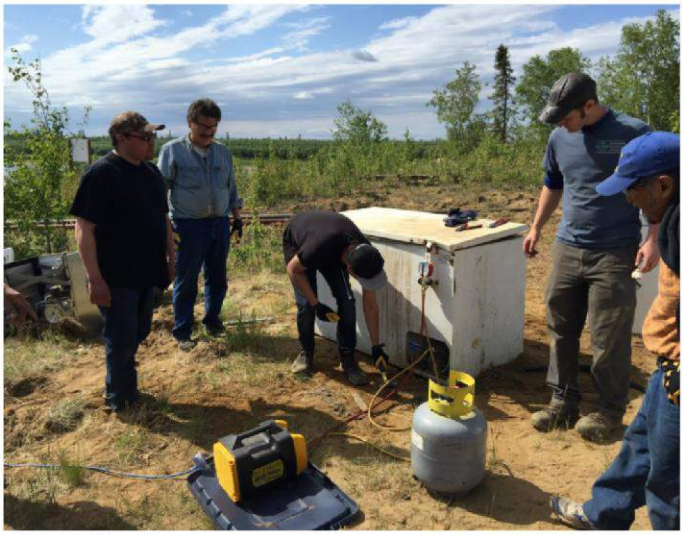
YUKON RIVER INTER-TRIBAL WATERSHED COUNCIL



THE

BACKHAUL MANUAL

A "HOW TO" GUIDE

THIS MANUAL IS MADE POSSIBLE BY THE FUNDS PROVIDED BY THE EPA AND USDA RURAL DEVELOPMENT

Welcome to the Backhaul Manual

Since the creation of the Yukon River Inter-Tribal Watershed Council (YRITWC), it has been our organization's goal to provide assistance and information to the Tribes we represent and beyond. While our Backhaul program has been very successful in removing solid waste from the Yukon River Watershed (well over 10 million pounds), there is always more that can be done. One issue that we wanted to address was a lack of transparency as to how we have been so successful and how others could duplicate that success. As we were writing a funding proposal to bring backhaul to a statewide level, we knew that one of the best ways for that to happen was to create a backhaul "How-To" manual. With a manual, anyone with an interest in starting their own backhaul could have the same tools we have used for years right at their fingertips.

In 2007 the US Environmental Protection Agency (EPA) granted the YRITWC an Alaska Tribal Multi-Media Project grant to address this issue. In our work plan outlined five goals:

- Increase capacity among Tribal Solid Waste Coordinators throughout the Yukon River Watershed to operate and maintain newly created Regional Recycling and Reuse Hubs
- Expand types and quantity of materials that are backhauled off the River
- Provide documentation and other information in the form of a manual for other regions to create backhaul initiatives
- Provide training to 4-7 region-wide and watershed-wide efforts throughout Alaska
- Create a "Sustainability Plan" for the YRITWC Backhaul Pilot Project.

Through this grant we hope to bring backhaul capacity and awareness to a larger audience. Besides this manual, be are taking a Hub approach to expanding backhaul statewide. The reason for this is efficiency. It is easier (and cheaper) to remove a lot of solid waste for a few places than it is to remove a little solid waste from many places. Also, it is more likely for recyclers to invest in backhaul if there are large amounts of recyclable items in central areas.

One of the most important lessons we would like readers to take away from this manual is the importance of strong partnerships with transportation and recycling companies. Without these partnerships backhauling in rural Alaska, or anywhere for that matter, is nearly impossible. Another important aspect of backhaul is knowing when to stop talking and start doing, so let's get going!

Acknowledgments

This manual would not have been possible without the help of one of our oldest and most trusted partners, Total Reclaim. Particular credit is due to Larry Zirkle and Reilly Kosinski. It is through their invaluable in-kind contributions of information regarding the proper staging of electronics, fluorescent bulbs and batteries that we are able to have such a comprehensive manual. It is our hope that future electronic editions of this manual will include more of their expertise to be shared with all those who need it.

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ONE PEOPLE-ONE RIVER
YUKON RIVER INTER-TRIBAL WATERSHED COUNCIL

725 CHRISTENSEN DRIVE, SUITE 3
ANCHORAGE, AK 99501
PHONE: (907) 258-3337
FAX: (907) 258-3339
TOLL FREE: (844) 730-3337

WHITEHORSE OFFICE: PO BOX 3123-211
WHITEHORSE, YUKON TERRITORY CANADA
Y1A-5P7

January 22, 2018

Dear Backhaul Partners,

Thank you for your ongoing commitment to protecting the health of the Yukon River Basin through your backhaul efforts. We recognize that it takes a lot of work, time, and energy to operate a successful backhaul program and are grateful to partner with you in the effort. We crossed the 20-million-pound mark in FY 2017, which is cause for celebration, but the work must continue.

We invite you to continue to partner in this important work. Tribal stewardship sets the example for the rest of Alaska. Your work is preventing contamination of land and waterways, and is extending the life of local landfills. The Solid Waste Program at the YRITWC will continue to be your "go to" resource for technical assistance and best practices in waste management. Please review our updated *Backhaul Manual 2018* for the latest information on waste management and handling practices. Staff are available for training and technical assistance, and the YRITWC has equipment available for loan such as CFC removal devices and the drum crusher. Contact Katherine Brower, SWM Coordinator, for schedules and details.

Best wishes for another successful backhaul season!

Warm regards,

Kelly Donnelly

Kelly Donnelly, MPA
AK Executive Director

The Yukon River Inter-Tribal Watershed Council

The Yukon River Inter-Tribal Watershed Council (YRITWC) is an international organization with 501(c)(3) non-profit status in the United States and Societal Status in Canada. As a coalition of sovereign Tribal and First Nation governments, we were founded in 1997 by a group of 56 Chiefs and elders who gathered in Galena, Alaska, to discuss their concern about increased cancers and other health problems in human communities and the animals they depend on within the Yukon River watershed. Mining activities, military contamination, and industrial and residential solid waste were identified as the primary contributors to the declining environmental quality and human health in the region. From this gathering and based on these concerns, the YRITWC was formed to restore the River and to protect it from further contamination.

The long-term vision—and the guiding light for the organization—was articulated by those Tribal leaders at the historic 1997 Summit in Galena that birthed the Watershed Council: to once again drink clean water directly from the Yukon River as our ancestors did for thousands of years before us.

Today, 73 Indigenous governments within the watershed are actively participating in the coalition through the signing and enactment of an Inter-Tribal Accord that governs the Watershed Council and its members. The YRITWC administrative office is located Anchorage, Alaska with an annual budget of approximately $1.1 million and a staff of nine.

To provide a geographic sense of the area in which we work, the image below displays the Yukon River Watershed within Alaska and Canada and overlays this region onto the lower 48 United States.

The Yukon River, over 2,200 miles long and draining an area of 330,000 square miles—about twice the size of California—supports the largest and longest inland run of Pacific salmon in the world. As the fourth largest basin in North America, the watershed consists of the mainstem Yukon River and all tributaries, covering a vast portion of Alaska and the Yukon Territory.

For more information on the YRITWC's current efforts in the Yukon River Watershed, please see our website at www.yritwc.org.

What is Backhaul and Why is it Important?

Backhaul is when transportation companies transport old materials out of a community, after delivering other goods and services. Regrettably, over the last 100 years, companies have brought a lot of material into Alaska and taken very little out. This imbalance has caused serious problems for communities and ecosystems across the state. Without a system to remove solid waste items from the community, most are buried, burned, or dumped into rivers and lakes. Over time, that solid waste can break down and release toxic components into the environment which can contaminate the air, ground and water.

Backhauling solid waste items both protects communities against contamination and greatly reduces the costs of local waste management. Every item backhauled is one less item sent into the landfill. This prolongs the life of each landfill and saves the money that would have been used to close and open a new one.

Collaborations between interested communities and the transportation entities that serve them can lead to the safe removal of key solid waste materials.

Every item in this photograph has some value to recyclers while many pose a threat to the community health if left in a landfill.

If reprocessed correctly, used oil and glycol can be kept in the community for use as heating fuel and renewed anti-freeze.

Backhauling junk vehicles can return much needed space to your landfill.

Safety and Education

With enough community support, anybody could launch a backhaul program. The main thing you need is the desire to make a difference in your community. After that your most important tools will be common sense and an ability to build relationships with effective partners. The first steps in building a backhaul program will likely involve communication with transportation companies that provide services to the area and local education about safely handling the materials to be backhauled.

To work with most waste items, a clear plan and simple common sense will reduce much of the risk involved in backhaul. Only handle items when you know what they contain. Be aware of your surroundings and the materials you are working with and take appropriate precautions. Protect yourself by using work gloves, clothes, boots and eye protection. While you are not required to have special training to backhaul, the following trainings will give workers a better understanding of hazardous materials. For more information on these classes, contact the Yukon River Inter-Tribal Watershed Council or a provider listed in our Resources section.

1. CPR/FIRST AID

This is a valuable class for anyone, not just people working with solid waste. It will give you the basic knowledge of what to do should anyone get hurt on the job.

2. 40 HR HAZWOPER (Hazardous Waste Operations and Emergency Response)

- Understand the purpose of Occupational Safety and Health Administration (OSHA) and its role in regulating occupational safety
- Use Site Characterization to establish problems that may exist in your workplace and measures that can be implemented to eliminate hazards
- Identify hazardous materials existent in the workplace and the possible methods, symptoms and preventative measures of exposure
- Encourage the use of Material Safety Data sheets (MSDS) to identify and properly handle hazardous materials
- Familiarize yourself with materials, compounds and mixtures that may present flammable, explosive, chemical or radiological hazards
- Emphasize the importance of personal protective equipment in limiting hazardous exposure
- Establish an effective Site Control Program to limit the risk of exposure to only those working in the hazardous work zone
- Implement procedures for treating workers in the event of hazardous exposure

- http://www.oshacampus.com/hazwoper-40-hours.cfm

3. DEPARTMENT OF TRANSPORTATION (DOT) HAZMAT REGULATIONS
   This course covers DOT regulations for shipping hazardous waste on road, rail, ship or plane.

Building Partnerships

This manual reflects the importance of good relationships with multiple entities in order for backhaul to be successful. Solid Waste management must be adapted to local needs and available resources. Backhaul coordinators must build strong relationships with partner entities to be successful and accommodate the changing demands and dynamic relationships characteristic to this work. When looking to remove solid waste, the easiest place to start is with the transportation companies that already service your community. You can speak with the employees of the transportation company that physically come to your area but in most cases it is better to speak directly to an operations manager within the company. These are the people who can make things happen.

Since most planes, trains and automobiles that deliver goods leave empty, their return trip is a perfect time for them to take solid waste items out. Discuss with the manager what you're trying to do to clean up the community and ask for assistance. It is important to let them know that whatever they are willing to take out will be properly packaged, labeled and staged to be easily removed. Have an inventory sheet filled out (example Appendix A) so that it is clear what you are asking to be taken. Of course this leads to the next partnership you will have to develop. **You have to have someone to pick-up the solid waste items from the transportation company**. Sometimes the items can be dropped off directly to the recycler but this is not always the case. One of the worst things that can happen is to have your partner stuck with items that are going nowhere.

Building relationships with recyclers can be much simpler, mostly because they want what you are trying to get rid of. Scrap yards and metal recyclers will usually take your metal at no cost or even pay you for it. This can help with shipping costs but you cannot always expect to be paid for your material because the price of metal changes constantly. If they can only take it off your hands for free you're doing great. Other recyclables, like electronics, may require you to pay for them but always check with the manager. If you are sending bulk product to them it might be free of cost or at a discounted rate. You should also have an inventory list for the recycler.

Once you have established successful relationships, let your partners know how important they are and how much you appreciate their work. Think of it like a marriage; you cannot take your partners for granted. You don't have to get extravagant, but showing that you appreciate them is always important.

This idea also extends to your funders. Securing funds to help you remove solid waste can be difficult so when you do secure funding be sure to credit your supporters in all your outreach. We have supplied contact information for organizations that have funded us in the Resources section. There is money out there to do this work and these people may help you find it.

Getting Started

1. Separate Your Landfill by Waste Types and Strategize Storage Locations

For the best results, a landfill should have separate areas for different items. Vehicles (including cars, trucks, ATVs, and snowmachines) should be in their own area, electronics in another, food waste in another. Once items are separated, getting them out of the landfill will be a lot easier. Designating areas for future landfill drop-offs will help streamline ongoing backhaul and should be done with removal options in mind. For example, heavy items such as lead acid batteries may be best accumulated closer to the ultimate load area for removal if hauling will be a challenge.

2. Prioritize Items to be Removed

Now that you have your materials separated, there are three ways to look at what you can get rid of. (1) You can prioritize the most potentially hazardous materials in the landfill, which likely include lead acid batteries, electronics, drums of oil and glycol, and fluorescent bulbs. (2) You can prioritize the materials that take up the most space in the landfill but aren't as potentially hazardous, which likely include junk vehicles, appliances, and scrap metal. (3) You can prioritize the materials that have the highest resale value with recycling entities, which likely include junk vehicles, copper wire components from appliances, and scrap metals. Unfortunately, the hazardous materials will most likely not get you a return for sending it into a recycler while bulky, nonhazardous material can very possibly have value. This means that prioritizing removal must involve decisions about resale value as well as the potential health impacts of keeping hazardous materials within a community.

3. Stage Materials for Backhaul

See the next section for information on how to stage some of the most commonly backhauled items found in rural Alaskan communities.

Vehicles

Vehicles are an important part of many people's everyday life. Vehicles become a problem when they reach the end of their useful lives. Junk vehicles often become eyesores and an annoyance for the owners, and members of the community. Furthermore, vehicles contain hazardous components that should be recovered and kept out of communities and landfills. ***Why should you recycle junk vehicles?*** Recycling steel (vehicles, snow machines, 4-wheelers), saves energy and natural resources

Junk vehicles contain fluids and hazardous components that can harm human health and the environment. *Before staging vehicles please take a moment to familiarize yourself with the Department of Environmental Conservation's contacts numbers for spills and emergency response, available in our Resources section.

- Gasoline, antifreeze, and motor oil can leak from junk vehicles and contaminate soil, groundwater, and air sources.
- Cars with air conditioners may contain chlorofluorocarbons (CFCs) which, when released, are damaging to the ozone layer.
- Car batteries contain lead, a known human toxin.
- Many older cars have switches containing mercury, capable of contaminating the ground, water, and air.

Junk vehicles are often made of steel, an easily recovered and recycled product.

- All steel products contain recycled steel; steel scrap is necessary for producing new steel.
- By weight, an average car is about 65% steel and iron.
- Each year 14 million tons of steel is recycled from end-of-life vehicles, equal to approximately 13.5 million automobiles.
- Recycling 1 ton of steel saves 2,500 pounds of iron ore, 1,400 pounds of coal, and 120 pounds of limestone.
- The manufacturing of recycled steel results in 86% less air pollution, 76% less water pollution, and 97% less mining waste.
- Annually, recycling steel conserves enough energy to power 18 million households for an entire year.

