barge dock. The cars don't need to be flattened. Fluids will need to be drained and the battery will need to be removed but the tires don't need to be taken off the car.</p>
<p>K&K Recycling 8 ½ Mile Old Richardson Hwy Fairbanks, Alaska Phone: 488-1819</p>	<p>K&K accepts any cars for free but offers no pickup service - cars must be brought directly to them. Fluids need to be drained, and batteries and tires need to be removed.</p>
<p>Affordable Auto Wrecking 9802 Martin L King Way S Seattle, Washington 98118 Phone: (206) 723-9820</p>	<p>Although this company is located in Seattle, they will take your junk cars for free and won't charge for picking them up at the main barge dock. They also don't require any dismantling or flattening. However, the barge lines may require you to drain fluids and remove batteries).</p>
<p>Schnitzer Tacoma, Washinton Phone: 1 (800) 562 9876</p>	<p>This company is also located in Washington and they will pay you for your cars. They pay from \$30-\$40 /ton for scrap metal. They require that fluids are drained, batteries and tires are removed, and that the lead battery terminals are clipped off the wires. The cars can be flattened or not flattened.</p>



Batteries





 **Batteries - Recycling Lead
Acid Batteries** 

Recycling Your Lead-Acid Batteries

A normal lead-acid vehicle battery contains about 20 lbs. of lead and one gallon of lead-contaminated sulfuric acid. When these batteries are disposed of in open dumps, the lead can leach into the ground and possibly into water sources. Follow along below to learn how to recycle your lead-acid batteries.

Introduction

In February 2001, a demonstration on how to recycle lead-acid batteries was given at the Battery Specialists in Anchorage. Photos were taken and the step by step process was recorded below.

Safe Handling and Storage

Batteries should be handled with protective gear. Rubber gloves, polyester clothes and protective eyewear are highly recommended. For information about where to purchase safety gear see the Safety Gear section of this guide.

Batteries should be stored off-the-ground and covered. Try a shed, shipping container, or fish tote. If batteries are exposed to sun, rain, or cold temperatures, they may crack and leak acid and heavy metals. **Make sure contaminants from leaking batteries cannot enter the soil or nearby water.**

For further information about how to safely store batteries and other hazardous wastes see the storing waste section of this guide.

Arrange Shipping

Arrange to ship the batteries through your local air or barge lines to a battery recycler in Anchorage, or your nearest hub city. Ask the shipper to backhaul your batteries free-of-charge. See if the battery recycler will pick up the batteries at the port or airport for no charge. Some battery recyclers are listed on the other side, or look up auto supplies and parts in your phone book. If you have trouble getting free shipping, call **Joe Sarcone, EPA at 271-1316.**



Stack Batteries for Barge Shipping

Shipping requirements and regulations depend on whether the batteries will be flown or barged out.

For shipping on a barge only. Place one layer of batteries on a wooden pallet and cover with at least 2, but preferably 3, sheets of waffle board



(also called honeycomb). It is preferable to use waffle board, but 6-10 layers of stacked cardboard (totaling 6 inches high) can be used as an alternative. Stack only 1 more layer of batteries - both layers should contain approximately 18-24 batteries. The top layer is best for batteries of odd size.

Shrink-Wrap Batteries

Next, wrap the battery stacks well with shrink wrap.

To make sure the batteries are covered well, wrap around the top and side of the stack several times. See 'where to purchase materials' for information on where to get the



Secure Battery Stack

To secure the shrink-wrapped batteries, run strapping tape fully around the pallet on the side and over the top. A fastening tool like the one in this picture is very useful.

Fish Totes

The rule for shipping batteries is two liners. The casing for batteries that aren't cracked is one liner. The shipping container provides the second liner.

For shipping batteries by plane or barge: A fish tote with no cracks or holes makes a great container. Once a tote is used for batteries, mark it well so it won't ever be used to hold edible items.



Make Your Own Container!

You can also make your own container for plane or barge shipping.

This shipping box was made from wood scraps. The bottom and sides of the box must be lined with a single sheet of visqueen or plastic tarp and stapled down. Cardboard padding around the inside of the box is a good idea



Label Batteries & Fill Out Shipping Papers

Finally, stick a "Corrosive" shipping label on the container. Labels can be ordered from the battery recyclers listed above. If you call Frank at

Battery Specialists in Anchorage, he can send some to you for free.

Also, you must fill out shipping papers. The shipper can provide you with the form and may help you fill it out. The information you need is:

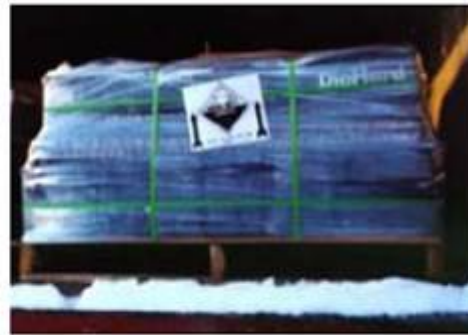
Shipping name: "Batteries, wet, filled with acid"

Hazard Class or Division: 8

UN or ID No.: 2794

Packing Group: III

Weight: Car/truck batteries weigh 21 lbs, and Honda/snowmachine batteries weigh 12 lbs. A full battery pallet will weigh between 2,500 lbs and 3,000 lbs.



Damaged Batteries

Batteries that are damaged (leaking, missing caps, or cracked) must be shipped in their own sealed container - like a sturdy plastic bag.

How to Contact Lead-Acid Battery Recyclers

Anchorage: Battery Specialists of Alaska, 276-5251

NAPA Auto Parts, 563-3637

Exide Batteries, 344-1390

Bethel: NAPA Auto Parts 543-2673

Fairbanks: ABS Alaska Battery Recycling, 452-2002

Jackovich Industrial & Construction Supply, 456-4900

Dillingham: NAPA Auto Parts 842-4200

Seattle:

Allied Batteries, (206) 762-5522

Dyno Battery, (206) 283-7450

Kotzebue: City Landfill 442-3470 or 442-5200 ships out, Maniilaq Envr. Program arranges free from Kotz via help from Northland Barge, contact 442-7693.



Where to Purchase Materials

The following materials can be purchased at the stores listed below:

Plastic wrap (called shrink wrap) is ordered by the case and contains 4 rolls. A case costs approximately \$75.

Banding kit - A banding kit has everything you need to secure the batteries and plastic wrap. A kit costs approximately \$500. Strapping tape, buckles or clips and a tension tool for the strapping can also be purchased separately.

Waffle (honeycomb) cardboard may be purchased from many of the battery recyclers listed to the left. This type of cardboard may cost \$3 to \$4 a sheet.

Visqueen is plastic sheeting that can be used to line battery shipping containers.

Hoffmans Strapping & Fastening 522-1505

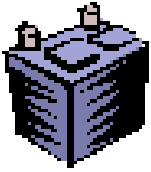
Alaska Industrial Hardware 276-7201

Alaska Warehouse Supply 1 (800) 770-3842



Batteries - Obtaining a Special Permit





Special Permit Information for Shipping Batteries by Plane



Does your air carrier require you to have a special permit for shipping used batteries to be recycled? If so, there are two things you can do:

1. Ship your batteries with your local air carrier to Interstate Battery and use Interstate's existing permit
2. Request your own permit from DOT

To use Interstate's existing permit, contact Vern at Interstate Battery in Anchorage at (907) 349-1577. Let him know that you have batteries that you want to recycle, and tell him who your local air carriers are. Once the logistics are figured out, he will send you a copy of Interstate's permit to use for shipping the batteries. Note -- the batteries need to be properly packaged in plastic totes. See the packaging section on page 3 of this document.

To request your own permit from DOT, follow the information in this document.

Overview

Some air carries (like Northern Air Cargo) may require you to ship used batteries in "air approved containers" because of FAA regulations. Air approved containers are specially made containers that pass DOT specifications and can be purchased through places such as freight companies. Unfortunately these containers aren't cheap (they cost from \$12-\$45 and each container only holds one battery).


If your community can't afford to purchase these containers, the good news is that you can apply for a Special Permit from DOT which allows you to use regular plastic fish totes to ship batteries (like the photo to the right). Note that if you are shipping batteries by **barge**, the regulations are less strict - you don't need a permit, and you can package batteries on wooden palettes (shrink-wrapped) or plastic boxes/totes.



Plastic fish tote that can be used to ship batteries

How do I get a Special Permit?

Fortunately it's not too hard to get a permit and it doesn't take much time. To apply, simply write a **short "hardship letter"** to the Department of Transportation (DOT). This letter



explains that you need a special permit because it is important to ship batteries out of your community, and it is difficult to pay for DOT-spec packaging for shipping the batteries.

What should the letter say?

To view a sample letter for requesting a permit, go to <http://www.zender-engr.net/sampleletter.doc>

If you want to write your own letter, include the following:

- ◆ The first line of the letter should state that your organization (e.g. Tribe or City) "would like to obtain party status for DOT-SP 12283. "
- ◆ Explain that you have used batteries that you must ship out of your community to be recycled or properly disposed of because your community doesn't have a safe way to dispose or store hazardous waste, and your waste disposal site is unlined.
- ◆ Explain that if you dispose of batteries in your community they can contaminate your land and water and affect subsistence and the health of the community.
- ◆ Explain that your community doesn't have the finances to purchase DOT-spec packaging.
- ◆ The letter must also include the name, address, and phone number of the contact at your organization.

Where do I send the letter?

The letter may be **emailed, faxed, or mailed** to the following address:

Associate Administrator for Hazardous Materials Safety
Attention: Special Permits, PHH-31
Pipeline and Hazardous Materials Safety Administration
U.S. Department of Transportation
400 7th Street, SW.
Washington, DC 20590-0001
Fax: (202) 366-3753 or (202) 366-3308
E-mail: Specialpermits@dot.gov



How long will it take to hear back about the permit?

We've heard that DOT is pretty fast when issuing permits for hardship cases. We've heard of people being issued their permits as soon as a few days and as late as four weeks after DOT receives the letter. If you have email, be sure to **include your email address** in the letter because DOT can email you the permit when it's ready, and it's probably the fastest way to get it. If a couple weeks have passed after you have submitted your letter and you



haven't heard anything, send them an email at Specialpermits@dot.gov or give them a call at (202) 366-4511 to ask about the status of your application.

What will the permit look like?

To view a sample permit, go to <http://www.zender-engr.net/permit.pdf> On the last page you can also view other organizations that have applied and received a permit.

What do we do with the permit when we get it?

When you receive your permit, keep the original and a back-up copy on-file. Every time you ship batteries you will need to tape a **copy** of the full permit to the outside of the packaged batteries.

How do we need to package the batteries once we get the permit?

CONTAINER REQUIREMENTS

Once you receive the permit, you will see that it contains specific packaging requirements for batteries. The batteries must be packaged in sturdy **plastic totes or plastic boxes** that don't have cracks or holes and don't leak. Many communities have extra plastic fish totes around that aren't being used. If your community doesn't have any spare totes, you can purchase totes with lids for around \$200-\$300 at the following locations. Note, if you know of other places that sell totes, you can let other Villages know by posting a message on the SWAN message board <http://members.boardhost.com/SWAN/>

Companies that sell plastic totes

Anchorage

Arctic wire and rope 1 800 478-0707 or (907) 562 0707

Fairbanks

Arctic Fire and Safety 1 800 260-3473 or (907) 452-7806

Dillingham

BBEDC (907) 842-4370

Juneau

Western Auto & Marine (907) 780-4909

Sitka

Murray Pacific Supply 1 800 478-3171

Ketchikan

Murray Pacific Supply 1 800 478-3138 or (907) 225-3135

Cordova

LFS Marine Supplies (907) 424-5495 or Toll Free in Seattle 1 800 647-2138



Example of plastic totes that can be used to ship batteries

HOW TO PACKAGE THE BATTERIES

Once you have a plastic tote/box to use, here are the recommendations for packing the batteries in the totes:



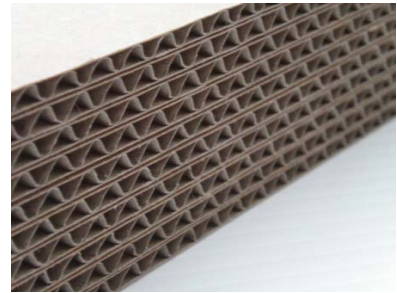
1. Place a sheet of plywood on the bottom of the tote.
2. If available in your Village, sprinkle some kitty litter on top of the plywood (kitty litter is absorbent material in case any of the batteries are leaking). Otherwise, try to use another absorbent material, such as sawdust, vermiculite, or hazardous waste spill pads. (go to http://www.ccthita-swan.org/main/safety_gear.cfm for where to purchase these materials, or you may be able to get them from Vern at Interstate Battery (907) 349-1577).
3. Lay down a layer of batteries.
4. If you have only one layer of batteries, put enough sheets of "waffle" cardboard on top of the batteries so it reaches the top of the tote. The waffle board makes the batteries secure so they won't move around during transport.
5. If you have a second layer of batteries, put 1-2 sheets of waffle cardboard on top of the first layer, then the second layer of batteries, then more waffle cardboard until it reaches the top of the tote.
6. Finally, put the lid on the tote and band it with banding tape, ratchet straps or anything else that will secure the lid tight.
7. Tape a copy of the special permit to the outside of the tote.

As specified in the permit, the total maximum weight of batteries per tote is 1800 lbs (not including the weight of the tote). Typical ATV and snowmachine batteries weigh about 12 lbs and car batteries weigh about 30 to 35 lbs. Boat or truck lead-acid batteries can weigh as much as 75 lbs.

A NOTE ABOUT "WAFFLE" CARDBOARD

Waffle cardboard (also known as honeycomb cardboard) is thick, but light. Examples are shown in the photos to the right.

Waffle cardboard must be used instead of regular cardboard when packing batteries for transport by air using the special permit. The reason is that the battery terminals may not support the weight of what's on top of them. When you use waffle cardboard, the battery terminals poke through a little--but then the rest of the battery holds the majority of the weight from above. If you are shipping batteries to **Interstate Battery**, they may be able to **send you sheets of waffle cardboard for free**. Call Vern at Interstate at (907) 349-1577. You may also be able to purchase sheets of waffle cardboard from the battery recyclers listed on the next page. If you can't get any waffle cardboard, you could use flattened cardboard boxes instead --if you **place pieces of wood** on the batteries so that the cardboard sits on the wood and **not** the battery terminals.



Examples of "waffle" cardboard



How to safely handle and store batteries

Safety gear: Batteries should be handled with protective gear. Rubber gloves, polyester clothes and protective eyewear are highly recommended.

Go to http://www.ccthita-swan.org/main/safety_gear.cfm for information about where to purchase safety gear, as well as spill pads to underlay the batteries.



Storage: Batteries should be stored off-the-ground and covered. Try a shed, shipping container, or fish tote. If batteries are exposed to sun, rain, or cold temperatures, they may crack and leak acid and heavy metals. **Make sure contaminants from leaking batteries cannot enter the soil or nearby water.**

Go to http://www.ccthita-swan.org/Tutorials/storing_hazwaste.cfm for further information about how to safely store batteries and other hazardous wastes.

Getting your totes back

One of the biggest problems we hear from Tribes is how to reliably get their empty totes back. Several Villages have been able to work with their air carriers to get their empty totes shipped back to them on a space available basis. In some hub cities, the local recycling organization and/or the battery recycling company has been able to help ensure that empty totes get sent back to Villages.

The most important rule is to make sure your Village name, address, and phone number is on every tote that is sent out, and the address is very visible. It could say something like "Please Return Empty Tote To Raven Village As Soon As Possible...."

If you have included the kitty litter or absorbent padding, and it is still dry, ask for that back as well, so that you can reuse the liner. If you ship batteries to Interstate through Northern Air Cargo, they said they will make sure your empty totes get sent back to you. If you have ideas or want to post questions about how to get empty totes back, you can post and read messages to/from other Villages at the SWAN message board <http://members.boardhost.com/SWAN/>.



How to contact lead-acid battery recyclers

Anchorage:

Interstate Batteries, (907) 349-1577 ask for Vern
Battery Specialists of Alaska, 276-5251
NAPA Auto Parts, 563-3637
Exide Batteries, 344-1390

Bethel:

NAPA Auto Parts 543-2673

Kotzebue:

City of Kotz Landfill 442-3470 or 442-5200

Seattle:

Allied Batteries, (206) 762-5522
Dyno Battery, (206) 283-7450

Fairbanks:

ABS Alaska Battery Recycling, 452-2002
Jackovich Industrial & Construction Supply, 456-4900

Dillingham:

NAPA Auto Parts 842-4200



Who can I contact if I have any questions?

You can contact the **US DOT Special Permits Office** directly at

Tel: (202) 366-4511, Fax: (202) 366-3753 or (202) 366-3308, Email: Specialpermits@dot.gov

You can also contact **Mark Smith at Northern Air Cargo**. Mark is very friendly and knows a lot about obtaining these types of permits. You can call him at (907) 243-3331 to ask him any questions about getting these permits, or general questions about shipping batteries.



You can contact **Vern at Interstate Battery** at (907) 349-1577 to arrange shipment or pickup of batteries.

You can also contact **Joe Sarcone at EPA** at (907) 271-1316 if you have any other questions about recycling/disposing of batteries.

Website resources

Recycling Lead-Acid Batteries	http://www.zender-engr.net/docs/battery_leadacid.pdf
Counting Your Battery Wastestream	http://www.zender-engr.net/docs/battery_counting.pdf
What To Do With Household Batteries	http://www.zender-engr.net/docs/battery_household.pdf
Household Battery Summary	http://www.zender-engr.net/docs/battery_table.pdf
EPA Battery Recycling website	http://www.epa.gov/epaoswer/non-hw/muncpl/battery.htm
Rechargeable Battery Recycling Corp.	http://www.rbrc.org/call2recycle/

To read more about the relevant regulations:

Application for Party Status for Hazardous Materials CFR 49 §107.107: (Go to this website and type 107.107 on the left side of the webpage under CFR 49

<http://www.myregs.com/dotrspa/>)

Non-bulk Packaging for Hazardous Materials (Wet Batteries such as lead-acid vehicle batteries) CFR 49 §173.159: (Go to this website and type 173.159 on the left side of the webpage under CFR 49 <http://www.myregs.com/dotrspa/>)



Batteries - Household Batteries



HOUSEHOLD BATTERY COLLECTION

How dangerous are small household batteries in your landfill?

Like most environmental risk questions, that depends on a number of factors:

Factor # 1: Which metal?

One factor is which chemical/metal that the battery contains. Since 1996, mercury has been phased out of most small batteries *made in the U.S.* (and Canada as well). Because the metals that are present are not considered to be highly toxic, **Carbon-Zinc and "non-button" Alkaline batteries aren't even officially considered hazardous wastes** anymore. Regular alkaline batteries are the most common household battery and include AA, AAA, C, D, 9 volt, and lantern type batteries. Note though, just because a battery looks like, or is an AA (or other), it doesn't mean that it is definitely alkaline. You have to look at the packaging or label. And if you burn your wastes, even alkalines will still emit heavy metals into the smoke.

In contrast, **Button cell batteries still contain mercury**. Button cell batteries may be alkaline, silver oxide, or zinc air, and all types contain significant amounts of mercury. Mercuric oxide batteries, which contain by far the most mercury, can come in different shapes and sizes, but are now mostly for industrial and medical use.

Then **Nickel-Cadmium (NiCad), Lithium Ion, and Small Sealed Lead batteries (SSL's)** also contain metals that can be very harmful to the health of humans and wildlife. Cadmium, lithium, lead, and mercury are all toxic metals. These metals are in batteries for watches, cameras, calculators, hearing aids, electronic greeting cards, clocks, electronic games, motorized toys, etc. Some rechargeable NiCads and are the same shape, and are meant to be used as regular AA, AAA, C, D, etc. batteries.

Some sealed lead batteries may look like alkaline 6 or 9-volt batteries and NiCad's can look like regular alkalines, but they are very different because their contents are much more toxic. Some cell-phone and other hi-tech electronic batteries still contain mercury. But these batteries, regardless of where they are made, are required to include instructions and contact information about where to recycle or dispose them.

How Can You Tell What The Battery Is?

The Battery Act of 1996 requires U.S.-made Ni-Cad and most small sealed lead batteries to be labeled. Remember, **all button batteries have mercury**, so you don't need to strain your eyes! Canadian batteries should be labeled as well, either on the battery or consumer package. Labeling



Source: USEPA at www.epa.gov/epaoswer/non-hw/muncpl/battery.htm



An example of NiCad rechargeable "AA" batteries

for other foreign batteries varies. Beware that many are more likely to contain mercury or other toxic metals.

Factor #2: Landfill practices

What happens to the trash after it reaches the dump is another factor to consider. If you have an unlined dump (which most Villages do), those chemicals have a potential for migrating outside your dump and into your environment. If your community wastes are burned, the likelihood of those metals reaching beyond the dumpsite (in the smoke) is very high. In a Lower 48 study, it was estimated that **35 percent of all background local-source mercury comes from incinerating batteries** with household garbage.

Factor #3: Quantity

Another factor to consider is the quantity that is being generated—**how much toxic metal can potentially get into the water, air, and food chain?** We don't know the exact contribution of each battery-type to a Village waste stream. But we can tell you the **national average of used household battery generation each year is about 2 lbs per person**. We think most Villages average a bit less, but we haven't heard of any detailed Village counts. Most of those batteries are probably regular alkaline batteries. Or we'd all have serious health problems. Some batteries have potentially toxic metals, but in a very, very small amount. This doesn't mean that you shouldn't recycle them, but it does mean that it is okay to take some time to build up a program where they are all sent out of the Village.



Button cell batteries.
Source: Environment Canada at www.ec.gc.ca/MERCURY/SM/EN/sm-mcp.cfm?SELECT=SM

Factor #4: Comparison of where you will do the most good

When you think about quantity, it is good to consider the particular metal amount compared with other sources of these metals. For example, **getting all vehicle and large emergency power lead-acid batteries out of the dump and waters** (i.e. marine batteries discarded in the River) will **reduce lead in your environment more than collecting all of the household batteries** containing lead. An annual Village average for vehicle lead-acid batteries is about 10 to 15 lbs per person, and of that weight, most of it is very harmful (either lead or acid). See our "Other lead sources" Section further below.



With mercury, there is a slightly different story. Mercury is also a very harmful metal, especially if it changes to its most toxic form, called "methylmercury". It can hurt brain development in children and affect neurological ability in adults (e.g. being able to move well and remember or understand things). There can be many sources of mercury in the community. See our "Other Mercury Sources" Section further along.

Two of the easiest mercury sources to do something about in regular Village trash are **fluorescent lights and button cell batteries**. In regular *household* trash, most of the mercury these days is from **button cell batteries**. Button cell batteries don't weigh much, and last a fair amount of time, but they can contain about **25 mg of mercury** each. So collecting button cell batteries can significantly reduce the amount of local-sourced household mercury in your environment.

In comparison, new 4-foot fluorescent lights (like in the school and office buildings) contain about **20 mg of mercury**, and **compact fluorescent bulbs** about **4 to 8 mgs** of mercury. *Older* fluorescent 4-foot lights contain closer to **80 mg** of mercury. The large fluorescent lights aren't counted as household trash, so we can't tell you exactly how much mercury these lights contribute to your wastestream compared with button cells. Finding this out would require you to conduct a business/office/school survey.



However, collecting and **recycling most of the fluorescent lights** *is* easier than collecting and recycling most of the button cells. With fluorescent lights, the main source will be the businesses (and school). In most Villages, there are not very many businesses. And the lights are easier to keep track of. There are Alaska companies who will send you pre-labeled boxes to recycle fluorescent lights for a reasonable fee. **The older lights have PCBs** as well as higher levels of mercury. So going to each business to make sure that they send back their lights is an effort well-spent. See <http://www.ccthita-swan.org/pdf/fluorescent.pdf> for "how-to" steps.



With button cell batteries, a lot of education is needed to get participation. Most households will not like separating out such tiny batteries and bringing them to a collection office, or saving them at home. You might first need to educate them about the very harmful effects of mercury to subsistence and children and elders. It will be a long-term process to convince people to store their used batteries, but worth it for subsistence and community health.

Factor #5: Chemistry and Hydrology

Another factor is the "chemistry" of your lands and waters at the dump and in the surrounding environment. Natural chemistry processes can change the metal into one or more different "forms". Depending on which form, it can be very dangerous -- or not considered harmful. For example, in many wetland soils, most heavy metals (including mercury and lead) bind up with the chemical sulfur to form a "harmless" black compound. That process happens deep in the soil where there is no oxygen. If heavy metals migrate down through these wetland soils (or the dump is located there), they can stay there unless they are disturbed.



One such disturbance can be turbulent (i.e. rough, eroding) flooding or flushing, or any event that brings oxygen (air) to the subsurface, such as digging or permafrost degradation. Another

consideration in determining the potential for harm from dumpsite metals is the acidity of your soil and waters. In general, more acid will leach the metals out, and they will have a greater tendency to go through most soils into your waters. That is one of the reasons that wet-cell, or "lead-acid" batteries are so important to keep out of the environment. They come with a ready-made supply of acid to "help" get the lead into your waters. More acidic water in a stream can likewise bring out metals that normally would stay in the sediment. Note that the sulfuric acid in batteries is the same chemical that is formed when you have high-sulfur in your soils, and they are disturbed by digging, flushing, etc.

Factor #6: Exposure



Still another very important factor is the potential for exposure. We mentioned smoke already. Does the smoke blow right into town or onto drying racks? Are there fish camps just downstream of the dump? Are berries collected where the dump drains? Exposure equations require very advanced level math. For example, they involve calculating the phase and form of the metal. **How much of it goes to the air, soil, and water, and how much of that is a toxic form? How long is a person/animal**

exposed? How does the metal gets into the body (breathing, eating, skin absorption), and what is the activity level and breathing rate of the individual or animal or plant, and what is their body size?



The above was simplifying some of the processes mentioned. Exposure is very complicated in terms of calculating the numbers, but it is common sense too—the more you're exposed to a harmful contaminant, the more likely that your health can be affected.


