Introduction

(sheet 1 of 2)

INTRODUCTION:

This guidelines document is issued under Section 46 of the *Mineral Regulations* (CNLR 1143/96) under the *Mineral Act* (SNL 1990 c M-12) and applies to mineral exploration.

In addition, the terms and conditions of quarry materials exploration licences ("QMELs") issued under the *Quarry Materials Act, 1998* (SNL 1998 c Q-1.1) require that this guidelines document shall apply to exploration for quarry materials carried out within the area of the licence.

Guidelines in this document are subdivided into "Requirements", which are mandatory and enforced, and "Recommendations", which are provided as suggestions to be considered.

This document occasionally references regulatory, permitting, and policy requirements other than those administered by the Mines Branch, Department of Industry, Energy and Technology, however such information is provided as a convenience only, is not exhaustive, and no guarantee is made with respect to its accuracy and completeness. Approval holders are referred to their exploration approval letter for project-specific requirements and for guidance concerning requirements that may apply under other legislation, regulations, or policy. Parties seeking to conduct exploration are strongly advised to establish early contact with those government agencies responsible for administering or enforcing permitting, regulatory, and policy requirements that their activities may be subject to.

This document replaces and supersedes a previous document titled *Environmental Guidelines for Construction and Mineral Exploration Companies*.

The Requirements and Recommendations set out in this document apply to all mineral exploration taking place within the province on mineral licences, mining leases, and impost lands, with the exception of within Labrador Inuit Lands where the *Mineral Exploration Standards Regulations*, NLR 39-07, under the *Labrador Inuit Land Claims Agreement Act*, SNL 2004 c L-3.1, have precedence over these Requirements and Recommendations in the event of a conflict between them.

All parties involved in mineral exploration and all parties involved in quarry materials exploration on a quarry materials exploration licence are responsible for adhering to the applicable Requirements and for being aware of the applicable Recommendations. In the case of mineral exploration carried out on a mineral licence, the current licence holder is responsible for outstanding Requirements incurred in the course of mineral exploration from the recording date of the licence within which the activities occurred.

This document is presented in modular format for maximum ease of reference, however as a legal document must be interpreted as a whole.

Requirements and Recommendations dealing with fuel and oil (most of which are in Sections 12 and 13) shall apply except in situations where there is a disagreement with another piece of legislation, a policy of the Department of Environment and Climate Change, Service NL, or Fisheries and Oceans Canada, or the terms and conditions of another government permit (e.g., fuel cache approval, water use licence / permit, exploration approval), or a work plan approval issued by the Nunatsiavut Government.

Nothing in these Requirements and Recommendations shall necessitate that the Operator or any person acting under their direction undertake an activity that would be considered unsafe under the circumstances. The Operator and persons acting under their direction shall continue to comply with the requirements and standards established by the *Occupational Health and Safety Act*, RSNL 1990 c O-3 (as amended), and its associated Regulations. The Occupational Health and Safety Division of Digital Government and Service NL provides a guidance document titled *Safety Guidelines for Mineral Exploration in Newfoundland and Labrador*.

Introduction

(sheet 2 of 2)

The goal of the Department of Industry, Energy and Technology is that all exploration sites be left in a condition conducive to natural re-vegetation, and this goal informs many of the Requirements and Recommendations contained herein. The current version of this document is available at http://

SOME DEFINITIONS:

Most mineral exploration in the province is carried out on mineral licences, mining leases, or impost lands. However, since mineral licences are the most common form of mineral tenure, mining leases and impost lands are not mentioned again in this document but are to be understood as included along with “licence” where mentioned when applying to mineral exploration. When applying to exploration for quarry materials, “licence” where mentioned refers to the quarry materials exploration licence.

“Exploration site” means any location utilized for exploration purposes, including but not limited to drill sites, trench sites, test pit sites, access trails, camp sites, laydown areas, fuel storage sites, helicopter landing sites, cut lines, channel sample sites, bulk sample sites, and water intake sites.

“Department” unless indicated otherwise means the Department of Industry, Energy and Technology.

“Approval holder” means the party holding an ‘exploration approval’ issued under the Mineral Act when applying to mineral exploration or issued under a condition of the quarry materials exploration licence when applying to exploration for quarry materials.

“Operator” means the party with the day-to-day responsibility for carrying out an exploration program, and includes all parties acting under the direction of the Operator in carrying out an exploration program. The Operator is typically the holder of the exploration approval under which the exploration work is authorized. In mineral exploration, the Operator is typically an exploration company, but may also be a geophysical survey company, prospecting business, consulting company, etc. In exploration for quarry materials, the Operator is typically a construction company which operates one or more quarries or a consultant.

Additional definitions are introduced elsewhere in the document, however, apply throughout the document.

TABLE OF CONTENTS:

General Practices

The Department of Industry, Energy and Technology promotes:

GOOD PLANNING

A well-planned exploration program will minimize your rehabilitation requirements.

ADEQUATE SUPERVISION

The Operator is responsible for supervising the work of all employees and contractors.

BUDGETING FOR REHABILITATION

If you budget for the work, budget for rehabilitation. Rehabilitation work counts for assessment credit.

PROGRESSIVE REHABILITATION AND CLEAN-UP

Do not accumulate outstanding environmental requirements – rehabilitate and clean up as you go.

COMMUNICATION WITH THE MINERAL LANDS DIVISION

Keep us updated and ask questions – we are here to help.

ENVIRONMENTAL AND SOCIAL RESPONSIBILITY

Responsibly represent your industry to regulators and the public.

READING AND UNDERSTANDING YOUR PERMITS

Your exploration program is approved on terms and conditions – read them up front. Ensure that everyone involved in the program understands what is required of them to comply with the terms and conditions of your approval. If clarification is required, please ask us or the department responsible for those requirements.

1. Basic Documentation

(sheet 1 of 1)

BACKGROUND:

The Department may issue requests for information regarding completed, ongoing, or planned exploration and rehabilitation work. In order to be able to respond in a timely fashion with comprehensive information, standardized photographic documentation should be maintained for this purpose.

Note that rehabilitation expenditures are eligible for assessment credit provided that the work is documented in the assessment report. The photographic documentation recommended below will be suitable for that purpose.

The photographic documentation recommended below will also be valuable as internal records for monitoring environmental performance, as an indication of the potential environmental liabilities attached to the property, and as documentation that can be provided to government agencies or Indigenous governments or organizations.

Nothing in these Requirements and Recommendations shall necessitate that the Operator or any person acting under their direction undertake an activity that would be considered unsafe under the circumstances. The Operator and persons acting under their direction shall continue to comply with the requirements and standards established by the *Occupational Health and Safety Act* and its associated Regulations. The Occupational Health and Safety Division of Digital Government and Service NL provides a guidance document titled *Safety Guidelines for Mineral Exploration in Newfoundland and Labrador*.

RECOMMENDATIONS:

1.1. Before, during, and after photographs should be taken of all exploration sites and representative sections of access trail:

> "Before" photographs should be taken after the removal of trees (if any) and before the arrival of equipment. It is especially important to take "before" photographs of sites previously used for exploration, to serve as a baseline for distinguishing the environmental impact of current exploration activity.
>
> "During" photographs should be taken once the drill is set up and running, the trench excavated and washed, etc.
>
> "After" photographs should be taken once equipment and waste are removed and rehabilitation completed as required.

1.2. Photographs should be taken in high resolution although they may be re-sampled for email and reports.

1.3. "Before", "during", and "after" photographs should be taken from the same vantage each time and from a vantage that is neither too close nor too far away.

1.4. Photographs should display a date stamp if the camera is capable of producing one.

1.5. Photographs should be accompanied by a map showing photographed locations or a list of UTM coordinates of the same (with datum indicated, e.g., NAD 83).

2. Cutting Trees

(sheet 1 of 2)

BACKGROUND:

Cutting of trees on Crown land for exploration purposes requires a cutting permit which may be obtained from the local Forest Management District Office. In addition, an operating permit is required to carry out mechanized activities on forested land during the forest fire season.

Note that certain areas correspond to timber rights held by Corner Brook Pulp and Paper Limited (CBPPL); these areas are viewable on the provincial Land Use Atlas (https://www.gov.nl.ca/landuseatlas/details/). The requirement for a cutting permit and requirement (in-season) for an operating permit still apply for these areas however the Operator is also required to contact CBPPL to discuss the proposed work with the goal of determining an acceptable mitigation, rehabilitation, or compensation plan that would minimize the impact on silviculture and forest resources.

