

Accounting for Environmental Liabilities under International Financial Reporting Standards

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February 2011



Oil Sands Research and Information Network

OSRIN is a university-based, independent organization that compiles, interprets and analyses available knowledge about returning landscapes and water impacted by oil sands mining to a natural state and gets that knowledge into the hands of those who can use it to drive breakthrough improvements in reclamation regulations and practices. OSRIN is a project of the University of Alberta's School of Energy and the Environment (SEE). OSRIN was launched with a start-up grant of \$4.5 million from Alberta Environment and a \$250,000 grant from the Canada School of Energy and Environment Ltd.

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- **Media, opinion leaders and the general public** with the facts about oil sands development, its environmental and social impacts, and landscape/water reclamation activities – so that public dialogue and policy is informed by solid evidence
- **Industry** with ready access to an integrated view of research that will help them make and execute reclamation plans – a view that crosses disciplines and organizational boundaries

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Citation

This report may be cited as:

Schneider, T., 2011. *Accounting for Environmental Liabilities under International Financial Reporting Standards*. Oil Sands Research and Information Network, University of Alberta, School of Energy and the Environment, Edmonton, Alberta. OSRIN Report No. TR-9. 16 pp.

Copies of this report may be obtained from OSRIN at osrin@ualberta.ca or through the OSRIN website at <http://www.osrin.ualberta.ca> or directly from the University of Alberta's Education & Research Archive at <http://hdl.handle.net/10402/era.17507>.

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REPORT SUMMARY

Recent reports from environmental non-governmental organizations (ENGOs) such as the Pembina Institute and the Environmental Law Centre in Canada, as well as investor groups such as Ceres and The Ethical Funds Company, have addressed the growing concern over environmental liabilities related to operations in Alberta's oil sands (Lempfers et al. 2010, Reuter et al. 2010, The Ethical Funds Company 2008, Watt 2010). Furthermore, environmental obligations are beginning to take a real bite out of the financial statements of firms operating in this sector. For example, a recent Globe and Mail article (Taylor 2010) on the owner of the largest single share in the Syncrude operation, Canadian Oil Sands Trust, notes that the almost \$1 billion in spending next year it has allocated to its plants are primarily for moving equipment around and meeting environmental obligations, rather than improving plant efficiencies (Canadian Oil Sands Trust 2010).

Concurrent to this is a change in the accounting rules for Canadian public companies. Canadian public companies are in the process of moving from reporting under old Canadian Generally Accepted Accounting Principles (GAAP) to International Financial Reporting Standards (IFRS), which is now officially Canadian (public company) GAAP. This transition must take place for fiscal years ending after December 31st, 2010; which means that the first quarter financial reports for 2011 will be based on IFRS. This will include comparative information as it pertains to 2010.

With the move to IFRS, one of the key areas affecting firms in extractive industries pertains to the accounting rules by which environmental liabilities are accounted for. For firms in these industries, environmental matters play a major role in operations. The change in accounting rules will have a material effect on the total amount of environmental liabilities reported and the way in which they are expensed over time. I expect that under IFRS, more environmental liabilities will be recognised in the financial statements of firms operating in extractive industries, such as oil and gas and mining. However, there are certain mitigating factors that may be strong enough such that we see no significant increase in the reported environmental liabilities of these firms. The actual settling of these liabilities will occur in the coming decades. Under old Canadian GAAP and IFRS, these liabilities are recognised in the financial statements based on their present value. This is typically done by using a discount rate and the usual methods of calculating the present value of a future obligation. The new IFRS rules are very sensitive to the discount rate used and there is some debate as to exactly how the new discount rate should be calculated. Thus, although the new accounting standards under IFRS dictate that more specific environmental liabilities be recognised in the financial statements, this may be offset by changes in the way that they are quantified. This report discusses the potential impact the move to IFRS is expected to have on firms with mining operations in Alberta's oil sands. It details the changes in accounting methods and the potential impact on these firms with regards to the reporting and expensing of environmental liabilities. The discussion can be generalized to the overall oil and gas and mining sectors. However, the significant environmental challenges that are faced by the handful of firms mining in Alberta's oil sands make the move to IFRS an interesting one to follow.

ACKNOWLEDGEMENTS

The Oil Sands Research and Information Network (OSRIN), School of Energy and the Environment (SEE), University of Alberta provided funding for this project.

I would like to thank Chris Powter, Executive Director of OSRIN for valuable feedback on previous drafts. I would also like to thank David Brand and George Leung of Sherritt Coal for their feedback on the final draft.

All opinions and errors in this report are solely attributable to the author.

1 INTRODUCTION

Recent reports from environmental non-governmental organizations (ENGOs) such as the Pembina Institute and the Environmental Law Centre in Canada, as well as investor groups such as Ceres and The Ethical Funds Company¹, have addressed the growing concern over environmental liabilities related to operations in Alberta's oil sands (Lemphers et al. 2010, Reuter et al. 2010, The Ethical Funds Company 2008, Watt 2010). One of the key themes running through these discussions is whether environmental liabilities are being adequately captured in the financial statements of firms operating in this sector. Meanwhile, we are going through a change in the accounting standards by which Canadian public companies report. Canadian public companies are transitioning from reporting under old Canadian Generally Accepted Accounting Principles (GAAP) to International Financial Reporting Standards (IFRS). The transition must take place for fiscal years ending after December 31st, 2010, which means that the first quarter financial reports for 2011 will be based on IFRS, including comparative information as it pertains to 2010. Most reporters will have their IFRS conversions well underway. Firms that have not started doing this will have trouble meeting the deadline.

