Town of Inuvik, NT

Operation and Maintenance Manual for Solid Waste Disposal Facilities

March, 2006

Re-issued March 2012. This issue includes Errata and changes to Appendices in effect at 31 December 2011.

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March, 2006

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The Town of Inuvik

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OPERATION AND MAINTENANCE MANUAL

SOLID WASTE DISPOSAL FACILITIES, INUVIK, N.W.T.

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Appendix A **Snow Dump and Land Farm Areas [Deleted 2011]**

Appendix B **Legislation, Guidelines and Other Reference Information**
(Included here are a list of contents, and abstracts. Appendix B, full texts of reference items, is bound separately.)

Appendix C **Application to Dispose of Waste Asbestos [Form]**

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SECTION 1.0
BACKGROUND INFORMATION

1.1 PURPOSE OF MANUAL

The purpose of this manual is to promote continuity of the best practices in solid waste management and disposal adopted and developed by Town staff.

The manual may also be useful to regulators, such as the Gwich'in Land and Water Board, in their work of ascertaining that Inuvik's practices are appropriate to the setting and of a suitably high standard.

1.2 SCOPE OF MANUAL

This manual describes the operation and maintenance of Inuvik's solid waste disposal grounds. It also describes Inuvik's arrangements for dealing with special wastes, for example, asbestos.

Solid waste collection is outside the scope of this manual, except as regards to delivery into the disposal site.

In keeping with the manual's purpose it is written in management-level terms. For example there is a brief description of the "area" method of landfill operation, but no detailed instructions to machine operators as to steps involved in daily and seasonal operations.

1.3 UPDATES

The matters described in this Manual are subject to change. Changes may occur in the size of population served, in commercial and industrial activities, and in the volume or nature of wastes collected. Methods of handling and disposing of wastes continue to evolve. Inuvik's long term planning of the development of its waste disposal sites will also continue to evolve; and at the same time the environmental precepts and priorities on which such planning is based are also subject to evolution and change. Finally, Inuvik's existing disposal sites will, eventually, become filled, or will be overtaken by townsite expansion. This Manual will need to be updated from time to time to reflect changes as they occur.

1.4 ORGANIZATION OF MANUAL

Section 1 of this manual provides general background information on

- Principles that are the basis of Inuvik's strategy for the management of solid wastes and special wastes;
- Collection of wastes in Inuvik; and
- Waste disposal sites.

Section 2 describes the current state of development of Inuvik's community landfill, its operation plan, and maintenance requirements.

Section 4 describes aspects of a special inert dry wastes landfill, which Inuvik has used in the past and keeps in reserve, but has no current plans to use again.

Section 4 describes Water License requirements, in particular the portions of the Surveillance Network Program which apply to landfill sites.

1.5 FUNDAMENTAL PRINCIPLES; OPERATING STRATEGY

1.5.1 Fundamental Guiding Principles

Inuvik's management of solid wastes, and its management of all special and hazardous wastes (other than sewage, which is addressed separately), is based on the following objectives and precepts:

- A waste management system aims at protection of public health and the environment, and minimization of aesthetic impacts.
- Waste material is the property and responsibility of the generator, except as otherwise provided for by the Municipality (or senior level of government).
- It is in the public interest that the Municipality undertake certain responsibilities in the collection and disposal of solid waste.
- Municipal services are limited to ones which reflect appropriate and cost effective allocations of the Municipalities' funds.

Inuvik's environmental precepts, and the division of responsibilities between waste generators and the Municipality, are summarized below.

1.5.2 Environmental Considerations

Relevant environmental precepts are the following:

- It is environmentally acceptable to dispose of domestic waste and general refuse (special and hazardous wastes excepted) in a landfill which is appropriately located, developed, operated and maintained.
- It is environmentally acceptable to dispose of bulky metal waste, waste building materials, and dry inert special wastes in separate sections of a landfill which is appropriately located, developed, operated and maintained.
- It is environmentally acceptable to dispose of solid inert special and hazardous waste (for example, asbestos) in a landfill which is appropriately located, developed, operated and maintained.
- Many hazardous and special wastes are not suitable for disposal in landfill. Examples include oils, solvents, paints, batteries, pesticides, and pharmaceuticals, among many others. If proper reclamation, treatment and/or disposal is not catered to locally, then such wastes must be exported to proper handling elsewhere.
- Recycling reduces waste of refined materials and manufactured items, and in addition reduces the waste burden on the landfill. Recycling and salvage are to be encouraged, and practiced wherever they can be made cost-effective or nearly so.

1.5.3 Responsibilities of Waste Generators

Property owners, tenants, and all other waste generators whether persons or corporations are responsible for their wastes except as specifically provided for by the Municipality. Responsibilities for waste collection and disposal undertaken by the Municipality, and certain responsibilities which are left in the hands of waste generators or which are assigned to them as users of the Municipality's service, are set out in Town of Inuvik Bylaw 92-1215 (the "Garbage Collection Bylaw"). In general terms, waste generators are responsible for the following:

- To know the nature and classification of their wastes.
- To know which of their wastes are eligible for disposal through the municipally operated collection system, and which are not.
- To provide suitable containers for wastes eligible for collection by the municipally operated collection system. To be considered suitable a container must be of a size and shape, and properly fitted, for handling by collection crews and/or equipment according to crews' usual practices.
- To reserve and protect the use of their waste collection containers solely for disposal of wastes eligible for collection by the municipally operated collection and disposal system.
- To keep their waste collection containers in suitable locations having suitable access for servicing by collection vehicles and crews.
- To deliver to the correct collection station in the Community Landfill any materials that are accepted in the landfill but ate not suitable for normal municipal collection (owing to bulk, to suitability for recycling, etc).
- To have transported to proper disposal elsewhere any materials that are not accepted for disposal in the Community Landfill (owing to special hazards, for instance).
- To participate in Spring Cleanup by clean-up of own property.
- To deliver household hazardous wastes to collection points established by the Municipality during household hazardous waste collection campaigns.

Disposal of any waste through the municipally operated collection and disposal system which is of a type not normally acceptable for collection and disposal by that system, whether deliberately or inadvertently does not relieve the generator of responsibility for that waste and its effects.

1.5.4 Responsibilities of the Municipality

The Municipality undertakes certain responsibilities, as a public service, where it is considered to be in the public interest to do so.

- The Municipality provides, and operates and maintains, a landfill site suitable for disposal of domestic waste and general refuse.
- The Municipality provides, at its landfill site, drop-off and storage areas for materials that are handled separately from usual landfill garbage owing to recycling opportunities, environmental concerns, or other factors. Currently, separate locations are provided for recyclable beverage containers; recyclable metals such as brass and copper; tires; batteries; paint; refrigerators (due to CFC content); other household appliances; metal

demolition debris and other large metal items; combustible demolition debris; honey bags; and a “free store” of re-usable household electronics and furnishings. As time passes areas may be added or closed, as needs change.

- The Municipality maintains, currently inactive but in reserve, a suitable disposal site for inert special wastes. Special arrangements apply to the disposal of inert special wastes, as described later. Waste generators are responsible for all aspects of delivery to the disposal site, and for any necessary packaging and marking.
- The Municipality undertakes responsibility for routine weekly collection of garbage, collectible refuse and ashes. The terms "garbage", "collectible refuse" and "ashes" are defined in Bylaw 92-1215 and they exclude hazardous and special wastes.
- The Municipality provides access to the solid waste site to businesses and private individuals for private delivery of wastes of all classes normally accepted at the site. The Municipality collects tip fees. Fees depend on vehicle size.
- The Municipality designates one week each year for annual Spring Cleanup. The event is thoroughly advertised in advance. Property owners are encouraged to participate. Service clubs are rewarded by honoraria for undertaking cleanup of assigned public areas. Solid waste site tip fees are waived during Spring Cleanup. Naturally, usual restrictions on classes of wastes accepted at the solid waste site still apply.
- The Municipality holds an annual household hazardous waste campaign. The event is thoroughly advertised in advance. All residents are encouraged to participate. During the campaign all classes of household hazardous waste, including but not limited to solvents, paint, pesticides, pharmaceuticals, ammunition, etc, without exception, can be dropped off at the Fire Hall. The Municipality undertakes responsibility to export to proper disposal the wastes it receives through the campaign.

1.6 MUNICIPAL COLLECTION OF SOLID WASTES AND SPECIAL WASTES

Domestic garbage and similar general refuse is collected from cans and bins once per week. Collection vehicles deliver waste to the community landfill site. The Municipality contracts with a private firm to provide this service.

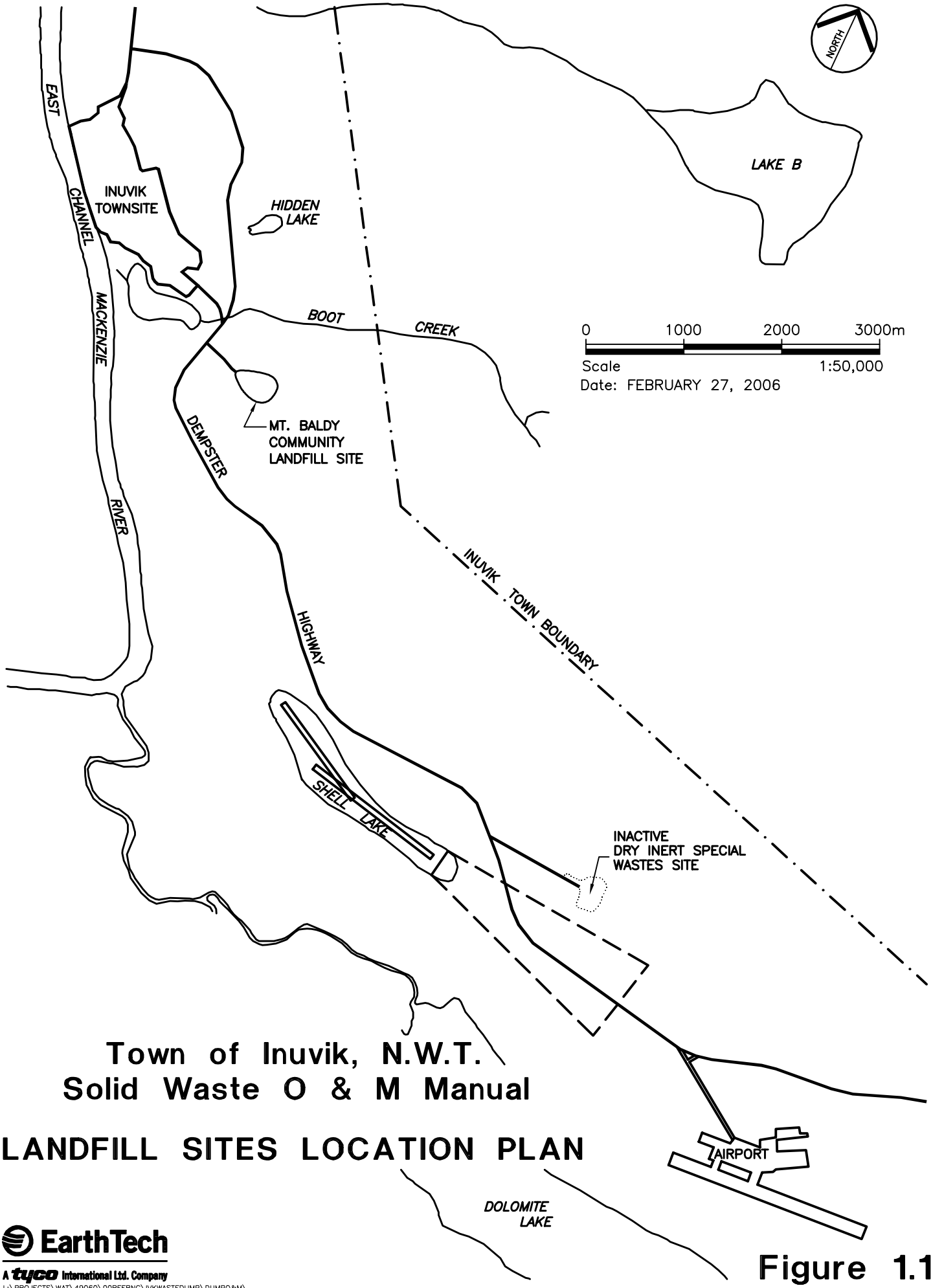
As provided for by the Municipality, some waste is delivered to the community landfill site by private citizens, businesses and public agencies. Much of the bulky metal waste and construction debris generated is delivered privately.