Nothing in these Requirements and Recommendations shall necessitate that the Operator or any person acting under their direction undertake an activity that would be considered unsafe under the circumstances. The Operator and persons acting under their direction shall continue to comply with the requirements and standards established by the *Occupational Health and Safety Act* and its associated Regulations. The Occupational Health and Safety Division of Digital Government and Service NL provides a guidance document titled *Safety Guidelines for Mineral Exploration in Newfoundland and Labrador*.

Nothing in these Requirements and Recommendations shall necessitate that the Operator or any person acting under their direction violate the terms and conditions of their cutting permit or direction from CBPPL (if applicable).

REQUIREMENTS:

2.0. The Operator shall ensure that each person involved in cutting is fully informed of the following Requirements and Recommendations, as applicable.

2.1. Cutting of the largest trees shall be avoided unless necessary to ensure a safe work site.

2.2. Stumps shall be cut as low as conveniently possible and in compliance with the *Cutting of Timber Regulations* under the *Forestry Act*. Where stumps are used to place structures such as camp buildings, drill rigs, and decking, stumps need only meet this requirement upon the removal of the structure.

2.3. Trees and other woody debris shall not be felled or discarded into streams or waterbodies. Woody debris should be piled above the high water mark so that this material cannot enter a watercourse during periods of peak flow.

2.4. Unless required for drill cribbing or other construction purposes, tree trunks and branches cut to clear an exploration site (including access trails) shall be utilized for corduroy and brush-matting to lay down over sections of access trail located on wet or otherwise soft ground, before using the trail for the first time and thereafter as may be needed.

2.5. Branches and tree trunks less than 9 cm in diameter not needed to satisfy Requirement 2.4 shall be spread over disturbed sites, active or inactive, that could cause sedimentation into nearby streams or waterbodies. The Mineral Lands Division Information Resource on Erosion and Sediment Control may be consulted for more information on erosion prevention and sediment control.

2.6. Branches and tree trunks less than 9 cm in diameter not needed to satisfy Requirements 2.4 and 2.5 shall be spread over sites having been backfilled or re-contoured.

2. Cutting Trees

RECOMMENDATIONS:

2.7. With the exception of survey lines requiring line-of-sight, cutting should not extend to the perimeter of bodies of open water or watercourses; a buffer zone of undisturbed vegetation, including trees, should be maintained for all activities adjacent to a body of open water or watercourse. Note that specific buffer requirements may be imposed in the terms and conditions of the exploration approval or in other permit documents.

2.8. Branches and tree trunks less than 9 cm in diameter spread for erosion control or rehabilitation purposes should not be piled to a thickness greater than 30 cm.

3. Vehicles and Equipment

BACKGROUND:

The use of vehicles or machinery on forested land during the forest fire season requires an operating permit which may be obtained from the local Forest Management District Office.

Winter drilling on ice is not addressed in this document however is addressed during the exploration approval process.

Nothing in these Requirements and Recommendations shall necessitate that the Operator or any person acting under their direction undertake an activity that would be considered unsafe under the circumstances. The Operator and persons acting under their direction shall continue to comply with the requirements and standards established by the *Occupational Health and Safety Act* and its associated Regulations. The Occupational Health and Safety Division of Digital Government and Service NL provides a guidance document titled *Safety Guidelines for Mineral Exploration in Newfoundland and Labrador*.

REQUIREMENTS:

3.0. The Operator shall ensure that each person involved in the activities described below is fully informed of the following Requirements and Recommendations, as applicable.

3.1. The use of skidders shall be strictly limited to dry, firm ground resistant to rutting and established access roads.

3.2. Vehicles and equipment involved in mineral exploration shall be kept clean of potential pollutants (e.g., spilled fuel or oil) and maintained in good working order.

3.3. Equipment maintenance, fueling and washing – other than emergency repairs – shall not be carried out within 30 m of a waterbody. The only exception to this requirement is that drill rigs and water pumps may be refueled within 30 m of a waterbody, however no more than the amount of fuel required to supply the drill and water pump for the drilling of the current hole shall be stored within 30 m of the waterbody.

3.4. Water pumps shall be located on stable ground and shall not be placed closer to the waterbody than necessary given the length of the intake hose. The only exception to this distance requirement is at locations where the only stable site for a water pump is at the bottom of a slope.

3.5. All water pumps shall be underlain by effective secondary containment (e.g., a drip tray) lined with absorbent pads. Absorbent pads shall be changed before becoming saturated. Secondary containment where the containment rim is broken or otherwise ineffective must be replaced or placed within additional containment (e.g., a tarp-lined wooden tray) without delay.

RECOMMENDATIONS:

3.6. Vehicles and drill rigs with wide tracks are the preferred mode of transportation on exploration access trails. Nodwell-, Morooka- and Muskeg-type vehicles are examples. Rubber-tracked vehicles are preferable to steel-tracked vehicles, where possible.

3.7. Excavators are the preferred vehicle for carrying out excavation and leveling, where necessary. Excavators are also the preferred vehicle for backfilling and trail restoration.

4. Access Trails

(sheet 1 of 5)

BACKGROUND:

"Exploration access trail" means a temporary, low-impact route for which preparation and maintenance activities in support of using the route for exploration purposes is limited to one or more of the following:

a) Cutting trees to clear a route.

b) Laying down corduroy or brush-matting to prevent disturbance of wet or soft areas.

c) Vehicle use to the extent that the natural ground cover is disturbed and a conspicuous path of travel established.

d) Minimal amounts of local in-filling ("minimal" meaning only at specific locations where it can be demonstrated that it would have been unsafe or impractical for an all-terrain vehicle to drive over the original topography).

e) Minimal amounts of local grubbing ("minimal" meaning only at specific locations where it can be demonstrated that it would have been unsafe or impractical for an all-terrain vehicle to drive over the vegetation).

Exploration access trails qualify as resource roads with respect to the *Motorized Snow Vehicles and All-Terrain Vehicles Regulations* under the *Motorized Snow Vehicles and All-Terrain Vehicles Act*. Exploration access trails are therefore "approved areas" for all-terrain vehicle traffic as defined by Section 2(c) of those Regulations. To distinguish exploration access trails from those roads which involve higher impact preparation and maintenance activities (e.g., significant in-filling, emplacement of a road bed, grading, ditching, or installing metal culverts) exploration access trails may also be referred to as **temporary, low-impact resource roads.**

Note that all trails used in support of mineral exploration activities must be approved through the Department's exploration approval process, irrespective of whether the trails are to be newly prepared or are pre-existing. More specifically, exploration access trails must be approved on an on-going basis (i.e., each year) so long as they are required for use. The mapping and (or) GIS data provided along with the application for exploration approval must clearly distinguish planned new trails from pre-existing trails, both of which require approval for use in support of mineral exploration.

Where vehicle use takes place in other "approved areas" as per the *Motorized Snow Vehicles and All-Terrain Vehicles Regulations* and does not involve any of the preparatory activities listed above (or involves them only very sparsely) and does not disturb the natural ground cover or create a conspicuous path of trail, then no mineral exploration access trail is considered to have been established. Tracked vehicle travel over snowpack is an example of off-road vehicle use in an "approved area" where no exploration access trail is established.

"Exploration access road" means a route that involves preparation and maintenance activities in support of using the route for exploration purposes in excess of those specified above for exploration access trails. Examples of road preparation activities are significant in-filling, emplacement of a road bed, grading, ditching, and installing culverts. The development of an exploration access road may invoke regulatory requirements that do not apply to exploration access trails. If an exploration project reaches a stage where it becomes impractical to continue travelling a route that falls within the definition of an access trail, that is, without significant upgrading, maintenance, or road preparation activities, then the required authorizations must be sought to approve road construction including (but not necessarily limited to) a licence to occupy from Crown Lands. Exploration access roads quality as resource roads however should not be confused with "temporary, low-impact resource roads" which refer specifically to exploration access trails.

"Access trail" and "trail" in this document are shorthand for "exploration access trail" as defined above. "Access road" and "road" are likewise used as shorthand for "exploration access road".

4. Access Trails

Subsections 42(1)(f) and (g) of the *Mineral Regulations* require that all applications for exploration approval must "identify the location of all existing roads, woods roads or trails that will be used to access the site or move to and from locations within the project area" and "the location of all new trails to be prepared to facilitate the planned program". Subsection 42(3) requires that "Exploration work is to be carried out without deviation from the exploration plan."

All crossings of watercourses must be authorized by a permit issued under Section 48 of the *Water Resources Act*, issued by the Department of Environment and Climate Change. Note that ice roads, snow dams and bridges are considered water crossings.

