



Alaska Department of Environmental Conservation

TEMPORARY CAMP PRACTICES

Consolidated Application and Worksheet

Purpose:

Several programs within the Alaska Department of Environmental Conservation's (DEC) Divisions of Environmental Health and Water manage drinking water safety, food service safety, solid waste disposal, and domestic wastewater treatment and disposal. The various programs provide guidance in the form of best management practices or have application, fee and operational requirements for temporary camps in order to protect public health and the environment. The department has combined these guidelines and requirements into a single, consolidated package for operators of remote temporary camps with an average of 24 or fewer people over a 14 day period. This "one-stop" worksheet/application provides a comprehensive overview of temporary camp practices and requirements and also streamlines the approval process whereby small camp operators can understand and meet their responsibilities.

This consolidated application presents best management practices and the minimum standards that protect human health and the environment. If your camp operation will not meet the applicable minimum standards, contact ADEC for further assistance at the telephone number or email provided below.

How to use this application: The worksheet on page 3 will guide you to the sections and appendices that are applicable to your camp operation. Not all of the appendices may apply to your temporary camp. The appendix material that does apply will help you in meeting requirements or establishing best management practices for your temporary camp.

Step 1: Read the Definitions on page 2. These terms are used throughout this application.

Step 2: Complete Section I. This worksheet is designed to help you determine which category of camp you will be operating, what the regulatory requirements are and whether, under certain conditions, your temporary camp may be exempt from some requirements.

Step 3: Review Section II or III, as applicable to your temporary camp. Section II provides information on fees, regulatory requirements and best management practices detailing temporary camp practices that establish sanitary conditions and environmental protection.

Step 4: If required, complete the Temporary Camp Application Form on page 8 of this application packet and submit to:

Temporary Camp Coordinator
Division of Environmental Health
Alaska Department of Environmental Conservation
555 Cordova Street
Anchorage, AK 99501
Telephone: (907) 269-6289 or outside of Anchorage 1(87)SAFEFOOD
Fax: (907) 269-7510
Email: DEC.EH.TemporaryCampCoordinator@alaska.gov

Appendices:

- A. Potable Water Treatment and Storage Practices
- B. Pit Privy Guide
- C. Graywater Treatment and Disposal Guide
- D. Camp Graywater Handling
- E. Food Condition and Source
- F. Safe Camp Kitchens in Bear Country

Definitions

For the purposes of this application only, the following definitions apply:

Caches	Structures left during the winter and used to store items for the operation of a seasonal permanent camp (see temporary camp definition).
Domestic Wastewater	Human wastes (excrement and urine) and graywater.
Federal Facility	For purposes of food safety, a national park or military reservation where food service is overseen by the federal government. National Forests are not considered federal facilities under these regulations and guidelines.
Graywater	Wastewater from a sink, shower, bath, laundry, kitchen or other domestic source. Does not include human wastes.
Human Waste	Human excrement and urine.
Inert Waste	Solid waste that has a low potential to pollute air or water and does not normally attract wildlife. Inert waste includes scrap metal, incinerated toilet ash, burned waste ash, and non-hazardous construction and demolition waste.
Persons in Camp	0-24 persons means up to a daily maximum of 24 people (clients, operator, staff) residing at the camp, more than 14 days.
Potable Water	Water suitable for human consumption (e.g., drinking, washing, cooking, bathing). Potable water means water that is free from disease-producing organisms; poisonous substances; and chemical, biological, and radioactive contaminants that would make it unfit for human consumption and other uses. "Potable water" is traditionally known as drinking water.
Public Land Manager	A local, state or federal agency who approves use of public land for a temporary camp, including Alaska Department of Natural Resources, Bureau of Land Management, National Park Service, U.S. Forest Service, and U.S. Fish and Wildlife Service.
Temporary Camp:	For the purposes of this application: <ul style="list-style-type: none">• a remote establishment providing shelter and support for persons engaged in commercial recreation (guided hunting, rafting, wilderness fishing, etc.) or industrial activities (mining exploration, labor, construction, etc.).• a remote camp that is occupied on a temporary basis and is not a place of "residence".• a remote seasonal camp with a structure (such as a hunting/ trapping cabin or storage shed) that is used for temporary storage, food preparation or emergency shelter that operates for a season of each year in the same location.• NOTE: Not covered under this application are lodges, (or commercial enterprise with the intent of selling bed space or meals), child/adult day camps, floating camps or barges.
Remote:	An area with no year-round access to a major road system (a system of connected roads with a total length of 100 miles or more) and at least 25 road miles to the nearest community or paved highway.



TEMPORARY CAMP PRACTICES APPLICATION WORKSHEET

Section I: Determining the Camp Type and Regulatory Requirements

1. Does the camp operate for less than 14 days in any one location?
If there are 24 people or less in camp and for fewer than 14 days, <u>no specific review/or approval is needed from ADEC</u> . Operators are advised to follow best management practices detailed in Section II. If more than 25 people in camp and more than 14 days, see Section III.
2. Is the camp located in a national park, or military reservation, where inspections and regulatory oversight are provided by the federal government? 18 AAC 31.012(19)
If yes, Alaska Food Code does not apply. Alaska requirements for wastewater, drinking water and solid waste do apply in addition to all required federal regulations and permits. Federal food safety requirements administered by the facility must be met. Continue to question 3.
3. Will the camp be used for oil and gas activities within the boundaries of the North Slope Borough?
If yes, this camp is regulated under Alaska APDES general permit #AKG426000 for wastewater treatment and disposal. For further assistance, contact DEC/Wastewater in Fairbanks at 907-451-2101. The wastewater system is also subject to plan review and approval. Please contact DEC Engineering Support and Plan Review section at 907-451-2177. Alaska requirements and BMPs provided in this consolidated application for food safety, drinking water and solid waste will apply and the Annual Camp Authorization fee is reduced by \$30. Continue to question 4.
4. Will your camp be located in a remote location?
If yes, continue to question 5.
5. Will the daily maximum number of people residing at the camp be over a 14-day period, and have 24 persons or less?
If yes, you have described a small temporary camp . Proceed to Section II.
6. At any time, will the daily maximum number of people residing at the camp be over a 14-day period and have 25 people or more?
If yes, you have described a large temporary camp and this application does NOT apply. Proceed to Section III for information on obtaining the appropriate permits and approvals. This camp will require plan review and authorization from DEC for wastewater treatment and disposal, provision of drinking water, and food service.

