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The Long-Term Management of Former Uranium Mine Sites

The Need for a Framework

Saskatchewan currently has one of Canada's most effective and efficient regulatory frameworks covering all facets of mine and mill development, operation and decommissioning. This regulatory oversight begins with the exploration phase and continues with the requirement for every new development to prepare an environmental assessment for public review and approval by the Minister of Environment pursuant to The Environmental Assessment Act. The environmental assessment for the development and operation of a project must also include a plan for the decommissioning and reclamation of a mine/mill to restore the site to an environmentally acceptable condition.

However, a phase of mine site management was missing from the province's regulatory framework. The province did not have an effective mechanism for managing and monitoring mine/mill sites once decommissioning was complete. In the past, this was not generally considered in corporate planning and government regulatory activities, but it is gaining additional international scrutiny. Mining companies wanted to know what requirements have to be met after decommissioning is complete to be able to transfer custodial responsibility back to the province. The public and neighbouring communities wanted to know who will be responsible for the site once the company is gone. The Institutional Control Management Framework (ICMF), which is the focus of this paper, sets out the terms under which the province will accept custodial responsibility and upon which the site will be monitored and maintained in perpetuity. It completes the regulatory framework to bring it "Full Circle."

The absence of a framework to transfer custodial authority back to the province led to serious concerns by the uranium mining industry with respect to its ability ever to be released from a surface lease issued by the province and the licensing requirements of the Canadian Nuclear Safety Commission (CNSC) for a mine site. If companies were to be responsible for perpetual care and maintenance at former uranium mines, this would be a significant barrier to investment in new uranium developments. As well, in the province's opinion, this was not an optimal solution to the issue of long-term care and maintenance. While larger mining companies tend to be in existence for long timeframes, companies are not expected to exist for the timeframes required to undertake these activities. The International Atomic Energy Agency (IAEA) has stated that "In many cases, the body that has the greatest potential for maintaining these controls is a governmental organization." Governments are long-term institutions that operate on these time horizons, and that have the interests of the general public in mind.

Uranium mine operations in Canada also operate under a federal regulatory framework. This is a constitutional requirement under the Nuclear Safety and Control Act (NSCA). The CNSC is the agency responsible for carrying out the federal government's mandate. The federal regulatory oversight extends from the initial environmental assessment phase through to decommissioning and reclamation. While the province recognizes the requirement for federal oversight, the province is also mandated to manage its resources and regulates uranium mines/mills as it regulates other mineral developments. In recognition of the mining industry's concerns that duplicate regulatory requirements can be onerous, the province and the CNSC continue to work towards harmonization of their roles.

Canada has also become, as a member of the IAEA, a contracting party to the Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management (2001). As a Contracting Party to the Convention, the federal government is required to ensure that an appropriate institutional control framework is in place to address the long-term management of decommissioned uranium mine/mill facilities. Currently, there is no formal federal framework to guide the transfer of custodial responsibility and long-term monitoring and management of mine/mill sites. Specifically for uranium sites in Saskatchewan, the institutional control framework must recognize both the constitutional jurisdiction of the NSCA as enforced by the CNSC, and Canada's international obligations.

It made sense that responsibilities for long-term management of these sites rest with government and that a framework be developed and implemented that respected Canada's international obligations, federal regulatory requirements and provincial regulatory requirements and responsibilities to:

- Protect human health and safety;
- Protect the environment;
- Ensure future generations are not burdened with the costs of long-term monitoring and maintenance and for unforeseen future events for mining development decisions taken today; and
- Add greater resiliency and scope to the province's regulatory regime.

In June 2005, the Government of Saskatchewan formally initiated the development of the ICMF for the management of decommissioned mine/mill sites on provincial land, including uranium mines.

Provisions of the Institutional Control Management Framework

For the development of the ICMF, the province defined "institutional control" as consisting of those actions, mechanisms and arrangements to keep up or preserve what we know about, and what we put in place to control cleaned up and restored sites after a mine/mill has completed its activity and transferred the site to a responsible authority. The authority that would accept responsibility for a site is the province. One of the key components of institutional control is registration of a former mine/mill site, keeping a record of what work was done at the site and permanently holding records in a registry.

Institutional control at the mine/mill site can be passive or active. Passive controls can be things like restricting land use or the marking and recording of a particular area where the mine was. Active control can be things like monitoring, surveillance, remedial work, erecting and maintaining fences.

Included in the provincial approval for the operation of a mine/mill, a detailed decommissioning and reclamation plan must be approved. Planning for decommissioning and reclamation is a legislative requirement beginning during the initial stages in the development of a mine/mill site. Decommissioning and reclamation plans and activities are those actions required to clean up mine/mill facilities and return the land to an acceptable condition. Once a site has been cleaned up according to the site holder's decommissioning and reclamation plan and has demonstrated that it is environmentally stable during a period of monitoring, a site holder can apply to Saskatchewan Environment for a Release from Decommissioning and Reclamation. Upon receiving the Application for Release from Decommissioning and Reclamation, the province will initiate a review. The review provides opportunities for stakeholder input on additional conditions that might apply before the Release from Decommissioning and Reclamation is issued and the type or nature of institutional controls that will apply to the site.