Nothing in these Requirements and Recommendations shall necessitate that the Operator or any person acting under their direction undertake an activity that would be considered unsafe under the circumstances. The Operator and persons acting under their direction shall continue to comply with the requirements and standards established by the *Occupational Health and Safety Act* and its associated Regulations. The Occupational Health and Safety Division of Digital Government and Service NL provides a guidance document titled *Safety Guidelines for Mineral Exploration in Newfoundland and Labrador*.

REQUIREMENTS:

4.0. The Operator shall ensure that each person involved in exploration activities involving ground access is informed of these Requirements and Recommendations, as applicable.

4.1. Insofar as possible without greatly increasing the length of the planned route, trails shall be planned to:

a) Avoid wetland areas (bogs, fens, saltwater and freshwater marshes, swamps, shallow water areas) or any other ground that may be susceptible to significant rutting;

b) Avoid close approaches to waterbodies and watercourses (note that establishing an access trail within 15 m of a waterbody may require a permit under the *Water Resources Act*);

c) Fit the topography by following natural benches, ridge tops and flatter slopes in order to minimize the need for in-filling; and

d) Avoid steep grades.

4.2. Documentation such as maps or aerial photographs demonstrating that planned access trail routes – whether new or pre-existing – comply with a) through d) of Requirement 4.1 shall be included in the application for exploration approval. As required by subsections 42(4) and (5) of the *Mineral Regulations*, the Mineral Lands Division must be informed of any changes to the initial trail plan, especially any changes that affect compliance with Requirement 4.1.

4.3. Access trails or roads branching off of thoroughfares used by the public, tourists, or outfitters shall be dog-legged at the entrance to reduce the visibility of the access.

4.4. Access trails and access roads shall not branch off of the public highway system except where approved by the Department of Transportation and Infrastructure and in accordance with their Policy for Highway Access Management.

4.5. **Preparation of access trails by grubbing** (that is, the pushing aside of vegetation and topsoil) is permitted only locally, at specific locations where it can be demonstrated that it would have been unsafe or impractical for an all-terrain vehicle to drive over the vegetation.

4.6. Grubbed areas shall be rehabilitated once there are no longer documented plans to use or potentially use the

affected sections of access trail to support mineral exploration or earlier still if required by the Department to address an environmental impact or to preclude the risk of abandonment without rehabilitation. Grubbed areas are rehabilitated by placing the grubbed materials back over the trail surface.

4.7. **Preparation of access trails by in-filling** is permitted only locally, at locations where it can be demonstrated that it would have been unsafe or impractical for an all-terrain vehicle to drive over the original topography. Material for in-filling shall be sourced immediately adjacent to the area to be in-filled, whether from a small borrow pit or by grading a short section of trail so that material from higher areas is pushed or pulled into lower areas. Borrow pits excavated for this purpose shall be shallow and broad rather than deep.

4.8. In-filled areas and borrow pits shall be rehabilitated once there are no longer documented plans to use or potentially use the affected sections of access trail to support mineral exploration or earlier still if required by the Department to address an environmental impact or to preclude the risk of abandonment without rehabilitation. In-filled sections of access trail and associated borrow pits shall be rehabilitated by re-contouring the site and spreading the original organic cover (topsoil, ground vegetation, and any trees not used for other purposes) back over the re-contoured site. If the original organic cover proves insufficient to completely re-cover the site then an organic mulch or seeding must be used in addition to complete the process, provided that no invasive species are introduced. Organic mulches and seeding are described in the Mineral Lands Division Information Resource on Erosion and Sediment Control. Seeding that is unsuccessful in the opinion of the Department shall not be considered sufficient to meet this requirement.

4.9. Sections of access trail require rehabilitation as per Requirements 4.6 and 4.8 only to the extent necessary to restore the topography and extent of organic ground cover which existed before the section of access trail was first used for exploration purposes since the issuance date of the mineral licence or, in the case of exploration for quarry materials, since the onset of exploration for quarry materials by the holder of the quarry materials exploration licence or their subsidiary, parent, or sister company.

4.10. **Access trails located on wet or soft ground** are permitted only if the route has been surfaced with corduroy or brush-matting before first pass by a motor vehicle. Trees cut in the exploration area to prepare exploration sites (e.g., to clear trench sites, drill sites, access trails, etc.) shall provide the materials for corduroy and brush-matting. Corduroy and brush-matting shall be replaced or topped up as necessary to maintain effective protection of the wet or soft ground beneath. Plywood, planks, pallets, coreboxes, etc. (however not cresoted or chemically treated wood), may be used instead of corduroy and brush-matting and these may be the only options in treeless areas. Unlike corduroy and brush-matting, manufactured ground covers must be removed before the access trails are decommissioned.

4.11. If surfacing materials are too scarce or too costly to import for Requirement 4.10 to be feasible, then one of the following shall apply:

a) In locations where the landscape is variable on a fine scale (e.g., small hummocks and bogs) the route shall be planned at a fine scale to avoid the wettest patches, even if this increases the length of the route considerably, and any scarce surfacing materials that may be available shall be reserved for the wettest or softest sections of the route.

b) In locations where large expanses of wet or soft ground need to be crossed, the expanses shall be bypassed instead (e.g., by routing the trail inland of the bog), even if this increases the length of the route considerably.

Situations where this Requirement applies (i.e., where Requirement 4.10 is not feasible) shall be clearly indicated in the application for exploration approval.

4. Access Trails

4.12. **Access trail routes may be changed without prior notification** in cases where the planned and approved route encounters unanticipated wet or soft ground and, rather than submitting to Requirement 4.10, the Operator decides to change the route to avoid the wet or soft ground. The Mineral Lands Division shall be notified without undue delay of the revised trail route, thereby satisfying Section 42 of the *Mineral Regulations*, however the Mineral Lands Division reserves the right to require that the revised route be re-approved before continued use.

4.13. The purpose of Requirements 4.10 to 4.12 is to prevent rutting of wet and soft ground. If significant rutting occurs, even despite reasonable efforts to meet Requirements 4.10 to 4.12, the **rutting shall be rehabilitated before the end of the exploration season** or earlier still if required by the department to address an environmental impact**.** Ruts are rehabilitated by collapsing them in. This can be accomplished using an excavator. Even though the excavator will cause temporary additional ground disturbance, it will leave the ground restored in its wake. For peaty ground having been significantly churned by rutting, a layer of scattered organic mulch (e.g., straw) shall be applied to the restored ground to facilitate re-vegetation. Organic mulches are described in the Mineral Lands Division Information Resource on Erosion and Sediment Control.

4.14. **Ruts that have intersected local drainage and become streams** shall be in-filled with bundles timber and brush (or clean gravel) as soon as it is possible to do so. This practice and the problem of channelized runoff are described in the Mineral Lands Division Information Resource on Erosion and Sediment Control. The purpose of bundles or timber and brush is to slow the flow of water, and thereby reduce erosion rates and sediment loads, as well as restore the ground surface. Erosion and sediment control methods shall be employed as necessary as per Requirement 4.15. If the water flowing through ruts intercepts an existing watercourse (even if only a small stream or intermittent channel), then the ruts located immediately upstream of the outflow location shall be in-filled with bundles of timbers and brush (or clean gravel) before others.

4.15. Sections of access trail that have been grubbed, in-filled, or rutted, or that are otherwise associated with ground disturbance, are susceptible to erosion and could become a source of waterborne sediment that could flow into a nearby waterbody or watercourse, including by way of small streams or intermittent channels that may not appear on 1:50,000 scale maps but are nonetheless capable of carrying waterborne sediment into a larger waterbody. **To the extent that may be necessary to prevent waterborne sediment eroded from an access trail entering into a waterbody or watercourse,** the Operator shall employ some combination of erosion and sediment control measures:

a) Erosion control: To the extent that may be necessary, the trail shall be covered with corduroy or brush-matting and shall be monitored frequently enough to ensure continued effectiveness of the corduroy or brush-matting in preventing waterborne sediment proceeding from the trail, and the corduroy or brush-matting topped up or extended as may necessary.

b) Sediment control: To the extent that may be necessary, sediment fences or sediment retention ponds shall be installed proactively at locations beside the trail where water exits or may be expected to exit the trail, including during times of higher runoff. With respect to sediment fences, in order to be effective, they must be installed parallel to contour across level ground rather than across existing channels or channels formed by the runoff. Sediment control methods must be monitored frequently enough to ensure continued effectiveness and replaced or redoubled if necessary.