Section II: Small Temporary Camps (24 persons or less, more than 14 days)

These best management practices and requirements must be addressed when siting and closing your camp

Fees.	
	<p>Annual Fee: \$250.00</p> <p>\$30 Wastewater Fee added if camp is not used for oil and gas activities within the boundaries of the North Slope Borough.</p>
<p>Human Wastes (Urine and Excrement) must be disposed of in a pit privy, incinerating toilet, or composting toilet.</p> <p>If any other type of human waste treatment & disposal system is used, such as a flush toilet with a septic system or holding tank, this camp application does NOT apply and you may need to obtain plan approval. For further information, go to the DEC website: Wastewater Plan Review</p>	
Pit Privy Requirements	
	<p>Reviewed and applied Pit Privy Guide (Appendix B).</p> <p>Also available on the DEC web-site at: <u>Wastewater Discharge Permits</u></p>
	<p>Located at least 100 feet, measured horizontally, from the main high water level of any surface water; at least 150 feet, measured horizontally, from a drinking water source serving a facility that is approvable in this application; and with the lowest point of the pit privy at least four feet above the high water table. A site with well-drained soils is desirable to extend the life of the pit privy.</p>
	<p>Located so that surface drainage does not collect in the pit.</p>
	<p>Used only to dispose of human wastes, particles removed from a graywater treatment system (described below), and ash from burnable solid wastes. If the pit privy is used to dispose of ash, the expected ash volume must be considered when sizing the pit privy. All other wastes, including graywater, garbage, oil, hazardous substances, toxic waste, or non-burnable solid wastes, shall not be disposed of in the pit privy.</p>
	<p>Constructed, operated and maintained to prevent nuisance and hazards, to control odor, and to prevent access by vermin and other animals.</p>
	<p>Secured during seasonal closures to keep out precipitation, vermin and other animals.</p>
	<p>Permanently closed when it is filled to within 24 inches of the ground surface by removing the above-ground structure and covering the pit with a minimum of two feet of compacted soil that is mounded slightly to allow for settlement and to prevent water from collecting in or around the pit.</p>
	<p>When you are no longer operating the camp or the camp is being decommissioned, the above-ground structure is removed and pit covered with a minimum of two feet of compacted soil that is mounded slightly to allow for settlement and to prevent water from collecting in or around the pit, unless the private landowner or public land manager approves leaving the pit privy in place. In this instance, the pit privy is secured to keep out precipitation, vermin and other animals.</p>
Commercially Manufactured Composting or Incinerating Toilet Requirements	
	<p>Installed, operated and maintained in accordance with the manufacturer's specifications and recommendations.</p>
	<p>The toilet compost or ash is buried at least two feet below the surface; at least 100 feet, measured horizontally, from any surface water; and at least 150 feet, measured horizontally, from a drinking water source serving a facility that is approvable in this application.</p>
	<p>Used only to dispose of human wastes. Not used for the disposal of any other wastes, including graywater, garbage, oil, hazardous substances, toxic waste, ash from burned solid waste or non-burnable solid wastes.</p>

Graywater Treatment and Disposal System

You must dispose of graywater using a graywater treatment and disposal system. There are two methods you can use, depending on the daily volume and the duration of the graywater discharge:

- (1) ground surface graywater discharge method, or
- (2) subsurface graywater treatment and disposal.

Ground Surface Graywater Treatment and Disposal System Requirements

If your camp's daily graywater volume is no more than 500 gallons per day (gpd), and occurs for no more than 90 days in a calendar year, you are allowed to discharge your camp graywater to the ground surface if you meet the requirements below. See also Appendix C.

	Review and apply Appendix C, as applicable.
	Minimum separation distance between surface discharge area and lake, stream or river is 100 feet.
	Surface discharge area does not have a direct connection to any surface water; graywater is contained in the immediate area of discharge and not discharged on a steeply sloping area.
	Surface discharge does not cause erosion.
	Prior to discharge, the graywater (if greater than 25 gpd) is treated through a bag filter (see example in Appendix C Diagram 2: Graywater Treatment Basin) to remove particles; and the particles are disposed of either in a pit privy or in the same manner as other solid wastes generated at the camp. If the volume of water treated is less than 25 gpd see small volume barrel graywater treatment system in Appendix C, Diagram 1.
	The graywater does not include any discharge of kitchen oil, floating solids, foam or garbage.
	The camp operation uses low-phosphate detergent.
	Human access is prevented to surface discharge area through signage, remote location, fencing, etc.
	Surface discharge point is relocated if slime or solids accumulate on the ground surface and vegetation, or if the graywater discharge adversely affects the vegetation.
	<i>Camp Graywater Use and Handling</i> (Appendix D) is posted in a conspicuous location for camp employees and guests.

Ground Subsurface Graywater Treatment and Disposal System Requirements

If your camp's daily graywater volume is greater than 500 gpd, and/or occurs for more than 90 days in a calendar year, you must discharge your camp graywater according to the requirements below (see also Appendix C).

	System is located at least 100 feet, measured horizontally, from the mean high water level of any surface water and at least 150 feet, measured horizontally, from a drinking water source serving a facility that is approvable in this application.
	Graywater is treated to remove particles that are 0.04 inches or larger in size, and the particles disposed of either in a pit privy or in the same manner as other solid wastes generated at the camp.
	Graywater is treated through a graywater treatment system that discharges to a soil absorption system.
	System is sized, operated and maintained to ensure there is no spill, leak or surfacing of graywater, and secured to prevent access by vermin and other animals during a period of seasonal shutdown.
	If subsurface structures are closed and left in place for future use by subsequent camp operators, then: <ul style="list-style-type: none">• The private landowner or public land manager approves; and• All surface piping is capped off to keep out precipitation, vermin and other animals.
	If subsurface structures are abandoned in place, then:

	<ul style="list-style-type: none"> • The private landowner or public land manager approves; • Underground piping is capped off; • A subsurface void space created by chambered absorption units is filled with compacted soil or the chamber units are removed; • The excavated area is backfilled, and the surface is graded to prevent the ponding of water and/or erosion; • All surface piping and treatment facilities are removed; and • All ground surface areas exposed to treated or untreated wastewater are coated with hydrated lime.
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Solid and Other Waste Management Practices

	All solid waste, other than ashes disposed in the pit privy or with toilet system waste, is backhauled to a permitted solid waste disposal facility (or a transfer station) unless an onsite landfill is permitted by the DEC Solid Waste Program under the <i>Remote Camps and Lodges</i> general permit. A copy of the application for this permit can be found at: Solid Waste Program
	Paper, cardboard, food scraps, and other burnable material, if burned on site, are burned only in a fire pit, burn barrel or burn box. Waste is burned only when tended by someone.
	Waste stored or managed in a way that prevents animal attraction and blowing litter.
	Ashes from burning can be disposed in a pit privy or buried with the ash or compost from the toilet system. Pit privy sized to accept ash if this option is selected (see Appendix B for pit privy guidelines).

Potable Water and Food Service Best Management Practices

At a minimum, a camp food service must assure that the following requirements are met (18 AAC 31.014(c)):	
	The camp is overseen by an individual who is a Certified Food Protection Manager (CFPM). See the DEC webpage at Certified Food Protection Manager for information on CFPM training opportunities. Note: The CFPM overseeing a camp's food service is not required to be on-site.
	Camp's on-site Food Workers have received training in food safety practices and have been issued an Alaska Food Worker Card . Click here for Food Worker Card information: Food Worker Card Information
	Food is from an approved source and meets the condition and source requirements of 18 AAC 31.200 and not made or obtained from prohibited sources as described in 18 AAC 31.210 (see Appendix E).
	Food is served immediately after preparation.
	Equipment supports the type of food and method of transportation, preparation, display, and service.
	Fixtures or other approved means are provided for hand washing, cleaning and sanitizing equipment and utensils, and cleaning the establishment.
	Potable water is used for food service (drinking, hand washing, and cooking). (See Appendix A Potable Water Collection and Treatment Best Practices).
<p>Food service designed, provisioned, and operated according to Best Management Practices (BMPs)</p> <p>The Best Management Practices for operating a backcountry or remote kitchen food service can be found at Temporary Camp Application and Worksheet . The website includes:</p> <ul style="list-style-type: none"> ▪ "Safe Camp Kitchens in Bear Country" to design and operate a camp so that bears and other wildlife not attracted to the area. The fact sheet can be found in Appendix E. ▪ The Coconino County Arizona <i>Backcountry Environmental Health Manual</i>, a self-study course and test. Please note that most of the insect and animal borne diseases found on pages 26-30 are not found in Alaska. 	

