Using Environmental Assessment to Understand and Manage the Effects of Oil Sands Development in Northern Alberta

Laury North, P. Eng.
Environmental Assessment Team Leader
Alberta Environment
111, 4999 – 98 Avenue, Edmonton, Alberta T6B 2X3

1.0 *The Challenge*

Developing the oil sands resources in northern Alberta is a major challenge for industry, government and society as a whole. The oil reserves trapped as bitumen in the sandstone formations in the Fort McMurray area are world-scale in size and may, within the next decade, account for up to 50 percent of Canada's oil production. The nature of the resource, however, means that its recovery requires significant water and energy inputs and results in land disturbance and air emissions. If not properly understood and managed, oil sands development could have significant, long-term adverse impacts from a variety of perspectives including air and water quality, vegetation, fish and wildlife, traditional land use, recreational activity and other anthropogenic activities. Environmental assessment is a useful tool in understanding the project-specific and cumulative or regional effects of this large-scale industrial development and providing the information needed to manage it effectively.

Environmental information is important not only to the public and regulatory agencies, but also to proponents themselves. The development of this resource requires industry to commit significant financial resources. The estimated capital value of projects either reviewed recently or under review is an approximately $60 billion. This kind of commitment cannot be made without a complete understanding of all aspects of the project including environmental effects.

2.0 *Legislative Requirements*

2.1 Alberta Environment's Role

Alberta Environment is responsible for administering the *Water Act, Environmental Protection and Enhancement Act*, Integrated Resource Management and Climate Change. The *Environmental Protection and Enhancement Act* (EPEA) is the primary legislation governing environmental protection through the management of air and water emissions and reclamation related to activities identified in that Act. The *Water Act* regulates the allocation of water resources and activities related to water management. Fundamental to both pieces of legislation is the identification of the activities to which they apply.

The review of any application for an approval under EPEA and a licence and an approval under the *Water Act* includes consideration of environmental effects. The scope of that assessment is determined by the nature of the activity, its environmental setting, and the potential for significant environmental effects. The preparation of an Environmental Impact Assessment (EIA) Report is the most complex form of environmental assessment under EPEA. Both EPEA and the *Water Act* require that the environment assessment provisions of EPEA must be satisfied before any authorization is issued for an activity.

Alberta's environmental assessment process is defined by Part 2, Division 1 of EPEA and associated regulations. The *Environmental Assessment (Mandatory and Exempted*

Activities) Regulation identifies the types of activities for which the process is mandatory and that are exempt from it. EPEA and the *Environmental Assessment Regulation* lay out the process to be followed to determine if an environmental assessment is needed for a "discretionary" activity.

The objective of Alberta's environmental assessment process is to ensure that appropriate and factual information is available for decision-makers. This includes information about the proposed project and other activities in the area, the environmental and socio-economic setting of the proposed activity, the potential effects of the proposed project on that setting, mitigation proposed for adverse effects, and management plans for residual effects. Alberta's environmental assessment process does not decide if a proposed project is acceptable, it provides the information that regulatory and resource managers need to make the appropriate decisions.

2.2 The role of the Alberta Energy and Utilities Board

While Alberta Environment has responsibility to manage air and water emissions and reclamation requirements for activities related to oil sands development, the Alberta Energy and Utilities Board (EUB) is a quasi-judicial board that has overall responsibility for ensuring orderly development of energy resources and determining if projects are in the public interest.

The EUB has a mandate to consider environmental effects when reviewing an application. In the case of many large projects the EIA report required by Alberta Environment under EPEA meets that objective and forms part of an application to the EUB. Alberta Environment's role is to advise the EUB when the environmental assessment portion of the application is complete. Generally the EUB will not proceed with a public hearing or approval decision with respect to a project until the EIA report is deemed to be complete.