As indicated earlier, Inuvik does not undertake to collect wastes other than domestic garbage and general refuse, except as provided for during Spring Cleanup and the annual household hazardous waste campaign.

1.7 SITES FOR DISPOSAL OF SOLID WASTES

1.7.1 Inventory of Solid Waste Sites

As indicated earlier, Inuvik currently has two sites for solid waste: a community landfill, and a site for dry inert hazardous and special wastes. The community landfill is referred to as the “Mt. Baldy” site and the dry inert special wastes site is referred to as the “Shale Pit” site. Locations are shown in Figure 1.1.



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LANDFILL SITES LOCATION PLAN

EarthTech
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Figure 1.1

1.7.2 Mt. Baldy Community Solid Waste Landfill

The Mt. Baldy community landfill site is located at the foot of Mount Baldy, 1.2 km south and east of the developed townsite, and 450 m east of Airport Road. Site constraints, topography, drainage and geotechnical conditions are described briefly in Section 2.

The Mt. Baldy landfill accepts a wide range of generally non-hazardous (or low-hazard) garbage and solid waste, and has separate areas for the receipt, storage, and recycling or disposal of various specific classes of waste. It was first opened in 1976, and is gradually working its way eastward. A recent, brief assessment of probably useful service life found that it has sufficient room to serve Inuvik for more than two decades into the future, assuming that site boundaries recently recommended are surveyed and registered.

The operation and maintenance of this site is described in Part 2 of this Manual.

1.7.3 Shale Pit Special Wastes Landfill

The Shale Pit special landfill is located in an abandoned shale quarry, 6 km south of Inuvik and 0.5 km north and east of Airport Road. Site constraints, topography, drainage and geotechnical conditions are described briefly in Section 3.

The site began to be used as a community landfill some time in the 1980's. At the time most of the usual community garbage it received was burnt residue from a home-built community incinerator. Use of the Shale Pit as a community landfill was discontinued some time in the late 1980's or early 1990's, when it was found to be within the airport exclusion zone for an operation attractive to scavenging birds.

Subsequently the Shale Pit site was used for disposal of dry inert special and hazardous waste, such as asbestos (duly encapsulated and identified according to applicable regulations). It has also been used for bulky metal wastes, such as vehicles, tanks, and a radio tower. Currently a cache of asbestos water and sewer pipe from utilidor replacement is kept there, in case some is needed to make utilidor repairs.

The Shale Pit site has not been actively used for some years. At this time there are no routine operation or maintenance activities at that location.

SECTION 2.0
MT. BALDY COMMUNITY LANDFILL SITE

2.1 INTRODUCTION

This section describes the natural setting, current development, and operation and maintenance of Inuvik's Community Landfill site. Long-term planning is also discussed briefly.

2.2 DESCRIPTION

2.2.1 Location and Setting

The location of the community landfill, and its setting within local topography, is shown in Figure 2.1.

As indicated in Figure 2.1, most of the existing development is within Inuvik's gravel quarry Lot 65, Group 1355 (CLSR 61339). No separate landfill site has been surveyed or registered. As discussed later, recommendations in this regard have been made.

The landfill is located on a low, broad shoulder that extends southwesterly from near the base of Mt. Baldy. Being on a low topographic crest is beneficial for drainage control, though at the expense of somewhat increased visibility.

The site is bounded to the east (or northeast) by the steep slopes of Mount Baldy, and to the west (or southwest) by Airport Road and its flanking industrial developments. Immediately to the north it is the Hospital Hill common fill quarry, now in process of being closed and restored. Expansion northerly is not contemplated as this would reduce separation from the Town, significantly increase visibility, and increase concern for the security of Boot Creek.

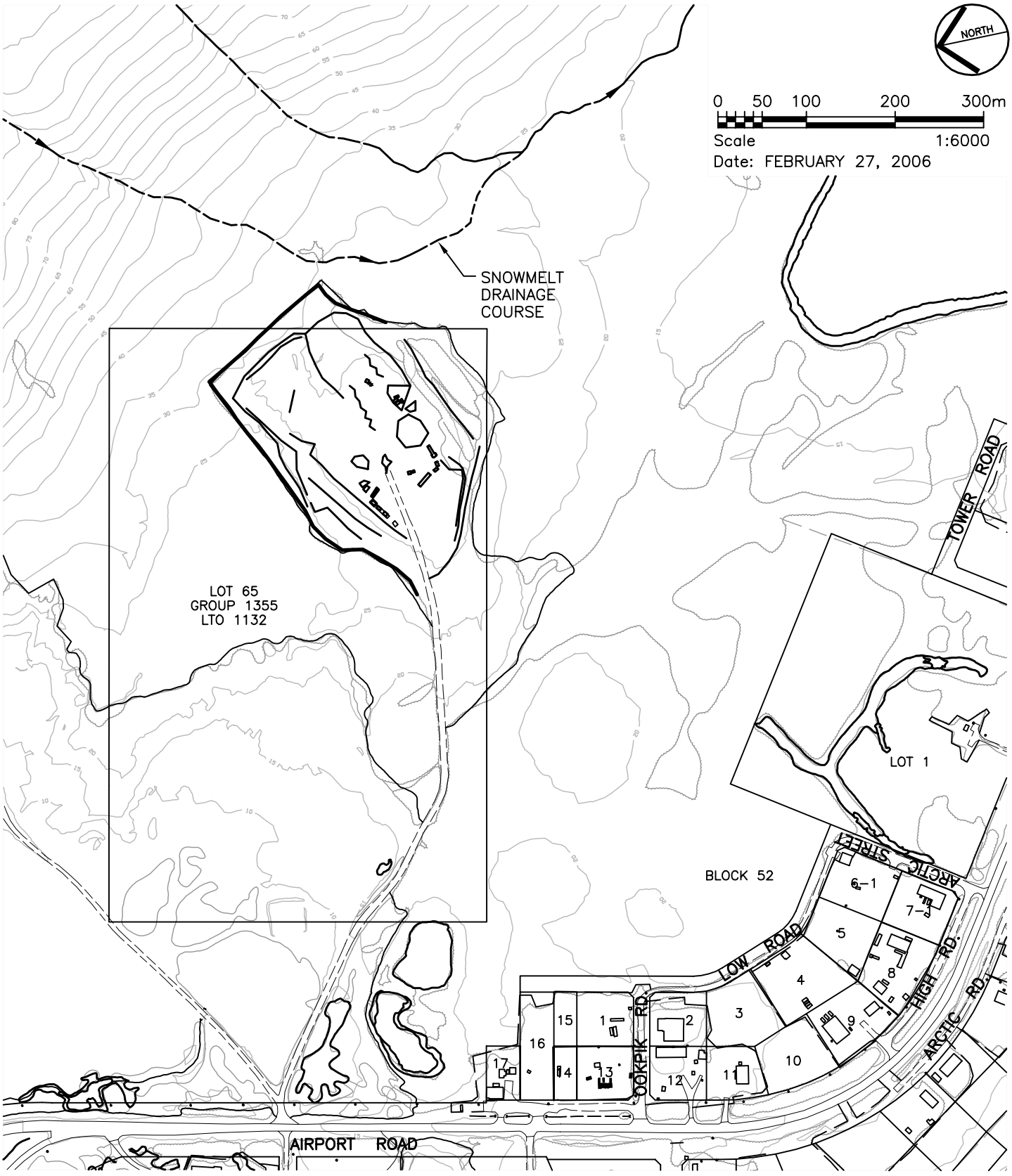
To the south (or south-southeast) is open land, with a gentle southerly downslope. It is in this direction that future expansion will go. There area that can be set aside for future landfill use is quite a large, and it will be many years before the landfill operation reaches the poorly drained fenland nearer to Airport Road.

2.2.2 Geotechnical Considerations

Although no geotechnical investigation has been done specifically for the landfill, the typical geotechnical conditions in the area are well known from the many years of quarrying activity in the Hospital Hill borrow pit, immediately adjacent. The entire district is underlain by deep permafrost, and there are occasional large ice lenses. Surface soils are peat, from less than 1 m to as much as 2 m thick. Subsoils are a till-like mix of clay, silt and gravel; impermeable when frozen and of quite low permeability when thawed.

2.2.3 Surface Drainage Considerations

As indicated earlier the site occupies a local ridge or shoulder. Water does not flow into or through the main part of the landfill site from elsewhere. As a result, drainage leaving the main part of the landfill is limited to the rain and snow which fall directly on the rather small area of the landfill site itself, plus, possibly, a minor amount of permafrost meltwater from beneath the site.



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MT. BALDY COMMUNITY LANDFILL: SITE OVERVIEW

EarthTech
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Figure 2.1

The landfill shoulder is a divide between two of Mt. Baldy's small watersheds. The more northerly slopes drain into Boot Creek, to the west and north. The more southerly ones drain into the fenland and small ponds, to the east and south. Flow from both of these areas is directed around, and not through, the landfill area. As noted later, a small drainage course that passes not far to the east of the landfill site will in future be re-routed even farther to the east, to keep it well clear of the future expansion area.

2.2.4 Sub-Surface Drainage Considerations

Inuvik is above the Arctic Circle, and well within the NWT's zone of continuous permafrost. Subsoils below the shallow active layer are frozen to considerable depth.

In permafrost terrain, groundwater movement is confined to the seasonally-thawed active layer, and to the seasons of thaw. In the lands immediately surrounding the landfill site little groundwater movement is expected at all, owing to the shallowness of the active layer (especially where the surface vegetation remains, as in the areas to the south and east) and to the generally low permeability of the area's soils. The compacted roadways running past the west side of the site, into the old Hospital Hill quarry and up to the newer Mt. Baldy one, also act as groundwater barriers. In conclusion, horizontal movement of groundwater out of the Mt. Baldy site is expected to be extremely slow if any at all; and vertical movement is barred by deep permafrost.

It has occasionally been asked what effect a landfill has on permafrost, and vice-versa. In a landfill containing completely inert materials, it is likely that the permafrost table will gradually rise into the deposit, further improving encapsulation. A landfill that contains natural organic materials, on the other hand, will support bacteria and generate metabolic heat for a considerable number of years, and may actually drive the permafrost table down, forming a small and temporary basin in the frozen terrain mass. In a shallow permafrost setting this would preclude reliance on permafrost as a liner, but in a deep permafrost setting, such as Inuvik's, it is not of practical significance in terms of groundwater containment.

2.2.5 Availability of Fill for Development and Cover

Common fill for development of roads and cells, for cover, and for other uses is available from the new Mt. Baldy borrow area, located immediately to the north of the landfill site.

