



**Cumulative Environmental Management
Association (CEMA)**

2007 Annual Report

Executive Summary

The Cumulative Environmental Management Association (CEMA) is a multistakeholder organization focused on addressing cumulative environmental effects from development within the Regional Municipality of Wood Buffalo (RMWB). Established in 2000, CEMA's mandate is to provide recommendations to regulators on how to best manage impacts resulting from direct and indirect industrial development within the region. CEMA was initiated in response to increased growth and pace of industrial development in the RMWB.

The priority issues that CEMA addresses deal with the impacts of industrial activity on the air, land, and water. Specifically, CEMA targets initiatives in seven critical areas:

- Acid deposition
- Biodiversity and landscape-diversity
- Ground-level ozone
- Reclamation
- Surface water (quality and quantity)
- Trace metals and air contaminants
- Wildlife and fish habitat

CEMA hired additional full time staff over the past year to ensure full support for its Working Groups. Under the leadership of an interim Executive Director, CEMA improved its annual budget production details, adopted a new five-year strategic plan, implemented a new policy hand book for staff, undertook the creation of new Terms of References for Working Groups and other components of the Association.

This past year CEMA improved its relationship with the Aboriginal communities in the region. We held three successful open houses in Conklin, Anzac and Fort McKay. CEMA closed the year with an important Aboriginal roundtable, with participation from 11 of the 12 First Nations and Métis communities in the area.

In early 2007, CEMA's research and recommendations were the basis for the new Instream Flow Needs (IFN) policies adopted by the Alberta Government to protect the Athabasca River.

In 2008, CEMA will see the completion of three NEW management frameworks: SEWG's Land Management Framework; NSMWG's Eutrophication Management Framework and TMAC's Trace Air Contaminants Management Framework.

MESSAGE FROM THE PRESIDENT

Dear Friends,

I feel that 2007 will be marked as an important year in the history of CEMA. After several more challenging years, in 2007 we achieved a lot and put in place some very important guidelines, a solid budget process and excellent recommendations to regulators.

Also, internally we have a strong new Executive Director, assisted by an eager and hard working dynamic staff. We have an excellent new Website and increased our presence in the Regional Municipality of Wood Buffalo with strong internal and external communications.

The important positive steps over the past year were possible because of each of you, the CEMA members. Without your countless volunteer hours and multi-drafts of reports we wouldn't have made such important growth.

Over the year, we have seen the adoption of our recommendations on Instream Flow Needs on the Athabasca River, by the Alberta Government, a new Fish Telemetry Study, Traditional Food Consumption Study and the completion of new Guidelines for the creation of Wetlands in the Region.

Our relationship with Aboriginal communities has started to improve over the past 12 months. CEMA along with RAMP and WBEA participated in three open houses' in Conklin, Anzac and Fort McKay. These interactive sessions directly with the First Nations and Métis communities allowed CEMA to listen and answer important questions. In December, we held an important Aboriginal Roundtable with representatives from 11 of the 12 Aboriginal communities in the Region. CEMA has created an important Aboriginal Task Group as a follow up, to provide guidance on how to engage the Aboriginal communities.

Finally, I would like to thank my fellow members of the Management Committee; Chairs of Working, Sub, and Task Groups; Staff; and each of Member Organization for your devotion to CEMA during 2007.

The past year was great and I'm sure 2008 will be even better!

Yours truly,

Randall Barrett
CEMA President

Table of Contents

1.0 Background

- 1.1 Oilsands Development and Cumulative Effects Concerns
- 1.2 *Regional Sustainable Development Strategy (RSDS) for the Athabasca Oilsands Area* Initiated to Address Potential Cumulative Effects
- 1.3 Cumulative Environmental Management Association (CEMA) Formed to Address RSDS Issues

2.0 Cumulative Environmental Management Association (CEMA)

- 2.1 Overview
- 2.2 Vision
- 2.3 Purpose
- 2.4 Objectives
- 2.5 Mandate
- 2.6 Scope
- 2.7 Priority Issue Areas
- 2.8 CEMA Products
- 2.9 CEMA Structure
- 2.10 2007 Revenue & Expenditures
- 2.11 Five-year Plan Estimates