The Bottom Line On Household Battery Collection

If you have time (or can find volunteers or write a grant to get the time), definitely **start a household battery collection program**. It won't take much time or money, and **will remove a significant amount of local-source mercury out of your environment**. A program is especially important if you burn your wastes or your dump is flooded each year. A program might be difficult to get a lot of participation, but it is **easy to start**. Collect the batteries in non-cracked plastic bottles in a dry space. **Do not mix the batteries with other objects such as metal keys or coin change since this can short circuit the battery, causing heat and sparks.**



Because rechargeable batteries are possible to recycle for free, it might be useful to **separate them**. Also, not all battery recycle companies take button batteries, because of their mercury content, so these should be placed in a separate bottle if possible, as well. It is up to you whether you want to include regular alkaline batteries in your program. They will take up more office space.

But on the other hand, people might get confused about what batteries they should recycle, or **they might have old batteries, or Alkaline batteries from foreign countries that allow mercury**. It might be best to **accept all batteries**. If your space is limited, you can always go through and throw out the post-1996, made-in-U.S., Alkaline and Carbon-Zinc batteries later.

- ❖ Ideally, **no batteries should be thrown into trash that will be burned, but Alkaline and Carbon-Zinc are still safest**. If you run out of office room, find an unused storage space until you are able to find the funds and time to recycle.
 - ❖ **Almost all batteries made before 1996 contain mercury**, even regular Alkaline batteries. It might be a good idea to post flyers about this fact for Spring Cleanup.
 - ❖ **Check that your store carries batteries manufactured in the U.S. or Canada**. If they are made elsewhere, there is a decent chance that they contain mercury still. Work with your store to switch to a different distributor, or to offer residents a choice. You can make a little sign in the store by the batteries that let people know why the price difference makes a difference in their environment, and to publicize your collection program.
- 
- ❖ **Work with your clinic** to make sure that any **mercuric oxide batteries** are **not** disposed at the dump, and mercury thermometers and blood pressure cuffs are sent out. Medical equipment is the primary use now for mercuric oxide batteries, which are like multiple button cell batteries in one, and thus **contain a very high level of mercury** compared to other batteries.
 - ❖ While you won't find a lot of them, be on the look-out for older, pre-1996 or foreign-made **household mercuric oxide batteries**. These are most important household batteries to take out of your waste stream. Look also for old mercury thermometers while you are at. You can collect these along with your batteries, but because they are glass, you will need to cushion them carefully and store them separately. Follow the information from websites listed on page 7, in case of breakage.
 - ❖ If people still want to dump their batteries in the landfill (or your office is running out of space), ask them to first put their batteries into closed, non-cracked plastic bottles. Those of us living here know that the plastic bottles will tend to crack sooner than later, especially in the North and Interior. You can try triple-bagging the batteries instead. Try a **container left at the dump** for people to drop their battery filled bags and bottles. **A lidded garbage pail** should work fine for this purpose. This will be especially important if you burn at the dump. The batteries should not be burned after all the trouble people went to, to separate them. You might wish to have children paint the container with messages and pictures so that people will be careful in using it only for household batteries. You can teach children at school why the pail is there. Replace the pail if it gets cracked.

Funding

There are places to recycle many household batteries, but you will likely need to pay for postage at least. However, **postage for sending household batteries and fluorescent lights back can be covered through IGAP funds** because it is a solid waste activity.

Alternatives To Mercury-Containing Household Batteries

Rechargeable batteries are less wasteful because they can be used over and over again. But they are also more toxic. There *are* **new rechargeable Alkaline** batteries that **do not contain cadmium**. These should be promoted as much as possible. Solar batteries (the solar panel can recharge the batteries, or directly supply power) are also becoming more and more affordable.

Purchasing and distributing Alkaline rechargeable batteries and solar battery chargers are something that could be part of an IGAP demonstration project-- to reduce household hazardous wastes. Type in "rechargeable alkaline" or "solar charger" into your internet search engine for places with. See www.realgoods.com for one place to order these types of batteries and solar chargers.

Where Can I Recycle My Household Batteries?

Start by contacting Total Reclaim in Anchorage. Call 561-0544 and ask for Larry Zirkle. Total Reclaim is accepting household batteries **for free** from Villages. Below and on the following pages are other options for recycling household batteries.

Rechargeable batteries: These can be recycled through RBRC. See www.rbrc.org or call 1-800-9-BATTERY. A good resource on their site that we like is the Battery Lesson Plan. You can link to it from their home page. It includes lots of information about the makeup of household batteries, as well as an actual lesson plan for schools and community.



NiCad 7.2 volt battery

Several Radio Shack stores accept NiCad batteries and other rechargeable batteries, including stores in Anchorage, Wasilla, Eagle River, Soldotna, and Kenai. Call first to make sure you have the right kind of batteries, and that the particular store accepts them. The 5th Ave Mall Radio Shack in Anchorage doesn't accept batteries, but the ones at 500 E. Benson (258-9050), 210 Muldoon Rd (337-2100) and 9220 Lake Otis Pkwy (644-8313) do. **Batteries Plus** at 910 West International Airport Road (770-6110) also accepts rechargeables. Still, for all stores, **call first** to be sure that their current policy hasn't changed.

Non-rechargeable batteries: The **Anchorage Landfill Hazardous Waste Facility** accepts up to 40 lbs of **all types of household batteries** from residents each day. That is a lot of household batteries. If you have any relatives in Anchorage, consider bringing a small plastic bottle of button cells as a "gift" the



Non-rechargeable lithium battery

next time you are at a conference. Besides bringing any household battery to the Anchorage Hazardous Waste Facility, or your rechargeable batteries to a Radio Shack store, you'll likely need to **post them via mail-in programs.**

To find a place to post your non-rechargeable (and rechargeable) batteries, Go to the "Earth 911 Organization" link at <http://alaska.earth911.org/master.asp> Click on "battery recycling" to the left, or go directly to <http://alaska.earth911.org/usa/master.asp?newpostal=99501&s=ls&serviceid=126>

Mail-in programs for non-rechargeable batteries: Mail-in programs can vary a little bit. For example, some may accept credit cards and some may not. Costs can vary some as well. In addition to batteries, some companies might recycle other materials, like fluorescent lights and other mercury-containing materials. It is good to call a couple of companies with your specific needs and questions (for example, will you be recycling all household batteries together, or just button cells?). You might be able to see who would be best to work with, just by speaking with them. Just like people, some companies are easier and nicer.

Most Mail-in programs operate like this:

1. Order a prepaid container through the company.
2. They will ship you the container.
3. All labels and proper documentation are included.
4. Once filled, just call the company to have the box shipped back.
5. The company will recycle the batteries.
6. They will then send a Certificate of Recycling. Keep this for your records. You can include a copy in your grant reports.



Cost: Cost will change depending on the "metals market" and shipping costs. The metals market means how much that company can make by selling the recovered metal. Below is a "generic" planning chart for budget planning. The chart is based on a typical Fall 2005 cost of **\$165 for 70 lbs of batteries**, using the national average of **2 lbs of batteries per person each year**:

**Recycle Cost Planning Table for Household Battery Recycling
(Annual Estimates)**

Recovery Rate	200-person village	400-person village	600-person village	800-person village
10%	\$94	\$189	\$283	\$377
20%	\$189	\$377	\$566	\$754
30%	\$283	\$566	\$849	\$1,131
40%	\$377	\$754	\$1,131	\$1,509

50%	\$471	\$943	\$1,414	\$1,886
60%	\$566	\$1,131	\$1,697	\$2,263
70%	\$660	\$1,320	\$1,980	\$2,640
80%	\$754	\$1,509	\$2,263	\$3,017
90%	\$849	\$1,697	\$2,546	\$3,394
100%	\$943	\$1,886	\$2,829	\$3,771

A good starting goal for household battery recovery would be 10% of all the household batteries in community. Each year, you will be able to get more people to participate. So for your IGAP budget, you could request money for recycling about 10% to 20% the first year. Then the next year, you could budget funding to recycle more of the batteries. You can step up the recovery rate each year with education.

Total Reclaim

12101 Industry Way, Unit #C4P
Anchorage, AK 99515
Phone: 907-561-0544
Fax: 907-222-6306
Email larryz@totalreclaim.com

EPSI (Earth Protection Services, Inc.)

10 South 48th Avenue, Suite #4
Phoenix, AZ 85063
Phone: (800) 414-0443
Web link: www.earthpro.com/

Complete Recycling Solutions, LLC

One Father Devalles Blvd Fall River, MA 02723
Phone: 866-CRS-9797 Fax: 508-402-7750
Email: kboyea@crsrecycle.com

NES (National Environmental Services)

Tucson, AZ 85705
Phone: (800) 872-2226
Web Link: www.nesllc.com

Mercury Solutions (for button cells)

21211 Durand Avenue Union Grove, WI 53182
Phone: (518) 459-0820
Days/Hours: Monday to Friday 8am to 4pm

KBK Innovations

Weblink: www.kbk-innovations.net/
Email: benkbk@juno.com
Fax: (480) 857-0794

Notes: Through the MERECO Button Battery Program, you can receive payment for used watch or hearing batteries while solving a difficult disposal problem.

Program Participation

[Click on the otter](#) to find out how to conduct a battery wastestream study and program participation rate, or look up "Batteries", then "Counting Your Battery Wastestream" in the SWAN A-Z Index.



Additional Resources

The Earth 911 battery resource site lists several places for additional information concerning household batteries as well as other hazardous wastes:

http://alaska.earth911.org/master.asp?s=lib&a=electronics/bat_links.asp



Batteries - Counting Your Batteries



How Many Batteries Are Generated Each Year in Our Village:

Column Numbers									
#1	#2	#3	#4	#5	#6	#7	#8	#9	#10
Source	Type	How many for each household or office/store?	Total number of vehicles with batteries	Battery lifetime (years)	Number generated each year for disposal	Estimated undrained weight of one battery	Estimated undrained weight of all batteries	Estimated lead in each unit (lbs)	Total lead each year disposed (lbs)
Number of Households:	Snowmachines			3		12		7.5	
	ATVs			3		12		7.5	
	Boats (Marine/RV)			2		45		30	
	Cars, Light Trucks			4		30		18	
	Heavy Trucks			3		60		35	
Number of Offices, Stores, Other:									
	ATVs			3		12		7.5	
	Snowmachines			3		12		8	
	Cars, Light Trucks			4		30		18	
	Heavy-duty Trucks			3		60		35	
	Boats (Marine/RV)			3		54		32	
	Small Heavy Equipment			2		45		32	
Planes			2		68		40		
Total each year:			Total number in vehicles		Total batteries for recycling each year	Total weight in pounds			Total pounds of lead each year

Steps to counting your batteries and tracking your battery recycling participation rate

1. Fill in the number of **lived-in** households in your Village in **Column #1**. If you don't know, divide your Village population by 4 as an estimate. For example, if you have 200 people in your village, you might have $200 \div 4 =$ about 50 households.
2. Fill in the **total number of stores and offices for your Village**. These include the Tribal and City offices, Post Office, AVEC, the school. Include all the entities that have at least one vehicle. If you are a larger community, you might have some special operations that have a lot of vehicles. A special operation might be a commercial harbor, an industry, a USFWS station, or City Public Works. Don't include those yet. You can count them later.
3. Write into **Column # 3** the **average number of each vehicle** for households and offices/stores in your village. You don't need to be exact. Just do the best you can. Here are some examples:



If most households in your Village own 2 to 3 snowmachines, but there are a few households with just 1 or zero,

Then the average number would be: About **2**.

If only about half of the households own ATV's,

Then the average number would be: About **one-half**, which equals **0.5**, or **50%**

If only about 5 households in town own trucks, and your have 50 households,


Then the average number of trucks is:

$5 \text{ truck households} \div 50 \text{ total households} = 0.1$, (= one-tenth, or **10%**)

If some households own 1 boat and some households own 2 boats,

Then the average number of boats would be:

About halfway between 1 and 2, or about **1 & one-half** boats each (= **1.5** ,or **150%**).

- 
4. Count the average number of vehicles for your offices, stores, businesses, etc. and fill the number in for **Column #3**. For example, do most businesses own an atv and snowmachine? Then the average would be 1 for each type. If only 2 businesses own trucks, and you have 8 total businesses/offices, then the average number of trucks would be $8 \div 2 = 0.25 = 25\%$. Don't worry too much about being exact. Because there are usually way less business vehicles than household vehicles, your battery characterization will still be a good estimate.

5. **Are you getting a headache from Column #3?** For some villages, it can be easier to count the vehicles separately for all of your stores, offices, etc. You can count the number and write it directly into **Column # 4**. If you feel it is easier, or want to be very exact, you (or a Summer Youth worker?) can go around to each household too, and count the vehicles one-by-one. Then just fill in **Column #4** with those numbers.

6. Now you can fill in any unfilled cells for **Column # 4**. Multiply **Column #1** by **Column #3**. Write the number in **Column #4**. Note: If you have **special operations**, you can count this number up and add it to the number you just wrote in **Column #4**. OR your can address your special operations separately. For example, a cannery or Coast Guard might recycle their batteries on their own.



In the end, what you should have in **Column #4** now is the estimated **total number of vehicles in service**. Don't worry about the vehicles at the dump or junked for now. You can count those later. We are just looking at how many additional batteries are ready to be recycled each year in your community.

7. Add up all the numbers in **Column #4**, from top to bottom. Write the total at the bottom of **Column # 4**. This is the **total number of vehicles** in your community. This number can be important for vehicle backhaul planning and community education.



8. Divide **Column # 4** by **Column # 5**. Write the number in **Column #6** for each line/row. **This step is important.** Batteries last more than one year, so the number of vehicles in your Village isn't equal to the number of used-up batteries that are generated each year.

9. Add up all the numbers, from top to bottom, in **Column #6**. Write it at the bottom of **Column #6**. This is the **total number of batteries each year** to plan for.

10. Multiply **Column #6** by **Column #7**. Write the number in **Column #8**. This is your estimated **total weight for each battery type**.

11. Add up the numbers in **Column # 8**. Write the total at the bottom of **Column #8**. This number is important. It is the **total weight of batteries you will be aiming to backhaul each year** for a sustainable plan. It might take you many years for your battery program to reach this goal. That is normal.

12. Multiply **Column #6** by **Column #9**. Write the number in **Column #10**. This is how much **total lead each type of vehicle is contributing each year** to the lead in your community. **What kind of vehicle is your biggest lead problem?**

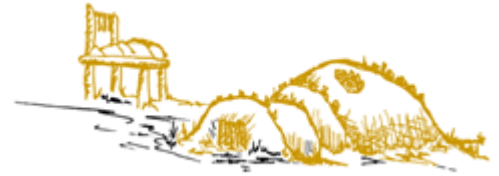
13. Add up the numbers in **Column # 10**. Write it at the bottom of **Column #10**. This is the **total amount of lead being generated from lead-acid batteries each year**. Lead can kill fish and waterfowl. Eating just 3 lead shot pellets can kill a waterfowl within a few weeks. Lead hurts children's developing brains. It can cause a number of neurological problems in adults. *Get this lead out of your Village and subsistence grounds.*



14. How much has accumulated? This step is not in the Table. But you can use the battery weights and lead amounts in **Column #9** to estimate **how much lead from batteries is lying around in abandoned vehicles**. Just count the number of junked vehicles in-town, at the dump(s), and on the River banks. Add that to the amount that you will need to get out in a one-time backhaul. After you have taken care of all the batteries lying around, you will be caught up. Again, it will probably take a long time to catch up!

15. You can also estimate how much lead from batteries is in your dump or surrounding area. This includes the lead that you may not be able to recover because the batteries were burned, or dumped into the waters. Take for example, the last 20 years. If your population has been about the same, then you can multiply the bottom total in **Column #10** by 20 years of accumulation. If your population has been changing a lot, you can get a rough idea by using "time period increments".

For example: If you calculated that **2,200** pounds of lead is generated from batteries each year in your community, and you have **400** people living there:



Time period	Total lead from Table (bottom of Column #10)	Total population now	Average population then	Ratio to multiply by	Lead generated from batteries <i>each year</i> during the time period	Total estimated lead generated in full time period	Estimated recoverable lead (lying in town, on banks, in dump, etc.)	Estimated lead placed into our land and water forever
15 to 20 years ago (5-year period)	2,200 pounds (lbs)	400	200	$200 \div 400 = 0.5$	$0.5 \times 2,200 = 1,100$ lbs	$1,100 \times 5$ years = 5,500 lbs	5%? $5,500 \times 5\% = 275$ lbs	$5,500 - 275 = 5,225$ lbs
5 to 15 years ago (10-year period)	2,200 pounds (lbs)	400	250	$250 \div 400 = 0.625$	$0.625 \times 2,200 = 1,375$ lbs	$1,375 \times 10$ years = 13,750 lbs	20%? $13,750 \times 20\% = 2,750$	$13,750 - 2,750 = 11,000$ lbs
Last 5 years (5-year period)	2,200 pounds (lbs)	400	375	$375 \div 400 = 0.94$	$0.94 \times 2,200 = 2,063$ lbs	$2,063 \times 5$ years = 10,315 lbs	50%? $10,315 \times 50\% = 5,167$ lbs	$10,315 - 5,167 = 5,168$ lbs
Last 20 years Total						29,565 lbs of lead, (about 15 tons), just from vehicle batteries.	8,192 lbs (about 12,200 lbs of batteries to backhaul from previous years)	21,393 lbs of <i>lead</i> placed in the environment forever, <u>so far.</u>

Note: You can use the same procedure to calculate the **weight of batteries**, or the **number of batteries**, that were generated in your community in the last 20 years (or 5 years or 10 years, etc.). You can use that number for calculating **how much you need to backhaul**, or **how much of the total possible has your community backhauled**.

If you back-haul, remember that the shipping weight is the *total battery weight*, and **not the weight of the lead**. An average amount of lead for lead-acid batteries is about **60%** of the undrained weight (actually 58.6%). **So if you were to backhaul 10,000 pounds of lead, that would be about 10,000 ÷ 60% = 16,667 lbs of batteries.** You should never drain the acid from the batteries. But **fully drained batteries** (those that leaked out the acid) **weigh about one-third less than undrained batteries**. For completely drained lead-acid batteries, the lead is about **73.6%** of the battery weight.

16. Participation Rates and Program Performance Do you have a battery recycle program? You can estimate the number of households participating by:



Number of households dropping off batteries ÷ Total number of households.

Then be sure to change the number into a percentage by multiplying by 100%.

For example, $0.37 = 37\%$.

- 17. Don't keep track of who drops off the batteries?** Do you know how many batteries you ship out or collect each year? Or how much weight?

Then try: Number of batteries *collected* ÷ Number of batteries *generated* (the number at the bottom of **Column #6**). Some households might be dropping off all their batteries, and some households might be dropping off none of their batteries. So the resulting number isn't exactly the household participation rate, but it does get you a **recycling success rate**, which is still a:

Performance Indicator.....

You can also estimate *Performance* by:

Total weight shipped out each year ÷ Total weight of batteries generated each year.

Remember if you have been collecting the batteries from several years, you will want to **divide by the total generated** from all of those years. See Table 2 and Step 15 for how to estimate the total from the past years.

Or if you want to see **how much lead you have taken out** of your community and lands, divide the total *lead* shipped out (not the total battery weight) by the total *lead* accumulated (recoverable and non-recoverable) in the last 20 years.

Performance monitoring

Real performance monitoring looks at **how good you are doing compared to how good you did last year-- and how good you could do** if everybody participated fully in your program. It is like fishing:

Joe caught 5 fish. Is he a good at fishing or not? You can't tell. We all know that depends on how many fish were there in the water, how difficult they were to catch (what season, what weather, time of day, etc.), **how long** he took to catch them, and what kind of fish. Were they big enough to feed his family and those in need (trout or King Salmon?)

Here are the questions to ask yourself when deciding whether your number(s) are truly "performance indicators" (i.e. what the agencies are looking for):

1. **Can you compare your number(s) to last year's performance or someone else's performance?** e.g. "We collected 50 atv batteries this year, and 40 batteries last year" OR

"We collected 1500 lbs of batteries this year, which is about the same as the "3-Rivers" Village that has about the same population".



2. **Can your number tell you how much potential you have for doing better?** For example, "We generate 2,200 lbs of batteries each year, but we are collecting only about 550 lbs each year. So we are only getting about 25% (i.e. $550 \div 2200$) of our batteries, and the rest are accumulating in our land and water. We have the need to spend more time in community education and focusing on why people are not using our program, and then change how we do it if we need to."



Is your collection rate already near 100%?, then it is time to **work on developing another program that will help your community**, while maintaining the rate you have. If you want to **get all the lead out, work on recycling computers, and replacing lead shot and lead sinkers** with alternatives next. Remember, if it is less than 100%, the collection rate can tell you what is accumulating each year. You can use that number to plan out a full backhaul.

3. **Does your number describe the expected or true potential, or do you need an additional number or words?** For example, "Even though we didn't increase the number of batteries collected, 5 households moved out, so the total number of batteries that can be collected decreased" OR "Our collection rate went down slightly, but that is because people started using/buying vehicles less, due to weather, or no fish, or they started walking more, or the fuel costs went up really high." OR "Our funds were cut, so we couldn't staff our collection totes, or carry out our targeted education, like we usually do". Some seasons, the true number will be less, and some more. **If there is no way to describe the potential in numbers, describe it in words, or use both.** You can ask your agency project officer, resident math whiz, or school Science teacher for "number" suggestions.

With batteries, there will be a couple of households or outsiders that just won't recycle, ever. Also, you might have staff turnover, or search and rescue, or barge

cancellation just at the wrong time. Write down whether any factors contributed to less or more batteries being collected or backhauled that year. Even the best recycling programs in urban areas in the United States can't get to 100%. And household hazardous waste collection days in the lower-48 generally only have less than 10 percent participation rate from people who are eligible to use the service.

4. **Can you set a goal from your number that makes sense?** Each year you can calculate your participation rate and an overall recycle or "getting-the-lead-out" success rate. You can set your goal for your IGAP workplans (and other grants that you write) to be a little higher each year.

Nationally, about 96% of lead-acid batteries are recycled. That sounds to us like most of the remaining batteries are sitting out in our Villages! **We didn't used to have an alternative. But now, back-hauling batteries can be set up for free.** It is one of the biggest steps you can take to protect your subsistence and your community's health. See <http://www.epa.gov/opptintr/lead/leadinfo.htm#health> for some health dangers associated with lead.

Setting Up A Battery Backhaul. Go to SWAN:

http://www.ccthita-swan.org/Tutorials/batt_recycle.cfm for a step by step guide in setting up a battery backhaul. You can go to the SWAN Village-to-Village message board at <http://members.boardhost.com/SWAN/>, and ask other Villages in your region which barge or plane company they use for their program. If you are on the Yukon River, try contacting the Yukon River Inter-Tribal Watershed Backhaul program staff, or Tanana Chiefs Conference solid waste staff, or Council of Athabascan Tribal Government's environmental staff. They can help you plan for backhaul for the next barge year. If you still have trouble, or are not sure where to go, contact us at rpaddock@ccthita.org or phone 1 (800) 344 1432 and ask for Ray Paddock, your friendly SWAN coordinator and all around good guy. We will help get you set-up step by step.






Once you have set up a backhaul program. Keep raising the bar on community participation. Include your numbers that you have calculated in your grants. Keep track.




Batteries - Household Battery Summary Table







NON-RECHARGEABLE BATTERIES

Battery Type	Description	Mercury, Cadmium, or Lead content?	Major Components	Uses
Carbon -Zinc or Zinc Carbon	The cheapest battery. Have much shorter life span than alkaline batteries. Cylindrical or rectangular cells; labeled as "General Purpose", "Heavy Duty", or "Classic"	No, relatively safe for land disposal.	Zinc, carbon, ammonium chloride	Flashlights, toys, remote controls clocks, garage door openers, pagers, and smoke detectors.
Alkaline Manganese (non-button cell) 	The most popular, better performance, higher cost. Cylindrical or rectangular cells; the most commonly recognized battery. Labeled "alkaline"	Not after 1996, relatively safe for land disposal.	Zinc, manganese Dioxide, Potassium hydroxide	Flashlights, radios, toys, calculators, remote controls, electronic games, portable radios and televisions, garage door openers.
Alkaline Manganese button cells 	Common button cell uses. Button-shaped. May or may not be marked.	Yes. About 25 mg of mercury, equal to 0.5 % by weight	Zinc, manganese Dioxide, Potassium hydroxide	Watches, calculators, toys, some cameras.
Lithium 	Expensive, long shelf-life. Varied shape, often small. 9-volt, C, AA, coin, button	No, but Lithium is highly reactive, and used as a medicine for serious mental health problems. These should be recycled.	Lithium, Manganese Dioxide or Polycarbon monofluoride, solvent	Cameras, pagers, keyless locks

NON-RECHARGEABLE BATTERIES (continued)

Battery Type	Description	Mercury, Cadmium, or Lead content?	Major Components	Uses
Zinc air	Made to replace the mercuric oxide batteries in hearing aids. Usually button shaped. Identify by pinhole on one side.	Yes. About 1% mercury.	Zinc, carbon	Hearing aids, pagers
Mercuric Oxide (or "mercury-zinc") button batteries	No longer made or sold due to their high mercury content. But you might find some of these for several more years.	Yes, a lot - 35 to 50% mercury -- In consumer applications, zinc air button cells have replaced mercuric oxide batteries, which cannot be sold in the U.S. any longer.	Mercuric oxide, Zinc, Potassium Hydroxide	Hearing aids, watches, and other items requiring a small battery.
Mercuric oxide ("mercury -zinc") larger batteries	Rarely found in households now. Often looks like 9-volt or fat AA batteries, should be labeled.	These are the worst because they are big and have a high mercury content. Luckily, you will find these only (maybe) at the clinic, but check pre-1996 batteries or foreign batteries.	Mercuric oxide, Zinc, Potassium Hydroxide	They are now used in the U.S. only for specialized industrial, medical, emergency equipment.
Silver Oxide 	Made to replace mercuric oxide buttons for many applications. Button shaped with no distinguishing marks.	Yes. About 1% mercury. Often smaller than Alkaline Manganese button cells.	Silver oxide, zinc, potassium hydroxide	Watches, calculators, toys, greeting cards, musical books.