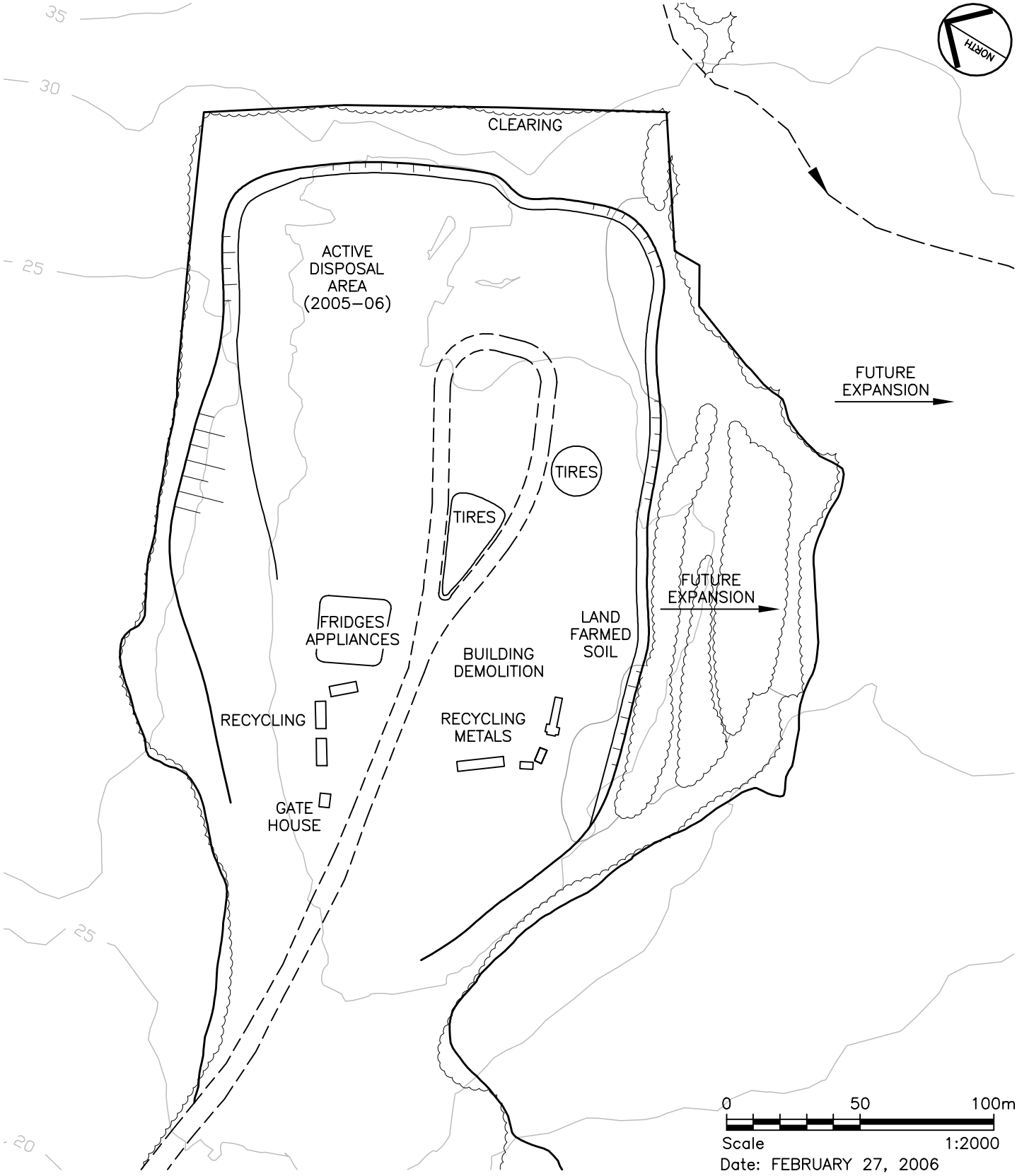
2.3 CURRENT DEVELOPMENT

2.3.1 Layout

The landfill's current (fall, 2005) layout is shown in Figure 2.2.

As shown, Inuvik has established specific locations for disposal of certain materials, in some cases to keep particular materials (for example, lead-acid batteries) out of the landfill, and in others to promote recycling of designated products and materials (for example, brass and copper). Boundaries between these different zones are approximate and subject to change.

Naturally, the active disposal area for domestic garbage and similar general refuse is a large zone, currently taking up much of the landfill site's northeastern quadrant. The active area gradually moves across the site as refuse is added, compacted and covered; in the process forming a new "lift" (a finished, covered layer).



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Mt. BALDY COMMUNITY LANDFILL: 2006 SITE LAYOUT

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L:\PROJECTS\WAT\49060\00REFRNC\IVKWASTEDUMP\DUMPO&M\MANUAL2006\FIGURES\MANUAL2006 FIGURE 2.2dwg

Figure 2.2

2.3.2 Capital Improvements

Capital improvements include the access road, site haul roads, the gate, and signage. In addition to these, various salvaged small buildings and sheds are used for storage of materials being recycled; and one salvaged small building serves as a gate house. Signs indicate specific active dumping zones; and important regulations. Snow fencing is used to direct traffic, to trap windblown materials, and as a visual screen.

2.4 DAILY OPERATION

2.4.1 Introduction

Operational considerations addressed include

- Access control and hours of operation.
- Wastes accepted and wastes not accepted.
- Wastes requiring special arrangements.
- Delivery sorting.
- Wastes that are segregated for recycling or other special handling.
- Wastes undergoing treatment.
- Regulation of scavenging.
- Burning, for volume reduction.
- Landfill operation.
- Control of Windblown Debris.
- Control of fire.
- Compaction and cover of deposited materials.
- Control of fire.
- Environmental surveillance and contingency planning.

2.4.2 Access Control and Hours of Operation

The access road to the landfill is gated. Current (2006) hours of operation are 0900 – 1800 weekdays, and 1300 – 1700 weekends. The landfill is not fenced.

The gatehouse is manned during hours of operation, by an employee of the contracted operator of the landfill. There is a stop sign at the gatehouse. The gatekeeper interviews drivers as to vehicle contents, collects fees, and gives directions as to where to offload.

2.4.3 Wastes Accepted and Wastes Not Accepted

The landfill exists for the management of all solid wastes ordinarily generated within Inuvik; principally the domestic garbage generated by residential, commercial and institutional buildings; debris from building demolition; junked cars and domestic appliances; and so on; with recycling being the waste management method of preference. Certain wastes are not suitable

for landfill disposal or for management through the Town's recycling arrangements and are not accepted:

- Explosives, ammunition.
- Fuels. Fuel containers are accepted if essentially empty. Discarded propane tanks must have valves removed.
- Oils, solvents, strong acids or bases; and liquids of any other type except in very small quantities. Paint is accepted, and is stored and dealt with separately as described later.
- Biomedical wastes (due to infection hazard, and sharps hazard).
- Pharmaceuticals.
- Leas paint residue.

Also to be turned away would be any other waste not generally of domestic character which is considered for any reason not to be suitable.

2.4.4 Wastes Requiring Special Arrangements: Asbestos

Since waste asbestos requires special treatment in the landfill, and therefore requires special arrangements to be made in advance. It can be accepted between break-up and freeze-up. It is not accepted during winter, when it cannot be properly buried as required by regulations.[1]

A person wishing to dispose of waste asbestos in a Town landfill is required to fill out an Application for Permit to Deliver Waste Asbestos for Disposal, at least a week in advance. The application form is designed to gather the information needed by Inuvik to decide on and prepare a location for disposal, and to prepare and issue any other instructions found to be necessary. For example, the application form asks about the nature of the asbestos, its packaging, its approximate volume, and expected delivery dates.

The approved Application is forwarded to the contract landfill operator, who prepares a site and ensures ready availability of cover. As required by regulations, Inuvik maps and maintains records of asbestos disposal locations.

A copy of the Application for Permit to Deliver Waste Asbestos for Disposal is included in Appendix C.

Transport of waste asbestos to the landfill is to comply with the Transportation of Dangerous Goods Act and Regulations. Generally, Inuvik does not transport waste asbestos itself. Typically, waste asbestos is delivered to the landfill by a contractor engaged in removal of asbestos from a building, in demolition of a building that contains asbestos insulation or building products containing asbestos, or in demolition of utilidor that contains asbestos-cement pipes.

Work on or near waste asbestos is to comply with the Asbestos Safety Regulations of the NWT Safety Act. This applies to landfill operators working on any aspect of asbestos disposal.

As required, Inuvik is registered with GNWT (ENR-EPS) as a receiver of waste asbestos.

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[1] In such a case the owner of the asbestos keeps it until the landfill is ready to accept it (or sends it elsewhere). Asbestos awaiting disposal requires storage in a secure area with controlled access; containment and labeling; etc.

2.4.5 Delivery Sorting

The gatekeeper instructs drivers as to delivery of particular items or materials which are to be put in segregated areas due to environmental concerns, recycling potential, etc.

Barriers of snow fencing and signs are also used in directing traffic to correct locations.

2.4.6 Wastes that are Segregated for Recycling or Other Special Handling

Certain waste materials are held separately due to recycling potential, or to special requirements:

- Beverage containers. Held for recycling. Pop bottles, liquor and beer bottles, aluminium cans, other beverage containers, plastic containers (two sizes) juice boxes (two sizes), and glass are sorted separately. A sorting shack and separate covered storage is provided. A licenced individual runs the recycling operation, authorized by the Town.
- Re-usable household furnishings, fixtures and appliances; salvageable building components such as doors and windows; other discarded-but-still-useful items. Held for recycling in the "free store" shed.
- Computers and peripherals. Held for scavenging and/or future recycling.
- Metals. Certain more valuable metals, such as copper and brass, and others unsuitable for landfilling, such as lead, are held for recycling to metal savage locations in the South.
- Paint, alkyd and latex. In suitable weather, paint is spread onto plastic sheets and allowed to dry. The plastic sheets are disposed of as domestic garbage.
- Refrigerators, freezers. Most or all contain CFC's (a greenhouse gas).[2] CFC's are required to be removed by a certified technician, for recycling or proper destruction. Inuvik keeps such appliances in a separate area. Owing to cost the Town has not yet contracted for CFC removal.
- Other household appliances. These have some scavenging potential, and in any case need to be crushed flat in order to be easily incorporated into the landfill.
- Lead-acid batteries. These pose a lead contamination risk in landfill, so are stored separately for eventual transport south to a battery reclamation industry.
- Building demolition wastes. Separate areas are provided for different classes of debris: wood frame; metal structures and components; steel pipes.
- Tires. Inuvik hopes to shred its growing collection of old tires, and use the residue in landfill capping.

2.4.7 Wastes Undergoing Treatment

Inuvik has separate areas in its landfill for:

- Soil contaminated with oil.

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[2] CFC's are also contained in air conditioning units (both building units and vehicle systems), ice plants, and anywhere else that a refrigeration cycle is used.

- Snow contaminated with oil.

Soil contaminated with oil is “landfarmed” – left to rest in the outdoors while the lighter components of the contaminant evaporate off, and tilled at intervals to expose fresh contamination to treatment.

Snow contaminated with oil is kept in diked containment until it melts in spring. Oil that comes to the surface of the meltwater is blotted up using oil-absorbent pads. The meltwater is run through an oil separator, with any additional separated oil also being blotted up, and then is released to discharge off site.

A detailed description of these operations in included in Appendix A.

Inuvik is not enthused about providing soil and snow remediation but does so as there is no other provider of such services in the region.

2.4.8 Regulation of Scavenging

Members of the public holding a scavenging license may scavenge during normal hours of operation. There is no fee for a scavenging license, but the application includes an acknowledgement of risks and a release of liability.

2.4.9 Burning for Volume Reduction

Burning is prohibited.

At one time Inuvik routinely burned wood building debris, for volume reduction. Fire was prevented from spreading laterally by good horizontal separation and from igniting underlying peat or garbage by thick imported fill. Burns were held a few times each summer, when the wind was light and away from the Town. Unfortunately, it was Inuvik’s experience that all too often the wind would shift back toward the Town as soon as the fire was well under way, leading to complaints. Burning is no longer practiced.

2.4.10 Landfill Operation

As indicated earlier, a considerable portion of the Mt. Baldy site is used for the actual landfill operation.

All wastes not turned away from the site and not directed to some specific recycling or storage area are deposited in the landfill. The landfill therefore receives by far the bulk of the volume, and the tonnage, delivered. The great majority of the material landfilled is domestic garbage.

At this time (2006) the landfill is operated according to an "area" method, described as follows.

- The active disposal area is level or gently sloping; as distinct from a steep tip face.
- Collection trucks and private delivery vehicles are directed to the active offloading area by the gatekeeper’s instructions supplemented by signage, snow fencing, and lines of old tires used as route indicators. They offload and exit.
- As refuse accumulates, the active offloading area is gradually moved, in the direction of advance of the current “lift”.
- Earthmoving machinery is used to work and compact deposited refuse into a layer of suitable thickness. Using a D8 with rock pads it is not difficult to achieve a compacted

thickness of 2.5 to 3 m or so. For safety the compaction equipment works some distance back from the active offloading area, on refuse deposited earlier.

- When the layer of compacted refuse is finished, it is covered by 0.3 to 0.6 m of compacted common fill.

Waste deposits are compacted twice a week in summer and once a week in winter. Compacted waste deposits are covered at least twice a year, in spring and in fall.

Inuvik has in the past used the "depression" method landfilling, and may return to that at some time in the future. The "area" and "depression" methods are similar and produce similar results; the difference being that in the area method the tip zone is at the base of a cell wall while in the depression method it is at the top of a cell wall. Both are diagrammed and explained in some detail in Guidelines for the Planning, Design, Operation and Maintenance of Modified Solid Waste Sites in the Northwest Territories.[3]

The degree of waste compaction achieved and hence the efficiencies achieved in both use of site area and use of cover material depend greatly on the skill and interest of the machine operator. This is a factor to take into account in choosing a landfill operator, as the direct and indirect effect on solid waste disposal costs overall can be substantial.

While the day to day operation of the landfill is done by the contractor, overall direction regarding layout and site use is provided by Inuvik's Director of Public Works.