Section III: Large Temporary Camps (25 or more persons)

Wastewater, Drinking Water, and Food Service

Because of the size of your temporary camp, permits, authorizations, and engineered plan approvals are required for wastewater disposal, food service and drinking water. **The greywater disposal methods in Appendices C and D are not applicable for large camps or camps that are not located in a remote location.**

Information on submitting wastewater engineering plans for review can be found at [Wastewater Plan Review](#).

Contact:

Temporary Camp Coordinator
Division of Environmental Health
Alaska Department of Environmental Conservation
555 Cordova Street
Anchorage, AK 99501-2617
Telephone: (907) 269-6289 or outside of Anchorage 1(87)SAFEFOOD
Fax: (907) 269-7510

Email: DEC.EH.TemporaryCampCoordinator@alaska.gov

Solid and Other Waste Management

Large Temporary Camps that do not transport solid waste to a permitted landfill or transfer station must apply for and obtain a *Remote Camps and Lodges* general permit or a Class III landfill permit from the DEC Solid Waste Program. These permits will allow the operation of an onsite landfill at the camp. The permit applications can be found at: [Solid Waste Program](#).

For any questions, please contact us at:

Solid Waste Program
Alaska Department of Environmental Conservation
555 Cordova St.
Anchorage, AK 99501
Phone: (907) 269-7802
Fax: (907) 269-7600



Alaska Department of Environmental Conservation TEMPORARY CAMP APPLICATION

Camp Information	Camp Name		Nearest Community	
	Camp Mailing Address		City, State, Zip	
	Camp Phone	Fax	Email	
	Owner(s) or Corporate Officer(s) & Title(s)	Fax	Email	
	Type of Operation (check one): <input type="checkbox"/> Recreational <input type="checkbox"/> Exploration or Mining <input type="checkbox"/> Construction <input type="checkbox"/> Research <input type="checkbox"/> Commercial			
Physical Location of Establishment (Latitude and Longitude to at least ¼ mile) Latitude: _____ Longitude: _____ Note: If latitude and longitude cannot be determined ahead of camp siting, provide a narrative that precisely describes the location. <i>Include a vicinity map (from Google Earth or other source) that shows any road systems and communities located within 50 miles of the camp)</i>				
Camp Population: 14 days or more <input type="checkbox"/> 24 or under. <input type="checkbox"/> 25 or over: STOP . Proceed to Section III for plan review procedures.				
Public Land Manager (if site is leased or permitted)			Phone:	
Agency:			Email:	
Business Information	Operator(s) Name & Title(s)			
	Business/Corporation Name			
	AK Business License No./Alaska Mining License No.			
	Business/Corporate Address		City, State, Zip	
	Business/Corporate Phone	Fax	Email	
Application Submittal	First Annual Fee: <input type="checkbox"/> \$250.00 <input type="checkbox"/> \$30.00 Wastewater Fee (see Section I Q3) Total enclosed: _____ Note: DEC will mail you subsequent annual bills until camp is deactivated.		Mail to: Temporary Camp Coordinator ADEC Division of Environmental Health 555 Cordova Street Anchorage, AK 99501-2617	
	I declare, under penalty of unsworn falsification, that this application (including any accompanying statements) has been examined by me and to the best of my knowledge and belief is true, correct, and complete. I agree to follow the temporary camp practices and requirements outlined in this application package.			
Applicant's Printed Name: _____ <div style="display: flex; justify-content: space-around; width: 100%;"> (Owner/Corporate Officer) (Title) </div>				
Applicant's Signature: _____ Date: _____				

For DEC Use Only

Application authorized as submitted:

Name, Title (Print)

Date

Application authorized as noted below:

Name, Title (Print)

Date

Interim authorized until _____ when camp operator will meet the requirement(s) noted below:

1. Food Safety: _____

2. Human Waste: _____

3. Graywater: _____

4. Solid Waste: _____

Authorized with alternative requirement: _____

Expiration Date: _____



Appendix A Alaska Department of Environmental Conservation Drinking Water Program Guide

Potable Water Collection and Treatment Best Practices

Introduction

An adequate supply of safe drinking water is essential for any remote camp operation. If water is not properly treated, pathogenic microorganisms may cause serious illness. All water used for drinking water, cooking, and bathing should be treated to potable water standards. For camps using surface water as the source of water, filtration and disinfection are required to remove or inactivate microorganisms, such as bacteria, viruses, and protozoa. For camps using ground water as a source are not required to provide treatment. However, filtration may be used to remove particulates, such as sand, iron, and manganese that are common in ground water. All treatment materials and chemicals used in potable water treatment must be approved for use in potable water by the National Sanitation Foundation (NSF), Underwriters Laboratory (UL) or equivalent organization that evaluates products using NSF Standards 60 and 61.

Potable Water Collection

Most remote camps will be using surface water as a source of drinking water. Before water can be treated, a source must be selected. Care should be taken in selecting a water collection point for the camp. Typically, microorganisms are concentrated in stagnant or slow moving water, such as lake shores or along stream banks. These areas should be avoided if possible. It is also important to avoid any body of water that has an algae bloom or has a strong organic odor because these conditions are associated with higher concentrations of microorganisms. The best places to collect water are from a flowing portion of a stream or from lake as far away from the shoreline as possible. When collecting water it is important to be careful not to stir up sediment because microorganisms tend to be concentrated in sediments. All materials used in transmitting water to the camp, such as hoses, must be NSF or equivalent organization approved.

If a ground water well is going to be developed to supply drinking water to the camp, it is important to select the proper location for the well and to use the proper materials to develop the well. Ground water wells should be located at least 500 feet from any surface water source, 200 feet from any wastewater or gray water disposal area and 100 feet from any above ground or below ground fuel storage tanks. Ground water wells should be drilled to a sufficient depth, cased and grouted to avoid influence by surface water. Currently, ground water is not required to be treated; however, filtration may be used to remove particulates, such as sand, iron and manganese. Disinfection may also be used to treat for microorganisms. All materials used in the development and treatment of well water for potable uses must be NSF or equivalent organization approved.

Please see 18 AAC 80.015 & 18 AAC 80.020 of the Drinking Water Regulations for additional information on well construction and minimum separation distances. For regulations, click on the following: [Drinking Water Regulations](#)

Potable Water Treatment

The primary organisms of concern in drinking water are bacteria, viruses and protozoa. The state and federal drinking water regulations require that these organisms be adequately removed or inactivated from potable water. In order to achieve removal and inactivation, surface water can either be properly boiled, or filtered and disinfected.

Boiling

Boiling is the simplest method of water treatment. Boiling water for 2 minutes is adequate to kill bacteria, viruses, and protozoa. If water is relatively clear, it can be boiled without any pretreatment. If the water source has heavy amounts of sediment, it may be necessary to pre-treat the water before boiling. Pretreatment can be done either with a coagulant or filtration. A coagulant is a chemical added to the water that attaches to any suspended solids present in the water and forms small clumps that will settle out. A common coagulant used for pretreatment is aluminum sulfate, or alum. The coagulant dosage is dependent on the sediment concentration, but usually is 5 to 90 milligrams per liter (mg/L), which is approximately 2 teaspoons of alum per 5 gallons of water. After adding alum to the water, it must be allowed to settle for at least 30 minutes. After the suspended particles have settled, the clear water can then be poured into a clean container and boiled or disinfected. There are numerous other chemical coagulants available. Please check manufacturer's recommendations for usage and dosage. Filters designed to remove sand and other sediments can also be used to pre-treat cloudy water. There are numerous filters on the market for this use. Selection of an appropriate sediment pre-filter would depend on the amount of water to be filtered and on the density and size of the sediment to be removed. For small, temporary camps, pre-treatment filtration would be a better option than coagulation for treating cloudy water prior to boiling.

