



Solid Waste

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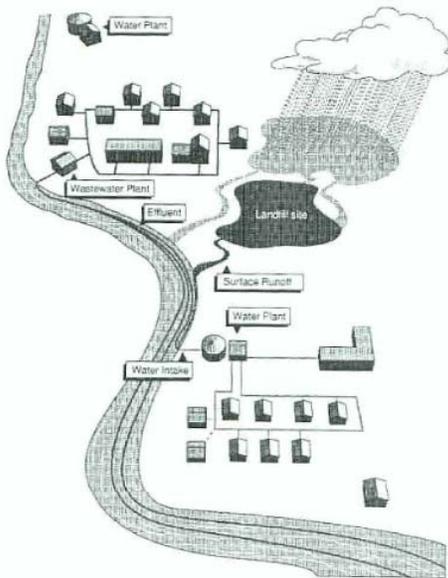
Who to ask: landfill operator, village store owner, village school principal, power plant operator. City or Tribal planner

53. How far is the landfill from the airport?



New or existing landfills should be located more than 10,000 ft. from the end of the runway if the airport is used by piston-type aircraft. Landfills should be located far enough from the airport or airstrip so birds and other animals (bears, fox, etc.) that typically feed there do not present a hazard to incoming and outgoing planes. There have been incidents of birds flying into the engine of a plane and causing the plane to crash. Landfill sites require a waiver from the FAA if located less than one mile from and airport.

54. How far is the landfill from the village?



Properly located landfills are far enough from housing and school areas so that they are not a safety hazard and sanitation problem or used as a play area by children. However, the landfill should not be so far from the village that people avoid using it or that it becomes too costly or time-intensive to maintain road or boardwalk access.

55. Is there anything located downstream or downwind from the landfill?
If so, what?

A poorly managed landfill that is too close to the village is a nuisance because of the odor produced by burning and rotting garbage. A landfill that is not properly managed also attracts flies. These same flies end up in your home and school and carry diseases with them. If dogs have easy and close access to the landfill, they will bring back diseases on their paws that will then be carried into the village and homes. A properly operated landfill that is located a safe distance from the village is less likely to be a source of disease in the community

56. Does the village have a written solid waste management plan or guidelines?

Yes No ?

If yes, is it being followed?

57. Does the village landfill have an operator?

Yes No ?

If yes, who?

How much is the operator paid and for how many hours each day?



Garbage pile in an uncontrolled site

Solid waste management plans (SWMP) can be a valuable tool for the village, and is different than a comprehensive community environmental plan as described in this manual. SWMP's educate people specifically about the village **solid waste** issues and solutions. It may also contain detailed landfill operation guidelines, which can be extremely helpful in the event of staff turnover.

Every landfill needs an operator. The main duties of the landfill operator include:

- monitoring what goes into the landfill.
- Controlling access to the landfill (i.e. locking the gate after hours)
- Burning of wastes in a burn box or incinerator.
- Making sure that hazardous materials do not go into the landfill.
- Compacting and covering the materials in the landfill.
- Storing hazardous materials, such as lead-acid batteries, prior to shipment.

An operator's pay should be high enough so that the position is competitive and it encourages the operator to stay with the job. The community needs to understand that disposal of solid waste is not a free service. Getting a good compensation for the work of operating the landfill not only gives incentive for the operator to do a good job and to stay with the job, but it also helps give the respect that the operator deserves.

58. Who owns the landfill and who maintains it?



Photo Courtesy Native Village of Tununak

Village landfills are typically owned by the village City or Tribal Governments. They are ultimately responsible for maintaining the landfill, but everyone in the village should be accountable.

Solid waste management needs to be sustainable. It is not free! Many villages have implemented a fee structure to help cover the costs of managing trash. People make the trash and should take some responsibility for its proper management. Each village will have to explore different options and choose what might work best for the village.

The Native Village of Igiugig chose to attach the trash fee to the monthly cable bills. This works for them. If people don't pay their bills, they lose their cable. Other communities have fees attached to other utilities such as monthly electric bills.

In an effort to better manage trash in the community, some Alaska villages have started trash collection services. Trash collection services help to reduce the amount of people visiting the landfill site, where exposure to potentially hazardous conditions can be encountered. It is also a great way for the trash collection operator to make sure that hazardous materials are not entering the landfill and that all trash is being disposed of in proper locations.

Trash collection options range from door-to-door service or providing several central locations with dumpsters or Tag-a-long trailers that get picked up by the collection operator once a day, week, etc.

59. Are residents charged a fee for solid waste services?

Yes No ?

If yes, how much?

60. Is there a trash collection service in the village?

Yes No ?

If yes, what gets collected and how often?



61. Is the landfill accessible all year round?

Yes No ?

If no, when is it accessible and what are the access hours?

62. Does the village landfill have a fence around it?

Yes No ?

If yes, is it in good condition?

Yes No ?



An uncontrolled landfill is an uncontrolled mess
Photo Courtesy Bill Stokes

A maintained road, trail, or boardwalk to the landfill site is needed to provide access year round and to prevent people from dumping outside of the landfill. The easier it is to dispose of garbage safely, the more likely residents will dispose of their garbage properly. If the access road to the landfill is not maintained and it is difficult to reach the landfill, people are more likely to get rid of their garbage inappropriately.

A landfill that is enclosed by a maintained fence helps to control access to the area. It is important that the fence is in good condition and has an entry way with a lock so that access can be controlled.

Benefits of a fenced landfill area

- Prevents people from dumping garbage in the landfill when there is no operator available to monitor what types of materials are being placed into the landfill.
- Reduces the amount of windblown litter.
- Helps to control animals from scavenging.
- Reduces the possibility of children playing in the garbage and picking up diseases and hurting themselves.

A landfill without any site control usually means that garbage is being dumped anywhere. One possible solution to a landfill that has no site control or fencing would be to strategically place 55- gallon drums along the front of the landfill to direct people where they should take their wastes. The best solution, however, is to educate people about the importance of properly disposing of their wastes.