*Anchorage DEC office 907-269-3063
Fairbanks DEC office 907-451-2121

Staging Vehicles

For most transportation and recycling companies to accept junk vehicles, all oil, anti-freeze and gasoline must be removed. This should be done away from water sources to mitigate risks in the event of a spill. It is best to ONLY have vehicles that are ready to be transported to the loading to avoid confusion and to keep things easy for the loading crew. Always check with your transportation and recycling company to know what they require to take your solid waste.

Recommended Tools:

DOT Reflective Vest
Safety Goggles
Hard Hat
Work Gloves
Funnels
Monkey Wrench
Hammer
Steel Toed Boots
Knife
Pliers
Socket Wrench
Hole Punch Spike

1. You will need at least **3 good, empty drums**. Make sure there are no holes or creases.

2. Paint over any old labels.

3. Make new, easy to read labels for what will be going into that drum: Old Gas, Used Oil, Used Glycol (Anti-freeze). Labels should be as weather-proof as possible.

4. Remove the gas, oil and radiator caps from the vehicle to expedite the draining process.

5. Now you can drain fluids. If you have a heavy-duty forklift they work very well, but use common sense and make sure safety is your first concern. ALWAYS lift a vehicle from the frame and make sure you have good supports for the vehicle to

5. Locate the gas tank, oil pan drain plug and the radiator drain plug.

6. Locate the lowest point of the gas tank and, using a non-sparking tool or spike, put a good sized hole in the gas tank and let it drain into the drum. It helps to have large funnels for this. Draining gas tanks are usually the longest part of the entire process simply because the gas tank holds the most fluid and will take a long time to drain. It is a good idea to have more than one drum for gas and it is very important to only use non-sparking tools.

7. Removing anti-freeze from the radiator can be challenging. Almost all radiators will have a drain plug but locating it and getting to it can be difficult. One way around this is to simply cut the large hose that is attached to the radiator. This is easier to get to.

8. Draining oil is the easiest of the three since the oil pan is made to be drained regularly. The only problem you may run into is not being able to remove the drain plug. In this case, like the gas tank, punch a hole in the lowest point of the oil pan and drain from there.

9. Once the vehicle is drained, if you have heavy equipment, crush the vehicle down to make it stackable for transportation. Now it is ready to be backhauled.

10. The gasoline recovered from the junk vehicles is completely reusable. Here are some instructions on how to recondition it and how to remove water:

"Unless contaminated with another substance, gasoline and fuel oils remain usable under most circumstances. However, as gasoline ages, it tends to lose some of its ability to ignite in an engine. Old gas used at full strength may account for sluggish behavior or temporary failure of an engine. Stored for long periods, gasoline can become contaminated by rust particles, dirt or water and become "gummy" or "varnished". Most gasoline, even if it is old or contains oil or water, may be used after it is "reconditioned". Reconditioned gasoline can be used in cars and trucks, and some two-cycle engines such as lawn mowers, snow blowers and outboard motors.

Check your owner's manual before using reconditioned gasoline in your engine. Do not use reconditioned gasoline in a car with a fuel injection system."

Reconditioning Gasoline

To recondition gasoline, follow these basic instructions:

1. Work outdoors away from open flame and sources of heat or sparks. Do not smoke or wear contact lenses while working with gasoline.

2. Pour the old gasoline into a second container through a funnel lined with a coffee filter or two layers of thin cloth to remove particles.

3. When the filter is dry, throw it in the trash.

4. Mix one-part filtered gasoline with five parts new gasoline. You can pour the reconditioned gasoline directly into a tank of new gasoline that is at least three-quarters full.

To remove water from gasoline, follow these steps:

1. Pour the gasoline into a transparent jug. The water will settle to the bottom of the container, because water is heavier than gasoline.

2. Carefully pour off the gasoline into a gas can, leaving the water in the jug.

3. Pour the leftover water into a box lined with plastic and mix with an absorbent material such as sand or cat litter. Let the water dry and place the box, plastic and sand in the trash. Do not pour the water down the sink, storm drain or on the ground.

Gasoline contaminated with antifreeze, brake fluid, carburetor fluid or other unusual substances cannot be reconditioned. NEVER mix these substances together."

- http://www.erie-county-ohio.net/does/recycling/gasoline.htm

For reuse options for used oil and glycol refer to the Used Oil / Glycol chapter

Lead-Acid Batteries

Approximately 99 million lead-acid car batteries are manufactured each year. However, lead-acid battery recycling is one of the most successful recycling programs in the world. More than 90% of all lead-acid batteries in the US are recycled; a higher rate than glass, aluminum cans, and newspaper. ***Why should you recycle your lead-acid batteries?***

Lead-acid batteries contain hazardous materials capable of leaching into the environment.

- An average car battery contains 18-20 pounds of lead, a known human toxin.
- Lead-acid car batteries contain about 10 pounds of sulfuric acid which is extremely corrosive and potentially harmful to the environment.
- About 3 pounds of plastic is used in an average car battery. Plastics, when burned, can release toxic compounds.

Lead-acid batteries contain reusable materials.

- Over 80% of lead produced in America is used in lead-acid batteries.
- A typical lead acid battery contains 60-80% recycled lead and plastic.
- Battery acid can be neutralized, treated, and discharged into sewers or processed into sodium sulfate, a powder used in laundry detergent, glass, and textile manufacturing.
- Recycling lead-acid batteries helps reduce greenhouse gas emissions produced while unearthing, refining, and manufacturing raw materials.

Not all lead-acid batteries are used in vehicles.

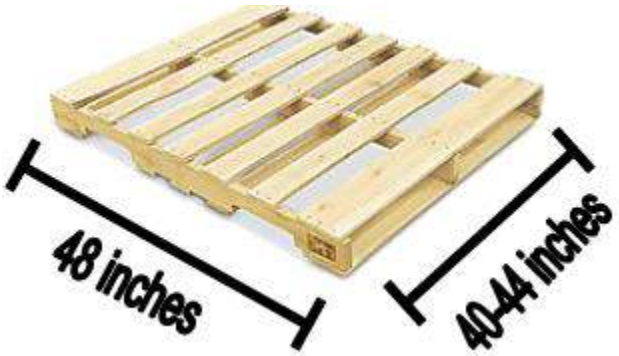
- Lead acid batteries have uses in items other than vehicles, such as back-up computer power supplies, industrial equipment, and emergency lighting.
- Non-vehicle lead-acid batteries can be recycled along with lead-acid batteries from vehicles.

Keep a successful program going! Remember to recycle all lead-acid batteries!

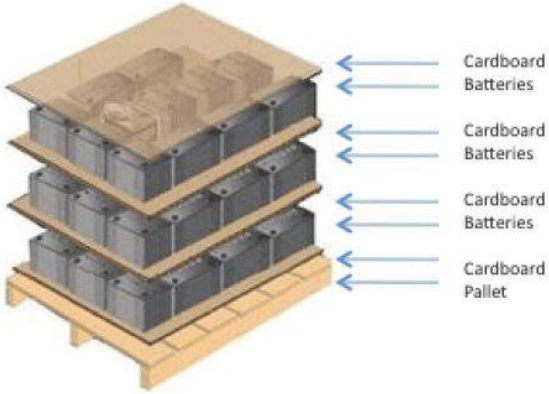
Lead Acid Battery Packaging

Important Pallet and Packaging Specifications:

1. Maximum pallet sizes: *40" x 48" or 44" x 48"*



2. Maximum layers per pallet: *3 – roughly 24 batteries/layer = 72 batteries for 3 layers.*



Lead acid batteries must have a layer cardboard separating each level.

This includes a layer of cardboard on the bottom and the top of the load.

Lead acid batteries must have a layer cardboard separating each level.
This includes a layer of cardboard on the bottom and the top of the load.

3. Typical Pallet Weight (for 3 layers): *Between 2800 and 3300 lbs – Pallets are not to exceed 3300 lbs.*

4. Only lead-acid batteries may be packaged: *No mixing in other batteries or recyclables*.

5. Pallet must be built with a minimum of **3** bottom boards and durable enough to handle the weight of the batteries.

This pallet has 3 bottom boards

Instructions for Stacking Lead Acid Batteries on a Pallet

1. Select a sturdy pallet with no broken or missing

boards. Be sure there are no nails sticking out, which could puncture the batteries or pose a safety hazard.

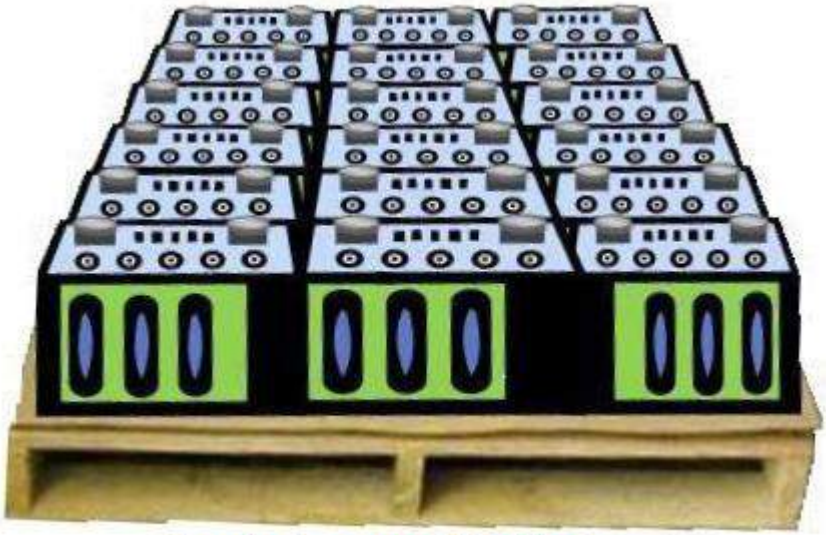
2. Place a layer of cardboard on the pallet to create a flat work surface and help prevent batteries from sliding off of the pallet.

A pallet with a layer of cardboard

An example of a typical wood pallet
A pallet with a layer of cardboard *Lead Acid Battery Packaging – Last Revised 01/18/16*

Lead Acid Battery Packaging

3. Make the first layer of batteries as level and as close together as possible.



Single layer of batteries

If some of the batteries are shorter, they should be placed in the center of the layer.

Batteries that are relatively taller should be saved and placed on the top layer (if stacking more than 1 layer).

Ensure no batteries are hanging over the edge of the cardboard/pallet.

4. Place cardboard (multiple sheets if necessary) between each layer of batteries.

It is best to use the thick honeycomb cardboard (if available).

Examples of honeycomb cardboard

Single layer of batteries
Examples of honeycomb cardboard

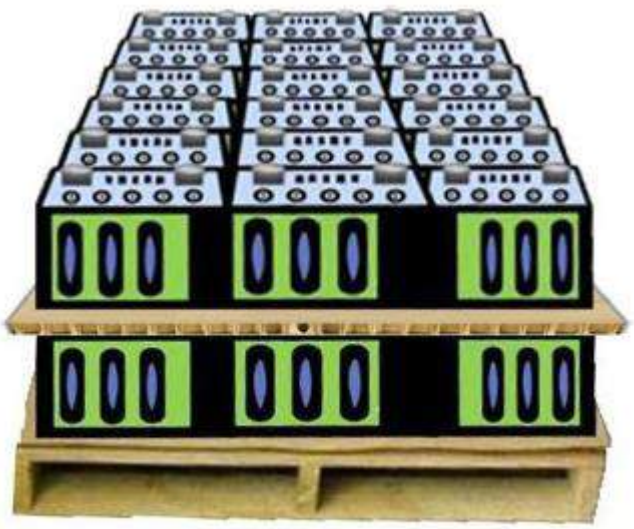
Alternatively, multiple layers of cardboard can also be used.

Examples of layers of typical cardboard

Examples of layers of typical cardboard

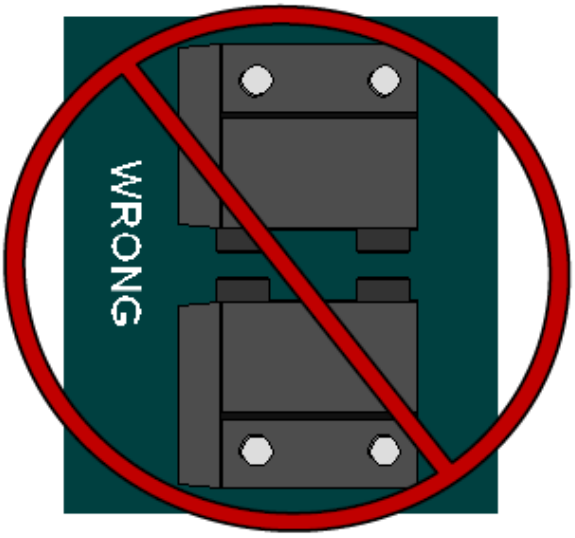
Enough layers of cardboard must be applied to achieve the following:

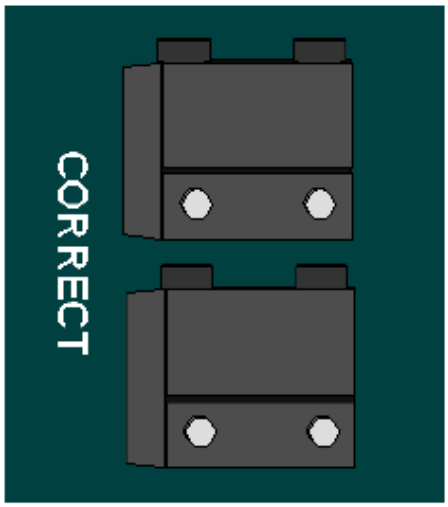
- Prevent the possibility of short circuits; and



- Prevent the terminals from puncturing the underside of the batteries in the layer above.