2.4.11 Control of Windblown Debris

Windblown paper, plastic bags and similar light material is trapped to the extent possible on snow fencing, which is placed around the perimeter of the site leading up to the tip area. The landfill operator is expected to clean the snow fence and hand-pick in areas adjacent to the landfill, as needed.

2.4.12 Control of Fire

Fires are occasionally started inadvertently or in acts of vandalism; and are dealt with by the Fire Department when discovered. Inuvik initiates prosecution of violators in certain cases, in light of both the costs and the hazards involved in fighting and extinguishing fires in waste disposal grounds. Dump fires that get underground into covered cells can burn for many months, and need to be excavated in order to extinguish them.

2.4.13 Environmental Surveillance and Contingency Planning

Monitoring of drainage exiting the Mt. Baldy side is described in Part 4 of this Manual.

Owing to the very small quantities of water leaving this site, or passing its edges, there is little likelihood that any substantial quantity of contamination would be transported from the site to either of the adjacent watersheds.

If surveillance sampling dictates a tendency toward contamination, then a strategy of flow minimization, and containment followed by appropriate field treatment (such as neutralization, precipitation, etc.), will be developed in response.

---

[3] Ferguson Simek Clark (R. Kent, P. Marshall and L. Hawke), 2003. Available from GNWT Department of Municipal and Community Affairs (MACA). Included in Appendix B.

Town of Inuvik, N.W.T.
Mt. Baldy Community Landfill

PROPOSED SITE BOUNDARIES and FUTURE DEVELOPMENT

COORDINATE DATA		
IDENT.	NORTHING	EASTING
A	7582212.800	554173.978
B	7582478.901	554597.287
C	7581801.607	555023.048
D	7581628.641	554747.897
E	7581789.736	554534.418
F	7581747.160	554466.689
G	7582035.010	554285.740
H	7582050.731	554216.799
I	7582220.348	554110.174

NORTH

DITCH/BERM TO RE-DIRECT WATER COURSE

450.0m (GENERAL SANITATION REGULATIONS 1, 8 AND 28)

800.0m

50.0m BUFFER

APPROX. LIMIT OF DISPOSAL ZONE

LOT 65
GROUP 1355
LTO 1132

500.0m

DISPOSAL EXPANSION AREA
188,813 sq.m.

PROPOSED ROAD RIGHT-OF-WAY

APPRX. LIMIT OF DISPOSAL ZONE

CLOSED DISPOSAL ZONE

100.0m BUFFER

340.0m

80.0m

50.0m BUFFER
267.4m

325.0m

AIRPORT ROAD

CEMETARY ROAD

OXKPIK RD.

LOW ROAD

ARCTIC STREET

HIGH RD.

ARCTIC RD.

FUTURE ROAD

TOWER ROAD

TOWER ROAD

AIRPORT ROAD

LOW DENSITY RESIDENTIAL

HIGHWAY COMMERCIAL

COMMUNITY

LIGHT INDUSTRIAL

0 100 200 300 400m

Scale 1:7000

Date: FEBRUARY 27, 2006

EarthTech

A tyco International Ltd. Company

L:\PROJECTS\WAT\49060\00REFRNC\VKWASTEDUMP\DUMPO&M\MANUAL2006\FIGURES\MANUAL2006 FIGURE 2.3dwg

Figure 2.3

2.5 MAINTENANCE

Most maintenance needs have been addressed earlier as operational activities. Those which have not include maintenance of the access road, gate, and signs.

Grading of the access road and site roads, are done as needed, either directly by Inuvik's Department of Public Services, or through contracts. Currently, Town forces clear snow from the access road, while snowclearing within the landfill site itself falls under a landfill operation and maintenance contract.

The Department of Public Services replaces signs, and maintains and repairs the access gates, as needed.

2.6 FUTURE DEVELOPMENT

As indicated earlier, the Mt. Baldy landfill site does not have surveyed boundaries. Boundaries and site development limits that would secure sufficient area to serve Inuvik's needs for many years into the future have been proposed to Inuvik, and are shown in Figure 2.3.

Inuvik intends to continue to operate the community landfill along lines which have become established.

SECTION 3.0
DRY INERT SPECIAL WASTES SITE

3.1 INTRODUCTION

This section describes the natural setting, current development, and past operation and maintenance of Inuvik's special waste site, which in the past received dry inert hazardous solid wastes such as asbestos. As indicated earlier, it has been some years since the site has been used. Inuvik has no current plans to use it at all, but keeps it in reserve in case needed.

3.2 DESCRIPTION

3.2.1 Location and Setting

The location of the inert special waste site is shown in Figure 1.1. The site is within Lot 5, Group 1365. The boundaries of the landfill operation and its access road have not been established by survey, but the landfill site is reasonably well defined by topography.

As indicated earlier the landfill is in an abandoned shale quarry. The site is on a hilltop, and the quarry was developed by cutting downward into the hill's crown, forming a steep sided canyon with the haul road on its floor. The quarry floor is about 15 m below the original hilltop level.

The site is reasonably remote from the community. As well, wastes are buried, or covered with fill, immediately on receipt. There is nothing at this site which would attract persons interested in scavenging.

The site is within the airport exclusion zone for general landfills, which exists because landfills attract birds.

3.2.2 Geotechnical Considerations

Geotechnical conditions are known from past quarrying operations, which have left steep exposed quarry margins. Soils are a layered, broken soft rock or compact dry clay or clayey silt, that absorbs water and breaks down when exposed to weather.

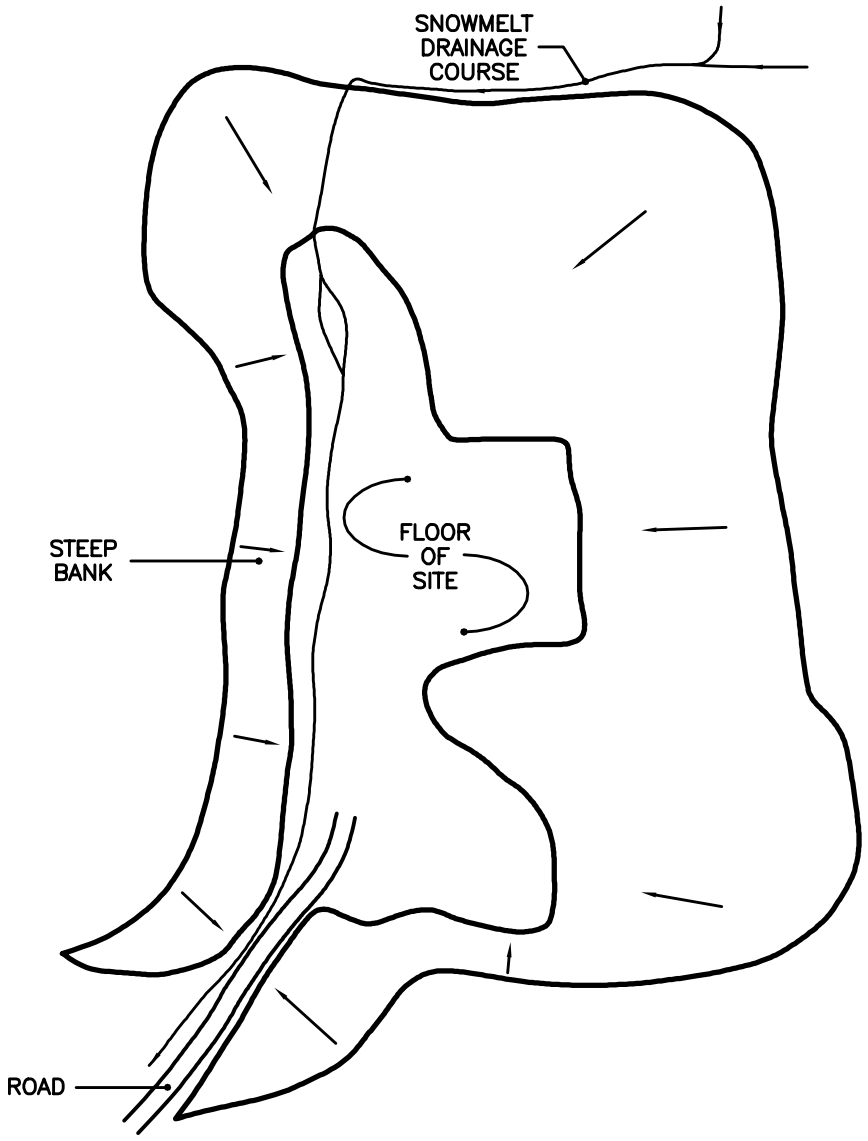
3.2.3 Surface Drainage Considerations

Weathered soils at the surface tend to form an impervious cap that keeps most snow melt and rain water on the surface.

Local topography directs most drainage away from the site, apart from rain and snow which fall (or blow) into the quarry canyon. There is very a small snowmelt drainage course which enters the site from the east, and exits westward beside the haul road.

3.2.4 Sub-Surface Drainage Considerations

In the Shale Pit’s hilltop setting subsoils are generally dry. For reasons noted earlier, rain and melt water tends to run off on the surface, and in general not to penetrate the ground and become groundwater; very small and local effects aside. Further, any water that did penetrate as far as the permafrost table would be immobilized, at least much of the time, by being frozen.



Town of Inuvik, N.W.T.
Solid Waste O & M Manual

SHALE PIT SPECIAL DRY INERT WASTES SITE

EarthTech
A tyco International Ltd. Company

L:\PROJECTS\WAT\49060\00REFRNC\IVKWASTEDUMP\DUMPO&M\MANUAL2006\FIGURES\MANUAL2006 FIGURE 3.1dwg

Figure 3.1

In summary, there is little if any potential for groundwater movement, and groundwater transport of contaminants, at this site.

3.2.5 Availability of Fill for Development and Cover

Fill can be obtained by extending the former quarrying operations. The slopes left behind are fairly steep, somewhat adding to the cost of doing that.

3.3 CURRENT DEVELOPMENT

3.3.1 Layout

As shown in Figure 3.1, site layout is dictated by the steep sides of the former quarry walls, and by a pre-existing haul road that runs more or less centrally on the quarry's floor.

3.3.2 Capital Improvements

In its transition from quarry to landfill the site did not require further development, apart from signage. The haul road and gates had been installed in the past.

3.4 OPERATION

In the past, when the Shale Pit site was active, a permit for disposal of dry inert hazardous material (such as asbestos) issued by Inuvik would direct the disposal operation to the Shale Pit landfill. That is no longer the case: dry inert hazardous material that is accepted as suitable for landfill disposal is deposited in the Mt. Baldy landfill, and the Shale Pit is inactive.

Regardless of which landfill is being used, the waste generator is in all cases responsible to prepare the material properly for disposal in landfill; to transport the material to the site, observing all applicable regulations. The work of excavation and covering at the site, leaving the site in a graded and finished condition, may be done by the waste generator of by Town (contracted) forces, depending on the arrangements made pursuant to the permit.

In the case of disposal at the Shale Pit site, Inuvik's Department of Public Services would open the gates at an arranged time, and would station a representative at the site to observe the operation and determine that the terms of the dumping permit were complied with.

3.5 MAINTENANCE

Any minor maintenance needs that arise from the site gate and site signage are attended to by Inuvik's Department of Public Services.

Currently, there is need to crush and cover inert materials that have been left exposed at the site.

3.6 FUTURE DEVELOPMENT

Inuvik does not plan further development of this site. As indicated earlier, the Town does not plan any further use of the site, at this time.

SECTION 4.0
WATER LICENCE REQUIREMENTS

4.1 INTRODUCTION

The Northwest Territories Water Board sets surveillance requirements for landfill sites, aimed at protection of public health and water resources. Requirements which apply to Inuvik's landfill sites are stated in Inuvik's Water Licence issued by the Water Board.

Inuvik's current water licence (1994) runs from July 1, 1993 to June 30, 1996. The surveillance requirements listed below are as set out in that Licence. It is important to note that requirements are subject to change by the Water Board, upon issuance of a new licence, or at any other time.

Indian and Northern Affairs Canada carry out inspections to ensure that the Water Board's requirements are being met. At this time, the Inspector is Mr. Kevin Glowa, M.Sc., R.P.Bio., Water Resource Officer, INAC, Inuvik, 979-3362.

4.2 SURVEILLANCE

The current "surveillance network program" described in an appendix to the Water Licence lists two sampling stations related to the community waste disposal site:

SNP 0036-4, Run-off below the solid waste disposal facility at 68° 21' 07" N, 133° 41' 1.3" W.

SNP 0036-5, Run-off to two tundra ponds located southwest of the solid waste disposal facilities.

