ROYAL CANADIAN ARMY CADETS

SILVER STAR

INSTRUCTIONAL GUIDE

SECTION 3

EO C321.01 – IDENTIFY METHODS OF WASTE DISPOSAL IN THE FIELD

Total Time: 30 min

PREPARATION

PRE-LESSON INSTRUCTIONS

Resources needed for the delivery of this lesson are listed in the lesson specification located in A-CR-CCP-703/PG-001, Chapter 4. Specific uses for said resources are identified throughout the instructional guide within the TP for which they are required.

Review the lesson content and become familiar with the material prior to delivering the lesson.

Make slides or handouts of Figures 6 to 8.

Choose an area in which each pair of cadets can find alternative sources of toilet paper.

PRE-LESSON ASSIGNMENT

N/A.

APPROACH

An interactive lecture was chosen for TPs 1 and 2 as it allows the instructor to present background information about field hygiene and environmentally conscious waste disposal.

A practical activity was chosen for TP 3 as it is an interactive way to introduce the cadets to natural materials in the field that can be used in place of toilet paper.

INTRODUCTION

REVIEW

N/A.

OBJECTIVES

By the end of this lesson the cadet shall have identifed methods of waste disposal in the field.

IMPORTANCE

It is important for cadets to understand how to safely dispose of waste in the field as wilderness areas are increasingly more populated and traditional waste disposal methods are being regarded as detrimental to the environment.

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Teaching point 1 **Discuss Field Hygiene**

Time: 5 min Method: Interactive Lecture



By emphasizing these points, the cadets will understand the importance of individual hygiene in the field. Human waste is the most frequent conveyor of intestinal diseases.

PRACTICING THE BASIC RULES OF HYGIENE

Change Clothes Regularly

It is important to keep all clothing, especially undergarments and socks, as clean and dry as possible. Clothing, as well as the body, must stay clean and dry. Keeping clothes clean will lessen the chances of developing rashes and infections. Change clothes, especially socks and undergarments, regularly. Use foot powder when available.

Properly Dispose of Waste Water

There will always be a quantity of waste water from personal bathing and cooking in the field. Proper disposal of waste water will assist in preventing insect infestation.

Follow these steps to properly dispose of waste water:

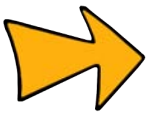
1. Collect all large particles with a food strainer or cloth and place in the garbage.
2. Place the remaining waste water in a container.
3. Dig a small hole at least 60 m away from any water source.
4. Pour the waste water in the hole.
5. Fill in the hole with natural materials.

Wash Regularly

In order to minimize the spread of diseases, hand washing should be enforced when in the field. There are two common approaches to hand washing – soap and water and hand sanitizers.

It is important to always keep the hands clean. Although hand washing is preferred, having hand sanitizer is convenient when soap and water are not available. Dispose of all waste water.

Washing the body is very important and should be done daily. Pay special attention to areas of the body that are susceptible to rash and fungus infection (the scalp, the crotch, and between the toes).



All waste disposal (including human waste) should be a minimum of 60 m (200 feet) from water sources.

DIARRHEA

There are many ways one can develop diarrhea: viral or bacterial infection, contaminated food, food allergies, and soap in food.

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While in the field, the major concern is how quickly diarrhea increases water loss.

Diarrhea Which Requires Evacuation

Conditions that will require evacuation include:

- fever,
- presence of blood,
- shock,
- diarrhea or vomiting lasting longer than 24 hours,
- pain lasting longer than 24 hours, and
- any abdominal pain.

Treatment for Diarrhea

The simplest treatment for diarrhea is:

1. Replace lost fluids orally with clear liquids. Encourage patient to drink slowly in small sips. If fluids are not replenished in this way, further dehydration will occur.
2. Once clear liquids are accepted, move the patient to simple carbohydrates: bread, rice and toast (BRAT).
3. Continue giving fluids. Tea may be included.
4. Slowly move back to normal diet, and continue giving fluids.

WATER PATHOGENS

Water pathogens are micro-organisms living in water that are capable of causing human disease. They can be classified into three types: bacteria, viruses, and protozoan parasites.

Although bacteria are a natural part of life, some bacteria (particularly in water) lead to serious illness such as giardiasis or cryptosporidiosis.