63. Does the landfill have any heavy equipment to compact or cover the solid waste?

Yes No ?

If yes, what kind and does it work?



Bulldozer being used to consolidate, compact and cover waste at the landfill

Heavy equipment is required at the landfill to consolidate, compact and cover the waste with soil or other materials. The solid waste needs to be compacted and covered to improve the sanitation of the landfill. Compacting and covering will also increase the length of time that a landfill can accept waste.

The equipment used to compact or cover the material at the landfill should be maintained so that it stays in working order. If the equipment is damaged or out-of-order it isn't possible to compact and cover the waste properly.

Money should be set aside each year to cover the cost of preventative maintenance on equipment. There should also be someone in the village that is able to work on the heavy equipment and perform preventative maintenance.

In villages where it is not possible to compact or cover garbage in the landfill adequately, controlled burning of wastes may be an option to consider, but should only happen in a burn unit or burn box. Burning will reduce the volume of the waste and the amount of blowing litter. It will also reduce the number of flies and animals. If burning is used to manage waste, however, proper burning practices must be followed to reduce the amounts and types of pollutants created by burning wastes and physical danger to the person that's lighting it. Lighting the fire in the designated location should only be done by a designated person, preferably the landfill operator.

64. Is the trash being covered or buried?

Yes No ?

If yes, how often?

What is the material used to cover trash?



A landfill with covered wastes

Solid waste needs to be covered with soil to control disease, fires, odors, blowing litter, and to keep animals away. If you reduce the amount of exposed material in the landfill by covering it, animals will be less likely to be attracted to the area.

Because of permafrost and lack of soil, cover material is not available in certain areas of rural Alaska. Because of this it isn't always possible to adequately cover the waste in the landfill. Ideally, six inches of soil should be used to cover waste. Some communities use crushed glass, tarps, and other materials instead of soil to cover the garbage. The State of Alaska does encourage communities to use alternate methods to cover when traditional materials are not available to reduce the environmental footprint of the landfill and to help keep water from mixing with the waste.

Depending on the size of the landfill and the number of people served by it, cover material may need to be added daily, weekly, or monthly. Uncovered trash or sewage attracts flies that carry disease back to your home. There are alternatives to land filling and covering trash. Villages from across the state have turned super sacks, balers, burn units, incinerators, burn boxes, trench burners or burn cages. If you are interested in switching to an alternative method, it is very important to research each thoroughly to determine which would work best for your village. It's important to consider the amount of trash produced in the village, the initial cost, the cost to maintain and operate, and that it's compatible with existing equipment.

65. Is uncontrolled burning allowed at the landfill?

Yes No ?

If yes, how often?

Who lights the fire?

Controlling an open burn means that:

- *Someone is removing materials that are hazardous or non-combustible from the burn pile.*
- *The fire stays under control. There should be someone on duty to keep the fire controlled while waste is being burned.*
- *Only paper, cardboard, wood, and other clean burning materials are ignited.*

*Segregation of **tires** is important. They should be stored where they won't catch fire.*

Burning Tires:

- *Releases a "toxic soup" of black smoke and pollutants which are extremely unhealthy.*
- *Increases mercury, carbon monoxide, benzene, and dioxin emissions*



Tires accidentally catch fire in the landfill
Photo Courtesy Desirae Roehl

Uncontrolled open burning is burning a pile of garbage on the ground at the landfill. Uncontrolled burns are often seen as the solution to reducing the amount of garbage at the landfill. However, uncontrolled, open burning is not only ineffective but is a health and fire hazard. Fires have resulted from uncontrolled burning practices.

Burning garbage on the ground is a very ineffective because it usually doesn't significantly reduce the amount of garbage. Most of the energy used in burning the material is used to dry the material out rather than to reduce its volume. Unless the material you are burning is very dry and combustible, you end up with close to the same amount of garbage that you started with. This results in the garbage burning very slowly and producing smoke which is dangerous to breathe.

Burning material such as plastic is toxic and the black smoke produced is dangerous to breathe. Some hazardous materials can cause dangerous explosions if they are in a fire.

Smoke and odors from uncontrolled open burning can also bother and harm surrounding property owners and workers at the landfill, and interfere with the operation of the landfill.

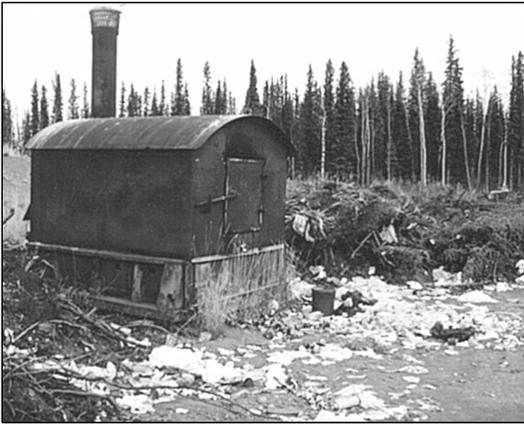
Many communities are solving the problem of uncontrolled open burning by building a burn box in their community to more safely and efficiently burn wastes.

66. Is there a burn unit at the landfill?

Yes No ?

If yes, was it purchased elsewhere
or built in the community?

Who operates it?



Burn boxes have been created from simple materials around the village such as scrap iron, old tanks, sheet metal and old truck beds (Dot Lake burn box)

Photo Courtesy Bill Stokes



Burn boxes can also be fabricated and shipped to your village
Photo Courtesy Tok Welding and Fabrication

A burn unit is a steel box with a door, grates, and an air vent that is used to burn paper, cardboard, and wood products more efficiently. It is very similar to a wood burning stove in its construction. Burn units, if built properly, are very efficient at burning waste because the materials get hot quickly and burn faster and more completely than a pile of garbage on the ground. If a burn unit is used correctly, it can reduce the volume of waste by about 80%.