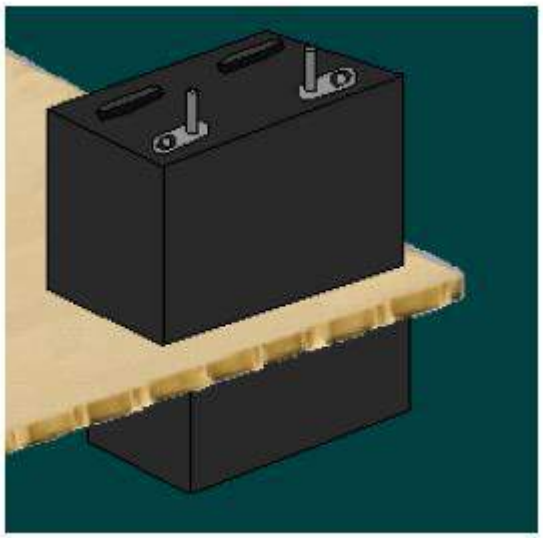
2 layers of batteries with honeycomb cardboard separating the two layers





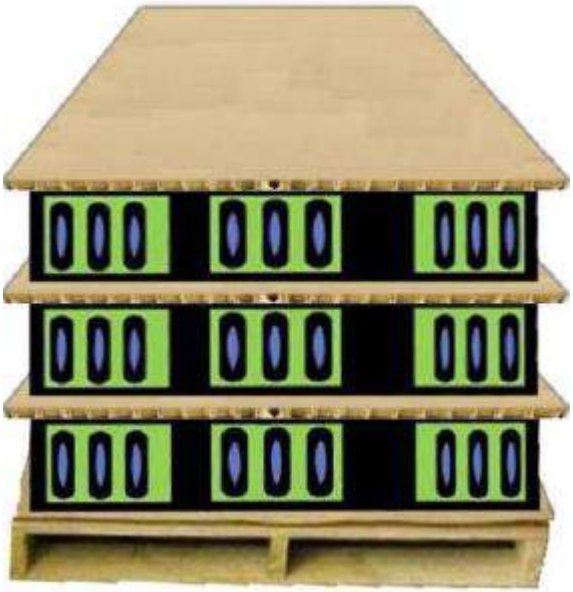
Note #1: Side terminal batteries must be stacked so the posts are facing away from each other and not facing towards the outside of the pallet. Side terminals must never touch (below displays overhead views of “Side Terminal Batteries”).

Lead Acid Battery Packaging



Note #3: Stud post batteries (such as Marine Batteries) should be on the top layer. If this is not possible, you will need extra layers of cardboard between the layers of batteries to prevent punctures. This is also important when stacking three layers high.
Example: The top "stud post" battery has its terminals positioned toward the outside of the pallet, and would need extra layers of cardboard to prevent puncturing the next layer of batteries.

5. A maximum of 3 layers of batteries may be placed on a pallet. When stacking is complete, place cardboard on top of the final layer of batteries.



3 layers of batteries with a layer of cardboard on top.

6. Any battery that has been damaged and has the potential to leak must first be placed in a container capable of holding its contents.

Examples of damaged lead acid batteries

Damaged batteries that are not visibly leaking electrolyte should be put in heavyweight polyethylene plastic bags (minimum: 6 mil), properly sealed with
plastic tie, and placed in the middle of the top layer.

Damaged batteries that have the potential to leak must be placed in a container that is capable of holding its contents (i.e. will not leak fluid) such as a DOT approved 5- gallon bucket.

An example of a DOT approved 5-gallon container

Lead Acid Battery Packaging

Instructions for Wrapping Pallet

All batteries should be secured to the pallet with stretch wrap. An 80 gauge (or stronger) stretch wrap is recommended. Stretch wrap works best if it is pulled tight before stretching it around the corners.

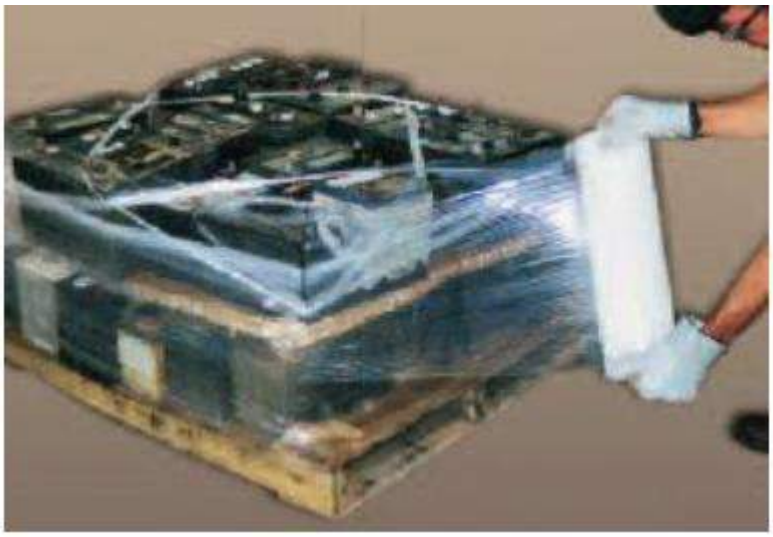
1. Start with the stretch wrap turned sideways to create a “rope-effect”. Wrap around the top layer twice.*****

2. Using the rope-effect, wrap the top layer twice***** more, each time crossing over the top to form an “X-pattern.” This should pull the batteries towards the center, preventing batteries from falling off of the pallet.

3. Holding the stretch wrap open, wrap around the bottom layer twice*****, being sure to catch the edges of the pallet.

Creating a “rope-effect” with stretch wrap

3 layers of batteries wrapped up



Holding the stretch wrap open

4. After placing a layer of cardboard on top of the batteries, wrap around the top layer at least twice***** and tear-off the stretch wrap at the last corner.

***Note**: After wrapping twice (during each step) judge the load; wrap as many times as necessary to stabilize the load*.

***Note**: After wrapping twice (during each step) judge the load; wrap as many times as necessary to stabilize the load*.

Fully wrapped pallet of batteries

5. To further secure the load, band the material to the pallet.

Finally, ensure the pallet is properly labeled. At minimum, the pallet should include a

#8 Corrosive and a Universal Waste Label. Check with your transporter to see if any additional labeling is required.

Ex: Universal Waste Label
A wrapped and banded pallet of lead acid batteries (3 levels)

Ex: #8 Corrosive Label

Staging Lead-Acid Batteries

Safety

Lead-acid batteries that are damaged or missing a cap can leak acid. Battery acid can severely damage your eyes and skin, so personal protective equipment should be worn when handling batteries. More specifically, follow these guidelines:

- Wear gloves and safety glasses.
- Wear long-sleeved clothing, heavy pants and an acid resistant apron if available.
- Handle lead-acid batteries with care. Do not drop or manhandle the batteries.
- Be careful not to short circuit the battery terminals.

Staging

- Store lead acid batteries indoors. A stable room temperature will minimize the risk of cracking and leaking.
- Batteries should be store in a heavy, leak-proof, polyethylene container (such as a fish tote) with a lid. Check the tote regularly for cracks.
- Complete lead acid battery recycling kits may be available from a recycler. Contact a battery recycling from our Resources section to see if they supply kits.

Preventing Leaks

- Avoid stockpiling spent lead-acid batteries.
- Store batteries upright to protect against acid leaks through vent holes.
- Inspect batteries weekly for cracks or leaks. Keep a log of your inspections. If batteries have been exposed to freezing temperatures, inspect them more often.
- Place cracked or leaking batteries in an acid-resistant, leak-proof container such as a sturdy plastic tote.
- Small acid spills should be contained and can be neutralized using lime or bicarbonate soda.
- Cracked and/or leaking batteries should be double-bagged in 6 mil polyethylene plastic bags. The bagged batteries may then be sealed in a 5-gallon bucket.

Summary of Regulatory Requirements for Battery Recycling

Key:

CFR – Code of Federal Regulations
RCRA – Resource Conservation and Recovery

CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act UN Number – The United Nations four digit number identify hazardous substances

- A facility that collects batteries for the purpose of shipping them to a reclaimer is not subject to RCRA regulations under 40 CFR parts 262-266 (see 266, subpart G).
- If a facility chooses to empty the acid out of the battery and neutralize it in an elementary neutralization unit, this makes the facility a generator. They must then notify EPA of their generator status if they generate more than 100 kg. per month. Generators may be required to have a contingency plan, spill prevention plan, and training records, per 40 CFR 262.34.
- If the facility collecting the batteries has a spill causing a release of a characteristic waste (i.e. acid) prior to being shipped to the reclaimer, then Alaska statute 18 AAC 75.080 (Discharge, Reporting, Clean-up and Disposal) may come into play. If the facility has had a history of spills they may be subject to CERCLA or the Alaska Contaminated Sites regulations for clean up.
- 49 CFR 171-179 specifies DOT regulations for packaging, shipping, labeling, and placarding of batteries. Batteries must be packaged to be capable of withstanding shocks, protected against short circuits, etc. The common practice of pelletizing--2 to 3 layers of batteries, with honeycomb cardboard in between, shrink wrapped and banded--appears to meet U.S. Coast Guard regulations. Another practice is to use a drilling mud box lined with visqueen, with layers separated to protect against short circuits and superimposed weight.
- Pallets must be marked with "corrosive" labels, shipping papers must include proper UN number and description, and vans must be properly placarded.
- Battery handlers should wear safety equipment to protect against contact with corrosive materials--gloves, apron, and face shield should be worn.
- Leaking batteries should be handled separately. A common practice is to put batteries in a 55gal drum with soda ash to neutralize acid. Additional requirements are specified in 49 CFR 173.3.

Household Batteries

Each year, Americans dispose of approximately 3 billion batteries, equal to 125,000 tons. Only 3-5% of household batteries are recycled. Thus, the vast majority of household batteries end up in landfills. ***Why should you recycle your household batteries?*** Per 2008 EPA reports, this data has not been updated since then.

Batteries may contain hazardous materials capable of leaching into the environment.

- Household batteries may contain heavy metals such as mercury, cadmium, and nickel, all of which can have toxic effects in humans.
- Nickel-Cadmium batteries are responsible for 70% of all cadmium found in landfills.
- Dumping batteries risks contaminating the environment with heavy metals.
- Burning batteries may release harmful materials into the air.

Batteries contain reusable materials which are readily extractable.

- The majority of a battery's contents, by weight, are metals.
- Reusing and recycling used batteries helps save our natural resources and avoid air and water pollution.
- A typical single-use battery produces only 2% of the energy required to manufacture it.
- Reusing and recycling batteries helps reduce greenhouse gas emissions caused by extracting and transporting raw materials, as well as manufacturing new batteries.

Using rechargeable batteries and recycling old batteries can extend the life of your landfill.

- Only about 1 in 5 household batteries bought by Americans are rechargeable batteries.
- One rechargeable battery can replace 50-300 single-use batteries.
- Rechargeable batteries tend to be recycled more easily than single-use batteries.


DURACELL
Energizer
INDUSTRIAL
READY

Staging Household Batteries

Battery Types

Household battery types commonly accepted by recyclers:

- Alkaline
- Nickel-Cadmium
- Nickel Metal Hydride
- Lithium
- Lithium-ion
- Carbon-Zinc
- Zinc-air
- Silver oxide

If you are unsure if a certain battery type is recyclable, contact an electronics recycler from our Resources section.

Staging

There is always a chance of fire when handling batteries. The following safety procedures are recommended:

- Batteries should be kept in a fireproof container (i.e. plastic 5 gallon bucket, metal drum).
- Batteries should be kept covered.
- Batteries should be stored away from flammable materials.
- Batteries should be stored at a stable room temperature.
- Handle batteries carefully. Mishandling may cause them to leak or explode.
    - Handle Lithium and Lithium ion batteries with extreme care; they are more volatile them other battery types.
    - If cracked or leaking, bag them separately and avoid contact with water.
- If possible, sort batteries by type.
    - If uncertain of the battery type, place it into a “mystery bucket” with other unknown battery types.

Shipping

Be sure to check with your carrier for specific shipping requirements regarding household batteries.

Battery ID Sheet

Alkaline *Found in - Remote controllers, stereos, cameras, CD players*	
Lithium Li *Found in - Cell phones and hand-held computing devices*	 
Lithium-ion (rechargeable) Li-ion *Found in - Digital cameras, and computer motherboards*	 
Nickel metal hydride Ni-MH *Found in - Laptops, power tools, digital cameras*	 
Nickel cadmium (wet cell) Ni-Cad *Found in - Wheelchairs, aircraft, solar applications*	 
Nickel cadmium (dry cell) Ni-Cad *Found in - Remote controllers, telephones, and portable radios*	  

Electronics

The United States generated 11.7 million tons of e-waste in 2014. The data for 2015 and 2016 are not available yet. According to EPA, only about 1 million tons of over 3.4 million tons of e-waste generated in the U.S. in 2012 was recycled, resulting in a recycling rate of 29 percent. The e-waste recycling rate in 2011 was 24.9 percent, and 19.6 percent in 2010. This is from the Sustainable Business report, E-Waste Recycling Facts and Figures.

E-waste contains hazardous materials capable of leaching into the environment.

- Computer monitors contain 4-8 pounds of lead, a known human toxin.
- Circuit boards also contain lead, along with other potentially toxic heavy metals.
- Older monitors and transistors contain arsenic, an extremely toxic element.
- Most plastics contain brominated flame retardants (ex: PBDEs), believed to cause hormonal disorders.

E-waste contains reusable materials and precious metals, all of which are readily extractable.

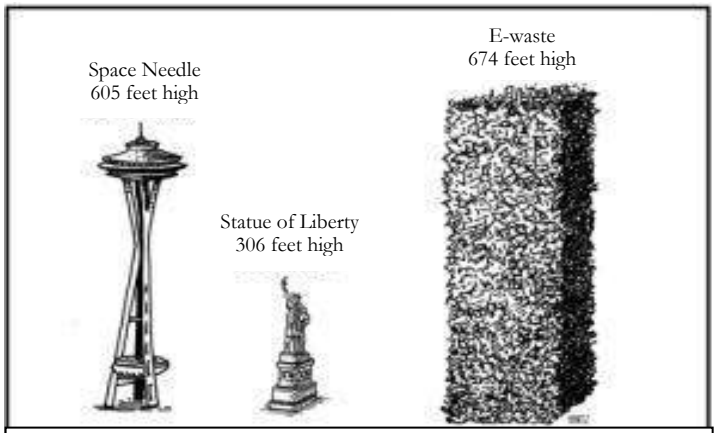
- Electronic products are made from valuable resources (metals, plastics, and glass), all of which require energy to extract and manufacture them.
- Reusing and recycling materials from end-of-life electronics helps conserve our natural resources and avoid air and water pollution.
- Reusing and recycling helps reduce greenhouse gas emissions caused by extracting and transporting raw materials, as well as manufacturing new products.

Recycling electronics extends the life of your landfill.

- E-waste comprises about 5% of America's waste stream by volume.
- E-waste is growing 5 times faster than all other waste stream components.

Recycle electronics responsibly or else your waste will become another's problem.

- A Seattle based e-waste watch-dog group, the Basel Action Network, estimates between 50-80% of US e-waste is exported for recycling overseas.
- E-waste shipped out of country becomes an environmental liability and a human health hazard.



The estimated amount of e-waste exported to Asia in 2002 (80% of total recycled e-waste): A pile one square acre with a height of 674 feet.

Staging Package Electronics

Smaller Shipments

1. Small shipments of electronics do not have to be palletized. Electronics just need to be packaged in cardboard boxes.

Boxes of electronics sent in from rural communities

A computer packaged in the original box

2. If still available, package your electronics in their original boxes. If the original box is no longer available, any other cardboard box will do.

3. If packaging a TV or computer monitor, be sure to add some padding to lessen the risk of breaking. Padding may also be used on other electronics if needed.

