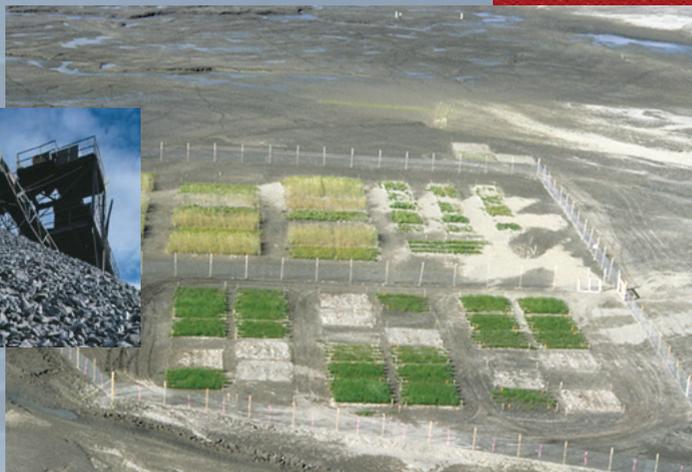




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MINE SITE RECLAMATION POLICY FOR THE NORTHWEST TERRITORIES



Canada

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Cover photo of mine site reclamation grass plots courtesy of
BHP Billiton Diamonds Inc.

MINE SITE RECLAMATION POLICY FOR THE NORTHWEST TERRITORIES

A policy for the protection of the environment and the disposition of liability relating to mine closures in the Northwest Territories.



Message from the Minister of Indian Affairs and Northern Development

I am pleased to present the *Mine Site Reclamation Policy for the Northwest Territories*. This policy reflects the Government of Canada's desire to ensure a strong resource management base in the Northwest Territories while reducing the impacts to the environment and human health.

The development of this policy has included a broad-based consultation process involving representatives from Aboriginal organizations, industry, stakeholders, Northern boards and the territorial governments.

Sustainable resource development is essential to the North. Our objective is to strengthen federal standards for both the protection of the environment and the reclamation of mine sites. Through this policy we are establishing a clear standard and are providing clarity and certainty for industry and other stakeholders which will lead to sustainable and responsible development in the North.

I would like to acknowledge and thank all those who have contributed to the development of this policy. We must continue to work together to create an industry that is sustainable, profitable and environmentally responsible.

Sincerely,

A handwritten signature in black ink, appearing to read 'Robert D. Nault'. The signature is stylized and cursive.

Honourable Robert D. Nault

Minister of Indian Affairs and Northern Development

I N T R O D U C T I O N

For more than a hundred years, mines have been operating in Canada's North, providing important economic benefits, not only for northerners, but to all Canadians. Mining in the North has been good for Canada. A rough estimate of the cumulative value of metal and mineral production for the three territories since 1977 is over \$18 billion.

However, some mining operations closed without adequately addressing their clean-up and reclamation responsibilities, leaving hundreds of millions of dollars of clean-up costs to the federal government. While this represents a relatively small percentage of the economic benefit, in absolute terms it still amounts to a substantial burden on the government's accounts.

The Department of Indian Affairs and Northern Development (DIAND) continues to look for opportunities to improve the way it carries out its resource management responsibilities. DIAND considers the development of the Mine Site Reclamation Policy for the Northwest Territories an important new step in the development of a comprehensive mineral resource management component of the Department's Sustainable Development Strategy.

The public is becoming more concerned about the growing number of insolvencies and abandoned mining properties, which are leaving significant environmental liabilities. This increased consciousness has led to outward expressions of concern and questioning of support for mining in the North.

DIAND is concerned with the public's eroding confidence in northern mining. It also recognizes the desire to build a

strong resource management base in the Northwest Territories. Both complement DIAND's thinking and its ongoing search for opportunities to improve the way resource management responsibilities are carried out across Canada's three northern territories.

The development of this Policy was not the only option available. Government continues to look at various legislative and regulatory initiatives to support the principles set out in this Policy. However, legislative and regulatory changes take a relatively long time to accomplish, and it is important to deal with this issue in the context of current legislation, from the perspective of operating mines preparing to close in the next few years and new mines expected to open shortly.

