

# Alberta's mine financial security programme

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## Abstract

*Alberta Environment's legislation requires operators of certain industrial disturbances to provide financial security for their reclamation obligations. These industries include coal and oil sands mines, quarries, sand and gravel pits, commercial landfills and hazardous waste storage sites. As of December 2010, oil sands mine operators had posted C\$ 912M and coal mine operators C\$ 214M. The purpose of the security is to ensure government has the financial resources available to reclaim a site if the approval holder can't or won't – this has never happened for oil sands and only once for coal.*

*Prior to 1993, security was collected based on flat unit rates e.g. cents/bbl or cents/ton. Since 1993, reclamation security has been collected based on the actual costs of reclamation that a third-party (government) would have to pay. However, any lands disturbed under the pre-1993 legislated rates remain grandfathered at those old rates. Under the current legislation, coal mine processing plants are required to provide security but oil sands processing plants are not.*

*Industry, government and stakeholders have identified a number of concerns with the existing security system:*

- *Industry – there is little likelihood of default, especially for oil sands mines, and so funds are being unnecessarily tied up early in the life of a project when they could be used for further economic development.*
- *Government – the grandfathered security rates from the pre-1993 legislation are not enough to adequately reclaim the lands; and, the legislation currently exempts oil sands processing plants from the security calculations.*
- *Stakeholders – security amounts are too low; and, the security process isn't transparent enough.*

*This paper describes the new reclamation security system that addresses these concerns and provides a balanced, risk-based approach to coal and oil sands financial security.*

## 1 Introduction

The purpose of reclamation security is to ensure that the government has funds available to undertake reclamation of an industrial site should an approval holder be unable to do the reclamation or does not comply with an order to reclaim from the provincial regulator. The most common reason an approval holder is unable to undertake the reclamation work is that the company has become insolvent, bankrupt or is in receivership. To date, government has not had to use reclamation security for a defaulting oil sands approval holder, and has only had to use security for one defaulting coal company (Smoky River Coal Limited in 1999; it is interesting to note that some of the unsecured liability was later taken over by a new coal company).

### 1.1 Legislative framework

Legislation respecting reclamation security has been in place since 1963, and has undergone a number of changes since then (Government of Alberta, 1963, 1973, 1992). In 1993, the *Environmental Protection and*

*Enhancement Act* (Government of Alberta, 1992), and the associated *Conservation and Reclamation Regulation* (Government of Alberta, 1993) modified the reclamation security requirements, and in particular shifted the methods for calculating security from a flat rate system to full cost of reclamation (Government of Alberta, 1977 – a flat fee of C\$ 100,000 if less than 100,000 bbl/d or C\$ 250,000 if more than 100,000 bbl/d plus 3 cents/bbl for oil sands; C\$ 5,000 or C\$ 25,000 depending on size plus 25 cents/t for coal). The 1993 security programme arising from these regulatory changes (hereinafter referred to as the “1993 Programme”) maintained the types of projects subject to reclamation security requirements and also retained the flat rate security provisions for lands disturbed prior to the amendments.

### 1.2 Amount of security

Figure 1 shows the amount of security held by government for coal and oil sands mines from 1993 to 2010. The security amounts are publicly disclosed in the *Environmental Protection Security Fund Annual Report* that is tabled in the Legislature by the Minister of Environment (Alberta Environment, 2010). As of 31 December 2010 Alberta Environment held C\$ 912,852,619 in security for seven oil sands mines and C\$ 214,021,707 in security for 17 coal mines.

