

**Integrated Solid Waste Plan  
for the Community of Toksook Bay**

**September 2006**

**Integrated Solid Waste Plan  
for the Community of Toksook Bay**

**Compiled by:**

**Noah Lincoln, IGAP Technician  
Monica Angaiak, Special IGAP Technician**

**Additional Written Yup'ik and English Translations:**

**Noah Lincoln  
Monica Angaiak**

**Additional Special Acknowledgements:**

We would like to thank the Elders in our community for their valuable words of guidance. We would like to thank *Betsy Gerber* and *John Smith* for their volunteer time *in helping clean up the community*. *Sally Abraham* and *Rose Lincoln* have been very helpful in *their comments and also in helping our youth with aluminum can recycling*. *George John*, one of our Elders, has helped the community greatly *by announcing safe disposal practices on the scanner and teaching the community to respect their land*. Our Waste technicians, *Henry Joe and Paul George*, help protect the community and subsistence by keeping our garbage organized at the dump.

**September 2006**

## Contents

1. INTRODUCTION .....	4
2. Elders' Guidance on Taking Care of Our Wastes Properly .	5
3. Community Participation.....	5
4. DUMPSITE INFORMATION.....	8
5. CURRENT SOLID WASTE MANAGEMENT PROGRAM..	<b>Error! Bookmark not defined.</b>
6. How Much Waste Is Generated.....	<b>Error! Bookmark not defined.</b>
7. Recycling and Reuse Program .....	13
8. HAZARDOUS WASTES .....	<b>Error! Bookmark not defined.</b>
9. NELSON ISLAND CONSORTIUM DEMONSTRATION PROJECT.....	<b>Error! Bookmark not defined.</b>
10. OLD/CLOSED DUMPSITES ...	<b>Error! Bookmark not defined.</b>
11. Additional Solid Waste Concerns for Subsistence ...	<b>Error! Bookmark not defined.</b>
12. REVENUE AND COSTS FOR SHORT TERM AND LONG TERM SOLID WASTE PRACTICES.....	<b>Error! Bookmark not defined.</b>
13. NEEDS FOR SOLID WASTE IMPROVEMENT .....	<b>Error! Bookmark not defined.</b>
14. NEW COMMUNITY SOLID WASTE GUIDANCE FOR PROTECTING HEALTH AND SUBSISTENCE...	<b>Error! Bookmark not defined.</b>

# 1. INTRODUCTION

## **Mission and Values Statement:**

Our community developed this plan because subsistence lifestyle is our number one priority. We want to be sure to have the best solid waste practices possible so that we can help protect our subsistence. A good dumpsite with safe disposal practices will help protect subsistence. Our Elders say that we must respect our lands then we will be given the opportunity to have plenty to take and to gather. Also, they say we must respect each other and keep our town and camps clean. Our community abides by its traditional Yup'ik laws that our Elders pass down to us.

## **History of the Community:**

### **Location and Climate**

Toksook Bay is one of three villages located on Nelson Island, which lies 115 miles northwest of Bethel. It is on Kangirivar Bay across the water from Nunivak Island. Tununak is about 8 miles to the northwest. The community lies at approximately 60.530280° North Latitude and -165.1025° (West) Longitude. (Sec. 17, T005N, R090W, Seward Meridian.) Toksook Bay is located in the Bethel Recording District. The area encompasses 33.1 sq. miles of land and 40.9 sq. miles of water. Toksook is located in a marine climate. Precipitation averages 22 inches, with 43 inches of snowfall annually. Summer temperatures range from 41 to 57, winter temperatures run 6 to 24.