It is critical to have resource management tools in place in the Northwest Territories as soon as possible. Industry, investors, environmental interests and Aboriginal communities all share the desire for certainty, consistency and clarity.

[The Mine Site Reclamation Policy for the Northwest Territories serves four main objectives.](#)

- [Ensure the impact of mining on the environment and human health and safety is minimized.](#)
- [Reduce the environmental liability that falls to government to the greatest extent possible.](#)
- [Provide industry and the public with a clear signal of the government's expectations.](#)

- Build positive and supportive relationships with the new regulatory authorities coming into operation in the North.

DIAND also recognizes that many of the provisions incorporated within this Policy are governmental “principles” that provide general guidance and direction. They work in harmony with the existing regulatory framework and the regulators charged with their application. It is not the intent of this Policy to supplant or diminish these existing regulatory authorities or the organizations that have been created to carry them out.

DIAND has been guided by The Minerals and Metals Policy of the Government of Canada, wherein specific reference is made to the challenges associated with mine site reclamation and the federal government’s direct responsibilities in the three territories.

It should also be noted that DIAND is developing another complementary policy that relates to orphaned or abandoned sites, including mines. It is called the Policy on the Management of Contaminated Sites in Canada’s North. This proposed policy is part of DIAND’s commitment to reduce or eliminate the human health and safety dangers posed by contaminated sites, including abandoned mines.

In addition to legislation governing conventional mining, the mining of uranium and other related hazardous minerals is regulated by specific legislation (e.g., *The Nuclear Safety and Control Act*).

This Policy is intended to be consistent with the legislative, regulatory and policy instruments in effect in the Northwest Territories.

The Policy offers guidance for the planning and implementation of mine site reclamation in the Northwest Territories. To a large degree, the principles outlined in this Policy have already been adopted and adhered to by the federal government and industry, within the existing regulatory framework in the Northwest Territories. This Policy codifies, clarifies and provides more certainty. It gives a template for the development and enhancement of operational procedures and processes required to ensure that objectives are met.

Enforcement of regulatory provisions related to mine site reclamation will continue to be undertaken through the existing regulatory regime. The *Territorial Lands Act* and its regulations, the *Northwest Territories Waters Act* and the *Mackenzie Valley Resource Management Act* will be the primary vehicles used, although other pieces of federal and territorial legislation are also in play (e.g., *Fisheries Act* and the *Canadian Environmental Protection Act*).

The environmental assessment processes will continue to identify and consider the environmental, social, cultural and economic effects of a mining project and its reclamation, and ensure the potentially affected public participates during the monitoring and reporting of mine site reclamation.

The principles and objectives laid out in this Policy will guide DIAND's decision-making powers in matters where DIAND has authority and will shape DIAND's position as an intervener in regulatory processes carried out by resource management boards.

DIAND will continue to be guided by other federal policies concerning regulatory efficiency and environmental protection. Given the number of regulatory authorities emerging in the North, it is critical that this Policy be integrated with the existing regulatory and policy framework.

A P P L I C A T I O N

Given the multi-jurisdictional landscape in the North, application of this Policy depends on the circumstances. It will provide internal guidance to DIAND staff in the drafting of terms and conditions of regulatory instruments over which the Department retains jurisdiction and in the preparation of interventions to the resource management boards within the territory. The Policy will also inform the resource management boards of the Minister's expectations in terms of their work and what the Minister will be looking for in the regulatory instruments submitted for the Minister's approval. Finally, it tells industry what is expected in its project designs (as it relates to reclamation planning) and what industry can expect from regulatory decision makers, thereby "fixing the goal posts" and thus reducing ad hoc, case-by-case interpretation.

[This Policy applies to new and existing mines, whether operating or not, with clearly identified owners/operators.](#) It does not cover orphaned or abandoned sites, which will fall under the proposed Policy on the Management of Contaminated Sites in Canada's North.

The Policy applies only to developed mines and to those mining-related activities that take place on mine sites. [It does not apply to activities undertaken during the prospecting, exploration or advanced exploration stages of the development of a mineral property.](#)

This Policy is virtually identical to the Mine Site Reclamation Policy for Nunavut and is intended to cover mining properties which might straddle the Northwest Territories–Nunavut border. Yukon mining activities are not managed under the *Territorial Lands Act*/Canada Mining

Regulations, and a modified policy vehicle is being developed which is consistent with Yukon's legislative and regulatory framework. It is intended that it will complement its Northwest Territories and Nunavut counterparts, to create a consistent pan-Northern policy framework.