Newspaper used as padding

Miscellaneous electronics

4. Do not send miscellaneous office equipment, or other non-electronic items such as binders, notebooks, towels, etc. If you need more information on what can be recycled, contact an electronics recycling provider from our Resources section.

5. If your area has a regional hub, check to see if electronics are being staged for backhaul.

Unacceptable material

Pallatizing Miscellaneous Electronics

Many times what may seem like a lot of material can actually be consolidated into a small area. This is the advantage of packaging miscellanous electronics on pallets.

Electronics waiting to be palletized

A pallet and spare boxes

1. Begin by placing a pallet in an open work area. If available, boxes may be used for smaller items, such as mice, keyboards, and cords. Boxes also work well for odd-shaped material (such as printers) which would otherwise be difficult to stack.

2. Place heavy and flat items on the pallet first. This will build a strong, stable foundation.

Workers placing the flattest items on the bottom layer

3. Continue building up the pallet of material. A good stopping point is when the material is between waist and chest height.

Building up the pallet

4. Use stretchwrap to hold the material in place. 80-gauge strechwrap works well for wrapping electronics. To tightly wrap the pallet, pull the stretchwrap tight as you go around the corners. When finished wrapping, give the material a push to check how tightly bound it is. Continue wrapping if needed.

Finishing off a pallet by tightly securing it with stretchwrap

Palletizing Similar Electronics

If a large quantity of electronics has been collected, then it is recommended to palletize computer monitors, televisions and computer towers separately.

Palletizing Computer Monitors

1. Begin placing computer monitors on a pallet. Start with one on each corner and one in the middle, all positioned facedown. Try to use the monitors with the flattest faces and backs for the first layer. **Optional**: Remove the monitors' bases and cables if it makes stacking easier. Cables and bases can also be boxed and shipped.

Five facedown monitors

2. Next, place monitors face up between face down monitors. The curves in the monitors should allow them to fit together snugly (see below).

Monitors will normally fit together nicely when using the face up/face down pattern

3. Start the second layer, placing the monitors the same way as the first layer. Next, use stretchwrap to secure the load. 80-gauge strechwrap works well for wrapping monitors. To tightly wrap the pallet, pull the stretchwrap tight as you go around the corners. When finished wrapping, give the stack a push to check how tightly bound it is. Continue wrapping if needed.

One the monitors are two rows high, the stack can be wrapped

Optional: Start third layer, by placing the monitors the very same way as the first and second layers. The monitors can be stacked 3-rows high for efficiency in transporting. However, monitor stacks with three layers tend to be more unstable and are at greater risk of collapsing while in transit. *Only attempt stacking monitors 3-rows high if you are capable of securing them tightly to the pallet.*

Tightly wrapped triple-stack of monitors

Palletizing Computer Towers

1. Begin by placing four computer towers on each corner of the pallet. Be sure that these towers are placed flat on the pallet (see below). Don't worry if towers are missing parts, or pieces fall off. Tower parts that fall off can be boxed and shipped to recyclers.

Four computer towers on each corner of the pallet

Filling in gaps between towers

2. Fill in the narrow spaces by placing computer towers upright between the towers in the corners.

3. Continue stacking the computer towers. Stack the towers flat on the corners and upright within the gaps. Stop when the towers are between waist and chest high.

Building up a computer tower stack

Finished stack ready to be wrapped

4. Use stretchwrap to secure the load. 80-gauge strechwrap works well for wrapping computer towers. To tightly wrap the pallet, pull the stretchwrap tight as you go around the corners. When finished wrapping, give the material a push to check how tightly bound it is. Continue wrapping if needed.

Wrapping to secure the computer tower stack for shipping

Palletizing Televisions

1) Begin by placing a pallet in an open work area. If available, place the most flat, box-like televisions on the first layer. Typically, four televisions will fit on the first layer.

A foundation of four flat-topped televisions

2) Secure the first layer with stretch wrap. 80-gauge shrink-wrap works well for wrapping electronics. *Be certain the first layer is wrapped and secure before starting a second layer!*

Securing the first layer of televisions

Two layers of televisions ready to be wrapped

3) Stack a second layer of televisions on top of the first. Don't rush this step. Plan out where you want to fit the remaining televisions. *Be very careful not to allow televisions to fall and break the screens.*

4) Secure the pallet with shrink-wrap. To tightly wrap the pallet, pull the shrink-wrap tight as you go around the corners. When finished wrapping, give the material a push to check how tightly bound it is. Continue wrapping if needed.

Wrapping to secure the televisions for shipping

Other Electronics

Other similar electronic equipment may be palletized. Just remember to start with a strong, sturdy foundation and work up to no higher than chest height. The photo on the right shows a pallet of printers.
Any leftover electronic equipment can also be palletized follow the steps in "*Palletizing Miscellaneous Electronics*."

An example of a palletized stack of printers

Fluorescent Bulbs

The popularity of fluorescent lighting is growing due to the fact that they last longer, use less energy, and save money. However, many people don't know fluorescent lights contain mercury. Fortunately, fluorescent lights (mercury included) are nearly 100% recyclable.

Why should I recycle fluorescent lights?

- ***All*** fluorescent lights contain mercury in both liquid and vapor form.
- Breaking a fluorescent lamp releases mercury into the air and surrounding environment.
- Throwing away fluorescent lamps releases mercury back into the environment.

What's the problem with mercury?

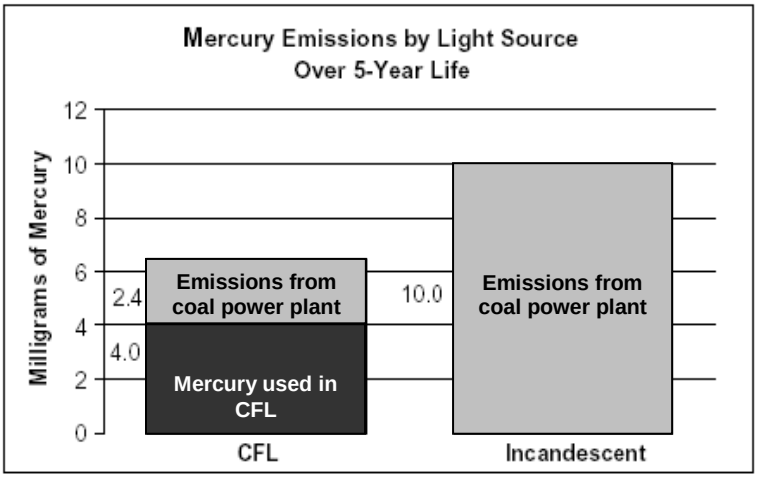
- Mercury is toxic to humans, especially children.
- If a fluorescent lamp is broken indoors the EPA recommends opening doors and windows, then leaving the room for at least 15 minutes.
- Effects of mercury poisoning include…
  - Memory loss
  - Lack of coordination
  - Muscle weakness
  - Extreme mood swings

Results of dumping fluorescent lights…

- Over 600 million fluorescent bulbs are disposed of each year in the USA, resulting in the release of approximately 4 tons of mercury in landfills and the environment.
- Mercury from ***one*** compact fluorescent light (CFL) can contaminate 2,000 bottles (Liters) of water.
- Concerns regarding mercury have prompted the states of California, Minnesota, Ohio, Illinois, Indiana, Michigan, and Wisconsin to pass legislation making it unlawful for anyone to throw fluorescent bulbs in the trash.

Should fluorescent lamps still be used?

Of course! When used and recycled properly, fluorescent bulbs significantly reduce mercury and fossil fuel emissions.



Source: US EPA, June 2002

October 1, 2018
2200 6th Ave. South
Seattle, WA 98134
T 206.343.7443
F 206.343.7445
TOTALRECLAIM.COM
ECOLIGHTS.COM

Non-Conforming or Off-Specification Materials

Dear Customer:

In our continuing effort to protect human health and the environment and assist our customers in complying with federal and state regulations, Total Reclaim and EcoLights are reminding customers that we will be strictly adhering to our acceptance guidelines, the Universal Waste Rule (https://fortress.wa.gov/ecy/publications/documents/98407c.pdf) and other hazardous waste regulations. In compliance with these rules, our drivers will not transport and our receiving personnel will not accept materials that do not meet these requirements. Further, additional fees will be applied for missed pick-ups or handling charges for materials discovered after receipt that do not meet these standards. Although not exhaustive, Non-conforming or Off-specification materials include the following:

- Hazardous Waste offered for transport without a Hazardous Waste Manifest;
- Improperly packaged materials (open or non-structurally sound boxes);
- Improperly or non-labeled materials;
- Wet lamps (wet packaging or lamps stored outside);
- Lamps taped in bundles;
- Intentionally crushed lamps without a manifest;
- Wet or leaking batteries;
- Lead acid, lithium, or lithium ion batteries without taped terminals;
- Liquid mercury;
- PCB containing materials (ballasts, transformers, capacitors, etc.);
- Flammable materials, explosives or explosive residues;
- Radioactive materials;
- Compressed gases or unidentifiable refrigerants;
- Medical sharps/wastes;
- Asbestos or asbestos-containing materials;
- Liquids (Petroleum products, antifreeze, hydraulic fluids, refrigerant or transformer oils);
- Leaking containers of any kind;
- Unknown wastes.

Thank you for your assistance.

If you have further questions, please contact Customer Service at (206) 343-7443

Fluorescent Recycling

ALL LAMPS MUST BE PACKAGED PRIOR TO PICK-UP OR DROP-OFF (NO LOOSE LAMPS)

KEEP LAMPS AND LAMP CONTAINERS DRY

DO NOT TAPE LAMPS TOGETHER

PALLETIZE LAMP CONTAINERS (SHRINKWRAP FOR TRANSPORT)

MARK LAMP CONTAINERS: “USED LAMPS”

CONTAINERS MUST BE CLOSED AND SEALED

To Our Valued Customers
Please follow these guidelines to prepare lamps for recycling:
As a generator of used lamps the following rules apply to management of your lamps.
(WAC 173-303-573(9)(c)).

(i) The containers must be closed, structurally sound, compatible with the contents of the lamps, and must lack evidence of leakage, spillage, or damage that could cause leakage under reasonable foreseeable conditions.

(ii) Minimize lamp breakage by accumulating lamps in containers or packages that are structurally sound, adequate to prevent breakage.

(iii) Universal waste lamps must be stored in containers indoors that prevent the container from being exposed to the elements.

Additional Guidelines:

- **All lamps must be packaged prior to pick-up (no loose lamps).** If boxes or other containers are needed, please contact EcoLights for assistance in Washington (206) 767-7142 or Oregon (503 281-1899.

- **EcoLights can not accept wet lamps as universal waste lamps for recycling** – wet lamps must be managed as hazardous waste.

- Boxes and/or pallets of lamps must be marked with one of the following phrases: "Used Lamps" or "Universal Waste Lamps."

- Place accidentally broken lamps in a plastic bag and seal. Place the bag in a bucket or drum and seal. Buckets or drums must be labeled "Accidently Broken Lamps."

- Intentionally crushed lamps are considered hazardous waste and must be transported on a Uniform hazardous Waste Manifest to comply with Washington Department of Ecology regulations.

If you have questions about how to collect, store lamps and purchase supplies for recycling, please contact EcoLights directly: Washington (206) 767-7142 or Oregon (503) 281-1899.
Please give at least 24 hours notice before picking the supplies up from EcoLights.

Thank you for recycling!

Staging Fluorescent Bulbs

Packing Fluorescent Lamps

1. Be sure to use gloves and safety glasses when handling fluorescent lights.

Using gloves and safety glasses

2. If available, use the original box for packing fluorescent lamps. Recyclers may be able to supply light boxes if none are available locally. When a new bulb is taken out, put the expired bulb in its place. Mark the old bulb to indicate it no longer works.

Marked used fluorescent tubes

3. Carefully place the expired fluorescent lamps in the light boxes. Be careful not to over-fill the boxes, BUT also make sure boxes are shipped full to reduce breaking.

Full box of used fluorescent tubes ready to be closed and labeled

Taped box lid

4. Tape both ends of the boxes to seal them securely. Carefully tape all seams of the boxes and tape the corners so that if lamp breakage occurs, toxic components will stay in the box.

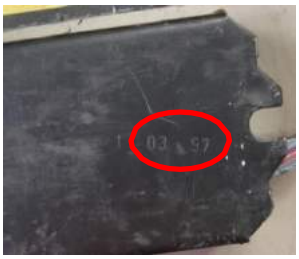
An example of Alaska Building Science Network's labeling

5. Contact your shipper concerning proper labeling. Boxes should include "used fluorescent lamps" and "fragile" labels.

Non-PCB Ballast Packaging

1) Be sure to use gloves and safety glasses

2) Check all ballasts to make sure they do not contain PCBs. The ballasts should say <u>*NO PCBs*</u> directly on the label. ***Total Reclaim in Anchorage cannot accept any material containing PCBs.***



If the label is missing or you can find the "no PCBs" statement, you can look for a manufacturer's date. Any ballast made *after* 1980 will not have PCBs and may be recycled at Total Reclaim. *Please call us if you are having trouble determining if a ballast has PCBs: (907) 561-0544.*

Imprinted manufacturer date (03 97 = March, 1997)

3) Five-gallon buckets work well to ship non-PCB ballasts. When stacked properly, 20-24 ballasts should fit into each 5-gallon bucket (60-70 pounds). Begin by stacking the ballasts vertically in the buckets as a first layer. Finish filling the bucket by stacking ballasts horizontally.

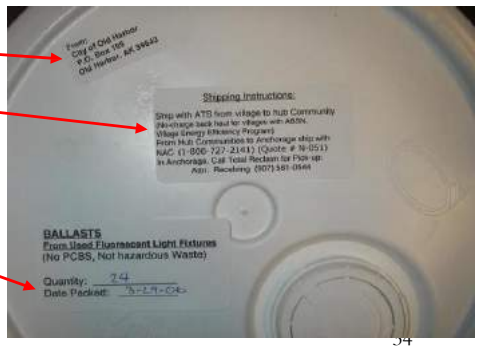
Vertical layer of ballasts

Horizontal layer of ballasts

4) Seal a lid tightly onto the bucket. Contact your shipper concerning proper labeling. The picture below displays an example of labeling the lid of a bucket of lighting ballasts.