Good governance dictates that all the orphaned and abandoned sites in the province will eventually be managed under the framework. Some of these sites require decommissioning and reclamation to reach the same acceptable conditions required of an active mine following the close of operations. It was a noted concern both from industry and from within government that, regardless of whether a site is a corporate responsibility or a provincial responsibility, the site be treated equally. This is an important component, and necessary to obtain acceptance from the mining industry.

Only after the site holder has proven that these steps have been completed to the province's satisfaction would issuing a release be considered. The release is one of the necessary requirements for the site to be transferred from the site holder to the Institutional Controls Registry, administered by the province. Should Saskatchewan Environment judge that the risk to the province of maintaining a site is too high, the department retains the authority and ability to refuse to issue a release.

The province will keep track of each site by establishing a formal Registry that will house the information for each site. This Registry will be accessible to the public. Documents will include:

- Land location of the site;
- Former operator of the site;
- Description of the site and historical activity;
- The Release from Decommissioning and Reclamation;
- Final Surface Lease Agreement;
- Long term care and maintenance requirements, if required;
- In the case of uranium facilities, reference to and location of CNSC licensing documentation and decisions relating to the site;
- Future allowable land uses for the property;
- Frequency and type of inspections that are necessary for institutional control of the site; and
- The results of past inspections of the site.

The Registry information would identify a schedule for inspections at each site that it has included within its records. For example, a site may only require a physical inspection like soil, surface and ground water samples every five years to confirm that it remains stable. Inspection reports would be reviewed and approved by Saskatchewan Environment and then entered into the permanent record.

The costs to monitor and maintain a property in perpetuity are predictable and can be estimated for each specific site. For example, the concrete bulkhead used to permanently seal a mine shaft would be designed and constructed to last 100 years. The cost of maintaining that bulkhead is estimated as the replacement cost in 100 years time. The cost estimate would be part of the application requirements for entry into the Registry provided by the site holder.

Based on a review of that application, the province will require a "Release Fee" to be paid by the site holder to cover all the predicable monitoring and maintenance costs. Since passive decommissioning and reclamation methods to close a site reduce the amount of future work required at a site, this approach will reduce the amount of the "Release Fee". Modern mine decommissioning and reclamation plans are based on the use of passive control methods whenever possible and can significantly reduce the chance for unanticipated costs to arise.

The ICMF does not prevent the province from holding a company responsible for future clean up should the environmental conditions at a site fall below those specified in the Release from Decommissioning and Reclamation, and upon which the province took custody. If the original company is still in existence, it would be responsible for all costs required to clean up the site should it fail to perform to the design standards and specifications set out in the Release.

It is not possible to accurately forecast or estimate the full extent of all possible future costs at any individual site. Unforeseen events such as 1 in 1,000 year floods have a low potential of occurrence, but one cannot predict when such events and their associated costs may occur. By applying the current environmental standards to a site clean up before it is it transferred into the Registry and the implementation of passive decommissioning methods significantly reduces the potential for such costs to arise. In addition, the ICMF and the monitoring required are designed to provide early detection of any such events in order to minimize the cost of the remediation.

Site holders will be responsible for these unanticipated future costs through payment of a contingency fee in addition to their Release Fee. This contingency fee will reduce the province's risk of having to manage unforeseen costs with public funds and the costs to future generations are reduced. A contingency fee will be calculated as a percentage of the Release Fee and have a smaller initial value. The contingency fees will be held in a separate account and have the ability to accrue interest until such time as an unforeseen event may occur.

The province has enshrined the ICMF in new provincial legislation, The Reclaimed Industrial Sites Act (Act), which also establishes the Institutional Control Registry (Registry) where the public would have access to a mine and/or mill site's information. Regulations, providing specific details on how the provisions of the Act will be implemented are being finalized and it is planned that the Act and Regulations will come into force on January 1, 2007.

The Act is designed to meet CNSC's jurisdictional requirements and to meet national and international obligations. One of the province's requirements for the transfer of custodial responsibility back to the province, and to accept a site into the Registry, is to only accept closed sites that are either not licensed or are exempted from licensing by the CNSC. The CNSC and the province agree that a decision on a site must be made on a site-by-site basis. Consistent with harmonization activities between the jurisdictions, no site will enter the Registry unless both parties agree and all stakeholders have been consulted.

A site that is exempted from licence requirements under the NSCA, will revert to the jurisdiction and control of the province under the ICMF and the Registry. Once exempted, it is unlikely that a site would be subject to future licensing. Licensing would only happen when an event occurs that is significant enough to threaten the environment or public health and safety, and results in the exemption being revoked.