For firms in which environmental matters play a major role in operations, this change will have a material effect on the total amount of environmental liabilities reported and the way in which they are expensed over time. Under IFRS, more environmental liabilities will be recognised in the financial statements of firms operating in extractive industries, such as oil and gas and mining. However, accounting for environmental liabilities is less than straight-forward. The timelines can be very long, the actual timing of the obligations can be very uncertain and changes in technology can impact the final costs. Furthermore, environmental liabilities arising from ongoing operations in the oil sands come onto the balance sheet based on a present value calculation. This is typically done by using a discount rate to calculate the liability; the higher the discount rate and the longer the timelines, the smaller the amount that is recognised in the financial statements. Changes in the discount rate used have a major impact on the way in which environmental liabilities pass through the financial statements, particularly under IFRS.

This report discusses the impact the move to IFRS is expected to have on firms with mining operations in Alberta's oil sands, detailing the changes in accounting methods and the potential impact on these firms as it pertains to the reporting and expensing of environmental liabilities. The analysis includes a detailed explanation of how the environmental liabilities associated with long-lived assets (i.e., decommissioning liabilities) are accounted for under old Canadian GAAP

¹ Ceres was formed after the 1989 Exxon Valdez disaster. Ceres' objective is to improve voluntary and mandatory social and environmental disclosures by firms, and ultimately improve their performance in these areas (<http://www.ceres.org>). The Ethical Funds Company invests in firms that it believes have both strong financial performance and superior social and environmental governance. It is now part of NEI Investments (<http://neiinvestments.com>).

and IFRS². The accounting for these liabilities under old Canadian GAAP is similar to current US GAAP, thus I will also refer to US GAAP when discussing old Canadian GAAP.

2 ASSET RETIREMENT OBLIGATIONS VERSUS PROVISIONS

Asset retirement obligations (AROs) came about as a result of Edison Electric, in the United States, requesting clarification as to how to account for the decommissioning costs of their nuclear power plants. Similar accounting rules came about in the early 2000s for the US and Canada, requiring that companies recognise a liability associated with the decommissioning costs of their long-lived assets. With the advent of IFRS, what were AROs under the *Canadian Institute of Chartered Accountants (CICA) Handbook Section 3110, Asset Retirement Obligations* (CICA 2010), now fall under the more general *International Accounting Standard (IAS) 37: Provisions, Contingent Liabilities and Contingent Assets* (IFRS Foundation 2009). Canadian firms in transition may continue to refer to asset retirement obligations as part of their provisions (i.e., in the notes), but the term itself officially disappears. Provisions present a more aggregated number; however, they are required to be broken out in the notes to the financial statements such that it will be evident what would have been AROs under the previous rules. For extractive industries, provisions tend to be dominated by environmental provisions, with litigation provisions typically coming second. As restructuring costs can also fall under provisions, they may dominate from time to time. Another note as to terminology pertains to contingent liabilities. Under US and old Canadian GAAP, a contingent liability may or may not be recognised in the financial statements depending upon the timing and likelihood of the liability. Under IFRS, a contingent liability is, by definition, not quantified. If it can be quantified, it is, by definition, a provision and must be recognised as such.

3 INDETERMINATE USEFUL LIFE

One of the more obvious differences between old Canadian GAAP and IFRS revolves around the term *indeterminate useful life*. Indeterminate useful life is an acceptable reason not to establish an ARO under US GAAP and old Canadian GAAP. If, in management's opinion, an asset has an indeterminate useful life, an ARO need not be established (CICA 2010)³. Under IFRS this is not allowed. At a minimum, firms with mining operations in the oil sands that report under old Canadian GAAP considered their upgraders and related infrastructure to be assets of indeterminate useful life. For example, the following statement from the Suncor 2009 annual report (Suncor Energy Inc. 2010; p. 90) states:

A significant portion of the company's assets, including the upgrading facilities at the oil sands operation and the downstream refineries, have retirement obligations for which the

² When *old Canadian GAAP* is referred to, it implies Canadian public company GAAP that was in effect for fiscal years ending up to December 31, 2010. For fiscal years ending on or after January 1, 2011 Canadian public company GAAP becomes IFRS. When I refer to *US GAAP*, I am referring to current US GAAP.

³ CICA Handbook Section 3110, Asset Retirement Obligations, paragraph A18. SFAS 143, Accounting for Asset Retirement Obligations, paragraph A16.

fair value cannot be reasonably determined because the assets currently have an indeterminate life. The asset retirement obligation for these assets will be recorded in the first period in which the lives of the assets are determinable.