- **Shipper Address Label**
  - **Address of generating village entity**

  Shipping Instructions Label
- **Ballast Content & Date Label**



Total Reclaim Electronic Recycling

Computer monitors (LCD & CRT	Electronic pen plotters
Televisions (including console TVs)	Electronic Scales
Computers (CPUs)	Postage machines
Laptops	Digital cameras
Keyboards	Video cameras
Mice	Cords/wires
Zip drives	Batteries within electronics
Speakers	PDAs/handheld devises with cradles
Scanners	Credit card machines & printers
Fax machines	Adding machines
Photocopiers	Modems
Printers/copiers	Telecommunications equipment
Electric typewriters	Toner cartridges (laser and inkjet)
Radios	Microwave ovens
VCRs	Uninterrupted power supplies (UPSs)
DVD players	Blenders/Mixers
Stereos	Ballasts (NON-PCB ONLY)
Telephones	35mm cameras
Cell phones	Bread makers
Electronic games	Coffee makers
CDs	DVDs

Not Accepted: **Exit signs, Smoke alarms & any material containing PCB's or fluids.**

- Total Reclaim also accepts all types of light bulbs & lighting fixtures, all types of batteries, mercury-bearing devises (i.e. thermometers, thermostats, switches, etc.), household and commercial appliances.
- HVAC Equipment & refrigerants.
- Pick service is available in the Anchorage Bowl only (Fees do apply).
- Most materials require recycling fees to be paid, please call for current rates.
- Total Reclaim also BUYS NON-FERROUS scrap metal>
- CERTIFIED DESTRUCTION for data saving components is also available.

For questions, further information, or guidance regarding recycling materials not found on this list, please call us at (907) 561-0544 8am-4:30pm Monday thru Friday, excluding holidays.

Used Oil and Glycol

Used oil and glycol (used in antifreeze) are two of the largest sources of potentially hazardous waste in rural Alaska. Drums of used oil and glycol, when left outside and unchecked, will rust and eventually leak their contents. Over time, leaky drums may contaminate the soils and groundwater. ***Why should you reuse old oil and glycol?***

Motor oil and glycol can pose a threat to human health and the environment.

- One gallon of motor oil can contaminate *one million* gallons of drinking water.
- Oil concentrations of 50 to 100 parts per million can disrupt sewage treatment processes.
- Waste antifreeze contains potentially toxic heavy metals such as lead, cadmium, and chromium.
- Exposure (ingestion or inhalation) to glycol can lead to throat and respiratory complications. High doses can lead to more serious complications such as respiratory failure and coma.

Used oil is reusable either through recycling or burning for heat.

- Used oil is not worn out, it is just dirty. Recycling used oil can save a valuable resource.
- Used oil burners can eliminate waste oil by converting it into heat.
- One 55 gallon drum of used oil equates to $275 - $605 of heating fuel savings, (based on $5 - $11 per gallon for heating fuel).

A Waste Oil to Energy Converter (WOTEC) is more expensive, but has greater versatility than a used oil burner.

- A WOTEC can blend used oil into an accessible supply of heating fuel.
- The final product of a WOTEC is heating fuel which can be transported wherever it is needed.

Used glycol can be recycled and reused within a community using an Antifreeze Recycling Unit.

- An Antifreeze Recycling Unit filters used glycol and, with the aid of an additive, produces usable glycol.
- If oil has been mixed with the glycol, an add-on to the unit can filter out oil before putting the glycol through the recycler.

*****IMPORTANT **** *If you don't know what type of liquid is in a drum, <u>STAY AWAY FROM IT</u>.* Contact National Response Corporation, NRC for information regarding unknown fluids.

National Response
Corporation, NRC
425 Outer Springer Loop
Palmer, Alaska 99645
Phone: (907)258-1558
Fax: (907) 746-3651

Uses for Used Oil and Glycol

While it might seem like these would be things you would want out of your community, they can actually be an asset. In the case of used oil, there are a couple ways we can reuse it such as burning it for heat. A used oil burner not only eliminates a potentially hazardous material but provides free heat. Heating fuel prices in rural Alaska range in price from 5 dollars a gallon to over 11 dollars a gallon. If you had even one 55-gallon drum of used oil that would equate to $275 to over $605 worth of heating fuel.

Setting up a used oil burner in Tanana.

Another solution is to blend used oil into an existing heating fuel supply using a Waste Oil to Energy Converter or WOTEC. This method costs more but is more versatile than a used oil burner. Instead of only being able to heat one place, the final product of a WOTEC is heating fuel which you can bring anywhere you need it.

Jon Ward of Simpatico filling the WOTEC used oil tank.

Blending used oil and heating fuel.

Used glycol is another product that, with the help of some equipment, can be kept in the community and reused. The best option we have found is an Anti-Freeze Recycling Unit which filters “dirty” glycol and, with the aid of an additive, produces like new, usable glycol. If you have glycol that is mixed with oil a useful add-on to this equipment is a water-scrubber which will filter out hydrocarbons (oil) from the glycol before it goes into the recycler.

Drum of Used Anti-Freeze

An Anti-Freeze Recycler Unit.

“White Goods” and Appliances

“White Goods” refers to common appliances such as refrigerators, freezers, stoves, washers, and dryers. In 2005, approximately 3.6 million tons of white goods were disposed of in the US, of which about 2.4 million tons of ferrous (iron-bearing) metals were recovered. ***Why should you recycle your white goods?***

White goods contain reusable materials which are readily extractable.

- By weight, a typical household appliance is about 65% steel.
- All steel products contain recycled steel; steel scrap is necessary for producing new steel.
- Steel used in appliances contains, at the very least, 25% recycled steel.
- In 2005, 90% of all large appliances in the US were recycled.

Refrigerators and freezers typically contain Freon, an ozone depleting substance.

- Ozone protects the earth by absorbing hazardous forms of radiation.
- Chlorofluorocarbons (CFCs) and hydrogenated chlorofluorocarbons (HCFC) destroy ozone molecules.
- A CFC molecule can persist in the upper atmosphere for 50-150 years.
- One chlorine atom can destroy 100,000 ozone molecules.
- CFCs and HCFCs can be safely recovered from appliances with refrigerant.

Recycling white goods can ease landfill burdens.

- Older, gas-fired appliances may have switches containing mercury, a known toxin.
- White goods are often bulky and made of materials that do not break down naturally.
- Recycling white goods, rather than dumping, can save landfill space.

Before White Goods can be backhauled, an EPA certified technician must remove all Freon gas. It would be a better value for a community to have someone take the Freon removal course and become certified. That way you always have someone in-house that can do the work instead of having to bring someone in. See our Resources section for training providers.

Once the Freon is removed, White Goods are ready to be backhauled along with other appliances like stoves, washers, dryers etc. Whether they are to be shipped, driven or flown to the recycler to best way to stage appliances is to strap them to a pallet. This will make them much easier to be transported.

TOTAL RECLAIM
ENVIRONMENTAL SERVICES

Refrigerant Removal Step By Step Instructions:

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. Inspect working area, manifold set, hoses, piercing tools, recovery equipment, cylinders and electrical supply
   a. Make sure manifold gages are closed
   b. Hoses are finger tight
   c. Proper cylinder staged for refrigerant being removed

6. Attach piercing tool's to Blue and Red hoses

7. Install piercing tool (***make sure hoses are hooked up to piercing tool***)

   a. One on the high side, Smaller line, Condenser, Red hose
   b. One on the low side, Larger line, Evaporator, Blue Hose

8. Hook up hoses
   a. Yellow from manifold gauge set to in of recovery equipment

   b. Spare yellow hose from out of the recovery equipment to liquid side of the tank

9. Check Manifold
   a. If no pressure no need to recover

   b. If pressure go to step 10

10. Open up gauge manifold valves

a. Red side, open all the way
b. Blue Side, open all the way

11. Open valves on recovery unit

a. Blue first
b. Red second
c. Bleed air from yellow line at in of recovery cylinder

d. Open liquid valve of cylinder

12. Turn on recovery unit

13. Let run for a while then hit compressor with rubber mallet to free refrigerant from oil and trap areas.

14. 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.

15. Disconnect hoses,* Remember when removing liquid line hose from tank gas/liquid will be present, open slowly and wear protective gloves and eye protection.

16. Remove piercing tool and duct tape holes for shipping.

***Compressors may need to be cut out, oiled drained and recycled properly. Depends on local metal recycler.**

When is a cylinder full?

- Determine your WC# (Water Capacity / Weight of Content) 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 x .80=20.96
- Determine you 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
*Note: All appliances should be completely empty of garbage.

Contacts

Yukon River Inter-Tribal Watershed Council
725 Christensen Drive Suite 3
Anchorage AK, 99501
907-258-3337 Office
907-258-3339 Fax
www.yritwc.org
Backhaul Contacts:
Kelly Donnelly/ Alaska Region Director
Katherine Brower / Solid Waste Management Coordinator

Total Reclaim, INC.
12101 Industry Way
Unit10
Anchorage, AK 99515
(907) 561-0544 Office
(907) 222-6306 Fax
www.totalreclaim.com

Resources and Partners

The following is a list of resources that YRITWC has used in the past and continue to use which make our backhaul program successful. This is not a complete list of all the resources within the state of Alaska. For the electronic version of this manual which will be on our website (www.yritwc.org) we will be accepting suggestions of other liable companies that support backhaul efforts and will be glad to incorporate them into this list to make it more comprehensive. If you would like to recommend a certain company please email Katherine R. Brower at kbrower@yritwc.org. The subject line should read "Resource Recommendation" and the text body should have a brief description of the company and their contact info. If you would like to add a backhaul success story that includes them that would also be helpful.

Solid Waste Removal and Recycling Funding

US Environmental Protection Agency
Alaska Operations Office
222 W. 7th Ave #537
Anchorage, AK 99513
907-271-5083 Office
www.epa.gov/region10/

USDA Rural Development Alaska State Office
800 W. Evergreen, Suite 201
Palmer, Alaska 99645
907-761-7705 Office
907-761-7783 Fax
http://www.rurdev.usda.gov/ak/
Primary type of funding: Solid Waste Training

Training and Safety Education

Yukon River Inter-Tribal Watershed Council
725 Christensen Drive
Suite 3
Anchorage, Alaska 99501
907-258-3337 Office
907-258-3339
http://www.yritwc.org
Type: Hazwoper, Hazardous Waste Handling, Intergrated Solid Waste Management

Rural Alaska Fuel Services
6000 C Street Suite 201
Anchorage, Alaska 99518
907-562-0285 Office
907-562-0435 Fax
www.rafs.net
Type: Personal Safety, Hazardous Waste Handling
*For a full list of trainings provided please call or visit the website.

Continued on next page

SafetyEd

32789 Cumulus Road
Eagle River, Alaska 99577
907-696-3490 (office)
www.safetyed.net
Type: Outdoor and Remote Area Safety
*For a full list of trainings provided please call or visit the website.

Total Reclaim Inc

Gary Smith, Branch Manager
12101 Industry Way, Unit 10
Anchorage, AK 99515
907-561-0544 Office
907-222-6306 Fax
www.totalreclaim.com

Total Reclaim

Type: Freon Removal (Appliances)
Reilly Kosinski
akoutreach@totalreclaim.com

University of Washington

Department of Environmental and Occupational Health Sciences
Continuing Education
Northwest Center for Occupational Health & Safety
Pacific Northwest OSHA Education Center
4225 Roosevelt Way NE, Suite 100
Seattle, Washington 98105
800-326-7568 Office
206-685-3872 Fax
http://depts.washington.edu/ehce/OSHA/
Type: Personal Safety and Hazardous Waste Handling
*For a full list of trainings provided please call or visit the website.

Continued on next page

Transportation

Barge Companies

Ruby Marine
Mile 306.5 Parks Highway
Nenana, Alaska 99760
907-832-1062 Office
907-832-1063 Fax
877-478-1062 Toll free
Hours: After May 1st until the end of navigation
Monday – Friday 8am – 5pm
Saturday – Sunday Call for hours

Yukon River & Road Transport
PO Box 185
Galena, Alaska 99741
907-250-4282
ronaldburgettii@yukontransport.com
www.yukontransport.com
Hours:

Alaska Marine Lines
1048 Whitney Road
Anchorage, AK 99501
907-339-5150 Office
907-272-8152 Fax
http://www.aml.lynden.com
Area of Operation: Coastal

Glacier Marine
601 South Myrtle Street
Seattle, WA 98108
(206) 763-2766
Area of Operation: Alaska – Seattle

Continued on next p

Northland Services
660 Western Drive
Anchorage, AK 99501
907-276-4030 Office
907-276-8733 Fax
www.northlandservicesinc.com
Area of Operation: Coastal

Seattle Action Services
Seattle, WA 98107
206-686-3534 Office
206-686-3534 Fax
Area of Operation: Alaska – Seattle

Totem Ocean
2511 Tidewater
Anchorage, AK 99501
1-800-234-8683 Office
907-278-0461 Fax
www.totemocean.com
Area of Operation: Coastal, Alaska – Seattle

Airline Companies

Ryan Air
6400 Carl Brady Dr.
Anchorage, AK 99502
907-562-2227 Office
907-563-8177 Fax
Ryanalaska.com
Area of Operation: GASH and Russian Mission

Everts Air Cargo
6111 Lockheed Avenue
Anchorage, Alaska 99502-2300
907-243-0009 Office
(907) 243-7333 Fax
www.evertsair.com
Area of Operation: Statewide

Continued on next page

Ravn Alaska
4700 Old International Rd.
Anchorage, Alaska
(907) 266-8300
(907) 266-8391
Flyravn.com

Grant Aviation
4451 Aircraft Dr
Anchorage, AK 99502
907-248-7025 Office
907-248-7076 Fax
www.flygrant.com
Area of Operations: Yukon and Kuskokwim River Delta

Northern Air Cargo
3900 Old International Airport Rd
Anchorage, AK 99501
907-543-4155 Office
907-543-3313 Fax
www.northernaircargo.com Area
of Operation: Statewide

Wright Air
3842 University Ave S
Fairbanks, AK 99709
907-474-0502 Office
907-474-0375 Fax
www.wrightair.net
Area of Operation: Interior

Continued on next page

Railways

Alaska Railroad 327 W
Ship Creek Ave
Anchorage, AK 99501
www.akrr.com
907-265-2624 Office
907-265-2597 Fax
Area of Operation: Interior

Trucking Companies

Air Land Transport Inc
11100 Calaska Cir
Anchorage, AK 99515
907-248-0362 Office
907-248-9706 Fax
Area of Operation: Road System

Lynden Transport Inc
3027 Rampart Dr
Anchorage, AK 99501
907-276-4800 Office
907-257-5155 Fax
http://www.lynden.com/ltia Area of
Operation: Road System

Weaver Brothers
2230 Spar Ave.
Anchorage, AK 99501
907-278-4526 Office
907-276-4316 Fax
www.wbialaska.com
Area of Operation: Road System

Continued on next page

Recycling

Aluminum Cans

Alaskans for Litter Prevention and Recycling
P.O. Box 200393 Anchorage,
AK 99520 (907) 274-3266
Office (907) 274-8023 Fax
www.alparalaska.com

Batteries (Lead Acid and Household)

ABS Alaskan 2130 Van
Horn Rd Fairbanks, AK
99701
907-452-2002 Office
907-451-1949 Fax
www.absak.com