The Mineral Lands Division Information Resource on Erosion and Sediment Control contains information about erosion and sediment control methods. The combination of erosion and sediment control methods chosen and the relative proportions in which they are employed (including the option that only one method of either erosion or sediment control is chosen) are at the discretion of the Operator provided that the method(s) are effective in preventing waterborne sediment from entering a waterbody or watercourse. Should the Department be of the opinion that the method(s) employed are not effective or are inadequate for meeting this requirement, then the Operator shall abide by the direction of the Department in remedying the situation. Significant production of waterborne sediment from a grubbed, in-filled, rutted, or otherwise disturbed section of trail may constitute grounds for the department to

4. Access Trails

require early rehabilitation under Requirements 4.6, 4.8, and 4.13.

4.16. Sediment fences and sediment retention ponds installed to comply with Requirement 4.15 shall be removed or rehabilitated, respectively, once the corresponding section of access trail is required to be rehabilitated or if there are no longer documented plans to use or potentially use the corresponding section of access trail to support mineral exploration, whichever occurs earlier. Sediment fences are removed by cutting the fence fabric off at the ground level and pulling the posts. Once rehabilitation is due, sediment retention ponds shall be rehabilitated according to the process required for trenches and test pits (Section 6 of this document).

RECOMMENDATIONS:

4.17. Trails should be ground-truthed by the Operator before any trail preparation activity begins (e.g., cutting) and no later than the first pass by a vehicle. The main purpose of ground-truthing is to verify compliance with Requirement 4.1.

4.18. Where trail surfaces devoid of vegetation have become compacted, the trail surfaces should be scarified to facilitate re-vegetation. Scarification is the use of an excavator or rake to roughen, loosen, or create small rows upon compacted soil.

5. Trench and Test Pit Preparation

(sheet 1 of 2)

BACKGROUND:

"Trench" means any excavation made for the purpose of studying or sampling the underlying bedrock, soil, or till, however does not include test pits as defined below. Stripped areas and grubbed areas meeting this definition are considered trenches. "Test pit" means an excavation that is excavated and backfilled either the same day or without the excavator having departed the test pit site. Trenches are typically associated with mineral exploration and test pits typically with exploration for quarry materials.

"Organic cover" means all vegetation and topsoil remaining after trees have been cut to clear a site.

Nothing in these Requirements and Recommendations shall necessitate that the Operator or any person acting under their direction undertake an activity that would be considered unsafe under the circumstances. The Operator and persons acting under their direction shall continue to comply with the requirements and standards established by the *Occupational Health and Safety Act* and its associated Regulations. **Note that there are specific Occupational Health and Safety Regulations related to trenching, as well as blasting.** The Occupational Health and Safety Division of Digital Government and Service NL provides a guidance document titled *Safety Guidelines for Mineral Exploration in Newfoundland and Labrador*.

REQUIREMENTS:

5.0. The Operator shall ensure that each person involved in trench or test pit preparation is informed of the following Requirements and Recommendations, as applicable.

5.1. Before trenching or test pitting, the site shall be cleared to a sufficient width so that all requirements related to stockpiling, including those under the Occupational Health and Safety Regulations, may be met.

5.2. The organic cover shall be grubbed (i.e., excavated) and stockpiled before deeper excavation occurs and shall be stockpiled separately from the deeper materials (e.g., subsoil, till) that are excavated. The reason for this requirement is that if the organic cover is stockpiled together with deeper materials, it may not be practical to separate out the components before backfilling in order to meet requirement 6.2 for rehabilitation. Trees and branches cut to clear the site shall also be stockpiled, whether with the organic cover or on their own (so that they may be accessible for other purposes such as those listed in Requirement 2.4, if necessary). This Requirement makes no implication about the absolute distances that excavated material, woody material, or overburden in general must be kept from the excavation; please refer to the Occupational Health and Safety Regulations.

5.3. Where the organic cover is less than 30-40 cm thick, removal of the upper 30-40 cm of ground material shall be considered acceptable to comply with Requirement 5.2 to separately stockpile the organic cover.

5.4. Excavated materials shall not be stockpiled in standing trees or other locations from which they would be difficult to retrieve during rehabilitation. This Requirement makes no implication about the absolute distances that excavated material, woody material, or overburden in general must be kept from the excavation; please refer to the Occupational Health and Safety Regulations.

5.5. All trenches shall be designed to allow for easy exit of people and large animals such as caribou and moose. In practice this means ensuring that a person or large animal can exit the trench by walking rather than climbing.

5.6. Trench walls and stockpiles are susceptible to erosion and could become a source of waterborne sediment that could flow into a nearby waterbody or watercourse, including by way of small streams or intermittent channels that may not appear on 1:50,000 scale maps but are nonetheless capable of carrying waterborne sediment into a larger waterbody. **To the extent that may be necessary to prevent waterborne sediment eroded from a trench or**

5. Trench and Test Pit Preparation

stockpile entering into a waterbody or watercourse, the Operator shall employ some combination of erosion and sediment control measures:

a) Erosion prevention: To the extent that may be necessary, trench walls and stockpiles of excavated material shall be covered with organic mulch (e.g., straw) or brush-matting. Trenches and their stockpiles shall be monitored frequently enough to ensure continued effectiveness of erosion control methods, and erosion control methods augmented (e.g., organic mulch or brush-matting topped up) or extended as may be necessary.

b) Sediment control: To the extent that may be necessary, sediment fences or sediment retention ponds shall be installed proactively where water exits or may be expected to exit the trench, and downslope of stockpiles. To clarify, expanses of densely vegetated flat ground provide an effective natural means of sediment control, and where present, it may not be necessary to use other sediment control methods. With respect to sediment fences, in order to be effective, they must be installed parallel to contour across level ground rather than across existing channels or channels formed by the runoff. One form of sediment retention pond applicable in this context is a tapered ditch located at the downslope end of the trench. Sediment control methods must be monitored frequently enough to ensure continued effectiveness and replaced, augmented, or extended if necessary.

The Mineral Lands Division Information Resource on Erosion and Sediment Control contains information about erosion and sediment control methods. The combination of erosion and sediment control methods chosen and the relative proportions in which they are employed (including the option that only one method of either erosion or sediment control is chosen) are at the discretion of the Operator provided that the method(s) are effective in preventing waterborne sediment from entering a waterbody or watercourse. Should the Department be of the opinion that the method(s) employed are not effective or are inadequate for meeting this Requirement, then the Operator shall abide by the direction of the Department in remedying the situation.

RECOMMENDATIONS:

5.7. Organic cover may be stockpiled on one side of the trench or test pit and deeper materials stockpiled on the other. Alternately, organic cover may be stockpiled at a greater distance from the trench or test pit than deeper materials, for example, forming outer and inner stockpiles surrounding the trench (or test pit), respectively. This Recommendation makes no implication about the absolute distances that excavated material must be kept from the excavation; please refer to the Occupational Health and Safety Regulations.

5.8. For each trench deep enough to pose a possible safety hazard, signs should be posted in a conspicuous places for the purpose of alerting the public to the presence of the open trench. Signs should clearly display the name and contact information of the Operator. It is also recommended that caution tape be placed along the perimeter of each such trench.

6. Trench and Test Pit Rehabilitation

BACKGROUND:

"Trench" means an excavation made for the purpose of studying or sampling the underlying bedrock, soil, or till, however does not include test pits as defined below. Stripped areas and grubbed areas meeting this definition are considered trenches. "Test pit" means an excavation that is excavated and backfilled either the same day or without the excavator having departed the test pit site. Trenches are typically associated with mineral exploration and test pits typically with exploration for quarry materials.

"Organic cover" means all vegetation and topsoil remaining after trees have been cut to clear a site.

Nothing in these Requirements and Recommendations shall necessitate that the Operator or any person acting under their direction undertake an activity that would be considered unsafe under the circumstances. The Operator and persons acting under their direction shall continue to comply with the requirements and standards established by the Occupational Health and Safety Act and its associated Regulations. The Occupational Health and Safety Division of Digital Government and Service NL provides a guidance document titled *Safety Guidelines for Mineral Exploration in Newfoundland and Labrador*.

REQUIREMENTS:

6.0. The Operator shall ensure that each person involved in trench and test pit rehabilitation is fully informed of the following Requirements and Recommendations, as applicable.