Under IFRS, Suncor cannot avoid accounting for these asset retirement obligations. This is strictly due to the fact that the key criterion for recognizing a liability under IFRS rests only on whether the liability can be reasonably estimated and indeterminate useful life is immaterial as to whether it is recognised. This is reflected in the following statement of Royal Dutch Shell (Royal Dutch Shell PLC 2010; p. 105), which reports under IFRS:

Provisions for decommissioning and restoration costs, which are primarily in respect of hydrocarbon production facilities, are measured based on current requirements, technology and price levels and the present value is calculated using amounts discounted over the useful economic life of the assets.

It should be noted that many companies have assets that have been determined to have indeterminate useful life. However, the decommissioning of upgraders and refineries is not an insignificant expense and it will impact the reported liabilities of the Canadian GAAP reporters operating in the oil sands.

4 ESTABLISHING AND EXPENSING A PROVISION

Establishing a provision under IAS 37 is very similar to establishing an ARO under old Canadian GAAP and US GAAP. When a provision (ARO) is established, it is recognised as a liability on the balance sheet. This is matched with an equivalent amount being added to the carrying value of the asset associated with the liability. Thus, the assets described as having an indeterminate useful life will increase in book value⁴. The amount that will be recorded is the present value of the firm's estimate of its future decommissioning costs. This amount is then depreciated or depleted along with the asset⁵. The typical way to calculate the present value of a future cost is to use a discount rate. The discount rate used can have a significant impact on the value of the liability that is recognised when the provision (or ARO) is established. The wording as to how to calculate the discount rate under IFRS and old Canadian GAAP is different. However, the IFRS wording is subject to interpretation and there is currently debate as to just how different this makes the calculation of the discount rate with the change of accounting standards, which will be discussed in the following section. Regardless, firms will change their discount rate from time to

⁴ This would generally be an addition to property, plant and equipment. It should be noted that these assets would then be subject to an impairment test. Under IFRS, this impairment test requires that the present value of the cash flows that the asset can generate are calculated, which is known as the 'value in use'. If that value is less than the carrying value, the asset must be written down to its value in use (which would have an immediate effect on the income statement). It is unlikely that any write-downs will occur in 2011 due to the provisions associated with the upgraders and refineries in question.

⁵ Depreciation is based on time; depletion is based on units of production.

time⁶. To demonstrate the potential difference that different discount rates can have on the original liability and subsequent depreciation, I use an example of a \$1 billion (undiscounted) provision that must be realized. If this liability is associated with an asset that has 25 years left in its useful life, the \$1 billion must be discounted back 25 years to estimate the present value of the future cost. Table 1, Panel A presents the present value of a \$1 billion estimate of a future decommissioning cost based on a 9% and 6% discount rate. The associated annual depreciation (straight-line) is presented in Panel B.

Table 1. Present value and annual depreciation based on different discount rates.

Panel A: Decommissioning provisions with 9% versus 6% discount rates		
(\$ millions)	9%	6%
Estimate of future cost	\$1,000	\$1,000
Number of years	25	25
Present value	\$116	\$233

Panel B: Depreciation		
Annual Depreciation (\$ millions)	\$4.6	\$9.3

What is obvious from Table 1 is the significant short-term benefit of having a higher discount rate. The present value is the amount that would be recognised on the balance sheet. The original amount associated with the 9% discount rate is \$116 million compared to \$233 million for the 6% discount rate. This would then pass through the income statement as depreciation, \$4.6 million per year under the 9% scenario and \$9.3 million under the 6% scenario (assuming straight-line depreciation). The trade-off is higher total accretion expense over the life of the asset. The accretion expense is the amount that is expensed each year to reflect the discounting of the company's original cost estimate. It reflects the change in the present value of the liability from the beginning of the year to the end of the year. Along with the expense showing up on the income statement, the same amount is added to the liability (provision or ARO) each year. The liability grows each year until, by the end of the life of the asset, the liability will equal the undiscounted estimation of the cost. Accretion expense is equal to the discount rate times the opening book value of the liability. For example, the accretion expense with regards to Table 1 at the end of the first year would be \$10.4 million (9% x \$116 million) in the case with the 9% discount rate and \$14.0 million (6% x \$233 million) for the case with the 6% discount rate. Table 2 presents the first five years and then the final year of this process. By the end of the

⁶ For example, Suncor changed its discount rate from 6% to 9% in 2008 and then back to 6% in 2009. Dow Chemical (a US GAAP reporter) changed its discount rate from 7.13% in 2008 to 2.45% in 2009.

useful life of the asset (in this case 25 years), the closing provision or ARO must be equal to the firm's \$1 billion estimate of the decommissioning costs. In the final year, the accretion expense is \$82.6 million for the 9% scenario and \$56.6 million for the 6% scenario⁷.

Table 2. Comparison of accretion expense – 9% vs. 6% discount rate.

Panel A , based on a 9% discount rate – \$ million							
	Year 1	Year 2	Year 3	Year 4	Year 5	...	Year 25
Opening Provision or ARO	116	126	138	150	164	...	917
Accretion expense (9%)	10	11	12	14	15	...	83
Closing Provision or ARO	126	138	150	164	178	...	1,000
Panel B , based on a 6% discount rate – \$ million							
	Year 1	Year 2	Year 3	Year 4	Year 5	...	Year 25
Opening Provision or ARO	233	247	262	278	294	...	943
Accretion expense (6%)	14	15	16	17	18	...	57
Closing Provision or ARO	247	262	278	294	312	...	1,000

Notes: The accretion expense each year is the discount rate times the opening provision or ARO. This is then added to the provision or ARO, which then becomes the closing amount. The closing amount from one year is equal to the opening amount of the next. Alternatively, accretion expense can be considered as the change in the present value of the provision or ARO from the beginning to the end of the year.

