Seeking the Right Balance:

Financial Security for Conservation and Reclamation of Alberta's Oil Sands Mines

by

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The author is solely responsible for the views expressed in these pages and for any errors or omissions.

Table of Contents

Introduction

Development of Alberta's oil and gas resources generates many significant benefits both outside and inside of the province's borders. The increasing North American and global need for oil and gas finds a relatively secure and stable energy source in Alberta. Domestically, the economic benefits of energy development are obvious. According to Alberta Energy, energy related royalties account for approximately one-third of provincial revenues. Energy exports account for approximately two-thirds of Alberta's total exports and approximately one-quarter of Alberta's total gross domestic product. Further, nearly one in every six workers in Alberta is employed directly or indirectly in the province's energy sector.[1]

However, development of Alberta's oil and gas resources has significant environmental consequences. Exploration for and recovery of oil and gas has a significant and potentially long-lasting impact on the province's land and water resources. These impacts can most clearly be seen when one considers development of the oil sands in northern Alberta. The impacts on the land around Fort McMurray, Cold Lake and increasingly in Peace River country are astounding. In areas where oil sands can be recovered through surface mining, huge projects have been undertaken, causing radical changes in the landscape over several hundred square kilometres. Numerous tailings ponds, exceeding 50 kilometres in total area, represent a significant ongoing challenge because the water contained in these ponds is toxic; the harmful consequences of contamination of ground or surface water with this tailings water could be significant. Currently, the technology has not been demonstrated to meet long-term reclamation expectations.[2]

The vast majority of established oil sands reserves are too deep to be surface mined; therefore, in-situ recovery techniques such as steam assisted gravity drainage are used to recover these reserves. While the environmental consequences of in-situ oil sands production are different from those created by oil sands mining operations, they too are significant.[3]

A broad, high-level description of oil sands reclamation is provided by the National Energy Board:[4]

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[1] Alberta Energy, "Our Business", online: Alberta Energy <http://www.energy.gov.ab.ca/Ourbusiness.asp>.

[2] Jennifer Grant, Simon Dyer & Dan Woynillowicz, *Fact or Fiction: Oil Sands Reclamation* (Drayton Valley: Pembina Institute, 2008) at 29, online: Pembina Institute <http://pubs.pembina.org/reports/fact-or-fiction-report.pdf>.

[3] Richard Schneider & Simon Dyer, *Death by a Thousand Cuts: Impacts of In Situ Oil Sands Development on Alberta's Boreal Forest* (Edmonton: Pembina Institute & Canadian Parks and Wilderness Society, 2006) at vii, online: Pembina Institute <http://pubs.pembina.org/reports/1000-cuts.pdf>.

[4] National Energy Board, *Canada's Oil Sands - Opportunities and Challenges to 2015: An Update* (Calgary: National Energy Board, 2006) at 40, online: National Energy Board <http://www.neb.gc.ca/clf-nsi/rnrgynfmtn/nrgyrprt/lsnd/pprtntsndchllngs20152006/pprtntsndchllngs20152006-eng.pdf>.

> The Athabasca oil sands deposit is situated wholly within Canada's boreal forest. Individual mine sizes range from 150 to 200 square kilometers (58 to 77 square miles). The proposed future reclaimed landscape will be significantly different—with 10 percent less wetlands, more lakes, and no peatlands. There are currently divergent views regarding the ultimate success of reclamation methods. The in situ process requires no excavation and less surface area for operation but is associated with fragmentation of the forest from the construction of new roads in the area, seismic lines and exploration well sites. As well, there is still some debate about whether the tailings ponds can become biologically productive ecosystems.

As is the case in many other jurisdictions, Alberta's current environmental legislation, regulation and policy framework is designed to require those persons who undertake activities that negatively impact the environment to clean up the mess, and to be financially responsible for the costs of that clean-up. However, where polluters are unwilling or unable to fulfill this duty to clean up and restore impacted lands, there exists a potential that the responsibility for reclamation and the associated costs will be placed on taxpayers' shoulders.

Alberta has incorporated environmental law and policy mechanisms designed to help ensure that the financial costs of reclamation are borne by the operator. One of these mechanisms is the requirement for oil sands mine operators to provide financial assurance in the form of a security deposit to cover the costs of reclaiming land impacted by certain activities. Environmental non-government organizations have high expectations of the financial security program, suggesting that any fiscal regime implemented in respect of the oil sands must:[5]

> [ensure] that all potential future liabilities are borne by the oil sands industry. Central to this, but not limited to, are oil sands reclamation bonds that realistically reflect the full costs of reclaiming the landscape back to original wild lands and wetlands, to ensure future generations and taxpayers don't bear the costs.

As with any government program or policy, however, the effectiveness of this mechanism to protect the public from being burdened with reclamation costs depends on its design and implementation. Many parties, including some within the provincial government, have expressed concern about the adequacy of the amount of reclamation security being taken in respect of oil sands mining projects and the consistency with which Alberta Environment's reclamation security program is applied to oil sands mining projects.[6]

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[5] Canadian Parks and Wilderness Society *et al*, *Managing Oil Sands Development For the Long Term: A Declaration by Canada's Environmental Community* (2005), online: Pembina Institute <http://pubs.pembina.org/reports/OS_declar_Full.pdf>.

[6] Grant, Woynillowicz & Dyer, *supra* note 2 at 43; Auditor General of Alberta, *Annual Report of the Auditor General of Alberta 2004-2005* (Edmonton: Auditor General of Alberta, 2005) at 11,

Accordingly, the reclamation security regime that is applicable to oil sands mining projects will be the main focus of this report. The financial liability regime used by the Alberta Government in respect of in-situ oil sands projects is different and is described in detail in the appendix. This report reviews and considers the mechanisms employed by the Alberta Government to minimize the risk of the public purse being required to fund reclamation of oil sands mining. It describes key legislation, regulations and policies and describes the regulatory regime's historical evolution.

It also identifies the stated goal of this regime and principles upon which it is based. Having identified these goals and principles, this report describes and discusses specific regime features with a reference to academic commentary on the issue. For each Alberta regime feature described, examples from other Canadian jurisdictions are identified and common trends highlighted. Finally, this paper suggests recommendations to improve the conservation and reclamation security regime applied in Alberta to oil sands mining projects.

The purpose of this report, as described above, is quite narrow. This paper is not intended to discuss in detail other important questions related to reclamation of lands impacted by the oil sands industry. For example, a technical review and evaluation of different reclamation techniques is beyond the scope of this paper.[7]

This paper identifies some technical challenges respecting the reclamation of oil sands impacted land and related uncertainties regarding the potential for reclamation success; specifically, the current inability to restore ecological features such as wetlands, and the challenges posed by the reclamation of certain project elements such as end pit lakes or tailings ponds. The purpose of this identification is not to resolve the technical challenges or increase the certainty of reclamation success but to indicate how these uncertainties are addressed by the present reclamation financial security regime.

This report does not review actual reclamation security cost estimates prepared for individual oil sands mining projects. This was not possible because reclamation security cost estimates were not made available by operators or Alberta Environment. This lack of access to information ultimately made it impossible to determine the consistency with which operators prepare cost estimates and to describe Alberta Environment's review process in detail. The unavailability of this information is discussed in further detail below and is identified as a significant barrier to public participation in a regulatory decision-making process with potentially significant consequences for Albertans.

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online: Auditor General of Alberta <http://www.oag.ab.ca/files/oag/ar2004-05.pdf>; Government of Alberta, *Oil Sands Consultations-Multistakeholder Committee Final Report* (Edmonton: Government of Alberta, 2007) at 5.

[7] See Grant, Woynillowicz & Dyer, *ibid*., for a discussion of many of the technical challenges presented by reclamation of oil sands.

The Environmental Law Centre seeks to ensure that laws and policies protect the environment and are effectively enforced. This paper approaches the issue of reclamation financial security from this viewpoint and adopts certain assumptions that are consistent with this. The Centre assumes the validity and applicability of the polluter pays and precautionary principles and also assumes that informed public participation in regulatory decision making is necessary, worthwhile and leads to better decisions in the public interest. While a detailed analysis of each of these principles and notions is beyond the scope of this paper, a brief discussion is appropriate.

The aim of this report is to determine whether the design and implementation of law, regulation and policy in Alberta enables the government to ensure that the financial costs of reclamation of lands impacted by oil sands mining are borne by industry rather than being allowed to become a burden on Alberta taxpayers. The assertion that taxpayers ought not to be burdened with these costs relies on the polluter pays principle. This concept has been accepted internationally as a fundamental environmental law principle[8] and as a general notion by the Canadian Council of Ministers of the Environment.[9] The principle is also specifically reflected in the purpose provisions of the *Environmental Protection and Enhancement Act* (*EPEA*), which recognize the "responsibility of polluters to pay for the costs of their actions".[10]

This report is premised on the acceptance of the polluter pays principle and assumes that the application of the principle to the regulation of oil sands development is generally appropriate. In the context of this discussion, polluter pays can be interpreted to mean that either specific companies should be responsible for impacts on the land that result from their activities or the oil sands industry in general should be so responsible. Responsibility for specific companies is more clearly applicable for oil sands mining where financial security is required to cover reclamation costs for each specific project. Responsibility for the industry generally is more applicable to in-situ oil sands recovery where there is a liability management strategy that requires operators to fund an organization to properly reclaim abandoned wells and related facilities. This liability management strategy is described in the appendix. While this definition of polluter pays is flexible, it does consistently require that the financial burden arising out of oil sands reclamation not be put directly on society as a whole.

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[8] Organization for Economic Cooperation and Development, *The Implementation of the Polluter-Pays Principle*, Doc. No. C (74) 223 (1974), online: Center for International Earth Science Information Network, online: <http://sedac.ciesin.org/entri/texts/oecd/OECD-4.09.html>; *Rio Declaration on Environment and Development*, GAOR, 1992, Annex I, UN Doc. A/CONF.151/26; online: United Nations <http://www.un.org/documents/ga/conf151/aconf15126-1annex1.htm.>, Principle 16 [*Rio Declaration*].

[9] Canadian Council of Ministers of the Environment, *Canada-Wide Accord on Environmental Harmonization* (Winnipeg: Canadian Council of Ministers of the Environment, 1998).

[10] R.S.A. 2000, c. E-12, s. 2(i) [*EPEA*].

This report is also premised upon the acceptance and application of the precautionary principle as an established principle of environmental law. The precautionary principle, which has been adopted in international law and applied by the Supreme Court of Canada, has been described as establishing that "where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation".[11]

This principle is usually cited in the context of discussions about science-based risk management, rather than in debates about the design and implementation of a reclamation cost security regime. However, at each stage in the reclamation decision making process, from granting the *EPEA* approval to setting the security amount to returning the security, there is a need to set and enforce a standard. The precautionary principle acts to shift the burden onto applicants to prove that projects will not cause undue adverse environmental effects. Reclamation security regimes can also operate to shift this burden by requiring industry operators to provide full security, up front, which is calculated to take into account uncertainties in terms of potential environmental damage and likelihood of reclamation success.[12] Where the ability to successfully reclaim impacted lands is unproven or uncertain, the precautionary principle would suggest that reclamation security amounts ought to be increased to reflect this uncertainty.[13]

Similarly, upon application for return of reclamation security, the precautionary principle would suggest that where uncertainty exists with respect to the effectiveness of reclamation undertaken, full security amounts should not be returned until successful reclamation of impacted lands has been demonstrated and that appropriately protective post-closure care processes, such as ongoing water treatment, are in place.

Without discussing historical roots of the public's ability to participate in decision-making processes that impact the environment and the legal mechanisms that have served to protect or limit this ability, this report accepts as an underlying assumption the notion that broad public participation is necessary and critically important to the development and implementation of effective environmental law and policy. The Environmental Law Centre has, for over 25 years, strived to increase and improve

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[11] *Rio Declaration*, *supra* note 8, Principle 15; *114957 Canada Ltée (Spraytech, Société d'arrosage)* v. *Hudson (Town)*, [2001] 2 S.C.R. 241, 2001 S.C.C. 40.

[12] Robert Costanza & Laura Cornwell, "The 4P approach to dealing with scientific uncertainty" *Environment* 34:9 (1992), online: Environmental Research Foundation <http://rachel.org/files/document/The_4P_Approach_to_Dealing_With_Scientific_Unc.pdf.>.

[13] Michael Wenig & Kevin O'Reilly, contributing author David Chambers, *The Mining Reclamation Regime in the Northwest Territories: A Comparison with Selected Canadian and U.S. Jurisdictions* (Calgary: Canadian Institute of Resources Law, 2005) at 110. Costanza and Cornwell, *ibid,* suggest basing a reclamation security on a "worst-case scenario".

opportunities for public participation in environmental decision-making processes in Alberta.[14]

One justification for broad public involvement in legal or regulatory processes to establish reclamation security amounts is that, in the event of default where the security is inadequate, taxpayers will be responsible for outstanding reclamation costs. Therefore, taxpayers have a legitimate interest in ensuring that adequate reclamation security is taken and are justified in wishing to be able to test the reclamation cost estimates and comment on the appropriateness of later adjustments to the security amount as well as the eventual return of the security to the operator.

Albertans' interest in the effective reclamation of these lands is legitimized on several grounds. First, almost all oil sands projects are on Crown land. This land is held by the Crown on behalf of Alberta and, by extension, Albertans. Accordingly, Albertans have an interest in the proper reclamation of the lands and in the effectiveness of the regulatory tools used to manage environmental impacts on the lands. In addition, impacts of oil sands development on air and water quality have the potential to negatively impact human health.[15] Failure to properly reclaim the lands and ensure appropriate post-closure measures are in place may increase risks to human health long after actual development of the oil sands has ceased.

Public participation in regulatory decision-making processes can help to ensure that these legitimate public interests are not overridden by the interests of the regulated industry. Public participation can be effective in mitigating against the effects of agency capture, which can occur when regulatory agencies with discretionary decision-making powers are continually subject to the influences of the industries which they regulate.[16] In the absence of broad public participation, agency capture may lead to lower standards, less enforcement and, with specific reference to reclamation financial security regimes, has the potential to lead to inadequate financial security amounts being taken. The notion of agency capture is discussed further below.

Oil Sands Mining and Reclamation

Oil sands mining typically involves large truck and shovel operations that remove all overlying rock and soil, or overburden, to reveal bitumen-laden sands. These sands are then loaded and transported to a facility on site where the bitumen is separated

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[14] Cindy Chiasson & Jodie Hierlmeier, *Public Access to Environmental Appeals: A Review and Assessment of Alberta's Environmental Appeals Board* (Edmonton: Environmental Law Centre, 2006); Jodie Hierlmeier, *Roadmap For Reforming "The Public Interest" For the ERCB and NRCB* (Edmonton: Environmental Law Centre, 2007), online: Environmental Law Centre <http://www.elc.ab.ca/Content_Files/Files/BriefsAndSubmissions/RoadmapforReformingThePublicInterest.pdf.>

[15] *EPEA*, *supra* note 10, s.3, recognizes that the protection of the environment is essential to human health.

[16] Matthew Zinn, "Policing Environmental Regulatory Enforcement" (2002) 21 Stan. Envtl. L.J. 81.

from the sands. The recovered bitumen may go through varying amounts of processing prior to being transported via pipeline away from the mine site.

Under current legislation and regulations, financial security for conservation and reclamation of oil sands mining is regulated pursuant to *EPEA* and the *Conservation and Reclamation Regulation*. Reclamation security must be provided prior to receipt of an approval from Alberta Environment for each oil sands mine. This regulatory framework is discussed in greater detail later in this report.

Where oil sands resources are located too far below the surface to make recovery through mining feasible or economical, they are recovered using one or more types of "in-situ" recovery methods. "In-situ" or "in place" recovery processes may differ but they generally involve heating the bitumen to separate it from the underground rocks and sands and then pumping it to the surface using wells. Once the bitumen is recovered, it is transported via pipeline to nearby facilities where it is processed to varying degrees prior to being shipped off to an upgrader.

While in-situ oil sands operators are subject to the reclamation requirements in *EPEA*, financial liability for reclamation of lands impacted by those operations is not regulated under *EPEA* and the *Conservation and Reclamation Regulation* as is the case with oil sands mining. Rather, it is regulated pursuant to the *Oil and Gas Conservation Act*,[17] associated regulations and related policy documents issued by the Energy Resources Conservation Board. This regulatory framework is discussed in greater detail in the appendix.

The duty to reclaim oil sands impacted lands is found in section 137 of *EPEA*, which requires an "operator" to conserve and reclaim "specified land" and, unless exempted by the regulations, to obtain a reclamation certificate. "Operator" is broadly defined to include a number of parties involved in an industrial activity. "Specified land" is land that is used or held in connection with one or more prescribed activities, including oil sands mines or in-situ oil sands projects.[18] Oil sands mining operators and in-situ oil sands operators both have a duty to reclaim specified lands.

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17 R.S.A. 2000, c. O-6 [*OGCA*].

18 *Conservation and Reclamation Regulation*, Alta. Reg. 115/93. "Operator" is defined very broadly in section 134 of *EPEA*, *supra* note 10, and includes not only the holder of an approval from Alberta Environment and the holder of an ERCB permit, licence or approval in respect of an activity on the specified land but also:

- any person that carries on an activity on or in respect of the specified land other than pursuant to an approval or registration;
- working interest participants in a well, mine, oil sands processing plant, or a plant or facility subject to the Large Facility Liability Management Program of the ERCB on, in or under the specified land;
- the holder of surface leases for purposes related to the carrying on of an activity on or in respect of the specified land; and
- successors, assignees, executors, administrators, receivers, receiver-managers or trustees to any of the persons identified above.

This duty is consistent with the purposes of *EPEA*. Requiring the reclamation of land impacted by industrial development is consistent with protection of the environment and human health in the sense that failure to reclaim can result in human receptors potentially being exposed to hazards either directly or through contamination of soil or ground or surface water. The reclamation duty is also consistent with the notion of sustainable use of the environment as, depending on the impacts of the industrial activity, disturbed land may be rendered unusable if it is not properly reclaimed.[19]

"Reclamation" is broadly defined in *EPEA* to mean any or all of the following: [20]

- the removal of equipment or buildings or other structures or appurtenances;
- the decontamination of buildings or other structures or other appurtenances, or land, or water;
- the stabilization, contouring, maintenance, conditioning or reconstruction of the surface of the land;
- any other procedure, operation or requirement specified in the regulations.

The *Conservation and Reclamation Regulation* states that the objective of conservation and reclamation is to return specified land to an "equivalent land capability".[21] Therefore, it is the objective of *EPEA* that the operator will perform any or all of the tasks that make up the definitions of both conservation and reclamation so that the ability of the land to support various uses after conservation and reclamation is similar to the ability that existed prior to an activity being conducted on the land, but that the individual land uses will not necessarily be identical.[22]

In the specific context of the Athabasca oil sands, the purpose of reclamation has been identified by the Cumulative Environmental Management Association as being to achieve land capability equivalent to that which existed prior to disturbance.[23] This is consistent with the stated objective of conservation and reclamation in section 2 of

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"Specified land" is defined in section 1(t) of the *Conservation and Reclamation Regulation* as land that has been used or is used or held for or in connection with a list of prescribed activities. These activities include the construction, operation or reclamation of a mine or an oil production site. An in-situ oil sands project is a type of oil production site. An oil sands mining project is a type of mine.

19 *EPEA*, *supra* note 10, ss. 2(a), (c) and (d).

20 *Ibid.*, s. 1(ddd). "Conservation" is also defined at s. 1(l). It means, in this context, the planning, management and implementation of an activity with the objective of protecting the essential physical, chemical and biological characteristics of the environment against degradation.

21 *Supra* note 18, s. 2.

22 *Ibid*, s. 1(e).

23 Cumulative Environmental Management Association, *Land Capability Classification System for Forest Ecosystems in the Oil Sands, 3rd Edition: Volume 1: Field Manual for Land Capability Determination* (Edmonton: Alberta Environment, 2006) at I [*LCSS*].

the *Conservation and Reclamation Regulation*; however, it is vague in the sense that it does not describe how far an operator must go to achieve equivalent land capability.

The Oil Sands Vegetation Reclamation Committee established that the goal of reclamation is: [24]

> to achieve maintenance-free, self-sustaining ecosystems with capabilities equivalent to or better than pre-disturbance conditions. Maintenance-free reclamation means that human maintenance activities are not required, except for circumstances where future human activities lead to re-disturbance of areas.
>
> This does not imply a changeless state, as landforms will experience gradual reshaping of the landscape through normal geologic processes typical of the region and vegetation will evolve through various seral stages to more mature ecosystems over time. Self-sustaining ecosystems, typical of those in the region, will evolve on revegetated terrains, from new plantings toward mature systems typical of those in the region, with little management input from man following the initial plant establishment.

It is important to understand the scope of the duty to reclaim because the scope informs decisions about what reclamation activities must be undertaken in a given circumstance and the standard of reclamation to be achieved. These are important factors in determining the amount of reclamation security required. If the basic premise is to be "polluter pays", it is necessary to know "for what?"

History of Reclamation Security Requirements in Alberta

The requirement for financial security for reclamation was introduced into Alberta legislation through the *Land Surface Conservation and Reclamation Act* (*LSCRA*).[25] The *LSCRA* applied to all land in Alberta except subdivided land used or intended to be used for residential purposes and unsubdivided land used as the site of a residence.[26] It required that development and reclamation approvals be obtained for certain "regulated surface operations", which were operations or activities designated by regulations under the *LSCRA*.[27] The *LSCRA* empowered the Cabinet to designate

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[24] The Oil Sands Vegetation Reclamation Committee was created in 1996 to prepare guidelines on the establishment of forest vegetation (ecosystems) for reclaiming oil sands leases in northeastern Alberta. See Oil Sands Vegetation Reclamation Committee, *Guidelines for Reclamation to Forest Vegetation in the Athabasca Oil Sands Region* (Fort McMurray: Alberta Environmental Protection, 1998) at 19.

[25] S.A. 1973, c. 34 [*LSCRA*]. The *LSCRA* repealed and replaced the *Surface Reclamation Act*, S.A. 1963, c. 64, Alberta's first reclamation legislation. While the *Surface Reclamation Act* required reclamation of certain lands, no financial security was required.

[26] *Ibid*., *LSCRA*, s. 2.

[27] *Ibid*., *LSCRA*, s. 24.

a wide range of activities as regulated surface operations.[28] However, the only activities so designated in the first 20 years of the *LSCRA*'s operation were those related to coal, oil sands mines, certain oil and gas pipelines, certain quarries and development on certain prescribed lakeshores.[29]

The *LSCRA* also empowered Cabinet to make regulations authorizing the Minister to require an applicant for a development and reclamation approval to provide security and to require approval holders to give additional security to the Government.[30] Under the *LSCRA*, the Minister was responsible for setting the security amount and was required to have regard for the nature, complexity and extent of the regulated surface operation and the estimated cost of reclamation of the land involved.[31] In 1979, security in the case of major operations consisted of a $10,000 deposit for pipelines, $25,000 for coal mines and $100,000 for oil sands mining projects. The Minister could require an additional security based on production, and an additional security of 3 cents per barrel of oil produced was required.[32]

Commentators noted that security fixed by the Minister under the *LSCRA* bore little resemblance to the actual costs of reclamation. [33] Nevertheless, the amount of security required in respect of oil sands mining projects continued to be calculated as set out above, until the *LSCRA* was repealed by *EPEA*. *EPEA* implemented new security deposit requirements for new projects but allowed existing projects commenced before a certain date to continue to have security fixed in accordance with the *LSCRA* and its regulations.[34]

The introduction of *EPEA* consolidated a number of pieces of environmental legislation, including the *LSCRA*. Consultations between the Alberta government and stakeholders prior to the introduction of *EPEA* revealed concerns about the reclamation security procedures in place under the *LSCRA*. The Pembina Institute's comments in response to provisions of the draft *Environmental Protection and Enhancement Act* serve as one example of these concerns: [35]

> There is, for example, a serious future problem with the cost of reclaiming tar sands tailing ponds and we understand that the security posted is nowhere near the anticipated costs. [The draft section]

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[28] *Ibid.*, *LSCRA*, s. 23.

[29] B. O'Ferrall, "Land Reclamation and Clean-Up Liabilities" (Paper presented to the Environmental Direction seminar, 19 September 1990), (Toronto: Insight Press, 1990) Article IV at 8-12.

[30] *LSCRA*, *supra* note 25, s. 25.

[31] O'Ferrall, *supra* note 29 at 21.

[32] D.G. Harrington, "Implementation of Reclamation Legislation in Alberta" (Paper presented to the 4th Annual Meeting of the Canadian Land Reclamation Association, 13-15 August 1979).

[33] O'Ferrall, *supra* note 29 at 21.

[34] Alberta Land Conservation and Reclamation Council, *A Guide to the Preparation of Applications and Reports for Coal and Oil Sands Operations* (Edmonton: Alberta Environment, 1991) at 10.2-2.

[35] Pembina Institute, *Submission to the Minister of Environment and the E.P.E.A. Review Panel Regarding the Proposed Environmental Protection and Enhancement Legislation* (Drayton Valley: Pembina Institute, 1990) at 8.

> should be amended to include a requirement that the amount of financial security be commensurate with the anticipated costs of reclamation.

These concerns were echoed by the Environmental Legislation Review Panel in its report to then Minister of Environment, Ralph Klein, which noted that under the reclamation security regime then in place: [36]

> …actual security fixed by the Minister in the case of regulated surface operations bears no resemblance to the actual costs of reclamation. The Panel questions the wisdom of this practice. The Panel agrees with the suggestion that the amount of the security be sufficient to cover the anticipated costs of reclamation and recommends as follows: that security deposits more closely approximate the anticipated costs of reclamation.

The introduction of a new reclamation security regime under *EPEA* was, in theory, an improvement over that which existed under the *LSCRA*. Security was no longer to be based on production, except for those mining projects that had been commenced under the *LSCRA* scheme; rather, it was to be based on the estimated cost of reclamation of both mining and in-situ projects. However, concerns about potential underfunding of the reclamation security fund were not resolved by the introduction of *EPEA*.

Potential Problems

As noted above, concerns about the adequacy of financial security amounts taken in respect of oil sands operations did not stop once *EPEA* was introduced. More recent concerns have been expressed by the Auditor General of Alberta and by participants in regulatory hearings respecting oil sands mining operations. As reclamation security amounts came to be determined through negotiation between individual operators and government with no public consultation, continuing problems under the *EPEA* process came to light. These included inconsistent application of financial security measurements, the use of inconsistent cost estimate methodologies and a lack of transparency and public participation.

For a reclamation security regime to protect taxpayers against bearing reclamation costs, it must ensure that industry participants are financially responsible for costs incurred as a result of their activities. While all projects are different and, accordingly, there must be some room for a regulator to be flexible in applying reclamation security requirements, differences of approach between projects should not result in underfunding of reclamation security amounts by operators.

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[36] Environmental Legislation Review Panel, *Report of the Environmental Legislation Review Panel to Ralph Klein, Minister of Environment* (Edmonton: Environmental Legislation Review Panel, 1991) at 48.

Inconsistent application of reclamation security requirements by Alberta Environment has repeatedly been identified as a problem by the Auditor General. The Auditor General's office audits the financial statements of the ministries and departments and the systems they use to meet their duties.[37] The Auditor General's Annual Reports identify concerns and make recommendations to improve the operations of various departments.[38]

The Auditor General conducts regular audits on Alberta Environment and has, on several occasions, commented on the department's reclamation security program. The 1998-1999 report expressed concerns with Alberta Environment's reclamation security program, specifically the importance of adequate security amounts and consistent processes.[39] The Auditor General recommended in that report that the government implement a Financial Risk Assessment Model that had been developed by the department of Environmental Protection, as Alberta Environment was then called, in conjunction with different stakeholders to address issues of consistency and adequacy of security.[40] The 1999-2000 report indicated that the recommendations made in the previous year had not been followed.[41]

The 2000-2001 report repeated the Auditor General's concerns about financial security for reclamation liability, specifically focused on inconsistencies respecting oil sands projects, and indicated that progress towards achieving a consistent, full coverage reclamation security system was unsatisfactory.[42]

The 2004-2005 report noted that the problem of inconsistency had not been resolved, stating: "with the passage of time, the Ministry continues to be exposed to the risk of obtaining inadequate security resulting in additional costs to the province".[43] This report also specifically referred to inconsistencies in the way that reclamation security cost estimates were prepared and noted that implementation of its recommendations would require evidence that the reclamation security system will result in:[44]

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[37] Auditor General of Alberta, online: Auditor General of Alberta <http://www.oag.ab.ca/?V_DOC_ID=840>.

[38] *Annual Report of the Audiitor General of Alberta 2004-2005,supra* note 6 at 11.

[39] Auditor General of Alberta, *Annual Report of the Auditor General of Alberta: 1998-1999* (Edmonton: Auditor General of Alberta, 1999) at 158, online: Auditor General of Alberta <http://www.oag.ab.ca/files/oag/ar1998-99.pdf>.

[40] *Ibid*.