RECHARGEABLE BATTERIES (all rechargeable batteries can be recycled cheaply or for free – go to www.rbrc.org or call 1-800-9-BATTERY)

Battery Type	Description	Mercury, Cadmium, or Lead content?	Major Components	Uses
 <p>Nickel-Cadmium (NiCad)</p>	<p>Popular recharge battery and least expensive of rechargeables. Look for recycle logo or words “battery must be recycled or disposed”</p>	<p>Yes, Cadmium.</p>	<p>Nickel, Cadmium, Potassium Hydroxide</p>	<p>Power tools, cordless phones, professional radios</p>
 <p>Nickel Metal Hydride <i>(Power tool battery example)</i></p>	<p>Cadmium-free replacement for Ni-Cad, more expensive but considered to be less toxic. Look like NiCad batteries.</p>	<p>No, just Nickel, with some other metals. These are much less toxic. Relatively safe for land disposal, but easy to find a recycler.</p>	<p>Nickel, some “Rare Earth” metals, Potassium Hydroxide.</p>	<p>Same.</p>
 <p>Lithium Ion</p>	<p>As compared to non-rechargeable Lithium batteries, a good choice. Expensive. Varied-shapes, depends on use.</p>	<p>No. Lithium – again this is not something you want in your environment.</p>	<p>Lithium, solvent, and cobalt oxide</p>	<p>Computers, cellular phones, digital cameras</p>
<p>Rechargeable Alkaline</p>	<p>Moderate performance compared with Ni-Cad, but costs less and relatively non-toxic. Looks like regular alkaline batteries</p>	<p>No. Relatively safe, but easy to recycle anyway.</p>	<p>Zinc, Manganese Dioxide, Potassium Hydroxide</p>	<p>Same uses as normal alkaline and carbon-zinc batteries.</p>
 <p>Small sealed lead-acid</p>	<p>There are still toys and other devices that use lead-acid batteries, especially those from foreign countries. Look like 6-volt or other odd-shaped smaller batteries. Look for recycle logo or words “battery must be recycled or disposed”</p>	<p>Yes. High lead content. You might be able to backhaul these with your vehicle lead-acid batteries – ask your recycler.</p>	<p>Lead, sulfuric acid</p>	<p>Alarm systems, emergency lighting. Some toys and other miscellaneous devices.</p>

Sources: RBRC Battery Lesson Plan, www.rbrc.org, Guide for Identifying Mercury in Household Applications, www.burlington.org/health/Mercury.htm, various retail websites.

Note: Pictures are examples only. A number of companies manufacture and distribute each type of battery.

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Computers



Computer Recycling



Ever wonder what to do with your old computers?

Can computers be recycled?

Why should you care about where your old computers go?

For answers to these questions read on!

Facts:

- Computers and other electronics are a fast growing portion of trash going to our dumps.
- Computers contain an average of **4 pounds of lead** as well as other potentially hazardous materials like chromium, cadmium, mercury, beryllium, nickel, zinc and brominated flame retardants and should be handled with special care at the end of their lives.
- The cathode ray tubes (CRTs) in color computer monitors are the source of the lead and are a big part of why computers are potentially hazardous materials.
- Although the lead is probably not an environmental problem while the monitor is intact, the lead can leach out if the monitors are broken or smashed.



How can you retire your computers in the most environmentally friendly way?


Can your computer be reused?

- If you have equipment that works, could it be donated to your school, other local group, or a household in need?
- If your equipment doesn't work, can it be fixed or can the parts be used for other equipment in the Village?

If your computer can't be reused, there are a couple of options. (Unfortunately there are currently no free services available for Villages to recycle computers).

1) Total Reclaim in Anchorage (907) 229-0183 and Seattle (206) 343-7443 is the company that Green Star in Anchorage uses to ship their electronics to, for their annual e-recycling drive. Several communities in Alaska have shipped their computers and other electronics directly to this company. Contact them for price information. Their website is <http://www.totalreclaim.com/> and you can [click here](#) to view their brochure.

2) IBM (the computer company), together with UPS (United Parcel Service), has a good computer recycling program for a fairly low fee of **\$40** (which includes shipping). This may be one of the most convenient ways to recycle your computer and you may be able to use



grant funds to pay the costs. To find out how you can recycle your computer (of any make or brand) through IBM, see the next section.

3) Green Star occasionally holds electronics drop-off days in Anchorage. For a small fee (\$5-\$25), they accept computers, monitors, fax machines, keyboards, printers, televisions, VCR's, and other electronics on these drop-off days. Contact Sean Skaling at 278-7827 or email him at sean@greenstarinc.org for more information about these events. Also, Green Star' has an electronic exchange program on their website where organizations and individuals can list their unwanted working computers. Visit Green Star's website at www.greenstarinc.org for the exchange program and for further electronics recycling information.

4) PC Salvage in Washington State (1-866-341-8003) can be contacted if you are a school or business and you **have several computers to recycle**. You can also visit their website at www.allaboutpcsalvage.com/index.html. PC Salvage charges a price per lb for electronic equipment. You can also call **IBM's high-volume recycling program** for computers at 1 (800) 334-9693 (at the menu, press option "2") if you have several computers to recycle.

How to Recycle Your Computer Through IBM

Where to start?

Check out IBM's computer recycling website at

<http://www.ibm.com/ibm/environment/products/pcservice.shtml> They

have all the information you need to know about recycling computers

through them. Alternatively you can talk to their computer recycling contact **Ricardo**

Gonzalez at (914) 766 2144. Let him know that you want information on how to recycle

your computer. You can also contact their toll free number at **1-888-SHOP-IBM (746-7426)** and give the reference part number **06P7513**.

IBM's recycling service costs **\$30-\$40**. You can use a credit card or mail a check. They will send you a kit with a free shipping label and packing instructions.



Why should you care about recycling computers?

Computers and subsistence don't mix. When computers are discarded at the dump, the lead and other toxics they contain get into the environment. Protect your community by reusing or recycling computers.



What can you send?

All personal/office computer equipment (IBM or not!). This includes personal computers, monitors, printers, scanners, fax machines, cables, mice, keyboards, etc. It doesn't matter whether the equipment works. However, you cannot send monitors with broken or shattered glass.

Packing Instruction Kit

You should receive your packing instruction kit 3-5 days after IBM receives payment. It will include: One pre-paid shipping label, packing instructions, and a donation/recycling form.

IBM PC Recycling Service

Packing Instructions*

* The IBM PC Recycling Service does not provide packaging; customers are asked to provide their own boxes.

Smallest Box (15" Monitor Size)
18" X 18" X 18" High
(System with no printer)

- 1) Make sure bottom of box is taped securely
- 2) Place central processing unit (CPU) on edge and put into box along one side
- 3) Place monitor face down on bottom of the box next to the CPU
- 4) Place keyboard and mouse in any open space
- 5) Pack all open spaces tightly with appropriate packing material (e.g. newspapers, old clean rags, packing peanuts, etc.)
- 6) Close flap and tape securely
- 7) Place completed label on box and take to UPS drop-off location.

Preparing to pack your computer equipment

Unfortunately you need to provide your own packing materials-- but here's where those recycled boxes and Styrofoam peanuts you've been saving come in handy!

Select used or new boxes that are sturdy enough to hold and protect the equipment you are shipping. They should be free of holes and rips. The boxes have to be smaller than 26"x26"x26, but you can pack in as many pieces of computer equipment that will fit. The total weight cannot be over 69 lbs. (An average monitor weighs 42 lbs, a hard drive about 8 lbs, a printer about 10 lbs)

Examples of types of cushioning material to place around the computer pieces are: newspapers, bubble wrap, old clean rags, or Styrofoam peanuts. Remember to remove any data from your computer that you might want or don't want others to see!



Packing the box

Once you have your box, flip it over. With the bottom of the box closed, tape all sides with a lot of durable, wide packaging tape.

Place your computer equipment in the box. Pack all open spaces tightly with cushioning material. The packing instruction kit shows different ways to pack computer pieces so they best fit in the box.

After you have all the equipment in the box, fill out the donation/recycling request form. Place it inside the box at the top.



Closing the box

Tape your box closed with lots of durable wide packaging tape on all seams. Write "Fragile" and draw an "up arrow" on the side of the box.

Labeling the box


Finally, fill out your return address on the pre-paid UPS shipping label that comes with the instruction kit. Remove the label and stick it on the top of the box.

Where to take your sealed and labeled box

Your packed computer must be taken to any UPS drop-off site.



Important! The shipping label is only valid for about four weeks from when you receive it from IBM. UPS (United Parcel Service) locations in Alaska are listed below.


 This symbol means the location is near an airport.

UPS contact information, if needed:

Tel: 1-800-742-5877

Web: www.ups.com



UPS Drop-Off Location	Hrs of Operation	Phone Number
Anchorage  6200 Lockheed Dr 645 G St (Downtown) 201 East 6 th Ave (Downtown)	M-F 9-6 M-F 9-6 Sa 12-4 M-F 7-9 Sa 9-9	1-800-742-5877 276 7888 277-7470
Fairbanks  805 Airport Rd 3875 Geist Rd E 1181 Vanhom Rd	M-F 9:30-5 M-F 9-7 Sa 10-6 M-F 10:30-12:30, 7-8pm	1-800-742-5877 452 6179 479 2650
Juneau  1900 Renshaw Way 617 Willoughby Ave	M-F 5-6pm M-F 8-6 Sat 9-5	1-800-742-5877 586-3555
Kenai 330 Main St Loop	M-F 8:30-10:30am	1-800-742-5877
Ketchikan 157 Eichner Ave	M-F 8-9am	1-800-742-5877
Sitka  600 Airport Rd	M-F 8-9am	1-800-742-5877



Ways to get the box to UPS

Remember the pre-paid shipping label is only valid for four weeks from when you receive it from IBM.

- Can the box come with you on your next trip to Anchorage, Juneau or Fairbanks? Then you can take a fun side-trip to UPS and drop it off. The Anchorage locations are an easy walk from the downtown hotels and Egan Convention Center.
- Can the box be shipped with other computers that the school is recycling? (If so, ordering the shipping label should be timed with the schools shipping schedule).
- Can an empty plane going out of the Village take the box and drop it off at UPS (note the UPS locations to the left that are close to airports)?
- Can your community make an arrangement with ALPAR to take the box when they are picking up cans to recycle?

What if I can't pay the 40 bucks?

- Talk to your community environmental staff person. IGAP funds may be available to pay for your computer recycling.
- Do you know other people in your community looking to recycle their computer too? Together you may be able to apply for small grant monies to pay for computer recycling. Call Joe Sarcone, EPA 271-1316 for ideas on grants available.
- Talk to your school. See if they have a computer recycling program in place or have plans to recycle their computers in the future.



Computer Disks



Recycling Computer Disks

Green Star's website has great information about recycling your computer disks. [Click here](#) to read their write-up.



Also, visit Green Star's home page at <http://www.greenstarinc.org/> for great information about recycling and more!

Where you can recycle your computer disks

GreenDisk Services www.greendisk.com

2200 Burlington
Columbia, MO 65202
1 (800) 305-3475

Ship used disks (3.5"), CDs, and videotapes to GreenDisk's recycling facility in Columbia MO. The media is magnetically erased, fully inspected and evaluated. The disks and CDs are then disassembled and the plastic and metal components are recycled to make new disks and other items. The tapes are de-labeled, cleaned, packaged and resold. See the web site for shipping instructions and fees.

Data Management Services

c/O Digital Audio Disk Corporation
99 Mulberry Street
Terre Haute, IN 47807
(812) 462-8323

Accept CDs with cases. Must remove all other materials. The CDs are de-inked, the aluminum is removed, and the plastic is ground and sold for use in furniture and other recycled products. There are no minimum quantities and no fees above the shipping costs.



Also see Green Star's website - they have a great write up about recycling your computer disks. www.greenstarinc.org/enews/Anchor-RECYCLING-37516



Construction and Wastes (C&D) Wastes



Construction Project Wastes

Construction wastes are a big issue in most Villages. You need to know that most construction wastes are not hazardous. Some are. But construction wastes can be a problem for many reasons. And wastes that are not considered hazardous when discarded at a big city landfill can be harmful when discarded at a Village unmanaged dump site. One of the biggest headaches that construction wastes cause is the big volume dumped over a short period of time.

Selawik has adopted a policy that contractors must submit a waste plan for approval before they begin the project. The contractor must estimate the type and amount of wastes that they will generate. Selawik works with the sponsoring agency to let them know of their policy so that the requirement is included in the contract language. That way, the project contractors will know they need to plan to backhaul out their wastes, or include the costs for paying Selawik to discard non-harmful wastes in their landfill. Here is Selawik's policy:

Native Village of Selawik - Regulation of construction & demolition waste

Before a construction project starts in our community, contractors must submit a waste disposal plan to our supervising local government that oversees the project. The plan must include a time schedule for waste generation, an estimate of the type and amount of wastes expected, and the proposed procedure for disposal. Any hazardous wastes must be shipped out at the contractor's expense. Other wastes can be discarded at our facility, stored for salvage and re-use, or shipped out.

The Selawik IRA Environmental Department (managers of our SWM program) must approve the plan and monitor project compliance. Wastes that are discarded at our facility will be subject to a per volume fee commensurate with the proportionate cost incurred for proper site closure, shortened facility life span, and staff monitoring time. Reusable wastes will be charged on a sliding scale basis, depending on their relative value to the community.

If you would like to contact Selawik to ask about their C&D regulations, call Raven Sheldon at 484 2006. If you would like to see a waste plan template you can use, go to the end of this Chapter. Read below for how you can estimate the C & D waste expected. This way you can check what the contractor submits to you.



Estimating Wastes A competent contractor can make a very good estimate of the type and amount of waste they will generate. A waste disposal plan allows them a chance to plan. Working with the contractor (instead of against them), you both benefit. Knowing exactly what is expected, the contractor will be much better at adjusting their bid, and being resource-conscious.

As a general estimate for how much construction wastes will be generated in a project, you can use this table:

“The Total Weight Table”:

	Residential Construction (pounds/square foot)	Non-Residential (pounds/square foot)
New Construction	4.38	3.89
Renovation	Varies	17.67
Demolition	115.00	155.00

(Source: Franklin Associates, "Characterization of Building-Related Construction and Demolition Debris in the United States," U.S. Environmental Protection Agency, Jun. 98, p. 2-2, 2-3, 2-6, 2-7, 2-8, 2-9, 2-10, and A-5.)

Note: "Square feet" is an area measurement. Multiply the width and length of the house (or room), and that is your "square footage". A 10 foot wide by 8 foot long room would be 80 square feet.

Total Weight Table Example: If a 1,000 square foot house was constructed, an average of 4,380 lbs (i.e. 1,000 x 4.38) of waste would be generated.

Did you notice how much more waste is created for a *DEMOLITION PROJECT*?? These are the projects that will really fill up space.

What general types of material is in there?

The following table will help you with planning or how much of the waste your community can salvage, how much you can leave in the landfill, and how might want removed.

“The Percent Weight Table”: Average percent by weight of construction waste types (nationwide)

	Wood	Drywall	Metals	Concrete	Plastics	Other
Residential						
New Construction	53%	19%	2%	9%	2%	15%
Renovation	37%	31%	3%	5%	<1%	24%
Demolition	33%	10%	4%	27%	1%	25%
Non-Residential						
New Construction	31%	23%	10%	33%	3%	0%
Renovation	28%	22%	19%	22%	3%	65
Demolition	21%	10%	7%	53%	3%	6%

(Source: Franklin Associates, "Characterization of Building-Related Construction and Demolition Debris in the United States," U.S. Environmental Protection Agency, Jun. 98, p. A-10 to A-16 and the Author.)

Percent Weight Table Example: From above, your 1,000 square foot residential new construction house will generate about 4,380 pounds of **total** waste. What if you wanted to know how many pounds of **wood** that would be?

From the Table in the first column, you can see that residential new construction projects generate about 53% of their waste weight as wood.

$$53\% \times 4380 \text{ lbs of total waste} = \mathbf{2,321 \text{ lbs of wood.}}$$

If your building was a commercial building (like a store), you would use the non-residential new construction numbers from both tables. The equations are below. See if you can find the bolded numbers from the tables and then do the calculations. If you can, you are ready to estimate any new projects!

$$1000 \text{ sq ft} \times \mathbf{3.89 \text{ lb/sq ft}} = 3,890 \text{ pounds of total wastes}$$

$$\mathbf{31\%} \times 3890 \text{ lbs} = 1,206 \text{ lbs of wood would be expected.}$$

Decision-making Time The large bulk of construction wastes will not harm you or your environment. It is a concern for many villages only due to space available. Also, someday you might want to close your dump. The larger the dump, the more the closure costs. That is why landfills in the cities charge a lot for C and D wastes. And you can too.

You can set different fees for different types. Wood is really useful, so you might not want to charge the contractor anything for that. Drywall (assuming no lead paint) and concrete is basically harmless. Metal pipes and other scrap metal is worth something if you can arrange for free backhaul - especially copper and aluminum. If not, it is not harmful to the environment, and takes a very long time to degrade. So you can take 10 or 20 years to plan for a backhaul. If your dump is unmanaged and not covered, you might not want plastics around because they can catch fire and cause toxic smoke. However, the percent of plastics added by construction projects compared to what is added by your community is small. So the additional risk is not large.

The "other" category is a place to watch out. It will depend on the project. A lot of harmless materials are in the "Other" category, like glass, ceramics, cardboard, and workers' lunch garbage. But there are also wastes that might cause problems, especially if it is a demolition project. These projects are likely to generate electrical wiring, mercury thermostats, fluorescent lights, etc. If the walls are painted, they are likely to contain some lead based paint, which was very common in the 1970's and before that. All of these should be removed, unless you have a use for the electrical wiring. See below for a list of common hazardous wastes.

You don't need to charge fees at all, especially if the project is beneficial. But be sure you include your donation of landfill space and additional future cost of closure as a leveraged in-kind cost to the project. Also, be sure you have the space, and the wastes are not hazardous. For space, cardboard, drywall, and wood will eventually disintegrate or be

salvaged, so they won't take up as much space in the future. Otherwise, the wastes need to be hauled out.

But what about volume?

Why are waste generation rates always given in volume?? It is because a pile of garbage weighs the same no matter what. But the same pile of garbage takes up a very different volume depending on whether it has been compacted or spread-out. It is frustrating because for Villages, it is the volume that is usually the biggest concern for construction (and most other) wastes. The following table gives a very rough estimate for volume of wastes.

The "Volume Table": Rough Average Estimate of Percent Volume for New Construction

	Commercial	Residential
Predominant Materials (10% or greater)		
Wood	20-30%	20-35%
Concrete and block	10-20%	<i>see secondary list</i>
Drywall	5-10%	10-20%
Cardboard	5-10%	5-15%
Secondary Materials (less than 10%)		
Steel from decking, re-rod, etc.	1-8%	
Shingles	--	1-8%
Brick	1-5%	
Concrete	<i>see primary list</i>	1-8%
Crates and pallets	1-5%	
Extruded polystyrene (rigid) insulation	3% range	
Fiberboard	--	1-8%
Kraft paper packaging	3% range	
Plastic sheeting and bags	3% range	
Electrical wire	2% range	
Overspray from fireproofing products	0-5%	

(Source: Innovative Waste Management, "Construction Materials Recycling Guidebook," Mar. 93, p. 4-5.) For greater detail in Residential construction waste volume, see Appendix B in <http://www.p2pays.org/ref/24/23088.pdf>

See how much volume the cardboard takes up? It is part of the "Other category" in "the Weight Table" because it doesn't weigh much. Remember, your contractor will likely give you weight estimates. If they give you volume measurements, ask how they calculated them. Baled cardboard takes up very little space compared to loose boxes. If you don't have a baler, you will never get the cardboard volume very small.

Volume Table Example:

If your contractor estimates they will generate 20 cubic yards of waste for a residential construction project, then you can assume that about 1-8% of that total will be concrete.

$$1\% \times 20 \text{ cu yd} = 0.2 \text{ cu yd} \quad \text{and} \quad 8\% \times 20 \text{ cu yd} = 1.6 \text{ cubic yards.}$$

So you would expect 0.2 to 1.6 cubic yards of concrete from the project.

Conversions - Be Careful!

You can only use the percent volume if you know what the volume of waste will be. You can't multiply the percent volume by the total weight.

Here is a table for **converting volumes to weights or weight to volumes**. These volumes are "as generated" volumes - which is what you want when you are deciding how much they will fill up your dump. The numbers are what is called a "specific weight". A specific weight tells you the weight of a material in a specific volume.

"The Material Conversion Table": New Construction Waste as generated.

Waste Type	To convert to volume:	To convert to weight"
Wood	6.7 cu yd./ton	300 lb/cu yd
Cardboard	20-50 cu/ton	30-100 lb/yd
Drywall	5 cu yd./ton	400 lb/cu yd
Rubble	1.4 cu yd./ton	1400 lb/cu yd
Mixed Waste	5.7 cu yd./ton	350 lb/cu yd

*Source: US Army Corps of Engineers, Construction Engineering Research Laboratories, "Concepts for Reuse and Recycling of Construction and Demolition Waste", USACERL Technical Report 99/58 June 1999

Material Conversion Table Example:

Let's go back to the 1,000 square foot house. We calculated that 4,380 lbs of total waste is generated from "the Total Weight Table". From "The Percent Weight Table", we also already calculated that 2,231 lbs of wood would be generated.

We want to know the volume of wood generated. So, look at the second column in the above "Material Conversion Table". It says "6.7" cubic yards per ton of wood waste.

First change the pounds (lbs) into "tons". Tons is a normal unit when taking about garbage. Just divide the pounds by 2000.

$$2,231 \text{ lbs of wood} \div 2000 \text{ lbs} = 1.1 \text{ tons of wood.}$$

Then take the 6.7 cubic yards that make up one ton, and multiply by how many tons you have:

$$6.7 \text{ cu yd/ton} \times 1.1 \text{ tons} = \text{about } 7.5 \text{ cubic yards of wood are generated.}$$

Remember, if your contractor gives you much different numbers than what you estimated from these tables, you can ask now them why!

Hazardous Construction Materials

Often, with construction wastes, it is the hazardous materials with which to be most concerned, and not so much inert waste like concrete or organic waste like wood (as long as you have the space).



To know: It is illegal already for Projects to discard federally or State-defined "regulated hazardous wastes" at your dump.

To also know: The definitions and exemptions of what is a hazardous waste are complex. If you want an interesting headache, see <http://www.epa.gov/osw/hazwaste.htm> for the actual regulations. Considerations include volume and pollution levels, and a lot of miscellaneous exceptions. This means that some wastes that can be harmful to your community and lands *can* be left at the dump. But if you have a contract or ordinances that specify which wastes you will allow, these wastes *can't* be left.

So it always better to be safe. Have a contract that specifies relevant characteristics of your dumpsite, such as "unlined, floods regularly, no cover, and occasional accidental fires". Then state that the contractor must remove any wastes that can be significantly harmful to the environment, subsistence resources, or health of the community, regardless of whether they meet the federal definition of "hazardous waste". Any exceptions can be stated in the contract. If you write into the contract that your dumpsite is unlined and frequently-floods, it makes it very difficult for the contractor to claim they didn't know that contaminants could move off-site.

The most common hazardous C and D wastes are:

- Asbestos Containing Building Materials (ACBMs).
- Lead-based Paint (LBP).
- Poly-chlorinated Biphenyls (PCBs).
- Batteries containing lead and cadmium.
- Mercury.

- Chlorofluorocarbons (CFCs).
- Treated Wood.
- Miscellaneous (e.g., fluorescent lights, thermostats).

You can list these wastes as an example of wastes that must be removed in your contract with your contractor. For some of these wastes, there are certain quantities, concentrations, or types that trigger action levels for federal regulations. Then the contractor is required to remove them no matter what your contract says. For example, walls with old lead paint may or may not all fit the federal definition of hazardous, depending on how much of the paint and lead is on the wall. You may go to <http://www.p2pays.org/ref/24/23088.pdf> to read a good summary example of how certain wastes are classified as "hazardous" and are required by law to be removed.

Even this summary can be difficult to follow. You can also call the EPA Hazardous Waste Staff at (907) 271-6329. As of this writing, her name is Diane Richardson and she is very helpful.

Remember, if you prohibit the disposal of these materials at any level above "no concern to the community", you won't need to worry about the action levels. Remember the federal action levels were determined partly based on the assumption that the wastes would go to a lined landfill and never be open-burned.

Containers: What Is "Empty"?

One example of a hazardous waste not being regulated is the "residual" hazardous waste left in empty containers. Federal law defines when a container is considered empty. It allows a very small amount to be left behind in the container because it can be difficult for the user to get it out.

For most hazardous wastes in a village construction project, a container is empty if:

1. **All waste possible has been removed** using the practices commonly employed for the container type, e.g., pouring, pumping, and aspirating, **AND**
2. **No more than one inch of residue** remains on the bottom of the container or inner liner.

OR, you may apply the percent weight rule:

Containers smaller than 119 gallons: No more than 3 percent by weight of the total capacity of the container remains in the container or inner liner

Containers larger than 119 gallons: No more than 0.3 percent by weight of the total capacity of the container remains in the container or inner liner



OR

For compressed gas: a container is empty when the pressure in the container approaches atmospheric.

For “**acute hazardous wastes**”: These are the worst hazardous wastes. These aren’t very common in village construction. But you can find out by asking the contractor to list all the hazardous materials that they are using. The empty rules for “acute hazardous wastes” are much more strict and complex. Go to <http://www.epa.gov/epaoswer/osw/laws-reg.htm#regs> and click on Part 261 under the heading “Hazardous Waste Regulations”. Then click on 261.7 “Residues of Hazardous Wastes”.

The Bottom Line on Empty: Residue from “empty containers” is still hazardous waste. But it is okay under federal and State law to landfill. If you have a lot of containers, it can add up. Under the 3 percent rule, it takes about 34 containers to make a full container of hazardous waste. Just the sight of the containers can be of concern to residents. If you write up a contract and require a waste plan, you can say what to do with the containers. It may depend on where you dumpsite is, and if it gets flooded. You might allow containers to be discarded in your contract, but require an inspection to make sure they are as empty as possible. If you’re not sure what to do, talk with your contractor, the State, or EPA. Between everyone, you can decide the plan that makes the most sense.