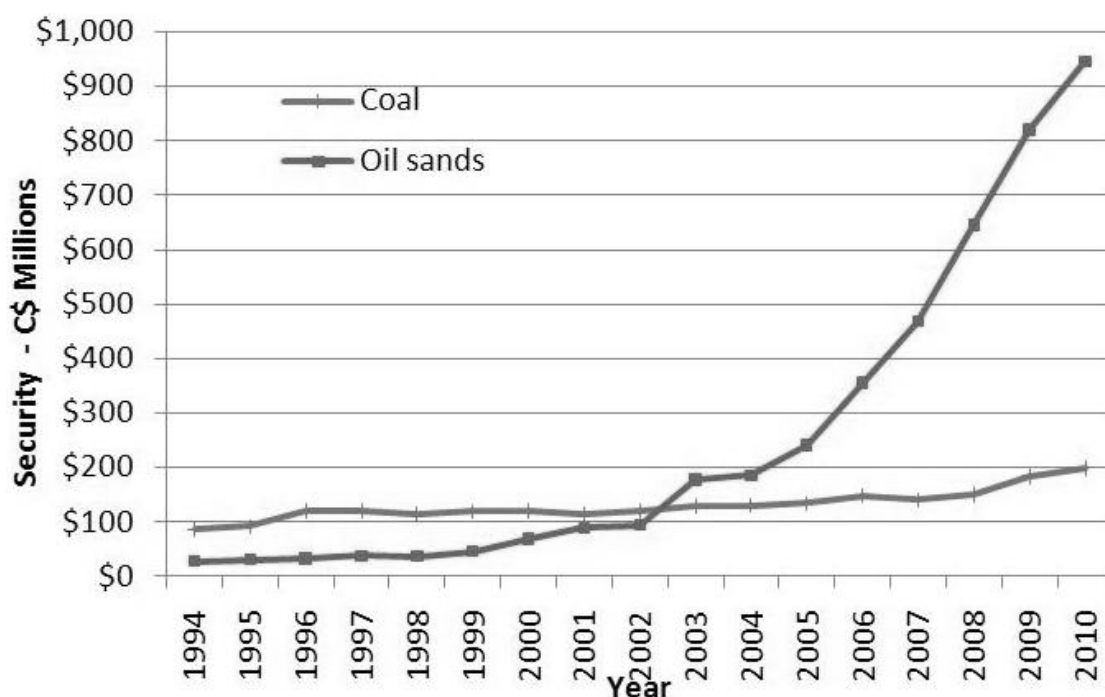


Figure 1 Coal and oil sands security from 1994 to 2010

### 1.3 Public scrutiny of programme

Reports by the Auditor General of Alberta (2009), the Pembina Institute (Lemphers et al., 2010) and the Environmental Law Centre (Watt, 2010) have been critical of the 1993 Programme. The concerns expressed included: a lack of transparency of the methods used to calculate security amounts, a general belief that the amounts are too low, different methods used to calculate security for different sectors, and differences between security amounts and publicly reported liability numbers e.g. asset retirement obligation numbers in company Annual Reports.

Stakeholders, including First Nations, have expressed similar concerns in regulatory hearings for oil sands mines e.g. Energy Resources Conservation Board, 2011; Section 11.

### 1.4 Need for change

A number of factors drove government and industry to explore an alternative to the 1993 Programme. Both government and industry were interested in ensuring that the regulatory and economic framework remained competitive with other jurisdictions, and that security was posted when appropriate, based on an assessment

of risks. Government was interested in removing the grandfathered security rates embedded in the royalty agreements and *Conservation and Reclamation Regulation*, in requiring reclamation security for oil sands plant sites, and in addressing, as much as possible, the demands for increased public transparency. Industry was interested in having one programme to cover both the mine (regulated by Alberta Environment) and plant (regulated by the Energy Resources Conservation Board), and in exploring alternative forms of security, other than letters of credit, that would be readily accessible and provide potential tax and royalty benefits.

## 2 Development history

There has been a long-standing interest from both government and industry in revising the reclamation security programme, with various reviews and recommendations made since 1993.