3.0 *Process Steps*

Alberta Environment has divided the province into three regions – Northern, Central and Southern. Responsibility for the management of Alberta's environmental assessment process parallels approval and compliance activities. The Environmental Manager in each region is designated as a Director for the purpose of administering the Environmental Assessment Process in that region. The Environmental Assessment Team is located in the Northern Region but provides environmental assessment program and process support to all three regions.

While the Environmental Assessment Team has overall responsibility for the environmental assessment process, the review of an individual EIA report is conducted by a project-specific review team. Team work is the key to the success of Alberta's environmental assessment process. Once the decision is made to proceed with an EIA report, a coordinator is selected and key staff are identified from within the Alberta Environment and other provincial government departments which may have a regulatory or resource management interest in the project. When an environmental assessment is required under both Alberta and federal legislation, a cooperative assessment review is conducted under the terms of the *Canada-Alberta Agreement for Environmental Assessment Cooperation*. Provincial and federal specialists work together on a joint federal-provincial review team to evaluate the EIA report and ensure information is available for decision-makers in both orders of government.

Participation of a broad range of professional and technical specialists on the EIA Review Team from a cross-section of provincial and federal departments such as Alberta Sustainable Resource Development, Alberta Health & Wellness, Alberta Community

Development, Alberta Transportation, Fisheries and Oceans Canada. Environment Canada, Health Canada and Natural Resources Canada and the Canadian Environmental Assessment Agency ensures that terrestrial, water, air and health issues are fully examined. The EIA Review Team contributes to the preparation of the EIA report terms of reference and undertakes the review of the subsequent EIA report submitted by the proponent.

The EIA report review process, as conceived in EPEA, would normally occur prior to any application for approvals or licenses under that Act or the *Water Act*. The EIA report would be prepared and submitted as part of an application to the EUB. The EIA report would be reviewed to determine if it was complete. A proponent would not submit applications for EPEA or *Water Act* authorizations until after the EUB had determined that the project was in the public interest. This meant duplication in that staff had to review project information twice – first from an environmental assessment point of view and second as an application for an authorization under EPEA or the *Water Act*. This was not a major problem when Alberta Environment only reviewed three or four EIA reports a year. However, in the mid 1990's the situation changed dramatically with an intensification of development in Alberta's energy industry.

Consultation with industry created an integrated application process that resulted in a proponent submitting EUB, EPEA and *Water Act* applications concurrently. Rather than focusing on the completeness of the information in an EIA report, the EIA Review Team also considers relevant application issues as it reviews the integrated application. While this process reduces duplication, it means that review team members must be able to distinguish between EIA report completeness issues and technical issues related to the application itself.

This approach proved so successful that the Fort McMurray Oil Sands Review Team was rewarded with the *Premier's Award of Excellence* Gold Award in 1999 for its work on the Suncor Steepbank Mine and Syncrude Aurora Mine projects.

The basic stages of Alberta's process are described in the following sections.

3.1 Initial Review

The environmental assessment process begins when Alberta Environment is informed about a new project. Projects that may warrant further consideration are referred to the Director responsible for environmental assessment. Under current practice, the Environmental Manager in each region is designated as the Director responsible for environmental assessment. As mentioned previously, an environmental assessment is automatically required for mandatory activities.

For other projects, the Environmental Manager considers the location, size and nature of the project, and a variety of other factors to determine if an EIA report is required. If the Environmental Manager decides further consideration is needed to determine if an environmental assessment is required, the proponent must provide public notice of that decision. Any person directly affected by the proposed activity may submit a written statement of concern within 30 days of this notice. If further assessment is not necessary, the proponent may apply for an approval or registration for the proposed activity.

With respect to the development of the oil sands resources in Alberta, the construction, operation and reclamation of new oil sands mines and commercial oil sands, heavy oil extraction, upgrading or processing plants producing more than 2000 cubic metres of crude bitumen or its derivatives per day are mandatory activities. This includes *in-situ*

recovery schemes that involve steam injection to enhance bitumen recovery. Expansion of existing activities may be screened to determine of an EIA report is required.