Burn units differ from incinerators because they are less expensive to build and operate and do not require a permit. However, the air emitted from a burn unit is usually lower in quality than the air from an incinerator. Because they are a practical and inexpensive solution to managing solid waste, burn units are more commonly used than incinerators in rural Alaska. Burn units must be correctly sized for the community, and must also be covered to keep material dry until ready to burn. If not used correctly, a burn unit is no better than open burning on the ground. Some communities have built their own but there are a couple companies in Alaska that design and sell them.

If a burn box is used, it is important that residents are educated about how to separate items and why they need to be separated. Aerosol cans for example, are very explosive when they come into contact with fire and can put the burn box operator at risk.



67. Are there other burn units in the community (at the school or store)?

Yes No ?

If yes, how many?

Who operates them?

If there are several operating burn units in your community, the amount of waste going to the landfill will be greatly reduced, but can be more dangerous. The village school and store produce large amounts of waste that end up in the community landfill. If the cardboard and other paper wastes produced by the school and store are reused, recycled, or burned in a burn box, this will eliminate a large amount of material from going to the landfill.

The school, store and other places in the community produce large amounts of waste. This should be considered when developing a solid waste management plan for your community. One solution to consider is a written agreement for designated unloading sites or pick up services for their burnable waste. A burn box in the landfill run by trained personnel should be encouraged. Communities considering burn boxes should conduct some research and choose methods best suited for the needs of the community and health of the environment.

Medical wastes should not be disposed of in the landfill or burned. Infectious diseases can potentially be spread throughout the community if medical wastes are not disposed of properly. All medical wastes should be safely packaged and sent to the Regional Health Corporation or hospital for proper disposal. Check with the Environmental Health Specialist at your Regional Health Corporation for correct procedures for disposing of medical wastes in your region.

It is important that a designated person be responsible for the burn box so that it is properly maintained. Correct use of a burn box requires that someone is in charge of:

- *Removing plastic and hazardous materials before burning.*
- *Watching and controlling the burn.*
- *Removing the ashes from the burn box and putting them in the landfill.*

68. Where are health clinic medical wastes and/or veterinarian wastes disposed of?



69. Is windblown litter a problem in the community?

Yes No ?

If yes, how much?

Seventeen Chiefs from the Gwich'in Nation signed a resolution to ban Styrofoam and plastic bags from their communities. In addition, the resolution also states that the communities will establish fines for littering and polluting and that they will establish a battery collection site at each of their landfills.



The school children in Galena decorated canvas bags to distribute to each member of the community
Photo Courtesy Bill Stokes



Result before lids



Result after lids

Litter that has blown from the landfill or other locations into surrounding areas of the village is not just ugly but can be a fire hazard, attract animals that carry disease, and injure animals.

Windblown litter can be greatly reduced or eliminated if the landfill area is fenced and if the garbage at the landfill is burned and/or compacted and covered periodically. Windblown litter can also be reduced by decreasing the amount of plastic bags used in the village. You can encourage the store to switch to paper bags and provide reusable bags to residents. You can also help the community pass an ordinance to ban or tax plastic bags. Many villages have an annual clean-up day to help control the amount of windblown litter.

Many communities through-out Alaska and the world have banned or taxed plastic bags. Some stores offer a type of cash back to customers who bring in their own shopping bags. Every time a plastic bag is reused, the amount of plastic waste going into the environment is reduced by 50%!

If trash collection dumpsters are used in the village, try to find containers that are completely enclosed so trash doesn't blow out or get carried away by animals.



Plastic shopping bags have been recycled to create beautiful crocheted backpacks, bags, hair clips and other items
Photo Courtesy Suanne Unger

70. Does the school lunch program throw uncrushed tin cans into the landfill?

Yes No ?

71. Does the landfill have a lot of aluminum cans in it?

Yes No ?



Throwing aluminum into your landfill is the same as throwing away money
Photo Courtesy Bill Stokes



Aluminum Cans for recycling
Photo Courtesy Brian Connors

The school lunch program in the community goes through large numbers of tin cans that end up in the village landfill. These large uncrushed tin cans take up about one-fifth of the landfill volume in some cases. One solution to this problem is to ask the school to remove both ends of the cans so they can be easily crushed. Crushed cans take up less space in the landfill.

Another problem with uncrushed cans is that they collect water in the landfill. The water then passes through the garbage, like water passing through the filter on a coffee machine, and produces a liquid called **leachate** that enters into the soil. Leachate can potentially pollute your drinking water.

Find out how many cans of pop are purchased by the village store and then calculate how much money could be made off of aluminum cans in one year. Contact a recycling center to find out the current market rate for aluminum.

If there are a lot of aluminum cans in your landfill, set up a recycling program and encourage the entire community to participate. Giving some kind of incentive for recycling may increase your success at getting a recycling program to work.

For example, some village schools have used the money from recycling to fund trips for students.

*The ALPAR Flying Cans— (Alaskans for Litter Prevention and Recycling)
Rural communities throughout Alaska send their aluminum cans to Anchorage for recycling free of charge through the ALPAR program.*

72. Are aluminum cans being recycled?

Yes No ?

If yes, by whom?

There are several good reasons to recycle aluminum cans in your community:

- Aluminum cans are 100% recyclable and are worth money which can be used to expand or sustain your recycling efforts. 24 cans, equals about a pound of aluminum.
- Recycling aluminum can extend the life of the landfill. It is expensive to close and open landfills, reducing the volume of waste going into the landfill can save the village money in the long run.
- Aluminum cans take hundreds of years to break down in a landfill.

Did you know that it is much cheaper to collect and reuse aluminum than it is to mine for the aluminum? The energy saved by recycling one aluminum can alone is enough to keep a television running for 3 1/2 hours!