When boiling is used for treatment, water should be brought to a rolling boil and allowed to boil for 2 minutes. If the camp is located at higher elevations, it will be necessary to boil water longer to achieve inactivation. (Table 1) After boiling, it is important to store the water in a clean container to avoid contamination.

Table 1

Elevation in Feet	Boiling Time
Sea Level	1 minute
1,000	2 minutes
2,000	3 minutes
3,000	4 minutes

Water Treatment by Filtration and Disinfection

If surface water is being used as a source of drinking water, state and federal regulations require that the water be filtered and disinfected to remove or inactive pathogenic microorganisms. Two of the most common pathogens encountered in Alaska are *Giardia* and *Cryptosporidium*. These are pathogenic protozoa that cause disease in humans if they are ingested in drinking water. Both of these organisms are very resistant to chemical disinfectants, such as chlorine and iodine. Consequently, the most reliable method for removing *Giardia* and *Cryptosporidium* from drinking water is by filtration. During filtration, raw water is passed through a porous material that separates

contaminants from the water. Filters are typically constructed of fabric, special media or ceramic. In order to achieve acceptable levels of removal of *Giardia* and *Cryptosporidium*, filters must meet the specifications of NSF Standard 53. If a filter meets this standard, it should be indicated on the label or in the manufacturer's specifications.

Disinfection is done after filtration to inactivate any microorganisms, such as bacteria and viruses, which are too small to be removed by filtration. The two most common disinfectants used to treat drinking water at remote camps are chlorine and iodine. Iodine is typically not very effective against enteric viruses or pathogenic bacteria, so chlorine is the most widely used disinfectant for water treatment. Liquid chlorine is available for drinking water uses at a concentration of about 5.25% available chlorine. Please note, that liquid household bleach is not recommended for disinfecting drinking water because it may contain additives that reduce its effectiveness as a disinfectant. The temperature and pH of the water being treated affects the effectiveness of the free available chlorine. In general, for chlorine to be effective, the pH of the water should be between 6.5 and 8.5. The table below shows the proper amount of liquid chlorine to use to disinfect small volumes of drinking water.

Table 2. Dosage for 5.25 - 6% Liquid Chlorine

Gallons of Water	5	10	20	30	40	50
Clear Water	¼ tsp. *	½ tsp.	¾ tsp.	1 tsp.	1 ¼ tsp.	1 ½ tsp.
Cloudy Water	½ tsp.	1 tsp.	1 ½ tsp.	2 tsp.	2 ½ tsp.	3 tsp.

*tsp. - teaspoon

Note: If a tablespoon is used for measuring, use 1 tablespoon for each 3 teaspoons.

Chlorine needs to be in contact with the water for a specified period of time to achieve adequate inactivation. This is called contact time. The following table shows the amount of time (in minutes) needed to achieve 3-log inactivation of *Giardia* cysts at the typical water temperatures and pH levels found in Alaskan surface waters. It is advisable to have at least two containers at all times to ensure that the potable water is meeting adequate contact times.

Table 3

Free Chlorine Residual (mg/L)	Time needed for Inactivation (minutes)
0.5	408
1.0	216
1.5	152
2.0	121
2.5	102
3.0	90

Water Storage

After treatment, it is important that drinking water be stored in sanitary containers to prevent contamination. All containers should be properly washed, sanitized with a chemical sanitizer approved by the Food and Drug Administration (FDA) and air dried before use.



Appendix B Alaska Department of Environmental Conservation Water Program Guide

Pit Privy Design, Operation and Closure

This step by step guide provides information to assist remote camp operators and others locate, operate, and close a pit privy so that it meets the requirements for proper disposal of human wastes (urine and excrement) at your camp or facility so that human health and the environment are protected.

STEP ONE: Decide where to locate the pit privy.

- Find a site where the groundwater table is deep enough to ensure a 4-foot minimum vertical separation between the bottom of the pit and the groundwater.
- Locate the pit privy in an area where the water will drain away from the pit. Make sure the pit is in an area that is not subject to flooding.
- The pit privy must meet the following minimum separation distances (setbacks).

MINIMUM REQUIRED SEPARATION DISTANCES Measured Horizontally or Vertically	
100 feet	Surface water, wetlands, sloughs, swamps and from any drinking water source serving a single family or duplex residence
150 feet	A water source serving a facility that qualifies to be covered under this Temporary Camp Application, such as that supplying a small temporary camp.
200 feet	Any water source used to supply a public water system serving at least 25 people for more than 60 days.
25 feet	Any property line or Right-of-Way (ROW)
20 feet	Any structure, whether permanent or not, at your facility
20 feet	Any other graywater treatment or disposal system
4 feet	Vertical distance between the bottom of the pit privy and seasonal high groundwater table

If you cannot meet these setback requirements, contact the DEC Temporary Camp Coordinator at the location on the cover sheet of this packet for further assistance. You may be required to provide to DEC site-specific information that documents your facility's particular circumstances, or you may not be eligible for coverage under this application.

STEP TWO: Dig the pit.

- Dig a pit deep enough to provide capacity for the amount of waste anticipated. When sizing the pit, include the estimated amount of ash from burnable solid waste if you intend to dispose of the ash in the pit privy.
- As noted above, dig the pit so that the bottom of the pit is at least 4 feet above the groundwater table to prevent flooding of the pit and provide adequate treatment of the waste.
- Construct the pit to prevent cave-ins. If necessary, cribbing can be used to shore up the sides of the pit. Cribbing should fit firmly against the earthen walls on all sides. Cribbing should descend the full depth of the pit and rise flush with the ground level. Use only untreated lumber for the cribbing.
- Construct the pit so water drains away from the opening and not into the pit. Use the excavated soil to berm up around the pit.

STEP THREE: Construct the privy.

- There need not be a “house” associated with a pit privy as long as the opening of the pit is protected from rain and snow. This prevents the pit from filling with extra liquids.
- There must be a covering over the pit that prevents insects, vermin (voles, shrews, etc.) and other animals from entering the pit. A bench must be constructed over the pit that has a closing lid. If you use a commercial toilet seat, remove the knobs from the underside of the seat and seal the toilet seat to the bench.
- Use durable and cleanable materials. Painted or stained wood surfaces are acceptable.
- If you construct a structure that includes ventilation, screening with openings no greater than 1/16 inch should be used to cover the vent opening.
- Insure that all possible accesses into the pit are sealed to prevent small insects from entering the pit.

STEP FOUR: Operate the pit properly.


- Use lime to control odors. Apply as frequently as needed.
- Use extreme caution when working with strong disinfectants such as lime. Be careful to not spill the lime or allow it to remain on the seat of the privy. Lime may cause chemical burns to the skin.
- Do not dump graywater, garbage, oil, hazardous substances, toxic waste, or un-burned solid waste into a pit privy.
- Ash from burnable solid waste can be dumped into a pit privy.
- A pit privy must be closed down when it fills to within two feet of ground level. See Step Six for instructions on abandoning a pit privy.

STEP FIVE: Provide for temporary or seasonal closure.