3.2 Screening

A Screening Report is prepared based on the information obtained from the proponent, the public and government agencies through the screening process to assist the Environmental Manager in deciding if an EIA report is required. The *Environmental Assessment Regulation* sets out what must be considered. The Environmental Manager may also require the proponent to provide a disclosure document to provide information about the proposed project. The Screening Report must also be made available to the public.

Again, if the Environmental Manager decides an EIA report is not required, the Environmental Manager advises the proponent that he may apply an approval or registration, where required. The proponent will be directed to prepare an EIA report, if one is required. The Environmental Manager must provide public notice of the decision with respect to the screening decision.

3.3 Preparation of an Environmental Assessment Report

To help determine the EIA report's contents, the proponent must prepare proposed terms of reference. Final terms of reference for other similar projects are often used as the basis for new proposed terms of reference. Thus, terms of reference evolve over time as issues and science changes. Proposed terms of reference are reviewed by the Environmental Manager and made available for public review and comment. After considering the input from the public or other government agencies, the Environmental Manager issues the final terms of reference, which the proponent must use in preparing the EIA report. The final terms of reference are also made available to the public.

EPEA also sets out a list of information to be included in an EIA report, unless the Environmental Manager indicates otherwise. The EIA report contains such things as the potential positive and negative environmental, social, economic and cultural impacts of the proposed activity It will also contain plans to mitigate potential adverse impacts, to manage residual effects, and to respond to emergencies; information on public consultation related to the proposed activity; and identification of health issues. Once prepared, the EIA report is submitted to the Environmental Manager for review.

3.4 Technical Review

Environmental assessments are managed through a multi-disciplinary, inter-service and inter-departmental team-based review, focused on key regulatory and service delivery issues. Team reviews are completed based on a schedule developed in consultation with the applicant and regulatory partners. The review must comply with regulatory and administrative requirements and it must ensure a full and fair opportunity for members of the public to be involved in the regulatory process.

A sectored focus has allowed the department to efficiently review projects which are located in the same service region and industry sector. One Environmental Coordinator with a team of reviewers can deliver the environmental assessment process for several projects, with close coordination between the regulators and industry on the timing of submissions and review tasks. This approach has been used successfully in the Northern Region which usually has several oil sands project reviews underway at one time.

Strong regional participation by staff and the public is important to the environmental assessment process, starting with the review of proposed terms of reference, followed by

the technical review of proponent and stakeholder submissions, public hearings, and all through the approval process and on-going regulatory work during construction, operation and decommissioning/reclamation.

The technical review process consists of essentially three phases. The first is a detailed evaluation to determine if the EIA report has adequately addressed the terms of reference and to identify any supplementary information that may be needed to assist decision-makers in evaluating the project. The second phase is the evaluation of the supplementary information supplied by the proponent to determine that all questions have been addressed sufficiently. The third phase is the actual determination that the EIA report is complete.

It should be noted that the determination that the EIA report is complete is not an endorsement of the project itself. It is an evaluation that the proponent has described the project adequately, demonstrated an understanding of potential impacts, and identified mitigation and management requirements.

3.5 Completeness Decision

Once the review team has completed its examination of the initial and supplemental information submitted by the proponent, the team prepares its recommendation with respect to the completeness of the EIA report. The outcome of the review is discussed with the project's Management Steering Group which consists of senior managers with approval or resource management responsibility. The emphasis at this point is on whether the proponent has fulfilled the requirements of the EIA report terms of reference. Issues that may still need to be resolved through the approval and or hearing processes are also identified.

Following discussions with the Steering Group, the results of the EIA report review are presented to the Environmental Manager for consideration. The Environmental Manager may decide to consider the EIA report complete or may require additional information. If the EIA report is considered complete, the Environmental Manager advises the appropriate authority (the EUB for energy-related projects). The EIA report then forms part of the information that is used by decision makers to evaluate the integrated application.