Viruses and protozoa are found in surface water that has been contaminated by animal or human feces.



It is crucial to filter and/or purify all water in the wilderness.

CONFIRMATION OF TEACHING POINT 1

QUESTIONS

Q1. What are the basic rules of hygiene?

Q2. How is diarrhea contracted?

Q3. What are water pathogens?

ANTICIPATED ANSWERS

A1. The basic rules of hygiene are:

- change clothes regularly;

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- properly dispose of waste water; and
- wash regularly.

A2. Diarrhea may develop through viral or bacterial infection, contaminated food, food allergies, and soap in food.

A3. Water pathogens are micro-organisms that can cause human disease.

Teaching point 2 **Discuss Latrine Selection**

Time: 10 min Method: Interactive Lecture



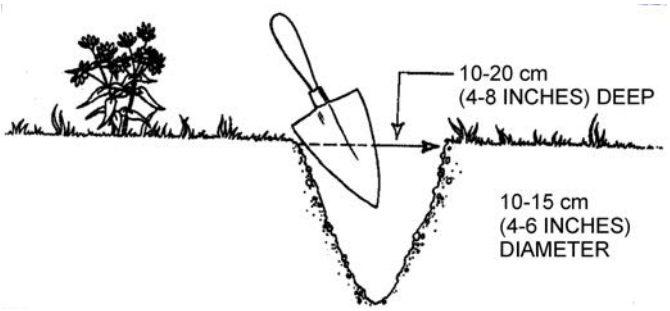
This TP is intended to familiarize cadets with the topic of outdoor toilets, and generate interest in using accepted forms.

SURFACE DISPOSAL

Surface disposal is the least accepted form of waste disposal in the wilderness. Surface disposal should be avoided at all costs. When training, cadets will be informed of the acceptable form of disposal.

CATHOLES

Catholes are the most acceptable form of waste disposal other than packing the waste out. Catholes should be located at least 60 m (200 feet) away from any water source, campsite or trail. The cathole should be 10–20 cm (4–8 inches) deep and approximately 10–15 cm (4–6 inches) in diameter. The most suitable area for a cathole would be in organic soil rich in micro-organisms in a moist area that still receives a fair amount of sunlight.



A. McGivney, Leave No Trace: A Guide to the New Wilderness Etiquette, Mountaineer Books. (p. 64)

Figure 1 Cathole



Demonstrate cathole digging.

LATRINES

Considered a multi-person cathole, latrines should only be built when occupying a site longer than two nights or when there are more than 10 people in a group.

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Latrines should be a minimum of 60 m (200 feet) away from a water source, campsite, or trail. They should be wider than long and a minimum of 30 cm (1 foot) deep. Latrines should be filled in when the waste is 10–15 cm (4–6 inches) from the surface.

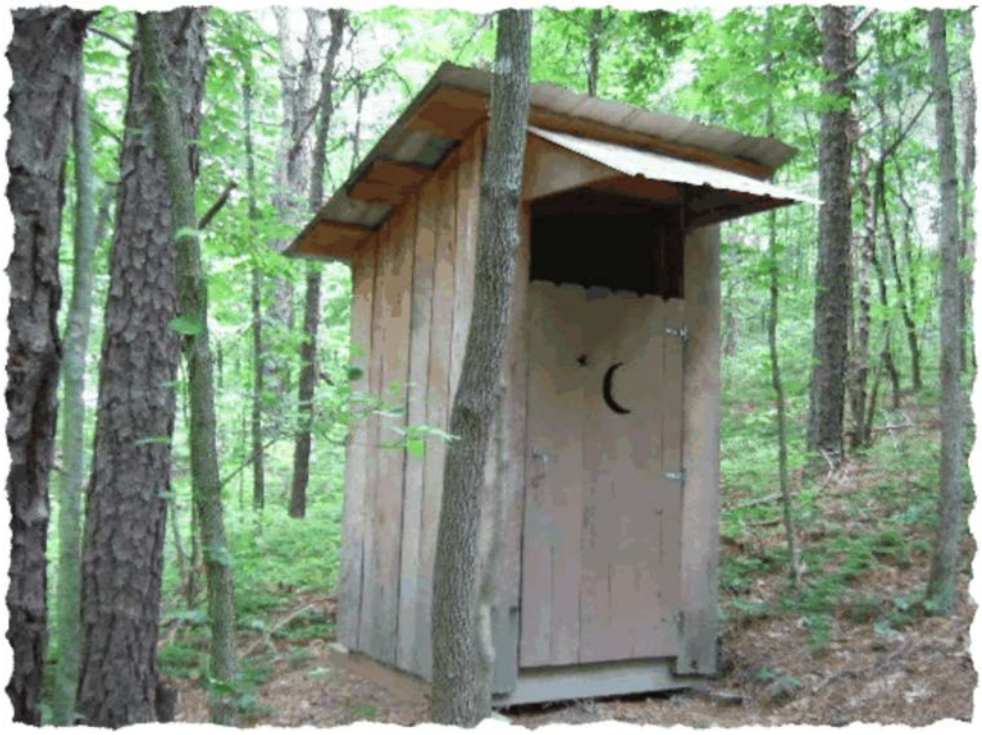
Human waste can take 1–3 years to decompose. Be aware of where waste is deposited.