[41] Auditor General of Alberta, *Annual Report of the Auditor General of Alberta: 1999-2000* (Edmonton: Auditor General of Alberta, 2000) at 103, online: Auditor General of Alberta <http://www.oag.ab.ca/files/oag/ar1999-00.pdf>. The report indicates that the bankruptcy of Smoky River Coal Limited, which occurred during the time period in which the Financial Risk Assessment Model was being considered for implementation, might leave the province at least partially responsible for site restoration costs. This caused the Department of Environment to reconsider the model's appropriateness, as it would have allowed for security amounts to be less than the full cost of reclamation.

[42] Auditor General of Alberta, *Annual Report of the Auditor General of Alberta: 2000-2001* (Edmonton: Auditor General of Alberta, 2001) at 90, online: Auditor General of Alberta <http://www.oag.ab.ca/files/oag/ar2000-01.pdf>.

[43] *Annual Report of the Auditor General of Alberta 2004-2005, supra* note 6 at 182.

[44] *Ibid.* at 181.

> [s]ufficient security to ensure completion of conservation and reclamation by considering: the nature, complexity and extent of the activity, the probable difficulty of conservation and reclamation and the consistent application of conservation and reclamation standards.

This language parallels the requirements of the *Conservation and Reclamation Regulation*, in which the requirement for reclamation security is found. In response to the Auditor General's 2004-2005 report and recommendations, the Alberta Government noted that: [45]

> [p]rogress is being made, however, the information gathering process is involved and complex due to the nature of the issues being addressed. It is anticipated that the stakeholder consultation process will be equally complex. The Ministry plans to continue to work with other ministries in developing a risk-focused asset to liability model to calculate the security needed in the mining and oil and gas sectors.

The Auditor General's 2008 report identified its recommendations to Alberta Environment relating to financial security for land disturbance as an outstanding matter.[46]

The potential for unfunded reclamation liability for oil sands mining projects has also been raised by intervenors in regulatory hearings. Intervenor concerns are broader than those of the Auditor General and include the scope of costs required to be included in the estimate as well as the potential for security amounts to be returned prior to demonstration of effective reclamation.[47]

Alberta Environment's reclamation security regime has also been criticized for its lack of transparency and absence of public participation. Intervenors in regulatory hearings have expressed concerns about the method used by Alberta Environment to calculate reclamation security as well as the lack of transparency that exists in respect

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[45] Government of Alberta, *Response to the Auditor General* (Edmonton: Government of Alberta, 2006) at 155, online: Legislative Assembly of Alberta <http://www.assembly.ab.ca/lao/library/egovdocs/2005/altd/157555_05.pdf>. This reference is to a proposed Mine Liability Management Program, which has been under development for a number of years, without broad public input. It has not been released as of the time this report was written.

[46] Auditor General of Alberta, *Annual Report of the Auditor General of Alberta: April 2008* (Edmonton: Auditor General of Alberta, 2008) at 224, online: Auditor General of Alberta <http://www.oag.ab.ca/files/oag/April_2008_Annual_Report.pdf>.

[47] *Albian Sands Energy Inc. Application to Expand the Oil Sands Mining and Processing Plant at the Muskeg River Mine* (17 December 2006) A.E.U.B. and Government of Canada Joint Panel Report 2006-128 at 66 [*Albian Sands*]; *Imperial Oil Resources Ventures Limited Application for an Oil Sands Mine and Bitumen Processing Facility (Kearl Lake Oil Sands Project) in the Fort McMurray Area* (27 February 2007) A.E.U.B. and Government of Canada Joint Panel Report 2007-013 at 51 [*Kearl Lake*]; *Suncor Energy Inc. Application for Expansion of an Oil Sands Mine (North Steepbank Mine Extension) and a Bitumen Upgrading Facility (Voyager Upgrader) in the Fort McMurray Area* (14 November 2006) A.E.U.B. Decision 2006-112 at 70 [*Suncor Energy*].

of reclamation security for oil sands mining projects.[48] Intervenors' concerns related to the fact that Alberta Environment required oil sands mining operators to disclose only a "rolled-up" calculation of reclamation liabilities rather than a more detailed account of how the estimate was prepared and what assumptions were involved.[49] The Oil Sands Consultation Multistakeholder Committee, which included representatives from government, industry, First Nations and environmental nongovernmental organizations, came to a consensus that formal and transparent processes and policies should be developed for financial management of reclamation liabilities.[50]

Concerns expressed by the Auditor General over time and stakeholder criticisms together paint a picture of a regulatory scheme that is characterized by secretiveness and inconsistent application of formal requirements and decision-making though negotiations between Alberta Environment and operators.

A broader sense of goals and principles of reclamation security regimes in general may be gained by looking at regimes from other jurisdictions. While other Canadian jurisdictions do not have oil sands mining projects like those found in Alberta, the mining industry is active in most other Canadian provinces and each jurisdiction has developed reclamation security regimes for application to those industries. These sources can also be used to identify features of an effective reclamation security regime.

Reclamation Security Generally

In order to assess the effectiveness of the reclamation security regime for oil sands mining and to consider the validity of concerns and criticisms expressed about it, it is necessary to identify, if possible, the specific goals to be achieved by this regime and any foundational principles upon which this regime is based. These goals and principles may be found in *EPEA* and the *Conservation and Reclamation Regulation* as well as in documents created by the Alberta government.

Public discussion papers prepared by Alberta Environment prior to the introduction of *EPEA* clearly indicate that the polluter pays principle was intended to be incorporated into the new legislation. A brochure released by Alberta Environment states: [51]

> The costs of preventing and reclaiming environmental impacts will be borne by the polluter. The proposed *Alberta Environmental Protection and Enhancement* legislation seeks to place responsibility on parties who use the environment for any adverse effects they may cause. One

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48 *Suncor Energy*, *ibid* at 70; *Albian Sands*, *ibid.* at 65-66; *Kearl Lake*, *ibid* at 51.

49 *Suncor Energy*, *ibid*. at 70. Correspondence from Fort Mackay Industry Relations Corporations to Ernie Hui, Alberta Environment, Director, Northern Region (11 October 2005).

50 *Oil Sands Consultations-Multistakeholder Committee Final Report*, *supra* note 6 at 22.

51 Alberta Environment, *A Guide to the Proposed Alberta Environmental Protection and Enhancement Legislation* (Edmonton: Alberta Environment, 1990) at 11.

> of the most important principles requires polluters to pay for environmental damages and for the cost of corrective action.

The brochure further states that "approvals may require payment of security deposits" and that "deposits will be held in the Conservation and Reclamation Security Fund to act as an incentive to encourage operators to carry out land reclamation."[52] This brochure identifies two policy goals: the first being a policy of *EPEA* that generally costs will be borne by polluters, not by taxpayers; the second being a goal of the reclamation security requirement that operators be encouraged to reclaim impacted lands. While a public consultation brochure is not legislation, these early goals are subtly different and the design of a reclamation security regime to satisfy the former may be materially different from a regime to achieve the latter.

One element of a reclamation security regime (discussed in further detail later in this paper) is the degree to which it requires reclamation security to cover the full estimated costs of reclaiming disturbed lands. Holding in mind the goal of protecting taxpayers from having to pay reclamation costs may drive regulators to create a reclamation security regime requiring operators to provide security in an amount that will pay for the full "cost of corrective action" in case of default.

However, if the chief goal of reclamation security is to encourage operators to reclaim impacted lands, it may be that a requirement for security representing some lesser proportion of the anticipated costs of reclamation would be sufficient to achieve this goal. The basis of this assertion is that the possibility of non-monetary incentives, such as maintaining the reputation of the operator or the continuing need of an operator to receive approvals from the regulator, should be taken into account along with financial security as a suite of factors that would motivate an operator to reclaim the disturbed lands.[53] Probably, both broad goals were intended. If so, while a financial security amount less than the full cost of reclaiming the lands might provide adequate incentive to ensure operators reclaim lands, it would, by definition, be inadequate to protect taxpayers from the eventuality of having to cover those costs in the event that there is a default.

The purpose section of *EPEA* itself gives more insight into the principles that one might expect to find reflected in the government designed reclamation security regime. Section 2 provides that the purpose of *EPEA* is to support and promote the protection, enhancement and wise use of the environment while recognizing, among other things:

- the importance of preventing and mitigating the environmental impact of development and of government policies, programs and decisions;[54] and

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[52] *Ibid*.

[53] David Gerard, "The Law and Economics of Reclamation Bonds" (2000) 26:4 *Resources Policy* 189 at 192.

[54] *EPEA*, *supra* note 10, s. 2(d).

- the responsibility of polluters to pay for the costs of their actions.[55]

These two considerations operate separately. The former speaks to the need to ensure that necessary reclamation work is carried out, as a means to prevent and mitigate the environmental impact of development. The latter speaks to the need to recognize that operators, as polluters, are responsible to bear the financial burden of reclamation.

Goals of the reclamation security regime more specifically may also be gleaned from the *Conservation and Reclamation Regulation* and by examining public statements made by representatives of Alberta Environment. Section 18(1) of that regulation requires the security to be provided by an operator to be "in an amount determined by the Director to be *sufficient to ensure conservation and reclamation based on the estimated costs of conservation and reclamation*, among other factors."[56] Alberta Environment has noted, during its participation in a regulatory hearing respecting an oil sands mining application, that reclamation security for oil sands mining projects is based on the full cost of reclaiming disturbed lands.[57]

It appears, from a review of the language used in *EPEA*, the *Conservation and Reclamation Regulation*, and public policy statements, that the goal and implied promise of the financial security regime under *EPEA* is that the full costs of reclaiming lands impacted by oil sands mining operations are to be covered in the security amount provided by operators, thus protecting taxpayers from the financial burden of reclaiming the lands in the event of operator default.

In addition to describing the stated goals of Alberta's reclamation security regime, it is worthwhile to refer to other broad goals and objectives identified by academics that have studied in the area of financial assurance for mining reclamation costs. Generally speaking, commentators identify the primary goal of reclamation security regimes as preventing taxpayers from being financially responsible for mine reclamation. [58]

Miller states that: [59]

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[55] *Ibid.*, s. 2(i).

[56] Emphasis added. The reclamation cost estimate process is examined in more detail later in this report.

[57] *Suncor Energy*, *supra* note 47 at 71.

[58] Laura Cornwell & Robert Costanza, "An experimental analysis of the effectiveness of an environmental assurance bonding system on player behaviour in a simulated firm" (1994) 11 *Ecological Economics* 213-226; Colin Chambers & Mark Winfield, *Mining's Many Faces: Environmental Mining Law and Policy in Canada* (Toronto: Canadian Institute for Environmental Law and Policy, 2000) at 10; Marta Miranda, David Chambers & Catherine Coumans, *Framework for Responsible Mining: A Guide to Evolving Standard*s (Bozeman, MT: Centre for Science in Public Participation, 2005) at xiii.

[59] C. George Miller, *Financial Assurance for Mine Closure and Reclamation* (London: International Council on Mining and Metals, 2005), online: International Council on Mining and Metals < http://www.icmm.com/document/282> at 24.

> Mining companies accept that the major function of [environmental financial assurance] is to protect the government and public in the event a mining company cannot meet its reclamation obligations. They are well aware that dropping prices and unforeseen technical difficulties can render the most promising project uneconomic. For a single-mine company with limited financial resources, the result can be catastrophic.
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> As large companies, however, most ICMM members felt they had sufficient financial resources and procedures in place to ensure ongoing environmental compliance, and were capable of fulfilling their environmental obligations without the additional discipline of a financial assurance mechanism. They agree that a financial assurance instrument does provide more certainty for the protection of the environment even if they do not necessarily promote its use. They [EFAs] are double edged. In some cases they may function as a real guarantee but in general they tend to remove financial resources from environmental protection activities.
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> …
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> While some companies view the requirement for financial assurance as an administrative process (a pure cost), all accept that government needs to demonstrate to the community that it has received sufficient financial protection from the holder of mineral rights to ensure effective reclamation. Governments need to be able to assure the communities they represent that they will not be forced to bear the cost of poor financial or environmental management by land managers.

Research and analysis of the reclamation security regimes in place for the hardrock mining industry in the western United States, prepared by Kuipers, provide more detailed objectives of mine reclamation and closure bonding programs. He suggests that such regulatory programs ensure not only the proper closure and reclamation of impacted lands, but also the responsible conduct of mining operators during the life of the mine. This assertion is based on the notion that an operator required to provide security for reclamation would undertake efforts to avoid or minimize impacts.

Kuipers also suggests that another objective of reclamation security regimes is to protect the public against financial liability for reclamation costs and against potential catastrophe.[60] Designing a regime to fulfill these purposes would require having

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[60] James R. Kuipers, *Hardrock Reclamation Bonding Practices in the Western United States* (Colorado: Centre for Science in Public Participation, 2000) at IV-2. Kuipers notes that the purpose of a reclamation security program should be to enable a regulator to respond to actions that run contrary to the pursuit of these objectives. See also Philip Peck *et al*, *Mining for Closure: Policies and Guidelines for Sustainable Mining Practice and Closure of Mines* (Paris: United Nations Environment Programme, 2005) at 97. Peck *et al* suggest a number of principles that should govern foreign investment in mining activities, including the need for investors to "[be able to] demonstrate sufficient financial assurance for the full and fair costs of compensation and remediation in the event of an

security forfeiture provisions that take operator conduct during operations into account and would require reclamation security cost estimates to be based on a worst-case scenario, requiring security or insurance to cover not only the estimated cost of reclamation of lands known to be disturbed, but also lands disturbed as a result of an accident or catastrophe, such as a chemical release from a tailings pond.

Another identified goal of reclamation security programs is to shift the legal burden of proof from the regulator to the operator.[61] In the absence of effective reclamation security legislation, regulations and policies, a regulator faced with continued non-compliance with reclamation requirements may carry out the reclamation itself and then seek to recover the costs from the operator through a civil action. The plaintiff regulator would bear the burden of proof in such a situation.[62] A reclamation security program requires an operator to provide financial security, often in advance of authorization to disturb the land. The regulator may hold the security until reclamation is completed and an operator seeking to have the security returned would have to demonstrate that reclamation was completed to the relevant standard. Cornwell and Costanza assert that "innocent until proven guilty" ought not to apply to companies using the environment, a societal resource, as a receiver of privately generated waste because there is no question whether the companies have committed the act of pollution.[63]

Perrings suggests that financial security for environmental costs may also act as an incentive to research the social costs of innovative activities. Such an approach would require a company undertaking an innovative activity with uncertain environmental impacts to provide financial security. The security would be set based upon a worst-case scenario or the maximum environmental effects associated with the activity. This would encourage the company to undertake research to demonstrate that the cost of the activity is some amount less than "worst-case".[64] Arguably, the same may be said where the environmental impacts of an activity are generally known but there is uncertainty about the ability of an operator to satisfactorily manage those impacts.

However, the actual design features of reclamation security regimes and the manner in which their requirements are implemented greatly impact the degree of success regulators have in achieving these objectives.

While commentators generally agree on the broad goals of reclamation security regimes, they frequently differ in their assessment of the features that are the most appropriate for achieving those goals. Some commentators, citing the principle of polluter pays, frequently advocate for features that ensure full protection against

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accident or other damage, applying the "worst case scenario" approach, and should ensure the material and technical means for applying necessary emergency measures."

61 Gerard, *supra* note 53 at 189; Cornwell & Costanza, *supra* note 58 at 215.

62 Gerard, *ibid.*

63 Cornwell & Costanza, *supra* note 58 at 215.

64 Charles Perrings, "Environmental Bonds and Environmental Research in Innovative Activities", (1989) 1 *Ecological Economics* 95 at 107.

public liability for reclamation costs and catastrophes.[65] Other commentators contend that an effective and efficient mine reclamation security regime should seek to impose as little financial burden on industry as possible while still ensuring reasonable protection of taxpayers against the possibility that operators will default on reclamation obligations.[66] Examples of specific concerns relate to issues such as who should be required to provide reclamation security, how much security should be required, what forms of security should be acceptable and how to deal with uncertainty of environmental damage or reclamation success.[67]

The regime features being considered in this portion of the report can be separated into three categories, as outlined in the table below. The first category deals with the requirement for regulators to develop a reclamation security regime generally and the basic structure of such a regime. The second deals specifically with the manner in which the security amount is determined and approved. The third deals with the transparency of the reclamation security regime and the ability of the public to have meaningful involvement in decision-making processes relating to the setting, adjustment and review of reclamation security.

These regime features were developed based on a review of academic and industry literature. While they are presented in three categories here, they will be discussed in further detail in the context of a description of the Alberta reclamation security regime in place for oil sands mining. Accordingly, they will not necessarily be discussed in the order they appear in the table.

Reclamation regime features
Category 1 – Basic Structure
Mandatory application of security requirements to oil sands projects
Timing of security requirements
Comprehensive scope of projects required to provide security
Only appropriate forms of security accepted
A separate fund is established for the security
Reclamation security is updated regularly
The criteria for forfeiture are clear
Forfeiture process fair but allowing regulator quick access to funds to undertake reclamation work
Clear criteria for return of security based on documented successes in achieving reclamation objectives
Legal right of regulator to recover outstanding balance in the event that security

[65] Kuipers, *supra* note 60 at IV-2; see generally David Chambers, "The Cost of Mining: Underwriting Mine Closure Risk" *The Corporate Ethics Monitor* 17:1 (January-February 2005), online: Center for Science in Public Participation <http://www.csp2.org/reports/Underwriting%20Mine%20Closure%20Risk%20-%20Jan05.pdf>. Chambers suggests that regulators and mining companies consistently underestimate the cost of closure for mines, resulting in significant costs for public agencies when mine bankruptcies occur.

[66] Miller, *supra* note 59.

[67] *Ibid*.

is inadequate to cover reclamation costs
An industry backstop is in place
Category 2 – Security Amounts
There are regulations or formal guidelines respecting reclamation security cost estimate
Reclamation security amount must be based on estimated cost of reclamation
Reclamation security estimate is based on full cost of reclaiming the project and includes all aspects of the project
Cost estimates are performed by the regulator or an independent third party
Cost estimates are based on costs that regulator would pay if it had to do reclamation work or hire a contractor to do the work
Cost estimate includes all direct and indirect costs of undertaking reclamation work
Uncertainty as to the effectiveness of proposed reclamation schemes results in rationally increased reclamation security amounts
Category 3 – Public Participation
The requirement that reclamation security estimate and other information associated with the approval, adjustment or return of a reclamation security cost estimate, are available for public review
The ability of the public to participate in the cost estimate approval, adjustment and return decision-making processes

Reclamation Security for Oil Sands Mining

A description of the reclamation security regime created under *EPEA* begins with identification of those activities in respect of which security must be provided, and by whom. This requires consideration of *EPEA*, the *Activities Designation Regulation*[68] and the *Conservation and Reclamation Regulation.*
These instruments together impose a statutory obligation on an operator to provide, and the Director to require, reclamation security in respect of some activities. However, the instruments create exclusions to that obligation in respect of other activities.

What activities require security?

"Activity" is defined in section 1 of *EPEA* to mean an activity or part of an activity listed in the Schedule of Activities to *EPEA.* This schedule includes the construction, operation and reclamation of a "mine", another defined term, which includes an oil sands mine.[69] The schedule also includes the construction, operation and reclamation

[68] Alta. Reg. 276/2003.

[69] *EPEA*, supra note 10, s. 1(kk). "[M]ine" includes any opening in, excavation in or working of the surface or subsurface for the purpose of working, recovering, opening up or proving oil sands or an oil sands bearing structure, and includes any associated infrastructure.

of an "oil sands site", defined as a location at which a facility exists or is to be developed for recovering oil sands by drilling or other in situ recovery operations.[70]

Section 84 of *EPEA* provides that, if required by the regulations, an applicant for or holder of an approval shall provide financial or other security or carry insurance in respect of the activity to which the approval relates.[71] The *Activities Designation Regulation* identifies those activities that require an approval.[72] An approval is required for the construction, operation or reclamation of both mines and oil sands sites.

Section 17(1)(a) of the *Conservation and Reclamation Regulation* states that in a case where an approval is required, the Director shall require an operator to provide financial security for reclamation prior to the approval being issued in respect of a project.

The sections of *EPEA* and the regulations identified in the preceding paragraphs establish two things: that both oil sands mines and in situ oil sands projects require approvals and the reclamation of specified land; and that there is a requirement to provide financial security for the reclamation of specified land connected with approvals.

However, there are some exceptions to the general requirement to provide financial security for reclamation. Section 135(1) of *EPEA* does not apply to the Government or a Government agency. Section 17.1 of the *Conservation and Reclamation Regulation* creates an exemption for:

(a) an operator that is a local authority;

(b) an operator that applies for an approval for the construction of a pipeline;

(c) an operator that has, or applies for, an approval of the construction, operation or reclamation of an "oil production site"; and

(d) an operator that has, or applies for, an approval for the construction, operation or reclamation of a transmission line.

An "oil production site" is defined in the *Conservation and Reclamation Regulation* to mean field production facilities that are used to recover oil or oil sands by drilling or other in-situ recovery methods and in respect of which an approval is required under *EPEA* and the regulations, and includes injection and pumping facilities and

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[70] *Ibid*., s. 1(rr). The definition of "oil sands site" includes any injection or pumping facility, storage facility or tailings storage or disposal site that exists or is to be developed and also includes any permanent access or haul road, railway, telecommunication line or pipeline on the location for the transmission of synthetic crude oil.

[71] *Ibid*., s. 84. This section provides that financial security may also be required in situations where an approval is not required, such as where an activity is regulated by a code of practice.

[72] *Supra* note 68.

any associated infrastructure. Section 17.1, then, exempts in-situ oil sands projects from the requirement to provide reclamation security under *EPEA*.[73]

Who must provide security?

As noted above, section 137 of *EPEA* requires an operator to conserve and reclaim specified land. Section 135(1) of *EPEA* provides that, if required by the regulations, an operator shall provide financial or other security and carry insurance in respect of the activity carried on by the operator on specified land.

The broad definition of "operator" includes, among others, the approval holder as well as working interest owners.[74] This means that reclamation security can be required from more than one person in respect of the same project. In the context of the oil sands industry, investments into oil sands projects may be made through a variety of corporate structures. The choice of corporate structure may impact the requirement to submit a reclamation security. For example, the Horizon oil sands project is owned and operated by Canadian Natural Resources Limited (CNRL), a public company. The reclamation security deposit in respect of that project was submitted by CNRL, the approval holder.[75]

Sycrude's Aurora and Mildred Lake projects are operated by Syncrude Canada Ltd. on behalf of the Syncrude owners, investors in a joint venture partnership through which each partner owns its respective interest in the projects. Syncrude Canada Ltd. is the approval holder for the projects, however, it did not provide reclamation security deposits for these projects. Each of the joint venture partners submitted separate reclamation security deposits in respect of the Aurora project and the Mildred Lake project.[76] The amount of the security deposit submitted by each of the Syncrude owners reflected each owner's proportionate interest in the partnership.[77]

The mandatory nature of *EPEA's* reclamation security regime for oil sands mines generally finds support in relevant literature. Some commentators contend that the mandatory application of reclamation security requirements to all projects is critical to ensuring that the regime protects taxpayers and suggest that the provision of reclamation security should be a precondition to receiving a regulatory approval for the project.[78] Where a regulator has discretion to require no security, there is a greater potential for inconsistency and a greater possibility that the financial costs of reclamation for all projects will not be secured by the regulator. Kuipers recommends that security be required as a part of the operating permit to ensure that the operators

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[73] *Supra* note 18, s. 1(l). This exemption, the rationale behind it and the liability management system used in respect of in situ projects is discussed in further detail in the Appendix.

[74] *EPEA*, *supra* note 10, s. 134(b).

[75] Alberta Environment, *Environmental Protection Security Fund Annual Report*: *April 1, 2005 – March 31, 2006* (Edmonton: Alberta Environment, 2006).

[76] *Ibid*.

[77] Correspondence from Chris Powter, Manager 3PC Project, Alberta Environment (12 February 2007).

[78] Wenig, O'Reilly & Chambers, *supra* note 13 at 7 & 107.

comply with the reclamation and closure plan, conditions of the operating permit and other relevant laws and regulations.[79]
Other commentators suggest that financial security is not required in all cases.[80] Gerard asserts that reclamation security may be an effective complement to liability rules to encourage reclamation in accordance with reclamation requirements. Legal liability rules enable the regulator to impose enforcement fines and to bring legal actions against an operator to recover reclamation costs and, where these exist, Gerard asserts that there is no *a priori* reason to believe that the benefits of requiring financial security for reclamation exceed the costs, especially in cases where the operator is not a insolvency risk.[81]

However, even where a solvent operator fails to reclaim lands as required, the regulator is required to incur the costs of enforcement and to bear the burden of proof to succeed in recovering the costs for further reclamation through the court process. Reclamation security regimes shift that burden of proof to the operator.
Further, if an operator does become insolvent and is unable to fulfill its reclamation obligations, the regulator's attempts to compel compliance through the application of liability rules may be unsuccessful if fines go unpaid. An insolvent operator may not have the funds to pay a court judgment. The possibility of insolvency creates the need for mandatory reclamation security or a fund of some sort to cover these costs.[82]

Like Alberta, some provinces require financial security be provided for mining operations, though the discretion of the regulator to determine the amount is common.[83] Other provinces provide the regulator with the discretion to require no reclamation security.[84] In some cases, the requirement to provide security is

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[79] Kuipers, *supra* note 60 at 4.

[80] Miller, *supra* note 59 at 24; Gerard, *supra* note 53 at 190.

[81] Gerard, i*bid*. Gerard suggests that the costs that reclamation security requirements impose on solvent operators are a high price to pay to shift the burden of proof.

[82] For further discussion of an Alberta fund program, see the Appendix.

[83] *Mineral Industry Environmental Protection Regulations*, *1996*, R.R.S., c. E-10.2, Reg. 7, s. 12 provides that no person may operate or permanently close a mine until a proposal for an assurance fund to ensure the completion of the decommissioning and reclamation for the mining site has been approved by the Minister and a reclamation assurance fund has been established. *Mines and Minerals Act,* C.C.S.M., c. M162, s. 111(2) prohibits a mineral lessee from commencing or recommencing mining until the director approves a closure plan and security filed with the closure plan is accepted by the director as sufficient for purposes of the closure plan. *Mine Development and Closure under Part VII of the Act*, O. Reg. 240/00 provides that a closure plan shall specify the form and amount of the financial assurance to be provided by the proponent in respect of the project. *Mining Act,* R.S.Q. c. M-13.1, arts. 232.2 & 232.4 provide that any of the prescribed people must submit a rehabilitation and restoration plan to the Minister for approval before commencing mining activities and that the plan must include a description of the guarantee serving to ensure performance of the work required by the plan. *Mining Act,* S.N.L. 1999, c. M-15.1, s. 4 provides that no person shall operate a mine unless that person has submitted all necessary plans and the required reclamation security to the Minister.

[84] *Mines Act*, R.S.B.C. 1996, c. 293, s. 10(4) provides that the chief inspector may, as a condition to granting a permit for a mine, require that financial security be provided.

mandatory only in respect of certain mining-related regulatory approvals.[85] Such an exemption may also be based on the size of the project. New Brunswick requires a limited amount of reclamation security to be provided, but also gives the Minister wide discretion to require more.[86]

Exemptions to the requirement to provide reclamation security, like those created by section 135(2) of *EPEA* and section 17.1 of the *Conservation and Reclamation Regulation*, are common. Generally speaking, exemptions from requirements to provide financial security may be based on any number of factors such as the identity of the operator, [87] the type of project, size of the project, whether the project is on public or private land or whether the project was in existence prior to the implementation of the reclamation security requirement.[88] Criteria for exemption are generally set out in legislation or regulation. An exemption is different in nature from a regulator's discretionary decision not to require security in respect of a project.

The reclamation security regime in place under *EPEA* differentiates between oil sands mining projects based on age. This differentiation is not strictly an exemption. Financial security is mandatory in respect of all oil sands mines but operators of oil sands mines that were approved under the *LSCRA*, the predecessor to *EPEA,* have their reclamation security calculated based on production.[89] Projects approved under *EPEA* base their reclamation security on the estimated cost of reclamation. The method of reclamation security calculation is discussed in more detail below; however, this differentiation is introduced here because the effect of such differentiation can be similar to the effects of an exemption if it results in inadequate amounts of security being taken.

Over time, as environmental laws and policies have improved to provide better protection from the impacts of industrial activities, so too have reclamation security regimes changed to provide better protection against the possibility that the financial burden associated with land reclamation will be carried by the general public. However, mining projects frequently have long life spans. Early regulatory decisions

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85 *Mineral Resources Act,* S.N.S. 1990, c. 18, s. 97. Nova Scotia law provides that security is mandatory in respect of mineral leases, non-mineral registrations and letters of authorization but is at the discretion of the Minister where an excavation registration is sought.

86 *Mining Act,* S.N.B. 1985, c. M-14.1, s. 68. New Brunswick legislation requires an applicant for a mining lease to submit to the Minister security "conditioned for the payment of costs with respect to protection, reclamation and rehabilitation of the environment during and on discontinuance of mining". The section also requires separate security to be paid to the Minister to compensate the surface owner or lessee for actual damage to or loss of use or enjoyment of property as a result of the mining activity. Section 111.1 of the Act gives the Minister the discretion to require additional security at any time.