What Are Other Communities Doing?

To manage Project hazardous materials, the Native Village of Venetie has a good Ordinance and Contractor Notification Program that they actively enforce.

Lance Whitwell, from Venetie, wrote on the SWAN message board <http://members.boardhost.com/SWAN/> :

.....I will require the contractor to give me a haz mat list that they are bringing, then I make them sign off that they have received and read our ordinance, and they agree that all employees of the project will abide by the ordinance. This would also include leak prevention, and response plan. Before the project is over, or before we sign off on the project, They must give me back a listing of all haz mat used, and if any containers were disposed of, where was it put, if there is anything left they will be given the opportunity to leave it with the council if they want or can use it for anything, other wise, the contractor must backhaul it. ...

Lance is willing to share copies of the forms they use. If you want to contact Lance directly, he can be reached at lancewhitwell@yahoo.com or 849-8212. You can also go to



the message board for the full message to respond to him
<http://members.boardhost.com/SWAN/msg/393.html>.

Other Villages such as Koyukuk and Aleknagik have asked local construction companies and/or their utility, or utility cooperative, to take responsibilities for the wastes that they bring in and clean them up or ship them out. For information on their success stories, contact Jennifer Williams at ITEP at jennifer.williams@nau.edu. Or you can contact them directly: Koyukuk - Leona 927-2253, and Aleknagik - Jacqueline 842-2080.

Other communities that have hazardous waste/C&D ordinances that you can contact for information are:

Community	Contact Phone Number
Evansville	692-5005
Eagle	574-2281
Igiugig	533 3211
King Cove	497 2648

Here are some more tips that we've learned in our research (which included asking agencies):


1. CONTRACTS

Always, always try to get waste disposal stipulations in the contract - up front. If you have it in a written contract, you don't actually need an ordinance. The one exception would be if your contract had something in there that was illegal, and the contractor could get out of it that way.

To get what you want in the contract, you need to get involved in the project as soon as possible. And we mean from "Day 1" that you find out about a project in your community, regardless of whether the project is a public project, or a private business.

Different agencies work different ways. It is easier to work with some funding agencies than others. For example, with State projects you might not have a lot of say about who gets hired - it will generally be the lowest bidder. With BIA 638 contracts, you have pretty much all the say about who gets hired, as long as you follow guidelines.






Regardless, you have the right to work with your funding agency on what your community needs. Generally, **there will be a project officer** or project manager or community liaison **assigned to work with your community** on an agency project. **Talk to this person as soon as you can, and talk to them often.** Let them know that you want to insert waste management policies in the contract. Tell them first, and follow that up immediately with a formal letter from your Tribe or City (or both) that repeats what you said, and that contains the details of what you want in the contract.

Hazardous waste that is regulated under Subtitle C of RCRA is supposed to be removed under federal (and State) law and discarded properly as hazardous waste. Thus, some agency personnel who are not familiar with villages might think that leaving the rest of the wastes is okay for your community.

Agency personnel are like most anyone else, they want to do the right thing. Let them know why addressing *all* construction wastes *in the contract* is something that your community must have. Unless they have visited villages a lot, they may not realize that some wastes left behind can become hazardous if they are burned when the dump catches fire, or the volume can be so big that they can expand the landfill so that it goes into the river or town, or blocks access so that people end up walking on wastes or dumping their wastes elsewhere. Even when the waste is not hazardous, it can be concerning to residents to not know what the waste is and how much is being left. The concern of pollution itself can be enough to change some peoples' subsistence activities. A contract that asks the contractor to explain the wastes and get approval for which wastes she leaves behind can lessen these concerns.

Timing is everything on these projects. The language has to be inserted into the "Request For Proposal" (RFP) to "Solicitation to Bid" before it goes out to bid. Otherwise, contractors will not know to account for the extra waste disposal costs. Although it is changing, be prepared. Agency personnel may not be used to communities providing them contract language. They may not feel they have the time to do this, or may think that the project could be delayed. But in the end, it is your community's project and your responsibility to work with the agency so that they understand.

The Ugly Fact Then there is the case that was very common in the past. Contractors have left even the federally defined hazardous wastes at the dump, against federal law. Sometimes when this happens, they even do it with full knowledge that the waste is harmful and they are violating the law. A contract and a waste policy up front will help prevent this situation from ever happening again in villages. That, and monitoring by the environmental staff that the contractor is keeping to their promise. You are in a great position to really help your community by ensuring the



If you feel you still are not getting anywhere with your project contact, look for someone else to talk with. For DOT projects, a great resource is their Civil Rights Office. Contact [Jon Dunham](#), at 269-0850. They have a lot of experience in working with communities to maximize local hire and carry out a project according to community desires. Most federal agencies have Tribal liaison offices. This is a person or a whole program devoted to ensuring the interaction between American Indian Tribes and Alaska Native Villages goes smoothly for their agency projects. They are a friendly advocacy office when all else fails.

Here are some Contacts we found on the Internet:

U.S. Fish and Wildlife Service

Native American Liaison
1011 East Tudor Road
Anchorage, Alaska 99503-6199
T-LIP Contact: Tony DeGange (907) 786-3492



HUD - Alaska Office of Native American Programs

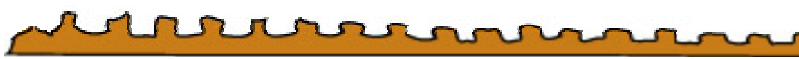
3000 C Street, Suite 401
Anchorage, AK 99503
Toll Free: 1-877-302-9800 (Alaska Only) or (907) 677-9800
Staff directory: <http://www.hud.gov/offices/pih/ih/codetalk/onap/akonap/staff.cfm>

MORE HELP

If you can't get your issue resolved, and feel you are facing an Environmental Justice issue, you can contact the Environmental Justice Office. Joe Sarcone, EPA, 271-1316 and Kristin Keit, BIA, 1 800 645 8397 ext. #9, are the Alaska Environmental Justice contacts.

2. ORDINANCES

Ordinances provide a legal backup insurance to get construction wastes out of town. If they are in effect, the contractor needs to follow them, regardless of what is in the contract. However, if the contractor is not aware that you require all construction wastes to be removed (or otherwise treated differently), they might decide to leave the wastes anyway. With good lawyers, they could even succeed in avoiding any penalties. And if you are a Tribe, your Council must make a hard decision to get involved in a jurisdictional authority case. Many Tribal advocacy lawyers and scholars believe this is a time period to avoid jurisdiction cases. Where Tribal jurisdiction is involved, the cases can take up much more significance than with City jurisdiction. And they are likely to be long and costly.



How to solve this? If you pass waste ordinances, **be sure to provide every agency and every potential and awarded contractor a copy of them.** That way, they know what to expect.

Also, remember, **to be legal, ordinances must be fair.** This means that they must apply equally to all contractors. If you provide free-of-charge disposal for lumber wastes, then you must provide that to all construction contractors, (not just the ones you like!)

You can use “**traditional justice**” and project contracts in place of ordinances. This allows the Tribe to use its traditions and values to determine how the wastes are discarded. For example, if the wastes are determined to be a threat to subsistence or health, for most tribes that would be against traditional unwritten laws that have been in place for thousands of years. Tribes have clear civil jurisdiction over tribal members. With non-member contractors, always use a contract. If you have a City, the City can pass ordinances that adopt the traditional value-based policies that the Tribe uses. See <http://www.zender-engr.net/ordinances.htm> for more ordinances and examples of traditional justice resolutions that cover waste disposal. If you are interested in using more traditional justice as a legal system, contact AI-TC at 563-9334. They can help you and provide several examples.

3. SITE-SPECIFIC PERMIT

DEC offers a site specific permit process for construction projects in your Village. The contractor or agency can apply for a permit to essentially make their own landfill for up to 1,000 cubic yards of construction wastes. The landfill and its project-specific closure must be compliant with State law. A permit is written up that states a list of condition with which the contractor must comply. As a local government or concerned community member, you have the right to work with the state and contractor to provide your suggestions and concerns when the permit is written. This process can work to your advantage if you want to collect fees for construction waste disposal, but don't want your community dump filled up. In this case, you would apply for the permit, or you would lease the land for the contractor to apply for the permit.



There is also a disadvantage to be aware of. If you refuse waste disposal at your dump, the contractor can apply for the permit without your permission. The limitations are that:

1. They still can't discard wastes that are “regulated hazardous waste's” under Federal Law, and
2. The landfill must be on land controlled by the applicant. If the applicant (the contractor, agency, Village, City) etc. does not control the land, **they**



need written consent by the landowner, a lease agreement, or a land use authorization.

So if the contractor can't find any land where a landowner lets them have their landfill, they are back to Square 1. They will have to backhaul their wastes or pay you a disposal fee to use your landfill.

For more information on this construction waste permit process, go to:

<http://www.dec.state.ak.us/eh/docs/sw/SWG0303000.pdf>

Remember, DEC Solid Waste Program developed this permit to *help* villages with their construction wastes. They are aware of the construction waste problem in villages. If you think this site specific permit can help you, or you are having problems with it because the contractor isn't complying with the conditions specified, you should call DEC staff. They can help you sort out what to do.

4. TECHNICAL INFORMATION RESOURCES

Are you are interested in finding out more about construction and demolition wastes? Here is a general document that we really like. It is comprehensive (i.e. long), but it is not too difficult to read, compared with many technical documents.

Construction and Demolition (C&D) Waste. Management Guide by the U.S. Airforce, Headquarters for Environmental Excellence at:

<http://www.p2pays.org/ref/24/23088.pdf>

They also have a "pocket guide" that summarizes the information at:

<http://www.afcee.brooks.af.mil/eq/debris/pocketguide.pdf>

Example of Submitted Project Waste Plan

General Waste Type <i>All hazardous or potentially hazardous wastes must be listed, regardless of quantity.</i>	Projected "as generated" volume in cubic yards, or lbs if more applicable.	Detailed description of waste type and salvage condition (e.g. copper sheathed wiring, broken gypsum wall board)	Proposed disposal (landfill, backhaul, salvage, potential salvage, used oil burner, antifreeze recycler, other)	Estimated Time period of disposal (start and end dates) and whether continuous or infrequent generation	Fee to be paid to per yard, or provided unit (if any).
Wood	5 yards	Scrap lumber	Salvage	Throughout project period	None
Concrete, blocks	1 yard	Typical	Landfill	First 4 weeks of project	\$200/yd
Electrical	<0.1 yard	Wiring, circuit boards,	Backhaul	First two weeks of project	NA
Batteries	500 lbs	Non-oil based.	Backhaul	Throughout project	NA
Paints	50 5-gal empty containers		Landfill	Last 3 weeks of project	\$3/container. Residual paint must be dried before disposal.
Etc.					

Additional conditions by Contractor:

Additional conditions by _____ Environmental Department:

Approved By Native Village of _____ by _____ on _____.
Title Date

Approved by City of _____ by _____ on _____.
Title Date



Drums (55-gallon etc.)





Used 55-Gallon drums can be re-used in several ways. Some communities have been really creative in finding ways to re-use them. Check out what they've done at: <http://www.ccthitaswan.org/pdf/drums.pdf>

If your community has a whole bunch of drums - more so than you could ever reuse- you could purchase or borrow a drum crusher to reduce their size to ship out as scrap metal. See below for detailed information about drum crushers.

Drum Crushers

What are drum crushers?

Drum crushers are used to crush empty drums (55-gal to 85-gal) to small flat disks. The purpose of crushing drums is to:

- 1) reduce the amount of storage space needed for empty drums that are sitting around, and
- 2) reduce transport fees when shipping the drums out as scrap metal.



Photo source: Oberg

Some drum crushers can also be used to compact waste inside the drum.

Who sells them?

Bedford Technologies sells the following Oberg brand drum crushers:

Model Number	Crushing force	Time to crush	Drum size able to crush	Height of crushed 55 gallon drum	Approx. Cost
D-60	60,000 lbs	1 min	85- and 55-gallon	4 inches	\$9,900
D-60SP (smaller motor than the D-60)	60,000 lbs	4 min	85- and 55-gallon	4 inches	\$6,500
D-30	30,000 lbs	2 min	55-gallon	6-8 inches	\$6,000

The Oberg crushers are fully automatic and have a one-button operation.

To contact Bedford Technologies:

Donald Guzman


41253 169th Drive SE Suite 787 Monroe, WA 98272

Phone 1 800 848 8228 www.oberg-crusher.com

Before you crush...

Before you crush a drum, it is important that all fluids are drained out of the drums. To drain the last amounts of fluids from drums, tip them over into an oil pan (or other appropriate





container) and let them drain overnight. Then take a rag and wipe out the drum. Companies will not accept scrap metal with any wastes still in them!

Communities using drum crushers

Six Villages on the island of Kodiak purchased Oberg drum crushers from Bedford Technologies in the summer of 2003. The six Villages are: Port Lions, Ouzinkie, Karluk, Larsen Bay, Old Harbor, and Akhiok. The Villages had the Oberg drum crusher retrofitted to run on diesel or gasoline (as opposed to electric) so the crushers will be able to be used anywhere (without having to rely on a power source). To retrofit the crushers cost an additional \$2000 each.

If you would like to talk to these communities about how they like their crushers, contact:

Tracy Mitchell

Kodiak Island Borough

Phone: 907 486 9348

Email: tmitchell@kib.co.kodiak.ak.us

A note on using drum crushers in the winter: Diesel fuel can gel in cold temperatures, so it is a good idea to use drum crushers powered by diesel indoors during the winter



Electronics (including TV's)



ELECTRONIC WASTE (E-WASTE)



WHAT IS E-WASTE?

E-waste is a popular, informal name for electronic products nearing the end of their "useful life." Common electronic products include:

- ☼ Televisions and Monitors
- ☼ Computers
- ☼ Computer Peripherals
- ☼ Audio/Stereo Equipment
- ☼ VCRs
- ☼ DVD Players
- ☼ Video Cameras
- ☼ Telephones
- ☼ Fax and Copy Machines
- ☼ Cellular Phones
- ☼ Wireless Devices
- ☼ Video Game Consoles

WHY IS E-WASTE HARMFUL?

E-waste can contain hazardous materials such as lead, mercury, and hexavalent chromium, in circuit boards, batteries, and color cathode ray tubes (CRTs). Televisions and CRT monitors contain four pounds of lead on average (the exact amount depends on size and make). Electronics have been cited as a leading source of mercury in municipal waste. In addition, brominated flame retardants, now mostly banned in Europe due to their toxicity and persistence, are commonly added to plastics used in electronics. If improperly handled, these toxics can be released into the environment, **potentially placing our health and subsistence resources at risk.**

WHAT CAN YOU DO WITH E-WASTE?

Reuse and Donate

Preventing waste in the first place is usually preferable to any option...including recycling. **Donating** electronics for reuse extends the lives of valuable products and keeps them out of the waste stream for a longer time. **Reuse**, in addition to being an environmentally preferable alternative, also can benefit your community. By donating your used electronics, you allow schools, local non-profit organizations, and households to use equipment that they otherwise may not be able to afford. You can check out Green Star's **Alaska Materials Exchange** for donating and purchasing used electronics equipment.

www.greenstarinc.org/ame/index.php

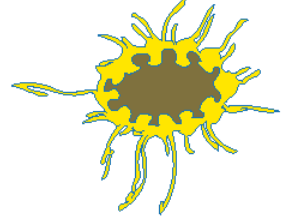
Recycle

If donating for reuse or repair is not feasible, electronics can be **sent to e-waste companies for recycling**. Properly recycling electronics **avoids pollution** and the need to extract valuable and limited virgin resources. It also **reduces the energy** used in new product manufacture. **HOWEVER**, not all electronics recycling companies are environmentally friendly! To cut costs, some companies export all or parts of the e-waste to Asia where wastes are dismantled and disposed of in a way that pollutes the environment and is affecting the health of whole communities. To read more about this serious issue, check out www.svtc.org. When you talk to companies, **ask them**









*Portions of the information on this page are from EPA's e-cycling site www.epa.gov/epaoswer/hazwaste/recycle/ecycling/index.htm

how/where they recycle their e-waste to make sure they aren't exporting overseas, and are recycling all components of the e-waste responsibly. We talked to the companies listed here to ensure they are responsible in their recycling and that they do not export any components.



Buy Our Values

Alaska Natives were environmentalists long before it was trendy. Respecting the earth and our values includes repair, reuse, and then proper recycling of electronics. It also means purchasing **new equipment that has been designed to be more environmentally-friendly**, when we are ready to buy again. When purchasing new equipment, ask the seller about its environmental features. Your Village can encourage electronics manufacturers to design electronics that respect our values through the "purchase power" of Village residents, companies, and governments. You can purchase computers and other electronics with environmentally-preferable features, and request a "take-back option" at the time of purchase. Look for electronics that:

-  Are made with fewer toxic components;
-  Use recycled content;
-  Are energy efficient (e.g., showing the "energy star" label);
-  Are designed for easy upgrading or disassembly;
-  Use minimal packaging; and
-  Offer leasing or take-back options.



COMPANIES THAT RECYCLE E-WASTE AND THEIR 2005 PRICES

Total Reclaim (Located in Anchorage and Seattle)

12101 Industry Way, Unit #C4 Anchorage, AK 99515 Tel: (907) 561-0544
 PO Box 24996 Seattle, WA 98124-0996 Tel: (206) 343-7443 www.totalreclaim.com

This is the company that Green Star in Anchorage (www.greenstar.org) uses to ship their electronics to, for their annual e-recycling drive. The Yukon River Inter Tribal Watershed Council may be setting up an e-waste program with this company as well. For a mixed batch of electronics they charge from **\$0.25-\$0.40/lb.** Contact them for a specified price list.



PC Salvage

3627 S 54th St Tacoma, WA 98409 Tel: 1 (866) 341-8003 www.allaboutpcsalvage.com

This company charges per electronic item rather than by weight. Some of their prices for various materials are listed below:

Description	Recycling Fee	Description	Recycling Fee
Monitors	\$10.00 ea.	Removal from existing networks	Call for pricing
TVs	\$10.00 & up*	Pick up Charges	Call for pricing
Cell Phones	Free	CD ROMs (<i>outside of case</i>)	FREE
Computers	\$5.00 ea.	Floppy Drives (<i>outside of case</i>)	FREE
Printers	\$5.00 ea.	Media--Floppy disk, CD's, and tapes	Call for pricing
Fax/Scanners	\$5.00 ea.	Recycling of keyboards, mice, and misc. cables	\$0.25 per lb.

Copy Machines	\$5.00 & up*	Software Recycling	Call for pricing
Servers/Mainframes	\$0.25 per lb.	Home Electronics	Call for pricing

Green Star

880 H Street, Suite 106 Anchorage, AK 99501 Tel: (907) 278-7827

<http://greenstarinc.org/>

Green Star has held electronics recycling events in Anchorage and other areas of the state each year for the past several years. See their website or give them a call for more information

<http://www.greenstarinc.org/electronicrecycling2005.php> Also check out their on-line **Alaska Materials Exchange** for donating and purchasing used electronics equipment.

www.greenstarinc.org/ame/index.php

GreenDisk

4404 211th CT NE Sammamish, WA 98074 Tel: 1 (800) 305-DISK <http://www.greendisk.com>

Through GreenDisk, you can purchase "Technotrash Cans" which are boxes specially made for easy disposal of a wide variety of e-waste. The cans hold up to 70 lbs of mixed electronic waste but use just one square foot of floor space (dimensions are approximately 1'x1'x3'high), and are good for offices. *(continues next page)*

The following items can be put in the Greendisk Technotrash Cans:

- ◆ Printer cartridges (ink jets and laser)
- ◆ Cell phones, pagers and PDAs
- ◆ Diskettes, CDs, and DVDs
- ◆ Video, audio and computer tapes
- ◆ Rechargers and rechargeable batteries



With Technotrash Cans, one fee is paid that includes the collection box, shipping of the technotrash to the GreenDisk processing facility, and processing. Currently their fee is **\$29.95**.

Computer Recycling Information on SWAN



For detailed information on where to recycle computers, go to the following page on the SWAN website http://www.ccthita-swan.org/Tutorials/computer_recycle_intro.cfm or to "computers" in the SWAN A-Z index at <http://www.ccthita-swan.org/main/a-z.cfm>

HOW TO PAY FOR RECYCLING AND SHIPPING

Several communities we talked to that organized e-waste recycling programs used IGAP monies to pay for the e-waste recycling fees. Most communities were able to negotiate free shipping from barge/transport companies and the free use of a shipping container for collection/shipping. Special IGAP grants may also be another source for funding e-waste recycling programs. For more funding ideas, see <http://www.ccthita-swan.org/funding/funding.cfm>



OTHER HELPFUL E-WASTE LINKS

For more information, check out these links:

Green Star <http://www.greenstarinc.org> ; Intl. Assn of E- Recyclers (IAER) <http://www.iaer.org> ;

EPA E-cycling <http://www.epa.gov/epaoswer/hazwaste/recycle/ecycling/index.htm> ;
NRC <http://www.nrc-recycle.org/Programs/electronics/index.htm> ; SVTC <http://www.svtc.org>
NPSC <http://www.productstewardship.net/> ; Basel Action Network <http://www.ban.org/pledge1.html>
E-waste Rethink initiative <http://rethink.ebay.com/> ; EIA <http://www.eia.org> ;
IRC (cell phone and inkjet recycling) <http://www.ircfundraising.com/index.html> ;
Ink toner recycling on SWAN <http://www.ccthita-swan.org/main/toner.cfm> ;
Disk/CD recycling on SWAN http://www.ccthita-swan.org/main/computer_disks.cfm ;

EXAMPLES OF VILLAGE E-WASTE RECYCLING

We have included the contact details of communities that have organized e-waste recycling programs. We encourage you to give them a call to ask for tips, advice, suggestions etc. for starting your own community e-waste program.

Curyung Tribal Council Contact: Billy Maines 842-1751

In 2004 and 2005, the Curyung Tribal Council held an electronics collection day along with a spring trash cleanup. A 20 foot Connex container (loaned for free by Northland Barge) was set up by the school, and on a designated day, and everyone in the community was able bring their electronics waste to the Connex for recycling. The electronics collection event was announced over the community PA system and was advertised in the local paper and through flyers around the community. During the 2004 collection event, half of the Connex was filled with various types of electronics, and the event in 2005 filled the remainder of the container. More electronics come in during the second collection event, which they thought was due to better advertising within the community. The total amount of e-waste collected was 15,000 lbs and included approximately:

- ☀ 137 monitors
- ☀ 84 printers/faxes
- ☀ 59 CPUs
- ☀ 29 laptops
- ☀ 14 battery backups
- ☀ 10 marine radios
- ☀ 7 scanners
- ☀ 4 large copiers
- ☀ 6 typewriters
- ☀ 125 keyboards
- ☀ 6 TV's
- ☀ Boxes of components, parts, cords, etc.



The Curyung Tribal Council talked to **Northland Barge** about their event and was able to negotiate free shipping of the electronics to Washington. The electronics were shipped to **Total Reclaim** (<http://www.totalreclaim.com>). By talking to **Greenstar** (<http://www.greenstar.org>) ahead of time, they were able to negotiate the same recycling rate that Greenstar gets when they ship electronics for their annual e-recycling drive. End-of-year IGAP funds were used to pay for the recycling.



The Curyung Tribal Council wants to make the electronics collection an annual event and they are **working on incorporating e-waste recycling into their environmental workplans and codes**. Since the schools and health corporation contributed the

largest amount of electronics during both events, they are also trying to start an "end-of-use" fee system. The idea is that the schools and health corporation would pay a small fee when new computers and large electronics are purchased to help pay for their recycling when they can no longer be used.



Native Village of Chenega Contact: Kate McLaughlin 573-5476

In conjunction with their annual Village Spring Clean-up (in May 2004), the Native Village of Chenega held an electronics and household hazardous materials collection day at their hazardous waste shed located at their landfill. The event was advertised to the community ahead of time. To make the collection/cleanup fun, everyone who participated enjoyed a picnic of hamburgers, hotdogs, chips, apples, oranges, juice and ice-cream. Each child also received a glass mug filled with candy and small gifts. Prizes and gift certificates were raffled, every child earning a ticket for each bag of trash they brought in.




Electronics collected at Chenega



Elders and those with health related problems were able to call the Environmental Office to **get their electronics items picked up** at their homes. The types of electronic equipment people dropped-off included PC hard-drives, monitors, keyboards, mouse pads, copiers, TV's and VCR's.

Household hazardous wastes collected included old paints, solvents, and batteries. With the assistance of a certified HazMat technician from **PSC Environmental**, all the materials collected were separated by type, counted, properly packaged for shipping, and stored in their shed until the summer. All materials were then shipped out on the summer barge. A **Special IGAP/Unmet Needs grant** was used to fund this project.



The Chenega Environmental Office was successful in obtaining donations from community businesses to assist the collection event: The clinic donated rubber gloves; The corporations donated gifts and prizes; The Chenega Tribal Council donated the use of an ATV and trailer; A resident donated the use and operation of his barbeque grill; And a couple residents volunteered their time to help with the collection and packaging of e-waste.

Sitka Tribe of Alaska Contact: John Morris 747-6506

The Sitka Tribe has held spring electronics collection events in 2004 and 2005. The e-waste collected in both events mostly consisted of computers (towers and monitors) and fax/copy machines. E-waste was shipped to **Total Reclaim** in Seattle both years and they were charged a rate of around **\$0.25/lb**. The e-waste was shipped the first year on **AML** and the second year on **Northland** and they were able to negotiate a discounted shipping rate each year with the barge companies. **IGAP funds** were used to fund this project.



In 2004 they collected over 9,500 lbs of e-waste and the event was held in May. In 2005 the event was held in the summer (in July) and they collected only 6,000 lbs. Since a large portion of their electronics comes from their schools and the university, they will try to hold future events **right at the end of the school year** (in May) so they are able to get the maximum amount of e-waste generated by the schools. Each year they advertised the collection events on the radio and in the local newspaper, and they also hung up flyers around the community for maximum participation.