CHISTOCHINA VILLAGE

Chantelle Hobbs' tips for people interested in recycling:

- *Send out monthly flyers or newsletters with positive environmental messages and spread the good news about recycling.*
- *Let people know how the program is going. (For example, how many cans have been collected and how much money has been saved).*
- *Use the money earned from recycling to buy recycling bins or can crushers for people's homes.*
- *Collect used paint from community members and use it for projects such as painting signs and picnic tables with the kids.*
- *Put signs up around your community saying "We are a litter free community" or "Leave only foot-prints-trash goes in the trashcan"*
- *Take a nature walk with the kids and pick up trash along the way.*
- *Make a video with the kids to educate the community about the importance of recycling.*



Chistochina recycling center
Photo Courtesy Desirae Roehl

73. Does the landfill have cardboard or other paper wastes from the community store?

Yes No ?

If yes, about how much?



Cardboard and other paper wastes generated by the community store take up a large amount of space in the landfill. Sometimes, nearly half of the material in the landfill is cardboard or other paper wastes. A large portion of this paper waste comes from the community store.

Cardboard is a valuable resource and can be profitable to recycle; however, transporting cardboard from your community to a recycling center that accepts cardboard may be too expensive. If it is not cost effective for the village store to recycle the cardboard, it could be used for other purposes such as to make logs or to pack lead-acid batteries for shipment. If it is not possible to recycle or reuse most of the cardboard and other paper wastes in your community, the alternative is to burn them. These solutions will significantly reduce the amount of waste in the landfill. The community should work together with the community store to find solutions that will prevent cardboard and other paper wastes from being unnecessarily dumped in the landfill.

Cardboard is also a valuable resource for composting.



KOTZEBUE, ALASKA

Several large businesses and organizations in town collect scrap office paper instead of throwing it away in the trash. Every few weeks, this paper is delivered to local daycares, children's homes, and the local tribal schools to be reused. The kids love it, it cuts down on paper going into the landfill, and reduces the cost for new paper that the facilities would otherwise need to buy.

74. Is there a “No Dumping of Hazardous Materials” warning sign at the landfill?

Yes No ?



An old, cracked lead-acid battery found in a landfill
Photo Courtesy Bill Stokes

75. During the inspection of the landfill, were paint cans, used oil containers, lead-acid batteries, or other hazardous materials observed?

Yes No ?

If yes, what and how much?

Hazardous wastes pollute water, soil, and air if improperly disposed of or used incorrectly. Before disposal, these materials should be used up for their intended purpose. Hazardous materials should be separated from other garbage and should not be placed in the landfill. There should be a warning sign posted at the entry to the landfill that clearly tells the users that disposal of hazardous wastes in the landfill is not allowed. A poster showing drawings of common materials that don't belong in a landfill can be a useful tool in preventing hazardous waste disposal at your landfill. Hazardous materials may chemically react to cause fires, explosions and poisonous gas that creates a hazard to landfill operators and the surrounding community. Hazardous substances can also seep into the ground and pollute the drinking water.

Some examples of hazardous waste materials include:

- Antifreeze
- Diesel fuel
- Kerosene
- Batteries
- Disinfectants
- Motor oil
- Bleach
- Gasoline
- Oil-based paints
- Brake fluid
- Insecticides
- Paint thinner
- Common household cleaners
- Solvents
- Lead-acid batteries
- Fluorescent lights



KAKE, ALASKA

In the Village of Kake, the environmental focus group identified a problem with handling of hazardous waste. Kay Larson said: "It all started with monthly "listening sessions" where we shared observations about conditions in our local environment. Our plan for management of hazardous materials began with awareness of a need, and commitment from the group to find solutions that work. Our goal was simply to make sure that household toxics and other dangerous substances did not enter the waste stream. Our plan was to create alternative methods of collection and disposal."

With input from the Focus Group and support from the City Council, an Indian Health Service grant was developed for the City of Kake to build a household hazardous waste shed. A design for the structure was drafted, research was done on materials, bids were sent out and supplies were ordered (over 100 hours of volunteer time). Due to growing interest in the community, donations were made to pour the cement for the foundation and the cost to ship materials. When work began, students in a Construction Technology class were invited to the site to learn about elements of construction and help with the actual labor. Later, science students and others will be asked to help promote a communitywide education program to encourage full participation in the project. Collection, storage, and shipment will require HAZMAT training and city council involvement.

"Creating positive change to protect our environment is like making "little cuts" to a diamond each day ... How many "jewelers" and how many "cuts" does it take for the environment to sparkle and shine?"

Kay Larson

People need to have a place to put their unused hazardous materials when they no longer need them. Bulletin boards are used in some communities for people to advertise unused hazardous materials they are willing to give away or sell. Material exchange programs or household hazardous waste re-use centers can be set up in the community so that hazardous materials have a greater chance of being used up rather than being disposed of improperly. By setting up a re-use or exchange program, people can bring any used materials to a central place where other people have access to them.

If a central location is used to store certain hazardous materials, it's important that materials that are dangerous when mixed together are not stored together. This can turn the areas into a dangerous dumping ground. It is important that the area is well managed. Personnel should be HAZWOPER certified and materials should be clearly marked and stored properly. Proper handling is crucial, as some materials can become very dangerous, even deadly, if mixed.



Photo Courtesy Desirae Roehl

76. Is there a specific place to put lead-acid batteries at the landfill?

Yes No ?

If yes, where and how are the batteries contained?



Photo Courtesy Sandy Murley



Photo Courtesy Bill Stokes

Disposing of batteries from cars, 4-wheelers, snow machines and boats in a landfill or around the community can be dangerous. They contain sulfuric acid and lead, which can hurt people and wildlife directly or indirectly by contaminating water and soil. Lead contamination alone can cause everything from a headache to central nervous system damage in small children, leading to severe learning disabilities. Sulfuric acid can cause severe burns if it contacts your skin or blindness if it gets in your eyes. The acid can also eat holes in your clothing if it splashes or leaks on you so it's not a bad idea to wear protective gear such as Tyvek suits, rubber gloves and safety goggles when handling old batteries.