The total annual expense associated with a provision or ARO will be the annual depreciation (or depletion) expense plus the annual accretion expense. Using the \$1 billion example from Tables 1 and 2, Figure 1 presents a comparison of the 6% and 9% scenarios.

⁷ In this case of a 25 year timeline, the accretion expense for the higher discount rate starts off lower and ends up higher than the lower discount rate (9% versus 6%). When the timelines are shorter, accretion expense can be higher throughout the entire life of the asset; however, when the depreciation expense is also included, total expenses are almost always lower in the early stages and then higher at the later stages for Provisions and AROs associated with higher discount rate.

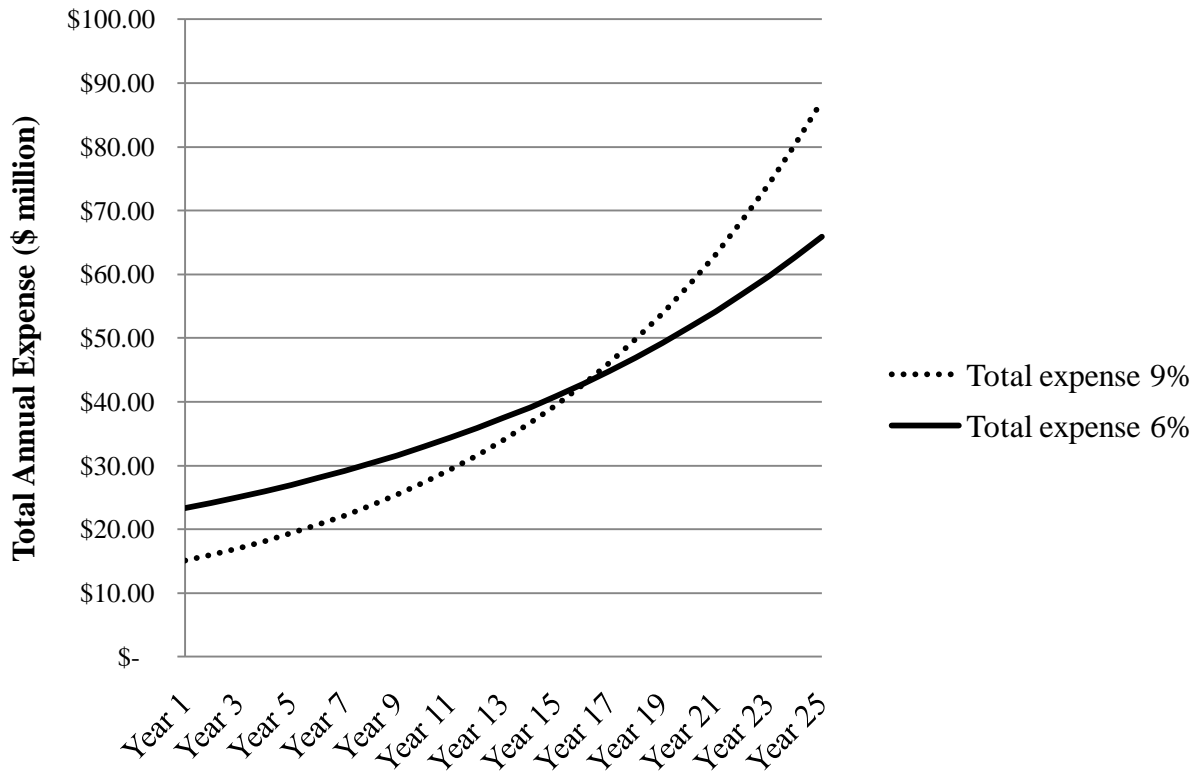


Figure 1. Comparison of total annual expense, 9% versus 6% discount rate.

To summarize, accretion expense is calculated each year based on the discount rate and the book-value of the liability. Conceptually, it is the change in the present value of the liability from the beginning to the end of the year. This amount is charged to income with an equal amount added to the book-value of the liability. Accretion expense is treated as an operating expense under old Canadian GAAP, whereas it is considered borrowing costs under IFRS⁸. This is a subtle, yet potentially material difference between old Canadian GAAP and IFRS. Operating earnings will increase by this amount for all movers to IFRS. With regards to the cash flow statement, the immediate cash flow effect is only contingent on any security amounts that the government might require as security against the decommissioning and reclamation costs. Over time, as the liability grows vis-à-vis the asset, it will affect the firm's capital structure and perhaps its ability to raise debt financing. Provisions (and AROs) are very much 'back-end loaded' with regards to their actual effect on income and cash-flow. Regardless, detail on provisions must be covered in firms' annual reports. This includes reporting the discounted amount that has been accrued to date and the undiscounted amount of the liability on which the accrual is based.