87 *EPEA*'s blanket exemption for the government or government agencies from the requirement to provide security was challenged by Alberta environmental groups during the public consultations on the draft *EPEA* and regulations. See Environmental Law Centre, *In Response to Bill 53: The Alberta Environmental Protection and Enhancement Act and the Draft Regulations* (Edmonton: Environmental Law Centre, 1992) at 61 and Pembina Institute, *supra* note 35 at 9.

88 Kuipers, *supra* note 60 at I-8.

89 *Conservation and Reclamation Regulation*, supra note 18, s. 18(3).

respecting the manner in which financial responsibility is allocated, if adhered to through grandfathering provisions in new legislation or regulations, have the potential to result in significantly less reclamation security being taken than would otherwise be the case had modern regulatory schemes been applied evenly to all projects.

Consistent application of stringent reclamation security requirements furthers policy goals of ensuring that industry actors are liable for reclamation costs. Kuipers notes that exempting existing mines from new regulations, while intended to ensure that new regulations did not unfairly penalize those operations, has led to the potential for abuse and public liability. He recommends that existing operators be given some fixed period of time to either close out operations or be subject to modern mining reclamation security requirements.[90] Similarly, Wenig *et al* advocate for the imposition of modern reclamation security requirements on operators of existing mines.[91]

However, other commentators contend that changing reclamation security regimes to require security where none was previously required or to require significantly increased security in respect of existing operations as a result of regulatory changes can place significant financial burdens on existing project operators. In some cases, where the mine economics are marginal and the mine is approaching the end of its useful life, they suggest there is a possibility that the cash flow will not support the higher financial burden and the mine will be prematurely closed. Because of this, some commentators take the position that new regulatory requirements for increased reclamation security should be implemented carefully and creatively.[92] Specific recommendations include providing a transition period to allow existing operators to adjust their operations and providing for a range of "soft" security options such as self-bonding, to enable existing operators to avoid paying significant cash deposits at a time when the mine economics may be marginal.[93]

The suggestion that regulators should be careful when applying new reclamation security requirements to existing operators should not be entirely dismissed because the financial consequences to those operators may be significant. Arguably though, it is when projects are marginal and nearing the end of their productive lives that financial security is most needed. While Alberta's mandatory requirement for security from oil sands mine operators is supported by some commentators, the different treatment of projects approved under the *LSCRA* is not and may expose the province to risk because the security taken in respect of those projects may be much less than the estimated cost of conservation and reclamation of the lands. This specific risk is discussed in further detail elsewhere in the report in the context of cost estimation.

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90 Kuipers, *supra* note 60 at IV-7. Kuipers states that where existing mines are not subject to modern mining reclamation security programs companies may locate the most potentially impacting operations on areas covered by exemptions.

91 Wenig, O'Reilly & Chambers, *supra* note 13 at 102.

92 Miller, *supra* note 59 at 13.

93 *Ibid*.

When is security required?

In order for the reclamation security to protect against the possibility that the government will be left with reclamation costs, it is critical that the funds be secured prior to site disturbance. Operators must provide conservation and reclamation security to Alberta Environment prior to receiving an approval in respect of an oil sands mining project. [94] This is consistent with the practice in many other jurisdictions and consistent also with much commentary on the topic.[95]

While the question of whether reclamation security ought to be provided prior to the issuance of a project approval is uncontroversial, some debate exists about whether this initial security deposit should reflect the reclamation costs for the life of the project or whether phased reclamation security, the type used in Alberta, is appropriate.

A life of project security is a lump sum security that anticipates and covers all of the closure and reclamation costs associated with mining operations planned under the approval. This security is calculated and provided all at once, prior to the issuance of the approval. Kuipers suggests that a life of project bond is more effective, in terms of environmental protection, because it forces operators to obtain sufficient security up front, not merely increase the bond incrementally as anticipated future profits are received. A properly estimated life of project security also ensures that there are sufficient funds available to the regulator to undertake all necessary closure and reclamation work should the need arise, due to operator insolvency or otherwise.[96]

Miller suggests, however, that a life of project bond requiring security based on the maximum footprint of the project results in unnecessarily high security requirements.[97] A phased security, by contrast, allows the operator to incrementally increase the security amount as the scope of the project increases and additional land is disturbed, enabling the operator to minimize the reclamation security amount.[98]

Phased security is calculated, in some cases, by first estimating an average reclamation cost per acre of disturbed land, forecasting the number of acres to be disturbed in each year of the project's life, then requiring the operator to submit in each year the security that corresponds to the increased land disturbance. Kuipers strongly recommends that, if phased bonding is to be used, it be based on a detailed

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94 *Conservation and Reclamation Regulation*, *supra* note 18, s. 17(1)(a).

95 Wenig, O'Reilly & Chambers, *supra* note 13 at 107; Kuipers, *supra* note 60 at IV-10. However, not all jurisdictions require security to be provided prior to the issuance of an approval for a mining project. See *Mine Closure Regulation*, Man. Reg. 67/99 and Manitoba Industry, Trade and Mines, *Mine Closure Guidelines: Financial Assurance* (Winnipeg: Manitoba Industry, Trade and Mines, 2001) s.18. Manitoba's regulations require security to be provided within 60 days after issuing the approval.

96 Kuipers, *supra* note 60 at I-12.

97 Miller, *supra* note 59 at 4.

98 Kuipers, *supra* note 60 at I-12.

analysis and determination of reclamation costs for each year, rather than an average cost per unit of land area because the latter method has a greater potential of resulting in a shortfall.[99] Annual inspection and verification by the regulator is necessary to ensure that the expected reclamation costs are tracked appropriately by the phased bond.[100] Wenig suggests that even where annual expected costs are used, if the reclamation costs are expected to be higher in later years, the highest estimated annual amount should form the floor for the initial deposit and all subsequent incremental payments.[101] Other Canadian jurisdictions approach this differently.[102]

Alberta's approach, requiring phased security based on annually estimated costs of conservation and reclamation rather than an average cost per hectare disturbed aligns, at least in part, with commentators' recommendations. The suggestion made by Wenig *et al*, that the highest estimated annual amount should form the floor for every year, may be effective at encouraging progressive reclamation of oil sands mining projects. This would support a stronger commitment to progressive reclamation and could help to ensure that the outstanding reclamation costs are minimized.

How is security held?

There are many different forms of financial security. Many jurisdictions give regulators discretion to determine the form of acceptable financial security. In Alberta, the acceptable forms of security are established in section 21 of the *Conservation and Reclamation Regulation*. This section gives the Director discretion to accept security in any of the following forms:

(a) cash;

(b) cheques and other similar negotiable instruments payable to the Minister of Finance;

(c) Government guaranteed bonds, debentures, term deposits, certificates of deposit, trust certificates or investment certificates assigned to the Minister of Finance;

(d) irrevocable letters of credit, irrevocable letters of guarantee, performance bonds or surety bonds in a form acceptable to the Director;

(e) any other form that is acceptable to the Director.

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99 *Ibid*. at IV-17; Wenig, O'Reilly & Chambers, *supra* note 13 at 108.

100 *Ibid*. at IV-17.

101 Wenig, O'Reilly & Chambers, *supra* note 13 at 107. Alternatively, they suggest that a lump sump security corresponding to total reclamation costs for the whole project could be provided and then be reduced each year to reflect reclamation costs paid by the operator during the year.

102 *Mine Closure Regulation*, *supra* note 95. Manitoba bases the security on the expected mine life. Operators pay installments representing a certain percentage of the total required security amount according to a schedule.

Notwithstanding the Director's wide discretion in this regard, Alberta Environment's current practice is to accept only letters of credit or cash for oil sands mines. Because the amounts of security are so large, no oil sands operators currently provide cash security, preferring instead to use letters of credit.[103]

While section 21 does not explicitly allow the taking of security in the form of a corporate guarantee or a charge on the operator's assets, or allow for a corporate financial health test, the Director's broad discretion under section 21(e) to accept any other acceptable form leaves the door open to this possibility. Alberta Environment staff indicates that, in practice, the corporate financial health test has not been applied in respect of an oil sands mine.[104] Alberta Environment staff indicates that at least one mine operator expressed interest in a Qualified Environmental Trust as a form of security.

Commentators have indicated that, while financial security for reclamation may take different forms, it is critical that liquidity and availability of secured funds be maintained.[105] Because the potential for an operator to default on its reclamation obligations increases as the financial position of the operator worsens, it is possible that a regulator might have to compete with the operator's creditors. Accordingly, it is important that security instruments be kept out of the reach of creditors.[106]

Common forms of reclamation security include the following.

Cash: This includes cash and other equivalents that have a fixed cash value, such as cheques, term deposits and certificates of deposit.[107] An advantage of requiring cash as a form of security is that it is very liquid. However, its use as a reclamation security tool ties it up when it could be used for other purposes by the company.[108] For this reason, cash is a less common financial security form where the security requirements are for very large amounts.[109]

Letters of Credit: A letter of credit is a financial instrument issued by a bank or other qualifying institution, on behalf of the company, that guarantees the payment of funds to the government or regulator to cover the cost of reclamation in the event that the company does not perform its required closure or reclamation work.[110] The terms of the letter of credit, such as the maximum amount payable and the circumstances

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103 Correspondence from Chris Powter, 3PC Project Manager, Alberta Environment (26 February 2007).

104 *Ibid*. A corporate financial health test of sort was proposed in the Financial Risk Assessment Program, but it was never implemented.

105 Wenig, O'Reilly & Chambers, *supra* note 13 at 7 & 105.

106 *Ibid*. at 106.

107 Ontario Ministry of the Environment, Environmental Assessment and Approvals Branch, *EAAB Jurisdictional Scan of Financial Assurance Applications and Administration* (2006) [unpublished] at 3.

108 Gerard, *supra* note 53 at 191.

109 For example, in Alberta cash is used for reclamation security in respect of sand and gravel pits but not in respect of any oil sands mining projects.

110 Kuipers, *supra* note 60 at IV-13.

under which the funds may be drawn against the instrument are negotiated by the regulator, the operator and the financial institution and are reflected in the letter itself.[111]

Letters of credit are irrevocable, fairly liquid and of a certain value. This makes them a popular choice in many jurisdictions where a large amount of security is required.[112] One disadvantage of letters of credit, as compared to cash, is that letters of credit may have an expiry date after which the financial institution is no longer required to guarantee payment to the beneficiary. This means that regulators must be diligent to monitor letter of credit renewal dates to ensure that the instruments do not lapse and leave them unprotected in the event of operator default. Alternatively, a letter of credit may be drafted to renew automatically. A letter of credit is based on and has an impact on a company's credit rating. Where a letter of credit is issued on behalf of a project operator, the borrowing power of the operator is reduced by the amount of the letter of credit.[113]

Letters of credit are used by Alberta Environment to secure reclamation costs for oil sands mining projects.[114]

Surety Bonds or Performance Bonds: Issued by insurance companies, these contracts with the mining company guarantee to the government that specific obligations of the operator will be met up to a maximum amount and for a prescribed time period.[115] Under this three-way contract, if the operator defaults on its reclamation obligation or otherwise triggers the agreement, the surety (insurance company) is required to pay to the beneficiary regulator the amount provided by the terms of the surety bond instrument. All parties must agree to changes.

Surety bonds, like letters of credit, have expiry dates and care must be taken to schedule renewal so that the bond does not lapse. Surety bonds present challenges in respect of liquidity because the surety, as a party to the agreement, has the ability to challenge the conditions of the bond and the responsibility for payment. This may result in the regulator having to litigate in order to establish that the conditions for payment were fulfilled. This can result in a delay between the date of default on reclamation obligations and the date upon which the regulator receives the bond amount.[116] Such a delay can be significant and, depending on the rate of inflation at the time, can have real consequences in terms of the ability of the bond amount to cover reclamation costs.

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111 Miller, *supra* note 59 at 49.

112 Ontario Ministry of the Environment, *supra* note 107 at 4.

113 Miller, *supra* note 59 at 49.

114 Alberta Environment, *Environmental Protection Security Fund Annual Report: April 1, 2007-March 31, 2008* (Edmonton: Alberta Environment, 2008); Correspondence from Chris Powter, *supra* note 103.

115 Ontario Ministry of the Environment, *supra* note 107 at 3.

116 *Ibid*.

Like a letter of credit, the ability of an operator to obtain a surety bond or performance bond depends, in part, on the operator's credit rating.[117] An operator with a poor credit rating may be required to provide the surety company with a significant cash deposit, sometimes approaching the face value of the bond, to ensure that funds are available if drawn upon by the beneficiary. Industry commentators have noted recently that obtaining surety bonds for mining reclamation costs has become more difficult and expensive.[118]

Liability Insurance: An insurance company will agree, in return for the payment of premiums by the insured operator, to cover the losses arising from existing liabilities in addition to the losses associated with the discovery of new environmental problems. Insurance may be used alongside other forms of reclamation security or where potential environmental costs are difficult to estimate for the purpose of establishing a reclamation bond. [119] Alberta Environment does not presently require operators to have insurance in place for reclamation, though the legislation allows the Director to require it. Insurance may be useful as a complementary instrument in Alberta to deal with the many uncertainties surrounding reclamation costs.

Financial Assurance Trust Funds: This is a form of self-insurance fund. Operators set up the fund and make periodic payments that are earmarked for reclamation or closure work. These are infrequently used due to perceived administrative effort and strict guidelines that must be adhered to in order for them to be suitable.[120]

Corporate Guarantee: The corporate guarantee is, essentially, a promise by the company to pay any outstanding reclamation costs. The corporate guarantee relies on the financial strength of the operator, or its parent company if applicable. It assumes that the company's positive financial condition will continue and that reclamation funds will be available when needed without having to set them aside in advance. An operator wishing to provide a corporate guarantee would complete a financial test to determine its financial health or that of its parent company. Such a test might include an analysis of the ratio of the companies' assets to liabilities.[121] One or both of the companies would agree to provide payment for remediation or reclamation that is required on the operator's site.[122]

The advantage of a corporate guarantee is that the direct costs that may exist with respect to other harder forms of security do not arise. An operator may have to pay a significant amount to a bank for a letter of credit or to an insurance company for a surety bond. Where allowed, a company that can satisfy the financial tests and provide only a corporate guarantee can save itself these payments.

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117 Miller, *supra* note 59 at 50.
118 *Ibid*. at 5.
119 Ontario Ministry of the Environment, *supra* note 107 at 6.
120 *Ibid*. at 5.
121 Kuipers, *supra* note 60 at I-13.
122 Ontario Ministry of the Environment, *supra* note 107 at 8.

Commentators disagree as to the wisdom of allowing corporate guarantees to be used as a form of reclamation security. Many commentators have noted that financial security should not be in the form of a corporate guarantee or self-bond.[123] Rather, that security should be independently guaranteed and accompanied by proof of the guarantor's financial health.[124] Kuipers notes that while corporate guarantees are favoured by industry, they "do little or nothing to insure the agencies and public against potential liability in the event of the company's financial failure."[125] In the event that an operator goes bankrupt, the regulator becomes a creditor, alongside any others at that time.[126] Wenig *et al* suggest that the corporate guarantee, like other forms of self-bonding (such as a pledge of the company's assets), should not be allowed because it exposes the regulator to the possibility that other creditors may be able to access the remaining assets of the company.[127]

Other commentators assert that corporate guarantees are appropriate for large mine operators and that a blanket prohibition on self-bonding is not appropriate, necessary or efficient. Miller suggests that where the operator is a large, financially robust corporation with an established track record, some recognition of that fact should take place and a corporate guarantee may be an appropriate form of reclamation assurance. Miller describes a model reclamation security regime as including the following analysis: [128]

> If the company is financially strong, and if the current project represents a relatively small financial drain, soft instruments such as a corporate guarantee and/or a balance sheet test may suffice. If the particular corporate vehicle is a subsidiary of a larger entity, a parent company guarantee may be appropriate. At the other extreme, if the company is small or if it is not diversified and the project represents a major potential drain, then the government may reasonably ask for hard assurances such as full coverage by letter of credit, bankers' guarantee or cash deposit.

Kuipers notes, however, that even where financial tests are used, experience has demonstrated that operators may meet the relevant tests right up to the point that they file for bankruptcy protection.[129] Another potential disadvantage related to the use of a financial test or other self-bonding mechanism is that it requires increased ongoing

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123 Kuipers, *supra* note 60 at IV-19; Miranda, Chambers & Coumans, *supra* note 58 at 42.

124 Wenig, O'Reilly & Chambers, *supra* note 13 at 105.

125 Kuipers, *supra* note 60 at I-13.

126 *Ibid*. at I-14. See also Miranda, Chambers & Coumans, *supra* note 58 at 42.

127 Wenig, O'Reilly & Chambers, *supra* note 13 at 105.

128 Miller, *supra* note 59 at 20.

129 Kuipers & Associates, *Filling the Gaps: How to Improve Oil and Gas Reclamation and Reduce Taxpayer Liability* (Billings, MT: Western Organization of Research Councils, 2005) at 30, online: Western Organization of Research Councils <http://www.worc.org/userfiles/file/Filling the Gaps.pdf>.

monitoring of the operator's financial condition by the regulator. This may be beyond the regulator's competence and resources.[130]

All Canadian jurisdictions give the regulator broad discretion to determine the nature of the reclamation security provided. Most jurisdictions, including Alberta, specifically identify acceptable types of security in the relevant legislation and then give the regulator discretion to take security in "any other form that is acceptable" to it. Ontario and Manitoba specifically provide for the use of "soft" security such as a pledge of the operator's assets.[131] In some jurisdictions, a company is not required to actually post security if it passes a corporate financial health test.[132] Other jurisdictions require hard security to cover certain reclamation activities and allow residual reclamation costs to be covered by softer instruments.[133] Even where "soft" security instruments are not among the enumerated forms of security that may be provided, a broad grant of discretion to the regulator may allow for acceptance of such securities.

Alberta legislation provides for the establishment of a separate reclamation security fund. Reclamation security submitted under *EPEA* is paid into the Environmental Protection Security Fund.[134] This fund is held and administered by the Minister of Environment. The Minister is required to prepare and deliver an annual report regarding the operation of this fund to the Legislative Assembly.

EPEA establishes another fund: the Environmental Protection and Enhancement Fund. This fund, also maintained by the Minister of Environment, is to be used for the purposes of environmental protection and enhancement and emergencies with respect to any matter under the administration of the Minister of Environment. The Minister may make payments out of this fund, for these purposes, to a range of government departments, other funds specified by regulation, or persons.[135]

Where the Minister of Environment causes security deposits of an operator to be forfeited in accordance with the *Conservation and Reclamation Regulation*, the funds are transferred from the Environmental Protection Security Fund to this fund and then

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130 James Boyd, *Financial Responsibility for Environmental Obligations: Are Bonding and Assurance Rules Fulfilling their Promise?* (Washington: Resources for the Future, 2001) at 63.

131 *Mining Act*, R.S.O. 1990, c. M-14, s. 145(1); *Mine Closure Regulation*, *supra* note 95, s.19; *Mine Closure Guidelines*, *supra* note 95, s. 15.

132 *Mine Closure Guidelines*, *ibid.*, s. 15; *Mining Act*, *ibid.*, s. 145(1).

133 *Mines Act*, *supra* note 84, s. 10(5). British Columbia's statute allows the chief inspector to determine the form of security acceptable. The Performance Bonds Policy indicates that "hard" security is required to cover certain post-closure costs, periodic capital replacement costs related to the operation of a water collection and treatment facility and for the management and disposal of associated secondary wastes, and expected post closure site monitoring and maintenance costs including dam inspections, maintenance of water diversion structures, waste material monitoring, water quality monitoring, and vegetation sampling. Residual reclamation costs may be secured by other instruments.

134 *EPEA*, *supra* note 10, s.32.

135 *Ibid*., s. 30.

applied to cover reclamation costs. This is described further in the section dealing with forfeiture.

Alberta's use of a special fund for reclamation security finds support in some of the literature. This is because reclamation security, once paid by an operator, must be available for use in performing reclamation work in the event of forfeiture. For this reason, it is important that the reclamation security go into a special fund rather than into the government's general revenue. Where funds are paid in cash or a cash equivalent, the funds should be paid to and held by the regulator under the condition that they only be used for reclamation or related purposes.[136]

Most Canadian jurisdictions require, or at least allow, the establishment of separate dedicated fund accounts for reclamation security.[137] Other provinces merely provide the relevant Minister with broad discretion respecting the management, investment and regulation of security.[138]

An effective reclamation security regime provides for regular updating of the security. As noted above, the reclamation security required in respect of the majority of oil sands mining projects (those not previously approved under the *LSCRA*) is to be determined based on the estimated cost of reclamation, among other factors more fully described below. Reclamation security based on the estimated cost of doing the work must be updated regularly to track cost changes. The reclamation security regime in place for oil sands mines does involve regular updates. Section 20 of the *Conservation and Reclamation Regulation* provides that the Director may increase or decrease the amount of security that is to be provided where

(a) the cost of future conservation and reclamation changes,

(b) the activity on the land is increased or reduced,

(c) the conservation and reclamation plan in an approval is changed,

(d) the operator is conducting more than one activity for which security is required on the specified land, or

(e) any other circumstances exist that may increase or decrease the estimated cost of conservation.

Section 20 provides the Director with the authority to require an operator to submit more security in some circumstances. This section is permissive, not mandatory. Subsection 20(2) provides that the Director may specify times or set a schedule for re-evaluating and adjusting security provided by an operator. Alberta Environment's

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136 Wenig, O'Reilly & Chambers, *supra* note 13 at 106.

137 *Mines Act*, *supra* note 84, s.12; *Mines and Minerals Act*, *supra* note 83, s.195; *Mining Act*, *supra* note 131, s. 145(8); *Mining Act, supra* note 86, s.112.1.

138 *Mineral Industry Environmental Protection Regulations, 1996, supra* note 83, s. 115(3).

current practice is to require operators to provide the Director with a new reclamation security estimate annually.[139] The Director also has authority under section 20 to require mid-year adjustments, although this has not occurred.[140]

In practice, an operator will submit a new cost estimate annually that describes, among other things, planned disturbance for the upcoming year, as well as reclamation activities undertaken in the past year. The reclamation security amount required to be submitted by an operator increases with respect to additions to the planned disturbance and is reduced with respect to reclamation undertaken. Alberta Environment indicates that annual updates follow the same process as for the first-time security: an estimate is submitted by the operator and reviewed by Alberta Environment staff, who negotiate an amount with the operator resulting in the posting of the updated security.[141] There is no public involvement in the process through which reclamation security amounts are reviewed and adjusted.

Where the amount of reclamation security to be submitted increases as a result of the new estimate, the Director does not require that the operator provide a letter of credit for the difference. Rather, the Director generally requires a letter of credit be provided for the entire new security amount and then returns the letter of credit submitted in the prior year.[142] This swapping of letters of credit is recorded in the Security Fund Annual Report as a deposit and withdrawal, not as an adjustment. The typical entry in that report shows a withdrawal equal to the amount of the opening balance and a deposit equal to the amount of the closing balance.[143]

Alberta Environment's practice of annually reviewing reclamation security amounts is generally supported by some literature.[144] The anticipated cost to reclaim lands often changes significantly after an operator initially provides financial security. This change may be a result of an increase in the amount of industrial activity and a corresponding increase in the amount or severity of impact on the lands. It may also change as a result of inflation. In order to ensure that financial security for reclamation is adequate to cover actual reclamation costs, it is necessary that the financial security be reviewed on a regular basis and adjusted where appropriate to account for any increase in estimated costs since the date that it was provided. Part of this review should include regular on-site inspections of the mine site and all impacted lands for which the security is provided. These inspections must occur at a time when reclamation progress and success can be properly evaluated.

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139 Correspondence from Chris Powter, *supra* note 103.

140 *Ibid*.

141 *Ibid*.

142 *Ibid*.

143 *Environmental Protection Security Fund Annual Report: April 1, 2005-March 31, 2006*, *supra* note 75.

144 Kuipers, *supra* note 60 at 4. Kuipers recommends at least yearly on-site inspections and review of security amounts at least every five years or more often as circumstances warrant to ensure that the amount remains current.

One commentator has noted that the mining industry itself has little incentive to push for frequent reviews of reclamation securities, since they usually result in an increase to the amount required.[145] The time and expertise required by regulatory agencies to conduct regular reviews and adjustments of reclamation security amounts are significant and the regularity with which reclamation security is reviewed differs by jurisdiction. In some jurisdictions, relevant legislation requires review of reclamation security amounts to occur within a prescribed period.[146] Other jurisdictions grant the regulator the discretion to review and adjust reclamation security as it sees fit.[147]

How is security calculated?

This section specifically discusses the preparation of the conservation and reclamation cost estimate upon which the security is based. The ability of security to fund reclamation work is directly related to the degree to which the amount of security taken reflects the estimated cost of reclamation work that may be performed by the regulator or its contractors. If the environmental impacts, the reclamation work required or the costs to complete that work are under-estimated, the regulator may be under-funded and the difference may be a financial burden on the government, to be borne by taxpayers. Conversely, overestimation of costs can result in an inefficient allocation of the operator's funds and may discourage investment.[148] The cost estimate used to determine the amount of reclamation security taken in a given case is just that: an estimate. Accordingly, an estimate is neither "right" nor "wrong". Forecasted costs can never be entirely accurate as there are too many variables that can affect actual reclamation costs. However, it is imperative that the estimate approximates as closely as possible the costs that a regulator would incur if it were left to carry out unperformed reclamation work. For this reason, rigourous and comprehensive costing methodologies must be used to determine reclamation cost estimates.

The Director has a duty to determine the amount of the conservation and reclamation security. Subsection 18(1) of the *Conservation and Reclamation Regulation* provides that financial security: [149]

> shall be in an amount determined by the Director to be sufficient to ensure completion of conservation and reclamation on the specified land as required by the Act and the regulations, based on:

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145 Miranda, Chambers & Coumans, *supra* note 58 at 41.

146 *Mineral Industry Environmental Protection Regulations*, *1996*, *supra* note 83, s. 16. In Saskatchewan, the operator is required to review the assurance fund amount at least once every five years. If the operator does not do so, the regulator is empowered to require the operator to engage a third party to undertake the review.

147 *Mines Act*, *supra* note 84, s. 10(5).

148 D. Ferreira *et al*, "A Decision Model for Financial Assurance Instruments in the Upstream Petroleum Sector" *Energy* 32:10 (2004) 1173 at 1176; see also D.F. Ferreira & S.B. Suslick, "Identifying Potential Impacts of Bonding Instruments on Offshore Oil Projects" *Resources Policy* 27:1 (2001) 43 at 50.

149 S*upra* note 18.

(a) the estimated costs of conservation and reclamation submitted by the operator,

(b) the nature, complexity and extent of the activity,

(c) the probable difficulty of conservation and reclamation, giving consideration to such factors as topography, soils, geography, hydrology and revegetation, and

(d) any other factors the Director considers to be relevant.

There are no other formal regulations or guidelines in place to guide the Director in the determination of the security amount, leaving the Director with significant discretion.

To begin with, the security must be in an amount sufficient, not to complete the conservation and reclamation, but rather to ensure that the conservation and reclamation is completed. The distinction here is a fine but meaningful one. Arguably, a requirement to take security sufficient to complete conservation and reclamation work requires the Director to determine the cost of that work and require the operator to provide that amount. An acceptable exercise of the Director's discretion would require an amount reasonably expected to cover reclamation costs.

On the other hand, a requirement to take security sufficient to ensure that conservation and reclamation are completed requires the security to be in an amount sufficient to compel the operator to do the work or to retain a third party to complete the work on Alberta Environment's behalf. Arguably, this interpretation gives the Director greater discretion in determining the security amount because it allows for consideration of other factors that may motivate an operator and may support an interpretation that security need not represent the full, anticipated cost of conservation and reclamation.[150]

Further, the Director must assess the complexity and extent of the project. Is the project complex? Compared to what? The Director must assess the probable difficulty of conservation and reclamation. Is reclamation of an oil sands mine likely to be difficult? Are parts of it likely to be, such as tailings ponds or end pit lakes? Finally the Director is to consider any other factors s/he considers to be relevant. What kinds of factors are relevant? Is the financial risk of an operator becoming insolvent or otherwise defaulting on reclamation obligations relevant? Is the fact that a project is using unproven reclamation technologies relevant? Is the likelihood that, even if an operator becomes insolvent, there may be another operator ready to step in and continue operations relevant?

[150] See Gerard, *supra* note 53.

The Director's discretion may impact the scope of activities required to be included in a cost estimate in a given case or the standard of reclamation used when considering the cost estimate.

An important factor in calculating reclamation security is determining what is included in the security cost estimate. The question of what is included in the conservation and reclamation cost estimate has three parts: what elements of the project, such as the mine pit, the tailings pond, or the plant, are included, and for those that are included, what specific conservation and reclamation tasks are included and to what level of detail are they described. These questions are addressed in order.

The language used in subsection 18(1), "sufficient to ensure completion of conservation and reclamation on the specified land" would suggest that the scope of activities required to be included in the cost estimate is comprehensive and would include all conservation and reclamation activities. However, specifically identifying which activities are included in the reclamation cost estimate is not simple.

