

**TOP TEN WAYS TO REDUCE ENVIRONMENTAL & HEALTH RISKS
RELATED TO SOLID WASTE DISPOSAL**

1. **COMMUNITY EDUCATION.** Changes people's risky behavior like scavenging, burning plastics, dumping batteries, and dumping honeybucket wastes at dump or solid waste in honeybucket lagoon or pond.
2. **WASTE & HONEYBUCKET COLLECTION PROGRAM.** Keeps people out of landfill, prevents uncontrolled burning, prevents random dumping of batteries, helps with waste consolidation, encourages waste separation, stops honeybuckets from being dumped at landfill, and reduces likelihood of garbage being dumped in honeybucket lagoon or pond.
3. **BETTER ACCESS.** Reduces tundra degradation, promotes waste consolidation and use of waste area separation area, and reduces peoples contact with waste.
4. **SEPARATE WASTE AREA.** Stops scavenging, promotes waste reuse and volume reduction, and stores waste for future recycling.
5. **BURN BOX or INCINERATOR.** Reduces presences of insects and animals that carry diseases, reduces volume, reduces potential for contracting diseases from solid waste, reduces bear attraction, and stops uncontrolled fires. *Be sure to burn wastes on in well-designed and maintained burn box and downwind of community.*
6. **FREQUENT COVERING OF WASTE.** Reduces potential contact with disease organisms, reduces waste volume, reduces presence of disease-carrying insects and animals and reduces attractiveness and access to waste by bears and other animals. *Cover materials can include dirt, compost, tarps, wood chips, rock, shredded or weighted plastic, crushed glass, sand or other materials that adequately keep weather, people and animals out of the waste.*
7. **STOP SMOKE INHALATION.** Reduces respiratory symptoms and reduces potential for respiratory diseases. Switch to good, maintained burn box or incinerator. Burn wastes only downwind from homes, prevent people from entering dump or landfill during burn days and ban home barrel burning of non-paper and food wastes.
8. **BATTERY RECYCLING.** Greatly reduces toxicity of leachate, stops risk of acid burns to people, especially children, visiting or scavenging in the dump or landfill.
9. **KNOW YOUR RISKS.** Safeguards community health, prevents subsistence areas from being contaminated or impacted, and helps protect the environment. *Test nearby water sources that are used without treatment (traditional sources and community well) for heavy metals, E. coli or fecal coliform. Testing should be done after flooding or big rains to determine maximum risk of contamination and during other times for minimum risk of contamination.*
10. **BAN or SEPARATE PLASTICS.** Reduces smoke toxicity and reduces windblown waste and litter. Ban plastic items such as shopping bags and Styrofoam cups and plates.

Source: Tlingit Haida Report on Open Dump Closure. Zender Engineering, 2002.

APPENDIX 5: OPEN DUMP AND LANDFILL ISSUES

FACTORS IN PLANNING FOR AN OPEN DUMP CLOSURE & NEW SANITARY LANDFILL

*What does your community need to consider when it plans for an
Open dump closure project or new waste disposal facility?*

FACTOR TO CONSIDER	SPECIFIC CONCERN	EXAMPLE OF CONCERN
Sustainability Can you sustain the closure plan financially and logistically?	Operation of new landfill	Is there adequate funding and staff to support a collection program & operation of new landfill?
	Maintenance of closed site and/or new landfill	Is there staff and funds to do post-closure care of old dump site & maintenance of new landfill site?
	Future logistics	Is there enough land available at new landfill site for accumulation of wastes?
“Double duty” Can you save by sharing between projects and activities?	Storage area at landfill used for something else	Can the storage area be used for storage of other goods and equipment?
	Other equipment used for dump closure and landfill maintenance	Is there heavy equipment and vehicles in the community that can be used for dump closure project & maintenance/operation of new landfill?
	Pooled funding	Can solid waste planning funding be used for community planning or leveraging of other funding to do dump closure or build new landfill?
Rules Are there regulations that affect your closure or construction of a new landfill?	Airstrip	Need to site new facility over 5,000 ft. away. May need to upgrade site closure if site is closer than 5,000 ft.
	Air quality	Will burning waste meet air quality rules?
	Water quality	Will closing in-place or new landfill produce leachate that does not meet environmental regulations?
	Logistics for transporting waste	Do transportation carriers have rules on carrying wastes?
Land Use	Land has planned use already	Is the proposed landfill site needed for another use such as a sewage lagoon?
	Land use affects other activities	Will locating landfill in near a pond used as a traditional water source affect water quality?
Development Barriers	Choice of open dump closure and disposal methods may affect future development	Is housing going up near closed open dumpsite or new landfill site? Is the new landfill site needed for future community expansion?
	Development restrictions for land over closed site	Is your open dump is closed in place, will your community be able to use the land the way you want in 15 or 20 years?
	Jet aircraft restrictions	Is landfill more than 10,000 ft. from airstrip?
Health and Environmental	Chosen options affect health goals	If you burn or use a burn box, (i.e., not an incinerator), will smoke affect community members? Are traditional water sources safe?
	Chosen options affect environmental concerns	Will tundra disturbance from new landfill be acceptable? Will landfill location affect fisheries/tundra/wetland areas?
Subsistence	Chosen options impact subsistence activities	Is landfill uphill or upstream stream from fish camps or in hunting areas? Are potential sites away from nesting and berry picking areas?
	Appeal	Will appearance of closed open dumpsite be acceptable to tourists? Is new landfill out-of-sight and odor-free?
Tourism	Logistics	Will new landfill be able to support waste generated by tourists and tourist activities?
	Appeal	Will closed dumpsite be acceptable to look at? Is new landfill out-of-sight and odor-free?