There may also be a case where future changes in regulatory standards for site rehabilitation could arise, and thus cause a "change" to the status of the exempted site. The province has categorized a change of regulatory standard as an unforeseen event, and costs for such cleanup would be provided for from that specific fund.

Development of the Framework, Legislation and Regulations

In 2004, the Government of Saskatchewan established the Institutional Control Working Group, an interdepartmental committee of the provincial government. The group includes officials from a number of departments that have key responsibilities with respect to policy decisions on uranium mining, who worked together to develop the ICMF. The group includes representatives from the following provincial departments:

- Industry and Resources
- Environment
- Northern Affairs
- Finance
- Justice
- Executive Council.

In June 2005, the provincial Cabinet approved the principle of the ICMF for the transfer of custodial authority and management of all decommissioned mine/mill sites located on provincial Crown land.

The provincial Cabinet also directed the departments to initiate a consultation process with the mining industry, the Northern Saskatchewan Environmental Quality Committee (EQC) and other key stakeholders. The EQC is a committee of northern community representatives which provides a communications bridge between northerners, the mining industry and the government. The consultations provided discussion on the proposed approach and sought feedback on the options for legislation, administration and funding of monitoring, maintenance and unanticipated future costs for sites.

The Consultation Process

A challenge to the development of a significant new policy, such as the Institutional Control Management Framework, is to obtain support from the EQC, the mining industry and the public, including environmental groups.

It was also recognized that failure to approve a formal institutional control management framework would:

- Allow non-governmental organizations (NGOs) to continue to challenge the province's commitment to ensure that future generations will not be burdened with liabilities resulting from current mining activities;
- Send a negative message to the mining industry and negatively impact future investment, by failing to address a concern that has been an ongoing issue between the uranium industry, the province, and the CNSC;
- Lose the opportunity to increase harmonization of federal-provincial regulation of the uranium industry; and
- Undermine the province's stated commitment to stimulate further uranium exploration and development by working with the industry and by working with the federal government to address regulatory burden.

Following Cabinet's direction, in July 2005, comprehensive, detailed discussion and summary documents were prepared for distribution at stakeholder and public consultation meetings. The documents addressed the challenges and provided the basic elements of a comprehensive institutional control management framework. These documents were posted on the website of Saskatchewan Environment.

There were three components to the consultation process:

1. CONSULTATIONS WITH THE CANADIAN NUCLEAR SAFETY COMMISSION

The CNSC has consistently identified that constitutionally and legally it has jurisdictional responsibility for nuclear activities in Canada under the NSCA, which includes uranium production. The province has recognized the statutory mandate of the CNSC and the federal and constitutional jurisdiction of the NSCA. The province worked with the CNSC to develop an ICMF that did not result in jurisdictional conflict, and is constitutionally, legally and operationally sound and effective. CNSC officials have agreed that the appropriate conditions and guidelines can be developed jointly to achieve the ultimate goal of perpetual care and management of uranium mine and mill sites. This would be in the best interest of Canada and meets Canada's international obligations.

2. CONSULTATIONS WITH THE MINING INDUSTRY

Provincial officials held a one-day open session with representatives from the mining industry. Following this session, a small committee of senior company representatives was struck to meet with provincial representatives for detailed discussions. Four facilitated meetings were held comprising intensive discussions on all aspects of the ICMF with particular attention given to funding requirements and options.

Industry conducted a number of internal meetings to do its own due diligence through to late November 2005. Industry provided a document through the Saskatchewan Mining Association identifying its key issues and the preferred options that were evaluated.

3. CONSULTATIONS WITH THE EQC AND THROUGH PUBLIC MEETINGS

Provincial officials undertook EQC, public and stakeholder consultations. Although turnouts were very low at the public meetings, discussions with the public and stakeholders on the initiative were very positive. The EQC, public and stakeholders also supported the position that the province should proceed with finalization and implementation of the ICMF.

Conclusions

The Institutional Control Management Framework is the first of its kind. It builds on the "discovery to decommission" environmental protection mechanisms already in place in the province. The Framework recognizes Canada's international obligations, Canada's national requirements and the province's responsibilities. It is the environmental protection mechanism for the perpetual management of mine and mill sites and completes the regulatory cycle to bring mechanisms "Full Circle." By building a policy development model based on interdepartmental and intergovernmental cooperation and intensive and extensive industry and public consultation, the province has developed a Framework that enjoys a high level of support by both the mining industry and the public.

Based on Saskatchewan's current uranium resources and new uranium discoveries, Saskatchewan will continue to be a world leader in uranium production. While an abundance of natural resources is necessary, it is equally important to have an efficient, effective and competitive regulatory framework for the development and management of those resources. The province will continue to work with the public and industry to build and improve policy and regulatory frameworks. The Institutional Control Management Framework is an important component of the province's commitment to the development of our industry and the protection of our future generations.