Ideally, used batteries should be stored in a dry place in the community, like a shed, connex van or covered fish tote. Community members and visitors need to be educated about the location which should be easily accessible. Cardboard should be placed between the layers of batteries. If batteries are exposed to sun, rain and cold temperatures, they may crack, exposing the lead and sulfuric acid inside to the environment.

If the batteries are kept in a covered fish tote, the acid won't leak out onto the ground even if the batteries crack. When a fish tote is used to store batteries, it should be permanently labeled "used lead-acid batteries" so that it will not be used again for holding fish or for other purposes.

77. Where are lead-acid batteries being stored for backhaul in the community and who manages them?

It is illegal to dispose of lead-acid batteries in landfills in Alaska because they are hazardous and can potentially pollute the environment. Lead-acid batteries should be collected and sent to recycling centers where the contents can be safely handled and recycled. Both the lead and sulfuric acid found in batteries can be recycled and used again. Even the plastic casing can be recycled. A single lead-acid battery, such as a car battery, contains 11 pounds of sulfuric acid, 18–20 pounds of lead and three pounds of plastic. Battery recyclers value used lead-acid batteries as an important source of lead for new batteries. Getting these hazardous materials out of the community assures that they will not be a potential risk. It is important to remember that it is much less expensive to manage batteries properly than it is to clean up batteries that are disposed of improperly.



Joe Nevak teaches students in Emmonak about the parts of a car battery
Photo Courtesy Bill Stokes



Preparing lead-acid batteries for backhaul from Kipnuk
Photo Courtesy Doug Huntman

KOTZEBUE, ALASKA
In Kotzebue, an agreement was made between Maniilaq Corporation (non-profit) and the local Native Corporation in order to establish a battery collection program in Kotzebue. KIC (Native Corporation) now accepts both auto and boat batteries through its local NAPA store to be recycled. All residents in Kotzebue are allowed to use this program.

**The Yukon River Inter-tribal Watershed Council developed a Backhaul How-to Manual that can be viewed at the following link:
http://www.yritwc.org/Portals/0/PDFs/2008_backhaul_manual.pdf**

78. Is there a place at the landfill or in the community for residents to put used oil?

Yes No ?

If yes, where?

The release of only one gallon of used oil (a typical oil change) can make a million gallons of fresh water undrinkable. This is enough water to satisfy 50 people in a year.



Recycling center where used oil is collected
Photo Courtesy Bill Stokes

Used oil produced by generators, snowmachines, outboards, cars and other machines is considered a hazardous waste if it is disposed of improperly. It is hazardous because it contains polycyclic aromatic hydrocarbons (PAHs), toxic metals and other contaminants. Used oil should be collected at a central location in a container labeled “used oil” for later Recycling. If there is no collection point for used oil in the community, then there are probably many areas throughout the community where used oil is either being stored or disposed of improperly.

Improper storage or disposal of used oil can pollute land and water. When used oil is dumped on the ground, it can reach the groundwater and surface water through rain and snowmelt. Used oil doesn’t evaporate or go away. It lasts for a long time in the environment. Because of this, it has great potential to pollute the drinking water source.

Providing a place in your community for residents to bring their used oil can help prevent the problem of improper storage and disposal of used oil. A **used oil collection center** can be established for this purpose. The collection center is a place where residents can drop off their used oil in a drum or tank. A used oil collection center must be registered or recognized as such by the local government as a place to manage used oil.

Properly managing a used oil collection center requires the following responsibilities:



- Displaying a sign showing that used oil is collected there.
- Providing a container for the used oil that is easily accessible to the public.
- Making regular visits to the collection site.
- Making arrangements with the hauler to recycle the used oil if it is not burned on site to heat a building.
- Preventing people from dumping oil that is mixed with other materials such as paint, gasoline, and antifreeze.
- Preventing fire hazards.
- Being prepared to control and respond to a fuel spill. Containment in areas where oil is handled is needed to prevent ground contamination.

Once a collection point is made for used oil, it is important that community members are aware of its location. You may need to advertise the collection center over the radio, in the newspaper, on posters, brochures, flyers, or during meetings. You can use this opportunity also to educate the community on the importance of recycling used oil.

Oil that makes its way into waterways such as oceans, rivers and creeks can harm or kill wildlife. For example;

- *Birds that get oil on their feathers can die from hypothermia or consume the oil when cleaning (preening) their feathers resulting in death or reproductive failure.*
- *Oil slicks can kill spawning herring, their eggs and their larvae.*