⁸ Unless otherwise noted, anything which applied under Canadian GAAP also applies to ongoing US GAAP.

5 CALCULATION AND REVISION OF DISCOUNT RATE

5.1 Calculation of the Discount Rate

Under old Canadian GAAP and US GAAP, the ARO is estimated and then it is discounted based on the credit-adjusted risk-free rate. This is calculated as the current risk-free rate plus an adjustment to reflect the credit worthiness of the firm. Hence, the worse the firm's credit rating, the higher the discount rate and the lower the present value of the ARO. In effect, there is not a lot of variation in the range of the discount rates used for oil sands mining firms based on their 2009 annual reports, ranging from 5.9% to 6.9%. However, in 2008 Suncor increased its discount rate from 6.0% to 9.0%, which was attributed to the financial crisis. This also coincided with an approximately \$1.2 billion increase in undiscounted AROs due to a change in estimation. In 2009, the rate was adjusted back down to 6.0%. Under IFRS, the way in which the discount rate is to be calculated is not described as the credit-adjusted risk-free rate. Under IFRS, the appropriate discount rate is described as follows (IFRS Foundation 2009):

The discount rate (or rates) shall be a pre-tax rate (or rates) that reflect(s) current market assessments of the time value of money and the risks specific to the liability. The discount rate(s) shall not reflect risks for which future cash flow estimates have been adjusted.

The above statement is manifest in the following statement from Shell's 2009 annual report (Royal Dutch Shell PLC 2010; p. 105):

Provisions are recognised at the balance sheet date at Shell's best estimate, using risk-adjusted future cash flows, of the present value of the expenditure required to settle the present obligation. Non-current amounts are discounted using the risk-free rate. Specific details for decommissioning and restoration costs and environmental remediation are described below. The carrying amounts of provisions are regularly reviewed and adjusted for new facts or changes in law or technology.

In the case of Shell, the adjustments relating to the provision are reflected in the future outcome scenarios rather than through the discount rate itself (risk-adjusted future cash flows). Typically, when future cash flows are risk-adjusted it is an increase of the future cash flows to reflect the uncertainty as to the outcome. Another method of risk-adjusting a provision under IFRS is to simply add an amount to the estimate after it has been discounted (for example to increase the provision by 5%). In its 2009 annual report Shell states that it is using the risk-free rate for the discounting of its provisions (as it risk adjusts the future cash flows). However, Shell uses a 6% risk-free rate, which is not materially different from the credit-adjusted rates used by the Canadian GAAP reporters operating in the oil sands.

Under IFRS, the similar method to that used under old Canadian GAAP is to adjust the discount rate for 'risks specific to the liability'. In theory, at least, risk adjusting a discount rate means

lowering the discount rate to increase the present value of the liability⁹. However, there is a debate going on as to just exactly what the risks specific to the liability are. There are two ways in which there might be a credit adjustment that would increase the discount rate used, in a similar fashion that a credit adjustment is made under US GAAP and old Canadian GAAP. The first is what is known as a ‘sector spread’. This is an increase to the risk-free rate to reflect the overall credit risk associated within a given industry sector (in this case oil and gas). The second is to argue that the risks specific to the liability also include the credit-worthiness of the firm itself, in the same way a credit adjusted risk-free rate is calculated under old Canadian GAAP. The (Canadian) Accounting Standards Board (AcSB) recently made a request of the International Financial Reporting Interpretations Committee (IFRIC) to provide guidance on the use of ‘own credit risk’ in calculating the discount rate for provisions under IAS 37¹⁰. In November, 2010, IFRIC chose not to address this issue and has left it up to the IASB project committee that is currently developing a new version of IAS 37, to clearly define what is meant by ‘risks specific to the liability’. The November, 2010 IFRIC staff paper on this issue noted that the big four accounting firms are split as to adjusting for credit risk, based on the direction laid out in their manuals (IFRS Foundation 2010). It also noted that diversity exists in practice with regards to the inclusion of credit risk in the discount rate. As to the immediate conversion to IFRS in Canada, given that IFRIC has chosen not to rule in this matter, it leaves it to the discretion of management.

In [section 4](#), on establishing and expensing a provision, it was shown how sensitive they are to the discount rate used. Thus, the way in which the debate on the calculation of discount rates under IAS 37 pans out will be material to the financial reporting of firms operating in the oil sands. It becomes even more material once the method in which a revision to the discount rate is handled under IFRS is taken into account. This is discussed in the following section.

5.2 Revisions to the Discount Rate

As touched on in [section 4](#), under US GAAP and old Canadian GAAP, once an ARO is recognised on the balance sheet, the discount rate associated with the established liability sticks with it until it has reached its undiscounted amount. Thus, the roughly \$1.2 billion that Suncor added to its AROs in 2008 under the 9% discount rate chosen for that year would stay with that ARO until the end of the useful life of the asset to which it is associated. The exception is if the amount is re-estimated upwards. In that case, the amount by which the estimated liability is increased is discounted at the discount rate in place at the time of the re-estimation and not at the discount rate in place when the original ARO was established. However, under IFRS (IAS 37), the discount rate used when the provision is originally recognised does not stay with the provision. All provisions are re-valued based on the discount rate as calculated at the current financial statement date, not the discount rate at the time of the original recognition. If a

⁹ For example, in the IASB exposure draft of proposed amendments to IAS 37, paragraph 40; they note: When an entity reflects the effects of risks and uncertainties by adjusting the discount rate rather than by adjusting the estimated cash flows, the resulting discount rate is typically lower than a risk-free rate.