Fluorescent lights



Recycling Fluorescent Lights

OVERVIEW

Fluorescent lights have a longer life than incandescent lights and are more energy efficient. That means you can reduce the volume of wastes *and* use less fuel, helping to keep the environment clean. But there are some **health and environmental issues** of which you need to be aware. Fortunately, by learning how to first use them, and then recycle them, these bulbs you can protect your community.

There are two parts to fluorescent lights:

1. The lamp bulb, and
2. The ballast in the fixture which holds the bulb.

Each part has its own issues.

Lamp bulbs contain mercury

The standard fluorescent lamp contains about twenty milligrams ("mg") of mercury. Fluorescent lamps are used all over the United States by millions of people, including us here at SWAN. **There are no known health or environmental risks from lamps that are intact** (i.e. not broken). But ***if a lamp cracks or breaks, mercury vapor can escape into the air or water.*** Once in water or air, it can get into plants and animals. Mercury stays in the fat of an animal and does not decrease very much once it is there. Often, because larger animals eat lots of smaller animals, the larger the animal, the more mercury that it can often contain. This includes humans when they eat mercury-contaminated foods. The increase in the level of a contaminant in a human or animal over its lifetime is called "bioaccumulation".



Mercury is **very toxic** to the human nervous system. Chronic breathing of mercury vapors can cause a range of physical symptoms, including inability to coordinate body movement and impairment of hearing, speech and vision. Exposure to mercury in other forms can lead to skin rashes and kidney damage. **To protect our health, our environment, and our subsistence resources** from mercury contamination, **fluorescent lamps must be properly handled and recycled.**

Fluorescent ballasts may contain PCB's

All ballasts manufactured through 1979 contain PCBs. Fortunately, **after 1979 PCB's were banned** in ballasts made in the U.S. These newer ballasts are labeled "No PCBs." If a ballast is not labeled "No PCBs," you should assume it contains PCBs for now. PCB's, like mercury, can also bioaccumulate in the food chain and can cause health problems ranging from liver injury and skin disorders to reproductive problems. They are very hazardous and do not go away. For information on handling PCB ballasts, see the "Broken Lamp Handling Practices" section on the next page.

Recycling fluorescent lights

When fluorescent light bulbs are recycled, mercury and the phosphor powder, the glass, metal, and other materials are sorted out for recycling. 100% of the glass, aluminum and other metals can be reclaimed and reused! Up to 99.9% of the mercury can be recovered and used again! The ballasts can be recycled to reclaim valuable metals such as copper and steel. So when you recycle these bulbs, you can feel good about what you are doing for your community and the entire earth.



HOW TO RECYCLE FLUORESCENT LAMPS AND BALLASTS

To properly recycle fluorescent lamps and ballasts, kits can be purchased from companies in Anchorage (or out-of-state). The recycling kits come with a pre-paid shipping label and are either a cardboard box for lamps, or a drum/bucket for ballasts. Simple instructions are included on how to pack the lamps/ballasts in the containers provided. But generally, all you need to do is place the lamps/ballasts in the container and properly tape up the box/bucket. Once packed, the containers can simply be dropped off at your post office.

Depending on the company, you may need to pay a small amount to post the empty kits to your Village. You can also pick up the empty kits yourself when you're passing through Anchorage. Do any entities in your Village (school, clinic, City, Tribal Council etc.) have an account with Grainger's in Anchorage? If so, Grainger is willing to send the kits through that account, often resulting in a cheaper price.

RECOMMENDED BROKEN LAMP HANDLING PRACTICES

If a lamp breaks in your home:

- ◆ **Get everyone out of the room quickly. Grab kids by the hand, do not linger.**
- ◆ **Close off the room quickly** to other parts of the building.
- ◆ **Open a window** to disperse any vapor that may escape, and
- ◆ **Leave the room as quickly as possible**, and for at least 30 minutes.
- ◆ **Once back, carefully scoop up the fragments with a stiff paper** (do not use your hands)
- ◆ **Wipe the area** with a disposable paper towel to remove all glass fragments.
- ◆ **Do not use a vacuum** as this disperses the mercury over a wider area.
- ◆ **Place all fragments in a sealed plastic bag.**



If a lamp ballast is not labeled "No PCBs," it may contain PCBs. **You have a leaking PCB ballast if you see clear or yellow oil** on the surface of the ballast. **Carefully place the ballast in its own sealed plastic bag.** When cleaning up broken lamps or ballasts, **wear chemically resistant gloves and safety goggles.** Borrow them from the school or clinic if you don't have any. (See http://www.ccthita-swan.org/main/safety_gear.cfm for safety gear information). Contact PSC Environmental (contact info listed below) for more information on how to properly handle and dispose of/recycle broken lamps.

WHOM TO CONTACT TO RECYCLE FLUORESCENT LAMPS AND BALLASTS AND THEIR COSTS

Total Reclaim of Alaska

12101 Industry Way, Unit #C4 Anchorage Contact: Larry Zirkle Phone: 561-0544

Lamps Larry accepts lamps from Villages for **free** (max of 100 lamps) (call for information on how to package them) **Ballasts** Will likely accept for free, but call to check

Grainger Industrial Supply

6240 B Street, Anchorage Phone: 562-5400

Lamps \$62.55 for any box size

Ballasts A drum that can hold 50 lbs of ballasts is \$68.25



Crescent Electric Supply

5333 Fairbanks St., Anchorage Phone: 562-2800

Lamps \$97.50 for any box size

Ballasts A 6.5 gallon drum that can hold 70 lbs or 20 ballasts is \$142.50

PSC (Phillips Services) (if you have leaking lamps or ballasts, you may need to work with Phillips)
1813 E. 1st Street, Suite 101, Anchorage Phone: 272-9007

You will need to fill out a one-time registration with Phillips. This is easy. You just need to give information about the building the lamps came from, your contact details etc. If this will be a one time disposal of the lamps, you do not need to register with EPA. If you are a business and will be disposing of lamps on an on-going basis, you will need to register with EPA (again a very easy process).

Costs One time registration fee with Phillips \$200; Manifest fee \$50

Bulbs \$2/bulb is a reasonable estimate to use (includes shipping)

Ballasts Leaking: \$2.52/lb; Non-leaking \$1.25/lb to recycle or \$0.50 to dispose of in a special landfill

Also, see the bottom of the page for national companies that you can contact to compare prices to the companies listed above.



WHERE TO GO FOR MORE INFORMATION

<http://www.almr.org/> The Association of Lighting and Mercury Recyclers has educational resources about fluorescent lights, including a great CD with a video all about recycling lamps and ballasts (you can watch the video on-line as well! - just click on the CD icon on the home page)

<http://www.lamprecycle.org/> This site has more information about recycling fluorescent lights

<http://www.swana.org/> Contact SWANA for more information on how the solid waste industry is diverting waste lamps into recycling.

<http://www.epa.gov/epaoswer/hazwaste/id/univwast/lamp.htm> EPA's information on Lamps

http://www.almr.org/support_files/messageforall.htm This is another overview of Fluorescent Lamps

NATIONAL FLUORESCENT LAMPS RECYCLING VENDORS

<p>AERC Solutions 2591 Mitchell Avenue Allentown, PA 18103 800-554-2372 http://www.aercycling.com/</p>	<p>Earth Protection Services, 10 South 48th Avenue, Ste 4 Phoenix AZ 85063-3820 800-414-0443 http://www.earthpro.com/</p>	<p>Ecolights Northwest 2200 6th Avenue South Seattle, WA 98124 206-343-1247 http://www.ecolights.com/</p>
<p>Environmental Light Recyclers 2737 Bryan Avenue Fort Worth, TX 76104-6716 817-924-9381 Email: elrincsr@flash.net</p>	<p>Fluorecycle, Inc. 27780 W. Concrete Drive, Unit A Ingleside, IL 60041 815-363-4411 http://www.fluorecycle.com/</p>	<p>Green Lights Recycling Inc. 10040 Davenport St. NE Blaine, MN, 55449-4423 800-208-8340 http://www.greenlightsrecycling.com/</p>





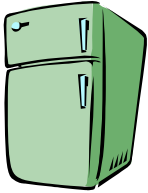
NATIONAL FLUORESCENT LAMPS RECYCLING VENDORS (continued)

<p>HTR-GROUP P.O. Box 185 Lake Ozark, MO 65049 888-537-4874 http://www.htr-group.com/</p>	<p>Lighting Resources Inc. 805 East Francis St. Ontario, CA 91761 800-572-9253 http://www.lightingresourcesinc.com/</p>	<p>Mercury Waste Solutions 302 N Riverfront Drive, Suite 100A Mankato, Minnesota 56001 800-699-2895 http://www.mwsi.com/</p>
<p>Northeast Lamp Recycling 250 Main Street E. Windsor, Ct 06088 http://www.nlrlamp.com/</p>	<p>Onyx Electronics Recycling 1275 Mineral Springs Drive Port Washington, WI 53074 800-556-5267 http://www.onyxes.com/</p>	<p>Southeast Recycling, Inc. 906 Chase Drive Johnson City, TN 37604 800-592-3970 http://www.recyclebulbs.com/</p>

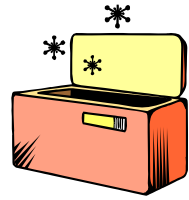


Freon Containing Appliances





Freon Removal



What kinds of appliances/equipment contain Freon?

Several different types of refrigeration equipment contain Freon such as refrigerators, air conditioners, dehumidifiers, freezers, and water coolers.

What is Freon and why is it bad for the environment?

"Freon" is actually a trade name that describes a whole class of chemicals used in refrigeration. These chemicals are called **chlorofluorocarbons**, or **CFC's** and are compounds comprised of carbon, fluorine, chlorine, and hydrogen. When CFCs were first developed in the 1930s by the company DuPont, they were thought to be "wonder chemicals" because they were useful and non-toxic to humans. Decades later however, it was discovered that CFC's harm the environment. Here's how:



Being lighter than air, CFCs rise through the atmosphere until they hit the ozone layer. The ozone layer is a "blanket" in the stratosphere that protects us from harmful ultraviolet (UV) radiation. Through a chemical process, **the CFC's destroy the ozone molecules at a faster rate than Nature can replenish the ozone layer.**



CFCs are listed as Class I (most harmful) stratospheric-ozone destroyers in the United States Clean Air Act. Class I chemicals are the worst known stratospheric-ozone destroyers.

Recycling/disposing of Freon-containing appliances

Because of the harmful effects to the ozone, **it is illegal to release Freon gas into the atmosphere.** Do you have Freon-containing appliances at the end of their useful life in your community? You will need to have a certified technician remove the Freon from appliances in your community before the appliances can be recycled/disposed of (which includes crushing and disposing of the appliances in your community, or backhauling them out). If the appliances are being backhauled to a recycling/disposal company, the "certification of removal" (a piece of paper) must be sent to the company along with the appliances to prove that the Freon was removed properly.

You *may* be able to backhaul the appliances, with the Freon intact, out of your community. You would need to send them to someone that can remove the Freon for a fee and then recycle/dispose of the appliances. This will depend on the transportation company's shipping policy, the set-up of the recycler/disposer, and the overall cost (it may or may not be a more expensive option). Call the companies listed in the next sections for information and price quotes.

Options for removing Freon and range of sample costs

There are three basic options for getting Freon removed from appliances/equipment in your community:

Option 1: Hire a certified Freon removal technician to come to your community and remove Freon from your appliances.

Option 2: Hire a certified Freon removal technician to come to your community to remove Freon from your appliances AND get trained and certified by them on-site, so you can remove Freon in the future.

Option 3: Get trained and certified in Freon removal in Anchorage and purchase your own equipment so you can remove Freon.

Here are the range of sample costs for each option:

Option 1: Hiring a certified technician to come to your community and remove Freon

Item	Cost example	Assumptions for cost example
Technician's time: Free to \$95/hr 10-12hr/day minimum If the units are all lined up and the temperature isn't too cold (colder takes longer), it takes approximately 20 minutes/unit to remove Freon.	Free to ~\$1,200	Amount depends on company used.
Flight, room and board for technician	\$1,000	Amount depends on your location
Excess baggage fee (for equipment)	\$100	Amount depends on airline
Refrigerant disposal: \$2 to \$9/lb of Freon (one refrigerator has approximately ½ lb of Freon)	\$20-\$90	Assuming 20 refrigerators. Range depends on company used.
Shipping full tanks to Anchorage (tanks can hold up to 30 lbs of Freon and empty tanks weigh 15 lbs)	\$100	Amount depends on your location
TOTAL	\$1,220 to \$2,490	

Option 2: Hire a certified Freon removal technician to come to your community to remove Freon from your appliances AND get trained and certified by them on-site, so you can remove Freon in the future.

The costs of this option depend on the company used. The costs could be a) the same as option 1, or b) the costs of option 1 plus an additional 12-24 hrs (depending on student's experience) of the technician's time (at \$90-\$95/hr) for training. For most companies, there would also be a \$50 fee for the certification exam which can be administered on-site or taken on-line.

Option 3: Getting certified in Freon removal in Anchorage and purchasing your own equipment.

Item	Cost example	Assumptions for cost example
Instructors time: The costs are \$90/hr for the instructor's time and the training can take 8-24 hours, depending on the experience of the students. For example, for someone that has read the training materials before the training starts, one day of information and hands-on experience may be all that is needed. But for someone that has no prior knowledge or experience of Freon removal, 2-3 days of training may be necessary. Note: training workbook used for this course is attached to this document.	\$1,440	Assuming an average training time of 2 days, 8hr/day
Participant cost: The cost is \$50/student.	\$50	
Travel costs for training in Anchorage	\$1400	Amount depends on whatever your flight, lodging, and per diem costs are for Anchorage
Refrigerant Handling Equipment: Recovery unit (\$800-1,200 each depending on quality) Recover tanks (typically need about 4 - use one for oil) (\$80 each) Gauges with hoses (\$80 each) Line piercing tool (typically need 2) (\$20 each) Vacuum pump (\$450)	\$1,500 to \$2,500	This is an estimate for the basic equipment needed. There are other tools that may be helpful to you (such as a tool which tests Freon type) which aren't listed here. Call the companies to discuss all equipment options.
Shipping of Equipment from Anchorage	\$750	Amount depends on your location
Refrigerant disposal: \$2 to \$9/lb of Freon (one refrigerator has approximately $\frac{1}{2}$ lb of Freon)	\$20-\$90	Assuming 20 refrigerators
Shipping full tanks to Anchorage (tanks can hold up to 30 lbs of Freon and empty tanks weigh 15 lbs)	\$100	Amount depends on your location
Shipping empty tanks back to community (empty tanks weight approx 15 lbs each)	\$50	Amount depends on your location
TOTAL	\$5,310 to \$6,380	

Who performs Freon removal and training

We made some calls to find out who you can call for certified Freon removal and training. If you have worked with other companies that offer these services that you would recommend, please post a message to the SWAN Village Message Board to share your information with other Villages.

<http://members.boardhost.com/SWAN/>

The costs listed below are only estimates.



COMPANY NAME: TOTAL RECLAIM

Contact: Larry Zirkle Phone: (907) 561-0544 Email: larryz@totalreclaim.com
<http://www.totalreclaim.com/> 12101 Industry Way, Unit #C4 Anchorage, AK 99515

Costs:

Mr. Zirkle can come to your Village to remove Freon and train on-site. **There is no hourly technician charge associated with his initial visit.** His goal is to train others who can perform Freon removal throughout several Villages. He is also able to proctor the EPA certification exam on-site. To hire Mr. Zirkle to remove Freon and train in your Village, the costs would be:

- The purchase of proper recovery equipment (purchased through a supply house or through Total Reclaim, Inc.) (see option 2 on prior page for sample costs)
- Refrigerant disposal: if refrigerant types can be separated into different tanks, disposal costs are approximately \$50/full tank (or approximately \$2/lb), otherwise the costs for disposing of tanks full of mixed types of refrigerants are \$6-\$9/lb. There is also a handling fee of \$35/tank.
- Certification exam (if getting certified) at \$50/student
- His airline ticket to your Village plus food and housing (doesn't need to be fancy)

On future visits (after the initial visit), Mr. Zirkle charges \$95 an hour with a minimum of 10 hour days.

Total Reclaim also offers other services such as backhauling Freon-containing appliances, electronic waste and hazardous waste. Call for more information. Also go to http://www.ccthita-swan.org/pdf/total_reclaim.pdf for more information about their company and statement of qualifications.

COMPANY NAME: AURORA REFRIGERATION

Contact: Ed Christensen Tel: 907-563-7337 Fax: 907-563-7331 Mobile: 907-351-3250
Email: auroraed@gci.net
[3209 Spenard Rd Anchorage, Alaska 99503](http://www.aurora-refrigeration.com/)

Costs:

Technician costs to remove Freon on-site are \$90/hr with 12hr/day minimum. Costs for refrigerant disposal are \$7.50/lb. To train on-site would cost an additional 12-24 hrs (depending on student's experience) at \$90/hr. There would also be a \$50 fee for the certification exam which can be administered on-site or taken on-line. Getting trained in Anchorage costs \$90/hr for the instructor's time and the training can take 8-24 hours, depending on the experience of the students. Call for more information and quotes for your specific situation.

COMPANY NAME: ALASKA NATIVE MEDICAL CENTER

Contact: Mark Roehl Anchorage 907 729 2844

Depending on your situation, the ANMC may be able to send someone to your community to provide Freon removal services. Contact the number listed above for more information.

COMPANY NAME: ERIC MIDDLEBROOK CONSULTING

Contact: Eric Middlebrook Bethel 907 543 4075

Call the number above for Freon removal quotes based on your specific situation.

How you can get funding for Freon removal and training

Ideas for funding sources for getting trained in Freon removal, or hiring a certified person to come to your Village include:

Grant	Website with more information
IGAP	http://www.ccthita-swan.org/funding/IGAP.cfm
Special IGAP/Unmet needs grants	http://www.ccthita-swan.org/funding/funding1.cfm#10
EPA's Tribal Hazardous Waste Grant	http://www.ccthita-swan.org/pdf/grants/Tribal_Hazardous_Waste_Grants_2005.pdf
Environmental Justice Grants	http://www.epa.gov/compliance/environmentaljustice/grants/index.html

Examples of Villages with Freon removal experience

Native Village of Aleknagik

Contact: [Daniel Chythlook](#) Tel: 842-4407

Aleknagik's Environmental office sent two of their tribal members to Freon removal training in Anchorage (Aurora Refrigeration). The training lasted for three days and now they have certified Freon removal technicians within their own community. They used an EPA Environmental Justice grant to fund their training. Feel free to contact Daniel for more information about their training and experience in Freon removal. Also see his powerpoint presentation on getting his staff trained for Freon removal at http://www.ccthita-swan.org/pdf/freon_alek.pdf

Curyung Tribal Council

Contact: Billy Maines Tel: 842 1751

The Curyung Tribal Council used City of Dillingham staff, who were trained in Freon removal on-site in Dillingham (by Aurora Refrigeration), to remove Freon from appliances.

Native Village of Newtok

Contact: Margaret Nickerson Tel: 237 2325

The Native Village of Newtok was awarded an EPA Tribal Hazardous Waste grant in 2005 and will use part of it to get trained in Freon removal and purchase Freon removal equipment for their Freon-containing appliances they have piling up at their dump. Check back with them in later 2005/2006 for progress on their Freon removal program.



Refrigerant Removal Step By Step Instructions By Total Reclaim:

1. Safety Glasses



2. Gloves



3. Work in a well ventilated area
4. Identify what refrigerant you trying to recover



- a. Locate name tag somewhere on the refrigerator and/or freezer
 - b. Determine Refrigerant
 - i. R-12, F-12: Put in to R-12 Cylinder
 - ii. R134A, F134A: Put in to R-134A
 - iii. Unknown: Put in mixed Cylinder
5. Install piercing valve



- a. One on the high side, Smaller line, Condenser, Red hose
 - b. One on the low side, Larger line, Evaporator, Blue Hose
6. Hook up hoses
- a. Red to high side



- b. Blue to low side

- c. Yellow from manifold gauge set to in of recovery equipment



- d. Spare yellow hose from out of the recovery equipment to liquid side of the tank



7. Open up piercing valves



- a. If no pressure no need to recover



- b. If pressure go to step 8



8. Open up gauge manifold valves



- a. Red side, open all the way
- b. Blue Side, open all the way

9. Open valves on recovery unit



- a. Blue first
- b. Red second
- c. Bleed yellow line at in of recovery cylinder



- d. Open liquid valve of cylinder

10. Turn on recovery unit



11. Let run for a while then hit compressor with rubber mallet to free refrigerant from oil and trap areas.



12. Watch your gauges and when gauges show a negative 20



- a. Valve off the Blue manifold gauges, see if pressure remains the same
- b. If not, and the pressure increases, reopen Blue manifold valves and restart the recovery unit
- c. Make sure you repeat the above process until negative 20 is obtained
- d. If it holds
- e. Valve off manifold gauges Blue first then Red and see if pressure remains the same



f. Turn off blue valve on recover equipment



g. Turn off machine



h. Valve off red valve of recovery unit



- i. Turn off liquid valve of recovery cylinder.



13. Disconnect hoses,* Remember when removing liquid line hose from tank gas/liquid will be present, open slowly and wear protective gloves and eye protection.



14. Remove piercing valve and duct tape holes for shipping.

When is a cylinder full?

- Determine your WC# (Water Capacity) stamped on cylinder
- By law you can only fill the cylinder to 80% capacity
 - Example: WC# is 26.2 that times 80% or $26.2 \times .80 = 20.96$
- Determine your Tare Weight (TW)
- Add the TW to your 80%
 - Example: Determine your TW is 16.8#, $16.8 + 20.96 = 37.76$
- The max total weight of your cylinder is 37.76

If you have any further question please contact Total Reclaim, Inc @ (907) 561-0544



Household Hazardous Wastes



Household Hazardous Wastes (HHW)



In this section:

- ❖ What are household hazardous wastes?
- ❖ How can you recognize hazardous products?
- ❖ Examples and categories of hazardous products
- ❖ Reducing household hazardous wastes
- ❖ Discarding Hazardous Products in a Village
- ❖ Safer alternatives to hazardous household products
- ❖ Important tips when handling, using, and storing HHW
- ❖ Cleaning up spills and safety gear
- ❖ Starting a household hazardous waste collection program
- ❖ Photos of a household hazardous waste collection center
- ❖ Publications
- ❖ Contacts and Phone Numbers
- ❖ Emergencies
- ❖ How can I get additional information about hazardous wastes?

What are household hazardous wastes?

Hazardous household products have the potential to harm our subsistence foods, our people, and our environment. We believe as Native people, we *are* our environment and subsistence foods. Hazardous products are in our Villages because we purchase them from our stores, or we bring them from hub cities. We use them for cleaning countertops, stripping and painting our boats, and lubing our 4-wheelers. Household hazardous products are in all of our communities.



Every day, there is probably someone in your Village who is using a hazardous household product.

Once they are in a Village, household hazardous products are there to stay. They are a problem because they can be harmful when they are used, and when they are *not* used - when they are thrown out. If you decide to discard a household hazardous *product* or material, the agencies call it a "household hazardous *waste*".

Household wastes, construction wastes, or any kind of wastes are named "hazardous" by agencies if they:

- ✓ Can burn or flame up easily,
- ✓ Corrode (like a battery) or irritate the skin,
- ✓ Have the potential to generate heat or explode, or
- ✓ Are poisonous to humans and animals.



When you see a "hazardous waste" grant or a "household hazardous waste" grant, the wastes will probably have to fit one of these definitions to get any money. Remember though, your Village can still decide how to define hazardous wastes for your community. For example, plastics and Styrofoam can be hazardous if they are burned in a burn box, pit, barrel, or open trench. Even though the smoke can be toxic, they are not listed as "hazardous wastes" by agencies. But if you burn them, these wastes are still hazardous to community health.

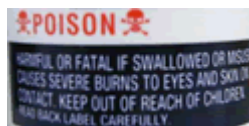
How can you recognize hazardous products?



Products containing hazardous substances are required by federal law to be properly labeled. Labels on hazardous products use a rating system of four "signal" words. These words are listed below from "most hazardous" to "least hazardous".

Signal Words

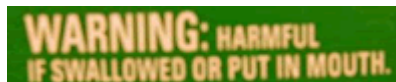
POISON



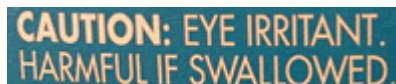
DANGER



WARNING



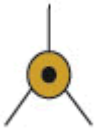
CAUTION



These signal words are often followed by advice to take precautions such as "Keep out of reach of children."

1. **Poison** is the highest hazard level of the group. Poison means that a product is highly toxic. It can cause injury or death if eaten, breathed, or absorbed through the skin.
2. **Danger** means that a product is *highly* toxic, or flammable, or corrosive.
3. **Warning** and **Caution** mean that a product is toxic, corrosive, reactive or flammable (but not as highly as for "danger").





Examples and categories of household hazardous products

There are several different kinds of hazardous products out there, but many of them fit into these general categories:

- ✚ **Household cleaners** — examples include: bleach, ammonia, toilet bowl cleaner, drain cleaner, oven cleaner, bathroom cleaner.
- ✚ **Automotive products** — examples include: gasoline, motor oil, antifreeze, lead-acid batteries, brake fluid, transmission fluid.
- ✚ **Home improvement products** — Examples: paint, paint thinner, paint stripper, adhesives, varnish.
- ✚ **Pesticides** — examples include: rat and mouse poison, pet spray, flea collars, mothballs, insecticide, weed killer.
- ✚ **Other** — examples include: household batteries, shoe polish, lighter fluid, prescription medicines, arts and crafts materials.



Discarding Hazardous Products in a Village

For some of us, there are a lot of good things about living in a Village (e.g. our community!) and some bad things about living in a Village (honeybuckets for some of us). Mainly, it is different from living anywhere else, and working with household hazardous wastes is no exception. **Here is why:**

The good news is that we live healthfully through subsistence on our lands and waters. Even when our foods have tested positive for some contamination, the contamination is much less than in the store-bought fish and meats that 'non-subsistence people' have to eat. We are lucky. We have a saying in Southeast 'When the tide's out, the table is set'.