Interstate Batteries
7740 Schoon Street
Anchorage, Alaska 99518
907-349-1577 Office
907-349-6878 Fax
www.interstatebatteries.com/www/distributors/alaska/default.asp

Total Reclaim Inc
12101 Industry Way, Unit 10
Anchorage, AK 99515
907-561-0544 Office
907-222-6306 Fax
www.totalreclaim.com/alaska.html

Continued on next page

Electronics & Fluorescent Bulbs

Total Reclaim Inc
2101 Industry Way Unit 10
Anchorage, AK 99515
907-561-0544 Office
907-222-6306 Fax
www.totalreclaim.com/alaska.html

Metals

C&R Pipe
401 E Van Horn Rd
Fairbanks, AK 99701
907-456-8386 Office
907-456-6875 Fax

K&K Recycling 2040
Richardson Hwy North
Pole, AK
907-488-1409 Office
907-488-4058 Fax

West Seattle Recycling
3881 16th Ave SW Seattle,
WA 98116
206-935-4255 Office
206-935-1791 Fax
www.westseattlerecycling.com

Alaska Metal Corporation
Suite 205
Terminal Building
Port MacKenzie
Wasilla, Alaska 99654
(9007) 782-4704
alex@alaskametalcorp.com

Continued on next page

Hazardous Waste Testing and Disposal

National Response
Corporation, NRC
425 Outer Springer Loop
Palmer, Alaska 99645
Phone: (907)258-1558
Fax: (907) 746-3651

Spills and Emergency Response Contacts

Prevention & Emergency Response Program
Division of Spill Prevention and Response Department of
Environmental Conservation
555 Cordova Street
Anchorage, AK 99501-2617
907-465-5349 Office
907-465-2237 Fax
Email: Bob.Mattson@alaska.gov

Southeast Alaska Response Team – Bob Mattson, SOSC Division of
Spill Prevention and Response
Department of Environmental Conservation 410
Willoughby Ave., Ste. 303
P.O. Box 111800 Juneau, AK
99811-1800
907-465-5378
Office 907-465-2237 Fax
Email: Bob.Mattson@alaska.gov

Central Alaska Response Team – Geoff Merrell, SOSC Division
of Spill Prevention and Response
Department of Environmental Conservation 555
Cordova Street
Anchorage, AK 99501-2617
907-262-5210 Office
907-262-2294 Fax
Email: geoff.merrell@alaska.gov

Continued on next page

Northern Alaska Response Team – Tom DeRuyter, SOSC Division of Spill Prevention and Response
Department of Environmental Conservation 610 University Avenue
Fairbanks, AK 99709-3643
907-451-2124 Office
907-451-2362 Fax
Email: tom.deruytert@alaska.gov

Success Stories

In this section we would like to highlight communities that have backhauled around the state of Alaska. If you have a backhaul story that you would like to add please contact Katherine Brower, 907-258-3337.

Indian Environmental General Assistance Program (IGAP)

1. Yupiit of Andreafski FY2017 Recyclable Backhaul Success Story

Saint Mary's is seated along the north bank of the Andreafsky River about five miles from where the Yukon and Andreafsky rivers meet and encompasses two Yup'ik villages, Saint Mary's and Andreafski. Saint Mary's is home to two federally recognized tribes, the Algaaciq Native Village and Yupiit of Andreafski.

The Yupiit of Andreafski established the environmental program in 1995 and in 1996 was awarded their 1st IGAP grant through EPA. As of today, the program consists of a program director, program assistant, seasonal youth laborers for recyclable backhaul, water quality monitoring in partnership with the Yukon River Inter-Tribal Watershed Council, recycle collection and backhaul, 40 Hour and 8 Hour Refresher HAZWOPER training, annual community clean-ups, and an established Youth Environmental Club with the local school district.

We had another successful year through the recycle and collection and backhaul program for the Yupiit of Andreafski EPA/IGAP Environmental Department. We service our Tribal members here in the community, including items from the Catholic Church, City Dumpsite, St. Mary's School District, and City of St. Mary's. We offer pick up services to the whole community of St. Mary's and we have drop off stations located near the city shop for batteries, bottom road small storage unit for E-waste and white goods, and outside our Tribal office for cans and #1 plastic bottles. We have also been checking the dumpsite weekly for white goods and electronics and bring them to the storage area in town.

For the fiscal year 2017 (October 2016 to September 2017) we have collected and backhauled 786 pounds of smashed aluminum cans and #1 plastic bottles, 1,278 pounds of commercial tin cans from the school, 1,031 pounds of E-waste, 4,441 pounds of white goods, and 3 Black totes (48" x 46" x 29") filled with used batteries totaling about 4,500 pounds. This is over 6 tons of recyclable waste backhauled out of the community and out of our dumpsite! This is only possible because of the Tribal IGAP program allowable backhaul program that will be continued through FY2020 and those who participate in recycling their recyclables.

Completed By: Program Director | Eric Alstrom

2. Scammon Bay Traditional Council FY2017 Backhaul Success Story

In total was 44 batteries at 1361.10 lbs. There are more in storage that will be ready to ship once backhaul funds are available. Scammon Bay IGAP did purchase two (2) vans for storage that will be used for Reuse and recyclable material after program expansion is made.

Inventory of back haul including the weight.

The batteries are a problem in most villages and Scammon Bay has more to back haul. To the benefit of Scammon Bay these batteries will not stay in Scammon Bay. As we are preparing to expand operations notes of this will prove to be a tool on preparation of backhaul of Batteries.

As we make more preparations to expanding operations, a reuse and recycle center will assist in prepping backhaul like the batteries and other

backhaul we ship out to ALPAR and others that recycle. In this case the batteries will go to Total Reclaim in Seattle since the barge makes it there. Scammon Bay IGAP is hopeful to further operations to control the solid waste that makes its way to the landfill and not expose the earth to the possible contaminates of vehicles, white goods, office equipment and recyclable material that is thrown away. Scammon Bay Landfill operation will separate what can't be burnt.

Ready to ship and will make voyage to Seattle.

Eventually Scammon Bay IGAP would like to do away with the old junkyard to establish a transfer area to process vehicles and other possible hazardous material that is thrown away. Some of the stuff in a vehicle can be reused or recycled. This is the idea behind Solid waste management in Scammon Bay.

Completed By: IGAP Assistant | Nile F. Aguchak

3. Kotlik Tribal Council FY2017 Backhaul Success Story

Kotlik community backhaul program 2017. Special thanks to all who helped and supported our work. Bill Moore's Tribal council, Kotlik Tribal council, Kwikpak fisheries Kotlik, Kotlik Yupik corporation.

Doing a backhaul project requires a lot of time and effort. This is an expensive program, to haul out 1conex of material will cost approximately $7698.00, plus all the labor of handling all material and packaging and prep for shipment. The money has to come from somewhere. Tanya Hunt KTC IGAP assistant revising their budget for money to ship out our material. A lot of phone calls were made looking for a barge line to accept our material for transport. Also calling and setting up an account with the recycler, we are shipping our material to Total Reclaim in Seattle. Once we set everything up then came the labor. We packed and prepared 3 conexes for transport. We would like to give special thanks to Jason Simon Fancyboy, the Kwikpak manager for letting use some tools we needed to get this done. Due to unforeseen problems and as fire we cannot ship one of the three conexes. With these entities working together we have done a whole lot of work.

Thank you to the Bill Moore's staff, Kotlik tribal staff and Kwikpak staff in Kotlik. Victor Tonuchuk, Tanya Hunt of Kotlik tribal IGAP, Ike Seton, Paul Pete, Clyde Seton, Danny Waska, Johnny Okitkun laborers. Bill Moore's IGAP Harold Okitkun, Emmett Matthias. Everyone did their part in making this a success. Great job!! Thank you all.

A reminder the backhaul site is closed so no more drop-offs this year. Please pass the message along to the members of the community if Kotlik. Thank you.

Completed By: IGAP Director | Harold Okitkun

4. Nulato Backhaul 2017 Success Story

This past summer our department teamed up with many entities such as the City of Nulato, Yukon River Inter-Tribal Watershed Council, YK Consortia, Central Recycling & lastly Ruby Marine to backhaul all the junk vehicles out of Nulato. In June we applied for the YRITWC backhaul mini grant & was approved.

The first thing we did was take inventory of all the vehicles at the staging site. Next we attended the July City Council meeting and requested assistance from them to start removing all the fluids, batteries, tires, etc. After this was done the City loaded them onto the flat bed and moved them down to the dock.

We made the proper arrangements for Ruby Marine to pick them up & backhaul them to Nenana for Central Recycling to pick up.

The city moved quickly in prepping & staging 35 junk vehicles down to the dock. August 23 rd Ruby Marine picked up 23 junk vehicles, we kept in contact with the barge and on September 1 8, 2017 Ruby Marine picked up the last of our junk vehicles!

Thank you Yukon River Inter-Tribal Watershed Council for your assistance & support for making this happen.

Completed By: Environmental Coordinator | Martha Turner

Tribes That Have Backhauled

Alphabetically Sorted

Anvik Tribal Council
PO Box 10
Anvik, AK 99558-0010
907-663-6322 Office

Alakanuk Traditional Council
PO Box 149
Alakunak, AK 99554-0149
907-238-3419 Office

Alatna Village Council
PO Box 70
Alatna, AK 99720-0070
907-968-2304 Office

Algaaciq Tribal Government
PO Box 48
St. Mary's, AK 99658-0048
907-438-2935 Office

Arctic Village Council
PO Box 22069
Arctic Village, AK 99722-0059
907-587-5329 Office

Asa'carsarmiut Tribal Council
PO Box 32249
Mountain Village, AK 99632-0249
907-591-2814 Office

Beaver Village Council
PO Box 24029
Beaver, AK 99724-0029
907-628-6124 Office

Birch Creek Tribal Council
PO Box KBC, Birch Creek Via
Fort Yukon, AK 99740-8999
907-221-2211 Office

Chalkyitsik Village Council
PO Box 57
Chalkyitsik, AK 99788-0057
907-848-8117 Office

Chevak Native Village
PO Box 140
Aurora St.
Chevak, AK 99563-0140
907-858-7428 Office

Chuloonawick Native Village
PO Box 245
Emmonak, AK 99581-0245
907-949-1345 Office

Circle Village Council
PO Box 89
Circle, AK 99733-0089
907-773-2884 Office

Council of Athabascan Tribal Governments
PO Box 33
Fort Yukon, AK 99740-0283
800-665-2981 Office

Eagle Traditional Council
PO Box 19
Eagle, AK 99738-0019
907-547-2281 Office

Gwichyaa Gwich'in Tribal Gov't.
PO Box 126
Fort Yukon, AK 99740-0126
907-662-2581 Office

Grayling IRA Council
PO Box 49
Grayling, AK 99590-0049
907-453-5116 Office

Holy Cross Traditional Council
PO Box 89
Holy Cross, AK 99602-0089
907-476-7124 Office

Hughes Village Council
PO Box 45029
Hughes, AK 99745-0029
907-889-2239 Office

Huslia Tribal Council
PO Box 70
Huslia, AK 99746-0070

Iqurmiut Tribal Council
PO Box 9
Russian Mission, AK 99657-0009
907-584-5511 Office

Kaltag Tribal Council
PO Box 129
Kaltag, AK 99748-0129
907-534-2224 Office

Kotlik Traditional Council
PO Box 20210
Kotlik, AK 99620-0210
907-899-4836 Office

Koyukuk Tribal Council
PO Box 109
Koyukuk, AK 99754-9999
907-927-2253 Office

Louden Tribal Council
PO Box 244
Galena, AK 99741-0244
907-656-1711 Office

Marshall Traditional Council
PO Box 110
Marshall, AK 99585-0110
907-679-6302 Office

Native Village of Bill Moore's Slough
PO Box 20288
Kotlik, AK 99620-0288
907-899-4232 Office

Native Village of Shaktoolik
PO Box 100
Shaktoolik, AK 99771-0100
907-955-3701 Office

Native Village of St. Michael
PO Box 59050
St. Michael, AK 99659
907-923-2304 Office

Native Village of Unalakeet
PO Box 270
Unalakeet, AK 99684
907-624-3622 Office

Nenana Native Council
PO Box 356
Nenana, AK 99760-0356
907-832-5461 Office

Nulato Tribal Council
PO Box 65049
Nulato, AK 99765-0049
907-898-2339 Office

Ohogamiut Traditional Council
PO Box 49
Marshall, AK 99585-0049
907-679-6517 Office

Pilot Station Traditional Council
PO Box 5119
Pilot Station, AK 99650-0119
907-549-3373 Office

Pitka's Point Traditional Council
PO Box 127
St. Mary's, AK 99658-0127
907-438-2569 Office

Rampart Village Council
PO Box 67029
Rampart, AK 99767-7029
907-358-3312 Office

Ruby Tribal Council
PO Box 210
Ruby, AK 99768-9999
907-468-4479 Office

Scammon Bay Traditional Council
PO Box 110
Scammon Bay, AK 99662-0126
907-558-5425 Office

Shageluk IRA Council
PO Box 109
Shageluk, AK 99665-0109
907-473-8239 Office

Stebbins IRA Council
PO Box 71002
Stebbins, AK 99671
907-934-2393 Office

Stevens Village Council
PO Box 16
Stevens Village, AK 99774-9999
907-934-2393 Office

Tanana Tribal Council
PO Box 77130
Tanana, AK 99777-0130
907-366-7160 Office

Venetie Tribal Government
PO Box 99
Venetie, AK 99781-0099
907-849-8165 Office

Yupiit of Andreafski
PO Box 88
St. Mary's, AK 99658-0088
907-438-2312 Office

APPENDIX A: Sample Backhaul Inventory

Below is an example of an inventory sheet for backhauled items. This kind of document may be useful when prioritizing items for backhaul as well as for communications with transportation entities that need to know what materials will be hauled before committing to remove them.

Yukon River Inter-Tribal Watershed Council
Backhaul Inventory

Items	Amount
Vehicles: Total	
Cars	
Trucks	
Heavy Equipment	
Batteries: Total	
Vehicle	
Household (# of containers full)	
Computers: (Monitors, CPUs, Keyboards, etc.)	
Office Equipment: (Copiers, Fax machines, etc.)	
Refrigerators/Freezers:	
Boats: (Metal Only)	
Outboard Motors:	
Snowmachines:	
ATVs:	
Generators**:	
Fuel Tanks*:	
Tires*:	
Tire Rims:	
Drums*: Total	
Empty	
Glycol	
Used Oil	
Other (specify if possible)	
Electrical Transformers**:	
Miscellaneous (Please Describe):	

*These are items that we cannot take yet but need to know about for our records.
**Contact us about these items, we need more information before they can be shipped.

APPENDIX B: Sample Memorandum of Agreement

Below is an example of an MOA to outline an arrangement between a community and a transportation entity in conducting a backhaul. This type of document is not necessary to backhaul but may clarify responsibilities and commitments on both sides of an arrangement.