### 2.1 Early stages

On 1 September 1993, Alberta's *Environmental Protection and Enhancement Act* came into force. New provisions for reclamation security deposits triggered a number of questions respecting the intent and implementation of security deposit provisions. Alberta Environmental Protection established a multi-stakeholder task force to review existing financial security provisions within the legislation administered by the department. Work of the task force culminated with publication of the Financial Security Task Force Report (Alberta Environmental Protection, 1996). Key recommendations of the report included:

1. Developing and implementing a risk assessment process to determine security requirements, using a task force of stakeholders to develop the risk assessment process.
2. Recognise the legitimacy of alternate security systems.
3. Consider enforcement systems in place as an alternative to security, in specific low risk situations.
4. Require security only when past performance was inadequate when an alternative security system was in place.

Alberta Environmental Protection established a government/industry Financial Security Risk Assessment Working Group in the fall of 1996. The group published a final draft of the Financial Security Risk Assessment Model in late 1997 and the document was forwarded to the department in June 1998. The model included three key steps: an activity screening process; an environmental risk and a financial/business risk assessment survey; and, a risk assessment matrix to calculate the amount of financial security required for the proposed activity. The appropriateness of the model was subsequently reconsidered because of events including the bankruptcy of Smoky River Coal and was ultimately rejected by the department.

### 2.2 Review of other programmes

Government and industry separately reviewed reclamation security programmes in various jurisdictions worldwide to understand the principles guiding their design and to see what could be learned and adopted. In addition, government and industry were able to draw on the design principles and implementation experience related to the Energy Resources Conservation Board's liability management programmes for the upstream oil and gas industry (Energy Resources Conservation Board, 2009a, 2009b). In particular, the use of the asset to liability test as a factor for making risk-based security decisions was brought forward as a design principle.

### 2.3 Mine Liability Management Programme (MLMP)

In mid 2004, government directed Alberta Environment and Alberta Energy to work with coal and oil sands mine operators to develop a recommendation for an alternative reclamation security programme that was to be asset-to-liability based. A government/industry steering committee meeting was established to guide development of the alternative programme called the Mine Liability Management Programme (MLMP). The steering committee established four government/industry working groups (assets, liabilities, regulatory and operations) and, in January 2005, provided them direction on specific tasks to be accomplished and the guiding principles under which they would work.

The starting point for the working groups was a draft industry proposal that was based on the framework and on learning's from the Licensee Liability Rating Programme (Energy Resources Conservation Board, 2009a). That programme protects the Orphan Well Fund from defunct company liability by requiring active companies to place deposits when their liability exceeds their assets. The key principles for the Licensee Liability Rating Programme are:

- Encourage the development of the resource by all sizes of companies.
- Deposits are required by licensees falling below the monthly Licensee Liability Rating Threshold or at the time of transfer of wells and facilities.
- Government enforces Licensee Liability Rating rules and good operating practices.
- Industry pays for the clean-up of defunct companies.

The learning's since the start of the Orphan Programme in 1993 include:

- Discounting liability places industry at risk of increased orphan costs.
- Debt held by a company adds a safety factor to the Licensee Liability Rating calculation.
- Adjustments are needed to the Licensee Liability Rating test over time to ensure the programme is sustainable over the long term.

Industry also developed an Excel spreadsheet that was used to model the effects of changes in various parameters forming the calculation of security for oil sands mines. The Excel file was populated with preliminary asset and liability data from the four producing oil sands mines to ensure the programme design reflected as closely as possible actual conditions.

The working groups met several times between January 2005 and June 2007; the frequency of meetings varied due to the nature of the tasks assigned to each working group. Their efforts were combined into a recommendation for the Mine Liability Management Programme. Alberta Environment contracted PricewaterhouseCoopers in late 2006 to review the programme and make recommendations. The PricewaterhouseCoopers recommendations were considered in finalisation of the Mine Liability Management Programme design.

## **2.4 Mine Financial Security Programme (MFSP)**

In late 2008, following direction from the Ministers of Environment and Energy, the steering committee was reconstituted and a government/industry Technical Working Group was established to revise the programme to address specific questions posed by the Ministers. In 2009 the Technical Working Group revised the programme, now called the Mine Financial Security Programme (MFSP), to address the questions. The Excel spread sheet was modified to incorporate the recommendations of the Technical Working Group and was then used to evaluate various scenarios (oil prices, Canadian/US exchange rates, greenhouse gas price cost) to see how sensitive the programme is to potential future changes.