"Conservation" and "reclamation" are both defined terms. Conservation means: "the planning, management and implementation of an activity with the objective of protecting the essential physical, chemical and biological characteristics of the environment against degradation".[151] Reclamation means any or all of the following:[152]

- the removal of equipment or buildings or other structures or appurtenances;
- the decontamination of buildings or other structures or other appurtenances, or land, or water;
- the stabilization, contouring, maintenance, conditioning or reconstruction of the surface of the land;
- any other procedure, operation or requirement specified in the regulations.

These broad definitions indicate that conservation and reclamation may but do not necessarily have to include a wide range of activities.

Oil sands mine approvals define reclamation more narrowly, suggesting that it is limited to the stabilization, contouring, maintenance, conditioning, and reconstruction of the land surface to a land use capability equivalent to its pre-disturbed state.[153]

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151 *EPEA*, *supra* note 10, s. 1(l).

152 *Ibid.*, s. 1(ddd)

153 Alberta, Alberta Environment, *Approval 20809-00-00* (Edmonton: Alberta Environment, 2007) (Albian Sands Energy Inc., for Muskeg River Oil Sands Processing Plant and Mine); see also Alberta, Alberta Environment, *Approval 149968-00-01* (Edmonton: Alberta Environment, 2004) (Canadian Natural Resources Limited, for Horizon Oil Sands Processing Plant and Mine). Both of these approvals refer to "returning the plant to a land use capability equivalent to its predisturbed state".

These approval definitions do not refer to removal of equipment, buildings or appurtenances or decontamination of buildings, land or water. Alberta Environment staff indicates that operators preparing reclamation security estimates for oil sands mines must consider all disturbance, clearing and reclamation of overburden dumps, tailings ponds, dykes, mine and pit facilities, roads, borrow pits and infrastructure outside of the plant site.[154]

Operators are not required to include the cost to suspend, abandon or reclaim the plant in the security cost estimate.[155] Further, Alberta Environment states that costs for remediation of contamination are not included in the cost estimate as much of the contamination is likely to be in the plant area.[156]

Alberta Environment staff indicates that cost estimates are not prepared based on final reclamation plans, which generally describe the long-term reclaimed landscape at the end of the project's life. This is because, at any given time, the landscape of the mining project is not the same as it would be at closure. When a reclamation security deposit is calculated, the site may be operational, with an pit, tailings ponds, overburden dumps and other elements of an operating mine. If that is the case, the reclamation security cost estimate is based upon an assumption that another operator will come in and take over the site at some point.[157]

It is unclear how that assumption impacts the cost estimate. As an example, Alberta Environment staff indicates that tailings ponds are to be "considered" in the cost estimate and that a typical reclamation plan for a tailings pond would involve moving fluids from the pond to the exhausted mine pit. The pond itself may be dredged. The dykes would be breached so there are no longer any dams holding water, the land would be contoured and reclamation material deposited on site. Finally the area would be revegetated through seeding or planting. Alberta Environment staff indicates that the costs of this work are included in the cost estimate and that longer term costs relating to pumping water from tailings seepage collector systems may also be included, if required.[158]

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154 Correspondence from Chris Powter, *supra* note 103.

155 *Conservation and Reclamation Regulation*, *supra* note 18, s. 16. For the purposes of determining the security requirement, an "approval" means an approval issued in respect of an activity listed in Division 3 of Schedule 1 to the *Activities Designation Regulation*. The construction, operation or reclamation of an oil sands mine is included in Division 3, Schedule 1. However, the construction, operation or reclamation of an oil sands processing plant is listed in Division 2, Schedule 1. Accordingly, while an operator has a duty to reclaim the lands upon which the plant is located, there is no corresponding duty to provide security in respect of that reclamation.

156 Correspondence from Chris Powter, *supra* note 103. However, section 5.1.1of *Approval 149968-00-01*, *supra* note 153, specifically requires the approval holder to "annually review and revise the cost estimate for reclamation of the mine, including all associated overburden and tailings dyke structures, including decommissioning and land reclamation."

157 Correspondence from Tanya Richens, Reclamation Approvals Coordinator, Alberta Environment (24 November 2008).

158 *Ibid*.; not all operators describe this work consistently.

However, where it is assumed that another operator will step in and resume operations, Alberta Environment would not, it is presumed, begin permanent closure activities, such as moving the tailings fluid into the mine pit. There may be some immediate pre-closure activities, such as maintenance and security of tailings ponds that must be undertaken and continued until a new operator steps in. Alberta Environment staff indicates that the conservation and reclamation security must include costs associated both with the final reclamation of tailings ponds, notwithstanding the assumption that another operator may step in, and with maintenance and security during the interim period between default of the original operator and resumption of activities by another operator.[159]

More generally, Alberta Environment staff indicates that, for the purposes of preparing a reclamation security cost estimate, erosion control and stability are more important points than natural appearance. The cost estimates are to include costs to stabilize all landforms in a manner consistent with the requirements of an operator's approval. The cost estimates of seeding or revegetation must also be included but the degree of revegetation may not be consistent with the terms of the approval or final reclamation plan; rather, it may vary depending on different factors, including as the location, timing in relation to the ultimate closure plan and whether or not it is expected that another operator would likely take the site over.[160]

Alberta Environment's practice of exempting the costs of decommissioning and reclaiming the plant site or of remediating decontamination from the reclamation security is generally not supported by writings on the subject favored by environmental groups. These groups typically assert that financial assurance for reclamation can only be truly protective if the assurance amount is based on an estimate that is comprehensive and includes all potential cost categories.[161] Similarly, such commentary would not support the exclusion of some costs based on the assumption that another operator is going to replace the defaulting operator.

The manner in which conservation and reclamation costs for tailings ponds are included in the cost estimate cannot be verified by independent sources, but the method described by Alberta Environment staff is otherwise generally consistent with commentary on the subject that calls for a "worst-case scenario" approach to setting reclamation security.[162]

An estimate must also include all pre-closure, closure and post-closure costs.

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159 *Ibid*.

160 Correspondence from Tanya Richens, Reclamation Approvals Coordinator, Alberta Environment (29 August 2008).

161 Kuipers, *supra* note 60 at IV-14.

162 Costanza & Cornwell, *supra* note 12. Costanza and Cornwell's approach to dealing with scientific uncertainty of environmental damage requires operators to provide financial security based on the worst-case scenario and then funds are refunded if it is demonstrated that the worst-case did not materialize. Arguably, an analogy can be drawn to uncertainty surrounding assumptions that another operator will step in and continue operations.

Inclusion of pre-closure work is important and reclamation security must be available as soon as an operator becomes insolvent or otherwise defaults on reclamation requirements. This could happen as a project is nearing the end of its life or when it is in full production.[163] Upon default, the regulator may be required to continue some or all of the operations while closure steps are taken. The reclamation security provided should supply the funds for any necessary interim operations or critical processes, in accordance with environmental, public health and safety requirements.[164]

Interim operations may be required in respect of a variety of activities, such as process water containment or treatment, or air or water quality monitoring.[165] The amount of money required for maintenance and interim operation of the site would depend on the activities that need to be undertaken by the regulator and the amount of time that these activities would need to be continued. Kuipers suggests that security must provide at minimum two years funding for interim operations, though in many cases more may be required.[166] It is not clear whether Alberta Environment requires these types of costs to be included or, if so, how they are calculated and what length of time they must cover.

Closure costs must also be accounted for in the security estimate. Depending on the stage of a project's life at which the operator defaults, closure by the regulator may be temporary or permanent. A temporary closure may occur where it is expected that production will resume again at a later date. A permanent closure may be more likely to occur at or near the end of production, when the project is not expected to resume operations. The decommissioning costs applicable to permanent closure may not necessarily apply to a temporary closure; however certain maintenance costs, such as those to ensure continued safety and security on the site, may be applicable.

Post-closure work includes activities such as monitoring and evaluating the site to determine the success of reclamation.[167] Where monitoring and evaluating prove that reclamation work has not been successful, some or all of the work may need to be repeated. It may also be necessary to continue certain activities for a considerable time post-closure, in order to protect surrounding land or surface and groundwater from contamination. Ongoing water treatment is an example of such activity. These post-closure costs should be described in detail and included in the cost estimate. In addition, the cost estimate must include some recognition of the potential need for remedial work where these protective efforts fail and the surrounding environment is

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163 Neither *EPEA* nor the *Conservation and Reclamation Regulation* contain fixed timelines for reclamation. This makes ascertaining the time of default difficult.

164 Wenig, O'Reilly & Chambers, *supra* note 13 at 106.

165 Kuipers, *supra* note 60 at IV-14.

166 *Ibid*.

167 *Ibid*. This may include a number of activities such as assuring stabilization and erosion control and the efficacy of reclamation covers.

contaminated. It is not clear whether Alberta Environment requires any of these costs be included.[168]

There may be multiple steps involved in reclaiming many of the elements of a mining project. For example, disturbed land may need to be recontoured, re-engineered, regraded and have appropriate soil placement prior to revegetation. The costs of each step should be itemized in the cost estimate, rather than being aggregated. Further, requiring the costs of a specific task, such as revegetation, to be broken down into steps makes it easier to ensure that all tasks are accounted for. It is not clear whether this is done consistently by oil sands mining operators.[169]

An estimate must include all costs associated with doing a particular task. For instance, seeding or planting has costs associated with labour, equipment ownership or lease costs and all operations and maintenance associated with equipment.[170] It is not clear whether cost estimates provided by oil sands mine operators consistently contain this level of information.

Alberta Environment staff indicates that operators are requested to express the estimate costs, other than the contingency and management costs, on a per unit basis and indicate the number of units.[171] However, Alberta Environment staff indicates that there is no standard method for determining amounts and that not all operators are consistent in their manner of calculating reclamation security estimates or describing the inputs.[172] Operators provide different levels of detail respecting costs such as labour, materials, and equipment use. Alberta Environment staff indicates that they have been trying to get more consistent information from operators.[173] Operators provide cost estimates for broad tasks such as earthwork, coversoil placement and revegetation over different areas of the lease. They do not necessarily all break those tasks down into specific cost categories such as engineering, labour equipment rental, fuel, and others for each of the activities.[174]

Legislation, regulations and policy across Canada generally use broad terms when describing the requirement to prepare a reclamation security estimate, often requiring an "estimate of the cost required to carry out the decommissioning and reclamation plan", or similar.[175] Some jurisdictions specifically require that ongoing monitoring,

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168 As described later in this report, Alberta Environment does require operators to provide a contingency amount equal to 10% of the total cost estimate. It is unclear what this is intended to cover.

169 Kuipers, *supr*a note 60 at IV-13. Kuipers identifies the following revegetation tasks that should be included: soil tests, seedbed preparation, fertilization and bacterial inoculation, seeding, mulching, application of netting or tackifiers, other stabilization techniques, tree and shrub planting, fencing and noxious weed control.

170 *Ibid*.

171 Correspondence from Chris Powter, Manager 3PC Project, Alberta Environment (5 March 2007).

172 Correspondence from Tanya Richens, *supra* note 160.

173 *Ibid*.

174 Correspondence from Chris Powter, *supra* note 103.

175 *Mineral Industry Environmental Protection Regulations, 1996*, *supra* note 83, s. 14.

perpetual care and treatment costs be included in the estimate, but Alberta does not.[176] Some other jurisdictions provide more discretion in this regard, requiring only that on-going treatment and monitoring costs be "considered".[177] Only infrequently is there specific guidance in terms of specific project elements to be included in the estimate and the degree of detail with which the reclamation of a given element is to be broken down into specific activities.[178]

Reclamation cost is directly related to the reclamation standard. As the reclamation standard increases, so does the reclamation cost.[179] Setting reclamation standards raises the question of "how much is enough?"
As noted above, security is required to be sufficient to ensure "completion" of conservation and reclamation and specified land is to be returned to an "equivalent land capability". The individual land uses will not necessarily be the same.[180]

Land capability is based on an evaluation of the physical, chemical and biological characteristics of the land, including topography, drainage, hydrology, soils and vegetation.[181] To align with these general principles, a reclamation security regime should ensure that costs incurred to return industrially impacted lands to an equivalent land capability are covered by the project operator.

Section 3 of the *Conservation and Reclamation Regulation* allows the Director to establish standards, criteria and guidelines for conservation or reclamation of specified lands and requires that operators conserve and reclaim specified land in accordance with the applicable standards, criteria and guidelines. Operators and

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176 *Ibid*.; *Mine Closure Guidelines: Financial Assurance*, *supra* note 95, s. 17.1.

177 British Columbia, Ministry of Energy, Mines and Petroleum Resources, "Application requirements for a permit approving the mine plan and reclamation program pursuant to the *Mines Act* R.S.B.C. 1996, c. 293" (Victoria: Ministry of Energy and Mines, 1998), online: Ministry of Energy, Mines and Petroleum Resources <http://www.empr.gov.bc.ca/Mining/Permitting_Reclamation/PermitApplicationRequirements/Pages/default.aspx>. This policy document indicates that for new mines reclamation security is to be set annually "at a level which reflects all outstanding decommissioning and closure obligations existing at that time". Consideration is also given to costs associated with public health, safety, reclamation, maintenance, and long-term treatment and monitoring requirements.

178 *Mine Closure Guidelines: Financial Assurance*, *supra* note 95, s. 17.2; *Mine Development and Closure under Part VII of the Act*, *supra* note 83, which establishes a mine rehabilitation code describing minimum rehabilitation standards, procedures and requirements. A proponent's closure plan must certify that the security amount is adequate and sufficient to cover the cost of the rehabilitation work required by the relevant legislation, regulations and the Code. Schedule 2 to the Code requires "details of the expected costs of implementing the rehabilitation measures and monitoring programs required to close out the site, including at least a detailed expenditure schedule and an itemized estimate of capital and operating costs based on the market value of the material goods and services provided".

179 The term "standard", in this sense, is used broadly and can be described also as a reclamation objective or the overall post-closure condition of the land to be achieved. It is not meant to refer to specific standards for individual reclamation tasks or to specific technical environmental quality standards for soil, surface or ground water, though each of these impact the overall condition of the land.

180 *Conservation and Reclamation Regulation, supra* note 18, s. 1(e).

181 *Ibid*., s. 1(k)

Alberta Environment measure equivalent land capability by using criteria in the *Land Capability Classification System for Forest Ecosystems in the Oil Sands* [*LCSS*]. This document, now in its third edition, was created by the Cumulative Environmental Management Association as a tool to help in the evaluation of land capabilities for forested ecosystems on natural and reclaimed lands in the Athabasca oil sands region.[182] It compares pre-disturbance and post-reclamation land in terms of its capability to support upland commercial forests and identifies different land classes with reference to that capability.[183]

Alberta Environment staff indicates that reclamation plans for wetlands in security estimates are based on managing water on site through integrated drainage systems and not necessarily on establishing the same amount or type of wetlands that would have been required in the closure landscape. In reclamation closure planning, an operator is required to follow the *Guideline for Wetlands Establishment on Reclaimed Oil Sands Leases*.[184]

Unsurprisingly, the expectations of what the reclamation standard should be vary between industry and environmental groups. Environmental groups suggest that reclamation ought to be aimed towards restoration, a standard that is based upon ecological principles to promote the recovery of ecological integrity.[185] However, Ferreira *et al* suggest that each successive step taken towards site rehabilitation is more expensive than the last. Further, they suggest that the marginal benefit of reclamation decreases as the site approaches pristine conditions. Therefore, there is some point where the costs of reclamation outweigh the benefits.[186] Miller refers to a trend of regulators setting technical reclamation standards at an unnecessarily high level with the result that excessive reclamation security is required.[187]

However high the reclamation standard is set, it must be clear and understandable.[188] Wenig *et al* recommend that the reclamation standard should be based on rationally derived land use objectives and comprehensive environmental quality standards.[189] Without a clear and understandable reclamation standard, it is impossible to know the extent of the work needed to achieve it; consequently, setting the reclamation security amount becomes an exercise in guesswork.

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182 *LCCS*, *supra* note 23 at I; Grant, Woynillowicz & Dyer, *supra* note 2 at 17 describe a wide difference between the government and industry interpretation of equivalent land capability, i.e., land capable of commercial forestry, and the expectations of Albertans generally, which are more focused on land restoration.

183 *LCCS*, *ibid*. at 1. This document assumes that all land classes are capable of providing a range of other values and end land uses.

184 Correspondence from Tanya Richens, *supra* note 157.

185 Grant, Woynillowicz & Dyer, *supra* note 2 at 15.

186 Ferreira *et al*, *supra* note 148 at 1177.

187 Miller, *supra* note 59 at 4.

188 Wenig, O'Reilly & Chambers, s*upra* note 13 at 6; Grant, Woynillowicz & Dyer, *supra* note 2 at 50 specifically recommend a transparent, detailed reclamation standard for the oil sands. See also Miller, *ibid*., at 4.

189 *Ibid*.

Regardless of where Alberta Environment's standard of "equivalent land capability" and its corresponding reliance on the criteria established in *LCSS* reside on the continuum of standards advocated by environmental and industry groups, Alberta Environment's apparent practice of determining reclamation security amounts appears to be, in some cases, based on an even lower standard.

Another attribute of an effective security regime is that the reclamation security amount should reflect the full reclamation cost estimate amount. The preceding paragraphs dealt with potential underfunding of conservation and reclamation security amounts due to the failure to account for all aspects of the project or use an appropriate reclamation standard when preparing the cost estimate. Even where the cost estimate includes all necessary work and is based on an appropriate standard, the ultimate reclamation security may not always be reflective of the full estimate amount. Rather, reclamation security amounts may be set lower in an attempt to reflect some recognition of the likelihood of operator default. Both the full cost and risk-based calculation methods have proponents and detractors.

Alberta's *Conservation and Reclamation Regulation* requires the Director to set security in an amount sufficient to ensure completion of conservation and reclamation. The Director is to base the security on the cost estimate submitted by the operator, among other relevant factors.[190] As noted above, Alberta Environment's reclamation security regime calls for full cost coverage. Further, the Oil Sands Consultation Committee came to the consensus opinion that the Alberta reclamation security regime should[191]

> [e]nsure that Albertans are protected from financial liabilities related to reclamation of oil sands impacted lands, through regulation with well-defined processes that will result in full coverage of reclamation costs by companies.

The argument behind this position is fairly straightforward. In the event that an operator defaults on its obligation to perform reclamation work, the regulator will have to assume the full costs of reclamation, not merely a portion of them. For this reason, many commentators frequently assert that full coverage should be provided for in the cost security.[192]

However, other commentators have suggested that full cost coverage is not necessary in all cases. Gerard asserts that operators are motivated by monetary and non-monetary costs when deciding whether to default on their reclamation obligations. The suggestion is that the reputational costs incurred by a solvent operator that

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190 *Conservation and Reclamation Regulation*, supra note 18, s. 18(1).

191 *Oil Sands Consultations-Multistakeholder Committee Final Report*, supra note 6 at 23.

192 Kuipers, *supra* note 50 at IV-19; Wenig, O'Reilly & Chambers, s*upra* note 13 at 106; Earthworks *et al*, *Undermining Communities and the Environment: A Review of the International Finance Corporation's Environmental, Health, and Safety Guidelines for Mining* (Washington, DC: Earthworks, 2007), online: Earthworks <http://www.earthworksaction.org/pubs/IFC%20Mining%20Guidelines_20070904.pdf>.

defaults on reclamation obligations will result in higher financial costs in the future because an operator would find it more difficult and expensive to obtain a surety and because it may become more difficult to get regulatory approval for subsequent projects. Gerard suggests that where an operator is motivated by reputational costs, it is not necessary to have financial security equal to the full estimated cost of reclamation, as the operator would still perform reclamation obligations even where the costs exceed the security.[193]

Miller asserts that a large and diversified company that is financially strong, has in place an appropriate environmental management system and has a good track record of environmental regulatory compliance should expect to pay a security amount that is less that the full estimated cost of reclamation. Smaller, less financially-sound companies should be subject to more onerous financial security requirements.[194] Boyd suggests that the use of risk adjusted security reflects the notion that any additional security above that amount which is required to ensure performance of obligations or internalize reclamation costs is a wasteful allocation of resources that could otherwise be used by the operator.[195]

However, reclamation security is taken to ensure compliance by a solvent operator and also to ensure funds are available for a regulator to assume reclamation obligations where an operator becomes insolvent or otherwise unable to perform the work. As noted above, the financial condition of an operator can deteriorate rapidly. For this reason, allowing operators to submit security that does not reflect the full estimated cost of reclamation puts the regulator and the public at risk.

Not all provinces require reclamation security amounts that equal the full estimated cost of reclamation. Quebec requires operators to provide 70% of the estimated cost of reclamation. This is a policy decision by the government to encourage investment.[196] The regime in Manitoba specifically allows operators to apply to the regulator to have the reclamation security set at an amount that is less than estimated reclamation costs.[197] Other jurisdictions, such as Saskatchewan, require an estimate of costs to be prepared but give the regulator the discretion to set the security amount.

No reclamation security estimates were reviewed for this report. This is because neither Alberta Environment nor industry operators made reclamation cost estimates available for review, asserting that the documents contained confidential third party commercial information. This description is based solely on information provided by Alberta Environment and cannot be verified through publicly available documents.

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193 Gerard, *supra* note 53 at 190.

194 Miller, *supra* note 59 at 13.

195 Boyd, *supra* note 130 at 29.

196 Government of Quebec (Service des titres d'exploitation of the Ministère des Ressources naturelles du Québec and the Ministère de l'Environnement et de la Faune du Québec), *Guidelines for Preparing a Mine Site Rehabilitation Plan and General Mining Site Requirements* (Quebec: Government of Quebec, 1997) at 38.

197 *Mine Closure Regulation*, *supra* note 95, s. 17.1.

There are no regulations or formal guidelines respecting reclamation security cost estimates. Neither *EPEA* nor the *Conservation and Reclamation Regulation* impose any formal requirements upon or provide any formal guidance to operators as to how to estimate reclamation security costs. Subsection 18(2) of the regulation provides that the operator shall prepare and provide information in support of the estimated conservation and reclamation costs in accordance with "information documents". "Information document" means any document issued by the Director that provides direction or guidance on conservation and reclamation matters.[198] However, there are no current guidelines or policy documents to guide proponents in the estimation of these amounts.[199]

Alberta Environment has an informal guide that it uses for its own review of cost estimates, but that guide is not shared with operators.[200] Alberta Environment staff asserts that operators are generally aware of the department's processes and requirements and that no guidance is required.[201] However, Alberta Environment staff also notes that they continue to receive inconsistent information from operators and that operators are resistant to providing information in the form requested.[202]

One way to help ensure that reclamation cost security calculations are prepared consistently and to an appropriate level of detail is for the regulator to provide formal guidance by describing in regulations or policy documents how the estimate is to be prepared and what type of information is to be included. In the absence of a formal process, operators may prepare estimates differently. Some may include costs excluded by others; some may describe estimated costs in detail while others roll costs together for lump sum cost estimates.

This regulatory guidance may take many forms and may be in varying degrees of detail. A regulator may set out high-level requirements in regulations or policy documents.[203] Alternatively, a regulator may provide spreadsheets and formulae for calculating the security estimate.[204] A more detailed spreadsheet could be used to break down reclamation activities into constituent tasks. For example, the spreadsheet for reclamation cost estimates in British Columbia breaks down the revegetation activity into separate categories for different revegetation practices, such as aerial broadcast of seed and fertilizer and plant installation of woody species. In

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198 *Conservation and Reclamation Regulation*, *supra* note 18, s. 1(h).

199 Correspondence from Chris Powter, *supra* note 103. The most recent formal guideline prepared by Alberta Environment with respect to reclamation security cost estimation for oil sands mining projects is based on the *LSCRA*, not the *EPEA*, and calculates reclamation security based on production.

200 Correspondence from Tanya Richens, *supra* note 160.

201 Correspondence from Chris Powter, Manager 3PC Project, Alberta Environment (18 July 2008).

202 Correspondence from Tanya Richens, *supra* note 157.

203 *Mine Closure Regulation, supra* note 95; *Mine Closure Guidelines Financial Assurance*, *supra* note 95, s. 17. This guideline provides an inclusive list of mine components, such as tailings ponds, waste rock piles and buildings, that are to be included in the cost estimate.

204 "Application requirements for a permit approving the mine plan and reclamation program pursuant to the *Mines Act* R.S.B.C. 1996, c. 293", *supra* note 177.

each case, the area to be revegetated, the quantities of seed, plants and fertilizer and unit costs that include installation are to be provided. The spreadsheet provides for additional information related to maintenance of revegetated lands.

A formal cost estimation procedure can help to guard against discretionary decisions to exclude applicable cost categories from the estimate and can ensure that different operators describe costs in a similar way so that a meaningful comparison can be made between them. A formal estimation process would also aid in any public review and comment process as stakeholders could more easily understand and compare estimates if they were provided in the same fashion and using the same terminology and standards.

Regulators must be careful, though, to balance this need for consistency with the reality that cost estimates are highly site-specific. Commentators have cautioned against the use of blanket formulae or a one-size-fits-all approach to the calculation of closure and reclamation security. This is because such approaches may not adequately take into account site-specific features that that can impact closure and reclamation costs.[205] However, where mining projects are similar, such an approach may provide a useful starting place as a regulator may clearly prescribe the type and detail of information to be included and set out a mechanism for operators to include site-specific information that does not fit squarely within the prescribed format but can have a significant impact on the cost estimate. Some formal guidelines should be created by Alberta Environment to improve consistency of cost estimates.

Reclamation security in Alberta is not based on estimated cost of reclamation in all cases. Reclamation security may be calculated in different ways. A security amount may be based on estimated reclamation costs or it may be based on factors that bear little relation to the estimated cost. A reclamation security based on units of production or the number of hectares disturbed are examples of the latter.

Subsection 18(1) of the *Conservation and Reclamation Regulation* requires that, for most oil sands mining projects, the conservation and reclamation security amount be based, in part, upon estimated conservation and reclamation costs as submitted by the operator.[206] Section 18(3) of the regulation provides that reclamation security for projects approved under the *LSCRA*, including all land disturbance occurring after *EPEA* came into force, is calculated in accordance with the *LSCRA* and its regulations, rather than under *EPEA* and the current regulations.

As discussed on page 14, under the *LSCRA* an applicant for a Development and Reclamation approval was required to provide a base security amount that depended on the rate of production. In addition, approval holders were required to provide

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205 Miller, *supra* note 59 at 4; Kuipers, *supra* note 60 at IV-14.

206 *Conservation and Reclamation Regulation*, *supra* note 18, s. 18(1)(a)

further security at a rate calculated per barrel of synthetic crude actually produced, unless a waiver or reduction was in effect.[207]

This method of determining security amounts is currently used for a portion of Suncor's oil sands mining project (the 86/17 lease) and for the entirety of Syncrude's Mildred Lake project. The portion of the Suncor project that has reclamation security tied to production levels has stopped producing but has not been reclaimed, so the amount of security required for that portion does not change from year to year. Syncrude's Mildred Lake continues to produce and the security amount for that project continues to be determined in relation to ongoing production.[208]

The following table illustrates the annual incremental land disturbance for each of the mining projects as well as the amount of security taken by Alberta Environment. The table figures show net disturbed land (cumulative disturbed land less cumulative reclaimed land) in hectares (ha) and corresponding security amounts ($millions) taken for each project, as well as the annual security per hectare ratio ($thousands/ha). This chart illustrates the difference in security taken by Alberta Environment in respect of two Syncrude projects in the years 2004, 2005, 2006 and 2007. The security for the Syncrude Aurora Mine is determined in accordance with subsection 18(1) of the *Conservation and Reclamation Regulation*. Security for the Syncrude Mildred Lake project and Suncor's 86/17 Lease is determined according to production.[209]

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[207] *A Guide to the Preparation of Applications and Reports for Coal and Oil Sands Operations, supra* note 34 at 10.2-2.

[208] Correspondence from Tanya Richens, Reclamation Approvals Coordinator, Alberta Environment (30 March 2007).

[209] Correspondence from Tanya Richens, Reclamation Approvals Coordinator, Northern Region, Alberta Environment (22 December 2008).

		2004	2005	2006	2007
Syncrude Aurora (Based on Conservation and Reclamation)	Disturbed Land (ha)	3837	4085	4418	4493
	Security ($millions)	60	71.2	90.2	120.4
	Security per hectare ($thous/ha)	15.6	17.4	20.4	27
Syncrude Milfred Lake (Based on Production)	Disturbed Land (ha)	12057	11868	12006	12197
	Security ($millions)	42.9	42.9	44.1	45.2
	Security per hectare ($thous/ha)	3.6	3.6	3.7	3.7
Suncor (Based on Conservation and Reclamation)	Disturbed Land (ha)	7655	9400	11371	13108
	Security ($millions)	91.7	100.8	176.1	240.2
	Security per hectare ($thous/ha)	12	10.7	15.4	18.3
Suncor 86/17 (Based on Production)	Disturbed Land (ha)	N/A	10988	10988	10988
	Security ($millions)	N/A	13.7	13.7	13.7
	Security per hectare ($thous/ha)	N/A	1.2	1.2	1.2
CNRL Horizon (Based on Conservation and Reclamation)	Disturbed Land (ha)	1832	6131	7143	7208
	Security ($millions)	7.8	8.4	20.8	27.6
	Security per hectare ($thous/ha)	4.3	1.4	2.9	3.8
Petro Canada Fort Hills (Based on Conservation and Reclamation)	Disturbed Land (ha)	400	400	400	1736
	Security ($millions)	0.8	1.7	1.7	14.2
	Security per hectare ($thous/ha)	2	4.2	4.2	8.2
Shell JackPine (Based on Conservation and Reclamation)	Disturbed Land (ha)	0	23	761	2709
	Security ($millions)	0	0.04	5.7	22.3
	Security per hectare ($thous/ha)	0	1.7	7.5	8.2
Albian Sands Muskeg River (Based on Conservation and Reclamation)	Disturbed Land (ha)	4086	4173	4720	4901
	Security ($millions)	30.4	34.2	37.9	51.3
	Security per hectare ($thous/ha)	7.4	8.2	8	10.5

This table illustrates the difference between security amounts based on production and those based on estimated conservation and reclamation costs. The Syncrude Mildred Lake project and the Suncor 86/17 lease have a great deal more total area disturbed than does the Syncrude Aurora project yet the security taken in respect of those two projects is much less than that taken in respect of the Aurora project.