Samples are to be taken monthly from SNP 0036-4 and SNP 0036-5 during periods of flow. Samples are tested for the parameters listed below.

Parameter	Units	Parameter	Units
pH		Mercury	mg/L
Conductivity	uS/cm	Nickel	mg/L
Sodium	mg/L	Zinc	mg/L
Potassium	mg/L	Sulphate	mg/L
Magnesium	mg/L	Phosphate	mg/L
Calcium	mg/L	Phenols	mg/L
Cadmium	mg/L	T.Org. Carbon	mg/L
Chromium	mg/L	Oil & Grease	mg/L
Copper	mg/L	Suspend. Solid	mg/L
Iron	mg/L	Fecal Coli.	CFU/dL
Lead	mg/L		

The laboratory with whom Inuvik contracts to test samples will provide prepared bottles. Also, it will advise on sampling techniques, transportation arrangements, etc.

In taking a sample it is extremely important that to avoid contamination of the sample by contact with boots, fingers, etc. Label the sample clearly, including both the name and number of the sample station, and the date the sample was taken.

REFERENCES

Heinke, G.W. and P.L. Heeney. 1990. The Collection, Treatment and Disposal of Hazardous and Bulky Wastes in the Northwest Territories. Department of Municipal and Community Affairs, Government of the Northwest Territories.

Heinke, G.W. and J. Wong. 1990. Guidelines for the Planning, Design, Operation and Maintenance of Solid Waste Modified Landfill Sites in the Northwest Territories, Vol. 1, Planning and Design. Department of Municipal and Community Affairs, Government of the Northwest Territories.

Heinke, G.W. and J. Wong. 1991. Guidelines for the Planning, Design, Operation and Maintenance of Solid Waste Modified Landfill Sites in the Northwest Territories, Vol. 2, Operation. Department of Municipal and Community Affairs, Government of the Northwest Territories.

Reid Crowther and Partners Ltd. 1988. Inuvik Solid Waste Management Study. Report to Town of Inuvik (draft).

Reid Crowther and Partners Ltd. 1994. Operation and Maintenance Manual, Solid Waste Disposal Facilities, Inuvik, N.W.T.

Town of Inuvik. Bylaw 92-1215, the "Garbage Collection Bylaw"; and Bylaws 92-1224 and 93-1281 which amend Bylaw 92-1215.

APPENDIX A

SNOW DUMP AND LANDFARM AREAS

Prepared by Rescan Environmental Services Ltd., 2002

Note: Inuvik has closed its petroleum-contaminated snow dump and landfarm operation. The operating instructions for the snow dump and landfarm area, which in the original Manual comprised Appendix A, have been deleted from the March 2012 re-issue.

APPENDIX B

LEGISLATION, GUIDELINES AND OTHER REFERENCE INFORMATION

Note: Appendix B is large and is bound separately.
A list of contents, and abstracts, are included here.

OPERATION AND MAINTNEANCE MANUAL
SOLID WASTE DISPOSAL FACILITIES

APPENDIX B

LEGISLATION, GUIDELINES AND OTHER REFERENCE INFORMATION

TABLE OF CONTENTS

ABSTRACTS

Forward: *Appendix B to the Town of Inuvik's Operation and Maintenance Manual for Solid Waste Disposal Facilities is a collection of reference information from GNWT and other sources. Relevant Town by-laws are included. Being large, Appendix B is bound separately.*

These introductory pages to Appendix B provide

- *a list of contents, then*
- *a brief abstract for each listed item, other than Town by-laws.*

The abstracts will assist in finding relevant items, without having to search comlete texts.

APPENDIX B CONTENTS

B.1 MUNICIPAL LANDFILL OPERATION GUIDELINES

B.1.1 Guidelines for the Planning, Design, Operations and Maintenance of Modified Solid Waste Sites in the Northwest Territories

B.2 ENVIRONMENTAL PROTECTION ACT, REGULATIONS AND GUIDELINES

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B.2.3 Guideline for Waste Asbestos
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B.2.5 Guideline for Waste Batteries
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B.2.8 Guideline for Waste Lead and Lead Paint
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B.2.15 Guideline for Biomedical Waste (not included)
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B.3 WASTE REDUCTION AND RECOVERY ACT, REGULATIONS AND GUIDELENES
B.3.1 Waste Reduction and Recovery Act
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B.5 MISCELLANEOUS GNWT RESOURCES
B.5.1 Municipal Solid Wastes Suitable for Open Burning
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B.7 TOWN OF INUVIK BY-LAWS
B.7.1 By-Law 92-1215 Collection, Removal and Disposal of Garbage, Refuse and Ashes
B.7.2 By-Law 92-1224 Amendment to By-Law 92-1215
B.7.3 By-Law 93-1281 Amendment to By-Law 92-1215
B.7.4 By-Law 01-1994 Dumping Fees
B.7.5 By-Law 00-1864 Scavenging
B.7.6 By-Law 05-2290 Solid Waste Levy
B.7.7 By-Law 88-1025 Transportation of Dangerous Goods
B.7.8 By-Law 00-1801 Littering
B.7.9 By-Law 00-1804 Unsightly Land and Premises

APPENDIX B ABSTRACTS

B.1 MUNICIPAL LANDFILL OPERATION GUIDELINES

B.1.1 Guidelines for the Planning, Design, Operations and Maintenance of Modified Solid Waste Sites in the Northwest Territories[1]

Written specifically for anyone involved in the planning, siting, development, operation, maintenance or closure of municipal-type solid waste sites in the NWT, this handbook has far too much useful information to attempt an abstract. The "area" and "depression" methods of landfilling, that are used at Inuvik's Mt. Baldy site, are described clearly using diagrams.

Rationale underlying the Guidelines is recorded in a companion report, Updating the Guidelines for the Planning, Design, Operations and Maintenance of Modified Solid Waste Sites in the Northwest Territories, by the same authors. It is available on the MACA website.

B.2 ENVIRONMENTAL PROTECTION ACT, REGULATIONS AND GUIDELINES[2]

B.2.1 Environmental Protection Act

The Act is the foundation for various regulations, and for the existence and operation of various environmental stewardship boards. Key terms are defined ("contaminant", for instance – which covers noise, heat, vibration as well as noxious substances). The Minister is given wide powers (appoints Boards, can compel compliance). Discharge of contaminants is prohibited, with exceptions. Spills are to be reported. Unsightly land is prohibited. Boards and inspectors have broad powers; inspectors include RCMP and wildlife officers among others. Offenses are punishable. (Consolidation to 1998)

B.2.2 Guideline for General Management of Hazardous Waste

Hazardous waste is any product, substance or organism included by its nature or listed in the Transportation of Dangerous Goods Regulations or Act. There are certain exceptions: household products, small quantities, explosives, radioactive materials, materials intended by design for landfill disposal that meet the requirements of the Guideline for Industrial Waste Discharges.

The Guideline describes roles and responsibilities. Carriers and Receivers of hazardous waste are to be registered as such with ENR-EPS. There is a good list of other agencies involved in the regulation of hazardous waste, from the points of view of transport, worker safety, fire prevention, public health, and protection of land and water.

The Guideline sets out general requirements for storage and management, including recordkeeping. It discusses options for getting rid of hazardous waste. Burning is prohibited. The Conclusion section lists sources of additional information with contact phone numbers. Appendices list waste classifications, and provide additional useful information.

---

[1] Ferguson Simek Clark (R. Kent, P. Marshall and L. Hawke), 2003. From GNWT Department of Municipal and Community Affairs (MACA) website.

[2] From GNWT Department of Environment and Natural Resources (ENR) website.

B.2.3 Guideline for Waste Asbestos

The Guideline (1998) describes roles and responsibilities. Worker safety follows the Asbestos Safety Regulations of the NWT Safety Act. Training is required. See the Transportation of Dangerous Goods regulations for packaging requirements (the Asbestos Guideline covers listed exemptions and labeling). The landfill authority (Town) is required to confirm acceptance of asbestos to ENR-EPS[3] by phone or in writing (for each new disposal arrangement, it would appear).

Choose the landfill area for waste asbestos to avoid future disturbance and any planned burning. Cover asbestos immediately, 0.5 m cap. Map the location(s) of buried asbestos and maintain the map record.

The guideline includes contact information for ENR-EPS, Transportation, WCB.

B.2.4 Consolidation of Asbestos Safety Regulations

WCB's office consolidation covers worker safety provisions: training, personal protective gear, site protective arrangements (wetting, ventilation, filtering, containment, labeling).

B.2.5 Guideline for Waste Batteries

The Guideline deals primarily with lead-acid batteries (vehicles) and with rechargeable potassium hydroxide or nickel-cadmium ones (golf carts, fork lifts). Both types have highly corrosive contents so are dangerous. Their metals are an environmental hazard.

Batteries of these types need to be sent to a battery recycler. The Guideline outlines packaging and labeling requirements for transport.

Button batteries contain toxic metals. Citizens should be encouraged at all opportunities to save those for household toxic waste collection drives, for transport to approved disposal or recycling. (1998)

Comment: A regional center such as Inuvik could receive and store waste vehicle batteries from outlying communities, for batch transport to recycling.

B.2.6 Guideline for Ozone Depleting Substances

Ozone depleting substances (ODSs) include chlorofluorocarbons (CFCs) and halons. CFCs are the refrigerant gas/liquid used in fridges freezers, car and building air conditioning units, ice machines, etc. Halon fire extinguishers are used in machine and electrical rooms. Halon is no longer made, but can be re-cycled.

Discharge of ODSs is prohibited. Accidental spills must be reported: see Guideline Appendix for thresholds. Only a certified technician may service ODS equipment or recover ODSs. Technicians and vendors must keep certain records.

Municipalities are asked to segregate and store ODS-containing equipment (including cars) at the landfill, and to arrange periodic batch ODS recovery. (1998)

Comment: A regional center such as Inuvik could receive and store ODS-containing equipment from outlying communities, for batch ODS recovery operations.

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[3] GNWT Department of Environment and Natural Resources – Environmental Protection Service.

B.2.7 Guideline for Waste Paint

The Guideline deals with alkyd (oil-based) and latex (water-based) paints, and specialty coatings (such as acrylic, asphaltic, epoxy, flexible ceramic, phenolic, polyester, polyurethane, vinyl ester).

Alkyd paints contain solvents: refer to Waste Solvents guideline. Latex paints are not toxic. The characteristics of special coatings including toxicity are in their Materials Safety Data Sheets (MSDSs). Some formulations are quite dangerous, in various ways.

The guideline describes containment and labeling requirements for storage. It also outlines requirements for transport.

Latex paint can be allowed to dry on board or plastic sheet in dry weather and disposed of in landfill. The same applies to alkyd paint in amounts less than 5 L. Waste amounts of specialty coatings are likely to require transport to a registered disposal facility: consult the MSDS and the manufacturer. Some contacts are listed. (1998)

B.2.8 Guideline for Waste Lead and Lead Paint

Lead is very toxic, especially when combined chemically into organic compounds ("organic lead") as may be the case in lead amended paint. Waste lead and waste lead paint must be managed as hazardous waste. Restrictions now apply to the amount of lead that can be put into paint. There are other potential sources of organic lead, but much less likely to be encountered in any significant quantities in Inuvik.

Lead amended paint has been used on steel in various industrial settings, including barges and fuel storage tanks. Stringent requirements apply to removal. The Guideline also outlines requirements for storage and transport. Disposal of lead or lead paint residue in landfill is not an option.

Metallic lead should be stockpiled for transport and recycling. (2004)

B.2.9 Guideline for Waste Antifreezes

Ethylene glycol (automotive) and propylene glycol (building heating) are toxic. So are their corrosion inhibitors and other additives. Ethylene glycol has a sweet taste, attractive to animals and children. Glycols kill fish.

Discharge to the environment including disposal in landfill is prohibited. It is common for NWT landfills to rely on permafrost as a liner: antifreeze is not good for permafrost.

The guideline describes containment and labeling requirements for storage. Storage in food containers is prohibited as it invites accidental poisoning.

Waste antifreeze should be bulked and shipped to a registered recycling or disposal facility. The Guideline outlines requirements for transport. ENR-EPS may approve disposal in an appropriate industrial incinerator, if recycling costs are prohibitive. ENR-EPS will consider proposals for alternate management methods that provide an equivalent level of environmental protection. (1998)

Comment: A regional center such as Inuvik could receive and store waste antifreeze from outlying communities, for batch transport to recovery or proper disposal.