¹⁰ IFRIC is the committee of the IASB charged with providing authoritative guidance on IFRS.

financial statement date coincides with a financial crisis and the discount rate increases from 6% to 9%, it applies to all provisions and not just new ones. Any changes are applied prospectively, and the income statement effect will occur over the remaining useful life of the related asset¹¹.

For oil sands mining firms with upgraders, the environmental liabilities associated with the winding up of their operations are currently in the billions of dollars. This will likely only increase in the coming years. With such large dollar amounts involved, changes to the discount rate will have a significant impact on the balance sheets of these firms. An example is presented in Table 3. It presents the hypothetical decommissioning liabilities associated with a long-lived asset over a three-year period. The asset is estimated to have a useful life of fifteen years from the end of year 1, fourteen years from the end of year 2, and so on. At the beginning of year 1, the asset has an undiscounted decommissioning liability of \$2 billion. At the end year 1, the firm adds another undiscounted amount of \$1 billion to the associated decommissioning liability. After that, no new liabilities are added. For the \$2 billion at the beginning of the year (the original undiscounted ARO or provision), the discount rate that was used is 6%. In year 1, the firm increases its discount rate to 9%; in year 2 the rate is changed back to 6% and then in year 3 to 7%. Table 3, Panel A, presents the liability that would show up on the balance sheet based on US GAAP and old Canadian GAAP. Table 3, Panel B, presents the same liability calculated under IFRS.

In year 1, under old Canadian GAAP (Panel A), the original undiscounted ARO is discounted to its present value based on the original 6% used when the \$2 billion liability was first estimated. The upward revision of the ARO by \$1 billion is then discounted by 9%, based on the discount rate in place at the end of year 1. These discount rates then stay in place in relation to the undiscounted liabilities, creating total AROs of \$1.109 billion, \$1.184 billion and \$1.264 billion for years 1, 2, and 3 respectively. In contrast to this, under IFRS (Panel B), the present value of the original \$2 billion liability is discounted based on the new 9% rate in place at the end of year 1. The upward revision of \$1 billion is also discounted at the 9% rate. Then in year 2, when the firm's discount rate changes to 6%, it is applied to both the original provision and the upward revision of \$1 billion. The same holds for year 3, when the firm changes its discount rate to 7%. The result is total AROs of \$0.824 billion, \$1.327 billion and \$1.245 billion for years 1, 2, and 3 respectively. This difference in addressing revisions to the discount rate with the move to IFRS has the potential to be the most significant change in the way environmental liabilities are valued on the balance sheet and ultimately pass through the income statement. However, this is dependent on how often, and by how much, firms choose to change the discount rate they apply to these liabilities.

¹¹ Changes with regards to the estimated future costs are also applied prospectively. Thus, an upward revision of \$0.2 billion is applied to the remaining useful life of the related asset. Accounting changes that are applied prospectively are applied on a go-forward basis, with no adjustments to previous years' financial statements.

Table 3. Effect of changes to the discount rate.

Panel A: US GAAP and old Canadian GAAP			
\$ million	Year 1	Year 2	Year 3
Original undiscounted ARO	\$2,000	\$2,000	\$2,000
Discount rate applied	6%	6%	6%
Remaining useful life of asset	15 yrs.	14 yrs.	13 yrs.
Present value of ARO	\$835	\$885	\$938
Addition end of year 1	\$1,000	\$1,000	\$1,000
Discount rate applied	9%	9%	9%
Remaining useful life of asset	15 yrs.	14 yrs.	13 yrs.
Present value of increase in ARO	\$275	\$299	\$326
Total ARO on balance sheet	\$1,109	\$1,184	\$1,264
Panel B: IFRS			
\$ million	Year 1	Year 2	Year 3
Original undiscounted provision	\$2,000	\$2,000	\$2,000
Discount rate applied	9%	6%	7%
Remaining useful life of asset	15 yrs.	14 yrs.	13 yrs.
Present value of original provision	\$549	\$885	\$830
Addition end of year 1	\$1,000	1,000	\$1,000
Discount rate applied	9%	6%	7%
Remaining useful life of asset	15 yrs.	14 yrs.	13 yrs.
Present value increase in provision	\$275	\$442	\$415
Total Provision on balance sheet	\$824	\$1,327	\$1,245

Notes: Under US and old Canadian GAAP, a discount rate sticks with the original ARO established. Under IFRS, revisions to the discount rate are applied to the total amount of the provisions on an ongoing basis.