The proposed programme was submitted to government and received approval in the spring of 2011.

## **3 Mine Financial Security Programme (MFSP)**

Government and industry believe that the MFSP provides a responsible balance between protecting the people of Alberta from the costs associated with the liability of coal and oil sands development in the event an approval holder cannot meet their obligations, and maximising the opportunities for responsible and sustainable resource development. It does so by establishing a base security deposit requirement (regardless of the amount of asset security), enhancing existing documentation and reporting practices and providing new requirements:

- Enhanced practices:
  - Regulatory certainty and equal treatment within and between coal and oil sands mine sectors.
  - Consistent, transparent and conservative methods for calculating closure costs and required financial security.

- Public disclosure of not only the financial security amounts, but sector and approval-specific progress on reclamation and liability management.
- New requirements:
  - All mines are fully secured at all times. Initially the mine assets and a base security deposit provide protection, then starting 15 years before the end of mine life there is a transition from asset-based security to financial security so that six years before the end of the mine life full protection is provided by financial security.
  - Incentives for progressive reclamation through use of a specific security deposit trigger for reclamation planned for but not achieved.
  - Annual updates on asset and liability information, and annual posting of revised security amounts.
  - The Chief Executive Officer, Chief Financial Officer, or the Designated Financial Representative of a joint venture, must certify that appropriate procedures were used to determine the value of the MFSP Asset, MFSP liability and financial security deposit estimates, confirming that the resulting estimate is reasonable.
  - Annual public disclosure of asset safety factor and reclamation progress.

### 3.1 Overall design

The MFSP incorporates principles of environmental science, mine and civil engineering, cost estimation, and transparent and generally accepted accounting, financial and public reporting practices. The MFSP is designed and intended to allow the approval holder and the government to manage risk within clear and predetermined parameters. When circumstances cause the approval holder's mine or plant operations to fall outside of those parameters, the requirement for an appropriate amount of financial security is automatically triggered.

The programme accounts for a reasonable range of economic conditions and accommodates future legislative and technology changes. Within this reasonable range of operating conditions the programme supports the sustainable development of Alberta's natural resources. Each project will secure its environmental liabilities with a conservative estimate of its asset value. The approval holder can then utilise net revenue or capital resources to manage environmental liabilities, and for expansions or new developments. When the asset value diminishes, either through weakening commodity value or depleting reserves, the approval holder must convert the asset security to financial security e.g. a letter of credit, at a point where the current and remaining net revenue generating capacity of the project can sustain the contributions to financial security.

The programme requires security for coal and oil sands mines and coal processing plants, and is expanded to include coverage of oil sands processing plants that are located on mine sites. The programme also removes the regulatory provision in the original programme that grandfathered security rates on older mines (most notably Syncrude's Mildred Lake Mine and Suncor's mine operations west of the Athabasca River). These changes are expected to significantly increase the total amount of security eventually posted by oil sands approval holders (from 100s of millions of dollars to several billion dollars).

The programme has four triggers for financial security (described below) that address potential risks at various stages of mine development.

Finally, the programme provides an option for approval holders to elect to pay full financial security at any time in the life of the mine. Coal mines and early stage oil sands mines whose liabilities are less than the base security deposit are likely to elect to provide full financial security.

Assets, liabilities and security requirements are calculated each year. Calculations may also be required in special cases e.g. on sale of all or part of an approval holder's site. The calculations, and related security deposits, must be submitted no later than 30 June of each year.

### 3.2 Assets

The MFSP adopts an approach to managing financial risks which recognises that the resource value associated with an approved project is an asset in terms of the net revenue generated by its operations. Assets under the MFSP represent the estimated financial capability of an approval holder's project to address its future environmental obligations. MFSP assets are determined by multiplying the project's gross proven plus probable reserves by the mine's three-year average netback, where netback is the approval holder's gross revenues minus operating costs divided by the annual sales volume for the project. That value will be reduced if the future commodity price is expected to be lower than the three year historical value. A three-year average netback is used to smooth out fluctuations in commodity pricing and applicable operating costs.