B.2.10 Guideline for Waste Solvents

Most solvents are derived from petroleum or alcohol bases. Typically solvents are toxic and flammable; their vapors explosive. Some are chlorinated organics that persist and bioaccumulate, and act as greenhouse gases. Waste solvents must be managed as hazardous waste. Accordingly, discharge to the environment including disposal in landfill is prohibited. Burning may produce very toxic by-products as well as greenhouse gases so is also prohibited.

The guideline describes containment and labeling requirements for storage. Storage in food containers is prohibited as it invites accidental poisoning.

Compatible solvents should be bulked and shipped to a registered recycling or disposal facility. The Guideline outlines requirements for transport. ENR-EPS will consider proposals for alternate management methods that provide an equivalent level of environmental protection. (1998)

Comment: A regional center such as Inuvik could receive and store waste solvents from outlying communities, for batch transport to re-refining or proper disposal.

B.2.11 Used Oil and Waste Fuel Management Regulations, and Guide

The Regulations (2003) are 19 pages of legalese. The Plain Language Guide (undated) is 12 pages, readable. Used oil and waste fuel are a substantial problem. Because used-oil furnaces can spew evil contaminants, Canadian practice is to require either re-refining, or burning in an approved facility. GNWT allows businesses to burn their own used oil and waste fuel, subject to quite stringent conditions.

Used oil and waste fuel are not to be discharged to the environment; used for dust control; burnt in open fire; or incinerated in residential areas.

B.2.12 Guideline for Industrial Waste Discharges

This guideline describes the regulatory framework applying to discharge of industrial waste. It also lists standards to be met if an effluent is to be eligible for discharge to a municipal sewer (Schedule I) and if solid waste or process residuals are to be eligible for disposal in a landfill (Schedules III, IV). (1998)

B.2.13 Spill Contingency Planning and Reporting Regulations, and Guide

The Consolidation of the Regulations (1990) is 7 pages of legalese plus tables. The Plain Language Guide (2002) is 6 pages, more readable. Anyone operating a storage facility for a contaminant (other than sewage or sewage sludge) of more than 20,000 L (or kg) capacity must have a spill contingency plan. Any spill of contaminant (including sewage or sewage sludge) is to be reported immediately. See Spill Report Form.

Comment: Although excepted, an operator of a sewage lagoon would be wise to have a spill contingency plan, covering such items as reporting, public advisories, protection of public health, mitigation and clean-up, repair of facility, etc.

B.2.14 Spill Report Form

Blank form (NWT 1752/0202, no date). It shows the spill report phone number.

B.2.15 Guideline for Biomedical Waste *not included*

This is a large guideline, 66 pages. It is aimed at hospitals, clinics, and other treatment and care facilities including pet clinics. Section 7 deals with disposal of biomedical wastes. Most biomedical waste is required to be incinerated, or disposed of in some other appropriate, secure method. In the NWT no classes of biomedical waste are permitted to be disposed of in landfill. Incinerator ash residue can be landfilled. The same would apply to other solid material that has been completely inactivated, provided that it is in all other respects suitable for landfill disposal.

B.2.16 Guideline for Contaminated Site Remediation *not included*

This guideline (2003) deals with the discovery, reporting, assessment, remediation and final closure of contaminated sites. There is virtually no overlap between this guideline and the operation (or the eventual closure) of a municipal landfill.

B.2.17 Guideline for Ambient Air Quality

The Guideline (2002) covers sulphur dioxide, ground level ozone, total suspended particulate (TSP), and fine particulate matter ($PM_{2.5}$). "Dust" is TSP while "smog" is $PM_{2.5}$. Generally, TSP is the only parameter likely to be of interest in maintaining Inuvik's landfill site (and in maintaining town and nearby GNWT roads). The NWT maximums for TSP are 0.12 mg/m^3 24-hr average, and 0.06 mg/m^3 year-long geometric average, neither of which address practical road dusting problems as these tend to be of quite short duration (and the northern winter will greatly dilute the year-long average).

B.2.18 Guideline for Dust Suppression

Approved dust suppressant products are limited to calcium chloride, Bunker C and DL10. Do not apply used oil. Notify the public and ENR. Obtain agreement in writing beforehand from owners of any properties in line for application.

Guidance is provided regarding application rates and environmental protection. (1998)

B.3 WASTE REDUCTION AND RECOVERY ACT, REGULATIONS AND GUIDELENES

B.3.1 Waste Reduction and Recovery Act

The Act provides for establishment of programs aimed at recycling, particularly of beverage containers, including collection of deposit fees for an Environment Fund. The minister may prohibit products or packages that will cause significant impairment of the natural environment. (Consolidation 2005)

B.3.2 Beverage Container Regulations

The beverage container program is administered by ENR EPS. It applies to beverage containers except milk containers. Deposits must be paid for containers. Beverage container distributors and recycling depots require licenses. (2005)

B.4 PESTICIDE ACT AND REGULATIONS

B.4.1 Pesticide Act

Pesticides include all manner of poisons and repellents aimed at everything from viruses to bugs to weeds to bears. Commercial use requires a permit. Standards apply to storage and disposal. Inadvertent contamination of water is prohibited. (1988)

B.4.2 Pesticide Regulations

The Pesticide Regulations refer to commercial use of pesticides, and cover permits, qualifications of applicants, reporting requirements, etc. The regulations do not apply to listed exceptions: products marked for domestic use, bactericides and algaecides used in water plans, swimming pools and fuels, among others. (1990)

B.5 MISCELLANEOUS GNWT RESOURCES

B.5.1 Municipal Solid Wastes Suitable for Open Burning

This one-page summary lists burnable waste (basically, paper, cardboard and untreated wood) and lists various sorting, permit, location, weather, etc conditions to be met. (ENR-EPS 1993)

B.5.2 Backyard Composting

This is a two-page summary of “commonly asked questions and answers” for homeowners interested in doing their own composting of kitchen peelings, yard rakings, etc. (ENR-EPS 2002)

B.6 TRANSPORTATION OF DANGEROUS GOODS ACT AND REGULATIONS

B.6.1 Transportation of Dangerous Goods Act

The Act is enables a large and very complex body of regulations covering transportation of all manner of dangerous goods, from bombs to viruses. It is included here because it is often referred to, but is relevant only from a legal standpoint, not an operating one.

B.6.2 Transportation of Dangerous Goods Regulations

GNWT’s Regulations, included here for completeness, relevant only from a legal standpoint, not an operating one, as they simply adopt federal regulations. The federal regulations are not included here due to size and frequent changes. Visit
www.tc.gc.ca/acts-regulations/GENERAL/T/tdg/menu.htm

B.7 TOWN OF INUVIK BY-LAWS

B.7.1 BL 92-1215: Collection, Removal and Disposal of Garbage, Refuse and Ashes

B.7.2 BL 92-1224: Amendment to By-Law 92-1215

B.7.3 BL 93-1281: Amendment to By-Law 92-1215

B.7.4 BL 01-1994: Dumping Fees

B.7.5 BL 00-1864: Scavenging

B.7.6 BL 05-2290: Solid Waste Levy

B.7.7 BL 88-1025: Transportation of Dangerous Goods

B.7.8 BL 00-1801: Littering

B.7.9 BL 00-1804: Unsightly Land and Premises

APPENDIX C

APPLICATION FOR PERMIT TO DELIVER WASTE ASBESTOS

TOWN OF INUVIK

APPLICATION FOR PERMIT TO DEPOSIT WASTE ASBESTOS IN DESIGNATED LOW-HAZARD DRY INERT WASTE CELL IN LANDFILL

Preamble. Inuvik accepts waste asbestos for disposal in landfill from break-up to freeze-up subject to proper arrangements in advance. Packaging, labeling and transport must satisfy applicable regulations. Waste asbestos is required to be placed in a separate designated area prepared in advance, covered immediately, location recorded. Inuvik requires 7 days notice to make preparations. To facilitate prompt covering deliveries are to be made during an agreed schedule of short duration.

Applicant: Name _____ Co. Phone _____

Company_____ Co. Address _____

Applicant is the (check all that apply): ☐ Owner of Source

☐ Demolition Contractor ☐ Waste Transporter ☐ Other: _____

Asbestos Source: Inuvik or other location; type of installation

☐ Within Inuvik ☐ Not within Inuvik. From where? _____

☐ Building ☐ Utilidor ☐ Other (describe) _____

Source address/location if in Inuvik_____

General Description of Waste Product

☐ pipe insulation ("mud") ☐ floor tile ☐ asbestos-cement tile

☐ asbestos-cement pipe ☐ other (describe) _____

Description of Packaging; Approx. Bundle Size, Weight; Estimated Total Volume

Packaging (describe): _____

Pkg. size (l w h) (m)_____ Wt./pkg (kg)_____

Approx. number of pkg. _____ Est'd total vol. (m^3). _____

Method of offloading truck into prepared landfill site: _____

Other comments:_____

Applicant's Declaration

I am a company officer responsible and have personal knowledge of the information provided above. To the best of my knowledge it is true. I will advise Inuvik promptly of any material changes that occur or that I become aware of.

(signed) _____

Approval by Director of Public Services, Inuvik

☐ Not approved. ☐ Approved for delivery to ☐ Mt. Baldy Landfill ☐ Shale Pit Landfill during regular working hours between the dates of _____ and _____ 200__.

(signed) _____

If approved by the Director of Public Services this form constitutes the Permit to Dispose.

APPENDIX D

REMOVAL OF MERCURY SWITCHES FROM VEHICLE HULKS

APPENDIX D CONTENTS

Removal Guide

Convenience Light Instructions

Convenience Light Vehicle List

ABS Sensor Instructions

ABS Sensor Vehicle List

Clean-Up Instructions

Note: Appendix D is added March 2012 re-issue.

SWITCH REMOVAL GUIDE

Instructions for Removing, Collecting, and Managing Mercury Convenience Lighting Switches and Anti-lock Braking System Sensor Modules from End-of-life Vehicles

Switch Out is a national program dedicated to removing, collecting, and managing mercury-containing convenience lighting switches and anti-lock braking system (ABS) sensor modules from end-of-life vehicles.

A PROGRAM OF THE cleanair FOUNDATION

Removing, Collecting, and Managing Mercury Convenience Lighting Switches

1. Check for **hood and/or trunk** convenience lighting switches in these cars and trucks:

Chrysler	1998 and older
Ford	2001 and older
General Motors	2002 and older
Volvo	1991 and older
Audi 100	1977–1988
Audi 200	1980–1988
Mazda Navajo	1993–1997
Mazda B-Series Pickup	1995–1999
Porsche	1976–1991

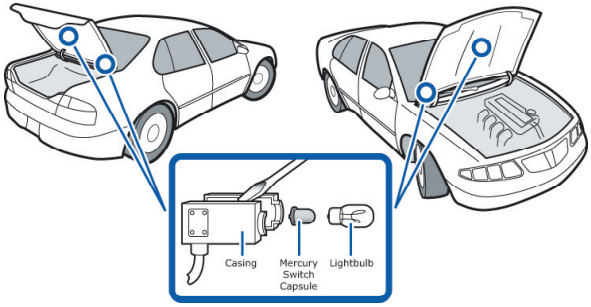
Check for **vanity mirror sunvisor** switches in the following cars:

Volvo	1986–1991

NOTE: A comprehensive list of specific vehicles containing mercury switches can be found at **www.switchout.ca**.

2. Disconnect the battery.

3. Locate the lighting assembly under the vehicle trunk and/or hood or sunvisor.



4. Cut the power supply wire to the fixture.

5. Remove any fasteners to separate the entire lighting assembly from the vehicle.

6. Break open the lighting assembly to expose the mercury switch capsule (a sealed metal pellet). Small flathead screwdrivers and wire cutters are often the only tools that are required.

7. Remove the mercury switch capsule (using a small screwdriver) if possible and place it in the *Switch Out* collection container. Replace the lid on the container. The remaining plastic/metal from the lighting assembly can be disposed of with regular waste.

Additional resources and instructional videos can be found at **www.switchout.ca**.