6 RECOGNITION THRESHOLD AND MEASUREMENT

6.1 Recognition Threshold

The key difference with regards to recognition has already been discussed, which is the elimination of the indeterminate useful life. Another difference between old Canadian GAAP and IFRS is the probability level at which a provision is recognised. With the move to IFRS and IAS 37, a provision must be recognised if management deems that the obligation is ‘more likely than not’ to exist, which strictly means just better than fifty-fifty odds. Under old Canadian GAAP, the recognition criterion was whether the obligation was ‘likely’ to exist. This

recognition criterion could be stretched up to the 80% probability range. It is unclear if this change in recognition threshold will affect in any way the decommissioning liabilities to be reported under IFRS. However, an important change to IFRS will be coming into effect for 2013 that lowers the threshold even more than the current ‘more likely than not’ criterion¹². For a provision not to be recognised, the expectation that the obligation exists must be ‘remote’. The concept of ‘remote’ will be subject to interpretation, but it brings the threshold for recognition well below the 50% mark. With regards to firms operating in the oil sands, this is not an issue as it pertains to the reclamation required by law, as it is clear that these liabilities exist. However, the interpretation of ‘remote’ may come into play for potential liabilities due to counter-party risk in joint operations (i.e., a partner in a joint operation may default on its environmental obligations) or if human health risks are ultimately associated with oil sands activities.

6.2 Measurement – Most Likely Outcome, Best Estimate and Expected Value

After determining that a provision or ARO should be recognised, the next question is the undiscounted value at which it should be measured. Generally, estimating a future liability entails establishing a range of possible outcomes and then creating a single value out of that range. Under US GAAP and old Canadian GAAP, if all outcomes are equally likely, the minimum amount may be used. Under IFRS, the minimum value option is no longer available and when all outcomes are equal the mid-point must be used. Any firms currently using the minimum value must switch to using the mid-point. In the cases where the range of outcomes is not equally likely, in practice, there is some divergence as to the undiscounted amount used. The ‘most likely outcome’ or ‘best estimate’ has been used. In these cases, the outcome with the highest probability of occurring is chosen as the estimated cost. However, when IAS 37 was written, the intent was that these calculations follow the ‘expected value’ approach, which implies using a weighted-average value of all possible outcomes when quantifying the provision. Table 4, Panel A presents a scenario with four different possible outcomes and Table 4, Panel B presents the forecast cost based on the ‘most likely outcome’, ‘best estimate’ and ‘expected value’. The expected value is higher than the other two outcomes in Table 4, Panel B because it takes into account the full range of possible outcomes, rather than just the single estimate associated with the most probable outcome.

As in the case of recognition, there is a new IFRS which will likely come into effect for 2013 that materially changes the current situation. It mandates the use of expected value, for the very reason that previous practice was used to avoid including more extreme outcomes in the calculation of provisions¹³.

¹² It should be noted that the new IFRS has yet to be approved by the IASB, but every indication is that this aspect of it will remain intact.

¹³ As in the previous case pertaining to recognition, the IFRS has yet to be passed, but every indication is that this aspect will not be changed.

Table 4. Measurement.

Panel A: possible costs of future decommissioning (\$ billion)				
Estimates of future costs	\$0.5	\$1.0	\$1.5	\$2.0
Estimated probability	25%	30%	25%	20%
Panel B: ARO or Provision				
Most Likely outcome	\$1.0			
Best estimate	\$1.0			
Expected value	\$1.2			

Notes: The ‘most likely outcome’ and ‘best estimate’ are the costs based on the outcome with the highest probability of occurring. ‘Expected value’ is based on the weighted average of the possible outcomes ($\$0.5 \times 25\% + \$1.0 \times 30\% + \$1.5 \times 25\% + \$2.0 \times 20\% = \$1.2$).

7 PROMISSORY ESTOPPEL VERSUS CONSTRUCTIVE OBLIGATIONS

IAS 37 specifically lists constructive obligations as an item that must be recognised as a provision under IFRS. A constructive obligation exists if a firm has committed to reclamation or remediation above and beyond what is required by law. For example, this implies that if certain commitments have been made for recreational infrastructure (e.g., trails, benches, signs, boat launches) with regards to reclaimed land, a provision must be made in the financial statements. The same general effect applied under old Canadian GAAP with regards to promissory estoppel, which is specifically stated as mandating the establishment of an ARO. Promissory estoppel is more technically legal, however; it implies that if a firm has made a commitment above and beyond the strict requirements of the law to a third party, an ARO is required. Thus, under Canadian GAAP and IFRS, promises made to stakeholders such as local communities, NGOs and/or First Nations must be accounted for. Again, the constructive obligations under IFRS are more general in context, but not likely materially different from those obligations which currently fall under promissory estoppel.

8 ROYALTY AND TAX IMPLICATIONS

Exploring the full impact of the move to IFRS on royalties and taxes in relation to environmental liabilities is beyond the scope of this report. However, it should be noted that the expensing of provisions (or AROs) with regards to decommissioning and reclamation affect income for financial reporting purposes, but are not deducted from income for tax purposes. These expenses can only be deducted when the actual expenditure is made (as per Canadian tax law). This will not occur until the actual decommissioning and reclamation work takes place. Thus, increased expenses on the income statement related to previously unrecorded provisions (AROs) will

increase the deferred tax assets reported on the balance sheets of firms transitioning to IFRS¹⁴. However, deferred tax assets are presented in aggregate in the financial statements, and those related to the change from AROs to provisions may be offset by other transition effects.