Memorandum of Agreement Total Reclaim, Inc. and COMMUNITY ORGANIZATION

Introduction – Total Reclaim, Inc. has pledged to be 'Caretakers of the Land' and will 'For the People'. These two principals guide Total Reclaim, Inc.'s work throughout Alaska. To better care for the land and the people dependent on the land this Memorandum of Agreement (MOA) formalizes the relationship between Total Reclaim, Inc. and COMMUNITY ORGANIZATION. By working together, communicating, and sharing resources the collective goals of Total Reclaim, Inc. and COMMUNITY ORGANIZATION can be realized.

Intent – It is the intent of this MOA between Total Reclaim, Inc. and COMMUNITY ORGANIZATION to establish a partnership to expand and improve solid waste services in COMMUNITY NAME through greater awareness and participation in electronics recycling. It is understood that this partnership will allow greater coordination between the two entities while outlining specific responsibilities for each entity. In consideration of the above premises, the parties agree as follows,

Responsibilities of Total Reclaim, Inc.

- Total Reclaim, Inc. will provide instructional materials outlining safe handling procedures for electronics waste.
- Total Reclaim, Inc. will provide instructional materials outlining safe shipping procedures for electronics waste.
- Total Reclaim, Inc. will be available for assistance by means of telephone contact during regular business hours.
- Total Reclaim, Inc. will provide a per pound cost estimate prior to shipment.
- Total Reclaim, Inc. will collect materials upon arrival in Anchorage.
- Total Reclaim, Inc. will, within 30 days of accepting materials, provide a clear invoice to communities.
- Total Reclaim, Inc. will NOT accept materials sent Cash On Delivery (C.O.D.).
- Total Reclaim, Inc. reserves the right to reject materials that do not qualify as electronics waste.
- Total Reclaim, Inc. reserves the right to reject electronics known or believed to contain PCBs.
- Total Reclaim, Inc. will abide by all local, state and federal laws and regulations in the conduct of their operations.

Responsibilities of COMMUNITY ORGANIZATION

- COMMUNITY ORGANIZATION will assume responsibility for organizing the collection and transportation of electronics for backhaul.
- COMMUNITY ORGANIZATION will handle all materials in accordance to instructional materials provided by Total Reclaim, Inc.
- COMMUNITY ORGANIZATION will contact Total Reclaim, Inc. prior to collecting or shipping materials.
- COMMUNITY ORGANIZATION will ship all materials in accordance to instructional materials provided by Total Reclaim, Inc.
- COMMUNITY ORGANIZATION will assume responsibility for any transport costs that arise.
- COMMUNITY ORGANIZATION will assist all community members in participating in the electronics recycling program at low or no cost to the individual.
- COMMUNITY ORGANIZATION will provide estimated weight of materials to Total Reclaim, Inc. prior to negotiating a per pound rate.
- COMMUNITY ORGANIZATION will provide estimated weight of materials to Total Reclaim, Inc. prior to shipment.
- COMMUNITY ORGANIZATION will ship only clean and safely packaged electronics to Total Reclaim, Inc.
- COMMUNITY ORGANIZATION will not knowingly ship PCB's or other highly hazardous materials to Total Reclaim, Inc.
- COMMUNITY ORGANIZATION will abide by all local, state and federal laws and regulations in the conduct of their operations.

Term of the Agreement

- This agreement shall remain in effect for 2 years from the date of signature. It may be terminated immediately by mutual written agreement of both parties, or upon 30 days notice in writing by either party.
- The agreement may be extended for additional 2 year periods provided an updated written agreement is reached.

NAME OF COMMUNITY CONTACT	Gary Smith, General Manager
For COMMUNITY ORGANIZATION	For Total Reclaim, Inc.
Date_____	Date_____

APPENDIX C: ADEC Report Oil and Hazardous Substance Spills

IT'S THE LAW!

AS 46.03.755 and 18 AAC 75.300

REPORT OIL AND HAZARDOUS SUBSTANCE SPILLS

During Normal Business Hours

call the nearest response team office:

Central Alaska: Anchorage	**(907) 269-3063** Fax: (907) 269-7648
Northern Alaska: Fairbanks	**(907) 451-2121** Fax: (907) 451-2362
Southeast Alaska: Juneau	**(907) 465-5340** Fax: (907) 465-5245
Alaska Pipeline: Fairbanks	**(907) 451-2121** Fax: (907) 451-2362

Outside Normal Business Hours

Toll Free	**1-800-478-9300**
International	**1-907-269-0667**

Alaska Department of Environmental Conservation
Division of Spill Prevention and Response
www.dec.alaska.gov/spar/spillreport.htm

Hazardous Substance

Any hazardous substance spill, other than oil, must be reported immediately.

Oil – Petroleum Products

To Water

- Any amount spilled to water must be reported immediately.

To Land

- Spills in ***excess of 55 gallons*** must be reported immediately.
- Spills in ***excess of 10 gallons, but 55 gallons or less***, must be reported within 48 hours after the person has knowledge of the spill.
- Spills of ***1 to 10 gallons*** must be recorded in a spill reporting log submitted to ADEC each month.

To Impermeable Secondary Containment Areas

- Any spills in ***excess of 55 gallons*** must be reported within 48 hours.

Additional Requirements for Regulated Underground Storage Tank Facilities

Regulated Underground Storage Tank (UST) facilities are defined at 18 AAC 78.005 and do not include heating oil tanks.

If your release detection system indicates a possible discharge, or if you notice unusual operating conditions that might indicate a release, you must notify the ADEC UST Program within 7 days.

UST Program: (907) 269-3055 or 269-7679

rev. Oct/2015

APPENDIX D: Drum Crusher Manual

ONE PEOPLE-ONE RIVER
YUKON RIVER INTER-TRIBAL WATERSHED COUNCIL

725 CHRISTENSEN DRIVE, SUITE 3
ANCHORAGE, AK 99501
PHONE: (907) 258-3337
FAX: (907) 258-3339
TOLL FREE: (844) 730-3337

WHITEHORSE OFFICE: PO BOX 3123-211
WHITEHORSE, YUKON TERRITORY CANADA
Y1A-5P7

Drumbeaters of America Inc.

Drum Crusher Manual

YRITWC's Drum Crusher, all photo rights reserved.

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Y1A-5P7

On behalf of Yukon River Inter-Tribal Watershed Council, please read the following before operating for the safety of yourself and others.

1. Do not operate the Drum Crusher when it is raining

    - This will damage the engine and electrical system due to the air intake being on top of the machine. It may also cause electrical shock.

2. Cover the drum crusher once the engine has cooled completely

Please see the following two pages for additional safety and operation procedures.

CAUTION - READ BEFORE OPERATING

Be sure to read understand and follow all of the instructions in this manual.

BE CAREFUL - SAFETY AND CAUTION PAYS

Do not operate this equipment if you are under the influence of alcohol or drugs.

Do not allow any one to operate equipment unless they thoroughly understand requirements, procedures and controls.

Never operate this equipment in the vicinity of children or pets.

Keep hands, feet, and bystanders away from crush-chamber, ram platen and door when operating.

Do not make any changes or alterations to equipment components. This will void warranty and may cause a safety hazard.

Never operate this equipment if it is in poor mechanical condition.

Always wear safety glasses, gloves and shoes when operating this equipment

Do not allow anyone under 18 years of age to operate equipment

CAUTION:

CLOSE DOOR DURING CRUSHING

KEEP CLEAR OF CRUSH-CHAMBER DURING CRUSHING

USE #ISO 32 HYDRAULIC OIL ONLY

OPERATING INSTRUCTIONS

SAFETY FIRST

IF YOU DON'T THINK IT'S SAFE - DON'T DO IT!

A. **Position for Use:**

Position the Portable Drum Crusher on a hard level surface, and in a convenient position with a minimum clearance of 6', on all sides. Do not disconnect the drum crusher from the vehicle before tilting the unit into the run / crush position. You should anticipate your work area to allow fork trucks easy access to bring drums to and from the work area.

B. **Setup Procedure:**

1. Cut and remove all the Red Zip Ties.
2. Fill the hydraulic tank with hydraulic oil.
3. Fill the fuel tank with gasoline.
4. Reattach the red battery cable to the starter battery.

C. **Startup Procedure:**

You may review the engine manual enclosed in the rear of this manual.

1. Verify the machine is on hard level ground.
2. Verify the machine is attached to the tow vehicle.
3. Verify the hydraulic tank is full.
4. Verify the fuel tank is full.
5. Verify the rear of the unit is clear.
6. Pull the choke to the out position.
7. Pull the throttle to the out position.
8. Remove the travel strap from the crushing cylinder.
9. Turn the start key to the on position.
10. Wait 10 – 15 seconds for the fuel pump to pump fuel to the engine.
11. Turn the start key to the start position.
12. When the engine starts, release the start switch.
13. Slowly push the choke in fully, if the engine stops, pull out the choke and try again until the engine is warm enough to stay running. Do not try to run the machine with the choke in the out position.
14. When the engine is running proceed to the tilting section.

D. **Safety Procedure.**

1. With the hydraulic package running.
2. Unlock door latch and open.
3. Check the crush chamber cavity for emptiness. Empty if necessary.
4. Close and latch door.
5. Check door operation interlock **each day**.
6. While engaging the "Crush" lever down which will start the hydraulic cylinder moving, unlatch and open the chamber door. If the hydraulic cylinder does not stop moving when the door is opened, do not use the crusher until the Maintenance Department has checked and repaired the door interlock feature.
7. Close and latch door.
8. Return the crush head to the top position.

E. Tilting Procedure:

1. Verify the travel strap is removed from the crushing cylinder.
2. Verify the rear of the unit is clear.
3. Start the engine and run at ½ speed.
4. Move the selector valve to the tilt position.
5. Slowly move the tilt valve in the desired chamber direction.
6. When the chamber is in position, move the selector valve to the crush position.
7. Avoid holding the valve under pressure in either direction.

F. Crushing Drums:

Once the above instructions have been completed successfully, the unit is ready for crushing.

1. Release door latch and open door.
2. Inspect drum for acceptability for crushing. Drum should be empty and not contain any material. **All the bung caps should be removed.**
3. Pressure relief holes may be punched in the upper 1/2 of drum in addition to the open bung or as a substitute to an open bung.
4. Tilt and roll drum into chamber. Do not lift drums, rolling is easier and saves backs. Slide drum to rear of chamber cavity.
5. Close and latch door.
6. To start the crush cycle, push down and hold the "Manual Directional Control Valve". The crush head will start to crush the drum and the pressure gauge will start to rise.
7. Watch the pressure gauge and when the pressure stops rising (aprox. 2700 PSI.), the crush cycle is complete. Pull the crush valve up, the valve will "detent" up until the crush head comes to the top. The valve will then release. At this point the door may be opened.

Keep the operating area clear of obstructions. Drums and/or crushed drums not neatly placed in work area can result in physical injury.

G. General Information:

1. Electric Brakes.

Electric brake systems consist of components mounted both on the tow vehicle and the trailer. For these systems to operate properly, the trailer wiring end plug on the trailer must match the wiring pattern of the mating plug on the tow vehicle. The most common plug types for electric brake trailers are the 6-pole round pin and 7-pole RV flat blade connectors. An ELECTRONIC BRAKE CONTROLLER must be properly mounted at the dash area of the tow vehicle. The brake controller allows for adjustment of braking strength and also offers a manual brake control for emergency braking. Some controllers are available with a pre-wired quick connect plug for easy installation on select late model vehicles that have a factory tow prep package. Be certain to follow the installation instructions and to use the proper gauge wire and circuit breaker size when installing a brake controller on your tow vehicle.

The trailer side of an electric brake system consists of left & right ELECTRIC BRAKE ASSEMBLIES, drum & hub assemblies, EMERGENCY BREAKAWAY KIT-(battery w/box, breakaway switch, trickle charger) and end plug connector.

2. Towing.

See the addendum included in the rear of this manual.

3. Use only high quality hydraulic oil, such as Amoco AW Oil #32.
4. This equipment must not be operated by untrained personnel.
5. When operating equipment outside, during winter months, operator must warm up the hydraulic oil by running through approximately 15 crushing cycles without a drum or container in the drum crusher.

H. **Safety Tips:**

1. **ONLY CRUSH EMPTY DRUMS!!**
2. Drums should never be completely sealed prior to crushing. Remove all bungs and vent to allow air to escape as drum is crushed.
3. Make sure no one stands in front of the drum crushing chamber door during the drum crushing operation.
4. No adjustments or modifications should be made to equipment without written approval from Drumbeaters of America Inc. Any adjustments or modifications to the equipment or components, shall void manufacturer's warranty.
5.

I. **Maintenance:**

Maintenance Item:		*Daily*		*Weekly*	*Annually*
		Before Start-Up	*After Start-Up*		
1.	*Remove dirt and spillage from around the crusher.*	*x*			
2.	*Remove dust and dirt from the drive motor.*	*x*			
3.	*Verify that crushing chamber is clear.*	*x*			
4.	*Check hydraulic system for leaks.*		*x*		
5.	*Check hydraulic system oil level. Add oil if low*	*x*			
6.	*Listen for any unusual noises or vibrations after crusher is started.*		*x*		
7.	*Inspect all hoses and lines for wear or fatigue.*	*x*			
8.	*Check for loose nuts and bolts on crusher.*			*x*	
9.	*Change oil in hydraulic reservoir. Replace oil filter element.*				*x (2 TIMES)*

ENGINE OIL

TECUMSEH FOUR-CYCLE ENGINES REQUIRE THE USE OF CLEAN, HIGH QUALITY DETERGENT OIL. Be sure original container is marked: A.P.I. service "SF" thru "SJ" or "CD".

TECUMSEH RECOMMENDS USING ONE OF THE FOLLOWING FOUR CYCLE OILS THAT ARE SPECIALLY FORMULATED TO TECUMSEH SPECIFICATIONS.

DO NOT USE SAE 10W40 OIL.

FOR SUMMER (Above 32° F) (0°C) USE SAE 30 OIL. PART 730225
Use SAE 30 oil in high temperature, high load applications. Using multigrade oil may increase oil consumption.

FOR WINTER (Below 32°F) (0°C) USE SAE 5W30 OIL. PART 730226
(SAE 10W is an acceptable substitute.)
(BELOW 0°F (-18°C) ONLY): SAE 0W30 is an acceptable substitute.