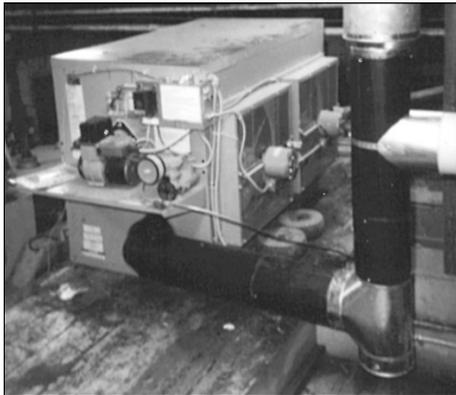


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| <p>Why should you recycle your used oil?</p> <p>Used oil is insoluble and can contain toxic chemicals and heavy metals. It is slow to degrade and sticks to everything from beaches to boats. It can pollute drinking water sources and harm humans, wildlife and aquatic life. The improper disposal of used motor oil from a single oil change can contaminate a million gallons of fresh water.</p> <p>That's a years supply for 30 people!</p> <p>Used oil is a natural resource and can be reused. Recycling it saves resources, money, energy and the environment.</p> <p>The Improper Disposal of Used Oil is Illegal!</p> <p>City of King Cove Ordinance 04-22 makes the disposal of used oil or oil saturated materials in any location other than those designated for that purpose illegal. Persons caught illegally dumping used oil may be liable for a <u>minimum</u> fine of \$50.00 and may be responsible for the clean-up costs.</p>  <p><small>Printed on 100% Recycled Paper with Soy Inks</small></p> | <p><small>This Message brought to you by The Adirondack Tribes of King Cove Environmental Department & The City of King Cove King Cove, AK 99812</small></p>  <p>It's illegal to dump used oil in the dump, on the ground or in the water. Protect our future... RECYCLE your used oil today!</p> <p><small>This poster was created under license from the Adirondack Tribes.</small></p> | <p>HELP SAFEGUARD YOUR ENVIRONMENT..</p> <p>The right way to collect & dispose of</p> <p>USED OIL</p> <p>In King Cove</p>  <p>You CAN make a difference</p> |
| <p>CAN YOU RECYCLE USED OIL IN KING COVE?</p> <p>The answer is yes!</p> <p>HOW DO YOU RECYCLE YOUR USED OIL?</p> <p>After you drain your oil from your car or boat, use a funnel and carefully pour it into a clean, leakproof container with a secure lid. Never use containers that once held household chemicals, food or beverages. If you are temporarily storing the oil, make sure it is labeled "Used Oil" and keep it in a safe place out of the reach of children and animals until you drop it off.</p> | <p>NEVER MIX USED OIL</p>  <p>You should never mix your used oil with anything else. This includes gasoline, cleaners, paint, solvents and antifreeze. You should also place your old oil filters separately and recycle them when you drop off your oil. The used oil drop-off centers have separate containers for your old filters.</p> <p>WHAT HAPPENS TO YOUR OIL ONCE IT IS RECYCLED?</p> <p>Once you drop off your oil, it is transported to the city shop and burned in a used oil furnace to heat the building.</p> | <p>WHERE DO YOU TAKE YOUR USED OIL WHEN YOU ARE READY TO DISPOSE OF IT?</p> <p>When you are ready to dispose of your used oil, you can take it to the harbor house or city shop. It will need to be inspected before it goes into the brand new oil storage tanks shown below. It is very important that you don't just leave the oil next to the tanks. Please find someone that works in those departments to unlock the tanks for you.</p>  <p><small>*Peter Pan also accepts used oil.</small></p> <p><small>For more information on disposing used oil Please contact one of the following: Adirondack Tribes EP Dept. (907) 497-2448 The King Cove Harbor Dept. (907) 497-2237 The King Cove City Shop (907) 497-2298</small></p> |

79. Is used oil being recycled?

Yes No ?

If yes, where?



Used oil burners can be used to heat buildings



SmartAsh burners have been increasingly popular in rural Alaska. They are great for disposing of oil filters and other oily materials such as rags and absorbent pads.

Keep in mind that it is **ILLEGAL** to burn actual oil. It is not only a violation of RCRA laws, it is extremely dangerous.

Burning used oil to produce heat is the most common way to recycle used oil. The used oil that is collected in your community can be used to operate a used oil burner. Used oil burners convert used oil to heat for buildings. If your community does not have a used oil burner or does not produce enough used oil to make it beneficial to purchase one, find out if a neighboring community has one. Other communities that have used oil collection centers with used oil burners may be willing to accept your used oil, giving you an alternative to purchasing your own burner. For example, the Village of St. Michael has transported their used oil to the Village of Stebbins to burn in their used oil burner.

Keeping large amounts of collected used oil in your community can be a potential hazard. If your community does not have the ability to reuse used oil, the collected used oil should be transported by barge or other means to a location where it can be recycled. Used oil should not be transported in quantities greater than 55-gallons without approval from the Environmental Protection Agency. Waste oil to energy converter (WOTEC) systems are perhaps more appropriately called used oil/diesel fuel blenders. They essentially clean used oil and used diesel (with filters) and then blend the oil/diesel with new fuel. The result is totally cleaned, precisely blended, water-free fuel that can be used in a diesel engine, furnace, or other such fueled device (see http://www.ccthita-swan.org/pdf/WOTEC_print.pdf).

80. Is the local power plant operator correctly disposing of the used oil produced by the electrical generators?

Yes No ?

If no, what is happening to it?

The electrical generator is the largest producer of used oil in your community. The used oil produced by the generator should be either burned in a used oil burner on site or transported out of the village to a location where used oil can be recycled or burned.

All used oil generators, from electrical utilities to individuals, are responsible for managing their used oil through recycling or shipping it out. Utilities can sometimes assist communities in addressing used oil issues. Consider contacting your local utility for potential collaboration.



Drums of used oil at an old generator site
Photo Courtesy Bill Stokes



Keeping large amounts of collected used oil in your community can be a potential hazard
Photo Courtesy Bill Stokes

81. Is the community aware of the importance of preventing fuel oil spills at home?

Yes No ?

If so, what type of education is provided?

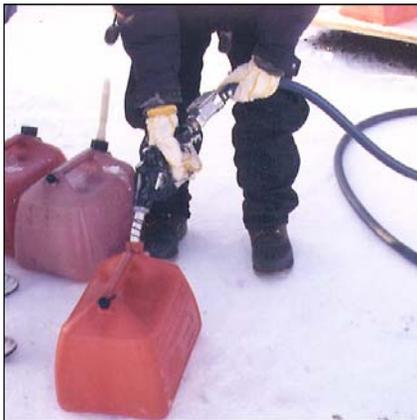


Photo Courtesy Bill Stokes



Fuel spilled by individuals nationwide every year amounts to several times the amount of oil spilled during the *Exxon Valdez* oil spill in 1989. Even drops of fuel begin to add up over time. In the case of oil, one drop/second adds up to 410 gallons in a year!

Precautions should be taken when changing the oil in a snowmachine, ATV, boat, or any other motorized vehicle so that no oil spills onto the ground. The oil that spills on the ground does not disappear. It eventually ends up in the groundwater or surface water and can contaminate the subsistence foods that your community relies on. If people in the community are not aware of the importance of preventing fuel spills, it is important to educate them on why fuel spills are harmful to the community and the environment. Determine if oil absorbent pads are readily available.