### **History, Culture and Demographics**

The area has been inhabited and utilized by Yup'ik Eskimos for thousands of years. Toksook Bay was established in 1964 along the Tuqsuk River by residents of Nightmute. Cyril Chanar, Tom Sunny and Nasgauq Tangaq were the earliest inhabitants. Toksook Bay was settled to be more accessible to the annual freighter ship, The North Star. The City was incorporated in 1972. A federally-recognized tribe is located in the community -- the Nunakauyak Traditional Council (a.k.a. Nunakauyak Tribe). The population of the community consists of 97.6% Alaska Native or part Native. Toksook Bay is a traditional Yup'ik Eskimo community with a reliance on fishing and subsistence activities. The sale or importation of alcohol is banned in the village. During the 2000 U.S. Census, total housing units numbered 110, and vacant housing units numbered 4. U.S. Census data for Year 2000 showed 184 residents as employed. The unemployment rate at that time was 15.31 percent, although 43.03 percent of all adults were not in the work force. The median household income was \$30,208, per capita income was \$8,761, and 27.33 percent of residents were living below the poverty level.

### **Facilities, Utilities, Schools and Health Care**

Water is derived from a well and infiltration gallery, is treated and stored in a 212,000-gal. tank, then piped throughout the community. A gravity piped sewer system also serves most households. Most occupied homes have complete plumbing. However, several homes have failed plumbing and haul water and honeybuckets. The City collects refuse and maintains the landfill. The traditional council operates the washeteria. Electricity is provided by AVEC. There is one school located in the community, attended by 191 students. Local hospitals or health clinics include Toksook Bay Clinic (427-7810). Toksook Bay is classified as an isolated village, it is

found in EMS Region 7A in the Yukon/Kuskokwim Region. Emergency Services have coastal and air access. Emergency service is provided by a health aide. Auxiliary health care is provided by YKHC Sub-Regional Clinic construction will begin in the summer of 2003..

### **Economy and Transportation**

Commercial fishing, the school, City and Tribal Council are the primary income producers. Subsistence activities supplement income and provide essential food sources. 93 residents hold commercial fishing permits for herring roe and salmon net fisheries. Coastal Villages Seafood, Inc., processes halibut and salmon in Toksook.

A State-owned 1,788' long by 55' wide gravel airstrip provides scheduled and chartered service year-round. Major airport improvements are currently underway which should be finished by the Fall of 2003. Fishing boats, skiffs, snow machines and ATVs are used by residents for local travel. Winter trails, with markers, exists to Nightmute (20 mi.); Tununak (8 mi.); Newtok (40 mi.); and Cheforak (50 mi.). There are no docking facilities, but boat haul-out services are available. Barges deliver goods during the summer months.

### **Demographics and Utilities:**

The number of residents is 650. There is a clinic, a school, a Tribal and City Office, four grocery stores, a snack stop, an electrical generator plant, and a water treatment plant. The washeteria has 4 dryers and 6 washers. Treated water can be obtained from our piped system. However, 10% of the residents obtain their drinking water from rain catchment systems in summer and from melted ice and snow in the winter. There are 300 houses, with 90% connected to the well, and the remainder using honey buckets. The school is also connected to the well and has a flushing system. The sewage lagoon is now located in the middle of the part of the town because we have extended the village to the north, and is primary treatment only. It has had several problems, including often seeping out. A water upgrade project that will hook-up additional homes and provide an improved sewage lagoon is supposed to occur within a few years. However, it is several years overdue, and as is the case with most water upgrade projects, it is unclear still if the original project scope will remain and also when the project will start or finish. Electrical power is supplied by AVCP.

## **2. ELDERS' GUIDANCE ON TAKING CARE OF OUR WASTES PROPERLY**

### **Elder Guidance:**

We interviewed Elders and our Elders took part in the Nelson Island Consortium meetings. They told us what we needed to do to keep our community safe and clean and protect our subsistence. We have recorded their words and have their tapes. Their words included rules about taking care of wastes in the subsistence areas and also how to live life properly so that we will not have these problems. Their rules are about respect and how this will bring good opportunities and help when we need it. This plan is based on their words and explains how to carry out what they say as it relates to our wastes.

**See Elder interview file.**

## **3. COMMUNITY PARTICIPATION**

Community participation for the best solid waste plan is very important to us. Community disposal practices play a big part in whether our plan protects our health and environment. In addition to listening to our elders speak, our community participation included the following:

**Nelson Island Consortium Meetings:** We held community meetings at the following villages and dates. At each meeting we had Elders from our community (and all the other communities), and we had our Environmental staff and a council or administrator attend. We offered free travel to these meetings to our community members.