3.0 RSDS Issues that CEMA is Addressing

4.0 CEMA Products

- 4.1 CEMA Recommendations to Regulators
- 4.2 Status of Future CEMA Recommendations to Regulators

5.0 CEMA Standing Committees

- 5.1 Communications Committee
- 5.2 Management Committee
- 5.3 Traditional Environmental Knowledge (TEK) Committee

6.0 CEMA Working Groups and Task Groups

- 6.1 NOxSO2 Management Working Group (NSMWG)
- 6.2 Reclamation Working Group (RWG)
- 6.3 Surface Water Working Group (SWWG)
- 6.4 Sustainable Ecosystems Working Group (SEWG)
- 6.5 Trace Metals & Air Contaminants Working Group (TMAC)

7.0 CEMA Contact Information

8.0 CEMA Membership List

9.0 Map of the Region Municipality of Wood Buffalo

Cumulative Environmental Management Association (CEMA) 2007 Annual Report

1.0 Background

1.1 Oilsands Development and Cumulative Effects Concerns

In the mid -1990s a record number of applications were made for new and expansion of existing oilsands operations in the Regional Municipality of Wood Buffalo. This was due in part to lower production costs and higher oil prices. At the time, questions were raised about the ability of the environment to handle this level of projected growth and development in oilsands mining, extraction and upgrading. Additionally, stakeholders expressed increasing concern over potential combined or cumulative effects that increased levels of industrial activity could have on the environment. Cumulative environmental impacts could affect environmental quality, biological diversity, and/or human health resulting in habitat loss, wildlife loss, and reduced air and water quality.

1.2 *Regional Sustainable Development Strategy (RSDS) for the Athabasca Oilsands Area* Initiated to Address Potential Cumulative Effects

The Alberta Government took steps in the late 1990s to initiate a strategy to address potential cumulative environmental effects in the oilsands region. The intent of the strategy was to provide a framework for managing cumulative environmental effects and ensure sustainable development in the Athabasca oilsands area. Alberta Environment led the creation of the *Regional Sustainable Development Strategy (RSDS) for the Athabasca Oilsands Area*, working with regional stakeholders and other regulators. The Strategy was based on the anticipation of greater than \$12 billion of worth of new capital investments in the oilsands region. The *RSDS* identified and prioritized 72 environmental issues within the oilsands region that should be studied in light of the projected growth. Issues were divided into a list of 14 themes and three priority categories. The Strategy was published in 1999. The diversity of environmental values and interests in the region prompted the need for a multi-stakeholder forum to establish environmental management objectives for the region.

1.3 Cumulative Environmental Management Association (CEMA) Formed to Address RSDS Issues

A stakeholder group, the Cumulative Environmental Management Association (CEMA), was formed thereafter in partnership with Alberta Environment and Alberta Sustainable Resource Development to address 37 of the RSDS issues. The remaining RSDS issues not falling under CEMA's mandate were to be addressed by existing government mandate or other regional initiatives. CEMA's focus was to provide recommendations to regulators on managing potential cumulative environmental effects using a variety of environmental management tools such as environmental limits or thresholds.

2.0 Cumulative Environmental Management Association (CEMA)

2.1 Overview

The Cumulative Environmental Management Association (CEMA) is a registered not-for-profit non-governmental organization (NGO) established in Fort McMurray, Alberta in June 2000. A multi-stakeholder organization, CEMA is governed by 48 members representing all levels of government, industry, regulatory bodies, environmental groups, Aboriginal groups, and the local health authority who have an interest in protecting the environment in the Wood Buffalo region:

2.2 Vision

CEMA's vision is that:

- The environment of the region including the land, forest, air, water, wildlife and biodiversity will be protected, sustained, and restored over the long term; and that the collective activity of industrial activity in the region will not cause any lasting harm to the environment or adverse effects to the health of humans. Should these impacts be evident, the Association and its Members will recommend, promote and implement mitigating action to reverse their effects.

2.3 Purpose

CEMA's purpose is to:

- Provide a forum for its stakeholders to discuss and make consensus-based decisions forming the basis for action by members, and recommendations to Alberta Environment's Regional Sustainable Development Strategy (RSDS) as appropriate, on managing the region's cumulative environmental effects, thereby forming the core of a proactive regional environment management system that addresses cumulative biophysical, health and resource use impacts of regional developments.
- Develop and apply environmental management frameworks, thresholds, guidelines and objectives.