Make sure your community has a designated place for oil changes. This would provide a centralized location for collecting and ensuring used oil is not mixed with other contaminants so it can be used in a waste oil burning unit.

Did you know that when you change oil in your ATV or vehicle, the plastic container that you throw away has 1-2 ounces of oil in it?

Approximately eleven Exxon Valdez tankers are thrown into local dumps in the United States every year!

82. Do the village “gas stations” have something to put gas cans on while they are being filled?

Yes No ?



Fuel spills can be prevented
Photo Courtesy Bill Stokes



Photo Courtesy Scott Lytle

Many fuel spills happen when people are filling up jerry cans or gas cans and do not use anything to collect fuel that spills in the process. This can be avoided by having a steel drum to place the gas can in when filling it up with gas. Any fuel that spills will then be collected in the drum instead of going into the ground or water. Fuel that goes into the ground may reach the groundwater or surface water where you get drinking water.

Many people in rural villages store “Jerry Jugs” in small spaces in/or attached to their homes, not realizing the potential risks.

- Benzene exposure (causes cancer)
- Volatile organic chemicals (VOCs) and toxic air pollutants released into indoor air environment.

It is very important that gas cans be stored in a well ventilated area away from your home.

Some people may use gasoline as a hand cleaning agent for tough grease and oil based paint. The gasoline quickly absorbs into the skin and directly into the bloodstream. This is not safe and can increase the risk of cancer.

83. Is there a community salvage area at the landfill or other location in the community?

Yes No ?

If so, where?



Photo Courtesy Bill Stokes

A **salvage area** is a designated area where people can get rid of items that can be used by others rather than throwing them in the landfill. It is for items that still have some value. A salvage area can be a shed, small building or another area. The salvage area should be separate from the landfill and should not create a health or safety hazard. People pick through items such as cars, trucks, refrigerators, etc., for parts. It is important that someone monitors the area and cleans out items that are no longer usable. Inventory should be kept fresh.

If your community doesn't have a building for a salvage area, you could have a monthly salvage day where people meet at the community hall to exchange or give away old items.

Clothing, furniture, equipment and paint are examples of valuable items that can be reused. Second hand shops are a good alternative to throwing these items in the landfill.



King Cove Co-op second hand store
Photo Courtesy Desirae Roehl

84. Is there water in the landfill most of the time or is the landfill in a tundra pond?

Yes No ?



If your landfill has water in it most of the time, it could
Potentially pollute the drinking water in your
community

Photo Courtesy Bill Stokes

If your landfill has water in it most of the time, it could pollute the drinking water in your community. For example, when it rains, water falls on the garbage in the landfill. The water then passes through the garbage- like water passing through the filter on a coffee machine- and produces a liquid called leachate. The leachate keeps moving down through the soil until it reaches the groundwater. From there, the leachate can reach a well, spring, creek, or river. When hazardous materials are placed in the landfill, the leachate becomes toxic. This may result in unsafe drinking water, the spread of disease, and may harm wildlife.

Landfills that have water in them most of the time can be a problem because access becomes more difficult and garbage is less convenient to dump. Also, the area of the landfill gets spread out further when there is excess water.

If your landfill contains water most of the time, actions should be taken to minimize the amount of water that settles in the area. One way to control this problem is to continuously place soil cover on the dump and to design a system that allows rainwater and snowmelt to better run-off.

85. Is the landfill producing leachate or runoff that stains the ground downstream from the landfill?

Yes No ?

If so, is it tested?

Yes No ?

Sometimes there are stains or colored liquids that may be found in the soil in and/or around the landfill. This liquid is called leachate and is produced when rain or melted snow passes through the wastes in the landfill. Leachate transports a variety of chemicals into the soil and eventually into the groundwater. Since leachate often contains toxic chemicals, leachate that gets into the groundwater or surface water becomes a potential threat to the environment and to public health.



Leachate flowing from a landfill
Photo Courtesy Bill Stokes

The amount of leachate produced by a landfill is related to the amount of rainfall and snowmelt in and/or around the landfill. In landfills with high amounts of rain and/or snow, the amount of leachate is generally greater. If your landfill is producing a lot of leachate, there is a good chance contaminants are leaving your landfill. This problem can be reduced by designing a system to drain water and snowmelt from the landfill so the water does not have time to pool up and pass through the garbage. Leachate can be reduced from closed landfills by covering the area with a 2 foot soil layer and planting vegetation on the surface.

86. Do animals eat garbage at the landfill or transfer station?

Yes No ?

If so, what kind of animals?



Photo Courtesy AnnDee Roehl



Dogs that frequent the landfill can bring back diseases to homes
Photo Courtesy Bill Stokes



Animals are problems at many open garbage landfills. Examples of animals that frequent the landfill and cause problems include:

Bears. Bears are attracted to landfills and can be aggressive and dangerous.

Foxes. Foxes that eat from the dump can carry rabies. Dogs that come into contact with the foxes can become infected.

Dogs. Dogs that visit the landfill can bring back diseases to homes.

Birds. Birds feeding in landfills that are located near airports may collide with airplanes causing them to crash. Birds also can transport diseases back to the village and contaminate subsistence foods.

Rodents & flies. Rodents and flies transport diseases. Rats are an illegal, invasive species that should be reported.

Animals should be discouraged from foraging in your landfill because of all of the problems they bring. If the landfill is covered with soil periodically and wastes are burned, the number of animals attracted to the landfill will be reduced.

87. Are there other landfills (including old ones) in and/or around the village?

Yes No ?

If yes, who operates them and where are they?



Top: Before clean-up
Bottom: After clean-up
Photos Courtesy ANTHC

In 2009, the Native Village of Port Graham received a grant from the Alaska Native Tribal Health Consortium to clean-up an old drainage ditch dumpsite in their village that had been there for many year. During a prior assessment of the site, it was determined that the dumpsite many cause human and environmental health hazards and should be a community priority for clean-up.