- ◆ **Tununak: January 4-6 2005**
- ◆ **Newtok: June 13-15, 2005**
- ◆ **Chefornak: August 3-5, 2005**
- ◆ **Toksook: January 11-14 2006**
- ◆ **Nightmute: \*\***

**Council Meetings and Presentations:** We held community Council meetings where we discussed solid waste issues and what our community wanted to do. We held these meetings each month from August 2005 to July 2006.

**Community Environmental Committee:** A Committee will be formed late 2006. The committee is proposed to be members of the NTC council, City of Toksook Bay, High School Youth Group, Environmental staff, and members of the community. They represent different parts of our community. Their job will be to make sure that our plan fits our community and will work best for our community. Their concerns should included:

- Reducing health risks from the dumpsite when people visit or smell the smoke.
  - Removing wastes from the dump that can be hazardous.
  - Not allow construction project wastes at the dump unless it is approved by the community.
  - Reducing subsistence risks from what comes out of the dumpsite when the wastes burn.
  - Making sure what we plan is affordable for everyone.
  - Having a good collection program so that residents do not need to visit the dump. This will protect their health and keep the dump cleaner and safer.
  - Reducing all our wastes and recycling and reusing all our wastes as much as we can. These are values that our Elders taught us.
- The committee will meet every month on a regular basis, and when we are called for emergency meeting.

**School Presentations:** Our Environmental Staff met with the school classes and teachers. They educated the youth about:

- Recycling
- Hazards of Household items

**Community Education and Outreach:** Nelson Island fish net monitors and subsistence camp monitors speak to the hunters at our camps. They educate them about littering and toxic chemicals in the oil and gas. We learn from them what people are concerned about and what education they need. Our environmental staff, including our Nelson Island Consortium representative, went to homes to educate people about environmental issues. They talked to people at the stores. They also found out from our people what the big concerns were. This is what people are saying in our community that is related to solid waste management:

- Community Outreach Program is not getting through to our community members.
- We are burning too much recyclable items in our burn box.
- Bulky items are building up at our dump site.
- Contractors are dumping bulky items in our dumpsite.
- Our Fencing is not trapping the waste materials in the area.
- Honey bucket is polluting our sewage with plastic trash bags.
- Dumpsite is polluting our tundra.
- Town is dirty.
- Too much plastic bags and litter on the tundra.
- Need to move the old ATVs and snow machines out of town.
- People are not respectful and should be picking up their trash and bringing it to the dump.
- People do not listen to Elders. If they listened to Elders, we would not have this trash all over.

## 4. DUMPSITE INFORMATION

The following table describes the primary features of our current dumpsite. There are additional tables in the next sections that detail the operation and maintenance, collection system, recycling, and waste burning.

**Dumpsite Features**

Feature	Description
<b>Land Ownership</b>	The land where the dumpsite is located is owned by the Nunakauyak Yup'ik Corporation.
<b>Dumpsite Location</b>	The dumpsite is located one and one-half mile from town. It is south of town.
<b>Summer Dumpsite Access</b>	The access is in poor condition. It is an unpaved gravel road. <b>People travel to the dump</b> by ATV in summer. Once people enter the dump they throw the trash in an un-orderly fashion.
<b>Winter Site Access</b>	In winter, people travel to the dumpsite by snow machine. They enter the site from the North.
<b>Wind Direction</b>	The wind blows from the dumpsite into town some of the <i>time</i> , and blows into town mostly in fall during storms.
<b>Site Size</b>	The dumpsite is about 2 acres, this excludes the windblown litter (i.e. plastic bags, paper). The windblown litter goes out about 20 miles feet from the dump east, north, and west directions.
<b>Site Shape</b>	The dumpsite is shaped like a square. Its width is about 500 feet, and it is about 500 feet long. About 75% of the dump area is covered by piled waste. The rest is ground, a pathway, or windblown litter. Where there is piled waste, the average depth is about 3 feet high.
<b>Estimated Waste Volume (± 20%)</b>	250,000 ft <sup>3</sup> or 25,926 cubic yards.
<b>Estimated Waste Weight (± 30%)</b>	5185.2 tons.
<b>Type of site management</b>	Open dumping on surface. Burning on raw state, no burn box.
<b>Heavy Equipment used at Dump</b>	We have a dozer that is 15 years old. The model is John Deere 450G. It is owned by the Nunakauyak Traditional Council. This dozer is used for all other projects in our town too.
<b>How often wastes are consolidated or compacted</b>	No Consolidation
<b>How often wastes are covered</b>	Zero times each year.
<b>Operator/Technician Staff</b>	We have 1 waste technician who works 30 hours each week. His duties are: collecting garbage, and trying to keep dump organized.
<b>Burning wastes</b>	We burn our wastes in its raw nature. It is lit on fire by the waste technician. The wastes that are burned include all trash taken to the dump. This includes regular trash brought by households and regular trash brought by collection service,