2.4 Objectives

CEMA's objectives are to:

- Ensure that an effective and efficient stakeholder driven regional environmental management system is established.
- Ensure regional environmental guidelines, objectives and thresholds are in place or established and recommended to RSDS where appropriate for effective implementation.
- Develop the basis for the ongoing management of impacts of industrial development on the regional environment including recommending the priorities and objectives for and content of monitoring and research, and both employing and recommending mitigating options.

- Respond to issues brought forward by stakeholders. Issues not within the mandate of the Association will be referred to an appropriate organization for a response.
- Work cooperatively with other activities and organizations which also have responsibilities with respect to managing the regional environment, including establishing appropriate linkages to other environmental management initiatives or activities in the region e.g. Wood Buffalo Environmental Association (WBEA), Alberta Environment's Regional Sustainable Development Strategy (RSDS), Canadian Oilsands Network for Research and Development (CONRAD) and Regional Aquatics Monitoring Program (RAMP).
- Effectively communicate the need, activities, and results of the Association to internal and external stakeholders.
- Prepare annual budgets and five-year working plans.

2.5 Mandate

CEMA's mandate is to:

- Achieve the vision, purpose and objectives of the Association and ensure the principles of the Association are consistently applied in aspects of its activities.
- Set Terms of References for Working Groups, review and endorse Working Group recommendations and provide comments and guidance to Working Groups.
- Approve work plans and budgets according to the requirements of its Members; and report in a timely fashion all issues that need to be brought to the attention of Members.

2.6 Scope

CEMA focuses on issues involving the impacts of industrial activity on land, water, and air:

Land - Oilsands development has the potential to make significant changes to landscapes, wildlife populations, and habitats. Accordingly, CEMA is determining and recommending the best management tools available to protect, sustain, and restore the health of the landscape, vegetation, soil, and watersheds while balancing industrial development and environmental considerations. CEMA is also looking at the best measures and methods available to protect the environment in areas where reclamation activities need to occur.

Water - CEMA's work on water issues centers on the health of aquatic ecosystems (rivers, lakes, and streams) and understanding how the natural environment is likely to respond to increasing oilsands development. CEMA is developing a system that minimizes the long-term environmental impacts on surface water quantity and quality so that the water systems will remain healthy.

Air - The focus of CEMA's air related research is to increase understanding of the sources of potentially harmful emissions. CEMA is assessing the potential impacts of oilsands air emissions (i.e. discharges from smoke stacks) on the environment and recommend actions to keep the air clean and minimize the effects of emissions.

2.7 Priority Issue Areas

CEMA's current priority level environmental issues were developed through the Regional Sustainable Development Strategy (RSDS) issued by Alberta Environment in July 1999. This initiative identified 72 priority environmental issues in the oilsands area. CEMA is responsible for addressing 37 of those issues. The CEMA priority issues include research and recommendations on the following:

- Acidification
- Air contaminants
- Biodiversity
- Culture and historical resources
- Fish habitat
- Ground-level ozone
- Landscape diversity
- Reclamation
- Surface water quality
- Surface water quantity
- Trace metals
- Wildlife habitat

2.8 CEMA Products

CEMA products include recommendations on management frameworks to address environmental concerns. The recommendations are based on scientifically founded limits and use information from existing research as well as traditional environmental knowledge provided by CEMA's Aboriginal members.

Recommendations from CEMA are referred to the appropriate regulatory agency for approval and implementation. Interim products, such as reports, models and databases, are developed to inform the management systems. It's important to note that CEMA does not make decisions on individual project applications. However, the Association does provide frameworks and information to regulators that can assist them to make individual project-level assessments and decisions.

2.9 CEMA Structure

CEMA is a formal society with governance and administrative systems. It is guided by and accountable to its Members and is both collaborative and consensus driven.

CEMA Members - CEMA is made up of its Members Board that represents regional stakeholders. Members bring different perspectives, knowledge, skills, and expertise to the table. They work in partnership, based on a common belief in the importance of the environment.

Working Groups - CEMA's work is completed through 5 Working Groups that direct technical and scientific work and then use the information to develop the management frameworks that are approved through the Members Board. Each Working Group's mandate focuses on specific RSDS issues that contribute to the larger CEMA goals.