- If the privy is used yearly, but closed seasonally, apply lime to the pit prior to the seasonal closure.
- Secure the pit against rain, snow, vermin and other animals. For example - if a toilet seat is used, it should be removed and the hole covered with a board secured to the bench with nails or screws. A tarp may be needed over the bench to further guard against snow and rain filling the pit.
- Ensure that the structure is secured to keep out precipitation, vermin, and other animals.
- When you no longer will be using the pit privy but others may use the facility site in the future, a pit privy may be left in a temporarily secured closure condition if the private landowner or public land manager approves.

STEP SIX: Abandon the pit privy properly when permanently closing down your camp or when the pit becomes full. It is full when solids are two feet from the ground level.

- Remove any structure erected over the pit.
- Apply lime to the pit.
- Cover with a minimum of 2 feet of compacted soil.
- Contour the soil so there is a mound that will ensure drainage away from the pit and to allow of settling of the soil.
- Mark the pit location so that future camp operators avoid digging a new pit into a previously abandoned pit.

 Remember the pit privy must be maintained and operated so it is not a threat to public health or the environment.

For more information or if you have questions, contact:

Division of Water/Wastewater/ADEC
610 University Avenue
Fairbanks, AK 99709
Telephone: 907-451-2177



Appendix C
Alaska Department of Environmental Conservation
Division of Water Program Guide

Graywater Treatment and Disposal Systems
For Temporary & Remote Camps

Introduction

This step by step guide provides information to assist temporary (24 persons or less) remote camp operators and others install the appropriate size and type of graywater treatment and disposal system. With this information you will be able to install a system that meets all the requirements for proper graywater handling at your temporary camp. This guide will:

- Assist you in assessing your graywater treatment and disposal design needs.
- Help you choose the appropriate location for your graywater system.
- Describe the design specifications for proper installation.

This guide discusses the treatment and disposal of graywater only and is only applicable to temporary and remote camps. Graywater is wastewater from a sink, shower, bath, laundry, kitchen or other domestic source and is intended to be used at temporary camps where human waste (excrement and urine) is handled using a using a pit privy, composting toilet or incinerating toilet. See the Department's Pit Privy Guide for information on designing, maintaining and closing a pit privy.

The amount of graywater your operation will produce determines what graywater treatment and disposal system you should consider.

Graywater must be treated to remove unsuitable materials prior to disposal to the environment. This guide provides several graywater treatment options that may be used in conjunction with two types of disposal; land surface disposal and subsurface land disposal. Surface (land) disposal may be allowed provided that a facility meets certain minimum requirements that are intended to protect sensitive receiving environments. Subsurface disposal may also be used when appropriate.

STEP ONE: Estimate the quantity of graywater that will be produced each day.

Use the chart below to make this estimate. The number of people per day is the maximum number of individuals who will be at your camp, including owners, operators, staff and guests. Multiply the per-person quantities by the maximum number of people (24 maximum) to estimate the amount of graywater produced each day.

Water System	Amount of Graywater
Non pressurized water system with one tap and water is used only for cooking and dishwashing	3 gallons per person per day
Pressurized water system where water is used for bathing, general cleaning, cooking and dishwashing (by hand)	20 gallons per person per day
Pressurized water system where water is used for bathing, general cleaning, cooking, dishwashing (by machine or by hand) and laundry	35 gallons per person per day

STEP TWO: Determine type of graywater treatment system you will need.

Use the chart below to determine what type of system(s) you will need.

0 - 50 gallons per day	Small volume graywater barrel treatment system may be used (1 for each 25 gallons per day of graywater produced)
0 to 500 gallons per day and no more than 90 days per year of use	Graywater treatment system with ground surface discharge <u>or</u> with soil absorption system
More than 500 gallons per day and/or more than 90 days per year of use	Graywater treatment system <u>and</u> soil absorption system

STEP THREE: Decide where to locate your graywater treatment and disposal system.

The graywater treatment and disposal systems must meet the minimum separation distances in the chart below. These minimum separation distances apply to the barrel treatment system and to the treatment basin and ground surface or soil absorption disposal systems.

MINIMUM REQUIRED SEPARATION DISTANCE Measured Horizontally or Vertically	
100 feet	Between a graywater treatment system/disposal system (disposing to surface or subsurface) and surface water, river, lake, stream, marine waters, wetlands, sloughs, and swamps.
150 feet	Between a disposal system (surface or subsurface) and a non-public drinking water source, such as that supplying a small temporary camp.
200 feet	Between graywater treatment system and/or disposal system (surface or subsurface) and any water source used to supply a public water system serving at least 25 people for more than 60 days.
25 feet	Between a graywater treatment or disposal system and any property line or right-of-way (ROW)
20 feet	Between a graywater treatment or disposal system and any structure, whether permanent or not, at your facility
4 feet	Between the bottom of the soil absorption system or the drain rock under the barrel treatment system and groundwater, measured vertically.
6 feet	Between the bottom of the soil absorption system or drain rock under the barrel treatment system and bedrock or other impermeable layer such as permafrost.

If you cannot meet these setback requirements, contact the DEC Temporary Camp Coordinator at the location on the cover sheet of this packet for further assistance. You may be required to provide to DEC site-specific information that documents your facility's particular circumstances, or you may not be eligible for coverage under this application.

STEP FOUR: Choose how you will treat the graywater to achieve a primary treatment level.

Primary treatment means that particles 0.04 inch (about the size of a grain of sand) or larger are filtered out before the graywater is discharged. This can be accomplished by purchasing a commercially manufactured system that is rated to treat graywater to primary treatment levels or by building a graywater treatment system on-site.

Two types of graywater treatment systems can be constructed on-site, depending on the amount of graywater produced per day. (See steps One and Two above to estimate the amount of graywater.)

1. The graywater barrel treatment system for a camp or facility treating 50 gallons or less of graywater or less, per day;
2. A graywater treatment basin connected to a surface disposal system or a soil absorption system serving a camp or facility treating 0 and 500 or more gallons per day;

SMALL VOLUME GRAYWATER BARREL TREATMENT SYSTEM

Materials you will need for this project:

- A 55-gallon container (i.e., drum, garbage can or barrel; called "barrel" hereafter) that is tough enough to withstand some impacts, is water tight and has a snug fitting lid. A plastic container is most suitable because it can be cut into more easily transportable pieces when it is removed.
- A shovel or other digging tool.
- A drill (with 1" drill bit) to make holes in the bottom of the barrel.
- Soil filter material: 12" of mixed gravel and sand, 12" of medium graded sand.
- Non-woven geo textile filter fabric to catch 0.04 inch sized or larger particles.

Construction:

- Choose a location that meets the minimum separation distances in the chart found in Step Three.
- Drill or cut a minimum of four 1-inch holes in the bottom of the barrel. The holes must allow a maximum of 25 gallons of graywater to drain through in one day into the coarse gravel and rocks below the barrel.
- Dig a hole in the ground where the barrel will be placed, slightly larger than the barrel diameter and 18 to 24 inches deep into the soil. Fill the bottom 6 to 12 inches of the hole with coarse gravel and rocks. Make sure the bottom 12 inches of the barrel is buried below the ground and that the barrel is stable and plumb.
- Place a piece of non-woven geo textile filter fabric (sized to catch 0.04 inch particles) inside the barrel and over the holes to prevent the sand layer from escaping the container.