3.6 Regulatory Approval

The EIA report forms the environmental information component of major industrial applications. The environmental information, together with other technical information, is used by the EUB to determine if a project is in the public interest. The EUB's decision-making process may include a hearing if there are outstanding public issues the proponent has not been able to resolve. Alberta, represented by the various provincial ministries involved in the project review, often appears at these hearings to present the government's position on the project and to provide advice to the EUB panel hearing the evidence.

If the EUB determines that a project is in the public interest, Alberta Environment then completes its review of applicable EPEA and *Water Act* applications and issues its decision on the project. EPEA approvals issued by Alberta Environment will specify construction, operation and reclamation requirements for the project. These often include follow-up monitoring and research requirements to ensure that the project achieves the desired environmental objectives. *Water Act* licences and approvals may contain similar kinds of requirements concerning the diversion of water and the construction of water management facilities.

4.0 *Public Consultation*

Public consultation and involvement in decision-making is required under EPEA. Public involvement principles are reflected in the department's commitment to involving Albertans in environmental decision making. The department continues to adapt the way it delivers its services and carries out its mandate to ensure that public involvement is achieved throughout the environmental regulatory process and in other activities.

The department's environmental assessment process has a strong emphasis on public involvement. Following are some examples:

- Project-specific terms of reference document expectations and requirements for public consultation and are published in draft form and finalized with public input;
- Notification requirements set out in applicable laws and regulations with the needs of the community in mind;
- The EIA report terms of reference require an analysis of issues in which the proponent documents the issues identified through consultation and outlines whether they have been resolved;
- The review team considers input from the public at the terms of reference stage and in the review of the EIA report with a view to ensuring that appropriate factual information is available to decision-makers;
- The review team provides advice to the public and proponents about the process, including participation, when requested, in consultation activities; and
- The department maintains a public registry of information related to projects in the environmental assessment process. This contains any information provided by the proponent and any input from government agencies and other stakeholders.

5.0 *Scope of Assessment for Oil Sands Development*

While the environmental assessment process for major oil sands projects is essentially the same as for any other project, the presence of other similar projects in close proximity amplifies the importance of some aspects of the process. The crowded nature of the "landscape", coupled with better "science" and a better educated and well informed public, means that projects over time are undergoing an increasing level of scrutiny. For example, issues such as cumulative effects or acid deposition that may have received little or no attention 10 years ago are now the central focus of investigation.

5.1 Issues Identification

EIA report terms of reference are comprehensive and require a proponent to address the full range of environmental and socio-economic issues that may arise as a result of the project. Through the assessment process, the proponent evaluates those issues and identifies those that are, in the proponent's opinion, significant and warrant mitigation and/or management. The terms of reference require the proponent to identify the criteria used to scope out issues and assess significance.

Alberta Environment recognizes that, when scoping out environmental effects, it is not possible to consider every possible situation or receptor. Therefore, the scoping process focuses on identifying those issues of most concern to stakeholders and regulators while recognizing that other issues may be identified through the environmental assessment process and will need to be addressed.

Public consultation is a key element in identifying issues, particularly with respect to how the proposed project may affect traditional land use. The dynamic state of development in the Fort McMurray area also means that the EIA report for any new project needs to consider issues identified in previous EIA reports for other projects in the area.

5.2 Spatial and Temporal Considerations

Important in the scoping of issues associated with a proposed project is an understanding of the spatial and temporal limits for the EIA report. Often a proponent will be caught between an internal desire to minimize the spatial and temporal aspects of a project and public expectations to expand the assessment boundaries to include everything they think may be affected. Clearly a balance is needed.

Alberta Environment's approach is to define spatial boundaries on the basis of zero effect. There is a recognition and expectation that spatial boundaries or study areas will be vary for different receptors or media. Terms of Reference also specify quite clearly that study area boundaries are not to be affected by geo-political boundaries. While the terms of reference provide direction to the proponent on establishing spatial boundaries, the proponent is required to describe the process and criteria used to establish the various study areas in the EIA report.