6.1. Trench rehabilitation as per these Requirements shall be completed before the expiry date of the exploration approval unless the Department has indicated in writing that a later rehabilitation due date is acceptable for the specific trench in question. If it would be impractical, considering the logistics and timelines of the exploration program, including with regard to deposit appraisal and promotional efforts, for the approval holder to rehabilitate one or more trenches before the expiry date of the exploration approval then application must be made to the Mineral Lands Division, Department of Industry, Energy and Technology, requesting an extension of time to leave the trench or trenches un-rehabilitated and the reasons for the request. In granting approval for such a request, the Department may impose additional terms and conditions considered appropriate under the circumstances.

6.2. Test pit rehabilitation as per these Requirements shall be completed either the same day or without the excavator having departed the test pit site. While a party possessing an exploration approval for test pitting is required to adhere to this Requirement, test pits for which this rehabilitation timeline is not met shall become subject to the following additional Requirements and considered as "trenches" for the purpose of interpreting these Requirements: 5.5, 5.6, 6.5, 6.6. In such a case, a sign shall be posted in a conspicuous place alerting the public to the presence of an open excavation and displaying the name of the Operator and contact information and the test pit surrounded by a caution tape barrier.

6.3. Trenches and test pits shall be rehabilitated by first completely backfilling stockpiled deeper materials (e.g., subsoil, till) and then covering the backfilled site with stockpiled organic cover and any additional organic materials that may be required (as per Requirement 6.4) to completely re-cover the site.

6.4. Organic cover stockpiled during preparation shall be placed on top of the backfilled trench or test pit. Unless used or set aside for another purpose advocated in this document or otherwise approved by a regulatory agency, trees and branches cut to clear the trench site shall also be placed on top of the backfilled trench or test pit. If additional organic material is needed to completely re-cover the site to achieve compliance with Requirement 6.3 then one or more of the following materials may be used:

a) Trees and branches already having been cut for exploration purposes elsewhere in the exploration area (e.g.,

6. Trench and Test Pit Rehabilitation

trees cut for access trails, cut lines, or drill sites).

b) Hay, straw, woodchips, or any other organic mulch provided that it does not introduce an invasive species.

c) Vegetation produced by seeding provided that the seeding does not introduce an invasive species. Seeding that is unsuccessful in the opinion of the Department shall not be considered sufficient to meet this requirement.

Organic mulches and seeding methods are addressed in the Mineral Lands Division Information Resource on Erosion and Sediment Control.

6.5. Once a trench is rehabilitated, barriers and signage no longer needed shall be removed from the site.

6.6. Sediment fences associated with trenches shall be removed once the corresponding trench is rehabilitated. Sediment fences are removed by cutting the fence fabric off at the ground level and pulling the posts.

6.7. Sediment retention ponds associated with trenches shall be backfilled seasonally with rehabilitation completed (i.e., organic cover and (or) a substitute material spread over the backfilled site) once the corresponding trench is required to be rehabilitated. Sediment retention ponds shall be rehabilitated according to the process as required for trenches and test pits (Requirements 6.3 and 6.4).

RECOMMENDATION:

6.8. Except for what is required to approximately re-establish original site topography, the surface of a backfilled trench or test pit should not be smoothed or compacted.

7. Drill Site Preparation

(sheet 1 of 2)

BACKGROUND:

The goal of the Department is that all exploration sites be left in a condition conducive to natural re-vegetation. Sites where the organic cover has been removed or lost by burial will naturally re-vegetate much slower than sites where organic material, in some form, has been spread back over the site.

Drill sites prepared by removing the organic cover to create a level surface are subject to rehabilitation requirements.

Winter drilling on ice is not addressed in this document however is addressed during the exploration approval process.

Nothing in these Requirements and Recommendations shall necessitate that the Operator or any person acting under their direction undertake an activity that would be considered unsafe under the circumstances. The Operator and persons acting under their direction shall continue to comply with the requirements and standards established by the Occupational Health and Safety Act and its associated Regulations. The Occupational Health and Safety Division of Digital Government and Service NL provides a guidance document titled *Safety Guidelines for Mineral Exploration in Newfoundland and Labrador*.

REQUIREMENTS:

7.0. The Operator shall ensure that each person involved in preparing a drill site is fully informed of the following Requirements and Recommendations, as applicable.

7.1. For drill sites prepared by removing the organic cover (e.g., by leveling, by cut-and-fill), the organic cover shall be stockpiled separately from deeper excavated materials (e.g., subsoil, till). Trees and branches cut to clear the site shall also be stockpiled, whether with the organic cover or on their own (so that they may be accessible for other purposes such as those listed in Requirement 2.4, if necessary).

7.2. For drill sites prepared by removing the organic cover (e.g., by leveling, by cut-and-fill), excavated materials shall not be stockpiled in standing trees or other locations from which they would be difficult to retrieve during rehabilitation.

7.4. Drill sites prepared by removing the organic cover, even if only from a portion of the site, are susceptible to erosion and could become a source of waterborne sediment that could flow into a nearby waterbody or watercourse, including by way of small streams or intermittent channels that may not appear on 1:50,000 scale maps but are nonetheless capable of carrying waterborne sediment into a larger waterbody. **To the extent that may be necessary to prevent waterborne sediment from a drill site from entering a waterbody or watercourse,** the Operator shall employ some combination of erosion and sediment control measures:

a) Erosion prevention: To the extent that may be necessary, portions of the drill site where the organic cover has been removed and any stockpiles of excavated material shall be covered with organic mulch (e.g., straw) or brush-matting. Drill sites and any associated stockpiles shall be monitored frequently enough to ensure continued effectiveness of erosion control methods, and erosion control methods augmented (e.g., organic mulch or brush-matting topped up) or extended as may be necessary.

b) Sediment control: To the extent that may be necessary, sediment fences or sediment retention ponds shall be installed proactively downslope of the drill site and any stockpiles. To clarify, expanses of densely vegetated flat ground provide an effective natural means of sediment control, and where present, it may not be necessary to use other sediment control methods. With respect to sediment fences, in order to be effective, they must be installed parallel to contour across level ground rather than across existing channels or channels formed by the runoff. Sediment retention ponds are commonly used for sediment control at drill sites and are

7. Drill Site Preparation

sometimes referred to as “sump pits”. Sediment control methods must be monitored frequently enough to ensure continued effectiveness and replaced, augmented, or extended if necessary.

The Mineral Lands Division Information Resource on Erosion and Sediment Control contains information about erosion and sediment control methods. The combination of erosion and sediment control methods chosen and the relative proportions in which they are employed (including the option that only one method of either erosion or sediment control is chosen) are at the discretion of the Operator provided that the method(s) are effective in preventing waterborne sediment from entering a waterbody or watercourse. Should the Department be of the opinion that the method(s) employed are not effective or are inadequate for meeting this Requirement, then the Operator shall abide by the direction of the Department in remedying the situation.

7.2. Sediment retention ponds (or “sump pits”) excavated to contain water runoff from drilling and shall be prepared according to Requirements 5.1, 5.2, 5.3, and 5.4, and considered as “trenches” for the purpose of interpreting these Requirements.

RECOMMENDATIONS:

7.3. Drill sites should be prepared with the minimum ground disturbance necessary to ensure practical and safe working conditions. Ideally, drill sites should be prepared by clearing the trees and then cribbing the drill rig on timbers or lumber (no ground disturbance necessary). Helicopter-accessed drill sites are generally prepared in this way. Ground-accessed drill sites should be prepared in the same way insofar as working conditions remain practical and safe.

7.4. Drill sites should not be cleared of trees to widths any greater than necessary for practical and safe working conditions.

8. Active Drilling

(sheet 1 of 3)

BACKGROUND:

The main environmental concerns presented by active drilling are the potential for drill cuttings and drilling additives to enter a waterbody or watercourse and for petroleum spills.

One type of petroleum spill which may occur on an active drill site is a spill of hydraulic oil, generally characterized by one or more dark stains located within several metres of the casing. Deposits of used drill grease may also be left behind, generally located at the base of the casing.

Fuel spills at water pump sites may also occur, and while generally very small in volume, present the most direct opportunity for petroleum contamination of a waterbody.

Spills into a waterbody or with the potential to enter a waterbody and spills greater than 70 litres or of an unknown or unrecoverable volume on land must be reported without delay by calling the 24-hour Emergency Spill Report line: (709) 772-2083 or 1-800-563-9089.

General requirements for addressing fuel and oil spills are included in Section 13 of this document. Some requirements in the present section are repeated in other sections of this document.

Winter drilling on ice is not addressed in this document however is addressed during the exploration approval process.