PRINCIPLES FOR MINE SITE RECLAMATION

The following principles respecting mine site reclamation should provide proponents, boards and government departments with certainty, clarity and consistency regarding expectations, from project design to operations and post-closure.

1. General

- Mine site reclamation should reflect the collective desire and commitment to operate under the principles of sustainable development, including the “polluter pays” principle.
- The required standard of reclamation should be based on the 1994 Whitehorse Mining Initiative definition: “returning mine sites and affected areas to viable and, wherever practicable, self-sustaining ecosystems that are compatible with a healthy environment and with human activities.”
- Every new mining operation should be able to support the cost of reclamation. Existing mining operations will also be held accountable for their reclamation liabilities.
- Adequate security should be provided to ensure the cost of reclamation, including shutdown, closure and post-closure, is born by the operator of the mine rather than the Crown.
- Best management practices, including progressive reclamation, should be applied to advance environmental protection and reduce environmental risks.

- Communication and consultation among all applicable parties should be comprehensive, complete and timely.

2. Reclamation Planning

- Every mine should, at all times, have a mine closure and reclamation plan, which includes measures to be taken in the event of a temporary closure.
- The direct closure impact of all components of a mine site should be addressed as an integral part of the design criteria during the detailed engineering phase of the project, including tailings handling, disposal of chemicals and hydrocarbons and pit shutdown.
- The selection of key reclamation and closure alternatives should be based on current and comprehensive technical information generated by experts, such as competent, credible consultants.
- Mine closure and reclamation plans should be sufficiently flexible to allow adjustments as the life of the mine progresses, including the flexibility to adapt to new and improved technologies and methodologies, and allowing for progressive reclamation, while ensuring obligations under the plans are met.

3. Post-Closure Responsibilities

- Following mine closure, mining companies or their future owners should continue to be responsible for the site, including the remediation of any additional environmental complications which develop.

4. Financial Security

- The total financial security for final reclamation required at any time during the life of the mine should be equal to the total outstanding reclamation liability for land and water combined (calculated at the beginning of the work year, to be sufficient to cover the highest liability over that time period).
- Estimates of reclamation costs, for the purposes of financial security should be based on the cost of having the necessary reclamation work done by a third party contractor if the operator defaults. The estimates should also include contingency factors appropriate to the particular work to be undertaken.
- The recognized methodology for calculating reclamation costs for the purposes of financial security, should be the RECLAIM or some other appropriate model.
- Consideration should be given to alternate or innovative forms of security, such as mine reclamation trusts, provided they meet certain

criteria that protect the government's interests and objectives.

- Financial security requirements related to reclamation should be clearly set out in water licences, land leases and other regulatory instruments, though there may be circumstances where security requirements may be more appropriately dealt with through an agreement.
- Mining operators should be credited for approved progressive reclamation, and the value of financial security required should be adjusted in a timely fashion.

5. Regulatory Authorities

- There should be, to the extent possible, co-ordination among the various regulatory authorities sharing jurisdiction with respect to the management of lands and water to facilitate the consistent application of this Policy, particularly as it relates to the provision of financial assurance for environmental liability.
- The regulatory regime governing mine site reclamation should provide industry and stakeholders with the certainty and clarity required to accept the risks associated with mine developments.
- Status reports on the progress of mine site reclamation and revisions to plans should be required, pursuant to the relevant regulatory instruments.

IMPLEMENTATION CONSIDERATIONS

The following implementation considerations provide an explanatory framework and add detail to the principles set out above.

Mine Closure and Reclamation Plans

All proposals for a new mine must include a mine closure and reclamation plan. This is critical to the long-term future and environmental legacy of the development site. For greater efficiency, a plan should integrate the requirements associated with leasing surface rights and water licensing.

Required Standard of Reclamation

Site-specific criteria should be developed by regulators for assessing the adequacy of plans and their implementation, based on the 1994 Whitehorse Mining Initiative principle of “returning mine sites and affected areas to viable and, wherever practicable, self-sustaining ecosystems that are compatible with a healthy environment and with human activities,” including applicable archiving of reports, records, etc.