Oil Capacity		
Engine Model	oz.	ml.
TVT691 with Filter	80	2366
TVT691 Oil Only	72	2129

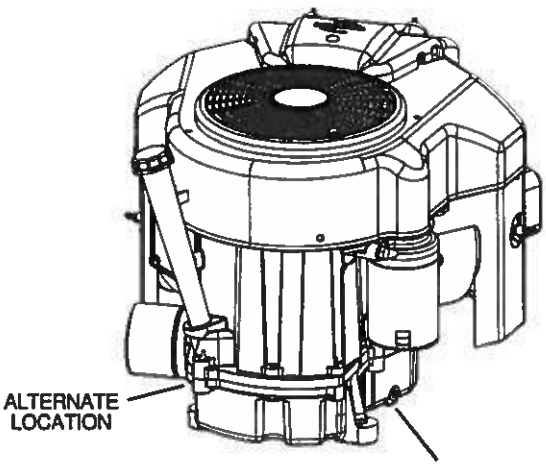
Change oil and filter after the first two operating hours. Standard oil change intervals are every 50 hours. Oil filter changes are recommended every 100 operating hours.

Oil Change Intervals: Change the oil and filter after the first 2 hours of operation. Thereafter oil change intervals are every 50 hours. Oil and oil filter changes are requested every 100 operating hours. Service should be performed more often if operated under extremely dusty or dirty conditions. The oil and filter (if equipped) should be changed yearly if operated less than 100 hours.

Oil Check: Check the oil each time the equipment is used or every five-(5) hours of operation. Position the equipment so the engine is level when checking the oil level.

⚠ CAUTION: A TWIN CYLINDER ENGINE MAY START AND RUN ON ONLY ONE CYLINDER. ALWAYS DISCONNECT BOTH SPARK PLUG WIRES FROM THE SPARK PLUGS AND GROUND TO THE DEDICATED RETAINING POSTS LOCATED ON THE VALVE COVER BOXES BEFORE ATTEMPTING ANY SERVICE OR MAINTENANCE WORK ON THE ENGINE OR EQUIPMENT.

Oil Change Procedure: Locate the oil drain plug in the mounting flange. The drain plug or cap on most units is located above the frame in one of the locations shown. (Illust. 1-7) The oil filter if equipped, can be removed with a commercially available filter wrench.



1-7

NOTE: An oil change is best performed after the engine is warm.

Remove the oil plug or cap and allow the oil to drain into a proper receptacle. Always make sure that drain oil and filter are disposed of properly. Contact your local governing authorities to find a waste oil disposal site. Once the oil is drained, reinstall the drain plug and fill the engine with new oil to the proper capacity.

BASIC MAINTENANCE CHART	
Pre-filter (Dry Poly)	Clean every 25 hours
Air filter (Paper Element)	Replace every 100 hours of operation
Oil change	Every 50 hours or annually
Oil filter	Every 100 hours or annually
Spark plug replacement	Every 100 hours or annually
Clean cooling fins	Every 200 hours or annually
Fuel Filter (Replace)	Every 100 hours or annually

BASIC TUNE-UP PROCEDURE:

NOTE: Today's fuels can cause many problems in an engines performance due to the fuel quality and short shelf life (as little as 30 days). Always check fuel as a primary cause of poor engine performance before performing any other service.

The following is a minor tune-up procedure. When this procedure is completed, the engine should operate properly. Further repairs may be necessary if the engine's performance remains poor.

⚠ CAUTION: REMOVE THE SPARK PLUG WIRES AND ATTACH TO THE DEDICATED RETAINING POSTS BEFORE DOING ANY SERVICE WORK ON THE ENGINE.

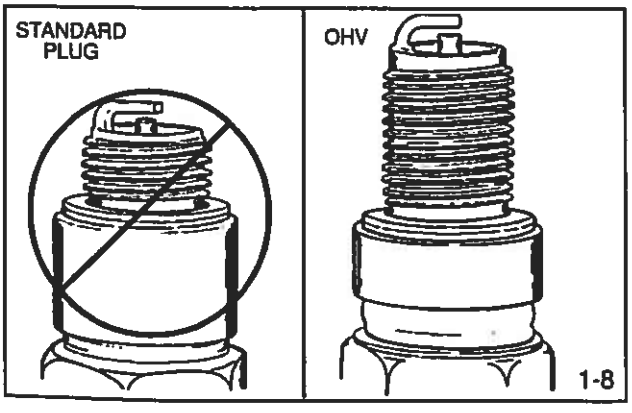
1. Service or replace the air cleaner. See Chapter 2 under "Service".

2. Inspect the level and condition of the oil, change or add oil as required.

3. Remove the blower housing and clean all dirt, grass or debris from the intake screen, Cylinder head, cooling fins, carburetor, governor levers and linkage.

4. Check that the fuel filter, fuel tank, and fuel line are clean. We recommend replacing the fuel filter every 100 hours or annually.

5. Replace the spark plugs every 100 hours or annually, consult the parts breakdown for the correct spark plug to be used. Set the spark plug gap (.030") (.762 mm) and install the plug, being careful not to cross thread. Tighten the spark plug to 21 foot pounds (28 Nm) of torque. If a torque wrench is not available, turn the spark plug in as far as possible by hand, then use a spark plug wrench to turn the plug 1/2 turn further. If installing a used plug, only 1/8 to 1/4 turn after seat is needed. Note: The correct plug reach must be used see (Illust. 1-8).



1-8

6. Make sure all ignition wires are free of abrasions or breaks and are properly routed so they will not rub on the flywheel.

7. Completely clean the cooling fins, intake screen and linkages of all dirt and debris. Reinstall the blower housing, fuel tank, fuel line, and air cleaner assembly if removed. Be careful not to pinch any of the wires upon re-assembly.

8. Make sure all remote cables are correctly routed and adjusted for proper operation. See Chapter 4, under "Speed Controls and Linkage".

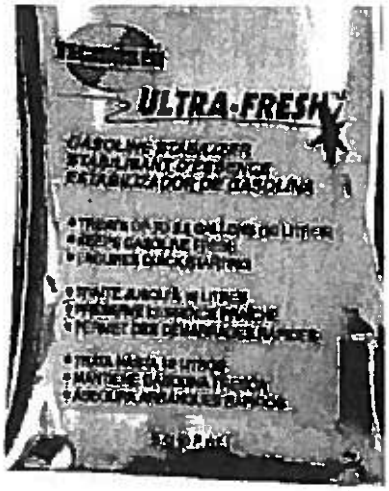
9. Reinstall the spark plug wires, add fuel and oil as necessary, start the engine.

STORAGE

(IF THE ENGINE IS TO BE UNUSED FOR 30 DAYS OR MORE)

⚠ CAUTION: NEVER STORE THE ENGINE WITH FUEL IN THE TANK INDOORS OR IN ENCLOSED, POORLY VENTILATED AREAS, WHERE FUEL FUMES MAY REACH AN OPEN FLAME, SPARK OR PILOT LIGHT AS ON A FURNACE, WATER HEATER, CLOTHES DRYER OR OTHER GAS APPLIANCE.

Gasoline can become stale in less than 30 days and form deposits that can impede proper fuel flow and engine operation. To prevent deposits from forming, all gasoline must be removed from the fuel tank and the carburetor. An acceptable alternative to removing all gasoline, is by adding Tecumseh fuel stabilizer, part number 730245, to the gasoline. Fuel stabilizer is added to the fuel tank or storage container. Always follow the mix ratio found on the stabilizer container. Run the engine at least 10 minutes after adding the fuel stabilizer to allow it to reach the carburetor. (Illust. 1-9)



1-9

CHAPTER 2. AIR CLEANERS

GENERAL INFORMATION

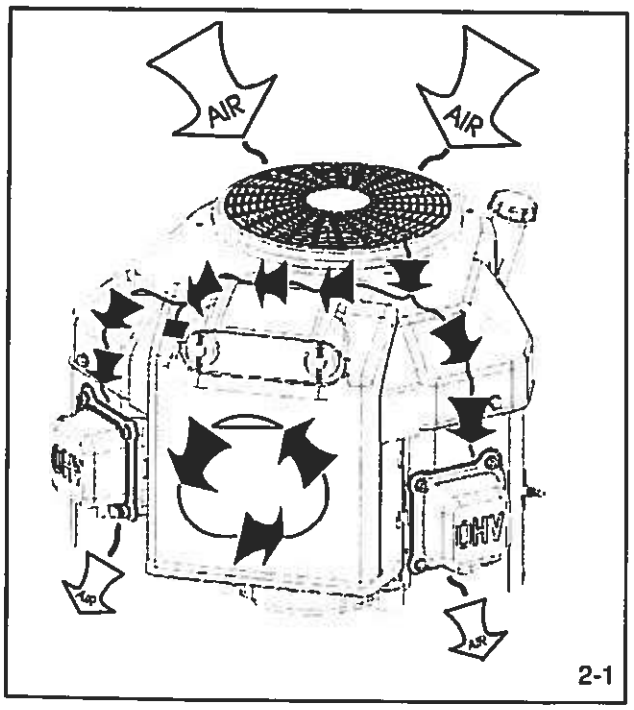
The air cleaner is the device used to eliminate dust and dirt from the air supply. Filtered air is necessary to assure that abrasive particles are removed before entering the combustion chamber. Dirt allowed into the engine will quickly wear the internal components and shorten engine life.

The TVT series engine uses a paper-type air filter system and also has a dry foam pre-filter.

Extremely dirty conditions require more frequent pre-filter cleaning or paper element replacement.

OPERATION

The air filter cover secures and seals the paper filter element in place. The cover also prevents large particles from entering the filter body and completes the Kleen-Aire® circuit. The air is first filtered through the flywheel and blower housing then enters the air filter cover. It travels through the pre-filter then the paper filter element. Pre-filters typically extend the paper filter life. (Illust. 2-1)



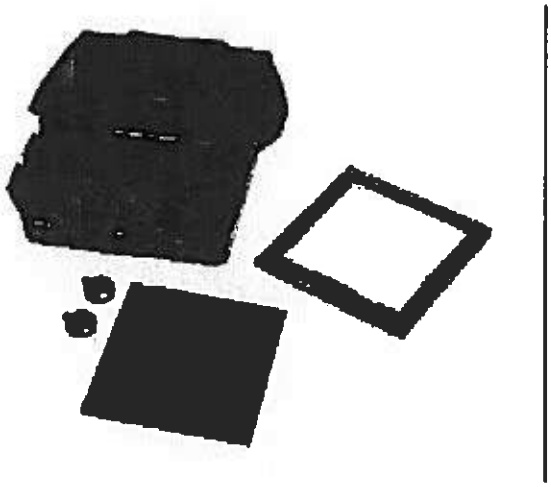
2-1

COMPONENTS

The cover holds the poly pre-cleaner and clamps the paper filter in place, creating a dirt tight seal. The cover also prevents large debris from entering the filter body.

The pre-cleaner is made of a polyurethane foam and designed to pre-filter the air prior to it passing through the paper filter. This added stage, assures the operator of maximum air filtering and extends paper filter life.

The paper filter element is the main filter to stop impurities from entering the engine. This dry-type element is pleated paper for increased surface area maximizing its life. The filter has rubberized edges to assure sealing. (Illust. 2-2)



2-2

TROUBLESHOOTING AND TESTING

If the engine's performance is unsatisfactory (runs unevenly, starts smoking abnormally or loses power), the first engine component(s) to be checked are the air filter(s). A dirt restricted or oil soaked filter will cause noticeable performance problems. Polyurethane pre-filter can be cleaned following the service procedure listed under "Service" in this chapter. A paper-type air filter can only be replaced NEVER attempt to clean a paper filter. The paper-type filter must not have any oil film or residue present. Should the paper have a brown tint it may have been damaged by an excessively oiled pre-filter or crankcase breather problems. Follow the procedure listed in the "Service" section of this chapter for filter replacement or cleaning.

SERVICE

Cleaning of the polyurethane pre-filter element is recommended every twenty-five (25) operating hours or (3) months, whichever comes first. Extremely dirty or dusty conditions may require daily cleanings.

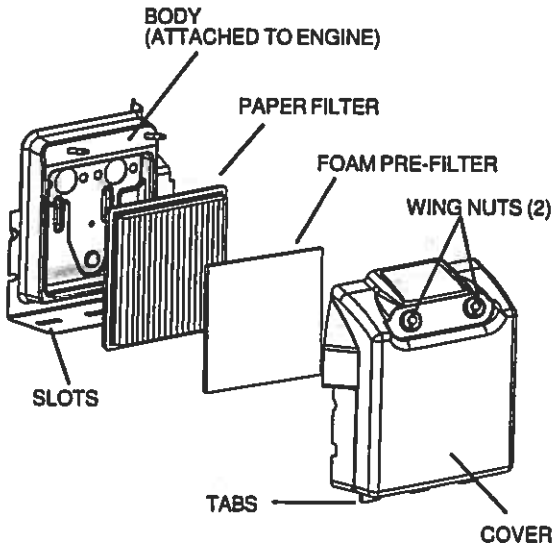
NOTE: Do not oil the pre-filter, paper element damage can occur.

The paper filter element should be replaced once a year or every 100 operating hours, more often if used in extremely dusty conditions.

NOTE: Never run the engine without the complete air cleaner assembly installed on the engine. Always replace the filter element with a Tecumseh original replacement part to maintain proper filtration, emissions compliance and long engine life.

Disassembly Procedure

1. Remove the wing nuts holding the air cleaner cover in place. Swing the cover out, then lift to remove. (Illust. 2-3)

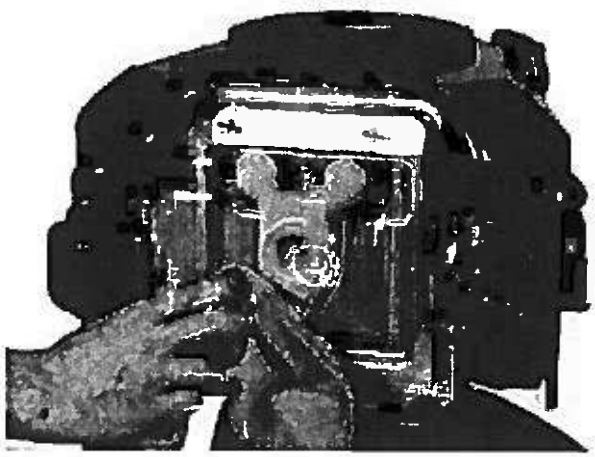


2-3

2. Remove the paper filter. Note: Paper filters must be replaced NEVER attempt to clean a paper filter

3. Remove the polyurethane pre-cleaner from the cover.

4. Wipe or wash out the air filter cover and base. (Illust 2-4)



2-4

5. Service the polyurethane pre-filter element by washing in liquid dish soap and warm water until clean. Squeeze out the excess water (Never Twist). Finish drying the element by squeezing it in a dry cloth or paper towel.

   NOTE: DO NOT OIL THE PRE-FILTER IT MUST BE INSTALLED DRY TO PREVENT SATURATION OF THE PAPER FILTER ELEMENT.

6 Install the pre-cleaner and new air filter in the cover. Replace the filter cover and tighten the wing nuts, be careful not to over-tighten it. Note: The air filter system on all models can be upgraded to include the pre-cleaner if the OEM did not originally request one