The Working Groups include:
[NOxSO2 Management Working Group \(NSMWG\)](#)

Mandate - To review the relevant science and develop a management system for current and projected emissions levels of NOX and SO2 given appropriate levels of protection as well as receptor sensitivities to acidification and eutrophication. NSMWG is also designing a management system that addresses ground-level ozone and its effects on vegetation, health, and nitrogen eutrophication (i.e. the effects of nitrogen on vegetation growth).

Reclamation Working Group (RWG)

Mandate - To provide recommendations to government to ensure that reclaimed landscapes within the region meet regulatory requirements, satisfy the needs and values of stakeholders and are environmentally sustainable.

Surface Water Working Group (SWWG)

Mandate - To develop management recommendations related to the water quantity and quality of the water bodies in the Regional Municipality of Wood Buffalo.

Sustainable Ecosystems Working Group (SEWG)

Mandate - SEWG's mandate is to develop and recommend a management system to address cumulative effects on ecosystems and landscapes in the Regional Municipality of Wood Buffalo (RMWB) based on sustainable development principles.

Trace Metals & Air Contaminant Working Group (TMAC)

Mandate - To assess the risks posed by trace metals and trace air contaminants to human health and ecosystems under existing environmental management systems and, if required, recommend changes to adequately manage those risks.

CEMA Standing Committees and Groups

CEMA's work is also completed through the support of three Standing Committees and a special Task Group.

- Management Committee (MC)
- Traditional Environmental Knowledge (TEK) Committee
- Joint Communications Committee (JCC)
- Aboriginal Task Group

Administrative Staff - CEMA maintains an administrative staff to support the work of the organization.

2.10 2007 REVENUE AND EXPENDITURES

**Cumulative Environmental Management
Association - Wood Buffalo Region**

Condensed Statement of Financial Position

December 31, 2007

	<i>2007</i>	<i>2006</i>
Assets		
Current assets		
Cash	2,624,152	254,569
Accounts receivable	1,363,878	667,023
Goods and Services Tax receivable	-	787
Prepaid expenses and deposits	43,214	373,799
	4,031,244	1,296,178
Capital assets	61,815	66,240
Long-term investments	12,691	9,794
	4,105,750	1,372,212
Liabilities		
Current liabilities		
Accounts payable and accrued liabilities	1,192,689	192,910
Goods and Services Tax payable	13,974	-
Deferred grants	1,659,989	-
	2,866,652	192,910
Net Assets		
Investment in capital assets	61,815	66,240
Unrestricted net assets	1,177,283	1,113,062
	1,239,098	1,179,302
	4,105,750	1,372,212

**Cumulative Environmental Management
Association - Wood Buffalo Region
Statement of Revenue and Expenses**
For the year ended December 31, 2007

	2007	2006
Revenue		
Contributions	6,698,149	2,887,000
Grants	1,172,750	-
Interest	16,357	18,775
Miscellaneous	5,350	-
Dividends	2,897	2,075
Membership fees	930	775
	7,896,433	2,908,625
Working Group Expenses		
Reclamation Working Group	1,119,546	1,850,911
NoxSox Management Working Group	1,122,691	297,428
Surface Water Working Group	1,429,179	158,262
Sustainable Ecosystems Working Group	849,803	702,410
Trace Metals Working Group	532,411	114,247
Traditional Environmental Knowledge Working Group	128,879	74,670
Reclamation Working Group (Innovation)	996,599	-
Groundwater Working Group	40,323	-
General Operations	1,617,206	1,059,962
	7,836,637	4,257,890
Excess (Deficiency) of revenue over expenses	59,796	(1,349,265)

This is a condensed version of Cumulative Environmental Management Association – Wood Buffalo Region’s financial statements. The complete documents can be obtained by contacting Cumulative Environmental Management Association – Wood Buffalo Region

2.11 Five-Year Budget Estimates

The CEMA Working Groups have produced a five year budget forecast that is reviewed and refined on an annual basis. The annual review includes a process to ensure that the recommendations clearly are aligned with CEMA's objectives. The current estimates for CEMA's undertakings from 2008 – 2012 are presented in the following table.