General Procedure for Removing, Collecting, and Managing Mercury ABS G-Force Sensor Modules

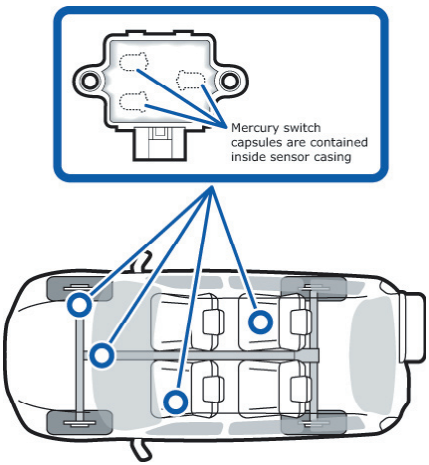
IMPORTANT NOTE: Only the ABS G-Force sensor modules should be removed and collected in the *Switch Out* containers. ABS wheel speed sensors in wheel units do not contain mercury and should not be removed. ABS G-Force sensor moddule removal instructions for specific vehicle types are available at **www.switchout.ca**.

1. Check for mercury ABS G-Force sensors in these cars and trucks:

Audi	1987–1993	Audi 100/Avant
	1989–1995	Audi V8
	1987–1991	Audi 200
	1987–1992	Audi Coupe quattro
	1987–1992	Audi 80/90
Chrysler	1992–1996	Dodge Stealth 4WD
	1992	Eagle 200 GTX AWD
	1992–2001	Jeep Cherokee
	1993–2001	Jeep Grand Cherokee
	1992–1995	Jeep YJ
	1997–2003	Jeep TJ
Ford	1993–1997	Ford Bronco
	1993–2002	Ford Explorer & Mazda Navajo
	1995–2001	Ford Ranger 4×4 & Mazda B-Series Pickup
	1997–2002	Mercury Mountaineer AWD
Nissan	1996	Pathfinder 4×4
Subaru	1990–1995	Legacy AWD with 5MT
	1993–1996	Impreza AWD with 5MT

2. Disconnect the battery.

3. Locate the ABS G-Force sensor on the vehicle (varies on different vehicles). ABS G-Force sensor locations include: the drive tunnel, below the rear seat on the floor pan, on the right front wheel apron, and on the left frame rail right below the driver.



4. Remove the ABS G-Force sensor and place the entire sensor in the *Switch Out* collection container. Replace the lid on the container.

NOTE: The ABS G-Force sensor module contains either two or three mercury switch capsules embedded in the casing. Do not attempt to remove the mercury switch capsules from the sensor module.

Collection and Shipping Instructions

To participate in the *Switch Out* program, each registered vehicle recycler and scrap metal recycler is requested to follow these procedures:

1. Remove and collect ***only*** intact mercury-containing automotive convenience lighting switch capsules and ABS sensor modules in the *Switch Out* collection container. Placing items and substances other than lighting switch capsules and ABS sensor modules into the container could pose a risk of contamination to other handlers within the collection infrastructure and could result in a violation of provincial regulations surrounding the transportation of hazardous wastes.

2. When your *Switch Out* collection container is full, or when you are requested by Clean Air Foundation to return your collection container, do so with the provided pre-paid courier waybill. A replacement container will be sent to you at no charge.

3. Your full container will be shipped via courier to an approved short-term provincial storage facility and from there will be picked up by a certified hauler and brought to the program recycling facility.

4. Participating recyclers do not require special permission to collect and transport mercury switches through the *Switch Out* program, so long as: **1)** the switches are transported by the approved courier; **2)** the switches are sent to an approved location (i.e., the short-term provincial storage facility); and **3)** the weight of the mercury shipped is less than 5 kilograms.

Additional details about the *Switch Out* program, along with information about mercury exposure and spill guidelines can be found at **www.switchout.ca**.

Program Information

If you have questions, need additional information or wish to provide feedback about the *Switch Out* program, contact us at:

Switch Out Coordinator
Clean Air Foundation
1216 Yonge Street, Suite 201
Toronto, ON M4T 1W1

Phone: 416-922-9038 x241
Fax: 416-922-1028
Email: switchout@cleanairfoundation.org
Website: www.switchout.ca

***Switch Out* Program Partners:**

With funding support from the Ontario Trillium Foundation through 2009.

THIS BROCHURE WAS PRINTED USING A WATERLESS PROCESS ON 100% RECYCLED, ENVIRONMENTAL CHOICE CERTIFIED, CHLORINE FREE, FSC-APPROVED PAPER.

Removal Instructions for Mercury Convenience Lighting Switches

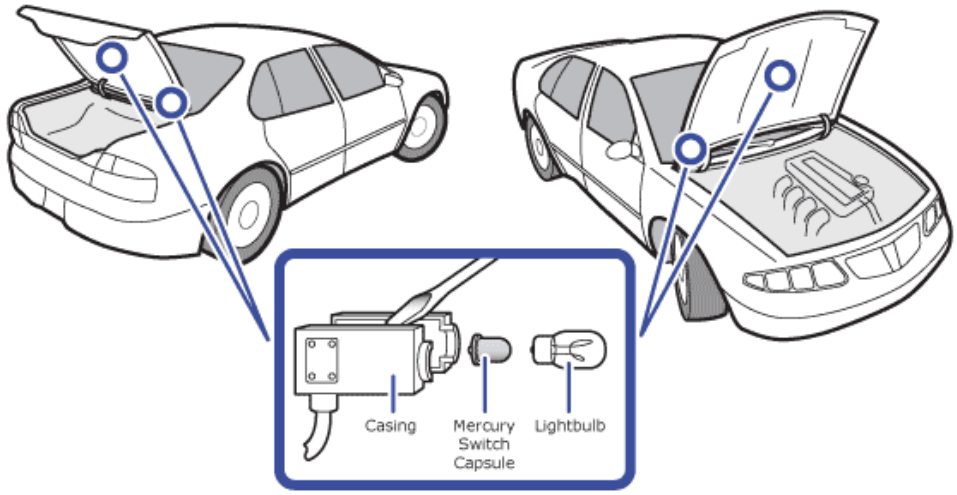
1. Removing Mercury Hood and Trunk Convenience Light Switches

Removal of the lighting assembly takes only a few seconds and can be done at the same time as the removal of other fluids and parts. The mercury is contained in a sealed metal switch, so there is little danger of mercury exposure during removal procedures.
Note: Old Volvos may use glass switches — extra care must be taken when removing these lighting assemblies.

Step 1 — Remove convenience lighting assembly from vehicle

- Disconnect the battery.
- Locate the lighting assembly under the vehicle trunk and/or hood.
- Cut the power supply.
- Remove any fasteners to separate the entire lighting assembly from the vehicle and place in a large bin (of heavy plastic with a lid) for temporary storage.
- Repeat for each mercury-containing lighting assembly in the vehicle. If in doubt, assume the fixture contains a mercury switch

Time: Approximately 30 seconds per fixture.
Note: At this stage the lighting assembly can be stored in a heavy plastic container with a lid until several hundred are accumulated. Proceed then to Step 2.



Step 2 — Breakdown lighting assemblies to recover switch

- Break open the lighting assembly to expose the mercury switch capsule (a sealed metal capsule). Small flathead screwdrivers and small wire cutters are often the only tools that are required.
- Remove the mercury switch (can use a small screwdriver) and place it in the Switch Out collection container. Replace the lid on the container. The remaining plastic/metal from the lighting assembly can be disposed of with regular waste.

Time: Recycling 1,500 vehicles per year will require approximately three hours of labour per year to remove switches from the casings.

2. Removing Mercury Vanity Mirror Sunvisor Switches

- Check the following cars for a sunvisor switch — all 1986–1991 Volvos, except for the 240.
- Disconnect the battery.
- Locate the lighting assembly in the sunvisor.
- Cut the power supply.
- Remove the lighting assembly.
- Remove the mercury switch from the assembly and place in the Switch Out collection container. The remaining plastic/metal from the lighting assembly can be disposed of with regular waste.

Vehicles that May Contain Mercury Convenience Lighting Switches

Mercury-containing convenience light switches are common in passenger cars, trucks, vans and SUVs made in North American prior to 2003. As a general rule, you should assume there is a mercury-containing switch in the hood or trunk convenience lighting of the following:

- 2002 Model Year (MY) and older General Motors vehicles
- 2001 MY and older Ford vehicles
- 1998 MY and older Chrysler vehicles

Mercury switch information for specific brands and model years are as follows:

AUDI

- 1977–1988 Audi 100
- 1980–1988 Audi 200

BMW (none)

CHRYSLER

- Assume that all vehicles equipped with convenience light assemblies from 1998 MY and older Chrysler vehicles contain mercury switches.

FORD/LINCOLN/MERCURY/VOLVO/MAZDA

Cars (potentially contain both hood and trunk switches):

- 2000 MY and older Ford Mustang, Ford Crown Victoria, Mercury Grand Marquis and Lincoln Town Car
- 1996 MY and older Ford, Lincoln, Mercury and Merkur cars
- 1991 MY and older Volvo (*may contain glass switches — please handle with care*)
- 1986–1991 Volvo (except for the 240) may contain mercury vanity mirror sunvisor switches

Trucks, SUVs and vans (hood switches only):

- 2001 MY and older Ford, Lincoln and Mercury trucks, cans and SUVs, **except**: 1999 MY and newer Ford Econoline, Ford Windstar, Ford Ranger and Mercury Villager
- 1993–1997 Mazda Navajo
- 1995–1999 Mazda B-Series Pick-Up (Ranger/B-Series phased out of mercury switches with 1999 MY)

GENERAL MOTORS
1998 MY and older — check all vehicles

1999 MY — check all vehicles, **except**:
- Chevrolet Astro
- Chevrolet Silverado
- GMC Safari
- GMC Sierra

2000 MY — only the following vehicles:
- Cadillac Escalade – hood light
- Chevrolet Blazer – hood light
- Chevrolet Cavalier – trunk light
- Chevrolet Corvette – hood light
- Chevrolet Express – hood light
- GMC Denali – hood light
- GMC Envoy – hood light
- GMC Jimmy – hood light
- GMC Savana – hood light
- Oldsmobile Bravada – hood light
- Pontiac Sunfire – trunk light

2001 MY — only the following vehicles:
- Chevrolet Blazer – hood light
- Chevrolet Cavalier – trunk light
- Chevrolet Express – hood light
- GMC Envoy – hood light
- GMC Jimmy – hood light
- GMC Savana – hood light
- Luxury G-Van – hood light
- Oldsmobile Bravada – hood light
- Pontiac Sunfire – trunk light

2002 MY — only the following vehicles:
- Chevrolet Blazer – hood light
- Chevrolet Express – hood light
- Chevrolet S-10 Crew cab – hood light
- GMC Savana – hood light
- GMC Sonoma Crew cab – hood light
- Luxury G-Van – hood light

NOTE: 2003 MY and newer DO NOT contain mercury light switches.

MITSUBISHI (none)

NISSAN (none)

PORSCHE (contain hood switches only)

- 1976–1985 924
- 1986–1988 924S
- 1982–1988 944
- 1987–1988 944S
- 1989–1991 944S2
- 1986–1991 944 Turbo
- 1978–1983 928
- 1980–1983 928S
- 1984–1990 928S/S4

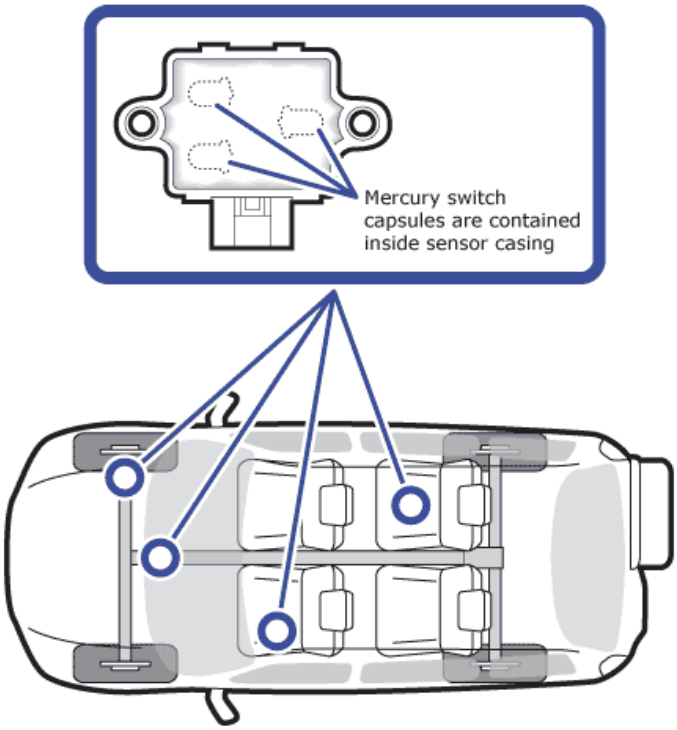
SUBARU (none)

TOYOTA (none)

VOLKSWAGEN (none)

Removal Instructions for Mercury ABS G-Force Sensor Modules

IMPORTANT NOTE: Only the ABS G-Force sensor modules should be removed and collected in the Switch Out containers. ABS wheel speed sensors in wheel units do not contain mercury and should not be removed. ABS G-Force sensor module removal instructions for specific vehicle types are listed below.