Where an approval holder does not have three years of actual netback data e.g. in the years from original site disturbance until the third year of full production, or where a suspended mine restarts production, they may request approval from Alberta Environment for a deemed netback. The deemed netback value is substituted for any of the years that do not have actual netback data.

Reserves data are calculated according to the accepted practices described in the relevant Canadian documents (NI 51-10 for oil sands (Alberta Securities Commission, 2007) and NI 43-101 for coal (Alberta Securities Commission, 2000)) or the applicable US documents for US listed companies.

The asset calculations recognise special oil sands cases where third-party production is processed in an approval holder's upgrader, and when bitumen from an in situ operation that is thermally connected to an upgrader is processed in that upgrader.

### 3.3 Liability

The MFSP will account for liabilities associated with suspension, abandonment, remediation and surface reclamation of mines and plants, and the care-and-custody of the land until a reclamation certificate is issued. Liability is based on:

- The concept that industry is responsible for the full life cycle cost of a project and addressing the liability of each phase.
- The undiscounted and unescalated cost estimated to settle the environmental obligations for the MFSP sites (ARO Liability - ARO (*asset retirement obligation*) is a Canadian Generally Accepted Accounting Principles term similar to a *provision* in International Financial Reporting Standards; see Schneider (2011)). This number provides a conservative estimate of the liability, as it is neither inflated nor discounted.
- The estimated suspension, abandonment, remediation and surface reclamation costs for any components which may be excluded from the public disclosure above (other liability). This includes, but is not limited to, aspects of the operation with an indeterminate life, high uncertainty, the effects resulting from improper operation of a facility, and the requirement to provide costs that the government would have to pay (not the approval holder's costs).

Contingencies are built into cost estimates as part of good engineering and budgeting practice. The size of the contingency depends on the level of certainty at the time of the estimate, based on the work to be done, the costing methodology applied to the work, and whether or not the work will be done soon (increasingly predictable costs) or a long time from now (less predictability).

Most coal companies report their reclamation security and ARO numbers based on the current state of the mine and plant sites i.e. as of 31 December of the previous year. Most oil sands companies report their values based on the reclamation costs for the whole footprint to be disturbed over the life of the project, on the principle that future operations are needed to complete the reclamation programme, as costed. Both calculation methods are acceptable to the accounting profession and are acceptable for the MFSP calculations.

An applicant for a new coal or oil sands mine must estimate their liability as it would exist on 31 December of the year in which the approval is granted.

### 3.4 Calculating financial security

As noted above, there is an option to provide full security (coal mine approval holders will do this). All other approval holders will provide security based on four types of financial security deposits, each focusing on different potential risks in the lifecycle of a mine, in the MFSP:

1. Base security deposit (BSD) provides immediate funds for the government, if the approval holder defaults, to maintain security and safety at the site until a new approval holder takes over or the site is closed, plus an additional amount to address some of the residual risks of the programme. If no new approval holder takes over the site then the BSD can be used for abandonment, remediation and surface reclamation of the site. The BSD is based on the sector, and reflects the amount and complexity of work required to make the site safe (Table 1).
2. Operating life deposit (OLD) addresses the risks at the end of the mine's life. The approval holder is required to begin the transition from asset security to financial security when there are less than 15 years of reserves left so that all outstanding abandonment, remediation and surface reclamation costs are fully secured by the time there are less than 6 years of reserves left. The OLD is reduced by the BSD i.e. the OLD payable is only the amount it exceeds the BSD.
3. Asset safety factor deposit (ASFD) addresses the risks that an approval holder's MFSP assets fall below a level deemed adequate to ensure that all MFSP liability can be fully funded. The approval holder posts financial security when the MFSP asset to MFSP liability ratio falls below 3.00. Sufficient financial security is posted to bring the ratio back to 3.00. Based on preliminary analysis using the Excel spreadsheet the oil sands assets are expected to be between 17 and 36 times the liabilities, providing significant protection.
4. Outstanding reclamation deposit (ORD) addresses the risks posed by an approval holder deferring reclamation. The approval holder posts financial security when they do not reduce liability according to a reclamation plan approved by Alberta Environment.