This table does not reflect any of the areas described as having been reclaimed by Syncrude, either temporarily or permanently, in respect of the projects. Though some land is so described in Syncrude's annual reclamation report, at the time the reports were published, there was no land certified as reclaimed or proposed for certification.[210]

The table provides no commentary as to whether the security amount taken in respect of the projects governed by section 18(3) of the *Conservation and Reclamation Regulation* is sufficient to reclaim those specified lands. Indeed, there is some suggestion that it is not.[211] While projects may have legitimate differences in costs, the figures as presented indicate that the security taken in respect of the Aurora project is over $26,000 per hectare of disturbed land while the per hectare security amount taken for Mildred Lake and the 86/17 Lease are approximately $2700 and $1250 per hectare, respectively. While a crude metric such as security amount per disturbed hectare may not lend itself to a meaningful detailed comparison of projects, to the extent that one might expect reclamation activities to be generally similar for these projects, the metric does provide some indication of the degree of inconsistency that continued security calculation under section 18(3) allows.

While the Suncor lease 86/17 no longer continues to produce, the lands have not been certified as reclaimed.[212] Tailings and reclamation operations are ongoing.[213] The security taken in respect of these lands will not increase, but the actual cost to reclaim them is not static. Costs to complete reclamation activities may increase with inflation as time passes and the gap between the amount of security taken in respect of that project and actual reclamation costs can be expected to grow.

Reclamation security deposits are not always based on the estimated costs of reclamation. In New Brunswick, regulators require a certain dollar amount for each hectare of land disturbed.[214] Basing security on the amount of disturbed acreage or on units of production bears little relation to reclamation costs and can result in significant underfunding should the operator default and reclamation obligations fall to the regulator.[215] Commentators assert that reclamation security should be based on the estimated costs to reclaim the land.[216]

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[210] Syncrude Canada Ltd, Annual Reclamation Report for Mildred Lake at 7; Annual Reclamation Report for Aurora at 3. Since these Annual Reports were published, a reclamation certificate has been issued to Syncrude with respect to Gateway Hill. The reclamation security for these lands was calculated under the *LSCRA* based on production. Alberta Environment staff indicate that no reclamation security funds were returned in respect of these lands and that the department has not developed a process for returning security amounts to reflect progressive reclamation of lands secured under the provisions of the *LSCRA*; correspondence from Chris Powter *supra* note 201.

[211] Grant, Woynillowicz & Dyer, *sup*ra note 2 at 44. This report cites anecdotal evidence that the approximate cost for revegetation alone would be approximately $200,000 per hectare.

[212] Correspondence from Tanya Richens, *supra* note 209.

[213] Suncor Reclamation Report, April 2006 at 1.

[214] New Brunswick's *General Regulation - Mining Act*, N.B. Reg. 86/98, provides that the amount of security to be provided is $1500 per hectare disturbed.

[215] O'Ferrall, *supra* note 29, Article IV at 21, identified this as a problem under the *LSCRA*.

[216] Kuipers, *supra* note 60 at IV-13; Miller, *supra* note 59 at 10.

For the most part, Alberta's regime is consistent with commentators' positions; however, continuing application of the *LSCRA* rules to grandfathered projects exposes Albertans to a greater risk of financial liability for reclamation. The decision whether to require that *LSCRA* approved projects be transitioned to require reclamation security be calculated under subsection 18(1) of the *Conservation and Reclamation Regulation* is, obviously, a political one and some arguments for and against the application of new rules to old projects generally were introduced earlier in this report in the context of exclusions. However, the difference between security for these projects and estimated costs of reclamation, though it is not publicly available, may be significant. Current cost estimation rules should be gradually phased in for these projects so that all oil sands mining projects are treated the same way.

Subsection 18(1)(a) of the *Conservation and Reclamation Regulation* requires estimated conservation and reclamation costs to be submitted by the operator.[217] Alberta Environment indicates that estimates are to be based on the maximum disturbance planned for the next calendar year.[218]

This approach is supported by some, but not all, commentators. Given that reclamation security cost estimates are used as a basis upon which to negotiate the amount of security the regulator will require from operators, some commentators note that there is an inherent danger in having the estimates prepared by operators themselves. Kuipers notes that operators or third-party contractors hired by operators to prepare cost estimates frequently cut corners to reduce the amount of the cost estimate.[219] Boyd describes the potential danger as follows: [220]

> Although regulators can perform cost estimation themselves, estimation is costly and time-consuming. In some cases, firms are asked to develop their own environmental cost estimates as a basis for their assurance obligations. Absent adequate oversight, these estimates may prove to be too low. After all, low-balling estimates of future environmental obligations is a good way for firms to minimize the costs of assurance. A low estimate translates into lower coverage requirements and, consequently, lower compliance costs.

In reference to research done on reclamation security estimates prepared for landfill operations in the United States, Boyd noted that there is evidence that operators routinely prepare cost estimates in the course of complying with financial assurance regulation and that a significant shortfall between estimated and actual costs is

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217 Alta. Reg. 115/93, *supra* note 18.

218 Correspondence from Chris Powter, *supra* note 103.

219 Jim Kuipers, *Putting a Price on Pollution* (Washington, DC: Mineral Policy Centre, 2003), online: Earthworks < http://www.earthworksaction.org/pubs/PuttingAPriceOnPollution.pdf.> at 16.

220 Boyd, *supra* note 130 at 41.

common.[221] While this reference is not specific to oil sands mining operations, the concerns are common for any industrial activity for which reclamation security is taken. Boyd indicates that in the absence of a meaningful audit program, it is inadvisable to allow operators to prepare their own cost estimates.[222]

Commentators also recognize that reclamation cost estimates calculated by regulators tend to be higher than those prepared by operators. Miller asserts that this difference is based on the fact that government estimates tend to be based on costs that a third party would pay to reclaim the lands, rather than the costs to the operator and that government often sets standards of reclamation unreasonably high for the purposes of cost calculation.[223]

In Alberta and many other provinces, cost estimates are prepared by the operator, not by the regulator or an independent third party. However, cost estimates are reviewed by respective regulators for reasonableness. Still, Kuipers notes that often the regulator's oversight is inadequate due to lack of time or expertise.[224] Obviously, where this is the case, an audit program cannot be said to be meaningful and the chances that the financial security estimate prepared by the operator may underestimate the reclamation liability increase. Wenig *et al* recommend that reclamation cost estimates be prepared by regulators or independent third parties and suggest that operators should be involved by providing information and feedback on the cost calculation methodologies used.[225] This feedback is important as industry has a legitimate interest in ensuring that reclamation security is not unnecessarily high.

It is not clear whether Alberta Environment's practice of allowing operators to prepare their own cost estimates results in an underrepresentation of reclamation costs. However, the Auditor General's concerns respecting potential risk arising from consistent estimation by operators would be resolved if Alberta Environment prepared the cost estimates, with significant input from the operators. At a minimum, oil sands mining operators should be required to provide Alberta Environment with a corporate certification, signed by an executive or designated officer, that the information is as accurate as possible. They are not currently required to do so.

Cost estimates are not consistently based on third-party costs or are not independently verifiable. Because reclamation security regimes are premised on the recognition that a regulator may have to assume the obligations of a defaulting operator, it is important to understand whose costs are used in preparing a reclamation cost estimate. Labour, equipment and overhead that would have otherwise been in place

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221 *Ibid*. Boyd cites a U.S. Environmental Protection Agency study that indicated that 89 out of 100 landfill operators underestimated their reclamation liability when preparing estimates and that the total shortfall for those 89 operators totaled $450 million.

222 *Ibid*.

223 Miller, *supra* note 59 at 18.

224 Kuipers, supra note 219 at 16; Kuipers, *supra* note 60 at IV-116.

225 Wenig, O'Reilly & Chambers, s*upra* note 13 at 106.

for use by an operator would have to be contracted by the regulator, usually at a higher price.

Alberta Environment staff indicates that they request operators to use third party costing information and that most operators do so. However, others base cost estimates on their own staff and equipment costs. It is unclear whether the third party costs or operator's own costs are independently verifiable. Alberta Environment indicates that where operators do not base their cost estimates on third party costs, a premium is added to reflect the higher costs that the government may have to pay to hire contractors and equipment to do the conservation and reclamation work.[226] The typical amount of this premium is not known.

Kuipers notes that reclamation costs to the regulator can be vastly different than the costs to an operator: [227]

> Operating costs employ economies of scale and costs that are shared with on-going mining operations. Reclamation and closure management by the company normally assumes extensive use of existing infrastructure and management. In contrast, if the agencies are required to perform reclamation and closure activities, the costs associated with these activities will stand alone. They will require dedicated equipment, manpower, infrastructure and management. As a result of the difference between the two approaches, agency costs can range from 20 percent to 100 percent greater than company costs for the same activity. For this reason, it is absolutely crucial that costs accurately reflect reclamation activities as if the agency, without the involvement of the company, were performing them.

Other commentators have expressed disagreement with this approach, suggesting that it leads to unnecessarily high estimates. The International Council on Mines and Metals suggests that reclamation security cost calculations based on third-party costs, regardless of the likelihood that a third-party will be required, is one factor that leads to the over-estimation of reclamation cost estimates.[228] Miller expresses this position, as follows:[229]

> Companies take issue in the USA (and to some extent elsewhere) with the estimate of potential reclamation cost on which the required amount of financial assurance is based. Government estimates are based on high-cost inputs (a third-party contractor under the direction of a government agency, paying government-scale wage rates)

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226 Correspondence from T. Richens, *supra* note 157.

227 Kuipers, *supra* note 60 at IV-13; see also Wenig, O'Reilly & Chambers, s*upra* note 13 at 7 & 106.

228 Miller, *supra* note 59 at 4.

229 *Ibid.* at 26.

> whereas a company's own costs would be much lower, some estimate by a factor of three to five. The required amount of financial assurance is inflated accordingly. Governments counter this argument by pointing out that if the mine fails, it will be government that has to do the reclamation.

Ferreirra and Costanza suggest that the more likely it is that an operator will default, the more appropriate it is that the cost estimate be based on the regulator's costs and notes that a 15%-30% difference between operators' cost and regulators' costs is common.[230] Unfortunately, a corporation may appear to be financially robust right up until the moment it becomes insolvent.[231] This makes it difficult to determine in advance which companies are more likely to default on their obligations.

Canadian jurisdictions are inconsistent in their approach to the use of third party costs for reclamation cost estimates. Regulations may refer specifically to third-party costs or merely to "market-value" costs.[232] Yukon's regulations specifically require consideration of the costs that the government would incur if it were to reclaim the land.[233]

Regulations in other jurisdictions, including Alberta, do not specifically call for security based on third-party costs.[234] Alberta Environment's practice of requesting third-party costs be used is appropriate and supported by the literature, but it appears not to be consistently adhered to by operators. While Alberta Environment attempts to account for this by adding a premium to the total estimate where operators insist on using their own costs, the preferred approach is to require, through a regulation or formal policy, that third-party costs be used.

In order for a cost estimate to be a credible foundation for reclamation security, it must be based on data that can be verified. This should be the case regardless of whether the cost estimate is prepared by the operator, the regulator or a third party. Alberta Environment staff indicates that they request that operators provide documentation of data sources for cost estimates or use published Alberta Roadbuilders Rates. [235] It is not clear whether this is consistently done.

The source of cost estimate data may vary depending on the cost category. Costs for materials and supplies may be verified through catalogues and bid quotations from third party suppliers. Costs for equipment use and operation may be verified in

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230 Ferreira *et al*., *supra* note 148, at 1178.

231 Kuipers & Associates, *supra* note 129 at 30.

232 *Mine Development and Closure Under Part VII of the Act*, *supra* note 83, s.12(2), refers to "market-value" costs.

233 *Security Regulation*, Y.O.I.C. 2007/77, s. 3.

234 *Conservation and Reclamation Regulation*, *supra* note 18, s. 18(a); *Mineral Industry Environmental Protection Regulations, 1996*, *supra* note 83, s. 14 & s. 15(2); *Mine Closure Regulation*, *supra* note 95, s. 18.

235 Correspondence from Chris Powter, *supra* note 103.

industry equipment cost handbooks.[236] Published prevailing wage rates may be used to form a basis for the labour cost estimate.[237] Basing costs on independently verifiable data can lead to estimates that more closely reflect the potential expense to a regulator.[238]

The usefulness of published cost catalogues and prevailing wage rate statistics depends on their currency. During periods of inflation it is possible for prices to be out of touch with the market by the time a catalogue is published and government websites posting prevailing wage statistics may fall out of date. In such a case, it may be appropriate for the regulator to require the estimate be prepared based on these current published rates and then adjusted through the use of an appropriate inflation rate that has been publicly disclosed. Quotations from different occupational contractors could also provide relevant information.

A great deal of site-specific information and assumptions would still need to be used in conjunction with published or independently quoted costs in order to prepare the cost estimate. The site-specific information would describe the activities to be undertaken on the site. The regulator should estimate the costs of undertaking those activities based on the independently verifiable costs. As an example, an operator would estimate the quantity of materials to be moved and distances over which the materials are to be moved in order to recontour lands or replace topsoil. The operator would identify specific assumptions respecting the equipment to be used, such as the amount of materials that can be moved per hour, and would estimate the time required to complete the task. However, materials costs, hourly equipment rental and labour rates should be based on independently verifiable rates. The regulator can also test the reasonableness of the site-specific information and assumptions by comparing them against previous estimates from that operator or against information provided by other operators in respect of similar projects.

Cost estimates should include all direct and indirect costs of undertaking reclamation work. A regulator stepping into the shoes of an operator to undertake reclamation work will incur both direct and indirect costs. Direct costs will be the costs to perform specific reclamation tasks. Equipment rental and fuel costs incurred to contour a piece of land or wages paid to a crew to perform the land contouring are both examples of direct costs. Indirect costs, which cannot be attributed to a specific reclamation activity, are costs that would otherwise have been incurred by a company and would have to be incurred by the regulator that steps in to perform closure and reclamation activities in the event of operator default. These indirect costs are

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[236] Kuipers, *supra* note 60 at IV-13. The Alberta Road Builders and Heavy Construction Association publishes a rental pricing guide for large equipment. Similar handbooks are used in other Canadian jurisdictions.

[237] Kuipers, *ibid.* The Alberta government, for example, maintains a wage and salary survey that provides wages and salaries for different occupations in different geographical regions of Alberta; see online: Alberta Learning Information Service, WAGEinfo <http://alis.alberta.ca/wageinfo/Content/RequestAction.asp?format=html&aspAction=GetWageHomePage&Page=Home>.

[238] Kuipers, *ibid.*

overhead costs associated with operation of the mining project, rather than specific reclamation activities. Administrative or engineering costs are general examples of indirect costs.[239]

As noted above, neither *EPEA* nor the *Conservation and Reclamation Regulation* provide detailed guidance as to the types of costs to be included in a conservation and reclamation security cost estimate. Alberta Environment staff indicates that they require a laundry list of costs be accounted for in the security cost estimate. These costs include:[240]

- re-contouring the landform;
- replacing soil to the appropriate depth, which varies depending on the quality of the underlying material;
- planting or seeding vegetation;
- moving tailings from external tailings ponds to the mine pit;
- breaching external tailings pond(s) so they do not hold water;
- re-establishing site drainage;
- removing infrastructure (e.g., roads);
- monitoring the site and ensuring site safety;
- 10% contingency; and
- 10% management fee.

Other than the 10% management fee, it is not clear whether indirect costs must be included.

Kuipers identifies a number of indirect costs that are frequently underestimated but can result in significant increases for regulators required to step in to perform reclamation work. Each of the indirect cost categories identified by Kuipers, and their potential cost implications, are briefly described below.

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239 Kuipers, *ibid.* at IV-15.

240 Correspondence from Chris Powter, *supra* note 103. Alberta Environment also considers the operators' views on mobilization and demobilization costs.

Regulatory investigation and oversight of reclamation and closure activities

The cost of regulatory investigation and oversight of reclamation and closure activities can be significant as there are many activities required before the physical work can begin. The regulator would likely need to consult with the operator and other government agencies. The extent of reclamation required would need to be confirmed through site investigation and monitoring. A reclamation plan would have to be developed, requiring dedicated effort from the regulator's staff. The regulator would need to dedicate a significant amount of time to the process of hiring contractors to undertake the reclamation work, and engineering, procurement and construction management bid packages would need to be prepared.[241] Further, if the reclamation security forfeiture has occurred because of an operator's bankruptcy or insolvency, the regulator may be required to participate in that legal process at the same time.

Once reclamation work has begun, the regulator must dedicate staff time to the oversight and quality control of the work. Kuipers indicates that costs incurred by a regulator to undertake all necessary reclamation investigation and oversight may amount to 2 - 5% of the direct costs of a particular reclamation project.[242]

Contractor mobilization/demobilization

The cost of contractor mobilization and demobilization relates to costs incurred to get contractors and their equipment to and from the reclamation site. It cannot be assumed that the regulator will have immediate access to local contractors when the need to step in materializes. The significance of these costs depends directly on the distance and difficulty that a contractor must overcome in moving equipment to the site.[243]

Cost of final reclamation and closure engineering, procurement and construction management activities (EPCM)

EPCM costs relate to the specific engineering and design work that must be done in order to prepare a call for contractor tenders. The reclamation plan that a project proponent prepares in its initial project application will be general in nature and based on the state of the project at the end of its expected productive life. A regulator may be required to step in to reclaim the lands due to operator default at an earlier stage. Regardless of the stage of development, it will be necessary to complete specific engineering work. Kuipers identifies the following typical EPCM work that may have to be done by the regulator upon default by the operator: [244]

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241 Kuipers, *supra* note 60 at IV-15.
242 *Ibid*.
243 *Ibid*.
244 *Ibid*. at IV-16.

- undertake surveys and prepare current maps and plans to show the extent of required reclamation;

- survey and calculate topsoil, subsoil, tailings, dump and pit volumes to determine amounts of backfill necessary and material available to perform various reclamation activities;

- analyze and evaluate existing vegetation, revegetation, soils and subsoils to determine appropriate methods for additional revegetation pursuant to full reclamation and closure;

- evaluate existing reclamation plans for efficacy with relation to various reclamation and closure requirements, water treatment systems, long-term tailings impoundment stability, etc;

- evaluate equipment and structures to determine requirements for removal and/or demolition and disposal;

- assess performance and provide construction management oversight during reclamation and closure activities; and

- procure necessary dirtwork, other contractors and materials and supplies.

Kuipers indicates that in circumstances where regulators are required to perform reclamation work upon the default of operators of hardrock mines in the United States, EPCM costs in the amount of 10 - 15% of the direct costs are common due to the need for substantial changes to the reclamation plan.[245]

Contractor insurance, performance bonding and profit

Published labour wages frequently do not include amounts for contractor insurance or an amount for a performance bond to ensure performance by the contractor.[246]

Contingency

The cost estimate is just that, an estimate. It is based upon many assumptions. These assumptions may relate to the expected cost of labour at a given time, an estimated amount of reclamation work to be done, or the effectiveness of a proposed reclamation strategy. If circumstances at the time that the regulator is required to step in the shoes of the defaulting operator prove the assumptions to be faulty, there is potential for the actual costs of reclamation to greatly exceed the security provided.[247] To ensure that unexpected events and uncertainties do not result in the regulator being underfunded to carry out the required reclamation work, contingency costs should be

245 *Ibid*.
246 *Ibid*.
247 Wenig, O'Reilly & Chambers, s*upra* note 13 at 107.

factored into the reclamation security estimate as a distinct indirect cost. Project complexity would tend to increase the contingency cost.[248] Kuipers indicates that a contingency cost can amount to between 5 - 10% of direct costs of reclamation.[249]

Cost inflation

Reclamation security estimates are prepared based upon current costs. Where operator default requires the regulator to assume responsibility to perform reclamation tasks, inflation occurring between the time the reclamation security was estimated and taken and the date of default may have increased costs significantly. This can leave the regulator underfunded.[250] Inflation presents a bigger risk of underfunding in cases where the reclamation security is not reviewed frequently. However, even in cases where the security is reviewed annually, a very high inflation rate may still leave the regulator exposed to underfunding.

All applicable direct and indirect costs should be accounted for in cost estimates prepared under section 18(1) of the *Conservation and Reclamation Regulation*. It is uncertain whether Alberta Environment requires any or all of these costs to be included in the cost estimate. There is no formal guideline and the information provided by Alberta Environment does not indicate that all of these costs are to be provided. Alberta Environment staff has indicated that they do not require inflation costs to be included because the security is reviewed annually.[251] However, if the other types of indirect costs identified above are not specifically accounted for, they have the potential to exceed the 10% management fee that is required to be included.

Uncertainty as to the effectiveness of proposed reclamation schemes should result in a rationally increased reclamation security amount. Reclamation of oil sands mining projects presents a number of technical challenges.[252] Alberta Environment requests that operators include a list of assumptions upon which the estimate is based but gives no details as to what assumptions are expected or how they should relate to the estimate. Alberta Environment requires that operators allow a contingency amount of 10% of the total estimate but it is not clear whether that 10% is intended to deal with situations where assumptions of reclamation success based on unproven technology prove to be wrong.[253]

Uncertainty generally arises in the context of reclamation security cost estimation in two ways. There may be uncertainty respecting the ability of an operator to reclaim lands using existing technology. There may also be uncertainty as to whether the regulator has required adequate security to reclaim lands in the event of operator default.

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248 Kuipers, *supra* note 60 at IV-16.

249 Ibid.

250 Ibid.

251 Correspondence from Chris Powter, *supra* note 103.

252 See Grant, Woynillowicz & Dyer, *supra* note 2 for a discussion of many of the technical challenges presented by oil sands reclamation.

253 Correspondence from Chris Powter, *supra* note 103.

Where an operator's estimate is based on the use of unproven technology, there is a chance that the regulator will not be able to achieve desired reclamation objectives with the money provided. Commentators have suggested that where uncertainty exists about the effectiveness of proposed reclamation techniques, such techniques should not be approved or, if approved, they must be accompanied by higher monitoring requirements and increased financial security.[254] This is consistent with the precautionary principle.[255] It may also encourage operators to conduct research to develop techniques that increase the likelihood of reclamation success.[256]

The amount by which reclamation security should be increased to account for the use of unproven techniques becomes a matter of government policy if development is to be allowed in the face of this uncertainty. It is necessary, however, to balance the interests of the public purse and the interests of industry in avoiding a prohibitively high security requirement.

Even assuming that the reclamation standard is clearly established, and the technology to be used is proven, uncertainty may remain regarding whether the amount of security taken by a regulator is adequate to ensure that the operator will carry out its obligations. Some commentators have suggested that regulators need only be reasonably certain that the operator will carry out its obligations or that approximately enough financial security will be available in case of operator default. Miller states this case: [257]

> Closely related to the issue of standard of performance is the degree to which the government seeks assurance against all possibility of loss or damage to the environment. Just as unnecessary costs are imposed by a technical standard that is higher than it needs to be, so will unnecessary costs be imposed by a standard of future certainty that is higher than it needs to be.

Ultimately, it is not possible to determine whether the overall methodology, or any of the individual methods, results in adequate protection of Albertans. It appears that some of the methods used by Alberta Environment are inconsistent with recommendations made by some commentators. These problematic methods include:

- not using any formal guidance documents for cost estimation;
- not requiring all aspects of the project to be included in the cost estimate;
- continuing to base security for some projects on production rather than the estimated cost of security;

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254 Wenig, O'Reilly & Chambers, *supra* note 13 at 107.
255 Costanza & Cornwell, *supra* note 12.
256 Perrings, *supra* note 64 at 107.
257 Miller, *supra* note 59 at 18.

- allowing the operator to prepare the actual cost estimate;
- allowing the use of operator-based costs rather than third party or independently verifiable costs;
- inconsistently including all direct and indirect costs; and
- basing the cost estimate on unproven reclamation techniques.

Alberta Environment's role

There is no current formal policy guiding Alberta Environment staff in their review of reclamation security cost estimates. As emphasized previously in this paper, the Director is responsible for determining the conservation and reclamation security amount based in part on the estimated cost of conservation and reclamation submitted by the operator. Alberta Environment indicates that operators are required to provide cost estimates by November 1, in respect of the security required for the following year.

Alberta Environment's review of the cost estimate is not a detailed line-by-line review. Rather it is a high-level reasonableness review based upon a comparison of the cost estimate against that operator's previous estimates, current mine status, and current estimates of other companies. Current mine status is determined based on the operator's approval requirements, the annual reclamation report, a soil salvage meeting and site visits and inspections. Alberta Environment indicates that it may request reviews by other agencies such as the Energy Resources Conservation Board or Sustainable Resource Development.[258]

Alberta Environment staff reviewing the security estimate will request further information or clarification from the operator as required.[259] The Director then confirms the estimate's acceptability. The company provides security in an appropriate format by January 31.[260]

The Director has discretion when setting the reclamation security amount. Sections 18(1)(b) - (d) of the Conservation and Reclamation Regulation require the conservation and reclamation security amount, as determined by the Director, to be sufficient to ensure completion of conservation and reclamation on the specified land. This must be based on the nature, complexity and extent of the activity, the probable difficulty of conservation and reclamation, and any other factors the Director considers to be relevant.

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[258] Correspondence from Chris Powter, *supra* note 103.

[259] *Ibid*.

[260] *Ibid*. This process is not described in any formal government policy documents. It is taken from an informal document that Alberta Environment has prepared for its own purposes.

As noted above, Alberta Environment's reclamation security regime is based on full cost coverage: an approach generally supported, but not strictly required by the language. There are no formal regulations or guidelines for either the preparation of the security cost estimate or its review.

Considering the amount of reclamation security taken under this program exceeds $450 million, there is precious little detail about this process publicly available. One aspect of this process that deserves specific comment is the inspection process. The reason inspections are singled out is because commentary identifies independent and detailed annual inspection of mining projects as an integral part of a phased bonding approach.[261]

The reclamation security provisions of *EPEA* rely greatly on information provided to Alberta Environment by the operator. This information includes the state of specified lands prior to disturbance, anticipated location and amount of disturbance, anticipated conservation and reclamation work, costs of such work, and work already completed on specified lands. Inspections of specified lands are conducted to verify information respecting reclamation work done or to be done. The inspections are carried out by Sustainable Resource Development (SRD) staff through an informal arrangement with Alberta Environment.[262] This arrangement dates back to the time when Alberta Environment and Sustainable Resource Development were within one government Ministry.[263] This arrangement raises the possibility of a conflict because the mandate of SRD is not the same as that of Alberta Environment. This potential conflict was recognized by the Legislative Review Panel when *EPEA* was first proposed:[264]

> The Panel understands that reclamation officers for Crown Lands are not those who work for Alberta Environment but are rather employees of Alberta Forestry, Lands and Wildlife. The potential for conflict and or inconsistent administration is apparent.

Alberta Environment staff indicates that historically reclamation inspections have been performed less frequently than Alberta Environment has desired. Sustainable Resource Development's Fort McMurray office has increased staffing over recent years and is working closely with Alberta Environment staff to develop a consistent approach to performing these inspections and to ensure consistent reporting back to Alberta Environment. Alberta Environment's goal is to have inspections performed more frequently.[265]

Alberta Environment staff indicates, however, that the purpose of inspections is neither to reconcile the security estimate with the actual project condition nor to

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261 Kuipers, *supra* note 60 at IV-20.

262 According to Alberta Environment staff, SRD is a designated inspector under the *EPEA*. There are no formal agreements or terms of reference governing this delegation. Correspondence from Chris Powter, *supra* note 201.

263 Interview of T. Richens (12 February 2007).

264 *Report of the Environmental Legislation Review Panel*, *supra* note 36 at 49.

265 Correspondence from Tanya Richens, *supra* note 157.

assess the cost estimate's accuracy. Rather, inspections are intended to confirm that each operator is carrying out the reclamation work set out in their annual reclamation plans. These plans identify reclamation work that the operator expects to complete in the upcoming year. Inspections also ensure compliance with the *EPEA* approval and identify any operational issues related to reclamation the operators may be facing. Finally, inspections aid in building open relationships between the operators, Alberta Environment, and Sustainable Resource Development.[266]

Detailed inspections are an important part of the reclamation security cost estimation process. This is especially true where the operator prepares the cost estimate itself.[267] It is unclear whether inspections carried out by Sustainable Resource Development are helpful aids to Alberta Environment in determining whether conservation and reclamation cost estimates are reasonable. Given that inspections are not designed for that purpose and do not appear to be conducted as frequently as Alberta Environment would like, their efficacy for this purpose is questionable.