Five Year Budget Estimates					
Total Budget by Working Group (in thousands)	2008	2009	2010	2011	2012
NSMWG Projects	1,161	774	500	525	555
RWG Projects	2,006	2,620	2,232	1,912	1,990
SEWG Projects	797	500	500	500	300
SWWG Projects	3,409	1,210	345	125	0*
TMAC Projects	402	400	500	250	-
TEK Projects	210	150	150	150	150
GWVG Projects	300	300	300	300	300
TOTAL PROJECT COSTS	8,285	5,954	4,527	3,762	3,295
Staff Support	375	394	413	434	366
Technical Admin	190	190	190	190	190
TOTAL WG COSTS	8,850	6,538	5,180	4,386	3,851
Operating	1,235	924	970	1,019	1,070
Communications	258	271	285	299	314
TOTAL ADMIN COSTS	1,493	1,195	1,255	1,318	1,384
TOTAL COSTS	10,343	7,733	6,385	5,704	5,235

* Further work may be identified at a later date and require funding for these years.

3.0 RSDS Issues that CEMA is Addressing

3.1 Terrestrial

The Sustainable Ecosystems Working Group (SEWG) and the Reclamation Working Group (RWG) are both addressing terrestrial related RSDS issues from different angles.

Terrestrial Related Issues

The RSDS terrestrial issues that are of concern to CEMA focus on biodiversity, landscape diversity, wildlife habitat, and cultural and historic resources. The main task of the Working Groups responsible for terrestrial issues is to determine and recommend the best management tools available to protect, sustain and restore, the landscape, biodiversity, vegetation resources, unique landscape features, ecological capabilities, soil, and watershed integrity within the region. In order to more effectively examine these complex terrestrial issues, the CEMA Working Groups responsible have categorized their studies into specific themes:

Biodiversity is related to the variety of species and ecosystems in a region and the ecological processes of which they are a part. The underlying assumption of biodiversity is that all life forms have some value, economical, ecological, real or potential. Related to this concept is landscape diversity. This concept consists of managing areas of land that are distinguished by variations in landforms, vegetation, land-use, and aesthetic appearances.

Reclamation involves returning land to its former capability after it has been disturbed. This is a concern for CEMA due to the large areas of the region that are being disturbed by development. These disturbed areas will eventually be reclaimed to support natural ecosystems.

Cultural and historical resources consist of an object, a site or the location of a traditional societal practice that is of historical, recreational or archeological importance to Alberta, a community or a group of Aboriginal people. Cultural resources include archeological sites and structural features, whereas historical sites consist of landscape features, recreational sites and traditional use sites.

3.2 Surface Water

The Surface Water Working Group (SWWG) is the main Working Group addressing water related RSDS issues, although the Reclamation Working Group (RWG) is also dealing with water related issues through their work on End Pit Lakes.

Water Related Issues

Surface water quality issues include very specific concerns that focus on ensuring the health of aquatic ecosystems and ultimately human health. The RSDS issues linked to these main concerns that CEMA is addressing focus on surface water quality, quantity, and the sustainability of watersheds in the region.

The main SWWG tasks that support the creation of a Water Management Framework for the Lower Athabasca River are:

- Evaluate how best to **assess the Instream Flow Needs (IFN) development of the Athabasca River reaches within its delta region** at Lake Athabasca, initiate development of a monitoring program that tests assumptions of the IFN, and assess the spatial distribution of Burbot in the Lower Athabasca River.
- Develop reach specific **surface water quality objectives for the lower Athabasca River** that will provide management options to address water quality management issues in the lower Athabasca River that will protect the current and future uses of the river. These management options will take into account specific considerations related to oilsands development activities that are not currently addressed in existing provincial water quality guidelines.
- Develop a management system to address the **integrity and sustainability of the Muskeg River Watershed that will** enable industrial development, land uses, resources and the environment to be managed for maintenance of the hydrological and biological integrity of the Muskeg River watershed.

Key Definitions

Fish habitat consists of the areas in and about a stream, such as spawning grounds and nurseries, rearing, food supply and migration areas, that fish depend on in order to carry out processes necessary to life.

Water quantity refers to the amount of water in a surface water body.

Water quality consists of the physical, chemical and biotic characteristics of water. This includes temperature, color, turbidity, salts, nutrients, metals, organic compounds, bacteria and algal content.