Human urine may cause leaf damage and browning on some plants. In addition, certain animals are attracted to the salt in human urine, often eating covered plants.

WILDERNESS TOILETS

Outhouses

In order to prevent the spread of disease, many provincial and national parks are building new outhouses with sustainable technology. Older outhouses in parks should be used whenever available, despite their sometimes undesirable appearance.



http://blogs.redding.com/redding/mbeauchamp/archives.gif. Retrieved March 18, 2008, from http://blogs.redding.com/redding/mbeauchamp/archives.gif

Figure 2 Outhouse

Thunder Boxes

Often simply a box with a hole and seat, thunder boxes can be found in wilderness areas. Thunder boxes are built by earth-conscious hikers and area users to prevent human waste from littering the ground.

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Verify against the official publication.



barkingspace.wordpress.com. Retrieved March 18, 2008, from http://www.figtography.com/Blog/thunderbox.jpg

Figure 3 Thunder Box

Ammo Cans

Traditionally used by paddlers and river guides in wilderness where regulations require the removal of human waste, ammo cans, sometimes called groovers, are water tight and sealed. Ammo cans are particularly useful on water as the can is very durable and floats.



Surplus & Outdoors. Retrieved March 18, 2007, from http://www.surplusandoutdoors.com/shop/877/shopscr89.html

Figure 4 Ammo Can

Buckets

In areas above the tree line, mountaineers often use large plastic buckets as toilets. The buckets are sometimes lined with a garbage bag while in use. When the trip is done, or when the bucket is full, the bag is tied off and the bucket is carried back down, and subsequently dumped in the proper facilities.

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COMMERCIAL WASTE UNITS

Composting Toilets

The most popular commercial unit on the market, a composting toilet, comes in various models and can be seen in most provincial and national parks within Canada. The simplest forms of composting toilets use sawdust or mulch which is then placed over a deposit.

Pack-It Toilet

Marketed as an ultra light personal toilet kit, the Pack-it Toilet was developed as a way to try to help the wilderness. People invariably do not want to waste time with packing out waste. With the Pack-it Toilet, people can take responsibility for their waste in a comfortable way.

CONFIRMATION OF TEACHING POINT 2

QUESTIONS

Q1. What is the most acceptable form of waste disposal?

Q2. When are latrines used?

Q3. What is a composting toilet?

ANTICIPATED ANSWERS

A1. Catholes.

A2. Latrines should only be built when occupying a site longer than two nights or when there are more than 10 people in a group.

A3. Composting toilets use sawdust or mulch which is then placed over a deposit.

Teaching point 3 **Select Natural Toilet Paper**

Time: 10 min Method: Practical Activity



This TP is designed to give cadets the opportunity to select alternatives to toilet paper.

Cadets should be reminded that they do not need to remove sources from live trees or bushes.

There was once a time when there was no toilet paper. During this time, and in today's world during times of potty emergencies, natural toilet paper can be used.



With all the choices for substitute toilet paper, the choice of living plants should be a last resort. Pick a leaf here, a leaf there; do not pick clumps.

Do not pick vegetation or leaves in parks or restricted areas.

LEAVES

Large, soft leaves are the best. If needed, small leaves can be used. Use sparingly.