Nothing in these Requirements and Recommendations shall necessitate that the Operator or any person acting under their direction undertake an activity that would be considered unsafe under the circumstances. The Operator and persons acting under their direction shall continue to comply with the requirements and standards established by the Occupational Health and Safety Act and its associated Regulations. The Occupational Health and Safety Division of Digital Government and Service NL provides a guidance document titled *Safety Guidelines for Mineral Exploration in Newfoundland and Labrador*.

REQUIREMENTS:

8.0. The Operator shall ensure that each person involved in active drilling is fully informed of the following Requirements and Recommendations, as applicable.

8.1. Drill discharge waters shall not be permitted to flow overland into a waterbody or watercourse and waterborne drill cuttings and drilling additives shall not be permitted to enter a waterbody or watercourse. A waterbody or watercourse may include a small stream or intermittent channel and refers to the presence of a physical feature irrespective of whether it is displayed on the 1:50,000 scale NTS map. For drilling within a Public Protected Water Supply Area or in any other circumstance where drilling is subject to a permit issued under the Water Resources Act, drill discharge waters and cuttings shall be treated as per the conditions of the permit issued under the Water Resources Act. Otherwise, unless there are conditions of exploration approval or of another permit which specify in greater detail how drill discharge waters and (or) drill cuttings are to be treated, one or more of the following measures shall be employed as necessary to meet this Requirement:

a) Sediment retention ponds (or “sump pits”) for settling drill cuttings and allowing the discharge waters to dissipate into the ground. Refer to Requirement 7.2.

b) Pumping discharge waters onto forested or otherwise well-vegetated ground, provided that from there the discharge does not find a channel or small stream by which to travel into a waterbody or watercourse.

c) Settling tanks or another effective means of collecting drill cuttings.

d) Sediment fences to intercept drill discharge waters. With respect to sediment fences, in order to be effective, they must be installed parallel to contour across level ground rather than across existing channels or channels formed by the runoff.

The Operator shall consider whether multiple of the above measures should be adopted in a layered or combined fashion so as to ensure compliance with this Requirement (e.g., a sump pit with a sediment fence in place to intercept potential overflow waters). Methods used to prevent drilling discharge waters and their contents from entering a waterbody must be monitored frequently enough to ensure continued effectiveness and replaced, augmented, or extended if necessary. The Mineral Lands Division Information Resource on Erosion and Sediment Control contains information about sediment control methods that can be used for meeting this Requirement. Should the Department be of the opinion that the method(s) employed are not effective or are inadequate for meeting this Requirement, then the Operator shall abide by the direction of the Department in remedying the situation.

8.2. Drilling additives shall be fully biodegradable and used only in the amounts necessary as prescribed by the manufacturer. This requirement does not apply to brine used for drilling salt and potash.

8.3. Water pumps shall be located on stable ground and shall not be placed closer to the waterbody than necessary given the length of the intake hose. The only exception to this distance requirement is at locations where the only stable site for a water pump is at the bottom of a slope.

8.4. All water pumps shall be underlain by effective secondary containment (e.g., a drip tray) lined with absorbent pads. Absorbent pads shall be changed before becoming saturated. Secondary containment where the containment rim is broken or otherwise ineffective must be replaced or placed within additional containment (e.g., a tarp-lined wooden tray) without delay.

8.5. All reasonable means shall be employed to prevent spills of petroleum, including spills of hydraulic oil beneath drill rigs.

8.6. Petroleum spills shall be completely cleaned up without delay. Spills related to active drilling are typically cleaned up in the following ways:

a) For spills on land, including spills of hydraulic oil beneath a drill rig and spills of fuel alongside a water pump, excavate all contaminated materials (e.g., soil, vegetation) and place into empty drums or similar containers. Be sure to excavate deep enough to retrieve all of the contaminated soil.

b) For spills on water, keep adding absorbent pads and remove them as they become saturated with petroleum. Place the contaminated absorbent pads in empty drums or similar containers.

The cleanup of petroleum spills and the disposal of petroleum-contaminated materials is addressed further in Section 13 of this document.

8.7. Spills shall be reported to the Mineral Lands Division.

8.8 **Spills having entered a waterbody or watercourse or with the potential to enter a waterbody or watercourse and spills greater than 70 litres or of an unknown or unrecoverable volume on land must be reported without delay by calling the 24-hour Emergency Spill Report line: (709) 772-2083 or 1-800-563-9089.**

8. Active Drilling

8.9. Immediately after demobilization from a drill site, the site shall be inspected for spills of hydraulic oil or fuel, deposits of drill grease, garbage, and waste equipment, and these shall be cleaned up in their entirety without delay. Be sure to excavate deep enough to retrieve all of the contaminated soil. Soil contaminated by hydraulic oil or fuel shall be excavated and disposed of at an approved waste disposal site. Contact the nearest Government Service Centre to find out the location of the nearest approved waste disposal site accepting the materials you have cleaned up. Refer to Requirements 13.5 and 13.6 which describe special cases involving petroleum-contaminated materials which may modify this Requirement.

9. Drill Site Rehabilitation

(sheet 1 of 2)

BACKGROUND:

The goal of the Department is that all exploration sites be left in a condition conducive to natural re-vegetation. Sites where the organic cover has been removed will naturally re-vegetate much slower than sites where organic material, in some form, has been spread back over the site.

Drill sites prepared by removing the organic cover to create a level surface are subject to rehabilitation requirements.

Nothing in these Requirements and Recommendations shall necessitate that the Operator or any person acting under their direction undertake an activity that would be considered unsafe under the circumstances. The Operator and persons acting under their direction shall continue to comply with the requirements and standards established by the *Occupational Health and Safety Act* and its associated Regulations. The Occupational Health and Safety Division of Digital Government and Service NL provides a guidance document titled *Safety Guidelines for Mineral Exploration in Newfoundland and Labrador*.

REQUIREMENTS:

9.0. The Operator shall ensure that each person involved in demobilizing from a drill site or rehabilitating a drill site is fully informed of the following Requirements and Recommendations, as applicable.

9.1. Unless the site has been re-approved under another exploration approval for additional drilling, drill sites shall be rehabilitated before the expiry date of the exploration approval.

9.1. Drill sites prepared by removing the organic cover (e.g., by leveling, by cut-and-fill) shall be rehabilitated as follows:

a) The site shall be re-contoured so as to approximately restore the original site topography. In meeting this requirement, it is acceptable to leave a depression around the casing if required to keep the casing exposed for possible future work.

a) The original organic cover (topsoil, ground vegetation) and any trees and branches not used for other purposes shall be spread back over the re-contoured site. If these materials prove insufficient to completely re-cover the site then an organic mulch or seeding must be used in addition to complete the process, provided that no invasive species are introduced. Organic mulches and seeding are described in detail in the Mineral Lands Division Information Resource on Erosion and Sediment Control. Seeding that is unsuccessful in the opinion of the Department shall not be considered sufficient to meet this requirement.

9.2. Sediment retention ponds (or “sump pits”) associated with drill sites shall be backfilled seasonally, with the organic cover to be replaced no later than when the associated drill site(s) is rehabilitated.

9.3. For drill sites located in open areas accessible to ATVs and snowmobiles, including within an access route, the casing shall either be removed or cut off at ground level. Drill holes that are required to be sealed, for example as per Requirement 9.6, shall be sealed before the casing is cut off.

9.4. Immediately after demobilization from a drill site, the site shall be inspected for spills of hydraulic oil or fuel, deposits of drill grease, garbage, and waste equipment and these shall be cleaned up in their entirety without delay. Soil contaminated by hydraulic oil or fuel shall be excavated and disposed of at an approved waste disposal site. Contact the nearest Government Service Centre to find out the location of the nearest approved waste disposal site accepting the materials you have cleaned up. Refer to Requirements 13.5 and 13.6 which describe special cases involving petroleum-contaminated materials which may modify this Requirement.

9. Drill Site Rehabilitation

9.5. Casings that are not pulled or removed shall be capped as soon as possible upon completion of the drill hole, and before the end of the exploration season. Capping means any effective and durable means of completely covering the casing opening, excluding the use of natural materials for this purpose (e.g., placing a rock over the casing, stuffing with large branch or piece of wood). Sawn off casings may be capped using steel caps with bolts. Drill holes for which the casing is pulled shall be covered over at the surface with material containing a large proportion of gravel coarser than the hole diameter (to limit subsidence of surface materials into the hole).