**Table 1 Base security deposit amounts**

Mine Type	Base Security Deposit
Mine-mouth coal mine (those supplying thermal coal to power plants)	C\$ 2,000,000
Export coal mine or coal processing plant	C\$ 7,000,000
New oil sands mine with no upgrader	C\$ 30,000,000
New oil sands mine with an upgrader	C\$ 60,000,000
For oil sands mines with an approval in effect as of 31 December 2010	Existing security amount

Security is calculated annually. Financial security will usually equal the sum of the four deposits up to the value of the total liability.

### 3.5 Providing security

As noted previously, mine security is generally provided in the form of a letter of credit although the *Conservation and Reclamation Regulation* (Government of Alberta, 2011) provides for the use of alternate forms. The MFSP, and related amendment to the *Conservation and Reclamation Regulation*, allows industry and government to consider use of a qualifying environmental trust as a potential form of security.

The approval holder is responsible under the *Conservation and Reclamation Regulation* to provide Alberta Environment with the full amount of any financial security deposit required. In some cases, projects have multiple partners and each partner provides their share of the total security amount. In this case the approval holder determines the appropriate share, and is accountable for ensuring that the correct amount and form of financial security arrives on time.

### 3.6 Audit

Government may undertake four levels of audit, alone or in any combination, to confirm that the approval holder has complied with the programme requirements:

- Level 1 – Phone or in-person discussions with the approval holder seeking clarification of information in the MFSP annual report.
- Level 2 – Written questions and responses confirming scope and methodology used in preparing the MFSP annual report.
- Level 3 – Detailed audits by government staff of all or a portion of the data and assumptions that form the basis of the MFSP calculations.
- Level 4 – Detailed audits by a third-party auditor reporting to Alberta Environment.

The audits may result in revisions to the security estimates and amount of security provided. The *Conservation and Reclamation Regulation* provides for financial penalties in the case of significant breaches of programme requirements.

### 3.7 Public information

In addition to the basic information contained in the *Environmental Protection Security Fund Annual Report*, Alberta Environment will provide additional information on a website dedicated to MFSP security. This information will include:

- The asset safety factor for each approval, and an aggregated sector number, will be published each year. Individual asset and liability numbers will not be disclosed as these numbers reflect confidential financial information. The ASF data will help the public understand the magnitude of the potential risks associated with the developments (the smaller the ASF the greater the potential risk).
- The amount of each of the types of financial security provided by each approval holder, and an aggregated sector number, will be shown. This information helps the public see how financial deposits are offsetting liabilities.
- The progress against the mine reclamation plan for each approval holder. This information will help stakeholders see how well companies are meeting reclamation targets.

## 4 Implementation

The MFSP came into force 1 April 2011 with the amendments to the *Conservation and Reclamation Regulation* (Government of Alberta, 2011) and publication of the *Mine Financial Security Program Standard* (Alberta Environment, 2011b). Oil sands mine approval holders will post security based on the MFSP calculations in June 2011; coal mine approval holders will post MFSP security in June 2012.

## 5 Documents

The *Conservation and Reclamation Regulation* (Government of Alberta, 2011) provides the legislative authority for reclamation security to be collected based on the MFSP, rather than under the original programme. The *Mine Financial Security Program Standard* (Alberta Environment, 2011b) provides the detailed rules regarding calculation and provision of security under the MFSP and the audit process to be followed by government and industry. The *Guide to the Mine Financial Security Program* (Alberta Environment, 2011a) provides background information on the security programme, examples of calculations, tips for approval holders, describes the context for MFSP audits and outlines the process for review and revision of the programme and related documents. All of these documents are publically available on government websites.



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