3.3 Air

The Trace Metals and Air Contaminants Working Group and the NO_xSO_x Management Working Group are both addressing air related RSDS issues. These two groups focus on tasks related to the management of air pollutants, acid deposition, and ozone.

Air Related Issues

CEMA is developing air quality management systems because of the evident connection between human activities (including industrial development) and the production of emissions that can have adverse environmental effects. The basic question underlying the research and science being done by these Working Groups is whether any specific emission has the potential to cause adverse environmental effects either directly or through subsequent reactions with other chemical compounds. Issues addressed by CEMA that are related to air pollution include trace air contaminants, trace metal deposition, acidification, eutrophication, and ground-level ozone.

Trace air contaminants released by oilsands development and other sources (including vehicle emissions) in the CEMA region include several compounds, which at higher concentrations can be harmful to plants, animals and people. These include polycyclic aromatic hydrocarbons (PAHs), particulate matter (PM); reduced sulphur compounds (SCs) and volatile organic compounds (VOCs).

Trace metals are elements that occur in very small amounts in living organisms. Some are essential nutrients and others are potentially toxic. These elements are of concern to CEMA because industrial and vehicle emissions in the region can lead to increased environmental concentrations. Emissions of trace metals have steadily decreased over the past 30 years as a side benefit of sulphur controls. Levels of metals in lichens, fish and traditional foods are monitored and high mercury levels in predatory fish have resulted in advisories for some reaches of the Athabasca River.

Acidification is the process where air pollution (mainly ammonia, sulphur dioxide and nitrogen oxides) is converted into acid substances, i.e. acid rain. It is caused when a receptor (i.e. soil, wetland, water body) increases in acidity through either the deposition of acidic compounds or through the loss of substances, which are able to act as buffers. As acid concentrations increase in the environment the result can be changes to the health and varieties of vegetation and animal life. Currently, there are several hundred tonnes of acidifying emissions released daily from oilsands operations in the Wood Buffalo Region. Although annual volumes of sulphur emissions have declined (through more stringent management requirements), there has been an increase in the emissions of nitrogen compounds. The cumulative volume of all acidifying emissions is a concern to CEMA because of their potential to affect local areas, and regional areas due to long distance transportation.

Eutrophication is caused by the enrichment of an [ecosystem](#) with chemical [nutrients](#); typically compounds containing [nitrogen](#) or [phosphorus](#). It may occur on land or in the water. It is considered a form of pollution, despite the fact that it is a natural process because it promotes excessive plant growth and decay, favors certain weedy species over others, and causes severe water quality problems.

Ground-level ozone is formed in the lower atmosphere through photochemical reactions involving Volatile Organic Compounds (VOCs) and nitrogen oxides (NO_x). Ozone is associated with human health effects and vegetation damage, including crop damage and greater vulnerability to disease in some tree species. Since the amount of ozone precursors being emitted from oilsands development in the region will be increasing, CEMA is continuing to investigate management options.

Key Definitions

Airsheds work within a designated area to monitor, analyze, and report on air quality. Based on these reports monitoring agencies recommend and implement actions to improve air quality within that zone.

Emissions are the release of substances (solid, liquid or gas) into the air or into the water.

Receptors are living organisms (plants, wildlife, humans) that are affected by emissions.

Photochemical Reactions are chemical transformations caused by sunlight. The reaction of nitrogen oxides with hydrocarbons in the presence of sunlight to form ozone is an example of a photochemical reaction.

NO_x is a generic term for the various nitrogen oxides produced during [combustion](#).

4.0 CEMA Products

4.1 CEMA Recommendations to Regulators

CEMA products include recommendations on management frameworks to address environmental concerns. Recommendations from CEMA are referred to the appropriate regulatory agency for approval and implementation. These include Alberta Environment (AENV) or Alberta Sustainable Resource Development (ASRD) and various agencies and departments of the federal government. To date, CEMA has forwarded the following recommendations to regulators:

CEMA Recommendations to Regulators

CEMA Recommendation	Responsible Working Group	Date Produced	Regulator	Regulator Response
Acid Deposition Management Framework	NSMWG	Feb 2004	AENV	Implemented by AENV August 2004
Ozone Management Framework	NSMWG	May 2006	AENV	Implemented by AENV June 2006
Landscape Design Checklist	RWG	Aug 2004	ASRD	Implemented by ASRD May 2005. Regulators suggested changes and the final government approved version are posted on the CEMA website.
Land Capability Classification for Forest Ecosystems in the Oilsands, 3rd Edition. (LCCS)	RWG	April 2006	AENV	Implemented by AENV July 2006

Ecosystem Management Tools	SEWG	Feb 2004	ASRD	Implemented by ASRD Jan 2005 where feasible in the RMWB
Trace Metals Management Framework	TMAC	Nov 2001	AENV	Implemented by AENV May 2002. Review of the TMMF by TMAC scheduled for 2008.