9.6. Drill holes which produce artesian water at the surface (i.e., water flowing out of the top of the casing) while the drill rig is present on site shall be plugged before the drill rig departs from the site. The drill hole shall be plugged with high-swelling bentonite, cement, or another material with suitable properties. Capping is not a substitute for plugging, since many caps cannot fully stop the water and the caps will eventually break due to freeze-thaw cycles. If downhole geophysics is being considered for the exploration project, the Operator and Approval Holder are advised to take this contingency into consideration, and may wish to be ready to carry out downhole geophysics before plugging the hole and the drill rig departing the site in the event that a hole producing artesian water is encountered.

10. Uranium

BACKGROUND:

These guidelines are based in part on those developed by the Government of Saskatchewan.

Scintillometers that meaure radiation in counts per second must have the measurements converted to microsieverts per hour (µSv / hr) according to the specifications of the instrument. Concentrations specified are by weight.

Nothing in these Requirements and Recommendations shall necessitate that the Operator or any person acting under their direction undertake an activity that would be considered unsafe under the circumstances. The Operator and persons acting under their direction shall continue to comply with the requirements and standards established by the *Occupational Health and Safety Act* and its associated Regulations. The Occupational Health and Safety Division of Digital Government and Service NL provides a guidance document titled *Safety Guidelines for Mineral Exploration in Newfoundland and Labrador*.

REQUIREMENTS:

10.0. The Operator is responsible for ensuring that each person involved in exploration for uranium is fully informed of the following Requirements and Recommendations, as applicable.

10.1. Following the rehabilitation of a trench or other excavation, gamma radiation levels must not exceed 1.0 µSv / hr at one metre above ground level or the natural background radiation level characterizing the area, whichever is greater .

10.2. Drill cuttings or other solid discharge with a uranium equivalent concentration (eU3O8 = radiometric equivalent U3O8 concentration) greater than 0.05 percent are to be collected and disposed of down the drill hole and the hole pugged with cement or another material with similar properties. Before being collected, drill cuttings meeting this description shall not be permitted to flow beyond the immediate vicinity of the drill setup, and one or more settling tanks may be required to ensure that this does not happen.

10.3. Drill cuttings representing rock for which gamma ray logs or assays have not yet been produced but that may reasonably be expected to meet the description in Requirement 10.2 shall be handled as per requirement 10.2. The same shall apply in instances where the Operator is uncertain of whether the drill cuttings meet the description in requirement 10.2.

10.4. As per Requirement 8.1, drill waters shall not be permitted to flow above ground into a waterbody or watercourse and drill cuttings and drilling additives shall not be permitted to enter a waterbody or watercourse, including any small streams or intermittent channels that may be present.

10.5. Drill holes that encounter rock with a uranium equivalent concentration (eU3O8) greater than 1.0 percent over a length of at least 1 metre shall be sealed with cement over the entire length of each mineralized zone and not less than 10 metres above and below each mineralized zone.

10.6. Drill holes that intersect mineralized zones for which gamma ray logs or assays have not yet been produced but that may be reasonably be expected to meet the description in Requirement 10.5 shall be handled as per Requirement 10.5. The same shall apply in instances where the Operator is uncertain of whether the mineralized zones within the hole meet the description in Requirement 10.5.

10.7. In locations where the local bedrock is characterized by higher concentrations than those specified in Requirements 10.2 and 10.5 the drill cuttings may be deposited at surface, however not into a waterbody or watercourse, and the drill hole may be left unsealed provided it is not producing water.

11. Camps and Laydown Areas

BACKGROUND:

'Fly camp' means a camp occupying a site for up to 90 days and not involving significant ground disturbance. An example of significant ground disturbance would be the deliberate or inadvertent removal of ground vegetation or topsoil over an area greater than 10 square metres.

'Base camp' means a camp occupying a site for greater than 90 days or involving significant ground disturbance.

Occupation of a site means not only the presence of people, but also the presence of structures, equipment, garbage, fuel or any other imported materials.

Base camps require a Licence to Occupy (LTO) under the *Lands Act*, whereas fly camps require 'exploration approval' under the *Mineral Act*. That being said, the application process for an LTO for a base camp can be initiated through the exploration approval process administered by the Mineral Lands Division.

The use of personal-size tents for prospecting and mapping is not considered a fly camp.

The Pollution Prevention Division of the Department of Environment and Climate Change has established specific waste management requirements for exploration camps in the guidance document *Environmental Standards for Waste Management at Remote Camps*.

Exploration camps are subject to the *Sanitation Regulations* under the *Public Health Act* and sanitation requirements in addition to those given below may apply. Exploration camps where food is served are subject to the *Food Premises Regulations* under the *Food Preparation Act.* For inquiries concerning sanitation requirements or food storage and preparation requirements, please contact Digital Government and Service NL.

Nothing in these Requirements and Recommendations shall necessitate that the Operator or any person acting under their direction undertake an activity that would be considered unsafe under the circumstances. The Operator and persons acting under their direction shall continue to comply with the requirements and standards established by the *Occupational Health and Safety Act* and its associated Regulations. The Occupational Health and Safety Division of Digital Government and Service NL provides a guidance document titled *Safety Guidelines for Mineral Exploration in Newfoundland and Labrador*.

REQUIREMENTS:

11.0. The Operator shall ensure that each person involved in the setup or maintenance of a mineral exploration camp is fully informed of the following Requirements and Recommendations, as applicable.

11.1. All structures and other imported materials, including fuel and equipment, shall be removed upon abandonment of a camp site. Fly camp sites shall be abandoned at the end of the season and prior to 90 days occupancy.

11.2. Base camps shall not be located within 30 metres of a waterbody.

11.3. Pit privies shall be located at least 25 metres from the camp in a direction away from waterbodies (including intermittent streams) and shall be backfilled upon abandonment of the pit privy. Further requirements or recommendations for pit privies may be specified by Digital Government and Service NL.

11.4. Dishwater and wash water (i.e., grey water) shall be disposed of in a pit large enough to contain the volume of water discarded, located at least 30 metres away from waterbodies (including intermittent streams), and backfilled upon abandonment of the pit.

11. Camps and Laydown Areas

11.5. Where the camp is equipped with a water distribution system and this system provides water to plumbing fixtures, then all wastewater (including from the kitchen sinks, bathroom sinks, showers, clothes washer and toilets) shall be disposed of by means of a sewage disposal system approved by Digital Government and Service NL.

11.6. Garbage, used consumables, packaging and all other wastes shall be properly contained and handled, and shall be removed on a sufficiently regular basis to a waste disposal site approved to handle the type(s) of waste being disposed of. For base camps, waste shall not be left on site later than the seasonal departure of personnel. More specific waste disposal requirements are set out in the guidance document *Environmental Standards for Waste Management at Remote Camps*.

11.7. Ground preparation and rehabilitation of camp sites and laydown areas prepared by ground disturbance (e.g., bulldozing, trenching, in-filling) shall proceed as follows:

a) The organic cover (topsoil and ground vegetation), as well as any trees and branches not used for other purposes, shall be stockpiled separately from deeper excavated materials (e.g., subsoil, till).

b) Excavated materials shall be stockpiled in locations where they can be easily retrieved during rehabilitation.

c) Once structures and other imported materials are removed, the site shall be re-contoured so as to approximately restore the original site topography.

a) The original organic cover and any trees and branches not used for other purposes shall be spread back over the re-contoured site. If these materials prove insufficient to completely re-cover the site then an organic mulch or seeding must be used in addition to complete the process, provided that no invasive species are introduced. Organic mulches and seeding are described in the Mineral Lands Division Information Resource on Erosion and Sediment Control. Seeding that is unsuccessful in the opinion of the Department shall not be considered sufficient to meet this requirement.

11.8. All horizontal drums of heating fuel connected to a stove shall have positioned beneath the connection a drip tray lined with one or more absorbent pads, and the absorbent pads shall be changed before becoming saturated. This requirement does not apply if the horizontal drum is placed in a protective case that would contain any leakage from the connection.

11.9. Base camps shall be equipped to fight fires.

RECOMMENDATIONS:

11.10. To increase the fire protection for base camps, camp buildings should be spaced widely apart and the camp site should be widely separated from surrounding forest.

11.11. To reduce the likelihood of eroded sediments and organic particles entering a waterbody or watercourse, stockpiles of organic cover and other excavated materials should be located at least 50 m from the nearest waterbody or watercourse.

12. Fuel & Oil Storage & Handling

BACKGROUND:

Storage of 5 or more drums requires a fuel cache approval from Service NL. Application forms can be obtained from the nearest Government Service Centre.