Where regulatory boards with jurisdiction for land and water management have developed specific guidelines and standards of environmental rehabilitation, these will be adopted for use in the applicable region.

Elements of Mine Closure and Reclamation Plans

Planning for closure, before development occurs, provides the opportunity to develop a flexible and cost-effective design, which helps ensure mine reclamation takes place and the responsibility for costs is borne by industry. It can be expected that techniques and methodology for mine site reclamation will continue to evolve with changes to our scientific understanding and technology.

Therefore, approaches to mine site reclamation need to remain dynamic, and evolving “best practices” should be an integral component of reclamation planning.

Best practices for both regulatory and voluntary/non-regulatory efforts include policies, programs, technologies, reclamation research and other measures that have been found to be cost effective and environmentally appropriate. Best practices encompass and build on measures embodied within local, national and international initiatives.

A Plan should fully address the following.

- The progressive reclamation of the site during the life of the operation, to the extent feasible, given the mining and processing methods employed.
- The removal or stabilization of any structures and workings remaining at the site after closure to ensure that, over time, they remain physically sound and no threat to public safety.
- The design of tailings and waste rock disposal areas to accepted engineering standards for slope, stability and erosion control.
- The reclamation of the surface to meet acceptable standards.
- Meeting or exceeding currently accepted standards of water quality for drainage from the site.
- Ensuring the site is left in a condition which will minimize or eliminate long-term care and maintenance requirements.

- A cost estimate of the work required to close and reclaim the mine, for each year of the proposed operating life, needs to be part of the plan. (Cost estimates should be based on the work being performed by an independent contractor in case the operator defaults. Estimates should include contingency factors appropriate to the particular work to be undertaken.)
 - A list of contingency measures for temporary closure of the mine, outlining specific actions and their scheduling, to be taken during the temporary closure. (As temporary closure is commonly an uncertain condition, the schedule will be necessarily progressive as each week, month, season or year passes.)
 - A plan for post-closure monitoring of the site including a monitoring schedule and reporting frequencies. (For a monitoring program to be meaningful, it must include provision for appropriate progressive responses which trigger action whenever exceeded, including the establishment of thresholds or the identification of changes in circumstances.)
- waste rock disposal management;
 - quarries and open pits;
 - petroleum and chemical storage areas and facilities;
 - pipelines and electrical transmission lines;
 - sewage and waste disposal areas and facilities;
 - mine and site drainage systems;
 - mine workings;
 - mine shaft, adit and decline openings;
 - site hydrology and water quality including water flows leaving the site;
 - revegetation of the site where practicable;
 - recycling of materials; and
 - site specific requirements.

Progress Reporting on Reclamation

Status reports on the progress of mine site reclamation work should be submitted to the relevant regulatory authority periodically. Since reporting on progressive reclamation is directly related to amendments to the financial security, the timing and content of the reports should match the provisions found in each plan relating to amendments to the financial security (see Financial Security).

Status reports need not be elaborate documents, but should include basic details, such as the reclamation work performed, amount of materials moved, dollars spent and a general account of areas yet to be reclaimed.

Mine Closure and Reclamation Plan Revisions (Updates)

When revisions to mining plans require significant changes in reclamation requirements, an amendment to the plan will be required, in addition to the above described

The plan should describe detailed measures for the reclamation, closure and decommissioning of the mine including but not necessarily limited to:

- buildings and other structures;
- roads and airstrips;
- tailings disposal facilities and management;

progress report. In many cases, these changes will require an environmental screening, and amendments to licences and permits through the regulatory process.

A significant component of any revision will be the evaluation of the degree to which reclamation costs will vary as a result of changes to the mining plan and the implications for the amount of financial assurance already in place.

Financial Security

A key element of the Plan is the relationship between the closure and reclamation obligations, and the financial security provided to ensure the liability for reclamation remains with the mining company. There are a number of issues relating to financial security which must be considered as part of this policy.

1. Forms of Security

Financial security for mine site reclamation for new mines must be readily convertible to cash. Such security must have the following basic criteria:

- Subject to applicable legislation and due process, it must provide the Crown with immediate, unconditional, unencumbered access to the full amount of the security.
- It must retain its full value throughout the life of the mine and, if applicable, beyond.
- It must remain beyond the control of the mining company, or its creditors in the event of insolvency.