With regards to Royalties, under specific circumstances, cash set aside for reclamation can be deducted in calculating royalties, but it involves irrevocably setting cash aside for this purpose (i.e., beyond the control of the firm). Thus, if the move to IFRS causes firms in the oil sands to increase the amounts they record and subsequently expense in relation to future environmental liabilities, there will likely be no tax or royalty benefit associated with these increased expenses.

9 CONVERGENCE WITH US GAAP

Looking to US GAAP, oil sands operators that report under it face virtually the same rules on AROs as existed under old Canadian GAAP, although the disclosure requirements are somewhat less. Thus, with the move to IFRS, we will have US GAAP reporters operating in this sector under materially different reporting standards with regards to environmental liabilities. In some cases these companies will also be working on joint operations¹⁵. However, the IASB and (US) Financial Accounting Standards Board (FASB) are working towards converged accounting standards. A current FASB exposure draft is calling for much more detail in the disclosure of AROs and, although the expectation of convergence on some accounting issues seems like a more remote possibility, convergence on this issue may be possible.

10 FINAL COMMENTS

A number of studies have shown that there is a great deal of diversity as to how environmental liabilities are accounted for, the most recent being an Ontario Securities Commission report from 2007 (Ontario Securities Commission 2007). Although a number of potentially material changes with regards to environmental liabilities with the move to IFRS have been described, the actual financial statement impact may be obscured. This can occur because provisions cover a number of very large future financial obligations which, by definition, are uncertain as to their timing and/or amount. They are subject to a certain degree of management discretion with regards to both the amount and the timing, which leaves a great deal of flexibility in calculating the final number that shows up on the balance sheet. Furthermore, the initial provision flows through the income statement as depreciation or depletion and the accretion expense flows through as borrowing costs. Thus, standard back-of-the-envelope analyses may not pick up on changes due to the move to IFRS and if they do, the reasons why may be undecipherable. However, the trend

¹⁴ Deferred taxes, also known as future taxes, arise due to differences between taxable income under GAAP income as per the local tax authorities. If GAAP income is lower than income as per local tax laws, the firm will be paying more cash taxes than recorded in income (and shareholders' equity). This is offset by a deferred tax asset, which is essentially a pre-paid tax. The expectation is that these pre-paid cash taxes will come back to the shareholders via lower cash taxes in the future.

¹⁵ It should be noted that at present under Canadian GAAP and IFRS, proportionate consolidation is allowed for joint ventures. This is not allowed under US GAAP, or under a current proposal being promulgated by the IASB.

is towards more, not less, disclosure with regards to provisions. Detailed examination of firms' financial reporting can serve to partially unwind how provisions have been recognised, how they impact the current reporting year, and how they will affect the financial statements in the future. Anyone assessing firms in the mining or oil and gas sectors should pay particular attention to provisions and if comparisons are being made to firms that are US GAAP reporters, a good understanding of the difference between AROs under US GAAP and provisions under IFRS is important.

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12 GLOSSARY OF TERMS AND ACRONYMS IN THIS REPORT

12.1 Terms

Accretion

The change in the present value of an asset or liability due to the passage of time.

Asset Retirement Obligation

The expected cost associated with the retirement of long-lived assets that result from the acquisition, construction, development and (or) the normal operation of a long-lived asset.

Book Value

The value of an asset, net of depreciation or depletion that is recognised in the financial statements.

Discount Rate

When calculating the present value of a future cash-flow, the discount rate is the percentage by which the future cash-flow is discounted for each period between the current reporting period and the period in which the future cash-flow is expected.

Generally Accepted Accounting Principles (GAAP)

The prevailing accounting rules in a given jurisdiction.

Indeterminate Useful Life

Term used when insufficient information exists to determine the date at which a long-lived asset will no longer be useful as a producing asset.

International Accounting Standard

Pronouncements made by the predecessor board of the IASB from 1973 to 2000. In 2001 the IASB was established and their pronouncements are known as International Financial Reporting Standards.

International Accounting Standards Board (IASB)

Established in 2001, at which time it became the independent standard setting body of the IFRS Foundation, charged with the development and publication of International Financial Reporting Standards. For a full overview of the governance structure of the IASB see:

<http://www.ifrs.org/The+organisation/How+we+are+structured.htm>

International Financial Reporting Standard (IFRS)

A pronouncement developed and published by the IASB, determining the principles by which accounting methods are applied in the preparation of firms' financial statements.

Present Value

An amount in the current reporting period that is deemed to be the equivalent economic value of a payment in a future period.

Provision

A liability of uncertain timing or amount.

Value in Use

The present value of the cash flows that can be derived from a long lived asset.

12.2 Acronyms

ARO	Asset Retirement Obligation
AcSB	Accounting Standards Board (Canada)
CICA	Canadian Institute of Chartered Accountants
FASB	Financial Accounting Standards Board
GAAP	Generally Accepted Accounting Principles
IAS	International Accounting Standard
IASB	International Accounting Standards Board
IFRS	International Financial Reporting Standard
OSRIN	Oil Sands Research and Information Network
SEE	School of Energy and the Environment