Generally speaking, the current practice from a temporal point of view has been to establish a baseline scenario that includes operating and approved projects and activities. An "application" scenario is created by adding the proposed project to the baseline, and a cumulative effects scenario is created by adding other planned projects and activities to the application scenario. To provide some degree of certainty to the cumulative effects scenario, only those projects that have been disclosed are included.

There has been increasing interest expressed recently by First Nations in the region for proponents to use pre-development conditions as the baseline for future assessments. While this has some merit, particularly as it applies to cumulative effects, there are some limitations and challenges to this approach.

5.3 Cumulative Effects Assessment

The assessment of cumulative effects is a requirement of Alberta's environmental assessment process. It has over the past few years gained greater prominence as the landscape has become more crowded. For example, in 1994 there were only two oil sands mines operating in the Fort McMurray area – Syncrude and Suncor. Now, in 2004 Syncrude and Suncor have expanded their mining operations; Albion Sands has a producing oil sands mine ; three other oil sands mines have been approved by the EUB; and EIA report terms of reference have been issued for two other projects, bringing the total number of potential oil sands mines in the region to eight.

This does not include several in-situ bitumen recovery projects operating, approved or under review in the region. As well, there are existing forestry operations and natural gas production schemes in the area. All of this industrial activity is competing, to some extent, with other human activities including traditional and recreational uses.

Alberta uses a project-specific environmental assessment process to examine the effects of project related emissions and disturbances. It may not, however, be the most effective means of understanding cumulative effects While it is possible, for example, to model and subsequently measure air emissions from specific sources, ambient air quality modeling and monitoring captures the cumulative effect of emissions from a variety of sources. The

task in cumulative effects assessment, therefore, is understand the interaction of emissions from various sources from a project-specific perspective.

With so many EIA reports having been completed for projects in relatively close proximity and in a relatively short time span, the tendency would be to assume that the cumulative effects assessments for these various projects should be the same. This, however, is not the case and for a number of reasons. Firstly, the perspective of each EIA report is somewhat different in that it is centered on the project. This is akin to the classic physics problem involving two trains – one's perception of speed depends on where one is standing. Secondly, the quality of information about a specific project will change as it moves from being a planned project to being the project under review. Thirdly, there have been and will continue to be refinements in modeling and interpretation. For example, earlier air quality modeling used a two-dimension CALPUFF model while more recent ones use a three-dimensional version of CALPUFF. Similarly, model inputs may change over time.

6.0 *Major Issues for Oil Sands Development*

6.1 Air Quality

Air emissions and their effects on air, water and land receptors are a consistent theme in EIA reports for major oil sands development projects. These are especially a focus of projects that include both a mine and an upgrader. Some of the key issues include acidifying emissions of oxides of nitrogen and sulphur dioxide and the related acid deposition, SO_2, and NO_2 levels; greenhouse gas emissions and climate change; ground level ozone precursors like oxides of nitrogen and volatile organic compounds and related levels of ground level ozone; particulate matter emissions – direct and indirectly formed – and the related concentration of $PM_{2.5}$; toxic air contaminants and trace metals; and odorous chemicals such as hydrogen sulphide and reduced sulphur compounds.

6.2 Water Quality and Quantity

Water issues have been assessed regionally through the Northern Rivers Basin Study (NRBS) and the Athabasca Oil Sands Environmental Research Program (AOSERP). The effects of seepage of effluents from tailings ponds, and withdrawals from surface and ground water sources, on water quality and aquatic biota are another consistent theme EIA reports for major oil sands development projects. Although oil sands mines and upgraders do not release any process-affected water directly surface water bodies, the seepage from tailings as well as disturbance to streams, rivers, and wetlands are key components of EIA reports. The effects on water quality of seepage waters from active tailings ponds – some of which over 10 kilometers across - and far future reclaimed tailings is an area of active research and a key issue in most EIA reports. The assessment of the effects of withdrawal of surface water from the Athabasca River as well as from ground water aquifers, and the impoundment of millions of litres of process affected water in tailings ponds, are key issues EIA reports must consider. Due to the magnitude of these developments and the lack of real world analogues, much of the environmental assessment relies on carefully calibrated and complex computer modeling simulations. The accuracy and robustness of the computer modeling has also emerged as a key issue proponents must consider in their environmental assessment.