## Dumpsite Features

Feature	Description
	school, or businesses. Large items like drums, appliances, vehicles are not burned.
<b>Salvage Pad/Area</b>	An area of about 100 feet wide by 100 feet long is used by people to find usable items. It is located in the north corner of the dump. The type of wastes here are vehicle parts, appliances, scrap metal, lumber, other wastes that people can use.
<b>Additional Waste Segregation at Site</b>	There is a place for people to drop off their vehicle batteries. It is located at the city garage. People put their batteries in a tote and the staff collects them when it is full.
<b>Recycling Shed/Area</b>	A recycling shed is located in town, near Nunakauyak Yup'ik Corporation. People drop off the following items:
<b>Dumpsite Age</b>	The dumpsite is about 40 years old.
<b>Fencing</b>	The fencing installed on all four sides, but the south side is collapsed and we have northern winds 70% of the time, and lose, light materials are blown out to the tundra and sea.
<b>Types of Wastes that Are Now at the Dump</b>	
<b>Residential wastes:</b>	Cardboard, paper, plastics, tin and aluminum cans, diapers, Styrofoam, old or broken household items like furniture, toys, clothes, rugs, appliances, dishes, glass, tires, ATV's, snow-machines (only the parts that are not salvaged), computers, TV's, small batteries, tires
<b>School wastes:</b>	Cardboard, computers, Styrofoam plates and cups, Cans, old equipment, paper, fluorescent lights
<b>Store Wastes:</b>	Cardboard, paper, fluorescent lights
<b>Utility wastes:</b>	Antifreeze, transformers, old equipment, used oil, batteries, fluorescent lights
<b>Construction Project Wastes:</b>	Pipes, demolition, insulation, asbestos from old torn-down buildings, drywall, cardboard, electrical wires and electrical equipment, old plumbing, broken-down heavy equipment, fluorescent lights, concrete
<b>Honeybucket Wastes</b>	The lagoon is next to the dump. There are some honeybucket wastes that get thrown out at the dump. Some garbage gets thrown out at the honeybucket lagoon.
<b>What goes into the burnbox that shouldn't:</b>	Plastics, rubber, aerosol cans, batteries, foam, diapers, wastes with sealants and fire retardants, leftover cleaners and chemicals from almost empty bottles.