Source: *Tlingit Haida Open Dump Closure Report*, Zender Engineering, 2002

APPENDIX 5: OPEN DUMP AND LANDFILL ISSUES

Comparison of Site Closure Methods for Open Dumps*
Which method is best for your community based?

FACTOR	OPEN DUMP CLOSURE METHOD	
	COVER WASTES & LEAVE IN-PLACE	REMOVE WASTES FROM SITE
Protection from future contamination	<i>Not as good.</i> Any hazardous wastes are left in-place and may contaminate water and/or soil.	<i>Best.</i> Source of contamination is removed.
Post-closure care and monitoring	<i>Not as good.</i> ADEC requires future site care and may require water testing.	<i>Best.</i> Likely will not be needed.
Ecological disturbance during closure	<i>Probably worse.</i> If soil is collected locally, there will be a greater disturbance area.	<i>Probably better.</i>
Ecological disturbance after closure	<i>Not as good.</i> You can make it better by including a good plan for restoring the disturbed areas.	<i>Better.</i> The natural outline of the land is restored, so water, soil and vegetation can proceed normally.
Land use potential	<i>Not as good.</i> Will need to wait for at least 5 years for most uses, and use may be limited after that to subsidence concerns.	<i>Good.</i> Should be able to use right away.
Health concerns	<i>Not as good.</i> Landfill mounds are attractive to children as play areas. Contamination potential persists.	<i>Good.</i> There should not be any health problems for site traffic.
Aesthetics (appearance)	<i>Not as good.</i> Landfill mounds may not grow back plants and grasses well. Fencing will be present and trees cannot be allowed on the site.	<i>Good.</i> Area should return to normal.
Worker safety during site closure	<i>Better.</i> Not as much waste contact. Hazardous waste drums may rupture during compaction.	<i>Not as good.</i> There is a slightly greater risk to laborers when handling wastes.
Liability risks during closure	<i>Better.</i> Keeping wastes onsite means much less chance of getting sued by outside parties. Under federal rules, community can still be sued by local residents if the closure is done badly.	<i>Not as good.</i> Waste handlers need to be careful not mix hazardous wastes in with wastes being removed. Mixed in hazardous wastes can cause problems during shipping and disposal.
Contamination during closure	<i>Unclear.</i> Hazardous waste drums may rupture during compaction. Disturbance of soil and area may release contaminants.	<i>Unclear.</i> Weathered or fragile hazardous containers may rupture during removal. Disturbance of soil and area may release contaminants.
Liability risks after closure	<i>Not as good.</i> Risk of future contamination or problems from poorly completed closure.	<i>Better.</i> Once disposed in alternative permitted landfill, it is very unlikely community will be liable for problems at closure site.
Local jobs	<i>Unclear.</i> Availability of jobs depends on who does the project.	<i>Unclear.</i> Availability of jobs depends on who does the project.

Source: *Tlingit Haida Central Council Open Dump Closure Report*. Zender Engineering, 2002.

* Excludes costs for each method. Considers only factors related to benefits a community might receive from closing its open dump or risks that might occur both during and after closure.

HEALTH RISKS ASSOCIATED WITH OPEN DUMPS

◆ **INFECTIOUS DISEASE**

One of the primary health risks of dumps is spreading disease. People can be exposed to diseases from a dumpsite by coming into contact with the following sources:

Honeybuckets: If honeybuckets are still used in your community, you probably already know you're dealing with higher health risks than communities with completed tank haul or pipe systems. Disease-causing organisms, like hepatitis viruses, can live in honeybucket wastes. These organisms can be transmitted to other people if contact occurs. The main ways contact can occur through solid waste management are:

- ✓ People with honeybuckets or slop buckets throwing out their bags or emptying buckets at the dump
- ✓ Human wastes being tracked over to the dumpsite from a nearby honeybucket disposal site
- ✓ People discarding their garbage at the honeybucket site instead of dumpsite
- ✓ Household pets are allowed into the dump site or honeybucket site, or
- ✓ People drinking from, or swimming in, untreated water that is contaminated with dump runoff.