The Minister may consider new or innovative forms of security, such as reclamation trusts, provided they meet the above criteria.

2. Co-ordination Among Regulatory Agencies

Regulatory authority to require financial assurance for mine site reclamation is not contained in a single statute. On Crown-owned lands in the Mackenzie Valley, DIAND has jurisdiction with respect to land leases and related security issues. The Mackenzie Valley Land and Water Board has the jurisdiction to determine the amount of security in water licences and land-use permits, while the Minister of DIAND has the power to determine the form of security provided under these instruments.

Since financial security has become a multi-jurisdictional issue, co-ordination is an important consideration. To ensure that financial security is most efficiently and effectively applied, DIAND will facilitate discussions between the various regulatory bodies to promote the co-ordination of financial security obligations.

This will include:

- developing and updating of recognized standards, models and assumptions for calculating reclamation costs (e.g., RECLAIM model);
- ensuring that, at any given time during the life of the mine, the total financial security for mine site reclamation in place, subject to the timing of any application for credit for progressive reclamation, is equal to the total outstanding reclamation liability

of the mine site, and the financial security for closure-related activities, imposed by land and water jurisdictions cumulatively, does not exceed the total reclamation cost estimates for both the land-related and water-related reclamation elements at each mine;

- ensuring that the terms, conditions and notification processes in financial security are compatible for all regulatory instruments; and
- co-ordinating the regulatory determinations required from each decision maker (e.g., the Minister, the Northwest Territories Water Board or the Mackenzie Valley Land and Water Board) to facilitate the integration of all financial security obligations.

3. Progressive Reclamation

Ongoing reclamation throughout the life of the mine is preferable from both the environmental and financial liability perspectives. The financial security of a mining project will be adjusted to reflect progressive reclamation on the following basis:

- When ongoing reclamation work reduces the outstanding environmental liability, it will result in a reduction in the level of financial security required to be maintained.
- Credit for progressive reclamation work should be made in a timely fashion in accordance with authorities set out in the applicable legislation.

- The value of reclamation work will be based on generally accepted modelling (e.g., the RECLAIM model) and calculated as the difference between previous outstanding liability and estimates made of the remaining liability following the reclamation work (as opposed to actual costs, if actual costs do not fully reduce outstanding liability).
- The amount of financial security on deposit will normally increase proportionately as mining proceeds. Generally, this implies that as the mine site grows, water usage increases and the cost to restore a site expands. Accordingly, reclamation costs are usually estimated to rise over the life of the mine. However, as reclamation work is performed, the environmental liability is reduced and the financial security required may decrease proportionately.
- If, during a specific period, the value of any progressive reclamation exceeds the value of new reclamation liability created through additional mining operations, DIAND would reduce the amount of security required through the surface lease and would support an application by the mining company to the Land and Water Board to reduce the amount of the water licence security accordingly.
- Progressive reclamation may not reduce the financial assurance required to zero. Sometimes, a residual amount is required to meet other licensing obligations.

Post-Closure Reclamation and Final Decommissioning

Near the end of production when closure is anticipated, the most recent approved plan will be the basis for final decommissioning. *As reclamation work is successfully completed and environmental liability is reduced, the amount of financial assurance required will be proportionately reduced and the surplus refunded.*

Where applicable, in addition to the physical aspects of closure, pertinent records should be collected, prepared and archived. These could include a survey of any underground workings, drill cores and broader environmental data and reports.

Once the reclamation work required by the plan is deemed completed, the site will be allowed to stabilize. During this time, monitoring will be conducted by the company and verified by DIAND and other agencies as appropriate, with respect to the effectiveness of the mitigative measures, the accuracy of the environmental assessment and any unforeseen environmental impacts. The duration of the required monitoring phase will be reviewed and confirmed at the time of closure and will depend on the risks associated with the potential impacts on the environment.

During this period, the mining company will continue to be responsible for the site, including remediation of any additional environmental complications which develop. If warranted by site conditions, the monitoring period may be extended to ensure remedial measures are met.

Some mines are anticipated to require long-term care and maintenance after closure.