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Inspect the leaves before using. Leaves can sometimes hold sap or other sticky substances, be covered in bristles or barbs, or more seriously be covered in hispid (short stiff hairs) which can penetrate the skin.

Autumn foliage, in many colours, offers a selection of leaves, some of which will stay pliable through the winter months.

The most common trees and source of leaves in Canada are:

- alder,
- beech,
- birch,
- chestnut,
- elm,
- hickory,
- maple, and
- oak.



Natural Resources Canada, 2002, Round Leaves. Retrieved March 22, 2007, from http://www.cfi.scf.rncan.gc.ca/imfec-idecf/hosttrees/deciduous/leaves_round.html

Figure 5 Round Leaf



Review photos of poison ivy, poison oak, and poison sumac with cadets.



Poison ivy, poison oak, and poison sumac are not to be used for alternative sources for toilet paper.

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Canadian Weed Science Society. Retrieved March 18, 2008, from www.cwss-scm.ca/weeds/images/F22_centralPoidonIvy.jpg

Figure 6 Poison Ivy



Agriculture and Agri-Food Canada. Retrieved March 18, 2008, from http://res2.agr.gc.ca/ecorc/poison/vernix_e.htm

Figure 7 Poison Sumac

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The Coloma Valley: Where the Gold Rush Bega: Coloma Valley Nature Reference. Retrieved March 18, 2008, from www.coloma.com/reference/401-1-18-poisonoak.jpg

Figure 8 Poison Oak

MOSS

Using moss has both advantages and disadvantages. The advantage with moss is the softness, but the disadvantage is that removing a small amount of moss will affect a large area of moss.

GRASSES

Grasses will work well, but can be a hazard due to slicing leaves. Grasses can cut skin similar to a paper cut. If using bamboo, be extra careful to avoid such injuries.

EVERGREENS

These have leaves that look like needles. Coniferous trees generally have persistent foliage (leaves) consisting of needles or scales. Found in certain areas, evergreens are often the only choice. Be sure to inspect the greens for sap before using.

The most common coniferous trees in Canada are:

- cedar,
- fir,
- hemlock,
- larch,
- pine,
- spruce, and
- tamarack.

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The Canadian Encyclopedia, 2007, Conifers, Copyright 2007 by Alberta Forest Service. Retrieved March 22, 2007, from http://www.thecanadianencyclopedia.com/index.cfm?PgNm=TCE&Params=A1SEC818695

Figure 9 Coniferous Needles

WATER

Regarded by some as the cleanest, water wiping has been practiced for years.

The Water Wipe. Using a small container, fill it with water. Bring the container to the chosen spot. When finished, simply trickle water into the free hand, never contaminating the fresh water, and use it to splash or wipe.

Snow is also an excellent alternative to toilet paper. There is an initial shock towards the feeling of the snow on the area, but will leave the area clean.

In certain countries, it is customary to wipe only with the left hand and eat with the right hand.

ACTIVITY

Time: 5 min

OBJECTIVE

The objective of this activity is to allow cadets to identify what natural materials may be used as a substitute for toilet paper.

RESOURCES

N/A.

ACTIVITY LAYOUT

Choose an area in which each pair of cadets can find alternative sources of toilet paper.

ACTIVITY INSTRUCTIONS

1. Divide the cadets into pairs (same gender).

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2. Inform cadets of the boundaries.
3. Have cadets identify natural sources of toilet paper.
4. Cadets should check the source to ensure:
    a. there are no sticky substances attached to the source;
    b. there are no insects; and
    c. the source is appropriate.

SAFETY

- Cadets will respect boundaries for the activity.
- Cadets will remain within eyesight of their partner at all times.

CONFIRMATION OF TEACHING POINT 3

The cadets participation in the activity in TP 3 will serve as the confirmation of this TP.

END OF LESSON CONFIRMATION

The cadet's participation in identifying natural sources of toilet paper will serve as the confirmation of this lesson.

CONCLUSION

HOMEWORK/READING/PRACTICE

N/A.

METHOD OF EVALUATION

N/A.

CLOSING STATEMENT

Properly disposing of waste in the field is essential to personal hygiene, preventing illness and protecting the wilderness setting we all enjoy.

INSTRUCTOR NOTES/REMARKS

N/A.

REFERENCES

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