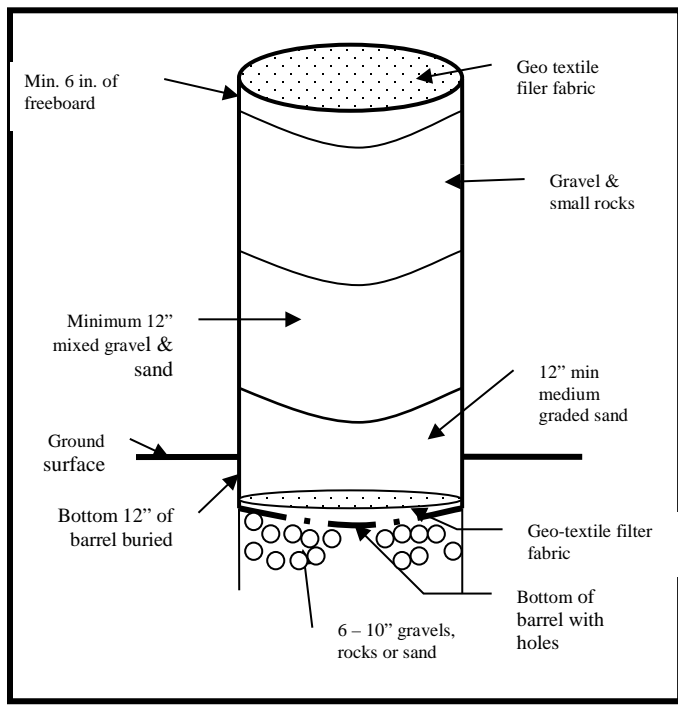


Diagram 1: Barrel Treatment System

- Add 12 inch layer of graded sand (similar to ashtray sand) into the bottom of the barrel on top of the filter fabric.
- Next add a 12 inch layer of mixed gravel and sand.
- Finally add a layer of gravel and small rocks to the barrel. Allow at least 6 inches of free-space at the top. This space is necessary so graywater doesn't overflow the treatment barrel when poured in.
- Place a filter cover made from a non-woven geo textile filter fabric (sized to catch particles 0.04 inches and larger) across the top of the barrel. Leave a slight bow to the fabric so the graywater will not spill out or run off when added.
- Cover the top of the barrel with a snug fitting lid that will shed rain and keep animals, birds and insects away from food scraps that may accumulate on top.

The small volume graywater barrel treatment system **operational requirements** are:

- Twenty-five gallons or less of graywater per day can be treated in a single small volume graywater barrel treatment system.
- A facility can only have one or two small volume graywater barrel treatment systems operating simultaneously at the camp.
- The graywater barrel treatment system needs to be protected from rain and snow.
- Spills, leaks or surfacing of graywater must be prevented from all small volume graywater barrel treatment systems. This protects people at your camp, public health and Alaska's water quality.
- Replace or repair a system immediately if there are leaks or surfacing of graywater.
- If filtration is slow, replace the soil filter material. Use care when handling used filter soil – it may contain harmful bacteria. Disinfect with hydrated lime as required.

BAGFILTER GRAYWATER TREATMENT BASIN

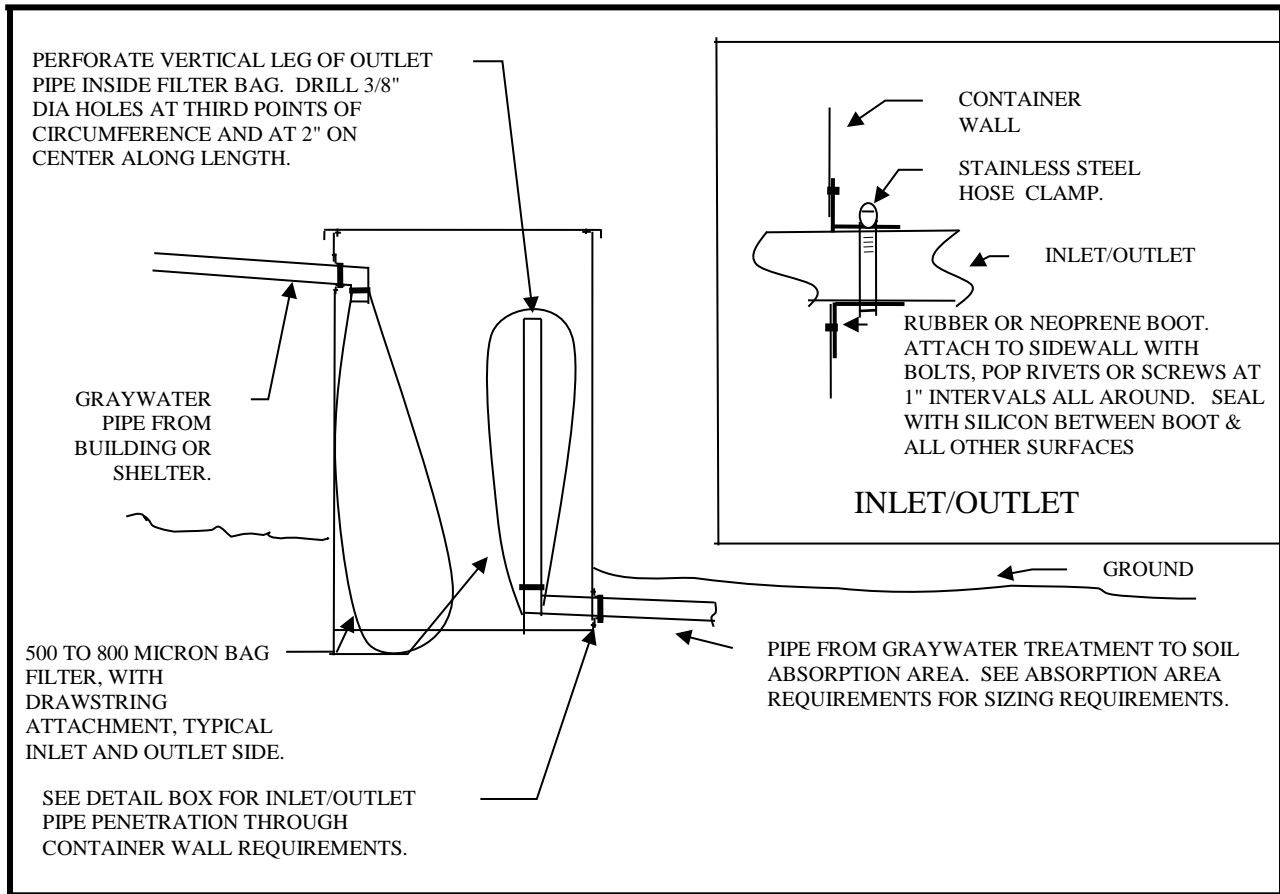
This system is used to treat and dispose of larger quantities of graywater (i.e., greater than 50 gallons per day). Unlike the barrel treatment method, this system has a separate treatment “basin” that filters out the particles larger than 0.04 inches. Following treatment in the “basin”, the leftover graywater receives final disposal, according to the daily volume generated (Step Two). Graywater is discharged to either the ground surface (for daily volumes up to 500 gpd and when site is used no more than 90 days per year) or to a soil absorption system (for daily volumes of up to 840 gpd or when a site is used more than 90 days per year).