The not-so-good news is that our dumps and sewage/honeybucket lagoons are often unlined, leaking, flooding, or sitting in or next to our lands and waters. Some of us have dumps and lagoons that meet *all* of these descriptions. In Anchorage, when folks throw out their hazardous wastes in the garbage, or pour them down the sink, the chemicals will end up in their lined Class 1 landfill. Or they will get diluted in their lined, advanced waste water treatment system. Not much of the waste will end up in the Anchorage environment. But in many of our Villages, that waste *does* end up in our environment.



For example: If we follow the disposal instructions for spray paint—"roll up the can in newspaper and discard in the trash" -- the spray can gets taken with our trash to our open, unlined dump. When the can rusts out, or is crushed by an ATV, snowmachine, or heavy equipment, the leftover toxic paint will leak. After that, the chemicals can be carried by flooding or snowmelt to the ground or river.

But the good news is subsistence again. Because, unlike people in Anchorage (and almost everywhere else in the world), we can control what goes into our local environment. That means we can

control what community hazardous wastes get into our food. All we need to do is change our community's hazardous waste habits.

Break the Connection!

Hazardous wastes connect to our subsistence by getting into our dump and sewage systems. We can break the connection by reducing, reusing, safely storing, or backhauling them instead.

We have outside construction projects that sometimes bring in hazardous wastes. But Villages can write waste disposal ordinances to force projects to remove their hazardous wastes. To learn from Villages that have done this, call us at SWAN—we are working on the stories.

If we help our communities break the connection, we protect our subsistence. Read further to find out how.

Reducing hazardous household products

The best solution to household hazardous waste is not to make the waste in the first place.

1. Instead of using toxic products, try to use safer, less toxic products.
2. Try to buy only what you need.
3. Use it up correctly.
4. Give the leftover to someone who can use it



Safer alternatives to hazardous household products

Discarding wastes is not the only way hazardous products can harm our community. *Using* the product-- even when we use it correctly-- can pollute our environment. For example, many products, like bleach, thinners, and varnishes, can damage your lungs if you breathe them without opening your windows. But what happens when we open the window? The fumes go to our environment. It is like damaging the earth's lungs around our homes. If you can use some of the alternatives listed below, your home will be safer and you can even save money!

All-purpose cleaner

Dissolve 4 tablespoons baking soda in 1 quart of warm water for a cleaning solution. Or use baking soda sprinkled on a damp sponge. Baking soda will clean all kitchen and bathroom surfaces.

Drain cleaner

Prevent drain clogging! Use a strainer to trap food particles and hair. Collect grease in cans instead of pouring it down the drain. And to maintain a no-clog sink: *Once each week*, put 1/2 cup baking soda and then 1/2 cup white vinegar down your drain. Cover the drain. Let it sit for a few minutes. Then pour boiling water down the drain to flush it.

**Furniture polish**

Dissolve 1 part lemon juice into 2 parts vegetable or mineral oil. Apply and polish with a soft cloth.

**Glass and Window Cleaners**

Use cornstarch and water! *Or* mix 1/2 cup vinegar with one quart of warm water.

Metal cleaner/polish

Aluminum Cleaner To remove stains and discoloration from aluminum cookware, fill cookware with hot water. Add 2 tablespoons cream of tartar to each quart of water. Bring solution to a boil and simmer ten minutes. Wash as usual and dry.



Brass Cleaner Clean and polish unlacquered brass to a shine with a soft cloth that has been dampened with Worcestershire sauce (!).

Silver Cleaner To clean tarnish off gold and silver, use toothpaste and a soft toothbrush or cloth. Rinse with clean warm water and polish dry.

Copper Cleaners Pour vinegar and salt over copper; rub and rinse.

Oven Cleaners

Scrub with baking soda and water. Place liners in your oven to catch any drips during baking. Sprinkle salt on spills when they are warm and then scrub.



Pests Use boric acid to kill ants and roaches. Sprinkle a lot around the points of entry. *Warning:* Even though it is much safer than pesticides, boric acid has some toxicity. It should not be applied to areas where small children and animals might contact it.

**Spot remover**

Immediately soak in cold water, lemon juice, club soda, or corn meal and water.

To remove ink stains, put creme of tartar on the stain. Squeeze a few drops of lemon juice over it. Rub into the stain for a minute. Brush off the powder. Sponge with warm water.

To find more alternatives, go to the following sites:

King County Natural Resources Hazardous Wastes Page
<http://www.metrokc.gov/dnr/kidsweb/alternatives.htm>

EPA Region 5/Purdue University's site
<http://www.epa.gov/grtlakes/seahome/housewaste/src/recipes.htm>



Hazardous Waste Management Program Office of Toxics and Solid Waste Management Department of Planning and Development Santa Clara County <http://www.p2pays.org/ref/04/03591.htm#link6>

Important Tips when Purchasing, Using, and Storing HHW

When handled, stored, and used correctly, household hazardous wastes (HHW) don't pose too many environmental problems. However, many HHW products can harm or even kill you if handled improperly. There are three routes by which HHW can enter your body:

Ingestion: By eating or drinking hazardous substances or contaminated food and water;



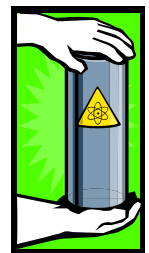
Inhalation: Breathed in the form of gases, vapors and sprays;

Skin contact: Products containing corrosives or (absorption) irritants will injure the skin and can be absorbed. Other toxic products go through the skin and enter your body without any skin damage or mark.

Follow the tips listed below when purchasing, using, and storing HHW.

Purchasing household hazardous products:

- ◆ Think if you really need it. Can any of the safer alternatives listed in the section above be used instead?
- ◆ Buy the least hazardous product (Use the signal words to guide you).
- ◆ Buy only the amount you need to do the job.
- ◆ Read the label and make sure it is the product you want to buy. Look at the warnings and the disposal instructions. Sometimes the disposal instructions are not possible to follow in Villages. Sometimes the warnings will be difficult to follow. We all know how hard it can be to keep a 2-year old away from where they should not be.
- ◆ Buy childproof products.
- ◆ Choose squirt bottles over aerosols. Aerosols spread the chemical in the air more, where you do not want it. You will use less product from a squirt bottle, and you will pollute the air less.





Using household hazardous wastes safely:

- ◆ Read and follow instructions on the product carefully.
- ◆ Don't mix products together.
- ◆ If you are pregnant, or someone in your house is pregnant, avoid hazardous products as much as possible.
- ◆ Keep hazardous products stored high, or in locked cupboards, away from small children.
- ◆ Use hazardous products in WELL VENTILATED AREAS. Open windows, use fans, and take plenty of fresh air breaks.
- ◆ Avoid eating, drinking, and smoking when using hazardous products. Some of the invisible chemical can get on food, drinks, and cigarettes. Then you will end up having the chemical for lunch. Smoking can be dangerous around flammable hazardous products.
- ◆ Use appropriate safety gear when using hazardous products. Go to the safety gear section of this guide or http://www.ccthita-swan.org/main/safety_gear.cfm for information on hazardous waste safety gear and spill clean up products.



Storing hazardous wastes safely

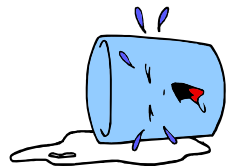
- ◆ Make sure you tightly seal caps and lids on hazardous products.
- ◆ Never store hazardous products in food containers.
- ◆ Keep products containing hazardous materials in their original containers and never remove the labels. Corroding containers, however, should be repackaged and clearly labeled. Keep containers dry to prevent corrosion.
- ◆ Keep products out of the reach of children and animals.
- ◆ Keep products away from sources of heat, spark, flame, or ignition such as pilot lights, switches and motors. This is especially important with flammable products and aerosol cans.
- ◆ Store products that warn of vapors or fumes in a well-ventilated area.
- ◆ Consider creating a family symbol, such as an unhappy or scary face, that children can identify. Draw this symbol on each container.







Cleaning up spills and safety gear

If you have a hazardous waste spill in your community:

- 🚫 Remove children and pets from the area where the spill occurred.
- 🚫 Mark off the area so people don't come into contact with the spill.
- 🚫 Ventilate the area if the spill happened inside. But only enter the area without a mask if you know for certain what you are dealing with. Larger spills of some



chemicals must only be handled by trained personnel. Some chemical fumes can kill.

-  Wear appropriate safety equipment when cleaning up or assessing the spill.
-  Contain the spill by soaking it up with absorbents (you can purchase absorbent pads or use clay-based kitty litter)
-  Put the absorbed material into a plastic bucket or drum. Label it with the date and what's in it.
-  See *Safety Gear* above for places where you can purchase spill clean-up products

See ADEC's spill response website for more information about hazardous material spills <http://www.dec.state.ak.us/SPAR/index.htm> You can also contact **Mike Jaynes** at ADEC at 451-2117.

Always use appropriate safety gear when using hazardous products. See above Section for resource links.

Starting A Community Household Hazardous Waste Program

Are you interested in setting up program to gather the household hazardous wastes generated in your community? If so, follow these steps....

1 Educate Your Community and Reduce Hazardous Wastes

The most important step in a hazardous waste program is to educate your community. It is important to inform people of the dangers associated with hazardous wastes, and the need to dispose of the wastes properly. **If you have an open dump, use honeybuckets, or have a sewage pond that floods or seeps:** Be sure that your community knows that **following disposal instructions on the label may not work very well.**



Educating Kids

Teaching our kids about hazardous wastes is one of the best ways to get the word out about the potential dangers of hazardous wastes. Go to your school and see if you can add the study of hazardous wastes to the topics they teach.

- ◆ Talk about the reason a product is "hazardous" for your community (For example - Using or disposing the product can put a chemical in the river that is taken up by

the fish we eat).

- ◆ Then them how to know which household products are hazardous (reading warning labels and looking for words like: poison, toxic, flammable etc.)
- ◆ Talk about why it's important to protect the environment from hazardous wastes. Get kids to make the connection. Ask them how buying and using these products hurts things that they care about (subsistence, elders, drinking water sources etc.).

Educating the Community

Spread the word about hazardous wastes! Put up flyers around the community and at the dump/landfill to remind people of the risks posed by hazardous wastes. There are many things that can pollute our environment. Some come from outside our Villages and it is difficult to do something about it. But hazardous wastes are what we bring in and make. So hazardous wastes are what we decide go into our dump and river and air.



Encourage people to REDUCE the amount of hazardous wastes in the community. Ask households to purchase less hazardous products and/or use less toxic alternatives.



2 Set Up A Reuse/Exchange Center For Household Hazardous Wastes

What is garbage to some people may be useful to others. Reuse centers are a place in our communities to drop-off household hazardous products that they aren't using. Other people pick up products that they need. Examples of items typically found at reuse/exchange centers are paint, partially used household cleaners, ant spray, art and hobby supplies...just to name a few.

Some communities choose to have reuse/drop-off centers that are open every day. Other communities choose to have monthly or annual drop-off/pick-up days. They plan a big event for everyone to bring their hazardous wastes. Whether you decide to set up a reuse/drop-off center or hold a collection day, the hazardous wastes should be securely stored so they cannot be easily reached by children. The reuse center can be simple or fancy, depending on your budget. A used Connex works well. For information about selecting a good storage/collection center and to see examples, go to the storing hazardous waste section of this guide or http://www.ccthita-swan.org/Tutorials/storing_hazwaste.cfm , or call Ray at SWAN.

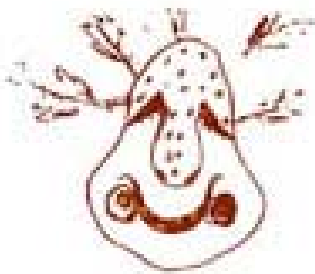


Example of a HHW reuse center
Photo source: Municipality of Anchorage
www.muni.org/sws/hazardouswaste.cfm

Note: Your HHW *reuse* center can be operated like a **store where everything is free**. So, if it is possible, it should be a different place from your regular hazardous waste *storage* area. A hazardous waste storage area is for storing wastes like lead-acid batteries, used oil, and used antifreeze safely *away* from the public. If it's not possible to have separate buildings, make sure that these wastes are stored in lidded containers, or blocked off from where kids can get into them.

Pick a good location in your community that is convenient for people to take their household hazardous wastes. This could be a central place in your community where access is easy. Your dump/landfill can be one of the best places if it is staffed and fenced off during closed hours.

Location, Location, Location



If you live in a larger village, **be careful that outside (or inside) businesses do not take advantage**. Hazardous wastes in bigger quantities are supposed to be disposed at a certified landfill Down South. These certified landfills or treatment centers are very expensive. One Village had a household hazardous waste collection day, and an unknown



business dropped off many 55-gal drums of unknown hazardous wastes. It took a lot of phone calling and fund-seeking to get rid of the drums.

Ideally, it is great to have someone **staff the reuse center**, especially in the beginning when it starts off. Staff can help explain how it works. If you're not able to staff the center, try big signs that explain what people need to do. Hold a grand opening day and give a tour.

Here are a few more suggestions for operating your reuse center:



Keep a list of items that are dropped off, as well as the person's name and the date, in case you have a question later about what they brought. We have included an example at the end of this handout.



When people bring products, make sure you can clearly read the label of what the product is. If the label on the product is hard to read, write the name in big letters with a permanent marker.



Mark the drop-off date on the product if you can't find an original date on it.



Post a sign at the reuse center listing items that you do accept or items that you don't accept (and an alternative of what to do with them).



You might choose to not allow businesses to drop off wastes at your center. If you are concerned that they may try anyway, you can ask people to sign and date a waiver when they drop-off products. The waiver could say something like "I certify that this is household waste was made at my household, and not generated at a business."

And finally, once your reuse center is set up, place signs up around the community and at the dump/landfill letting people know:

- ◆ What kind of hazardous wastes are being collected,
- ◆ Where (and when) they should take their hazardous wastes, and
- ◆ The importance of not dumping hazardous wastes on the ground, in trash can that ends up in your open dump, or in a pipe that empties to waterways.



To see an example of a household hazardous waste collection center, keep reading.

3 **Recycle/ship out/dispose of remaining hazardous wastes**

If you have any remaining hazardous wastes that can't be reused, here are some suggestions:

Recycle/dispose properly

For information about how to recycle/dispose of different types of hazardous wastes including used oil, antifreeze, etc., see our index or table of contents in this guide or go to http://www.ccthita-swan.org/Tutorials/haz_wastes.cfm#10#10 , or call Ray at SWAN.



Ship hazardous wastes out of your community

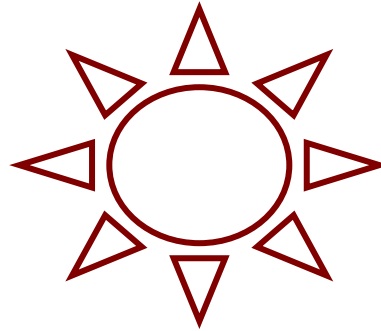
For information about how to ship out hazardous wastes, including FREE shipping programs in place, see the shipping haz wastes section of this guide or go to http://www.ccthita-swan.org/Tutorials/shipping_hazwaste.cfm on the internet or call Ray at SWAN.

Photos of a household hazardous waste collection center

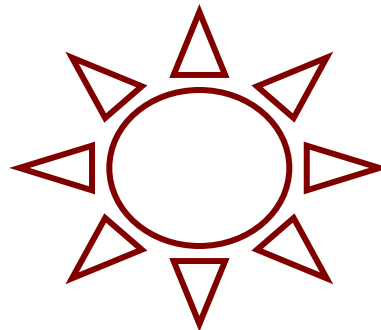
In February 2004 during the Forum conference, we arranged a tour of the Anchorage Household Hazardous Waste Center. Note: anyone can get a free tour! Give them a call at (907) 428-1742 or (907) 343-6262 and set up one for the next time you're in Anchorage. Here's their website too: <http://www.muni.org/sws/hazardouswaste.cfm> Look at the pictures we took on the next page.



The front of the Anchorage Hazardous Waste Center



The household hazardous waste reuse center is located in a used Connex container. Shelving was put up, lighting installed, and a small office in the back was set up. It is just like a regular hardware store. Here we are-- looking at the different products available to anyone who wants them (for free!).





The staff person showed us the safety gear they had on hand in case of a spill. The photos above are Marvin Ramoth and Ben Davis from the Native Village of Selawik demonstrating the use of a Tyvek suit to wear when cleaning up spills. The other types of safety gear the Center had ready to use were gloves, goggles, and absorbents (kitty litter and pads) to clean up any spills.



The Center also had hazardous waste safety, identification, and emergency information sheets posted. These sheets can be purchased for under \$20 at Alaska Safety in Anchorage (907) 561- 5661.



Publications

To order any of the following EPA documents call the RCRA Information Hotline at: 1 (800) 424-9346

- [Household Hazardous Waste Management: A Manual for One-Day Community Collection Programs.](http://www.epa.gov/epaoswer/non-hw/househd/hhw/cov_toc.pdf) http://www.epa.gov/epaoswer/non-hw/househd/hhw/cov_toc.pdf
- Household Hazardous Waste: Steps to Safe Management. April 1993. EPA 530-F-92-031.
- [Household Hazardous Waste Reduction.](http://www.epa.gov/reg5rcra/wptdiv/p2pages/hhw.pdf) <http://www.epa.gov/reg5rcra/wptdiv/p2pages/hhw.pdf> August 1997. EPA-905-F-97-011.
- Collecting Household Hazardous Wastes At Wastewater Treatment Plants: Case Studies (1990), publication number EPA 430/09-900~016, published by U.S. EPA, Office of Water (WH-546), 401 M Street SW, Washington, DC 20460.

Also, the **Alaska Native Health Board (ANHB)** has a great household hazardous waste guide in their Rural Alaska Integrated Waste Management Reference Manual Planning Resource Guide which can be viewed at this link:<http://www.zender-engr.net/anthc> See App. 3.

Contacts and Phone Numbers

The State of Alaska does not have a hazardous waste program, so federal hazardous waste regulations apply. The federal program is managed by EPA. For general hazardous waste questions, you can call direct at (907) 271-6329 or (206) 553-6502. You can also call the toll free number 1 (800) 424-4EPA and ask for Jon Jones or Maria Tartaglia.

Emergencies

For emergencies with household hazardous wastes call 911 or the Poison Control Center in Alaska at 1 (800) 222 1222.



How can I get additional information about hazardous waste?

- 1) See the SWAN general hazardous wastes page
- 2) For an A-Z list of hazardous waste products and what to do with them see EPA Region 5's hazardous waste webpage. Click on the link below:
<http://www.epa.gov/grtlakes/seahome/housewaste/house/products.htm>
- 3) Visit other hazardous waste websites below:
 - Alaska DEC:
<http://www.dec.state.ak.us/eh/sw/Factsheets/Household%20hazardous%20waste.pdf>
 - EPA Region 5: Household Waste
<http://www.epa.gov/grtlakes/seahome/housewaste/src/open.htm>
 - EPA Region 3: Household Waste
<http://www.epa.gov/reg3wcmd/solidwasteinhousehold.htm>
 - U. S. EPA - Household Hazardous Wastes
<http://www.epa.gov/epaoswer/non-hw/muncpl/hhw.htm>
 - ANHB's Rural Alaska Integrated Waste Management Guide
http://www.anhb.org/sub/rasc/Solidwastehome_files/refguide/Appendix%203.pdf
 - CHEC's Heal the House <http://www.checnet.org/healthhouse/virtualhouse/index.asp>

Household Hazardous Waste Reuse Center Log



Lead Containing Products



Lead Sources

Vehicle lead-acid batteries are probably the biggest source of lead in your village. Go to:

http://www.zender-engr.net/docs/battery_leadacid.pdf to find out how to package and backhaul these batteries. But **once you have your lead-acid batteries under control, there are other important lead sources** to do something about, that contribute more lead to your environment than household lead batteries.



Household batteries should be recycled. Some household batteries may contain lead. See our dedicated household battery recycling document at http://www.zender-engr.net/docs/battery_household.pdf for more information.

Computers must be kept out of our unlined dumps. Besides lead, they have lots of other health-risk associated heavy metals and chemicals. Computer manufacturing plants have contaminated local water sources all over the world.

See http://www.ccthita-swan.org/Tutorials/computer_recycle_intro.cfm about recycling computers and what they contain. Work with your school to make sure they ship their computers back to a responsible computer recycler, or at least a Class I lined landfill away from an area that people live from the land.

Lead shot and sinkers need to be replaced as a long-term goal: Working towards **reducing lead shot and lead sinkers, and replacing them** with lead-free substitutes will be a gift to your children and descendants and lands. You can accomplish this through community education, trade-in/subsidy programs, and actions on getting the cheapest lead-alternatives into your community.



Lead shot and sinker effects: If waterfowl ingest lead from shot or sinkers, they can die within 3 - 6 weeks, and many more will contract one or another common bird illness, brought on by a lead-caused weakening of their immune systems. Worse still, some of those sick birds could start epidemics that kill many of their non-poisoned companions. In fact, the available reports indicate that as many as **five waterfowl may die from lead-related causes for every one** that has an actual lethal poisoning.

Health-wise, it is better for a community to continue subsistence no matter what kind of shot or sinker is used.

Steel Shot: But for those who can afford it and find it, steel shot is much better, and should be a community goal. If you come across lead shot or sinkers while hunting, pick them up (with gloves), and bring them back in. Consider ways to encourage folks to switch.

First, make sure steel shot is available locally in your stores. Does your store have access to internet? Offer to find the cheapest steel shot prices for your store. Look up "steel shot" in Google or Yahoo Search engines. You might be able to bring the price down for your store(s) to just a little over one dollar difference for a case. In Alaska, lead shot is usually imported from Mexico, and steel shot from Canada, or the Northwest. **Other ideas:** Provide steel shot as raffle prizes, and consider using Bingo profits, or plan a lead shot pollution prevention demonstration/education program that can subsidize the cost difference.



Lead sinkers and jigs:

See http://www.cws-scf.ec.gc.ca/fishing/alter_e.cfm for a list of lead-free sinkers and jigs. That link will also take you to general information about lead sinkers and their effects.

And <http://www.cws-scf.ec.gc.ca/publications/AbstractTemplate.cfm?lang=e&id=1031> is a good technical (i.e. long) summary of effects.

Also, <http://www.moea.state.mn.us/reduce/sinkers.cfm>

For more information about lead go to:

EPA Region 10 Lead Program	http://yosemite.epa.gov/R10/OWCM.NSF/lead/lead1pg
National EPA Lead Program	http://www.epa.gov/lead/
The National Lead Information Center	http://www.epa.gov/lead/pubs/nlic.htm
HUD Office of Healthy Homes and Lead Hazard Control (HUD lead regulations, compliance assistance, educational resource, tech studies, grant info, community outreach activities and news.)	http://www.hud.gov/offices/lead
National Safety Council (NSC) Environmental Health Center (EHC) Lead consumer product alerts, disclosure rule information, educational resources, newsletter and contacts	http://www.nsc.org/ehc/lead.htm

Also, the EPA Region 10 Lead Contact is: Barbara Ross
 U.S. EPA Region 10 Solid Waste & Toxics Unit (WCM-128)
 1200 Sixth Ave. Seattle, WA 98101 Tel: (206) 553-1985 Email: ross.barbara@epa.gov

Also, the Central Council of Tlingit and Haida Indian Tribes is working on a Tribal Lead project. Contact Harold for more information at 1 (800) 344-1432.



Mercury Containing Products



Household Mercury Sources

There are some sources of household mercury that are much, much higher in mercury than household batteries. Luckily, mercury use in these products is becoming less common, and alternatives are increasingly available. These are the main types of household mercury products you will find with lots of mercury:

Mercury flame sensors: Also called automatic gas shut-off valves, are used as safety devices in gas ranges and other appliances. A flame sensor stops the flow of gas if the open flame does not produce heat, such as when the pilot light is out. These contain about 1 gram (1,000 mg) of mercury. So **one flame sensor is equal to about 40 button cell batteries**. They were used in older gas-fired appliances (e.g. dryers, stoves, and furnaces) to open or shut off gas. These will be hard to remove, but another reason for separating out and backhauling your appliances. Many newer model appliances now use an electronic igniter or electronic flame sensor. You might find in the trash another type of flame sensor used in **fire detection systems**. **These are** used to activate sprinkler systems or alarms.



Photo source: www.mercvt.org

Switches are devices that regulate the flow of electricity; when open they allow current to flow and when closed they prevent current from flowing. Some temperature or pressure sensitive and mechanical switches may contain mercury. Typical examples include:

- ❖ The hood and trunk light switches in some pre-YR 2000 cars,
- ❖ Silent wall switches,
- ❖ Garage door openers,
- ❖ Clothes dryer lids,
- ❖ Microwave ovens,
- ❖ Proximity or position sensors found in irons and space heaters,
- ❖ Sump pumps and bilge pumps.



Mercury switch

The average mercury-containing switch has about **3 grams of mercury**, the same as **120 button cell batteries**. Taking out just **one such switch removes more mercury than two to four years** of a pretty good household battery program. The reason? Beside the much lower amount of mercury in household batteries, button cell batteries usually last several years. So for every 400 button batteries in your community being used, there will be only about 100 needing replacement each year (and going to the trash). But you will be doing well if you can collect even 10% to 50% of what is going to the trash. Note, large switches can contain up to **70 grams** of mercury (about **660 button cell batteries**).

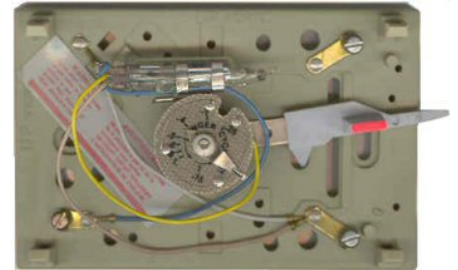
Temperature switches: These are used in food warming trays, hot water boilers, ovens, sterilizers, molding machines, heat exchangers, labeling machines, water baths, heat sealers, refrigerating equipment, ventilation equipment, alarm systems, bearings, popcorn machines, hot stamping, watering fountains, vending machines, and deep fat cookers. Due to their mercury content, these switches are becoming less popular with the food and beverage industry. They contain anywhere between **1 to 10 grams of mercury** (40 to 400 button cell batteries).

Fever Thermometers: Those containing mercury are identified by the color of the bulb.