The Requirements and Recommendations in this section shall apply except in situations where there is a disagreement with another piece of legislation or regulation, a policy of or set of instructions provided by the Department of Environment and Climate Change, Digital Government and Service NL, or Fisheries and Oceans Canada, the terms and conditions of another government permit (e.g., fuel cache approval, water use licence / permit, exploration approval), or a work plan approval issued by the Nunatsiavut Government.

Nothing in these Requirements and Recommendations shall necessitate that the Operator or any person acting under their direction undertake an activity that would be considered unsafe under the circumstances. The Operator and persons acting under their direction shall continue to comply with the requirements and standards established by the *Occupational Health and Safety Act* and its associated Regulations. The Occupational Health and Safety Division of Digital Government and Service NL provides a guidance document titled *Safety Guidelines for Mineral Exploration in Newfoundland and Labrador*.

REQUIREMENTS:

12.0. The Operator shall ensure that each person working with fuel or oil is fully informed of the following Requirements and Recommendations, as applicable.

12.1. All fuel storage sites, active drill sites, and heavy equipment laydown areas shall be equipped with a spill kit containing *at minimum* the following contents or equivalent:

a) One recovery container such as an empty 205 litre drum or large plastic drum (the spill kit contents may be stored in the recovery container).

b) One shovel.

c) One hand-operated fuel pump.

d) One pair of neoprene oil / chemical resistant gloves.

e) One pair of protective goggles.

f) 25 absorbent pads – approximately 46 x 46 cm each.

These contents are in addition to spill kit items required by other permits (e.g., permit for development in a protected water supply area, fording permits) or the jurisdiction (e.g., Labrador Inuit Lands). Additional items may include absorbent blankets, containment booms, bags of peat moss, a pickaxe, and a thick-walled polyethylene bag.

12.2. All spill kits associated with active drill sites located in within 30 m of a waterbody must be additionally equipped with, *at minimum*:

a) One rope at least 15 metres long.

b) Six metres of absorbent containment boom or water-buoyant socks.

12. Fuel & Oil Storage & Handling

12.3. A person carrying out fueling, or replacing oil, or transferring fuel or oil from one container to another must be at all times in a position to immediately shut off flow if necessary.

12.4. Hoses and fuel pumps shall be maintained to be free of leaks and in good working condition.

12.5. Unless specifically allowed by another permit or regulation and except where fuel is delivered by plane, boat, or barge, fuel may only be stored within 30 m of a waterbody during active drilling and no more fuel shall be stored within 30 m of a waterbody than the amount required to supply the drill and water pump for the drilling of the current hole.

12.6. When stored within an exploration area longer than one season, drums shall be stored on their sides with each drum rotated so that the bung is located in the 3 o'clock or 9 o'clock position.

12.7. Drums with significant damage such as denting, rusting, corrosion, expanded heads, and damaged rings shall be replaced as soon as possible.

12.8. All horizontal drums of heating fuel connected to a stove shall have positioned beneath the connection a drip tray lined with one or more absorbent pads, and the absorbent pads shall be changed before becoming saturated. This requirement does not apply if the horizontal drum is placed in a protective case that would contain any leakage from the connection.

12.9. Petroleum-contaminated water shall not be discharged or permitted to drain into the environment. Where drums are placed together in secondary containment (e.g., impermeable berms), some means shall be employed to remove petroleum from accumulated rain water and melt water before discharging the water into the surroundings. Using an excessive amount of absorbent pads is one option. Another option is to use a device designed to filter petroleum from water. For advice on disposal of hydrocarbons or contaminated materials please contact Service NL.

12.10. All water pumps shall be underlain by effective secondary containment (e.g., a drip tray) lined with absorbent pads. Absorbent pads shall be changed before becoming saturated. Secondary containment where the containment rim is broken or otherwise ineffective must be replaced or placed within additional containment (e.g., a tarp-lined wooden tray) without delay.

RECOMMENDATIONS:

12.11. On any given site, empty fuel containers should be stored separately from non-empty containers so that easy estimates can be made of the amount of fuel stored on site.

12.2. Drums stored in an upright position should be stably raised on one side (e.g., by a 2 x 4 beneath that side) and the bung and vent located in the 3 o'clock and 9 o'clock positions so that water will drain off the top of the drum and not get pulled into the bung or vent.

13. Fuel & Oil Spills & Cleanup

BACKGROUND:

Storage of 5 or more drums requires a fuel cache approval from Service NL. Application forms can be obtained from the nearest Government Service Centre.

The Requirements and Recommendations in this section shall apply except in situations where there is a disagreement with another piece of legislation or regulation, a policy of or set of instructions provided by the Department of Municipal Affairs and Environment, Service NL, or Fisheries and Oceans Canada, the terms and conditions of another government permit (e.g., fuel cache approval, water use licence / permit, exploration approval), or a work plan approval issued by the Nunatsiavut Government.

Nothing in this document shall be interpreted as precluding the timely reporting of spills to another government agency or any other party that may be required to be notified.

Nothing in these Requirements and Recommendations shall necessitate that the Operator or any person acting under their direction undertake an activity that would be considered unsafe under the circumstances. The Operator and persons acting under their direction shall continue to comply with the requirements and standards established by the *Occupational Health and Safety Act* and its associated Regulations. The Occupational Health and Safety Division of Digital Government and Service NL provides a guidance document titled *Safety Guidelines for Mineral Exploration in Newfoundland and Labrador*.

REQUIREMENTS:

13.0. The Operator shall ensure that each person working with fuel or oil is fully informed of the following Requirements and Recommendations, as applicable.

13.1. **In the event of a spill or leak**, the Operator or the person(s) in control of the situation – to the extent that they consider it would be safe to do so – shall carry out the following steps:

STEP 1: Prevent further spillage or leakage.

STEP 2: Contain the spill – above all, prevent the spill from entering a waterbody or watercourse.

ON LAND:
- Dig a trench to intercept the flow.
- Use absorbents, e.g., absorbent pads, snow, gravel, hay, straw, sawdust, moss.

ON WATER:
- Use fixed barriers spanning the water body, e.g., absorbent booms, floating hoses, floating rope, floating logs, fencing, rope, or wire with absorbents attached.

BENEATH ICE:
- Cut slots in the ice in the path of the spill.

STEP 3: Report the spill to the required parties and take additional steps as per the Requirements below.

13.2. All spills shall be reported to the Operator, and the Operator shall keep documentation of the spills reported to them or having otherwise come to their attention. The Operator's documentation shall record such details as date, time, location, cause, containment measures, cleanup measures, current situation, and plans for future measures (if any).

13. Fuel & Oil Spills & Cleanup

13.3. **Spills into or having entered a waterbody or watercourse or with the potential to enter a waterbody or watercourse and spills greater than 70 litres or of an unknown or unrecoverable volume on land must be reported without delay by calling the 24-hour Emergency Spill Report line: (709) 772-2083 or 1-800-563-9089.**

13.4. Petroleum spills shall be completely cleaned up without delay. Relatively small spills related to exploration are typically cleaned up in the following ways:

a) For spills on land, including spills of hydraulic oil beneath a drill rig and spills of fuel alongside a water pump, excavate all contaminated materials (e.g., soil, vegetation) into empty drums or similar containers. Be sure to excavate deep enough to retrieve all of the contaminated soil.

b) For spills on water, keep adding absorbent pads and remove them as they become saturated with petroleum. Place the contaminated absorbent pads in empty drums or similar containers.

13.5. Petroleum contaminated soil shall be disposed of at an approved waste disposal site provided that the quantity of soil is less than 150 tonnes or has a total petroleum hydrocarbon concentration of less than 1000 ppm. Contact the nearest Government Service Centre to find out the location of the nearest approved waste disposal site that will accept petroleum-contaminated soil. Quantities of soil exceeding 150 tonnes and having a total petroleum hydrocarbon concentration exceeding 1000 ppm require treatment at a licenced facility; in such a scenario, contact the Pollution Prevention Division of the Department of Environment and Climate Change for further instructions.

13.6. Absorbent materials used to clean up a petroleum spill shall be disposed of at an approved landfill provided that the waste does not contain any free (i.e., liquid) product and the volume does not exceed the equivalent of two (205 L) barrels. For instructions on how to handle, transport, and dispose of quantities of petroleum-contaminated waste larger than two (205 L) barrels or on how to dispose of free (i.e., liquid) petroleum products, contact the Pollution Prevention Division of the Department of Environment and Climate Change.

13.7. Spills shall be reported to the Mineral Lands Division. The preferred contacts for reporting spills to the Mineral Lands Division are the Mineral Exploration Site Inspector and Exploration Approvals Geologist.