6.3 Traditional Land Use

A key component of the socio-economic impact assessment and the historical resources impact assessment is the study of traditional uses in the area. The effects of development, cultural and historical resources, and the ability of native Canadian people to hunt, fish and trap are important items for EIA reports. The consultation with recognized first nation and metis people who may be directly affected by the project is gaining increasing levels of scrutiny in Alberta – both from the courts and from regulators.

6.4 Wildlife

The direct and indirect effects of oil sands developments on wildlife have long been considered cornerstones of EIA reports. In the oil sands the size of disturbance and the potential cumulative effects on wildlife have become challenging areas for environmental assessments to consider. The effects of habitat fragmentation and loss, wildlife corridors, setbacks of development from rivers, and the effect of noise and disturbance on sensitive and listed wildlife are key issues for the area. The indicator species chosen, that habitat and track counts, and the sophistication of habitat suitability modeling are among the technical issues an EIA report must address. Caribou, moose, fur bearing animals, and listed species are among some of the key indicator species commonly studied in EIA reports.

6.5 Vegetation

The direct and indirect effects on forests, rare plants, traditional and medicinal plants, as well as vegetation-related habitat are vegetation issues in oil sands EIA reports. The effects of development on bogs, fens, and wetlands as well as the lack of reclamation techniques to restore these ecosystems is another key issue for oil sands development in northeast Alberta.

6.6 Human Health

The human health assessment, which is achieved through a multi-pathway approach, includes effects of water and air quality, as well as food, is a highly complex issue for oil sands EIA reports. The use of conservative assumptions in risk assessments has been used to deal with uncertainties related to the amounts of traditional foods consumed by native Canadians. The issues of mercury advisories for predatory fish species in the Athabasca river, fish tainting, and perception that native Canadians can no longer drink water untreated surface water when in the past they safely could are difficult issues to evaluate. In fact, untreated drinking water should not have been consumed in past or present day. The regional efforts to address human health questions arose from EIA reports – the Athabasca Oil Sands Community Health Effects Assessment Program (AOSCHEAP) – arose from concerns raised during the environmental assessment for Syncrude's Aurora Mine. The AOSCHEAP study became the first of several studies completed by Alberta Health and Wellness across Alberta to address uncertainty related to exposure and human health outcomes in the oil sands region. The study, completed in May 2000, provided a baseline of information on health and exposure that is currently referenced in risk assessments in EIA reports in the region. It can be found at http://www.health.gov.ab.ca/resources/publications/pdf/FtMacSum.PDF

6.7 Reclamation

The reclamation area is both a central component of the EIA report and also an active research area in the oil sands. The reclamation of oil sands disturbance to a dry

landscape through consolidated tailings technology, and the reclamation of the landscape and drainage to support ecologically functioning end pit lakes, wetlands, and forested ecosystems are also areas that must be assessed in the EIA reports. The integration of a water management plan during the development of the proposed project, as well as after reclamation, needs to be considered simultaneously with reclamation planning because of the enormous volumes of overburden and water that must be moved and reclaimed over a project's life. The integration of multiple projects in a watershed is in itself a key issue for an EIA report to consider both spatially and temporally.

6.8 Cumulative Effects

Alberta's approach to and understanding of cumulative effects has changed over time. The identification and assessment of cumulative effects has become a major component of every EIA report. It is clear from EIA reports that managing cumulative effects requires a partnership of all stakeholders in the region since the issue goes beyond the control and resources of individual proponents.