Public involvement and transparency

The cost estimation process, subsequent review of the estimate and ultimate negotiation of the security amount between the operator and Alberta Environment take place with no public input. Neither *EPEA* nor its regulations provide an opportunity for public participation or consultation with respect to reclamation security deposits. Alberta Environment acknowledges that the determination of reclamation costs is not a public process.[268] While public hearings do exist with respect to the ERCB's review of an application for an oil sands mining project, these hearings do not include consideration or determination of the security amount.

The regime used by Alberta Environment to approve, adjust and return reclamation security is not transparent. There is no public hearing or input related to these processes. Very little information is made available respecting reclamation security taken under *EPEA*. Each year, Alberta Environment prepares and submits an Annual Report of the Environmental Protection Security Fund to the Legislature. This Annual Report identifies the amount of security taken or returned by Alberta Environment in respect of each project. However, this report provides no insight into the methods used for calculating the security amount or the nature of the review carried out by Alberta Environment. The Auditor General has described the review and acceptance of the reclamation security amount as a negotiation between individual operators and Alberta Environment.[269] The Annual Report thus discloses only the negotiated results and reveals none of the information or assumptions upon which those amounts are based.

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266 *Ibid*.

267 Boyd, *supra* note 130 at 41.

268 *Suncor Energy*, *supra* note 47 at 71.

269 Auditor General, *supra* note 6 at 90.

Actual reclamation cost estimates submitted to Alberta Environment by operators pursuant to section 18 of the *Conservation and Reclamation Regulation* are not available for public review. Alberta Environment has taken the position that these estimates, because they contain third party information such as contractor pricing to undertake reclamation work, are confidential.[270] Interveners at Alberta's Energy Resources Conservation Board hearings have argued that this position makes it difficult for the public to determine whether adequate security is being taken.[271]

Obviously, without access to the estimates or a formal, publicly available guideline, the public can have no sense of how estimates are prepared, what costs are included and what assumptions are made. This information is crucial to an understanding of whether adequate security is taken in a particular case.

Section 35 of *EPEA* contains provisions governing access to information under that Act. Subsection 35(1) identifies certain types of information, either submitted to or created by Alberta Environment, which must be disclosed to the public upon request. Section 35(1) requires documents filed with Alberta Environment as a part of an application for an approval to be made public. However, while no approval can be issued without reclamation security first being taken, the reclamation security estimate does not form part of the actual application for approval.

Subsection 35(3) of *EPEA* provides the Minister with the discretion to make publicly available any other information in the department's possession that the Minister considers should be public. In April 2005, Alberta Environment put into place a Routine Disclosure Initiative that made a wide range of information and records available on a routine basis, without requiring an application under the *Freedom of Information and Protection of Privacy Act*.[272] A Ministerial Order had been issued in 2004, designating information to be released by Alberta Environment without a freedom of information application.[273]

The Ministerial Order does not specifically identify reclamation security estimates as information to be made publicly available. However, it includes the following in the list of information to be publicly disclosed: [274]

> information or records submitted to the Department *in accordance with a regulation* under the [*EPEA*], an approval, authorization, notice or direction, and any correspondence from the Department to the submitter relating to the submitted information or records, *excluding information, records or related correspondence that relate to "an application for a reclamation certificate*."

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270 *Suncor Energy*, *supra* note 47 at 70; Correspondence from Chris Powter, *supra* note 103.

271 *Kearl Lake*, *supra* note 47 at 51.

272 *Freedom of Information and Protection of Privacy Act*, R.S.A. 2000, c. F-25.

273 Alberta, *Designation of Public Information under the Environmental Protection and Enhancement Act*, Ministerial Order 23/2004, online: Alberta Environment <http://environment.alberta.ca/documents/Ministerial_Order_23-2004.pdf>.

274 *Ibid*., s. 1(o) (emphasis added).

Reclamation security estimates are submitted by operators in accordance with the *Conservation and Reclamation Regulation*. Further, some Alberta Environment project approvals include requirements respecting security estimate updates.[275] This information would appear to fall within the scope of the Ministerial Order.

The Ministerial Order specifically excludes from its scope all documents relating to the application for reclamation certificates and documents generated respecting Alberta Environment's review of such applications. Strictly speaking, however, this exclusion should not apply to information relating to reclamation security estimates. Annual reclamation security estimates are not related to reclamation certificate applications other than by virtue of the fact that the receipt of a reclamation certificate by an operator is one of a number of events that can provide the Director with the discretion to return some or all of the security deposit associated with the reclaimed lands.

Notwithstanding that reclamation cost estimate information may fall within the scope of the Ministerial Order and thus could be disclosed under section 35(3) of *EPEA*, section 35(4) of *EPEA* allows a person submitting such information to make a formal request for confidentiality. The request is to be made in writing to the Department. For confidentiality to be granted, the information must relate to "a trade secret, process or technique that the person submitting the information keeps confidential".

Section 35(5) gives the Director, upon receipt of the written request, the discretion to approve or deny the request for confidentiality depending on whether the Director considers the request to be well founded. There is no public input into the decision as to whether reclamation security information, generally or in the context of a specific request, should be granted confidentiality.

Alberta Environment has consistently taken the position that reclamation security estimates are confidential because they contain commercially sensitive third-party pricing information. This suggests that cost estimates would include negotiated price quotes from third party contract providers of equipment and labour that could be hired by operators to undertake anticipated reclamation activities. Estimates reflect the price quotes and identify those parties providing the quotes.

However, to the extent that a reclamation security estimate is to be based on the likely costs that Alberta Environment would incur to undertake reclamation activities defaulted upon by the operator, it would seem reasonable that these costs not be the negotiated costs between the operator and third party contractors. As noted earlier in this paper, several commentators have noted that costs to regulators are typically higher than costs to industry.[276]

Alberta Environment staff also takes the position that actual reclamation activities forecasted and the manner in which they are described in the security cost estimates

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275 *Approval 149968-00-01, supra* note 153 at 44.

276 Kupiers, *supra* note 60 at 16; Boyd, *supra* note 130 at 41; Miller, *supra* note 59.

are confidential, even if dollar figures representing any third party contractor quotes are removed, on the basis that commercially sensitive third party cost information could be derived if the activities as described were disclosed.[277] However, reclamation activities described in the cost estimate would seem to fall outside the scope of section 35(4) unless the reclamation activities can be classified as trade secrets, processes or techniques.

Some information related to reclamation is made publicly available. An operator's annual report identifies the number of hectares it plans to reclaim and the anticipated stage of reclamation targeted during the upcoming year, assuming business as usual. However, this annual report does not provide the necessary information to assess the adequacy of reclamation security taken. This is because the amount of conservation and reclamation planned in the annual report is tied to the long-term conservation and reclamation plan in the approval. The conservation and reclamation required for the estimate of a security amount is not. The annual report does not assume that the operator will default in its reclamation obligation leaving the remaining reclamation work to the government. The conservation and reclamation cost estimates, conversely, make just that assumption. Further, as noted earlier in this report, the standard of reclamation used for the purposes of estimating conservation and reclamation security may be lower than that for a conservation and reclamation approval requirement.[278]

Because a key goal of reclamation security regimes is to protect taxpayers from having to incur reclamation costs in the event of operator default, taxpayers have a genuine interest in those regulatory processes through which reclamation security is set, reviewed, adjusted and returned. Taxpayers' interests would be to ensure that the amounts taken are sufficient and that the security is not returned prematurely. Operators have an interest in minimizing the amount of security that they submit and maximizing the amount of security returned to them once reclamation work has been done. This is because the amount of the reclamation security required can have an impact on the cash flow or credit availability of the operator. In this regard, operators' interests can conflict with taxpayers' interests. Nonetheless, reclamation security is most often set, adjusted and returned to operators through negotiations between operators and regulators. Taxpayers typically are unable to participate in these processes.

The need for meaningful public processes is highlighted in situations where a regulator exercises discretion in setting, adjusting and returning security amounts, and has limited resources or relies on operators for reclamation cost estimates. Failure to provide for appropriate public participation in these circumstances can lead to a situation of actual or perceived regulatory capture. Regulatory or agency capture theory asserts that regulatory agencies having broad discretion under their governing statutes may, for a variety of reasons, become unduly influenced by the very

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[277] Correspondence from Chris Powter, Manager 3PC Project, Alberta Environment (24 November 2008).

[278] *Ibid*.

industries they are charged with regulating.[279] Zinn suggests that regulatory decision-makers are subject to different pressures and influences, each pushing regulatory decisions in a particular direction to serve the interests of the group applying the pressure. Applying this view, agency capture is the result of "understandable human responses to normally adversarial relationships".[280]

For agency capture to occur, a regulatory agency must have broad discretion in the manner in which it regulates a given industry. In the absence of such discretion, the decision-making authority of the regulator would have only a small window within which to operate and the ability of external actors, such as the regulated industry, to influence decision-making would be reduced. Discretion, Zinn writes, allows the regulator to "cave-in" to the influence of stakeholders and also deprives agencies of the law as a shield in the sense that broad policy does not bind agencies the way prescriptive laws can.[281]

A regulator with discretion becomes, then, a target for interest groups wishing to see that discretion exercised in the manner most beneficial to their own interests. The fewer the number of interest groups and the narrower their range of interests, the greater the potential for agency capture. Zinn suggests that if a regulator need not listen to competing interest groups, it is more likely to be influenced by and adopt the views of the single loudest voice it hears: the regulated industry.[282] Ensuring that there is participation by countervailing interests in regulatory decision-making may have some effect in combating agency capture.[283]

Further, a scarcity of resources can be a factor in creating agency capture because such scarcity encourages regulators to look to the regulated industry to provide certain expertise or other resources, such as information.[284] Zinn elaborates: [285]

> Environmental regulation is resource-intensive, requiring expansive and detailed technical knowledge about production processes, pollution control or remediation technologies, the characteristics of chemical compounds, epidemiology, economics and natural processes. One of the best repositories of technical knowledge on many of these subjects is likely to be the regulated firms themselves, and regulators will seek out their assistance.

Resource scarcity can also pressure agencies to seek a cooperative relationship with regulated entities. Regulatory decision-making that does not favour the interests of regulated entities is more likely to be challenged and may be viewed as illegitimate

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279 Zinn, *supra* note 16 at 107.
280 *Ibid*. at 108.
281 *Ibid*. at 109.
282 *Ibid*.
283 *Ibid*. at 117.
284 *Ibid*. at 109.
285 John E. Chubb, "Interest Groups and the Bureaucracy" (1983) at 158-59, cited in Zinn, *ibid* at 124.

by those entities. This may result in reduced compliance and a corresponding strain on regulators forced to carry out increased enforcement activities.[286]

Some commentators call for increased public participation in the entire mine reclamation bonding process.[287] These recommendations include ensuring that there be meaningful public participation in the initial calculation and approval, adjustments, return, and forfeiture of the reclamation security. Citizens should have the right to bring information to each of these regulatory decision making processes and regulators should be required to take that public input into account.[288] Care needs to be taken in identifying those groups and individuals who should be given the opportunity to participate in these processes. As with other regulatory decision-making processes, participation should not be so wide as to introduce unnecessary inefficiency nor so narrow as to preclude participation from those who have a legitimate interest in the outcome of the decision and can contribute meaningfully to the process. With specific reference to oil sands mining operations, it seems reasonable to consider, at a minimum, the inclusion of the municipality within which the project is located, local First Nations and environmental organizations with a demonstrated history of concern for reclamation issues in the area.

In order for such participation to be effective, the reclamation security regime must be transparent. Participants in security estimation or adjustment processes must have access to detailed reclamation plans and cost estimates.[289] Participants would also require sufficient information respecting the condition of the land at the time the estimate is made or adjusted and for the period of time that the security is intended to cover. The determination of the reclamation standard upon which the cost estimate is based in a given case should also include public participation and the standard used must be clearly described.

Where the review and adjustment of security takes into account progressive reclamation and reduces the security amount to correspond with completed reclamation activities, all participants should have access to information respecting the work completed and the amount of the corresponding downward adjustment in security. Similarly, participants in the security return process should have access to detailed closure and reclamation plans and should be able to comment on the adequacy of completed reclamation activities prior to the return of the security.

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[286] Zinn, *ibid.* at 109.

[287] Wenig, O'Reilly & Chambers, *supra* note 13 at 112; Kuipers, *supra* note 60 at IV-25; Miranda, Chambers & Coumans, *supra* note 58 at 42; Joseph F. Castrilli, *Report on the Legislative, Regulatory, and Policy Framework Respecting Collaboration, Liability, and Funding Measures in Relation to Orphaned/Abandoned, Contaminated, and Operating Mines in Canada*, (2007) [unpublished, submitted to the Guidelines for Legislative Review Task Group, National Orphaned/Abandoned Mines Initiative], online: National Orphaned/Abandoned Mines Initiative <http://www.abandoned-mines.org/pdfs/JurisdictionalLegislativeReview.pdf.> at 223.

[288] Kuipers, *supra* note 60 at IV-24.

[289] These plans are different than closure plans that are based upon the eventual closure and reclamation of the site at the end of the project's life. A reclamation plan for security purposes should identify what work would have to be done to reclaim the project during the period covered by the security.

There are some jurisdictions that allow for public participation in reclamation bond setting, review, or release processes. Nevada's *Mined Land Reclamation Act* and related provisions of the state *Administrative Code* require the regulator to issue a notice of the intent to issue a draft permit and to allow, within a specified time period, any person to submit written comments and information regarding the draft permit to the regulator.[290] An operator or person directly affected by the application for a permit may request a hearing and the regulator may hold a hearing and issue orders relating to a range of issues including the holding of, release and forfeiture of a reclamation bond.[291] The New Mexico *Mining Act*[292] and related provisions of the state *Administrative Code* provide that the regulator cannot issue, revise or renew a mining permit unless requirements for a public hearing have been met.[293] Where parties apply for financial assurance to be released, the Rules require public notice, a hearing and the opportunity for public involvement at the release inspection.[294]

Unfortunately, in Canada, processes related to setting, adjusting and returning financial security for reclamation of mining projects are typically lacking in terms of opportunities for meaningful public participation.[295] Not only are there few opportunities for participation, but often the processes through which security is set, adjusted and returned are specifically designed to exclude the public. While most jurisdictions require security to be submitted prior to regulatory approval for a project being issued, the adequacy of the security does not form part of the approval application and is not considered during public hearings. Many jurisdictions specifically allow information relating to the estimation and review of reclamation security to remain confidential and exclude such documents from the operation of provincial freedom of information legislation.[296]

As Zinn notes, the potential for regulatory or agency capture increases where an agency has discretion in its decision making, relies on regulated parties for information or expertise, and is not required to hear viewpoints other than those of the regulated industry. These circumstances are present with respect to Alberta Environment's setting of reclamation security. Alberta Environment has no formal guidelines in place to govern reclamation cost estimate preparation or the review process and has discretion to consider different factors when setting the security amount. Alberta Environment relies on operators for cost security estimates. The security amount is set with no public process whatsoever.

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290 NAC §519A.185, 190, 195, 200, 205.

291 NRS §519A.150, 160.

292 NMSA 1978, Section 69-36-1 et seq.

293 NMAC § 19.10.9.901.

294 *Ibid*., § 19.10.12.1210.

295 Kuipers, *supra* note 60 at IV-24 & IV-25; Wenig, O'Reilly & Chambers, *supra* note 13 at 112.

296 British Columbia Ministry of Energy, Mines and Petroleum Resources, *Health, Safety and Reclamation Code for Mines in British Columbia* (Victoria: Ministry of Energy, Mines and Petroleum Resources, 2008); *Mines Act*, *supra* note 84, s. 34(8); *Mining Act*, *supra* note 131, s. 145(10).

While this paper cannot conclude that industry's apparent inconsistencies in providing Alberta Environment with desired cost estimate information results in security shortfalls, these inconsistencies suggest that industry has significant influence over Alberta Environment. As noted above, some commentators have called for increased public participation and transparency at all stages of the conservation and reclamation process generally. Environmental groups have specifically called for a transparent and inclusive system under *EPEA*.

The Environmental Protection Security Fund currently holds more than $645 million of security in respect of oil sands mining projects alone.[297] Potential environmental and health consequences of inadequate reclamation or outright default by an operator on its reclamation obligations are significant and long lasting and financial costs to remedy these could be enormous and potentially cost-prohibitive for Alberta Environment.

How and when is security returned?

Another feature forming the skeleton of a reclamation security regime is the process through which security is returned to operators. Ensuring that financial responsibility for reclamation rests with operators requires that steps be taken to make sure that reclamation funds are not returned prematurely.

Conservation and reclamation security for oil sands mining projects is returned according to the provisions of section 22 of the *Conservation and Reclamation Regulation*. Criteria for return of security depend on circumstances surrounding the return. Where security is returned following the issuance of a reclamation certificate pursuant to subsection 22(1), the criteria for return would be those that must be satisfied to obtain the reclamation certificate itself.[298] Section 12(1) of the *Conservation and Reclamation Regulation* outlines requirements for an application for a reclamation certificate. These requirements include a declaration that the operator has complied with: [299]

(A) all terms and conditions of any applicable approval, code of practice, environmental protection order or enforcement order,

(B) the directions of an inspector or the Director, and

(C) any applicable standards or criteria or guidelines established under section 3(1) of the regulation.

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[297] *Environmental Protection Security Fund Annual Report, 1 April 2007 – 31 March 2008, supra* note 114.

[298] S*upra* note 18.

[299] *Ibid*., s. 12. Section 3 provides that the Director may establish standards, criteria and guidelines for conservation or reclamation of specified land and may develop and release information documents respecting those standards, criteria and guidelines.

Only one reclamation certificate has been issued for an oil sands mine project. It was issued to Syncrude in respect of Gateway Hill, part of the Mildred Lake oil sands project. No conservation and reclamation security was returned in respect of Gateway Hill, which was secured under the *LSCRA* requirements of 3 cents per barrel. Alberta Environment staff indicates that there is currently no system in place to calculate security returns for lands secured under the *LSCRA*.

Subsections 22(2) and (3) of the *Conservation and Reclamation Regulation* allow security to be returned prior to the issuance of a reclamation certificate where progressive reclamation work has been completed and where the Director has reduced the amount of conservation and reclamation security in accordance with a review under section 20, respectively.

Where conservation and reclamation work has been completed in the prior year, the costs of that work are no longer required to be secured.[300] Alberta Environment staff indicates that operators are encouraged to indicate in their annual updates costs associated with completed reclamation work.[301]

No money is physically returned to operators, as none of the oil sands mining projects are secured with cash. Rather, security is notionally "returned" by virtue of the amount owing being reduced by an amount corresponding to the amount of work performed. The amount of this reduction is not made publicly available.

The Environmental Protection Security Fund's annual report does not reflect the amount of this reduction, but illustrates only the incremental increase in security year over year. This is because the opening balance of the operator's security is reduced by any amount corresponding to completed conservation and reclamation work and is increased by any amount corresponding to anticipated work for the upcoming year. Neither of these inputs is identified, however. All that is provided is the total closing balance of that operator's security.[302] The amount of conservation and reclamation security that has been "returned" in this way may be significant. Alberta Environment's website indicates that, as of the end of 2006, 6,498 hectares of land have been reclaimed, though not certified.[303]

It is not clear how progressive reclamation work is assessed and costs associated with that work verified. Neither the application for a reclamation certificate nor any supporting materials are generally available for public review. Similarly, documents generated by Alberta Environment in the course of its review of an application for a reclamation certificate are not available for public review. Such documents are

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300 Correspondence from Tanya Richens, *supra* note 157.

301 Correspondence from Chris Powter, *supra* note 103.

302 *Environmental Protection Security Fund Annual Report: 1 April 2007 – 31 March 2008,supra* note 114.

303 Alberta Environment, *State of the Environment – Land*, online: Alberta Environment <http://www3.gov.ab.ca/env/soe/land_indicators/41_status.html>.

excluded from the scope of Alberta Environment's routine disclosure policy.[304] Where security is "returned" in respect of progressive reclamation work that has been done, it occurs through the annual review and revision of the cost estimate, which is considered confidential by Alberta Environment.

The premature return of conservation and reclamation security can be a concern both in respect of post-closure reclamation and progressive reclamation. A regulatory regime should require that sufficient security be held until long-term reclamation success is confirmed. This requires that clear reclamation objectives and associated standards be set, and that reclaimed lands be inspected by third-party experts to determine whether objectives have been met.

In many jurisdictions, as specific reclamation activities are completed, a corresponding amount of reclamation security may be returned to the operator. Where reclamation security is returned upon the completion of specific reclamation work but prior to confirmation of long-term reclamation success, any work that must be repeated becomes a financial burden to taxpayers if project operators are either unwilling or unable to repeat the work.

As an example, reclamation of disturbed land may require recontouring and replacement of topsoil and revegetation of disturbed lands. The ultimate success of revegetation depends on proper recontouring and soil replacement. However, it takes time to tell whether revegetation is successful. If security amounts held in relation to recontouring and soil replacement work are returned prior to determining revegetation success, reclamation liability may be imposed upon the public if revegetation failure occurs. In such a case, remedying the problem may cost more than the amount withheld by the regulator for revegetation.[305] An example in the context of an ongoing activity may be the need for extended monitoring of end pit lakes and related water treatment to protect surface and ground water from becoming polluted. Financial security needs to be maintained for the duration of the time that monitoring and treatment are required.

Some commentators suggest that reclamation security ought to be returned to operators only after successful reclamation is verified by an independent third party and after allowing for a period of public notice and comment.[306] Kuipers notes that some regulators release most of the reclamation security as reclamation activities are completed and retain only a small amount (typically 10 percent of the total security) pending proof of revegetation success. Miranda *et al* suggest that where the success of reclamation work cannot be immediately ascertained, it is necessary to withhold financial security until reclamation success has been independently verified, all

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304 *Designation of Public Information under the Environmental Protection and Enhancement Act, supra* note 273.

305 Kuipers, *supra* note 60 at IV-23.

306 Wenig, O'Reilly & Chambers, *supra* note 13 at 108.

impacts have been mitigated and the reclamation has shown to be a success for an adequate period of time.[307]

Kuipers suggests that inspection of reclaimed lands "should be detailed and comprehensive and should employ the use of various experts in evaluating revegetation, stability, water quality and other critical areas" and that the inspection should occur at times that best reflect reclamation efficacy.[308] The inspection process should ensure that all reclamation goals have been achieved before the reclamation security is returned. This could necessitate a number of inspections prior to and post closure. Commentators have suggested that allowing public participation in the reclamation security release process may help to ensure a detailed examination of the successes of the reclamation prior to the release of funds. [309]

The Environmental Law Institute notes: [310]

> …allowing the public to have an opportunity to comment on the release of the financial assurance puts the company on notice that its practices will be seriously examined before these obligations are released, thus increasing incentives for self-monitoring and documentation of operational practices.

Canadian jurisdictions typically give the regulator broad discretion respecting the return of security, requiring generally that the regulator be satisfied with the reclamation work done.[311] Some jurisdictions specifically require government inspections of reclaimed lands prior to returning security, but regulators are not required to provide public notice of applications by operators for the return of reclamation security and no jurisdiction provides for public involvement in the review of reclaimed land. Most Canadian jurisdictions, including Alberta, do not generally impose firm timelines on operators to reclaim the lands.[312]

Subsection 22(1) of the *Conservation and Reclamation Regulation* gives the Minister discretion to withhold security notwithstanding that a reclamation certificate has been issued. This discretion to withhold reclamation security is also expressed in section 23, which provides that "notwithstanding the issuance of a reclamation certificate, the

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307 Miranda, Chambers & Coumans, *supra* note 58 at 9.

308 Kuipers, *supra* note 60 at IV-23.

309 Miranda, Chambers & Coumans, *supra* note 58 at 43, suggest that the absence of public participation and review in the bond release process can lead to pressure from mining companies eager to close the books on a project that is no longer yielding positive returns.

310 Environmental Law Institute, *Towards a Regional Framework for Pollution Prevention in the Mining Sector* (Washington, DC: Environmental Law Institute, 1999) at 51.

311 *Mineral Resources Act*, *supra* note 85, s.75; *Mines Act*, *supra* note 84, s.12(4); *Mineral Industry Environmental Protection Regulations, 1996*, *supra* note 83, s.22; *Mining Act, supra* note 86, s. 111.2.

312 *Mineral Resources Act*, *ibid.*, s. 75. Nova Scotia regulations require that disturbed lands, including the area upon which waste rock and tailings were deposited, be reclaimed within twelve months of the cessation of production or such greater time as may be determined by the Minister.

Minister may retain all or part of the security until the expiry of the applicable period referred to in [section 15]."[313]

Section 15 of the *Conservation and Reclamation Regulation* deals with ongoing operator liability after a reclamation certificate is issued. This section prescribes, in respect of different activities occurring on specified land, the time period during which an operator that has been issued a reclamation certificate may be issued an environmental protection order regarding conservation and reclamation under section 142 of *EPEA*.[314] Section 15 measures these time periods commencing on the date of issuance of the reclamation certificate and provides that, upon the expiry of the prescribed time period, no environmental protection order may be issued. By referencing the time periods in section 15, section 23 determines how long the Director may withhold security once a reclamation certificate has been issued.

The prescribed period of potential liability after a reclamation certificate is issued differs between activities, and in some cases may extend liability up to 25 years past the date of issuance of the reclamation certificate.[315] However, construction, operation and reclamation of oil sands mining projects are listed as activities to which no extended liability period applies.[316] Accordingly, the Minister may not issue an environmental protection order in respect of the construction, operation and reclamation of oil sands mining projects after the date of issuance of a reclamation certificate.

Some commentators suggest that industry operators should bear the financial responsibility of long lasting environmental harms. Kuipers suggests including long-term measures in reclamation security cost estimates.[317] Other commentators have suggested that clear limitations of liabilities should be in place once closure plans have been carried out and reclamation standards of the day are satisfied. Operators, the commentators argue, seek an "exit ticket": an acknowledgement that, at some point, they will no longer be liable for further reclamation on the lands. Miller suggests that an exit ticket should be available if the operators finance site management activities for the required period.[318]

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313 *Supra* note 18, s. 23.

314 Section 142(2) of *EPEA* provides that no order may be issued under section 142 after the date prescribed or determined in accordance with the *Conservation and Reclamation Regulation*.

315 *Conservation and Reclamation Regulation, supra* note 18, s. 15(2). This period of liability applies to wells, industrial pipelines or batteries for which reclamation certificates were issued after October 1, 2003. Subsection 15(3) provides that there is a 25 year period of liability applicable to plants; however, no reclamation security is required in respect of plants.

316 *Ibid*. Section 15(1)(b) provides that no environmental protection order may be issued after the date of issuance of the reclamation certificate in the case of an activity listed in Division 3 of Schedule 1 of the *Activities Designation Regulation*, *supra* note 68, where an approval is held in respect of the activity on the date that the reclamation certificate is issued. The construction, operation and reclamation of an oil sands mining project is listed in Division 3 of Schedule 1.

317 Kuipers, *supra* note 60 at IV-14; see also Miranda, Chambers & Coumans, *supra* note 58 at 44.

318 Miller, *supra* note 59.

The current regulatory scheme appears to protect oil sands mine operators from extended liability for conservation and reclamation once a reclamation certificate is issued.[319] This appears to create the exit ticket that industry looks for. However, it is not certain whether the potential long-term costs of monitoring and remediation are included in the conservation and reclamation security.

The potential environmental consequences of oil sands mining projects are significant and long lasting. Alberta's regime should not exempt oil sands mining operators from extended liability past the date of issuance of the reclamation certificate without ensuring that there is appropriate financial security in place to cover any long-term costs that may be associated with the development.

When is security forfeited?

The ability of a regulator to use security upon the default of an operator is another key part of a reclamation security regime's basic skeleton. In the event that an operator becomes unable or unwilling to carry out reclamation activities, there may be a need for immediate action by the regulator with respect to water treatment or other ongoing reclamation activities.

Section 24 of the *Conservation and Reclamation Regulation* provides that some or all of the reclamation security submitted by an operator may be forfeited in cases where an operator fails to comply with a relevant environmental protection order, emergency environmental protection order, or enforcement order, and that failure may prevent or otherwise interfere with conservation and reclamation of the specified land as required by *EPEA* and the regulations. In such circumstances, the Minister is not required to use the security; rather, the section empowers the Minister to do so, in these limited circumstances.

Further, section 24 does not specifically allow for the forfeiture of security where an operator fails to comply with the terms of an approval.[320] *EPEA* empowers but does not require the inspector to issue an environmental protection order in this circumstance. There is no specific provision in the regulation allowing the Minister to realize upon the security in the event that the operator becomes insolvent.[321]

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319 *Conservation and Reclamation Regulation*, *supra* note 18, s. 15.