Program Feature	Description
<b>Operation Type</b>	Basic monitoring by waste technician, occasional consolidation, burnbox, and some volunteer clean-up
<b>Certifications or trainings?</b> <i>(Note, these are not required by any regulations)</i>	<b>Waste collector:</b> HAZWOPER <b>Waste operator:</b> HAZWOPER, RALO, Freon Removal <b>Environmental staff:</b> ITEP Solid Waste Management, IGAP Grant Management, HAZWOPER
<b>Available Local Cover Material for Dumpsite?</b>	<i>(Example):</i> No, no gravel or silt source.
<b>How Often Cover Material is used, or wastes buried:</b>	<i>(Example):</i> About once every two years for part of the wastes.
<b>Cover material is not used, or not used very often, because:</b>	<i>(Example):</i> We don't have the money to afford operating heavy equipment, and we can't operate the equipment during summer because it gets stuck, and it is hard to find cover material.
<b>Heavy Equipment:</b>	<i>(If you have none, write "none" or N/A)</i> <i>(Example:)</i> 1987-89 John Deere Dozer 1980's Bobcat
<b>Heavy Equipment Operation Limitations:</b>	<i>(Example):</i> Our Dozer breaks down a lot. It is the only one in town and it has to be used for other projects. It is too expensive for us to operate. We have no qualified mechanic in town.
<b>Heavy Equipment Uses (Past and Current Uses):</b>	<i>(Examples:)</i> <ul style="list-style-type: none"> <li>▪ The dozer is used to push wastes together. We also use it to tilt the Burnbox to empty ash.</li> <li>▪ We use DOT's excavator to dig trenches when we can, but last time was about 5 years ago and the trenches are full.</li> <li>▪ We use the dozer to move big junk metal.</li> </ul>
<b>Heavy Equipment Seasonal Limitations</b>	The times we can use it are just before Breakup and just before Freezeup. The ground must be hard enough so it does not get stuck, and the wastes cannot be frozen solid or covered with snow. Also, we cannot use it if a project is in town because we need the income from rental.
<b>Equipment Storage:</b>	<i>(Example):</i> None. Our dozer has to be stored outside. We can store our Bobcat inside our workshop sometimes.
<b>Estimated Cost to repair heavy equipment needed for dumpsite:</b>	<i>(Example:)</i> To repair the dozer: \$15,000 for the steering wheel part and labor. To repair the Bobcat: Unknown.
<b>Additional Waste Operation Information that is important</b>	It is really the summer months that we need a waste operator the most. The dump gets very messy because it is difficult for people to dump their trash. People are gone for subsistence and we also run out of operator funds. In winter

	it is easier to access the dump and it doesn't smell as bad.
--	--

### Table for Waste Burning Practices

(Note if you do not burn your wastes then you can delete this table, or write "N/A" in all the spaces)

Feature	Description
Is burning waste a normal way to manage some or all of your wastes?	Yes.
How many households burn waste in barrels in town?	Not many, depends on time of year. About 20.
What wastes do businesses burn in barrels that are in town?	Store(s): Cardboard Office(s): None School: None Clinic: Kleenex, Gauze, regular trash (no sharps) Electric Utility: used oil in a drum that looks like a barrel Water Utility: None Other: None
Is waste burned on the ground at the Dump? Who lights the fire?	Some times residents light the dump on fire. Maybe 1 or 2 times each summer. The school and clinic light their own wastes on fire in separate pile.
<b>Burnbox Information</b> (if you don't have a burnbox, you can write N/A or delete all the information)	
Burnbox Type and Age and How Ash is Emptied.	(Example:) Tok Welding Burnbox, 2 years old, ash is emptied by tilting burnbox.
How often is the burnbox used?	(Example:) Usually waste is burned about 4 days per week. It is not burned when the operator is gone for trianing or on subsistence.
What is the longest period of time that waste is not burned?	(Example:) There was about 3 months when waste was not burned because we could not to pay an opeartor salary.
Does the operator wear an approved mask and long sleeves, glasses, steel-toed boots?	(Example:) Most of time.
Is there a signed statement by the operator that he is expected to wear protective gear and be operate the burnbox in the correct manner and safely?	(Example:) We are writing one.
Are there rules about which wastes are acceptable in the burnbox?	<b>Operator Separating wastes:</b> They are supposed to pull out anything they see that looks dangerous to burn. <b>Household and Businesses Separating wastes before bringing to dump:</b> They are supposed to take out their plastics, styrofoam,