It is important to know where all the active and old landfills are located in the village and what types of materials are contained in them. Some landfills may contain hazardous materials that must be removed to protect the environment. The location of old landfills is important information to have available for future land developments. Permanent markers should be placed at the boundaries of the landfills to help future property owners when locating buildings or facilities near the site.

Closed landfills must be covered with vegetation to prevent erosion caused by rain. Without vegetation, the final soil cover may get washed away, exposing wastes that could be a health hazard, nuisance or be carried into surface waters.

A Class III municipal solid waste landfill is small, rural and remote. On average, less than five tons is disposed of daily. Obtaining a permit for your landfill is one of the best ways to improve the sanitation and safety of your landfill.

The steps required to obtain a Class III permit involve a series of questions to make you aware of what it takes to design and operate a safe landfill. For example, one of the requirements for holding a Class III permit is to develop an operating plan for the landfill. The operating plan includes information such as how to handle hazardous wastes and dispose of them properly. It is useful to go through the application for a Class III Landfill Permit if only to see what is required to design and safely operate a landfill.

88. Does the village have an annual clean-up program?

Yes No ?

If yes, are recyclables separated from other trash?

Yes No ?



Litter Clean-up in Klukwan
Photo Courtesy Dan Lung

Many villages have clean-up programs where the community gathers annually or more often and cleans up the village. Village clean-ups are one positive way to involve the entire community in improving the environmental health conditions and the beauty of the village. A village clean-up can also be a useful time to educate the community on the importance of keeping the village litter-free year-round.

During a village clean-up, it is very important to identify recyclable materials such as aluminum and batteries and separate them from the other trash so that they can be recycled. Hazardous materials, such as batteries and old drums of material, should be identified and tagged until someone is able to remove them with the proper clothing and equipment. A village clean-up is also an excellent opportunity to provide training in solid waste management for members of the community.

NATIVE VILLAGE OF VENETIE

Pamela Sam, the Environmental Technician for Venetie, coordinated a Recycling Workshop for a clean-up project at the dump: "First of all, I planned the workshop with my Administrator and talked with the Council Members about having the workshop. Then, I posted notices saying when, where, and the time. The local councils donated refreshments for the workshop. During the first days of the workshop, there weren't many people, but as we went on a lot of people and students started attending. I began the presentation with recycling, and throughout the week I presented more on hazardous materials, littering, the dumpsite, and oil and gas spills in and around the community. The workshop lasted a week and when we were done, the students and other community members were pleased with the issues we covered and realized how important these issues are to ourselves and to the environment."

Sample format of a Solid Waste Management Plan

The following sample format of a Solid Waste Management Plan includes different components a Tribe may use. There is no requirement that this particular format be used.

I. Introduction and Description

- A. Geography, History and community information - Briefly describe location of the community, access to the community, history of the community, current number of residents, current number of homes, etc.
- B. Purpose, Goals and Vision Statement - Describe the purpose and goals of the Solid Waste Management Plan.
- C. Community Surveys – Were community surveys done? What were the top concerns and suggestions from the surveys?
- D. Council and Committee involvement – Describe meetings held to discuss solid waste management issues and if there is a set schedule.
- E. Education and Outreach – Briefly describe any community education and outreach related to solid waste.

II. Solid Waste Disposal Site Information

- A. Description and Conditions and planned changes – Describe the current solid waste disposal site, the condition it is in and the planned changes if there are any.

III. Current Solid Waste Management Program

- A. Waste Collection Program – Describe any waste collection program. List homes and business fees and frequency of services if there are any.
- B. Site Operation and Maintenance – First describe how the site is organized and how you keep it organized – any cleaning, checklists etc. Second create a table that summarizes the site operation and maintenance including operation types, cover material, how often cover material is used, heavy equipment available, and estimated repair costs to heavy equipment. Third describe the burning practices and if there are any planned changes.

IV. How much waste is generated?

- A. Find out how much and what types of waste is generated – Find out the average rate of generated waste per person per day by doing a waste audit.
- B. Stockpiled Waste – Create a table that estimates how much wastes you have stockpiled for backhaul such as lead-acid batteries, vehicles, refrigerators, freezers, washers, dryers, drums and stoves, etc. Include how many of each are stockpiled and the average weight.

V. Reducing, Reusing and Recycling Program

- A. Program Description – Describe your current reducing, reusing and recycling efforts. Include how much money is raised and what it is spent on.
- B. Storage information – For each waste recycled describe how it is collected and separated, why it is recycled, where it is stored, how it is shipped out, who takes it and where it goes.
- C. Future Plans - describe what your needs are for the recycling program and where you would like to see the recycling program in a few years.

VI. Hazardous Wastes

- A. Program Description – Describe your efforts to reduce hazardous waste and how you keep them out of the landfill. Describe any collection and storage of hazardous waste and any educational efforts.
- B. Waste Information – For each hazardous waste generated in your community such as medical wastes, lead-acid batteries, waste oil, computers, paints, etc create a table that describes how it is currently disposed of and why it is harmful. Include information on who generates the waste and amounts that are generated.

VII. Closed Waste Disposal Sites

- A. Closed Site Information – If you have any old waste disposal site that you are concerned about describe it here.

VIII. Financial Planning and Solid Waste Practices

- A. Expense Budgets - List your community's current outgoing annual costs for operating and maintaining the waste disposal site, garbage collection services and operating and maintaining the equipment. List your community's planned outgoing annual costs for operating and maintaining the waste disposal site, garbage collection services and operating and maintaining the equipment.
- B. Income Budgets - List your community's current income for the solid waste program. Don't forget to include collection fees. List your planned income for the solid waste program, don't forget to include any increase in collection fees.

IX. Solid Waste Improvement Priorities

- A. Community Plans – Describe the activities you plan to take. You can make a table for the action items that include the activity, what you want to do, how it reduces health and environmental risks and if it is low cost and a priority ranking.
- B. Needs – Describe the items you will need to carry through with your action items. Include what they would be used for, why it is important to have them, approximate costs and ideas on how to purchase what you need.