No discussion of environmental assessment of oil sands development would be complete without mentioning two major initiatives that have resulted from the increased awareness of the need to address the cumulative effects. In 1999 Alberta Environment released the *Regional Sustainable Development Strategy for the Athabasca Oil Sands Area* (RSDS), a strategic approach to manage the effects of oil sands development in the Fort McMurray area. The RSDS provides a balance between development and environmental protection using adaptive resource management principles. It supports partnership and cooperation in the identification and resolution of issues arising from development in the area.

The RSDS consultation process identified 72 issues that were organized into 14 themes areas. The RSDS set out a framework and a proposed sequence to develop regional environmental management systems to address 14 key theme areas.

Concurrent with the development of RSDS, industry was working to bring stakeholders together to address key issues related to cumulative effects. The result in 2000 was the formal creation of the Cumulative Effects Management Association (CEMA). At present, CEMA, a not-for-profit society, has over 40 member organizations representing industry; provincial, federal and municipal governments; Aboriginal groups; and interest groups.

CEMA has five active working groups developing regional environmental management systems to address the issues identified in the RSDS. Recommendations approved by CEMA will be provided to Alberta Environment and Alberta Sustainable Resource Development for consideration and, if approved, implementation. Many of the EIA reports prepared in recent years reference work being carried out by CEMA and other related multi-stakeholder groups as the means to address concerns about cumulative effects.

In August 2002, CEMA forwarded to regulators consensus recommendations for managing trace metals in the Regional Municipality of Wood Buffalo. CEMA's review of trace metal emissions in the oil sands region found that at current and projected emission rates, trace metals appear unlikely to pose risks to human health and ecosystems, now or in the future, provided best management practices continue. Alberta Environment completed a thorough review of the recommendations on trace metals and endorsed the proposed adaptive management approach and management system in January 2003.

In July 2003, CEMA industry members voluntarily agreed to adopt three management tools to help minimize land disturbance of industrial development and exploration. These tools include:

- minimal impact exploration – methods to reduce the footprint on terrestrial ecosystems from routine oil and gas exploration;
- integrated landscape management – a planning tool where industries in the same area coordinate their activities to reduce the total footprint created on the landscape; and
- constraints mapping – a planning tool for siting projects and project components that provides companies with a graphic representation of areas relatively sensitive to development or areas of high ecological or resource value.

As of August 2003, CEMA has completed over 25 technical reports with over 20 other reports in progress on a broad range of topics to support the development of environmental management systems. The ongoing work of CEMA will lead to environmental recommendations to Alberta. Upon CEMA's recommendations being approved by Alberta, Alberta may require industry-coordinated adaptive management activities.

7.0 *Conclusions*

The management of effects of oil sands development is greatly enhanced by the environmental assessment process in several ways.

- Regulators use the environmental assessment process as a structured way to organize the first stage of the regulatory review an oil sands project to focus efforts on the key environmental issues of a project and develop proactive mitigation proposals to address the key environmental issues.
- Information obtained through the environmental assessment process allows Alberta to provide the EUB with Alberta's perspective on a proposed project which assists the EUB to determine how and what government policies apply to a project. The EUB generally considers Alberta's advice to be very important in determining if a project is in the public interest.
- The regulatory approvals and licenses then address the key environmental issues with the project through on a comprehensive, understandable, reasonable and enforceable manner. It is much easier to deal with potential issues with a project that is in the planning stages rather than after the project has been built.
- Environmental Assessment provides a transparent process to identify key research and monitoring gaps that need to be filled by proponents, regional monitoring groups, or by government operated programs.
- Environmental assessment can also help differentiate the issues of perception from the issues of scientific uncertainty related to direct and cumulative effects of proposed projects.
- The environmental assessment also provides a basis for establishing and using long term monitoring programs for air, water, and terrestrial resources in the regulatory process and in the long-term management of oil sands development.