Examples include sites where:

- acid mine drainage requires neutralization by water treatment;
- tailings containment structures require periodic monitoring and maintenance; and
- remediation technologies are not proven.

The Minister may hold back an appropriate amount of financial assurance to cover future requirements for the site. In such cases, the mining company will be responsible for the care and maintenance of the site, but will also maintain a claim to any remaining financial assurance.

When the Minister is satisfied the operator has met the requirements for decommissioning under the relevant legislation and that the objectives of the plan have been fully met, the Minister will provide the mining company with a written acknowledgement to that effect.

TRANSITION RULES FOR EXISTING MINES

This Policy covers existing mining operations. However, it is recognized that the status of reclamation planning and the degree of financial assurance in effect varies considerably from mine to mine. [Therefore, the application of certain aspects of this Policy will have to take into account the specific situation and issues of individual mines on a case-by-case basis.](#)

For existing operations, the financial security provided to the Minister for reclamation obligations should be increased in increments to 100 per cent coverage as soon as possible, but not later than the forecast life of the mine. Only when a mine operator could conclusively demonstrate that it was financially incapable of doing so, and the Minister was satisfied that it was in the public's best interests, would the Minister consider options relating to the form, amount or schedule for the provision of financial security.

All reclamation liabilities created by future operations would be subject to the same requirement to provide full security as new mines.

INSOLVENCIES

The issue of what happens when the operators of existing mines become insolvent poses a distinct and unique challenge to both the regulatory system and the application of this Policy. When a mine operator seeks court protection from creditors under either the *Companies' Creditors Arrangement Act* or the *Bankruptcy and Insolvency Act*, the company does so with the intent to negotiate with its creditors a financial restructuring that will allow the company to emerge from court protection as a viable entity. When this process is successful, the mine operator remains liable for the closure and reclamation of the mine.

However, when this process is not successful, the creditors of the company will frequently have the court appoint a receiver or Interim Receiver under the provisions of the *Bankruptcy and Insolvency Act* to sell the assets of the company. The negotiations with prospective purchasers of a mine within insolvency proceedings will frequently involve DIAND as the representative of the Crown, as a creditor of the insolvent operator and as an environmental regulator. While DIAND will be as co-operative as possible in trying to facilitate such a sale, the Crown will **not** compromise or assume environmental liability to facilitate a sale of a mine for the benefit of creditors.

When a property is abandoned by a receiver, Interim Receiver, or Trustee in bankruptcy, DIAND will take any measures necessary to safeguard human health and safety and the environment using the authority of the Minister under the *Northwest Territories Waters Act*. Under this Act,

the costs of such measures will be recovered from the financial security provided by the operator. Should these costs exceed the value of the security provided by the operator, the excess becomes a debt due to the Crown which, under the *Companies' Creditors Arrangement Act* and the *Bankruptcy and Insolvency Act* is secured by a first charge over the property. If the property is subsequently sold, the Crown intends to recover any debts due to the Crown from the proceeds of the sale of the property.

When a mine operator is insolvent and a mine is abandoned by a receiver, Interim Receiver or Trustee in bankruptcy, because the unsecured environmental liabilities exceed the economic value of the mine, which means the property cannot be sold in a conventional sale, DIAND would consider entering into a transaction with a purchaser for the mine on the following basis:

- The sale would generate the maximum benefit to the Crown in terms of reducing the net liability remaining with the Crown.
- Any significant consideration related to the transaction would be paid into a trust fund for the remediation of the existing environmental liabilities at the site.
- A purchaser would have its liability for the existing environmental condition of the property limited.

P O L I C Y R E V I E W

- A portion of the economic value of the production from the mine would go to a fund for the remediation of the existing environmental liabilities at the site.
- The purchaser would remain fully liable for the remediation costs of any environmental impact resulting from its operations at the site.

Whether or not DIAND entered into such a transaction would depend on the extent of the benefits or potential benefits to the Crown in reducing the environmental impacts and ultimate cost to Canadian taxpayers of environmental remediation at the mine site.

The political and legislative environment in the North is in a period of unprecedented change. If this Policy is to keep pace with the shifting operational environment, and political, legislative and technological developments, it must be a living document or it will lose its currency and effectiveness.

To this end, the Department will undertake to review this Policy periodically.