320 Note, however, that Alberta Environment staff indicates that the standard text of the letter of credit that each operator is required to submit states that funds shall be available under the letter of credit and will be available to the Director if the operator fails to comply with the approval, an environmental protection order or an enforcement order. This appears to be inconsistent with the language of the regulation, which does not include failure to comply with an approval as an event of default. Correspondence from Tanya Richens, *supra* note 157.

321 However, the standard language of the letters of credit that operators are required to submit to Alberta Environment provides that the funds shall be available to the Director if the Director presents to the bank a certificate signed by the Director stating that he has received notice of the Bank's election not to renew the letter of credit and has not received a replacement letter of credit according to the required terms, *ibid*. It is reasonable to assume that a bank would elect not to renew an operator's letter of credit if the operator is insolvent.

Section 140 of *EPEA* provides that an inspector may issue an environmental protection order to an operator directing the performance or suspension of any work if, in the inspector's opinion, performance or suspension is necessary in order to conserve and reclaim specified land. This section gives a great deal of discretion to an inspector. However, the ability of an inspector to issue such an order is subject to the terms of the specific approval, which generally do not include firm timelines or a schedule for completion of conservation and reclamation work.[322]

A section 142 environmental protection order can be issued after a reclamation certificate has been issued in respect of an activity. Such an order may be issued where the inspector is of the opinion that additional conservation and reclamation work must be undertaken. However, as noted above, an environmental protection order may not be issued to an oil sands mine operator under section 142.

An emergency environmental protection order may be issued under section 143 of *EPEA* where an inspector is of the opinion that an immediate and significant adverse effect may occur, is occurring or has occurred on specified land as a result of the carrying on of the activity on or in respect of specified land. An enforcement order may be issued by the Director if, in the Director's opinion, a person has contravened *EPEA*. The order may require the person to whom it is issued to do or refrain from doing any thing referred to in prescribed sections of *EPEA*, including section 140, which pertains to environmental protection orders and can require a person to undertake conservation and reclamation work.

Alberta Environment indicates that forfeiture of security has never occurred in respect of oil sands mining operations.[323] The mechanics of forfeiture are set out in section 24 of the *Conservation and Reclamation Regulation*. Where the Minister orders security to be forfeited, the Minister must give written notice of that decision to the operator and then must direct the Minister of Finance to transfer the security in an amount the Minister of Environment considers necessary to carry out the conservation and reclamation of the specified land in accordance with the Act and the regulations.[324] There is no requirement for broader public notice of the forfeiture and there is no opportunity for public participation in the forfeiture process.

Upon receipt of the direction from the Minister of Environment, the Minister of Finance must transfer these funds from the Environmental Protection Security Fund to the Environmental Protection and Enhancement Fund. *The Conservation and Reclamation Regulation* requires the Minister of Environment to use the transferred

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322 Grant, Woynillowicz & Dyer, *supra* note 2. See however, Simon Dyer *et al*, *Undermining the Environment: The Oil Sands Report Card* (Drayton Valley: Pembina Institute, 2008) at 58. Dyer notes that the ERCB approval for the True North (now Petro-Canada) Fort Hills Project directs True North to limit the amount of disturbed land at any one time to 5000 hectares.

323 Correspondence from Chris Powter, *supra* note 103.

324 Subsection 24(4) provides the Minister of Finance shall pay the Minister of Environment this amount even if the operator has not actually received the notice.

fund for the purposes of the conservation and reclamation of the specified land. The Minister does not have the discretion to use the funds for other purposes.[325]

Forfeiture mechanisms as described in the *Conservation and Reclamation Regulation* and wording for letters of credit supplied by Alberta Environment appear to be generally consistent with commentary on the subject, with one significant exception: the absence of public participation in the forfeiture process.

In order to be effective, a reclamation security regime must allow the regulator, acting reasonably, to claim the reclamation security without interference from the regulated operator or a surety. In cases where a surety provides a reclamation bond of a significant amount, a legal challenge to the forfeiture may result in interest accruing to the surety during the length of the legal challenge, thus creating an incentive for the surety to challenge the forfeiture.[326] Legal battles over a regulator's entitlement to the reclamation security can be costly.

The events that can trigger forfeiture and the processes through which regulators may realize on security are usually set out in legislation and regulations, though in differing amounts of detail. Such provisions vary amongst jurisdictions. A regulatory scheme that provides a narrow range of events as triggers for forfeiture may make it more difficult for the regulator to claim the security deposit should the need arise.[327] The procedural steps that a regulator may be required to take may also impact the regulator's ability to draw on the funds in a timely way. Kuipers suggests that regulators should be able to undertake emergency response and reclamation action and that the security should be available for this.[328]

Commentators recommend that regulatory agencies have the ability to cause forfeiture in instances where reclamation activities are not being carried out as required by the reclamation and closure plan, including adherence to timelines. In cases where a mine has been abandoned, the reclamation security should be forfeited immediately. Wenig *et al* recommend that forfeiture be allowed in broader circumstances than just abandonment, however, and that the regulatory agency should have the ability to claim the security where the operator fails to achieve prescribed reclamation objectives.[329] One example of this may be where progressive reclamation is required but not undertaken within prescribed timelines. In such a case

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325 S*upra* note 18, ss. 24(2) & (3).

326 Miranda, Chambers & Coumans*, supra* note 58 at 40.

327 Wenig, O'Reilly & Chambers, *supra* note 13 at 108. An example of a wide range of defaults is found in section 19 of Saskatchewan's *Mineral Industry Environmental Protection Regulations, 1996, supra* note 83, which identifies a number of events as "defaults", the occurrence of which enable the minister to take steps to realize on the security. A default occurs where the Minister is of the opinion that the operator has failed to comply with an approved decommission and reclamation plan, permanently closed any part of the mining site other than in accordance with regulations, or abandoned any part of the mining site. A default also occurs where the Minister is of the opinion that the assurance fund is in jeopardy or the operator has become insolvent. Once a default occurs, the Minister may, but is not required to, realize on the security.

328 Kuipers, *supra* note 60 at 4.

329 Wenig, O'Reilly & Chambers, *supra* note 13 at 108.

the regulator should have the ability to cause the forfeiture of that portion of the security that would fund the outstanding progressive reclamation. This would require clear and enforceable deadlines for progressive reclamation to be included as part of approved reclamation plans.

Enhanced protection of the public purse can be provided if a reclamation security regime allows the regulator to recover some or all of the security upon the failure of the operator to comply with the terms and conditions of a mining approval or permit resulting in an increase or acceleration of the need for reclamation work to be undertaken.[330] A regulator should also be able to recover the security if it is at risk of expiring and has not been renewed or if the operator is financially unable to maintain the security.[331]

Regardless of the triggering event or default that allows a regulator to recover security, the process through which the regulator makes a demand for forfeiture should allow for proper notice to the operator and to the public. The notice of forfeiture process should provide the operator with a reasonable opportunity to remedy the default but should not be so procedurally complex that the regulator is unable to quickly access the funds if necessary. The public should also be notified of the triggering event. Because regulators generally have broad discretion to recover security amounts upon the occurrence of a triggering event, operators may pressure regulators to delay in or refrain from realizing security amounts. Where operator default is made public, a regulator may be less likely to yield to such pressure.

Canadian jurisdictions differ in the range of discretion they grant the regulator to declare that an operator has forfeited the reclamation security and to set the procedure to be followed by the regulator in recovering the security.[332]

Section 24(6) of the *Conservation and Reclamation Regulation* provides that where the forfeited security is insufficient to pay for the cost of conservation and reclamation, the operator remains liable for the balance. The value of such a provision where the operator has become bankrupt is questionable. However, *EPEA* provides that where an environmental protection order or enforcement order is

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330 Section 10(8) of B.C.'s *Mines Act*, *supra* note 84, provides an example where the regulator's ability to seize security is triggered by a failure to complete required reclamation work and by a failure to comply with the terms of a permit. The chief inspector is required to inform the operator but not the general public prior to seizing the security.

331 Section 19 of Saskatchewan's *Mineral Industry Environmental Protection Regulations, 1996*, *supra* note 83, provides that default respecting an assurance fund occurs where the approval holder becomes insolvent or when the assurance fund is in jeopardy.

332 For example, subsection 97(2) of Nova Scotia's *Mineral Resources Act*, *supra* note 85, provides that security is forfeited where reclamation has not been completed to the satisfaction of a Minister within the prescribed timeline; section 145 of Ontario's *Mining Act*, *supra* note 131, provides that if the Director has "reasonable and probable grounds" to believe that a rehabilitation measure required by a filed closure plan has not or will not be carried out in accordance with the plan, the Director may, after giving the operator at least 15 days written notice, issue an order for the performance of the rehabilitation measure and may realize on any security provided in respect of the rehabilitation measures to carry out those measures.

directed to more than one person, all persons named in the order are jointly responsible to carry out the terms of the order and are jointly and severally liable for the payment of costs of doing so.[333] Where multiple operators have submitted security in respect of a project and that security proves to be inadequate, this section may be used to recover the costs incurred by the Director in carrying out the terms of an environmental protection order even if one of the operators have become insolvent.

This ability of the province to pursue operators for reclamation costs in excess of the security amount is consistent with some commentary on the subject, which asserts that in circumstances where a regulator must assume the reclamation obligations of an operator and the reclamation security proves to be inadequate, the shortfall should be a debt due to the regulator that can be recovered through a court action. Provincial legislation across the country typically contains provisions to allow this.[334]

While this remedy may not be effective where an operator no longer exists, is judgment proof or has left the jurisdiction and taken its assets, it can be effective in circumstances where a solvent operator has chosen not to reclaim the lands or where an insolvent operator has other assets in the province.[335] It may also be effective where there are multiple operators for a project and legislation allows the province to pursue the operators jointly and severally for any amounts owed.

Conclusion and Recommendations

This paper took as its starting point criticism of the manner in which Alberta Environment applied its conservation and reclamation security regime to the oil sands mining sector. This regime was described, by reference to *EPEA* and the *Conservation and Reclamation Regulation*, the only formal documents included in Alberta Environment's regime, and with reference to information provided by Alberta Environment staff, though not independently verified. Different features of Alberta Environment's regime were held up against similar provisions from other jurisdictions and commentators' recommendations.

Several of the features that make up Alberta Environment's conservation and reclamation security regime are of the type generally supported by some commentators and are superior to some features found in other jurisdictions. These are:

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[333] *Supra* note 10, ss. 215 (enforcement orders) & 240 (environmental protection orders).

[334] See *Mineral Industry Environmental Protection Regulations, 1996*, *supra* note 83, s. 21, which provides that where the amount of security realized by the Minister upon default by the approval holder is insufficient to pay for the cost of decommissioning and reclamation, the amount of the shortfall constitutes a debt due to the Crown in right of Saskatchewan and may be recovered by the Crown in accordance with the law.

[335] Castrilli, *supra* note 287 at 20.

- the mandatory requirement for security to be provided by oil sands mine operators prior to receipt of project approval;

- practical restrictions on the forms of security accepted;

- the establishment of a special account in which security amounts are held;

- the regular review and update of security;

- the requirement that most of the oil sands mining projects base security, at least in part, on the estimated cost of reclamation for the upcoming year, rather than areal disturbance or rate of production; and

- a seemingly quick but fair forfeiture process and a continuing right of the regulator to bring a legal action against an operator if the security is insufficient.

However, there are also a number of regime features that are generally considered to be undesirable because they tend to result in inadequate reclamation security amounts. These are:

- the preparation of cost estimates by operators;

- the absence of a formalized program to guide reclamation cost estimation and review;

- an inconsistent approach by operators in the preparation of their security cost estimates; and

- the continued use of inconsistent methods of security calculation for some projects, specifically basing security on cumulative production.

A significant fault this report identifies in Alberta Environment's regime is the absence of any public participation in the regulatory processes through which conservation and reclamation security amounts are set, adjusted, returned or forfeited. Closely related to this is the fact that cost estimates and supporting information provided by operators are deemed confidential by Alberta Environment and are not made public, making independent review of security amounts impossible.

The following table compares the *EPEA* regime against a broad list of desirable features as described in relevant literature. In some cases it is easy to tell whether the *EPEA* regime includes a particular feature, such as mandatory application. In other cases it is more difficult, such as in relation to the inclusion of all direct or indirect costs. In the latter case, it may be that these desirable features are included. In the absence of transparency, though, it is impossible to truly describe the *EPEA* regime.

Reclamation regime feature	Present in Alberta's regime	Legal source
Category 1		
Mandatory application of security requirements to oil sands projects	Yes	*EPEA* s. 84
Security required prior to approval	Yes	*C&R Reg*. s. 17(1)
Comprehensive scope of projects required to provide security	No	
Only appropriate forms of acceptable security accepted	Yes	*C&R Reg*. s. 21
A separate fund is established for the security	Yes	*EPEA* s. 32
Reclamation security is updated regularly	Yes	C&R Reg. s. 20
Clear criteria for return of security based on documented successes in achieving reclamation objectives	No	*C&R Reg.* s. 22
The criteria for forfeiture are clear	No	*C&R Reg.* s. 24
Forfeiture process is fair but allows regulator quick access to funds to undertake reclamation work	Yes	*C&R Reg*. s. 24
Legal right of regulator to recover outstanding balance in the event that security is inadequate to cover reclamation costs	Yes	*C&R Reg.* s. 24
An industry backstop is in place	No	
Category 2		
There are regulations or formal guidelines respecting reclamation security cost estimate	No	
Reclamation security amount must be based on estimated cost of reclamation	Not in all cases	
Reclamation security estimate is based on full cost of reclaiming the project and includes all aspects of the project	No	
Cost estimates are performed by the regulator or an independent third party	No	*C&R Reg.* s. 18
Cost estimates are based on costs that regulator would pay if it had to do reclamation work or hire a contractor to do the work	Not consistently	
Cost estimate includes all direct and indirect costs of undertaking reclamation work	Not clear	
Uncertainty as to the effectiveness of proposed reclamation schemes results in a rationally increased reclamation security amount	Not clear	

Category 3		
The requirement that reclamation security estimate and other information associated with the approval, adjustment or return of a reclamation security cost estimate, are available for public review	No	
The ability of the public to participate in the cost estimate approval, adjustment and return decision-making processes	No	

Recommendations

It is recommended that the *EPEA* regime be reviewed and changed, where necessary, to add features that are more protective of Albertans. This would include the:

- requirement that all oil sands mining projects be subject to the same security rules and that no projects continue to have security based on production;
- preparation of conservation and reclamation estimates by Alberta Environment or an independent third party under contract to Alberta Environment;
- coverage of all aspects of the projects in the security amount, including plant remediation and decontamination activities;
- requirement that cost estimates be prepared and reviewed in accordance with a formal regulation or guideline to ensure that all required cost categories are included, that third-party, independently verifiable costs are used and that all of the project and costing information is current;
- requirement for specific detailed inspections to determine that the site condition is as described in the cost estimate;
- requirement that public notice be given before security is returned for progressive reclamation and that an independent inspection be performed to confirm reclamation success;
- requirement that the conservation and reclamation security be tied to approval requirements for timely progressive reclamation so that, in the event that an operator does not conserve or reclaim lands within firm timelines, Alberta Environment can recover funds to complete the work; and
- requirement that public notice be provided when an operator forfeits conservation and reclamation security so that Albertans can provide input on the reclamation work that should be done and the amount of security that should be forfeited to complete the work.

It is further recommended that the process through which reclamation security is initially determined, adjusted, returned and forfeited be an open and transparent process that includes an opportunity for public participation. An open and transparent process that requires Alberta Environment to consider comments from parties other than operators can help to ensure that Alberta Environment has less ability to use its discretion to set security amounts at levels that are not protective of Albertans' interests.

The Auditor General has publicly criticized the current reclamation security regime for oil sands mining projects for its inconsistent application and potential to underfund future reclamation costs.[336] Stakeholders have criticized the regime for its lack of transparency and its failure to consider all cost categories.[337]

Based on available information, it is impossible to confirm or refute suggestions that the actual amounts of reclamation security taken in respect of oil sands mining operations are adequate. However, it is possible to identify some general failings of the current reclamation security regime and provide general recommendations for improvement.

Increase public participation and transparency

The entire reclamation security process is characterized by its complete lack of public involvement. From the initial estimate and approval of the reclamation security amount, through annual adjustments and, ultimately, the return of the security to the operator, the regulator's discretion is exercised without allowing for public input into either the adequacy of the security amount taken or the reclamation work performed. Furthermore, the public is not able to review the documents upon which the regulator relies in exercising this discretion.

The lack of meaningful opportunities for public participation is the most clearly identifiable and significant failing of the current oil sands mining reclamation security regime. It is recommended that changes be made to require public notice and an opportunity for public participation in all stages of the approval process, including the setting, adjustment, return and forfeiture of security. In addition, cost estimates and information documents prepared for the purposes of setting, adjusting or returning reclamation security amount should be made easily available for public review and scrutiny.

The potential for agency capture increases where the regulator relies on the project proponent for security cost estimates and where the regulator is able to exercise

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336 Auditor General, *supra* notes 37-44 & 46.

337 *Kearl Lake*, *supra* note 47 at 51.

discretion in the review and approval of the reclamation security amount.[338] Both of these situations exist in Alberta. Whether agency capture, in fact, exists is not clear but repeated calls by the Auditor General for improved consistency in the estimation process appear to have gone unheeded, in spite of Alberta Environment's efforts to increase consistency. Consequently, the current process does not clearly ensure that the public purse is protected from reclamation liability.

The notion of agency capture suggests that, in the absence of broader public participation, regulatory agencies tend to make decisions that are favourable to the industries they regulate.[339] In the context of reclamation security assessment and return this would translate into lower security amounts being taken and lower reclamation standards being applied when it is time for the financial security to be returned. Accordingly, increased transparency and public participation in the reclamation security setting process can result in more rigorous methodologies being used and, correspondingly, higher security amounts being taken. There is also the possibility that increased public participation in the reclamation security return process could result in greater scrutiny of the performance of reclamation and the establishment of a higher reclamation standard to be met before security can be returned to an operator.

Alberta Environment itself has confirmed that the determination of reclamation costs is not a public process and noted that stakeholder confidence may be increased if a comprehensive review of the reclamation security regime included a consultation component.[340]

Establish a formal security process

Currently there is no formal procedure for use by operators when they are preparing reclamation security cost estimates. Alberta Environment staff communicates with operators during the cost estimation process and requests certain general types of information. However, this informal approach appears to have led to a significant degree of inconsistency between operators. Some operators base their estimates on outdated data.[341] Not all operators include the same cost factors. Different operators describe costs differently despite requests from Alberta Environment for consistency.[342]

Alberta Environment should develop a formal template and guidelines for use in preparing the reclamation costs estimate. Such a template should be followed regardless of whether reclamation estimates are prepared by industry, Alberta Environment or an independent third party. The utility of a formalized process is

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338 See generally Zinn, *supra* note 16.

339 *Ibid*.

340 *Suncor Energy*, *supra* note 47 at 71.

341 Auditor General, *supra* notes 37-44 & 46.

342 Correspondence from Tanya Richens, *supra* note 157 and correspondence from Tanya Richens, Reclamation Approvals Coordinator, Alberta Environment (1 December 2008).

most obvious where operators prepare estimates. Operators would be required to adhere to a consistent standard of cost reporting, using common methodologies and including the same cost categories described to a common level of detail. A formalized process is equally helpful where cost estimates are prepared by an independent third party or Alberta Environment. A formalized process reduces, to some extent, the amount of discretion that can be exercised by the party preparing the security estimate. As noted by Zinn, limiting discretion can reduce the potential for agency capture by regulated players.[343]

However, a need to have some flexibility in the cost estimation process would likely remain. Not all oil sands mining projects are the same. Differences between projects have been cited by Alberta Environment staff as a reason why a formalized process would not be appropriate.[344] In spite of these variables, the fact that Alberta Environment's reasonableness review of reclamation cost estimates includes a comparison against estimates provided by other operators on other projects suggests that different projects may be similar enough to make a formalized process workable.

The formalized estimation process should require that all direct and indirect costs be included. Indirect costs such as contingency allowances, engineering redesign costs, profit and overhead, and project management should be specifically included. Close attention should be paid to estimation of reclamation costs where unproven technologies are proposed. There are a number of technical puzzles yet to be solved respecting reclamation of oil sands mining lands. Cost estimates to reclaim tailings ponds, wetlands, and end pit lakes must take into account the possibility that the technology upon which estimates rely may not be effective. A premium should be built into estimates to account for this uncertainty.

Require third-party preparation of reclamation cost estimates

The Director must require security in an amount determined by him/her to be sufficient to ensure completion of conservation and reclamation on the specified land. The *Conservation and Reclamation Regulation* requires this determination to be based, in part, on a cost estimate submitted by the operator.[345] Kuipers and Boyd note that preparation of cost estimates by operators can lead to underestimation of reclamation costs.[346] It is not possible to determine the extent to which Alberta Environment's practice of requiring oil sands mine operators to prepare and submit cost estimates in respect of their own projects has resulted in actual underestimation of reclamation costs, if at all, because cost estimates are not made public; however, it has been noted that inconsistencies exist in the manner in which different operators prepare their estimates.[347]

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343 Zinn, *supra* note 16 at 113.

344 Correspondence from Chris Powter, *supra* note 103.

345 *Supra* note 18, s. 18(a)

346 Kuipers, *supra* note 60; Boyd, *supra* note 130.

347 *Annual Report of the Auditor General of Alberta 2004-2005*, *supra* note 6; Correspondence from Tanya Richens, *supra* note 157.

Preparation of cost estimates by the regulator or an independent third party would help to ensure that objectivity and consistency are hallmarks of the process. A project operator should be involved in the cost estimate process by providing information about the expected reclamation work that would be included in the estimate, such as the anticipated level of disturbance and the scope and nature of the reclamation work. The project operator should also have the opportunity to comment on and challenge assumptions used by the regulator or independent third party in the preparation of the estimate.

In order for Alberta Environment to take on the task of preparing estimates, it is likely that staffing increases would need to occur and would require added expenditure on the part of the government. However, development of the oil sands is a massive undertaking with the potential for significant and long lasting environmental impacts. The cost to reclaim oil sands mining projects is substantial. For these reasons, the province should not short change Albertans by allowing a lack of resources at Alberta Environment to lead to reclamation cost estimation practices that have the potential to result in underfunding of reclamation liabilities.

Reclamation of an oil sands mining project by Alberta Environment would likely cost significantly more than reclamation by the operator. The reclamation cost estimate should reflect this difference. Publicly verifiable costing data should be used to prepare the estimate. For example, equipment costs should be based on published documents such as the Alberta Road Builders and Heavy Construction Association's annual equipment rental guide. In the event that inflation renders published costs inaccurate, Alberta Environment should prescribe an adjustment to be applied by all operators for that year.

Include all costs in reclamation security estimates

EPEA's broad definition of reclamation includes the removal of equipment or buildings or other structures or appurtenances, but oil sands mine approvals do not cover these activities as part of reclamation. There is no identifiable policy reason justifying this exclusion. For the sake of comprehensiveness, the plant should not be excluded. In addition, all costs associated with remediation and decontamination of the project lands should be included.

Base security amounts on reclamation costs

Section 18(3) of the *Conservation and Reclamation Regulation*[348] allows reclamation security for certain projects to be based on production and requires that only three cents per barrel be provided. A reclamation security amount based on production has no relevance to actual costs and has the potential to result in significant underfunding of reclamation work. In the case of Syncrude's Mildred Lake project, reclamation

348 *Supra* note 18.

security based on production has resulted in a security amount that is a small fraction of other similar sized projects.

This approach is inconsistent with the goal of ensuring that the polluter pays for costs of reclamation and is contrary to specific recommendations of some commentators. Where the shift from one security regime to another may have the potential for significant financial consequences for existing operators, an appropriate approach, and the one recommended by commentators, is to allow for the new regime to be phased in.[349] The reclamation security regime under *EPEA* should be changed to require that reclamation security for all projects be based on the estimated costs of reclamation. This system would ensure that Albertans know that the real potential costs of reclaiming projects still secured under the *LSCRA* are reflected in security held by the government.

Establish a formal, public process for the return of reclamation security

The *Conservation and Reclamation Regulation* allows an operator to apply to have security returned prior to obtaining a reclamation certificate, based on completed reclamation.[350] To date, no applications have been made under this section. Instead, reclamation security is returned through the annual review and adjustment process, which allows the Director to increase or decrease the security required.[351] As noted, however, this process does not include an independent public review of reclamation work completed, for which the operator is credited in the adjustment process. The annual review is based on information provided by the operator and inspections of the land by Sustainable Resource Development, which are not made public.

An opportunity for public participation should be injected into this process. Where an application is made for the return of security, the public ought to be able to review the application, and be provided with sufficient information to assess and comment on the adequacy of the reclamation work. An independent inspection of the reclaimed lands should be done and those results made public.

Create clear criteria for forfeiture of security

No conservation and reclamation security has been forfeited in respect of oil sands mining projects. Yet, the rate at which land is disturbed outpaces the rate of reclamation. While operators are under a duty to conserve and reclaim lands, and are encouraged by Alberta Environment to undertake progressive reclamation, there are no firm timelines for reclamation. Strict timelines should be incorporated into approvals and the reclamation security should be forfeited if an operator does not meet these timelines.

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349 Kuipers, *supra* note 60 at IV-13; Miller, *supra* note 59 at 10.

350 *Supra* note 18, s. 22.

351 *Ibid*., s. 20; Correspondence from Chris Powter, *supra* note 103.

Suggested course of action

The first step in creating an appropriately protective reclamation security regime is to properly identify, describe and discuss the current processes used by Alberta Environment. Alberta Environment should engage in a transparent, public discussion with stakeholders and Albertans of the conservation and reclamation security regime applied under *EPEA* to investigate ways to increase public participation. To facilitate such a discussion, Alberta Environment should disclose detailed information about:

- the processes through which conservation and reclamation cost estimates are prepared by operators, including the actual cost estimates and the assumptions upon which they are based;

- the process through which it reviews cost estimates submitted by operators, including information about how costs are verified by reference to independent cost sources and inspections and how the uncertainty of performance success is factored into the security amount;

- the shortfall in conservation and reclamation security taken in respect of the Syncrude Mildred Lake project and Suncor's 86/17 Lease and the estimated costs of conserving and reclaiming those lands, including the assumptions upon which such an estimate is based;

- the potential conservation and reclamation costs associated with plants, for which no security is provided, including the assumptions upon which such an estimate is based; and

- how conservation and reclamation security amounts are reviewed and adjusted annually, including standards of conservation and reclamation applied when reducing security amounts in respect of progressive reclamation.

This information should be made available under Alberta Environment's Routine Disclosure Initiative. The release of this information would require a meaningful shift in approach by Alberta Environment and the department would require broader political support to overcome any potential industry resistance to the release of this information. However, the release of this information is critical to the development of a broader understanding of the risk being assumed by Albertans under the current regulatory scheme.

Ultimately, the decision to require more or less financial security for conservation and reclamation is a political one and a balance must be reached that provides sufficient financial security to ensure that Albertans are not exposed to greater risk than they wish to tolerate but that also enables industry to avoid unnecessary financial burdens. The risk tolerance of Albertans in this respect is unknown.

Once this information has been released, the Alberta government should establish a multi-stakeholder review process to examine the current regulatory scheme. Certainly, the need for review and reform of reclamation security program was highlighted by a range of stakeholders during the oil sands consultations.

Alberta Environment should increase the transparency of the current system. In the case of annual reviews of reclamation, Alberta Environment should issue public notice of cost adjustments and should disclose all of the supporting information necessary about the cost estimate and review process, including the results of site inspections. Stakeholders should be given a reasonable amount of time to comment on the security amount and the Director should be required to take public comments into account when making a determination as to the adequacy of the security amount. This would enable stakeholders to comment on the estimated costs of future reclamation as well as the effectiveness of completed reclamation. This is important because the adjustment process used by Alberta Environment is a *de facto* return of security.

Appendix: Review of ERCB Orphan Program

This Appendix is intended to provide background information about management of financial liability for conservation and reclamation of in-situ oil sands projects. Operators of oil sands projects are required to conserve and reclaim "specified land".[352] The statutory definition of specified land includes land that is related to oil sands mines, as well as oil production sites. An oil production site is defined to mean field production facilities used to recover oil or oil sands by drilling or other in-situ recovery methods and in respect of which an approval is required under the *Environmental Protection and Enhancement Act* (*EPEA*).

While operators of in-situ oil sands operations have a similar duty to reclaim lands, they are not under the same obligation as oil sands mine operators with respect to financial security requirements. Financial liability for abandonment and reclamation of in-situ oil sands projects is managed under the Energy Resources Conservation Board's (ERCB) Orphan Program, rather than under the reclamation security regime created by the *EPEA* and the *Conservation and Reclamation Regulation*.[353] This Appendix will discuss the exemption of in-situ projects from the *Conservation and Reclamation Regulation* requirements, describe the history of the ERCB's Orphan Program and the manner in which it is currently applied to in-situ projects, and compare certain features of the Orphan Program with some of the conservation and reclamation security regime created by *EPEA*. This Appendix is intended to describe the Orphan Program and briefly discuss it with reference to particular challenges identified in respect of the conservation and reclamation security regime applied to oil sands mines.