If the bulb is silver, the thermometer most likely contains mercury, anywhere between **500 to 3,000 mg** (20 to 120 button cells). Digital fever thermometers are mostly used now (which don't contain mercury), but watch out for people throwing out their old mercury bulb thermometers.



Thermostats: Mercury-containing thermostats may be used in heating and cooling systems in residential, medical, commercial and industrial settings. **Most non-digital thermostats contain mercury, anywhere between 3 grams to 18 grams** (equal to 120 to 720 button cell batteries). Thermostats that contain mercury can usually be identified by **carefully removing the front plate of the device and looking**. If there are glass "ampoules" inside that contain a silver liquid, it is most probably mercury. Watch out for people replacing their old thermostats with digital models that they can use for programming the temperatures. Such models are definitely better for the environment, but make sure people don't discard their old thermostats in the landfill.



Note: The primary source for the above "Other Mercury Sources" discussion is the Environment Canada, at <http://www.ec.gc.ca/MERCURY/SM/EN/sm-mcp.cfm?SELECT=SM>

How to remove the mercury components from big appliances ("white goods")

There is a great step-by-step manual with pictures to take the mercury out *before* the freezers, ovens, washing machines, etc. are discarded or stored at your unlined dump. You might print this out and have your operator read it, or keep a copy for households to read when they are ready to discard their white goods. If don't have an appliance backhaul (most of us don't), then the mercury will eventually get into the environment. So removing the mercury switches and sensors will be a significant help in protecting subsistence and community health.

Go to: <http://www.mercvt.org/PDF/appman.pdf> for the **Household**

Appliance Mercury Switch Removal Manual developed by the **Mercury**

Education and Reduction Campaign, Vermont Agency of Natural Resources. Their site at www.MERCvt.org lists a number of other mercury-reducing practical steps your community can take.



Photo source: www.mercvt.org

Other useful mercury information

Web Links:

Topic	Website address
Overview of mercury and why it's a concern	http://www.epa.gov/earlink1/mercury/index.htm http://www.epa.gov/epaoswer/hazwaste/mercury/index.htm http://www.nwf.org/mercury/
What you should do if you have a mercury spill 	http://www.epa.gov/epaoswer/hazwaste/mercury/spills.htm http://www.epa.gov/boston/eco/mercury/spillstherm.html http://www.state.in.us/idem/ctap/mercury/spill.pdf http://www.idph.state.il.us/envhealth/factsheets/mercuryspills.htm http://www.state.nj.us/health/eoh/survweb/merchome.pdf http://www.michigan.gov/deq/1,1607,7-135-3585_4127_4175-11751--,00.html

Shipping out mercury containing items:

Unfortunately, shipping out mercury can get expensive, but you should be able to use IGAP funds for this activity. To save money, it's best to store all your mercury containing items and ship them out together rather than item by item. So if there are several thermostats, thermometers, switches or other mercury containing items in the community that will eventually need to be disposed, it's best to **store them in a safe place** until everything can be shipped out, all at once.

Most mercury-containing products are now universal wastes (See the RCRA chapter). This helps a lot with recycling storing and recycling them. When the mercury containing items are ready to be shipped out, contact the following companies for quotes:

Total Reclaim www.totalreclaim.com Tel: (907) 229-0183
 12101 Industry Way, Unit #C4 Anchorage, AK 99515

Emerald Services www.emeraldnw.com Tel: (907) 258-1558
 800 East Ship Creek Avenue Anchorage, AK 99501

Phillips Services Anchorage, AK 1 (800) 478 9008 (907) 272 9007



Through these companies, you can order **DOT-approved shipping containers** to put the "mercury debris" in. These containers come in a variety of sizes (e.g. 1-gallon, 5-gallon etc. containers). The companies above will also help you fill out a manifest to ship the material.

Any **spilled liquid mercury must be put in a ziplock bag** with absorbent material around it (e.g. kitty litter), in the DOT-approved container. (Read the information on the webpages listed in the table on the previous page on how to safely cleanup small mercury spills)

**What are the typical costs for shipping out mercury containing items?**

The table below shows sample costs for shipping out mercury containing items gathered from the companies listed above:

Item	Costs
DOT-approved container	\$6-\$20
Processing fee (manifest and shipping paperwork)	\$50
Transportation costs from Village to Anchorage (depends on location)	\$25-\$100
Disposal fee for mercury debris	Up to ~\$350



Mining wastes



Mining Wastes

Alaska has abundant mineral resources including some of the world's richest deposits of zinc, copper, silver, lead, and gold. Place gold mining was the predominant type of mining in Alaska until the late 1950's, but since then large-scale hardrock mines have become increasingly prominent (www.northern.org). Many communities in rural Alaska are in a position of evaluating the potential economic and environmental consequences.



Below are some links that provide information on various mining topics:

Federal Government

BLM	http://www.blm.gov/ak/ak940/solids/miningak.html
USGS Hard rock mining contamination	http://toxics.usgs.gov/topics/minelands.html
USGS Investigations of Watershed Contamination from Mining	http://toxics.usgs.gov/bib/bib-Mining.html
Recreational Gold Mining in Alaska	http://www.nps.gov/aplic/Goldmining.pdf
EPA Region 10 Mining and Cleanup	http://yosemite.epa.gov/R10/CLEANUP.NSF/9f3c21896330b4898825687b007a0f33/f4724f10ccdc2f4d8825699a007861dd?OpenDocument
EPA--Mining Waste	http://www.epa.gov/epaoswer/other/mining/index.htm
EPA and Hardrock Mining	http://yosemite.epa.gov/R10/WATER.NSF/00f6b5c32b6939ad8825659200781ff5/9146f45e21cbb1bf8825683f006eafb9/\$FILE/maintext.PDF

State of Alaska

DCED, many related links...	http://www.dced.state.ak.us/oed/minerals/mine3.htm
DNR	http://www.dnr.state.ak.us/mlw/mining/index.htm

Responsible Mining Coalitions

Alaskans for Responsible Mining, Scott Brennan, Campaign Director, Anchorage, Tel: 277-0005	http://www.reformakmines.org/
Westerners for Responsible Mining	http://www.bettermines.org/alaska.cfm
Save the Wild UP (Michigan)	http://www.savethewildup.org/facts/
Center for Appalachian Economy & Env.	http://www.appalachian-center.org/issues/water/2005_aug.html
Tatshenshini-Atsek, BC	http://www.spacesfornature.org/greatspaces/mine.html
Mine-Aid	http://www.mine-aid.org/predictions/
Bering Straits Citizens for Responsible Resource Development (Nome-based)	



Northern Alaska Environmental Center (General & AK-specific information)

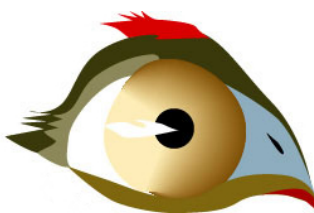
See "Learn more about mining" link on right	http://www.northern.org/artman/publish/mining.shtml
Discusses Cyanide use and zero discharge	http://www.northern.org/artman/publish/article_77.shtml

Acid Mine Drainage

USEPA Region 3	http://www.epa.gov/region3/acidification/what_is_amd.htm
Virginia Tech	http://ewr.cee.vt.edu/environmental/teach/gwprimer/acidmine/acidmine.html
Colorado School of Mines	http://www.mines.edu/fs_home/jhoran/ch126/amd.htm
Pennsylvania Department of Environmental Protection	http://www.dep.state.pa.us/dep/deputate/minres/bamr/amd/science_of_amd.htm
Other Links	http://multimedia.mtech.edu/elc/LinksLibrary/AcidRock/AnalysisofARD/default.htm

Mixing Zones

ADEC	http://www.dec.state.ak.us/water/wgsar/trireview/mixingzones.htm
AK Center for the Environment	http://www.akcenter.org/pages/programs/publiclands/mixing_zones.html
CORMIX mixing modeling program	http://www.cormix.info/applications.php
Cook Inlet Keeper	http://www.inletkeeper.org/2005/TakeAction/alertTemplate.htm





Oil



Used oil burners
Used oil blenders (WOTEC)
Used oil filters





Used Oil

Used oil is any petroleum-based or synthetic oil product that has been used. When you use oil, things like dirt, metal scrapings, water, or chemicals, can get mixed in. After time, the oil no longer performs well. Eventually, this used oil must be replaced with new or cleaned oil to do the job correctly.



Storing Used Oil

Used oil must be managed and stored properly. If it is dumped on the ground, or if it leaks from containers, it can contaminate land, streams, rivers or groundwater. It can be carried almost anywhere by rain or snow-melt. Did you know that one gallon of used oil can ruin 1 million gallons of water and create an eight-acre slick on the surface of the water?



For information about storing used oil and other hazardous wastes see our Storing Hazardous Wastes section of this guide.

Recycling Used Oil

Recycling used oil is a way to prevent contamination of our environment. One way to recycle is with a used oil burner. Using the burner provides **free heat**. Used oil can also be **cleaned up and re-used** with a waste oil-to-energy converter (also called a "waste oil blender").



For information about two great ways to recycle your used oil onsite see below and the next few pages.

Shipping Out Used Oil

You may be able to ship out your used oil. See our Shipping Hazardous Wastes section of this guide to get information on shipping out used oil and to learn about existing programs.





Used Oil Burners

I'm interested in a used oil burner. Where do I start?

1. **Read** through the information here to learn more about used oil burners.
2. **Call any of the used oil burner distributors** listed below. They can help you decide what burner might be best for your community. They can answer many of your questions. The more information you can tell them, the better.

Here is what you can **tell** the distributor:

- 👁️ About how big the building is that you want to heat,
- 👁️ About how much oil your community produces,
- 👁️ What types of oil are generated in your community, and
- 👁️ What kind of electrical power will be available in the building.

Here is what you can **ask** the distributor:

- 👁️ What kind of maintenance required?
- 👁️ How much does it cost to operate and maintain?
- 👁️ Will we run out of used oil if we heat the building all the time?
- 👁️ How much does the burner cost and what does that include?
- 👁️ What if I order it and it doesn't work?

It may also be helpful to check out their websites for further information about their burners.

3. **Call Jon Jones at EPA.** If you still have questions about used oil burners, give Jon Jones a call at 271-6329 to ask any further questions.

What is a used oil burner?

Used oil burners **convert your community's used oil into energy to heat buildings.** There are many different brands of used oil burners and each brand is a little different from the others.

Basic parts to a used oil burner

Fuel tank - Most brands have a bottom tank used to store the used oil. Some companies sell burners without the tank, so you can use your own (if it is suitable).

Stand - Depending on the brand, used oil burners can be suspended from the ceiling or mounted on a stand (with or without a tank).

Air compressor - Used oil burners may or may not have built-in air compressors. Used oil burners require an air source to operate, so if you don't have an air compressor, you must buy a burner with an on-board or built-in compressor.

Chimney Stack - A chimney stack vents exhaust to the outside of the building. Most companies will sell chimney stack kits with their used oil burners.



Examples of different brands of used oil burners

Where can I purchase a used oil burner?

Distributor, Location	Type of used oil burner they sell	Phone	Website
NuERA, Anchorage, AK	Black Gold	1 (800) 347-9575	www.blackgoldcorp.com
Northwest Industry Equipment, Washington	Shenandoah	1 (253) 872-6060	www.usedoilheaters.com www.oilburners.com
Lanair, Wisconsin	Lanair	1 (800) 753-1601	www.lanair.com
MRO Sales, Anchorage, AK	Reznor	248-8808	www.reznoronline.com
Arctic Industrial, Anchorage, AK Nenana Heating, Nenana, AK	Cleanburn*	1 (800) 770-7075 832-5445	www.cleanburn.com

* Note that Cleanburn also makes a used oil **boiler** which converts the used oil to hydronic heat (i.e. hot water which radiates heat).

How much do used oil burners cost?

Used oil burners typically cost **\$5,500-\$8,500** (including shipping), depending on your location and the brand you purchase.

Which brand should I choose?

Used-oil burners don't necessarily differ much in quality or how well they perform. The brand you buy depends on many considerations:

- If there is already a used oil burner in your community, talk to the operators to see how they like their brand. If they recommend their used oil burner, it makes sense to **get the same brand** so you can share knowledge and tools for installation, operation, and maintenance.
- Calling the different distributors will help you learn about specific plusses and minuses to their type of burner.
- You can go to the CCHITA SWAN's SWM database www.cchita-swan.org/dbase/start.cfm to find other communities that have used oil burners. You can give them a call and see what they like or don't like about their brand.
- What is the price tag?
- What is the shipping price? This might depend both on the distributor and the barge or airline.
- How soon can the burner be shipped? Some distributors might not have the model you want in stock. They will need to order it.
- How did you get along with the distributor when you talked with them? This might make a difference if something goes wrong with the burner. Feeling comfortable to ask all the questions you want is important in getting that burner to run right.

What size used oil burner do I need?

This will depend on:

- ◆ The size of the building you want to heat
- ◆ The amount of time you plan to use the burner for heating the building
- ◆ And the amount of used oil that is generated by your community.

The best way to determine the size of the used oil burner is to **contact any of the distributors listed in the table above** and talk to them about your specific situation.

The table below lists a few different-size burners, the amount of oil they use, and an estimate of the area they will heat:

Size of Used Oil Burner (BTU's/hour)*	Quantity of oil burned (gallons/hour)	Approximate heating area (square feet)
100,000	0.75	2,000
144,000	1	3,000
240,000	1.7	5,000
350,000	2.5	8,500
500,000	3.5	12,000

*Note: the higher this number, the more heat is produced.

To get a very rough idea of the size of the burner you need, figure out the full size of the building in cubic feet, and then multiply that by 4 to get the approximate BTU's/hour needed.



For example: Say your building is 50 feet wide, 60 feet long, and 12 feet high.

Multiply $50 \times 60 \times 12 = 36,000$ cubic feet.

Then $36,000$ cubic feet $\times 4 = 144,000$.

So, 144,000 BTU/hr used oil burner is the approximate size you need.

You can also use the table above to determine **the amount of oil you will use** for your size burner. For example, to use the 144,000 BTU/hour burner, look at the 2nd row of the table. To heat a building for **9** hours each day, **4** days each week, and for half the year (**26** weeks), you would use approximately:

$$1 \text{ gallon oil/hour} \times 9 \text{ hours} \times 4 \text{ days/week} \times 26 \text{ weeks/year} \\ = 936 \text{ gallons of oil per year}$$

Keep in mind that there are other **things to consider when sizing** your used oil burner. For example, if the **doors in your building** are opened and closed several times a day, then you will lose a lot of heat. A larger burner may be needed.


Another factor is the amount and type of **insulation** your building has. A used oil burner distributor might ask if you know the 'R' rating of the insulation in the building. This is a number that indicates how good the insulation is. If you don't know, tell them the type of insulation you think you have (if any). Tell the used oil burner salesperson as much as you can about the building you want to heat so they choose the right equipment for your situation.

Can a used oil burner save my community money?

Yes! Depending on your situation and the way used oil is handled in your community, you could get payback on a used oil burner within 2 years of purchase! Recycling your used oil for heat can save your community money in several ways:



- ◆ You will need less new fuel for heating purposes.
- ◆ Disposal costs will be reduced or avoided.
- ◆ Cleanup and liability costs for improper disposal will be reduced or avoided.



It can cost an average of \$5-10 per gallon to ship out oil. If your community produces and ships out 200 gallons of oil per year, you could save \$1,000-\$2,000 if you recycle your used oil instead.

Does my community produce enough oil to run a used oil burner?

If your community generates **500-1000 gallons of oil/year** or more, it will be worthwhile for you to purchase a used oil burner.

What types of oil are acceptable to use in a used oil burner?

Manufacturers of used oil burners will let you know exactly what types of used oil that can (or can't) be used in their specific machines but, in general, these are the types of oils that are acceptable and unacceptable to use:

☺ **What you can use in a used oil burner:**

- ✓ Automotive crankcase and gear oil (from generators, cars, trucks, four-wheelers etc.)
- ✓ Transmission Fluids
- ✓ Hydraulic fluids
- ✓ Diesel fuel

☹ **What you CAN'T use in a used oil burner:**

- ✗ Gasoline (Can cause a used oil burner to explode!)
- ✗ Anti-Freeze
- ✗ Solvents
- ✗ Water
- ✗ Parts Cleaner
- ✗ Insecticide
- ✗ Paints
- ✗ Varnishes
- ✗ Thinners
- ✗ Vegetable or animal fat
- ✗ Used oil that is mixed with any of the items listed above

Installing a used oil burner

Most companies that sell used oil burners will send you an installation demonstration **video** and/or extensive **installation manual**. The videos and manuals will walk you through the installation process step by step.

Here are some pictures from an installation in southwest Alaska.



Starting the installation of a used oil burner at Goodnews Bay (Dennis Lundine, DEC)



Setting up the stand



Installing the heater unit on top of the stand



Installation complete! Note the chimney stack



Heavy equipment being used to lift heater unit onto the used oil burner

What will I need to install my burner?

There are a few items/pieces of equipment that you should have on hand:

- ◆ Bobcat, forklift, or front-end loader for lifting used oil burner in place

- ◆ Ladders for getting on the roof and installing chimney stack
- ◆ Powered screwdrivers (very handy!)
- ◆ An assortment of metal screws

What about electrical hookup?

A licensed electrician will also be needed to make the final connection to power supply.

Electrical Power Requirements by Dennis Lundine, Oil Burner Expert (formerly of DEC):

" Bringing power to a used oil burner requires reviewing the voltage and amps required for the particular size burner to be used. On a wall near the burner, a lockout style wall switch must be installed for the safety of the personnel when working on the burner. Rigid conduit should be used from the main power box to the lock out switch.

Flexible conduit can be used from the lock out switch to the burner's power bus. Make the power supply the last thing to connect, this allows the sense of safety while wiring the remote fuel pump from the tank to the burner. Flexible conduit can also be used from the remote pump to the main power bus."

Where should the used oil burner be placed in the building?

Placing the used oil burner is an important decision and requires some thought. For example:

- ◆ The burner should be located away from heat-loss areas, such as doors.
- ◆ It is recommended that the burner be installed above people's heads, to avoid air blasting into people's faces.
- ◆ The burner must be installed a minimum distance from the walls and ceiling (each burner has its own specific clearance requirements).



Placement of used oil burners in a building by Dennis Lundine, Oil Burner Expert:

"Take the time to plan the location where you would like to place the burner. Remember there are a few factors to consider other than just a clear spot in the building. Plan to **install the burner away from the major heat loss areas** such as bay doors. Place the burner in the back of a shop away from the doors to help control heat loss and recovery. Another reason, which is often overlooked, is the fact that doors create **drafts** that can affect the fire in the chamber of burners. This causes pre-mature shut downs due to flash backs of the flame. If the burner is to be installed where bay doors are going up and down such as an auto oil change center, then it is advisable to install a draft booster. The booster or draft inducer can be purchased from an HVAC supplier or contractor near you."

"**It is recommended that the burner be up above** normal peoples head heights. Most burners stand 8' off the floor. This avoids the air throw from hitting one in the face while trying to work. You may also suspend the burners from the ceiling if desired. Follow the directions in the installation manual. "

"**Plan on having access to each side of the burner.** The potash created from burning used oil will need to be cleaned from the burner every 350 to 400 hours depending on the cleanliness of the oil so this access is important. Each burner size has a required minimum clearance on all sides. Review the installation manuals to determine these measurements.

"**Look at the ceilings and walls;** you do have to **run a stack** out either one of these. The stack should be galvanized inside and stainless steel outside the building. When going through the walls or ceiling, this will require double wall stainless steel plus some type of shield to penetrate the ceiling or wall. Go outside and look where the stack would exit the building out the roof or wall. Are there any obstructions making it complicated?"



Very Important! Do not attempt to plan a stack near any power supply lines **electricity kills!**"

Where should the stack be located?

The actual location of the stack must be decided prior to setting up the burner, tank, and stand. It is very important to go outside and look where the stack would exit the building

-- out the roof or wall. ***Do not attempt to plan a stack near any power supply lines - electricity kills!***



Feeding the stack from the inside of the building to the outside



Stack coming out of the building



Extending the stack so it vents above the roof



Another example of a stack being fed to the outside of the building from another used oil burner

Stack location and type by Dennis Lundine, Oil Burner Expert:

"The stack sizes of are 8" for the 140,000, 235,000, and 350,000 BTU burners. The 500,000 BTU burner has a 10" stack. A minimum of 24 gauge-galvanized pipe is used on 8" or 9" stacks with 22 gauge for 10" or 12". Galvanized pipe can be used inside the building. The portion of the vent system passing through walls, attics, and roofs needs to be of a **double or triple wall design** that is approved to Standard UL 641. Horizontal lengths and slopes of the galvanized pipe may be used per the following table."

Stack Size	Used Oil Burner Model Size and Vertical	Maximum Horizontal Length of Stack
8"	140,000 8' or more of vertical pipe	Equal to or less than the vertical height
8"	235,000 8' of vertical pipe	4 feet or less
8"	235,000 10' of vertical pipe	Equal to or less than the vertical height

"When installing the stack, be sure to **support the weight** using plumbers' tape or some other non-combustible strapping material. A barometric **Draft Regulator must be used** which has the same diameter as the vent pipe, and it should be located close to the burner. **DO NOT** install a manual damper or any other device that will obstruct the free flow of the flue gases. The **vent must terminate at least 3 ft above** the highest point of the exit and at least 2 ft. higher than any portion of a building or obstruction within 10 ft of the chimney. If the stack is more that 10' from the highest peak, then a 3' to 4' height from the roof is acceptable."

Remember, it is important not to exit the building near power lines located on the outside walls or roof.

What about maintenance of a used oil burner?

All used oil burners require general maintenance. Maintenance instructions for the specific burner you purchase will come with the burner as part of the manual or as a separate document.



Most used oil burners require thorough **annual cleanings**. Some companies can perform this annual cleaning for you have to pack up the burner-- the top heater part-- and send it to the company. You have to pay for shipping. They perform the full cleaning and then send it back. Depending on the type of burner and company, this might cost about \$100-\$200 (excluding shipping).

Watch what you put in your burner!

One of the most valuable pieces of advice is: **to make sure the used oil is clean and free of debris, water, glycol, solvents, gasoline, or avgas**. If you don't watch what you're putting into the burner, the most common problem you will encounter will be plugged strainers, filters, and injectors' nozzles. These problems are big headaches! Think of your used oil burner as a car, snowmobile or boat. You wouldn't put dirty fuel in any of these! Container management will help you keep used oil clean during storage.

Strainers on your used oil burner tank are also extremely helpful to filter out debris that might be in your oil.

Routine Maintenance

Cleaning out the ash from each end of the heater at regular maintenance intervals is important to keep your burner running efficiently. Having a safe ladder or platform near your burner is helpful for cleaning. You can tell when you need to clean out the ash by recording what the hour meter on the pump reads each time. A rake and grounded shop vacuum can be used to remove the ash from the heat exchanger. Your manual will have further information about cleaning the ash that is specific to your type of burner.

Caution: Always **protect yourself** with safety glasses, rubber gloves, and respirators when cleaning any used oil burners.

Bi-annual and annual inspections should include cleaning the primary oil burner cylinder along with replacing the nozzle, electrodes and small thermo discs located on the primary burner and on the end of the assembly. After starting your burner each time after maintenance, it's a good idea to check the draft over the flame to maintain the correct flow of flue gases.

Maintenance Schedule

The following maintenance schedule is given as a recommendation only and should be adjusted to meet your community's needs and condition of the used oil burner. The items should be checked daily, weekly, monthly, or yearly as needed, depending on the activity of your burner:

Activity	Daily	Weekly	Monthly	Yearly
Burner Inspection				X
Electrical connection and wires should be checked inspected annually for loose connections, bad wires, burned or wires that appear to be cracking from burner heat generated				X
Nozzle and electrode tip cleaning and adjustment *				X
Checking for Correct Draft *			X	X
Cleaning tank strainers *				X
Cleaning in line Strainers			X	X
Cleaning check valves *				X
Cleaning/vacuuming burner boxes				X
Nozzle Cleaning and Adjustment *				X
Vacuum heat exchanger or burner box area				X
Cleaning preheater or heating blocks-this should be done only by factory trained individuals *				X
Heating Stack should be cleaned with a stack brush *				X
Collection tanks and containers for leaks and spills	X			
Tank drain valves should be closed and locked.	X			
All used oil containers and drums lids and bungs should	X			

be tight sealed				
Containers and drums located outside the facility that are subjected to rain and snow should be covered with a tarp, board or shelter	X			
Drain water from collection and holding tanks			X	X

(* As needed)

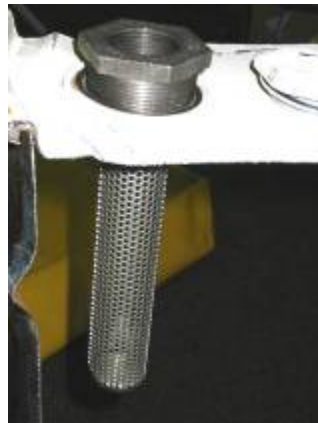
Operating a used oil burner

A detailed guide/manual or video will come with the used oil burner you purchase and give you specific instructions about operating your used oil burner. You also should always be able to **call** the company you purchased the burner from to ask any questions.

The #1 most important operating rule is to **make sure the used oil you are putting in the burner is clean and free of debris, water, glycol, solvents, gasoline, or avgas.** Gasoline **is very dangerous** to burn in a used oil burner. Also, used oil burners won't function properly if antifreeze or water is put in the tanks. Even though small amounts of antifreeze may burn, it will cause a glass liner to build up in the burner box that is very difficult to get out. And one inch of glass buildup or ash inside of the burner box will reduce the heat output of the used oil burner by 50%.

Strainers

Strainers can be used on your used oil burner tank or on storage drums to filter out any grit, rags, leaves, cigarette butts, etc. that may be in your used oil. They fit right into bungholes of 55 gallon drums or you can get them sized specifically to fit into tanks. You then pour the oil through the strainers.