General Procedure for Removing Mercury ABS G-Force Sensor Modules

- Confirm the vehicle is equipped with mercury ABS G-Force sensor module.
- Disconnect the battery.
- Locate the ABS G-Force sensor module on the vehicle (varies on different vehicles). ABS G-Force sensor module locations include: the drive tunnel, below the rear seat on the floor pan, on the right front wheel apron, and on the left frame rail right below the driver.
- Remove the ABS G-Force sensor module and place the entire sensor module in the Switch Out collection container. Replace the lid on the container.

NOTE: The ABS G-Force sensor module contains either two or three mercury switch capsules embedded in the casing. **Do not attempt to remove the mercury switch capsules from the sensor module.**

ABS G-Force sensor module removal procedures for specific vehicle types are as follows:

AUDI

Removal procedure for 1987–1993 Audi 100/Avant; 1989–1995 Audi V8; 1987–1991 Audi 200; 1987–1992 Audi Coupe Quattro; 1987–1992 Audi 80/90:

1. Remove rear seat bottom and locate ABS G-Force sensor module mounted in the middle under seat on seat support.
2. Disconnect wire harness connector from switch mounting hardware.
3. Remove securing nuts.

CHRYLSER

Removal procedure for 1992–1996 Dodge Stealth 4WD; 1992 Eagle 200 GTX 4WD:

1. Locate the ABS G-Force sensor module under the center floor console.
2. Remove center floor console.
3. Disconnect the harness connector.
4. Remove the two bolts to release the sensor module.

Removal Procedure for 1992–2001 Jeep Cherokee:

1. Fold the rear seat assembly forward for access to the ABS G-Force sensor module.
2. Locate the sensor module.
3. Disconnect the harness connector.
4. Remove the two bolts to release the sensor module.

Removal Procedure for 1993–2001 Jeep Grand Cherokee:

1. Fold the rear seat assembly forward and roll back the carpeting to gain access to the ABS G-Force sensor module.
2. Locate the sensor module.
3. Disconnect the harness connector.
4. Remove the two bolts to release the sensor module.

Removal Procedure for 1992–1995 Jeep YJ; 1997-2003 Jeep TJ:

1. From the drivers' side, lift carpet back in front of console/shifter.
2. Locate the ABS G-Force sensor module in front of the console/shifter mounted to a bracket on the floor pan.
3. Disconnect the harness connector.
4. Remove the two bolts to release the sensor module.

FORD/MERCURY

Removal procedure for 1993–1997 Ford Bronco; 1993–2002 Ford Explorer; 1995–2001 4x4 Ford Ranger; 1997–2002 Mercury Mountaineer AWD:

1. Raise and support the vehicle.
2. Locate the ABS G-Force sensor module on the left frame rail, directly below the driver seat.
3. Remove the two nuts.
4. Unclip the fuel filter from the vehicle frame (on some models).
5. Disconnect the harness connector.
6. Remove the sensor module.

GENERAL MOTORS (has no models with mercury ABS G-Force sensor modules)

MAZDA

Removal procedure for 1993–2002 Mazda Navajo; 1995–2001 4x4 Mazda B-Series Pick-Up

1. Raise and support the vehicle.
2. Locate the ABS G-Force sensor module on the left frame rail, directly below the driver seat.
3. Remove the two nuts.
4. Unclip the fuel filter from the vehicle frame (on some models).
5. Disconnect the harness connector.
6. Remove the sensor module.

NISSAN

Removal procedure for 1996 Nissan Pathfinder 4X4:

1. Locate the ABS G-Force sensor module under the center floor console.
2. Remove center floor console.
3. Disconnect the harness connector.
4. Remove the two bolts to release the sensor module.

PORSCHE (has no models with mercury ABS G-Force sensor modules)

SUBARU

Removal procedure for 1990–1995 Legacy AWD with 5MT; 1993–1996 Impreza AWD with 5MT:

1. Locate the ABS G-Force sensor module on the right front wheel apron.
2. Disconnect the wire harness connector from the switch and mounting hardware (two screws).

VOLKSWAGEN (has no models with mercury ABS G-Force sensor modules)

Vehicles that Contain Mercury ABS Sensor Modules

AUDI
- 1987–1993 Audi 100/Avant
- 1989–1995 Audi V8
- 1987–1991 Audi 200
- 1987–1992 Audi Coupe quattro™
- 1987–1992 Audi 80/90

BMW (no removal procedures)

CHRYSLER
- 1992–1996 Dodge Stealth 4WD
- 1992 Eagle 200 GTX 4WD
- 1992–2001 Jeep Cherokee
- 1993–2001 Jeep Grand Cherokee
- 1992–1995 Jeep YJ
- 1997–2003 Jeep TJ

FORD/MAZDA/MERCURY
- 1993–1997 Ford Bronco
- 1993–2002 Ford Explorer and Mazda Navajo
- 1995–2001 4x4 Ford Ranger and Mazda B-Series Pick-Up
- 1997–2002 Mercury Mountaineer AWD

GENERAL MOTORS (has no models with mercury ABS G-Force sensor modules)

MITSUBISHI (has no models with mercury ABS G-Force sensor modules)

NISSAN
- 1996 Pathfinder 4X4

PORSCHE (has no models with mercury ABS G-Force sensor modules)

SUBARU
- 1990–1995 Legacy AWD with 5MT
- 1993–1996 Impreza AWD with 5MT

TOYOTA (has no models with mercury ABS G-Force sensor modules)

VOLKSWAGEN (has no models with mercury ABS G-Force sensor modules)

Switch Out Mercury Clean-up Instructions

What to Do if a Mercury-containing Glass Convenience Light Switch Breaks

If a mercury-containing glass convenience light switch breaks in you facility, follow these specific clean-up instructions:

1. Have everyone else leave the area and don't let anyone walk through the mercury on their way out. Make sure all pets are removed from the area. Open all windows and doors to the outside, and shut all doors to other parts of the building.

2. Put on rubber, nitrile or latex gloves.

3. If there are any broken pieces of glass or sharp objects, pick them up with care. Place all broken objects on a paper towel. Fold the paper towel and place in a zip lock bag. Secure the bag and label it as containing mercury.

4. Locate visible mercury beads. Use a squeegee or piece of cardboard to gather the mercury beads. Use slow sweeping motions to keep mercury from becoming uncontrollable. Take a flashlight, hold it at a low angle close to the floor in a darkened room and look for additional glistening beads of mercury that may be sticking to the surface or in small cracked areas of the surface. Note: Mercury can move surprising distances on hard-flat surfaces, so be sure to inspect the entire room when "searching."

5. Use an eyedropper to collect or draw up the mercury beads. Slowly and carefully squeeze the mercury onto a damp paper towel. Place the paper towel in a zip lock bag, secure the bag and label as containing mercury.

6. After you remove larger beads, use duct tape to collect smaller hard-to-see beads. Place the duct tape in a zip lock bag, secure the bag and label as containing mercury.

7. Place all materials used during the clean-up, including gloves, in a trash bag. Place all mercury beads and objects into the trash bag. Secure trash bag and label it as containing mercury.

8. Contact your municipal waste authority for proper disposal in accordance with local, provincial and federal laws.

9. Remember to keep the spill area well ventilated to the outside (i.e., windows open and fans in exterior windows running) for at least 24 hours after your successful clean-up. Continue to keep pets and children out of clean-up area. If sickness occurs, seek medical attention immediately.

Recommendation: If there are young children or pregnant women in the building at the time of the spill, seek additional advice from your local health department.

What Never to Do with a Mercury Spill

- Never use a vacuum cleaner to clean up mercury. The vacuum will put mercury into the air and increase exposure.

- Never use a broom to clean up mercury. It will break the mercury into smaller droplets and spread them.

- Never pour mercury down a drain. It may lodge in the plumbing and cause future problems during plumbing repairs. If discharged, it can cause pollution of the septic tank or sewage treatment plant.

- Never wash clothing or other items that have come in direct contact with mercury in a washing machine, because mercury may contaminate the machine and/or pollute sewage. Clothing that has come into direct contact with mercury should be discarded. By "direct contact," we mean that mercury was spilled directly on the clothing.

- Never walk around if your shoes might be contaminated with mercury. Contaminated clothing can also spread mercury around.

First Aid Measures

If individuals are exposed to mercury during a spill, there are a few simple procedures that should be followed.

Skin contact — Remove any clothing that has absorbed the mercury, seal in a double plastic bag and dispose of properly. Wash the area of contact with soap and water and seek medical attention promptly.

Eye contact — Flush eyes with room temperature water for at least 15 minutes. Lift upper and lower lids to rinse beneath them as well. Seek medical attention promptly.

Inhalation — Move the person to an area where they can get fresh air. Seek medical attention promptly.

Ingestion — Seek medical attention immediately.

APPENDIX E

ERRATA

Note: Appendix E is added to the March 2012 re-issue. The errata section in Appendix E is numbered as "Section 5" of the Manual.

SECTION 5.0
ERRATA
OPERATION AND MAINTNEANCE MANUAL FOR SOLID WASTE DISPOSAL FACILITIES

5.1 ANNUAL REVIEW AND ERRATA

Section B1(k) of Inuvik's Water Licence, issued for a ten year period by the Gwich'in Land and Water Board in 2006, requires Inuvik to conduct and annual review of its approved operation and maintenance plans and to provide to the Water Board, in the Town's annual report, a brief description of the review and any updates arising. Inuvik conducts annual reviews of O&M manuals between December and March.

These errata contain all of the updates to the Operation and Maintenance Manual for Solid Waste Disposal Facilities resulting from annual reviews done to February 2009.

If a point is reached where errata become too numerous or cumbersome, Inuvik will commission a complete overhaul of the Manual.

5.2 ERRATA

Table of Contents, page 2. Change section numbers for the section headed "Water Licence Requirements" from 3 to 4. The page numbers are correct.

Section 2.4.4, Wastes Requiring Special Arrangements: Asbestos. Amend to read as follows.

2.4.4 Hazardous Dry Inert Waste

Inuvik may at its option accept for disposal dry inert low-hazard waste, and maintains a designated area or small cell for that purpose.

2.4.4.1 Asbestos

[Pre-existing Section 2.4.4 now comprises Section 2.4.4.1. The name of the permit has undergone small change.]

2.4.4.2 Other Dry Inert Low-Hazard Waste

The procedure of application, permit, delivery and disposal is as described above for asbestos. A copy of the Application for Permit to Deposit Low-Hazard Dry Inert Waste is included in Appendix C.

Section 2.4.6, Wastes that are Segregated for Recycling or Other Special Handling. Add a new bulleted item, as follows: *Honeybags. A dumpster-type container (built from a dump-truck box) is provided for disposal of honey bags by users of hinterland cabins. The quantity received annually is small, and most arrive in winter, frozen. All are stored in the container until thawing the following summer. When thawed, bags are split and allowed to drain, and contents are taken to the lagoon by a vacuum truck. After lime treatment the bags are raked out and disposed of in the landfill. A coarse screen could be installed near the bottom of the container*

to aid separation of contents from bags, if the volume of bags received warrants such an improvement.

Appendix C, Application for Permit to Deliver Waste Asbestos. Change heading on the title page to read "Application for Permit to Deliver Dry Inert Hazardous Waste". Add two sub-headings: "Application for Permit to Deposit Waste Asbestos in Designated Low-Hazard Dry Inert Waste Cell in Landfill", and "Application for Permit to Deposit Low-Hazard Dry Inert Waste in Designated Cell in Landfill". In 2008 the pre-existing application for asbestos has been updated slightly, and the new one for other dry inert low-hazard wastes added. The 2008 versions of both forms are attached.

5.3 GENERAL

General. A plan showing in broad outline the future development of the Mt. Baldy landfill site has been prepared for Inuvik. No changes to the Manual have resulted from that work.

Inuvik has added two new GNWT-ENR documents to Appendix B, its reference binder on solid waste management practice: B.5.3 Drum Disposal Practice for Municipal Landfills, and B.5.4 Drum and Tank Cleaning for Municipal Disposal.