It should be noted, however, that comparing the effectiveness of the *EPEA* regime to the Orphan Program is in many ways an apples to oranges comparison. The *EPEA* regime is based, in principle, upon the notion of full cost coverage by each operator of the conservation and reclamation liability generated by their respective projects. In contrast, the Orphan Program is a risk-based liability management program premised on annual levies from operators to cover the cost of abandonment and reclamation of "orphans" and frequent evaluations of the risk of operators becoming unable or unwilling to perform required abandonment and reclamation activities. The Program does not require specific security amounts to cover all potential liability.

As noted in the main paper, section 17.1 of the *Conservation and Reclamation Regulation* was amended in 2005 to exclude operators of "oil production sites".[354] Correspondence from Alberta Environment to operators affected by the amendment indicate that the amendment was made because, at that time, wells, pipelines and batteries that formed oil production sites were secured through the ERCB's Licensee Liability Rating (LLR) System and backstopped by the Orphan Fund and there was a desire to reduce duplication. When this amendment came into effect, Alberta

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352 *EPEA, supra* note 10, s. 137.

353 *Supra* note 18, s. 1.

354 *Conservation and Reclamation Amendment Regulation,* Alta. Reg. 160/2005.

Environment returned for cancellation letters of credit in respect of in-situ oil sands projects.[355] The Annual Report of the Environmental Protection and Enhancement Fund indicated that the amount of security returned totaled $23,122,138.75.[356]

Aside from the desire to avoid duplication, it is not clear what analysis, if any, went into the removal of in-situ oil sands production from the reclamation security scheme. No ERCB or Alberta Environment policy documents or discussion papers could be located that describe the merits of the exemption.[357]

ERCB Orphan Program

The ERCB's Orphan Program is an example of a general strategy to manage abandonment and reclamation liabilities by imposing a levy on industry participants to raise funds to be used by the regulator to properly abandon and reclaim "orphans".[358] In the upstream oil and gas industry, an orphan is defined as a well, pipeline, facility or associated site that does not have any legally responsible or financially solvent party to deal with its abandonment and reclamation.[359] The general idea behind such a strategy is that current producers pay an annual levy on production, with those funds forming a sufficiently stable pool to enable the regulator to abandon or reclaim orphaned or abandoned projects.[360] Noted advantages of such a strategy include a steady source of revenue to continually fund abandonment and reclamation activities, the creation of a dedicated fund that allows for immediate availability of funds in an emergency and the appearance that industry is made responsible for abandonment and reclamation costs.[361]

In Alberta, licensees of wells, pipelines and facilities are required by the *Oil and Gas Conservation Act* to contribute annually to the Orphan Fund through the implementation of an Orphan Fund levy.[362] Unlike the conservation and reclamation security requirements under *EPEA*, which require security be provided in respect of specific projects, the Orphan Fund levy charged to each operator is not for the

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355 Letter from Kem K. Singh, P. Eng., Regional Approvals Manager, Northern Region, Alberta Environment (20 December 2005).

356 *Supra* note 75 at 15.

357 Interview of Terry Weedon, Energy Resources Conservation Board (28 February 2007); Correspondence from Chris Powter, *supra* note 103.

358 W.R. Cowan & W.O Mackasey, *Rehabilitating Abandoned Mines in Canada: A Toolkit of Funding Options* (Ottawa: National Orphaned/Abandoned Mines Initiative, 2006) at 9, online: National Orphaned/Abandoned Mines Initiative <http://www.abandoned-mines.org/pdfs/ToolKitFundingReport.pdf>.

359 Alberta Oil and Gas Orphan Abandonment and Reclmation Association, "Frequently Asked Questions" (2003), online: Orphan Well Association <http://www.orphanwell.ca/pg_faq.html>.

360 Cowan & Mackasey, *supra* note 358 at 9. Other examples of production–based funds of this nature exist under the American *Surface Mining Control and Reclamation Act,* 30 U.S.C. 1201-1328 (SMCRA 1977) and in Canada under the *Aggregate Resources Act*, R.S.O. 1990, c. A.8 and the *Mines and Minerals Act*, C.C.S.M., c. M162.

361 Cowan & Mackasey, *ibid*. at 9.

362 *Supra* note 17, s. 74.

purposes of abandoning or reclaiming the assets of that specific operator. Rather, it forms a general pool for use in abandoning and reclaiming orphans.

The annual levy generates a stable revenue stream that ensures that abandonment and reclamation work can be carried out by the regulator in each year. The fund is not intended to maintain sufficient amounts to properly abandon and reclaim all existing oil and gas assets or even to abandon or reclaim all identified orphans within a single year. Rather, the regulator, or its delegate, Alberta Oil and Gas Orphan Abandonment and Reclamation Association, operating under the name the Orphan Well Association (OWA), determines the levy amount based on an annual budget for orphan abandonment and reclamation activities to be undertaken by the OWA for the upcoming year.[363]

Assuming constant abandonment and reclamation costs, as the number of orphans increases, the total orphan liability amount should increase. Variables that impact the annual levy amount would be the anticipated costs to abandon and reclaim orphans and the aggressiveness of the regulator's timeline for abandonment and reclamation. An aggressive abandonment and reclamation timeline would require the OWA to raise higher annual revenues. Strict legislated timelines would, therefore, impose significant costs on operators that are required to pay the Orphan Fund levy; however, such timelines do not exist in Alberta.

As noted above, one perceived benefit to such a levy system is that industry participants are seen to bear the financial responsibility for dealing with abandoned or orphaned projects.[364] This is a variation on the "polluter pays" principle in that industry operators are required to fund, through the payment of the levy, abandonment and reclamation of orphaned assets in addition to their own assets. The actual "polluter", the former operator of the asset, is either missing or insolvent. An operator might pay the annual Orphan Fund levy for years without any of those funds ever being used to abandon or reclaim that specific operator's own assets. The fairness of requiring current producers to bear the financial responsibility for the past actions of other producers is more than an academic question.[365] The costs to reclaim abandoned oil and gas facilities are significant. Since 1992, $110 million has been collected by the OWA, most of this coming from the Orphan Fund levy.[366]

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363 Alberta Oil and Gas Orphan Abandonment and Reclamation Association, *Orphan Well Association 2007/08 Annual Report* (Calgary: Alberta Oil and Gas Orphan Abandonment and Reclamation Association, 2008) at 2, online: Orphan Well Association <http://www.orphanwell.ca/OWA 2007-08 Ann Rpt Final.pdf>.

364 Cowan & Mackasey, *supra* note 358 at 9.

365 *Ibid*., at 10; see also Nickie Vlavianos, *Liability for Well Abandonment, Reclamation, Release of Substances and Contaminated Sites in Alberta: Does the Polluter or Beneficiary Pay*? (LL.M. Thesis, University of Calgary, 2000). During stakeholder consultations held in 2002 respecting the expansion of the ERCB's Orphan Program to include in-situ oil sands projects, oil sands producers expressed concerns that they would carry a disproportionate share of risk as compared to traditional oil and gas because of the length of time bitumen producers are required to pay into the levy. Terry Weedon, *supra* note 357.

366 *Orphan Well Association 2007/08 Annual Report*, *supra* note 363 at 4.

In an effort to reduce use of the Orphan Fund, the ERCB regularly monitors licensees' ability to pay abandonment and reclamation costs associated with their licences and regulates license transfers. Where the ERCB considers that a licensee or a licence transfer poses a risk to the Orphan Fund, it requires the licensee or transferee to pay a security deposit. In this way, the ERCB hopes to avoid the creation of orphans.

The ERCB makes the determination whether a particular well, pipeline or facility is an orphan.[367] Alberta Environment will issue an environmental protection order (EPO) to the defunct operator. If the operator does not comply with the terms of the EPO, Alberta Environment can take any steps it deems necessary to carry out the EPO.[368] Alberta Environment then will designate the OWA as its agent to carry out the EPO's terms by issuing the OWA a site-specific letter.[369]

History of the Orphan Program

In 1986, the ERCB replaced its well deposit requirement with a dedicated well fund.[370] This fund was designed to raise revenue for the ERCB to abandon wells if the operator was unable to do so.[371] The industry orphan well fund was established solely for the purpose of addressing downhole abandonment costs and restoration of surface damage incurred during abandonment, and was not initially intended to address surface reclamation.[372] During the late eighties, the ERCB became concerned about the increasing number of orphan wells in the province and the ability of the well fund to finance necessary abandonment activities.[373] The economic climate in the oil and gas industry at that time was uncertain and, as a result of increasing corporate bankruptcies and insolvencies and asset transfers between companies, many oil and gas assets were left without an owner willing or able to properly carry out abandonment and reclamation obligations.[374]

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367 *OGCA*, *supra* note 17; *Orphan Fund Delegated Administration Regulation*, Alta. Reg. 45/2001.

368 *EPEA*, *supra* note 10, s. 245

369 *Orphan Well Association 2007/08 Annual Report*, *supra* note 363 at 3.

370 Energy Resources Conservation Board, *Recommendations to Limit the Public Risk from Corporate Insolvencies Involving Inactive Wells* (Calgary: Energy Resources Conservation Board, 1989) at 2. This fund, which totaled $3 million, was derived from ERCB surpluses at the time that the deposit system was terminated. The interest generated by the fund was used to abandon known orphan wells.

371 Energy Resources Conservation Board, *History of the Orphan Fund* (Calgary: Energy Resources Conservation Board, n.d.), online: Energy Resources Conservation Board <http://www.ercb.ca/docs/programs/Lmp/HistoryOrphanFund.pdf>.

372 Energy Resources Conservation Board, *Amended Recommendations of the Orphan Well Program Administration Subcommittee* (Calgary: Energy Resources Conservation Board, 1993) at 7.

373 Energy Resources Conservation Board, *Informational Letter IL 89-22: Orphan Wells – Well Licence Transfers* (Calgary: Energy Resources Conservation Board, 1989). The ERCB noted that out of 129,000 wells that had been drilled in the Province, approximately 25,000 were at that time inactive but were neither producing nor abandoned.

374 Energy Resources Conservation Board, *Interim Directive ID 93-2*: *Requirements for the Issuance of a Well Licence or Approval of Well Licence Transfers* (Calgary: Energy Resources Conservation Board, 1993).

In 1989 the ERCB made changes requiring operators to pay an annual fee of $100 into the well fund for the right to maintain an inactive well.[375] In addition, the ERCB imposed more stringent requirements for well license transfers. It required hopeful transferees to document their ability to carry out the financial, technical and operational responsibilities associated with the well, including subsurface abandonment and well site reclamation. If the transferee could not satisfy the ERCB with respect to its ability to assume these responsibilities, the ERCB would refuse to approve the transfer, notwithstanding that a sale transaction may have already occurred.[376]

In the mid 1990s, the Orphan Program was expanded to include certain facilities and associated infrastructure and address reclamation costs.[377] It was to include multi-well facilities and infrastructure and was developed with the objective of minimizing future orphans and eliminating the existing orphan population within five years.[378]

In 2000, the ERCB formally announced its intention to implement the expanded Orphan Program.[379] The ERCB also introduced the Licensee Liability Rating (LLR) Program as a means of minimizing risk to the Orphan Fund. The LLR Program involved regularly calculating the corporate abandonment and reclamation liability of every licensee and considering the abandonment and reclamation liability of wells and facilities in licence transfer applications. Where the ERCB determined that either a licensee or a facility transfer application posed a risk to the Orphan Fund, a security deposit was required. The ERCB dictated the criteria and process for determining the abandonment and reclamation liability of licensees and facilities in respect of licence transfer applications.

Orphan Fund

The purposes of the current Orphan Fund are declared in section 70 of the *Oil and Gas Conservation Act* (*OGCA*). They are: [380]

(a) to pay for suspension costs, abandonment costs and related reclamation costs in respect of orphan wells, facilities, facility sites and well sites where the work is carried out

    (i) by the Board
    (ii) by a person authorized by the Board, or

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375 *Ibid.* at 4.

376 *Recommendations to Limit the Public Risk from Corporate Insolvencies Involving Inactive Wells, supra* note 370 at 1.

377 *History of the Orphan Fund, supra* note 371 at 2.

378 Energy and Utilities Board, *Report and Recommendations of the Orphan Facilities, Pipelines and Reclamation Subcommittee* (Calgary: Energy and Utilities Board, 1997) at iv.

379 Energy and Utilities Board, *General Bulletin GB 2000-17: Expanded Orphan Program Implementation* (Calgary: Energy and Utilities Board, 2000).

380 S*upra* note 17, s. 70.

(iii) by a person authorized by a Director in accordance with the *Environmental Protection and Enhancement Act;*

(b) to pay for costs incurred in pursuing reimbursement for the costs referred to in clause (a) from the person responsible for paying them;

(c) to pay for a defaulting working interest participant's share of suspension costs, abandonment costs and related reclamation costs incurred by a working interest participant if the person who carried out the work has taken all reasonable steps necessary to collect that share and has been unable to do so; and

(d) to pay for any other costs directly related to the operations of the Board in respect of the orphan fund.

Orphan Fund Levy

As noted above, the OWA's funding to conduct its abandonment and reclamation activities is determined by it as a part of its budget in advance of each fiscal year. The budget is approved by the OWA's three member organizations: the Canadian Association of Petroleum Producers, Small Explorers and Producers Association of Canada and the ERCB. In January of each year, the OWA requests the ERCB to levy industry through the Orphan Fund Levy to fund operations for the upcoming year. The Orphan Fund Levy amount for 2008 was based on an OWA budget of $12 million.[381]

Section 73 of the *OGCA* allows the ERCB to prescribe classes of wells, facilities and unreclaimed sites and assign to each class the rates to be paid into the orphan fund levy by licensees in each fiscal year. It prescribes the orphan fund levy in each fiscal year and must provide for a total levy that will be sufficient to cover the costs referred to in section 70(1) for the fiscal year. The ERCB allocates Orphan Fund levy costs among licensees according to the percentage of the Orphan Fund's annual budget which that company's deemed liability represents to the total industry deemed liability.[382]

The OWA receives additional funding from the ERCB. First time licensees are required to pay a $10,000 fee to the ERCB. The ERCB also charges a $10,000

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[381] Energy Resources Conservation Board, *Bulletin 2008-03: 2008 Orphan Levy* (Calgary: Energy Resources Conservation Board, 2008) online: Energy Resources Conservation Board <http://www.ercb.ca/portal/server.pt/gateway/PTARGS_0_0_302_263_0_43/http%3B/ercbContent/publishedcontent/publish/ercb_home/industry_zone/rules__regulations__requirements/bulletins/bulletin_2008_03.aspx>.

[382] *Ibid*. Licensees are required by section 74 of the *OGCA* to pay the Orphan Fund levy by a specified date. Failure to do so results in a penalty of 20% of the licensee's levy amount being charged against the licensee and also results in the licensee being issued a First ERCB Notice of Low Risk Non-Compliance in accordance with *Directive 019: Compliance Assurance-Enforcement*.

directed transfer fee in all cases where a license is transferred from a defunct company to a viable one. The OWA also receives money from the ERCB in respect of Enforcement Recoveries and LLR Recoveries. An Enforcement Recovery is the amount received when the ERCB successfully recovers monies from a responsible party for enforcement activity conducted on deemed orphan wells, pipelines or facilities.[383] An LLR Recovery is the amount received when a security deposit held by the ERCB pursuant to the LLR program is collected as a result of the licensees' properties, wells, pipelines, facilities, or associated sites being deemed orphan. The ERCB turns LLR Recovery amounts over to the OWA, which is required to have spent at least the amount held on deposit by the ERCB on behalf of the defunct company on abandonment and/or reclamation activities before receiving the LLR deposit.[384]

Scope of Orphan Program

The expanded Orphan Program is applicable to in-situ oil sands operations through two key ERCB documents. *Directive 006: Licensee Liability Rating (LLR) Program and License Transfer Process* (*Directive 006*) applies to all upstream oil and gas wells and facilities included within the scope of the expanded Orphan Fund.[385] *Directive 024: Large Facility Liability Program* (*Directive 024*) applies to large facilities such as sulphur recovery plants, stand alone straddle plants and in-situ oil sands processing plants having an approved design capacity of 5000 m^3/day or greater.[386]

The Orphan Program does not apply to oil sands evaluation wells, oil sands mine sites, processing plants defined in the *Oil Sands Conservation Regulation* or to oil sands central processing facilities having a design capacity of 5000 m^3/day or greater.[387] The exclusion of processing plants from the Orphan Program, when combined with the *Conservation and Reclamation Regulation* exclusion from the requirement to provide security in respect of these plants leaves a gap of unprotected liability.

Licensee Liability Rating Program

Because the abandonment and reclamation activities undertaken by the OWA are funded by industry through the Orphan Fund, financial liability for reclamation of wells, pipelines and facilities included under the Orphan Program does not fall on taxpayers generally. However, potential financial risk to the Orphan Fund is great

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383 *Orphan Well Association 2007/08 Annual Report*, *supra* note 363 at 18. The OWA also generates revenue through interest and sales of salvaged materials.

384 *Ibid*. at 19.

385 Energy and Utilities Board, *Directive 006: Licensee Liability Rating (LLR) Program and Licence Transfer Process* (Calgary: Energy and Utilities Board, 2005) at 2.

386 Energy and Utilities Board, *Directive 024: Large Facility Liability Management Program* (Calgary: Energy and Utilities Board, 2005).

387 *Directive 006, supra* note 385 at 4.

unless the ability to be a licensee of wells, pipelines and facilities is controlled. The ERCB exercises this control through the Licensee Liability Rating (LLR) Program.

The stated purpose of the LLR Program is to minimize the risk to the Orphan Fund posed by unfunded well, facility and pipeline abandonment and reclamation liability.[388] The Program achieves this by keeping the ERCB generally aware of each licensee's financial ability to abandon and reclaim their licensed assets and by requiring licensees deemed by the ERCB to pose a risk to the Orphan Fund to pay financial security.

The LLR Program assesses the potential risk a licensee poses to the Orphan Fund by determining, on a monthly basis, the licensee's ratio of deemed assets to deemed liabilities. A licensee with deemed liabilities exceeding deemed assets will have an LLR ratio of less than 1.0 and is required to provide a security deposit to the ERCB. The security deposit must equal the difference between the licensee's deemed assets and deemed liabilities. In other words, the placement of the security deposit returns the licensee's LLR to 1.0.[389]

The LLR Program applies to most upstream oil and gas facilities included within the scope of the expanded Orphan Fund. This includes single and multipad bitumen wells, injection wells, bitumen batteries, single and multiwell bitumen satellites and oil sands central processing facilities having a volume of less than 5000 m^3/day.[390] Large facilities such as oil sands central processing facilities having a design capacity of 5000 m^3/day or greater are not included in the LLR Program. However, they are incorporated into the expanded Orphan Program under a separate Large Facility Program implemented by *Directive 024*.[391]
When calculating a licensee's deemed assets and liabilities, the LLR Program considers a licensee to derive all of the benefits and to hold all of the liabilities of its wells, facilities, and pipelines. The ERCB calculates licensees' deemed assets and liabilities using certain standardized data, which is published and regularly updated in *Directive 011: Licensee Liability Rating (LLR) Program Updated Industry Parameters and Liability Costs*.[392]

Generally, abandonment and reclamation costs are based on formulae and parameters set by the ERCB that are intended to reflect industry average costs. In some cases, however, industry average costs may not accurately reflect a licensee's deemed assets and liabilities. Where the use of the standardized parameters results in a licensee being assigned a LLR ratio of less than 1.0, the licensee may voluntarily do a site-specific liability assessment. Where the ERCB identifies a site as a "potential

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388 *Ibid.* at 1.
389 *Ibid*. at 2.
390 *Ibid.* at 3.
391 *Ibid*. at 4.
392 Energy and Utilities Board, *Directive 011: Licensee Liability Rating (LLR) Program Updated Industry Parameters and Liability Costs* (Calgary: Energy and Utilities Board, 2005).

problem site", it may require the licensee to conduct a site-specific liability assessment.[393]

A licensee requesting that site-specific abandonment and reclamation costs be used to determine deemed liability must provide to the ERCB detailed site-specific abandonment and reclamation cost data for all of its wells. Site-specific abandonment and reclamation costs, if accepted by the ERCB, will be used to calculate deemed liabilities for the following three calendar years.

In some cases, all of the abandonment and reclamation work necessary to obtain a reclamation certificate is complete but a certificate will not have been issued pending re-establishment of vegetative cover. In such a case, a licensee with a LLR of less than 1.0 can request to vary the reclamation liability amount for that well or facility by 50 percent. Detailed reclamation cost estimates based on a site-specific assessment must be submitted in support of such a request. If the ERCB approves the request, the reduced liability will be used to calculate the licensee's LLR for the next calendar year at which point the standardized amounts will be used unless the licensee repeats the request for a variance.[394]

A licensee requesting a variation of an LLR parameter must conduct site-specific assessments in accordance with *Directive 001: Requirements for Site-Specific Liability Assessments in Support of the ERCB's Liability Management Programs*.[395] This Directive requires licensees completing site-specific estimation of suspension, abandonment or reclamation costs to base the estimate on achieving prescribed standards and requires that the estimate of reclamation costs be conducted in a manner that meets or exceeds the Alberta Environment publication *T/573: Phase 1 Environmental Site Assessment Guideline for Upstream Oil and Gas Sites*.[396]

Directive 001 provides the following guidance for those conducting site-specific assessments of abandonment and reclamation costs: [397]

> A cost estimate must be developed as if a third party were conducting the work and supplying the necessary equipment. A cost estimate must be itemized and clearly show the subtotals for all major tasks. The associated unit rates must be based upon standard or published prices for all services. Price discounts available to all parties may be applied, but client-specific discounts, such as those for preferred client status or coordinated regional clean-ups of multiple sites, may not be applied. A cost estimate must not apply a net present value for work to be conducted in the future. For a site included in the scope of the

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393 *Ibid.* at 19.
394 *Ibid*. at 24.
395 *Ibid*. at 26.
396 Energy and Utilities Board, *Directive 001: Requirements for Site-Specific Liability Assessments in Support of the EUB's Liability Management Programs* (Calgary: Energy and Utilities Board, 2005) at 4.
397 *Ibid*. at 5.

> Orphan Fund, as described in Appendix 1 of *Directive 006*, credit for salvage value is not to be included, as salvage value is taken into consideration through the present value and salvage (PVS) factor applied in the LLR.

The reclamation cost estimate must provide for the remediation and surface reclamation of all land directly affected by the development to a standard that satisfies the requirements for a reclamation certificate. Where a site is not eligible to obtain a reclamation certificate, the cost estimate must include costs to achieve a comparable degree of remediation and reclamation. Remediation cost estimates must be based on a remediation approach that has been demonstrated effective in Alberta in treating soil or water so that a site may satisfy requirements for a reclamation certificate.[398]

Directive 001 requires estimates of reclamation costs to return the land to a condition able to support uses similar to those which existed prior to development. Costs of activities such as stabilization, contouring, conditioning, reconstruction, revegetation and maintenance of the land must be included in the estimate, as must costs to remove roads and directly related infrastructure. Reclamation cost estimates must also include administrative costs that would be incurred in order to obtain a reclamation certificate.[399]

Appendix 1 of *Directive 001* summarizes the primary tasks to be evaluated by the ERCB when reviewing a site-specific liability assessment, and states generally that the greater the complexity, duration or estimated cost of the anticipated work, the greater the level of detail expected in the cost estimate.[400] It also sets out specific tasks involved in well, facility or pipeline suspension and abandonment and reclamation. In addition to identifying specific reclamation tasks to be considered in the estimate, *Directive 001* specifically identifies project management and administration costs that must be included in the estimate.[401]

Use of security deposits

Unlike the Orphan Fund levy, a security deposit is to be used for the abandonment and reclamation of that operator's assets. A security deposit addresses both potential abandonment and reclamation costs. The ERCB may use all or part of a security deposit placed by a licensee to properly suspend a well, facility, or pipeline or to abandon a well or facility if the licensee fails to comply with an ERCB order to undertake any of these activities. Alberta Environment may also use the security deposit placed with the ERCB to undertake remediation or reclamation activities if the licensee fails to comply with an Alberta Environment direction to undertake either of these activities.

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398 *Ibid*. at 5.
399 *Ibid*. at 6.
400 *Ibid*. at 9.
401 *Ibid*, at 10-11.

If the amount of security held by the ERCB is reduced by costs incurred on behalf of the licensee by the ERCB or Alberta Environment, the licensee must replace any security deposit required to offset a difference between its deemed liabilities and deemed assets by the date specified its next LLR assessment.[402]

Security deposits must be made either in cash or by submitting a letter of credit that meets the requirements of *Interim Directive (ID) 2001-1.*[403] The ERCB will only accept renewable, irrevocable letters of credit in the exact form outlined in *ID 2001-1*, from the Alberta Treasury Branch or any federally regulated Schedule I or II bank, as designated in the federal *Bank Act*. The letter of credit agreement must require that the issuing bank automatically renew the letter of credit without amendment or provide the ERCB with notice of the bank's intention not to renew the letter of credit no less than 60 days prior to the expiry date.[404] Existing cash deposits may be converted to letters of credit provided that the requirements of *ID 2001-1* are met in full.

The return of a security deposit is determined in accordance with the criteria applicable to the particular program under which it is required to be paid.[405] A licensee with an LLR equal to or greater than 1.0 and who is otherwise compliant with ERCB requirements is entitled to the return of its security deposit. Similarly, a licensee having a security deposit in excess of the LLR Program requirements is eligible for a refund of the difference. Return of a security deposit is not automatic, however. The ERCB will not return any portion of the security deposit unless a written request is submitted from the licensee that provided the deposit. The ERCB will only refund a security deposit to the licensee or, if appropriate, to a trustee, receiver, or receiver-manager.[406]

Public involvement

The ERCB considers public access to abandonment and reclamation liability information to be an integral component of the LLR Program. The ERCB's website posts each licensee's assessed LLR and its post-security deposit LLR.[407] Further, standardized abandonment and reclamation costs used to calculate a producer licensee's LLR are made public and where a producer licensee wishes to use a site-specific calculation, the information is not regarded as confidential.[408]

Confidentiality under *Directive 006* is limited and applied to information submitted by non-producer licensees to determine a netback.[409] *Directive 001* makes no

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402 *Directive 006, supra* note 385 at 22.
403 *Ibid*.
404 Energy and Utilities Board, *ID 2001-1: Security Deposits* (Calgary: Energy and Utilities Board, 2001) at 1.
405 *Ibid*. at 2.
406 *Directive 006, supra* note 385 at 22.
407 *Ibid.* at 27.
408 *Directive 001, supra* note 396 at 8.
409 *Directive 006, supra* note 385 at 12.

representations of confidentiality for information submitted as part of a request for variance of standardized parameters for determining deemed assets or liabilities. In fact, *Directive 001* provides that a licensee or approval holder submitting a liability assessment to the ERCB for consideration should be aware that submissions to the ERCB may be subject to public disclosure.[410]

However, there is no public review of deemed liability estimates in a particular case and the public are not broadly involved in the process to determine the industry deemed liability parameters.[411] Further, the information provided by non-producer licencees in relation to deemed assets is held confidential, as is all deemed asset and deemed liability information collected in respect of large facilities.

Conclusion

The Orphan Program, as described above, has a number of admirable features, some of which relate directly to criticisms that may be raised against *EPEA*'s reclamation security regime. Specifically, the Orphan Program:

- is applicable to all industry participants within the scope of the Program, without exclusion,
- generally uses a consistent method of determining abandonment and reclamation liabilities;
- where site specific liability evaluations are allowed, requires detailed information and provides strict rules to be followed by operators respecting preparation of the liability estimate, including the requirement that third party and verifiable costs be used; and
- provides stable revenue to allow for the abandonment and reclamation of facilities covered by its scope by imposing an annual levy on all operators.

Because reclamation security regimes are designed for a different purpose than are liability management schemes, it is not fair to judge the Orphan Program by the inclusion or exclusion of those features that commentators consider desirable in reclamation security regimes.

However, it is worth noting that the context surrounding the Orphan Program and its application is different than that which surrounds the oil sands mining industry. The Orphan Program covers thousands of assets owned and operated by thousands of licensees, big and small. The likelihood of an operator defaulting in relation to a single well or facility is reasonably high; indeed, some orphans are identified every year. However, the financial cost to reclaim a single orphan is low when compared to

410 *Directive 001, supra* note 396 at 8.
411 *Directive 011, supra* note 392 at 1.

the financial costs of conserving and reclaiming an oil sands mine. The annual budget of the OWA is small in comparison to the amount of money spent on oil sands mine reclamation in a year.

Creating an asset to liability ratio program like the Orphan Program would require consideration of the huge potential costs of operator default and the small number of operators among whom the liability would be shared. There are other questions as well. Currently, licensees under the Orphan Program pay an annual levy based on their own proportion of the total outstanding abandonment and reclamation liability multiplied by the OWA's budget. It is unclear how a levy would be determined for oil sands mining. There are no current oil sands mine orphans. All operators are present and accounted for, though very little land is certified as reclaimed. It is also uncertain how the asset to liability calculation would be undertaken. If the liabilities were determined by an estimation of conservation and reclamation costs by the operator, as currently occurs under the *EPEA* regime, many of the same problems would continue to exist

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