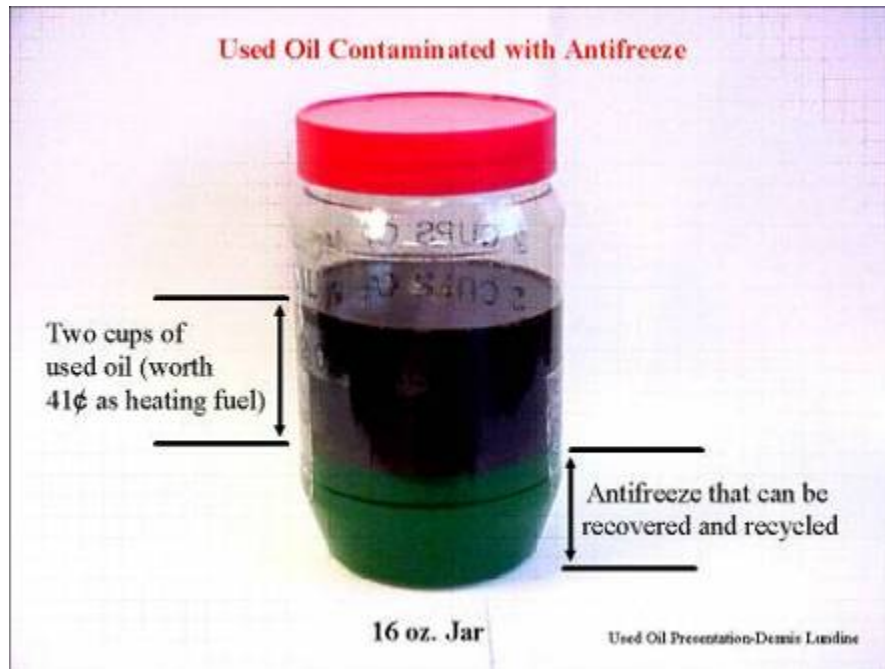


Example of a strainer in a standard 55 gallon drum bunghole. (Note: the drum used in this picture is cut in half for educational purposes to show how to use the strainers.

Strainers can be purchased for under **\$20** from Arctic Industrial Supply in Anchorage. Give Les Roe a call at 1 800 770 7075 and he can help you find the size and type of strainer you need. Also, you can check out this website to view different types of strainers and filters www.flowezzy.com

Settling Tank

It is a good idea to have a settling tank to put your used oil in BEFORE it goes into your used oil burner tank. A settling tank can be simply a drum sitting on its side on a pallet with a spout on the bottom. The purpose of a settling tank is to separate any antifreeze or water that may be mixed in with your oil. This is an example of what happens when oil and antifreeze are in the same container:



Because antifreeze (and water) is denser than oil, it settles to the bottom of the container and the oil sits on top. With a drum, you install a drain valve at the bottom. You can open the valve and drain out the antifreeze (or water) into a bucket or oil pan until you no longer see antifreeze (or water) coming out. Now you have pure used oil ready to put into your used oil burner! For information about constructing your own settling tank and about purchasing inexpensive valves, contact:

Les Roe
Arctic Industrial and Automotive Supply
 360 E. International Airport Rd #10
 Anchorage, AK 99518
 Phone: 800 770 7075
 Email: arcticindustrial@yahoo.com

You can also purchase valves, strainers and filters at the following places:

Anchorage Tank and Welding

2700 Porcupine Dr

Anchorage

Phone: 272 3543

Web: www.anchtank.com

Alaska Hydraulics

500 W. Porter Dr

Anchorage

Phone: 562 2217



Safety precautions

Used oil has contaminants that are **hazardous to your health**. When working with used oil, avoid prolonged or repeated skin contact with the oil. It's a good idea to **thoroughly wash oil exposed areas with soap and water**. Also, it is a good idea to minimize smelling the oil up-close because of the fumes. When handling used oil, it is a good idea to wear rubber gloves and Tyvek coveralls to protect your self from being splashed.

When cleaning used oil burners, it is advisable to always protect yourself with:



Safety glasses



Rubber gloves




Respirator

It is especially **important to wear a respirator when cleaning out ash**. You should also have spill cleanup materials available in the event of a spill, such as absorbent pads. Peat moss and cat litter can also be used as a cheaper alternative to absorb spills. For more information about Safety Gear, see our Safety Gear section of this guide.

Who uses used oil burners in Alaska?

There are many communities in Alaska that are running used oil burners to heat various types of buildings. Below is a list of just some communities that have oil burners.

Feel free to give these communities a call to find out about their used oil burners and what they like or dislike about their brand. They may be able to give you good tips on finding the best and least expensive burner!



Community Name	Brand of Used Oil Burner	Size of Used Oil Burner (BTU's/hr)	Contact information
Anvik	Clean burn	Boiler	Mike Grundberg 663-6322
Larsen Bay	Reznor	160,000	Alan Panmerinoff 847-2211 (used to heat their garage)
Goodnews Bay	Black Gold	One size fits all	Alice Julius 967 8034
City of Old Harbor	Reznor	160,000	Jim Nestic, Mayor 286-2203 (used heat their city shop)
Ft Yukon	Shenandoah Purchased from Craig Taylor	235,000	Vicky Thomas 662 2581 (used to heat their materials exchange thrift store - when it is cold)
Kodiak Landfill	Reznor	160,000	James Sog 486.8060
City of Galena	Black gold	One size fits all	656-1301
City of Kasaan	Black gold	One size fits all	542-2212
Kokhanok Village Council	Black gold	One size fits all	Roy Andrew 282 2202
City of Kotzebue	Black gold	One size fits all	Ernest Hyatt 442-3470 Ext. 117
City of Pilot Point	Black gold	One size fits all	797-2200
City of Seldovia	Black gold	One size fits all	Ken Weaver, Mayor 234-7643
Ouzinkie	Reznor	160,000	Tom Quick 680-2209
City of Akutan	Black Gold	One size fits all	274-7555,
Aniak-City Shop	Clean burn	180,000	Charlie Lang 675-4481
Aniak Tribal Council	Black Gold	One size fits all	Jason Ward 675 4349
Chevak, Water and Sewer	Black Gold	One size fits all	Cynthia Paniyak 858 7827
Chitna FD, Village Council	Black Gold	One size fits all	823-2215
City of Barrow	Black Gold	One size fits all	Jim Barten 561-6105
Selawik	Black Gold	One size fits all	Raven Sheldon 484 2006

You can also see CCTHITA's SWAN's SWM database www.ccthita-swan.org/dbase/start.cfm for a list of more communities, with contact details, around Alaska using used oil burners!

Storing and Collecting used oil

See our Storing Hazardous Wastes section in this guide for details on storing used oil and other hazardous waste.

If used oil is collected from individuals in the community it is important to visually inspect the oil before you put it into your used oil burner. Remember, adding anything but the acceptable types of waste oils to your burner could possibly destroy it or cause it not to run properly. As a reminder, here is a list of items that you DON'T want to put in your burner:

⊗ What you **CAN'T** use in a used oil burner:

- × Gasoline (Can cause a used oil burner to explode!)
- × Anti-Freeze
- × Solvents
- × Water
- × Parts Cleaner
- × Insecticide
- × Paints
- × Varnishes
- × Thinners
- × Vegetable or animal fat
- × Used oil that is mixed with any of the items listed above



Common oil contaminants that some people bring in their oil containers include water and paint chips. If the oil is any color besides black, it needs to be separated and cleaned. If the oil is not black and it doesn't separate, don't use it.



Finally, it's always a good idea to keep a **log** of who brought oil, and how much, so you know later if something goes wrong.

Waste Oil To Energy Converter (WOTEC) (Also known as the Recycle Earths Oil Supply (REOS), System)

WOTEC systems are perhaps more appropriately called Used Oil/Diesel Fuel Blenders. They essentially clean used oil and used diesel (with filters) and then blend the oil/diesel with new fuel. The result is totally cleaned, precisely blended, water-free fuel that can be used in a diesel engine, furnace, or other such fueled device.

They are becoming more and more popular in Alaska and if your budget can afford the purchase, they can actually save you a lot of money in the long run.

The WOTEC systems essentially turn used oil into brand new fuel that you can use right then and there!



I'm interested in a WOTEC system. Where do I start?

1. **Read** through the information here to learn more about WOTEC's.
2. **Contact one of the dealers below to get information about the right size WOTEC for your community:**

Les Roe, Arctic Industrial and Automotive Supply
360 E. International Airport Rd #10
Anchorage, AK 99518
Phone: 1 (800) 770 7075
Email: arcticindustrial@yahoo.com

Jon Ward Simpatico Industrial & Performance Automotive Supply, Inc.
360 E. International Airport Road, Suite 10
Anchorage, Alaska 99518
phone: (907) 561-7075
fax: (907) 561-0387



More about how WOTEC's work

WOTEC units filter used oil and diesel fuel to remove any contaminants that are four microns or larger, and then blend the processed oil/diesel with new fuel (that you supply) at an operator selectable percentage. The blend ratios that you can select vary from 0.5% to 5% and 0.5 to 10%. The blend ratios are monitored with an automatic electronic control

panel and the fuel that comes out of the WOTEC is a precise mixture of used oil-to-fuel blend. The units operate at a flow rate of 15 gallons per minute.



This is a picture of the largest size WOTEC model (15xdc). The initial used oil tank and final blended fuel tank are shown here.

How much do they cost?

WOTEC systems come in three different sizes and the costs range from **\$17,000 to \$54,000**. Although this may seem like a lot of money, WOTEC's can save you a great deal of money in the long term (see below). Many communities have also purchased WOTEC's through leasing programs, which involve paying small monthly costs spread out over a few years. If you would like information on how to lease equipment, you can contact the following leasing companies:

Information for Leasing Equipment

Tribal/Federal	Leasource http://www.leasource.com 1 (800) 991 0099 (ask for Larry Kennedy at ext. 16)
Municipal/ Village/City	Baystone Financial http://www.baystone.net 1 800 752 3562 (ask for Linda Piers) This link has good information about leasing http://www.baystone.net/Programs/Municipal/LesseeQA.cfm

Can a WOTEC save my community money?

Yes! Reusing your used oil for new fuel can save your community money in several ways:

- ✓ Less new fuel will need to be purchased
- ✓ Disposal costs will be reduced or avoided
- ✓ Cleanup and liability costs for improper disposal will be reduced or avoided



Which size should I get?

Most communities in Alaska use the smallest size WOTEC which is the **model 15s**. This is also the least expensive model. The larger models (15xd and 15xdc) are generally used by larger industrial operations.

Where can I purchase one?

The company that makes WOTEC's is Global Energy Recovery Corp. You can check out their website to view the WOTEC's and to read more about them. Their website is:

<http://www.globalenergycorp.com>

You can purchase the WOTEC's through the following distributors:

Les Roe, Arctic Industrial and Automotive Supply

360 E. International Airport Rd #10

Anchorage, AK 99518

Phone: 1 (800) 770 7075

Email: arcticindustrial@yahoo.com

Jon Ward Simpatico Industrial & Performance Automotive Supply, Inc.

360 E. International Airport Road, Suite 10

Anchorage, Alaska 99518

phone: (907) 561-7075

fax: (907) 561-0387

Does my community produce enough oil/diesel fuel to run a WOTEC?

There is no magic number of gallons of oil/diesel your community produces to warrant getting a WOTEC. It will often depend on your specific community's situation. Les Roe at Arctic Industrial says "If your community runs a power plant, it will be worthwhile to run a WOTEC." Give Les a call and talk to him about your community's oil and fuel usage and he can give you some good advice.

What types of oil are acceptable to use in a WOTEC?

☺ What you can use in a WOTEC:

- ✓ used engine oils
- ✓ gear oils
- ✓ hydraulic oils
- ✓ T04 specification oils
- ✓ synthetic oils
- ✓ flush oils
- ✓ diesel fuel
- ✓ automatic transmission fluids
- ✓ cooking oils

☹ What you **CAN'T** use in a WOTEC:

- ✗ Gasoline (Can cause explosions!)
- ✗ Coolant
- ✗ Water

What about operation and maintenance?

WOTEC's are known to have great maintenance records. People that we have talked to that run WOTEC's have said that they've had **very little to no breakdowns**. If you purchase a WOTEC, it will come with a guide/manual with information about how to operate and maintain the unit. You can always call the company you purchased it from to ask operation and maintenance questions.



Gauges built into the machines will let you know when the filters need to be replaced. There are three filters in the WOTEC's. The 2 front filters usually only need to be replaced every 65,000 gallons of fuel and the filters cost approximately **\$100 each**. The final polishing filter usually only needs to be replaced every 285,000 gallons of fuel and they cost approximately **\$200 each**. The filters can be purchased from the same company that you purchased the WOTEC from.

Installing a WOTEC unit

When you purchase a WOTEC system, you will be connected with Otto Jacoby, the man who created the original WOTEC system. Otto will talk to you about the layout of the building you will be installing the WOTEC in and will advise you on where best to put it and tell you what you need to know for installation. Installing a WOTEC system is fairly straightforward and is not even as complicated as installing a used oil burner. Feel free to contact the communities listed below that are currently using WOTEC's to find out how their installation process went and anything they'd recommend or suggest.

Who else in Alaska is using WOTEC's?

There are several communities in Alaska using WOTEC units. Below is a list of a few of them and their contact information. Give them a call to find out how they like their WOTEC's!

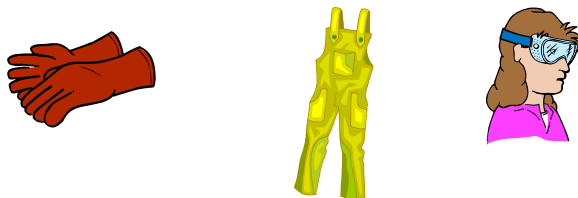
Community	Contact Information
Kiana	Gloria Shellabarger 475-2109
Tuntutuliak	Robert Enoch 256 2529
Yakutat	Scott Newlun 784 3242
Deering	Bruce Barr 363 2138
Shaktoolik	955-3441
Mountain Village	David Peterson 591 2745
Also the State of Alaska, Division of Energy is operating several WOTEC's successfully	Bruce Tiedeman, 269 4641





Safety precautions

When working with used oil, avoid prolonged or repeated skin contact with the oil. It's a good idea to thoroughly wash oil exposed areas with soap and water. Also, it is a good idea to avoid smelling the oil as there may be fumes present. When handling used oil, it is a good idea to wear rubber gloves and Tyvek coveralls to protect your self from being splashed.



You should also have spill cleanup materials available in the event of a spill, such as absorbent pads. Peat moss and cat litter can also be used as a cheaper alternative to absorb spills.

See also the Safety Gear section of this guide.

Storing used oil

For information about how to properly store used oil, see the Storing Hazardous Wastes section of this guide.

Recycling Used Oil Filters




Used oil filters from cars and some four-wheelers are recyclable because they're made of steel. In order to recycle (or dispose of) them, all oil should first be drained from the used filters. Draining the used oil will prevent any leakage into the environment.



Oil can be drained from the filters using the 'hot drain' technique or by using an oil filter drainer/crusher machine (called a filter press).

Hot Draining Oil Filters

Follow these steps to properly drain an oil filter using the 'hot drain' method:

STEP 1	STEP 2	STEP 3
		
<p>Remove the filter Remove the filter from the engine to "hot-drain" it while the engine is still warm. Hot draining is defined as draining the oil filter at or near engine operating temperature but above 60 degrees Fahrenheit. In other words, remove the filter from the engine while it is still warm. If necessary, use a filter wrench to loosen the old oil filter and remember to remove it carefully.</p>	<p>Puncture filter dome Using a tool such as a screwdriver, carefully puncture the dome end of the filter. Then, turn the filter upside down and let the oil drain completely into a container or drain pan. Allow the filter to drain overnight (or a minimum of 12 hours) to remove all the oil (at above 60 degrees Fahrenheit). (Oil filters also may be drained without puncturing them, and at cooler temperatures. However, the time required to effectively remove the used oil will take longer than 12 hours.)</p>	<p>Crush and recycle The used filter can now be recycled as scrap metal!</p>
<p>WARNING: Use caution when hot-draining filters to avoid being burned. Protective equipment such as safety glasses and gloves should be worn to prevent injury.</p>		

Information from the Filter Council www.filtercouncil.org



Purchasing an Oil Filter Press

Oil filter presses come in different brands and shapes and sizes. They also range in price from about **\$1400** for a smaller size to **\$3000** for an industrial size. Most filter presses work as follows:

- ◆ A filter is placed in a compartment with a door that closes.
- ◆ The crusher is turned on and presses the filter into a flat disc, forcing the oil out of the filter.
- ◆ A drain with a hose attached, located below the crushing area, funnels the used oil to your drum or container.

Below are examples of a few different oil filter presses with company contact details:



OBERG International <http://www.oberg-crusher.com>
14253 169th Drive Southeast, Suite #787 Monroe, WA
98272
Phone: 1 (800) 848-8228



Newstripe, Inc. <http://www.newstripe.com>
1700 Jasper St #F
Aurora, CO 80011
Phone: 1 (800) 624-6706



SPX/OTC Service Solutions

<http://www.otctools.com/>

655 Eisenhower Drive

Owatonna, MN 55060

Phone: 1 (800) 533-6127

We know of at least 2 communities in Alaska using oil filter presses. Feel free to give them a call to see how they like their presses!

Contact	Type of oil filter press they use
Jason Parks at the Glacier Bay National Park Landfill in Gustavus, Alaska Phone: 697-2327	Oberg
Raven Sheldon, Selawik Phone: 484 2006	Oberg



Toner cartridges



Recycling Toner/Inkjet Cartridges



Inkjet Cartridges

There are several companies out there that will buy your inkjet cartridges from you or offer to recycle your cartridges free of charge. See below for companies you can contact to request



Toner Cartridges

Most companies, such as Hewlett Packard, now include a return shipping ticket with the purchase of a new toner cartridge. They will recycle the used cartridge for you at no cost. Look out for the ticket in your toner box, or call the company you purchased the cartridge to request one.

Tips on printing/copying

Can you reduce your inkjet/toner usage?

- Do you have to print a hard copy?
- Can you send the information electronically instead?
- If you are not printing a final draft of something, can you change the settings on your computer to print 'draft' or 'low' quality? This is especially important if you are printing a lot of photos or dark graphics which use up more ink.

If you're running low on ink and your printouts/copies are coming out light, sometimes you can get a little more life out of your cartridges if you remove them from your printer/copier, **gently shake them**, and then return them to the printer/copier.

Where you can recycle your cartridges

ECCO Recycles



ECCO Recycles is a family run business located in Kent, Washington that buys empty laser toner, inkjet, and fax cartridges from individuals and companies and distributes them to remanufacturers all over the world. They provide UPS ARS tags for shipping back laser and fax cartridges and they also have postage paid inkjet boxes and postage paid

envelopes for return of individual inkjet cartridges. A check will be sent to you when they receive the cartridges. They include a printout of the cartridges that they received and the amount that they paid for. Go to their website for more information and to find out which cartridges they accept and how much they pay!

www.eccorecycles.com

You can also give them a call at 1 800-368-5881

Hewlett Packard

Hewlett Packard offers HP inkjet and laserjet cartridge recycling free of charge. To request return mailing materials with free pre-paid labels:



- Check out their website www.hp.com/hpinfo/globalcitizenship/environment/recycle/inkjet.html and follow the instructions for requesting shipping materials
- or call HP at 1-800-340-2445 and let them know what you would like to recycle. They will then send you shipping materials with free pre-paid labels to send the cartridges back to them

Companies in Alaska that accept toner/inkjet cartridges - Give them a call!



In Juneau

BEP Company 789-2230 Juneau Accepts Toner, copy ribbon, and Cartridges	Southeast Copy Supply 789-3758 Juneau Accepts Toner, copy ribbon, and Cartridges
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In Anchorage

The following resources are from Green Star's Toner Cartridge Recycling webpage www.greenstarinc.org/enews/enewsv3n9.htm#Anchor-RECYCLING-14210

Visit Green Star at www.greenstarinc.org for great information about recycling and more!

Bhree Cycle It 562-7401 510 W. 41st Ave., Suite B Picks up used cartridges, sells reconditioned cartridges (typically 30-50% savings over new cartridges), will pick up and deliver within the Anchorage bowl.	Corporate Express 786-5100 4831 Old Seward Highway Will pick up used cartridges on call or when making supply deliveries. Free drop-off available. Accepts all types of cartridges. Sells refurbished cartridges in its store.
Cartridge Connection 563-9326 600 W. 58th Ave., Suite F Accepts used cartridges of any brand and type (fax, copy, printer etc.), no minimum quantities, free pick-up and delivery in Anchorage, sells reconditioned cartridges (typically 20-60% savings over new cartridges).	Northern Office Supply 344-6200 7120 Old Seward Highway Will pick up used cartridges, call for specific types and brands accepted, no minimum quantities, offers some refurbished cartridges.



Helpful Websites

Note that there are websites listed throughout this document that are relevant to the specific sections. Below is a list of general websites on hazardous wastes.

Topic	Website
EPA Hazardous Wastes	http://www.epa.gov/epaoswer/osw/hazwaste.htm
EPA Managing Hazardous Waste in Your Community	http://www.epa.gov/epaoswer/general/manag-hw/manag-hw.htm
EPA A-Z Wastes	http://www.epa.gov/epaoswer/osw/topics.htm
EPA Region 10 A-Z Wastes	http://yosemite.epa.gov/R10/HOME PAGE.NSF/webpage/INDEX?opendocument
EPA Household Hazardous Waste	http://www.epa.gov/epaoswer/non-hw/muncpl/hhw.htm
EPA Household Hazardous Waste Publications	http://www.epa.gov/epaoswer/non-hw/muncpl/hhwpubs.htm
ANHB/ANTHC Household Hazardous Waste Guide	http://www.zender-engr.net/anhbguide/App3.pdf
Alaska State DEC Solid Waste Website	http://www.dec.state.ak.us/eh/sw/Factsheets/index_FS.htm

Index – Look it up!


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Antifreeze	Page 97	
Aerosol cans		Here are two companies that sell can puncturing units: http://www.aerosolv.com/ http://www.americangasproducts.com/
Air emissions - hazards from burning wastes		http://www.ccthita-swan.org/Planning/2C_burning.cfm http://www.dec.state.ak.us/eh/sw/Factsheets/Burning.pdf http://www.zender-engr.net/docs/Burnbox.pdf
Ammunition (contact VPSO or State Troopers for disposal)		http://www.dps.state.ak.us/ast/vpso/
Asbestos	Page 103	
Automobiles	Page 106	
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Batteries	Page 113	
Barging hazardous wastes	Page 68	
Burning wastes		http://www.ccthita-swan.org/Planning/2C_burning.cfm http://www.dec.state.ak.us/eh/sw/Factsheets/Burning.pdf http://www.zender-engr.net/docs/Burnbox.pdf http://www.epa.gov/epaoswer/hazwaste/combust/risk.htm
C		
Chemicals - Chemicals can be looked up by name in this index. For chemicals not in this index, see links to the right for chemical fact sheets in alphabetical order.		http://www.epa.gov/epaoswer/hazwaste/minimize/chemlist.htm http://www.atsdr.cdc.gov/toxfaq.html#bookmark05 http://www.cdc.gov/niosh/topics/chemical.html
Cleanup	Page 81	http://www.ccthita-swan.org/main/Brownfields_grantinfo.cfm http://www.ccthita-swan.org/funding/funding1.cfm
Collecting hazardous wastes	Page 54 and 57	
Computers	Page 148	
Computer Disks	Page 155	
Construction & Demolition wastes	Page 157	http://www.zender-engr.net/construction.html http://www.dec.state.ak.us/eh/sw/Guidance/Building%20D

		emolition%20%20Renovation%20and%20Construction%20P rojects%20-%20final.doc http://www.dec.state.ak.us/eh/sw/Factsheets/SW%20Rural%20C&D%20Mgmt.pdf
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DEC contact information		http://www.dec.state.ak.us/eh/docs/sw/Staff_contact_page.htm
Dioxin		http://cfpub.epa.gov/ncea/cfm/recordisplay.cfm?deid=55264 http://www.epa.gov/epaoswer/hazwaste/minimize/factshts/dioxfura.pdf
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Educating your community about hazardous wastes	Page 78	
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Health risks		http://www.ccthita-swan.org/Planning/health.cfm http://www.ccthita-swan.org/Planning/reduce_health_risks.cfm http://www.zender-engr.net/docs/health_effects_burning_trash.pdf
Household hazardous waste	Page 198	
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Junk autos	Page 106	http://www.dec.state.ak.us/eh/sw/Factsheets/Junk%20Vehicles.pdf
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Medical wastes		http://www.dec.state.ak.us/eh/sw/Factsheets/Medical%20Waste.pdf http://www.ccthita-swan.org/main/recycling.cfm#12
Mercury	Page 217	
Mining wastes	Page 222	
Mold		http://www.epa.gov/mold/
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Ordinances for hazardous wastes	Page 76	
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Paint		http://www.healthgoods.com/Education/Healthy_Home_Information/Home_Health_Hazards/handling_waste_paint.htm
PCB's		http://www.epa.gov/pcb/ http://yosemite.epa.gov/r10/owcm.nsf/pcb/pcb http://www.epa.gov/epaoswer/hazwaste/minimize/factsheets/pcb-fs.pdf http://www.atsdr.cdc.gov/tfacts17.html
Pesticides		http://www.epa.gov/pesticides/
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Prevention / minimization /reduction		http://www.epa.gov/epaoswer/hazwaste/minimize/faqs.htm http://www.epa.gov/epaoswer/non-hw/muncpl/sourcpub.htm
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Risks		http://www.ccthita-swan.org/Planning/health.cfm
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Solvents		http://www.epa.gov/epaoswer/hazwaste/id/solvents.htm
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Styrofoam - hazards of burning		http://www.ccthita-swan.org/pdf/open_burning.pdf
Success stories of hazardous waste programs	Page 14	
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Technical assistance (agencies, companies, etc.)	Page 8	
Testing hazardous wastes	Page 81	
Thermostats/thermometers containing mercury	Page 217	
Tires		http://www.ccthita-swan.org/main/recycling.cfm#18
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Toxics - Toxics can be looked up by name in this index. For chemicals not in this index, see links to the right for chemical fact sheets in alphabetical order.		http://www.epa.gov/epaoswer/hazwaste/minimize/chemlist.htm http://www.atsdr.cdc.gov/toxfaq.html#bookmark05 http://www.cdc.gov/niosh/topics/chemical.html
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