Treatment basins may be built at the site in accordance with the drawing below, or they may be self-contained manufactured units that have been evaluated and approved by NSF/ANS. Standard 46 as devices used in wastewater treatment systems. A listing of acceptable treatment basins may be obtained at [Onsite Wastewater Treatment System Services](#)

Construction specifications for a graywater treatment basin required for land surface or subsurface absorption systems:

- Choose a location for both the treatment basin and the soil absorption system that meets the minimum separation distances described in the chart in Step Three.
- The graywater treatment basin:
 1. Must be made of durable materials such as plastic or painted plywood/metal that will not rust, corrode or breakdown when wet and must be constructed to prevent the entry of rodents, vermin, snow and rain.
 2. Must have walls thick enough to withstand external soil backfill pressures (if partially buried) and internal water pressures.
- Penetrations through the basin walls for the inlet and outlet pipes must be durable and water tight.
- Piping materials must be durable, suitable and properly sized for intended use.
- An internal filtration system must be constructed inside the basin with separate bag filters at the inlet and the outlet that:
 - Have openings that are between 500 and 800 microns in diameter
 - Are sized to filter no more than 50 gallons per day per square foot of filter area
 - Are securely attached to the inlet and outlet piping, inside the basin with a drawstring to allow for easy changing

Diagram 2. Graywater Treatment Basin



STEP FIVE: Determine what type of disposal system will be installed with the treatment basin.

There are two types of disposal systems that may be used: subsurface soil (Steps 5A and 5B) and land surface disposal system (Step 5C)

Subsurface Land Disposal

There are three types of soil absorption systems to choose from:

1. Gravel-less pipe covered with a fabric membrane. These are available from a variety of plumbing sources and manufacturers.

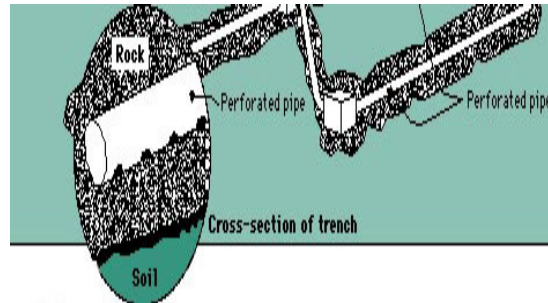


Gravelless single pipe (courtesy ADS)



2. Leaching chambers. These are available from a variety of plumbing sources and manufacturers.

3. A shallow trench type soil absorption system constructed with sewer pipe and 3/4 to 3 inch drain rock as described in the ADEC Installer's Manual for Conventional Onsite Domestic Wastewater Treatment and Disposal Systems. This can be found on the ADEC web site: [ADEC Installer Manual](#)



STEP 5A: Determine the size of the soil absorption system that will be required.

Length of soil absorption system = $\frac{\text{number of people} \times \text{estimated graywater produced per person}^1}{\text{Application rate (from the chart below)}}$

Application Rate (gpd/foot)

Soil Type	8 inch Gravel – less Pipe ⁴	10 inch Gravel- less Pipe ⁴	Chambered System ^{4,5}	Drain Field Rock ⁴
Granular soils ²	6.0	8.0	12	4 X trench width
Fine soils ³	3.0	4.0	6	2 X trench width

¹ In gallons per day per person, based on determination from Step One.

² Application rate is 4 gallons per day per square foot for gravels and coarse sand.

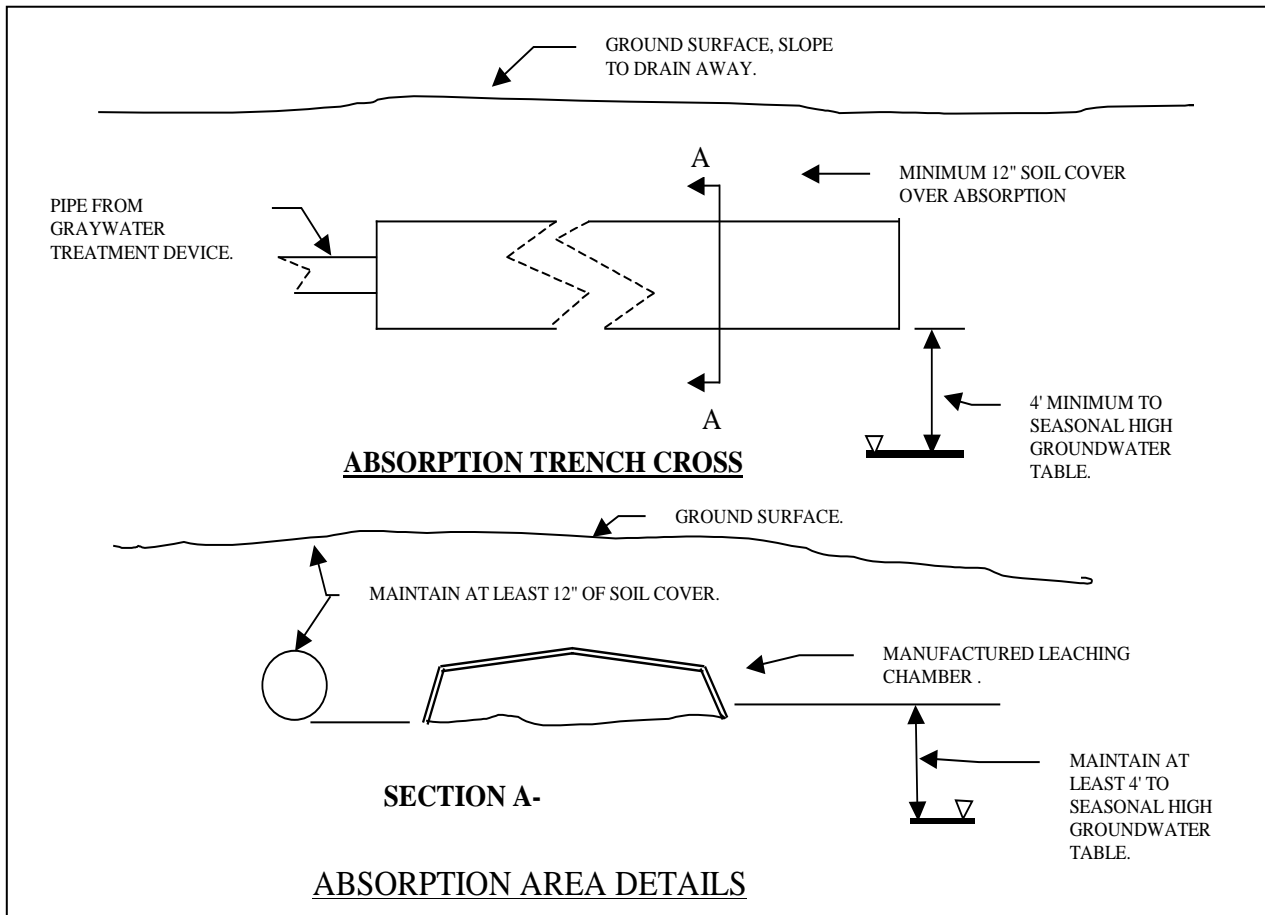
³ Application rate is 2 gallons per day per square foot for fine grained soil such as silt, silty sand or silty gravel.

⁴ In gallons per day per linear foot of pipe, chamber or trench.

⁵ Based on a chambered unit width of 3 feet.

STEP 5B: Install the soil absorption system using the following specifications

- The system must meet all separation distances in Step Three.
- The absorption system must be covered with a minimum of 12 inches of soil (more if operated during freezing conditions).
- Conventional trenches, gravel-less pipe and leaching chamber runs should be 100 feet in length or less.



Graywater treatment basin and soil absorption system operational requirements:

- Graywater treatment basin and soil absorption system must be operated so that there are no spills, leaks or surfacing of wastewater and in such a manner as to not be a threat to public health or the environment.
- Systems must be repaired or replaced immediately if there are leaks or surfacing of graywater.
- Operating this system during periods of continuous freezing conditions is not permitted unless it is adequately insulated or otherwise protected against frost.