	<p><i>batteries, any chemicals</i></p> <p><b>Prohibited Wastes:</b> Tires, batteries, computers, TVs, fluorescent lights, hazardous wastes, PVC pipes, big plastics</p>
<b>How Well the Rules are Followed:</b>	Not very well. Operator does pretty good job, but cannot go through everybody's trash.
<p><b>Current rules about when the operator lights the burnbox on fire:</b> <i>(Note only the current rules. In the following sections, there will be a place to write down the burnbox that you want to start)</i></p>	<p><b>Wind Direction:</b> Wind must be blowing away from town.</p> <p><b>Predicted Winds:</b> If Elders are predicting the wind to shift to town soon, then the burnbox cannot be used.</p> <p><b>Subsistence or water sources:</b> No burning if the smoke will go over berry pickers or seasonal water sources.</p> <p><b>Hours:</b> Load during day, burn at night when people are inside homes.</p> <p><b>Wind Speed:</b> Burn below 20 miles per hour</p> <p><b>Public access:</b> Public is encouraged to not visit dump when burnbox is on fire.</p> <p><b>Burning Frequency:</b> Unless the winds are not right, the burnbox should be lit on fire at least 2 times per week. Otherwise too much garbage piles up.</p> <p><b>Airplane schedule (visibility from smoke):</b> We don't have a rule about whether to burn when planes are expected. The smoke doesn't get that bad by the airstrip.</p>
<b>How well the burnbox fire rules are followed:</b>	<i>(Example:)</i> Okay, but sometimes the burnbox is lit and smoke comes into town. When too much waste is piled up, they have to burn for too long and it is easy to smell the smoke.
<b>Where does the ash go? How often is it emptied?</b>	<i>(Example:)</i> The ash empties on the ground and piles up there. The operator empties the burnbox about once every week.
<b>Other burnbox or waste burning information that is important:</b>	<i>(Example:)</i> People don't like to smell the smoke. They are concerned that it is causing them to cough. They would like the burnbox located further away or have it operated better.

## 7. RECYCLING AND REUSE PROGRAM

Table for Hazardous Waste Recycling and Staging for future backhaul

Item/Task	Do we have this?	Who operates it? Who is in charge? Where is it?	Do we want this in the next five years? What are the details of what we want?	What is priority to get or improve? (1 = highest, 2 = medium, 3 = lowest)
Place for people to drop-off?	YES	Nunakauyak Traditional Council will operate the E-Waste Center, with the IGAP employees in charge of the operation. The E-Waste Center will be located at the old Nunakauyak Traditional Council offices.	The plan for the E-Waste Center is to be operated every year. With this practice, the whole community will start getting involved slowly and make a very big difference with in five years.	3 because this is being put in soon on our next 2006-2007 IGAP budget.
Used Oil Burner? Who operates?	No		We generate too much oil in our community, and it would be better to get a used oil burner as soon as possible.	1
Totes for storage of lead-acid batteries?	No		It would make our battery shipping easier, faster, and safer for human health and	2

			environment.	
<b>Antifreeze Recycler?</b>	No		Not enough made. We are going to switch to propylene glycol instead. This is safer for the environment	
<b>Freon Removal?</b>	Yes	Certified removal person in Newtok, with equipment. They are the least costly way to remove freon, and Nelson Island communities receive a discount.	We will see whether our own freon removal equipment will make sense later on. We don't make very much freon, so it is cheaper now to have Newtok remove it.	3
<b>Fluid Pumps for Draining Cars?</b>	No		Every year we average one new car, and it will be a good tool to have around.	2
<b>Connex for storage and eventual backhaul?</b>	NO		We are opening an E-Waste Center.	2
<b>HAZWOPER Certified Technicians</b>	Yes			2
<b>Spill Response Kit</b>	Yes	City of Toksook Bay operates and controls the spill response kit, and is located at the City Garage.	The response kit has been around for almost 10 years.	3
<b>Hazardous Waste Plan, including operational steps</b>	No		It would be smarter to have a plan for our community.	1
<b>Clinic Medical Waste Plan</b>	Yes	Yukon Kuskokwim Health Corporation operates the disposal of Medical Wastes.	YKHC is going to be operating indefinitely in Toksook Bay, and their employees will be operating the disposal.	3