Clinic Wastes: Contact with disease organisms can occur also by accidentally touching unburned clinic wastes. Most village clinics now send their used needles to a hub city for proper disposal. But other clinic wastes, like gauze, bandages, and Kleenex can be infectious. Discarding them at the dumpsite makes transmitting diseases possible (but not certain) when people touch them. So it is very important to separate out these wastes and burn them each day.

Household Pets: Household pets can transfer diseases from one person to another if your dumpsite or honeybucket disposal site is unfenced. Make sure that pets cannot get into these places.

Insects: Insects, like mosquitoes, can also transfer disease organisms from wastes to humans. If you can – burn or compost (and tarp-cover) food wastes to help reduce insects, and if you can't, covering wastes with soil, woodchips, sawdust, tire chips, tarps or other material will help a lot. Grade and fill in your dump area so that there are no standing pools for insects to use for breeding. Keep the area where people are allowed to dump their wastes as small as possible.

Animals: Sick foxes can carry rabies. They don't eat, but they follow the healthy foxes to the dumps. It doesn't happen too often, but they may infect a dog. Fencing your dump is the best strategy to keep foxes and rodents out. Keep a buffer zone free of trash between the fence and wastes. Although bears do not normally spread disease, they can injure people if they attack. Bears love to scavenge for food scraps and fish waste at dumpsites. If you have bears at your dump maintaining a fence can be very difficult. Electric fences sometimes work but are expensive to maintain. Some communities have improved their bear problem by discarding all fish wastes in a separate secluded area, away from their dump. The household trash (excluding plastics) can be stored and burned in a burn box.

◆ **DUMP SCAVENGING & WASTE HAULING**

Not surprisingly, the more someone visits the dump, the greater their exposure to health risks and injury. They are more likely to come into contact with disease pathogens or more likely to breathe toxic fumes from hazardous wastes. The most effective way to reduce dump health risks is to cut down on how long and often people are at the dump. Your dump may be in such a bad state of repair and have so many health hazards that the best thing you can do is to keep people away from it. This means starting a collection program if you can afford it, or access and scavenging if you can't afford a collection program. A big problem is that community dumps can be the most interesting place to play for children, especially for tundra communities where the dumps might be on the only high ground. Keeping children out needs to be a major priority.

◆ **SITE ACCIDENTS**

Having an open dump often means that you are risking an accident happening. Accidents are especially likely if you don't manage your site much, or monitor what people are throwing away and how they throw it away.

Source: *Tlingit and Haida Open Dump Closure Report*, Zender Engineering, 2002.

Does Your Community Burn Wastes?

There are some really important actions your community can take to Reduce your community's health risks from burning wastes:

- * Use a burn box or, if your community can afford it, an incinerator.
- * If you use a burn box, operate it so that it burns hot.
- * Burn only on days when the smoke goes away from your community.
- * Discourage or prohibit people, especially small children and the elderly, from going to the dump when wastes are burning.
- * Limit burning to papers, cardboard, wood and food wastes,

- * Don't burn hazardous wastes no matter what!
- * Maintain your burn box or incinerator. Empty them properly, keep ashes from piling up and keep vents clear. Rust-proof the structure and fix any damage that appears.

Source: *Tlingit and Haida Open Dump Closure Report*, Zender Engineering, 2002.

Should You Worry About Water & Soil Contamination at Your Dump or Landfill?

If any of these things happen:

- People drink water from downstream of dump or landfill
- People fish or gather berries near dump or landfill
- People live near dump or landfill
- Children play near dump or landfill
- Important plants or animals are near the dump or landfill

And you can check two (2) or more of these factors:

- No line or no continuous shallow permafrost under dump or landfill
- Dump or landfill is near surface water (less than 500 ft.)
- Dump or landfill is less than 1,500 ft from drinking water source
- Water flows from dump or landfill into surface water
- High ground water table (less than 15 ft)
- Soil under dump or landfill is sandy or gravelly (easy to pour water through)
- No wetlands between dump or landfill and area of concern

And you can check one (1) or more of these factors:

- Honeybuckets are always or sometimes disposed at or next to dump or landfill
- Hazardous chemicals, like antifreeze, paint thinner or ethylene glycol, are dumped there
- Used oil is often dumped there
- A lot of snow machines, used appliances, machinery, or other vehicles are dumped there without being drained and rinse
- Batteries are, or were, dumped there regularly
- There is not much checking of what people dump