STEP 5C: To discharge via surface land disposal

Surface land disposal must meet the separation distances listed in Step 3. The discharge pipe or hose must be terminated and positioned so that the treated water that is discharged does not directly migrate to surface water or cause erosion or damage to vegetation. The discharge area should be closely monitored to make sure that vegetation is not damaged and to prevent accumulation of slimes or other residual materials. The point of discharge (such as end of hose) should be periodically moved. The area must be clearly marked or fenced to prevent foot traffic.

For more information or if you have questions, contact:

Division of Water/Wastewater/ADEC
610 University Avenue
Fairbanks, AK 99709
Telephone: 907-451-2177



Appendix D

Alaska Department of Environmental Conservation

Temporary Camp Graywater Use and Handling

The camp produces wastewater, called “graywater” from sinks, showers, baths, laundry, and the kitchen. A clean camp generates, treats and disposes of its wastewater in ways that protect the health of camp occupants and also the great Alaskan environment.

Below are simple rules a camp and its occupants can follow to ensure proper use and handling of the camp’s wastewater.

- Use low-phosphate laundry and dish detergents at the camp.
- The camp’s graywater should not contain kitchen oil, floating solids, foam or garbage.
- Prior to disposing of the graywater, it should be treated through a bag filter or screening to remove (organic) particles from the water. The particles should be disposed of either in a pit privy or in the same manner as other solid wastes generated by the camp.
- The camp’s graywater discharge area is required to be at least 100 feet from a lake, pond, stream or river. Also, a surface discharged graywater must not be directly connected to any surface water by natural channels, gullies, etc.
- A camp makes sure that its occupants stay healthy by limiting access to the wastewater disposal area through fencing, remote location, signage*, etc.
- To prevent erosion and to allow the camp’s wastewater to percolate (or sink) into the soil -- where natural processes will treat and purify it -- the wastewater should not be discharged on a steeply sloping area (>25% slope).
- A surface discharge point should be relocated if solids or slime accumulates on the ground surface and vegetation, or if the vegetation begins to wilt or turn yellow. Moving the discharge hose 10-20 feet may be sufficient to allow the area to recover quickly.

*Laminate or print on Rite-in-Rain paper for posting in camp

February 2015



Appendix E

Alaska Department of Environmental Conservation Food Safety Food Condition and Source

Food Condition and Source Requirements

Food establishment operators must ensure that food used in their facilities is wholesome, not adulterated and safe for human consumption. The following is a summary of the food condition, source, and prohibition regulations of primary interest to temporary camps.

Food used in a food establishment must meet the following requirements:

CANNED FOODS

Hermetically sealed or canned food must come from food processing plant that is permitted or certified by the local, state, or federal agency that has jurisdiction. No home canned food may be used.

EGGS

Use only clean, whole eggs with the shell intact. Liquid, frozen, dry eggs must be pasteurized or use egg substitutes.

MEAT, POULTRY and GAME MEAT

Meat, poultry and game meat must come from a facility that is inspected by the USDA. Exceptions would include reindeer for retail sale at a market described in 18 AAC 31.820, or meat imported from a foreign country that has an inspection program of game meat approved by the USDA or the FDA.

MILK PRODUCTS

Milk must meet Grade A quality standards. Powdered milk must be Grade A or equivalent and must be reconstituted with potable water. Reconstituted milk must be used within 24 hours from the time that it is reconstituted.

SEAFOOD

Raw Fish must be obtained from a seafood processor with a current permit or another approved source. However, sport-caught fish caught by a client of a sport fishing enterprise may be prepared and served to that client.

Shellfish must come from an approved shipper or a facility with a current Seafood Processing Permit. Containers of shell stock must have a tag or label that is securely fastened to the container which includes the shipper's permit number, name, address, the consignee's name and address, the type and amount of shell stock in the container, and the harvest area. These tags or labels must stay with the container until it is empty and kept on file at the food establishment for at least 90 days.

Smoked or dried seafood products must come from a permitted seafood processing facility or another approved source.

PROHIBITED FOODS

Because of the significant health hazards and the potential for human illness, food establishments are prohibited from serving the following foods:

- The meat from fox, polar bear, bear, and walrus
- Seal oil and whale oil, with or without meat
- Fermented game meat, such as beaver tail, whale or seal flipper, and muktuk
- Fermented seafood products, such as salmon eggs or fish

For more detailed information about the regulations concerning Food Condition and Source and Prohibited Foods see 18 AAC 31.200 and 18 AAC 31.210 or contact the Temporary Camp Coordinator at 907-451-2100.

Appendix F

Building a Bear Resistant Enclosure

- 🐾 Use a minimum of 5/8 plywood, 2 x 4 construction, and screws instead of nails.
- 🐾 Use heavy duty hinges, and latches that are strong enough that they can't be pried open by claws.
- 🐾 Use metal flashing to cover seams so that claws can't get into them.
- 🐾 The enclosure should be secured so that it can't be tipped over.
- 🐾 If you can get into it without using your hands, by jumping on it, kicking it, or using your shoulders - it isn't bear resistant.
- 🐾 Go to www.juneau.org/bears for illustrations and specifications on bear resistant enclosures.

Learn More About Bears!

You can find out more about living with bears from the following web sites:

Build your own Bear Resistant Enclosure
<http://www.juneau.org/bears/>

Living in Bear Country
<http://www.juneau.org/bears/publications.php>

Living in Harmony with Bears - Bears and Food
www.state.ak.us/adfg/wildlife/geninfo/game/harmony.htm

Bear Facts: Traveling in Bear Country
www.state.ak.us/adfg/wildlife/geninfo/game/bearfax.htm

Safe Camp Kitchens in BEAR COUNTRY



Don't attract bears to your camp kitchen!

Provided by the ADEC
Division of Environmental Health
555 Cordova Street
Anchorage, AK 99501

BEARS LIKE GARBAGE

Bears like anything smelly or edible. If bears get into food or garbage at your camp, they will become "food conditioned" and keep coming back.

A FED BEAR IS A DEAD BEAR

Food conditioned bears become aggressive and dangerous. They cause problems in areas where there are people, and often have to be destroyed.

ELIMINATE ATTRACTANTS

Follow these guidelines to make sure that bears are not attracted to your camp kitchen. Keeping bears away from food and garbage is the best way to avoid conflicts between bears and people.

BEAR RESISTANT ENCLOSURES

- 🐾 A bear resistant enclosure is one that you can't get into without using your hands or tools.



- 🐾 If it can be opened by stomping on it, kicking it or running into it with your body it isn't bear resistant.
- 🐾 Plans for building a bear resistant enclosure can be found at www.iuneau.org/bears/.

GARBAGE DISPOSAL

- 🐾 Incinerate garbage daily in a fuel fired incinerator that meets ADEC standards for combustible residue.
- 🐾 Haul it daily to an approved regional disposal site surrounded by a bear proof fence.
- 🐾 Do not bury or burn garbage - it will still attract bears!

GARBAGE STORAGE

- 🐾 Store garbage in a bear resistant enclosure or container.
- 🐾 Examples include a shed, a steel drum with locking lid, or a steel shipping container.

FOOD

- 🐾 Keep human and livestock food in a bear resistant building or bear proof container.
- 🐾 Build a bear proof fence around the camp, dining halls, kitchens or sleeping areas.

ODORS

- 🐾 Wash cans, bottles and other items to remove food smells.
- 🐾 Reduce odors by cleaning garbage containers with bleach or ammonia.
- 🐾 Double bag smelly items.
- 🐾 Separate wet garbage and keep it in an airtight container.