4.2 Status of Future CEMA Recommendations to Regulators

CEMA continues work toward other recommendations in addition to recommendations that have been completed:

Status of Future CEMA Recommendations to Regulators

Working Group	Key Deliverable	Target Date
NSMWG	Nitrogen Eutrophication Management Framework	2008 Q2
RWG	Landscape Designs Principals Report	2008 Q2
RWG	Guidelines for Reclamation to Forest Vegetation in the Athabasca Oilsands Region (Revegetation Manual)	2008 Q3
SEWG	Terrestrial Ecosystems Management Framework	2008 Q2
TMAC	Trace Metals Management Framework Review	2008 Q3

5.0 CEMA Standing Committees & Groups

5.1 Communications Committee (JCC)

The Communications Committee is an advisory body to CEMA Communications. The Committee provides direction to assist in development and carrying out of communication strategies and activities that build awareness and educate and inform stakeholders about CEMA's purpose. Stakeholder audiences include CEMA members and member organizations, Aboriginal groups, government, industry, media, academics, Regional Municipality of Wood Buffalo residents, and the public at large.

Communications 2007 Deliverables
Joint Community Report
Participation in trade show
The Insider Newsletter (Quarterly)
Open Houses (Fort McKay, Anzac, & Conklin)
New CEMA website
Improved radio and newspaper advertisement

Communications Future Deliverables
2008 Joint Community Report
The Insider Newsletter (Quarterly)
Media training session to key CEMA personnel
Website development and maintenance
Radio and Newspaper Advertisement
Participate in trade shows, open houses, community meetings, school presentations
Work with communities to develop an Aboriginal communications strategy

5.2 Management Committee (MC)

CEMA's Management Committee (MC) provides strategic leadership to CEMA to enhance the effectiveness and success of the organization. It directs CEMA work to ensure that management systems are developed to address the priority environmental issues.

CEMA Management Committee Members (Dec. 31/2007)

Position	Currently filled by:
President	Randall Barrett, Alberta Environment
Vice President	Judy Smith, Shell / Albian
Secretary	Ann Dort-McLean, Fort McMurray Environmental Association
Treasurer	Ruth Kleinbub, Fort McMurray Field Naturalists
5 Directors	<ul style="list-style-type: none"> • Cheryl Baraniecki, Environment Canada • Chris Severson-Baker, Pembina Institute • Jumbo Fraser, Fort Chipewyan Métis Local #125 • Don Sutherland, Husky Energy • Stuart Nadeau, Imperial Oil

**5.3 TRADITIONAL ENVIRONMENTAL KNOWLEDGE (TEK)
ADVISORY COMMITTEE**

The Traditional Environmental Knowledge (TEK) Committee provides standards and direction to the Working Groups in the collection and use of TEK within the CEMA process. CEMA defines Traditional Environmental Knowledge (TEK) as a body of local environmental knowledge and beliefs transmitted through oral tradition and first hand observation based upon living in close contact with nature.

TEK 2007 Deliverables
<p>Elder's Workshop. DVD – TEK stories.</p> <p>Coaching/Training Workshop. Training package binder. Workshop summary.</p> <p>Updated Annotated Bibliography/TEK Database. Database and annotated bibliography.</p>

TEK Guideline Review.
Updates to TEK research guidelines.

TEK Future Deliverables
Ongoing support to all Working Groups. Elder's Workshops - Workshop summary. Coaching/Training Workshops. Workshop package/workshop summary. TEK Research Guidelines – Review. Community Orientation Project. Annotated Bibliography. Updated bibliography/TEK database.

5.4 Aboriginal Task Group

In December, CEMA sponsored an Aboriginal Roundtable in Fort McMurray. The day-long session was a chance to explore environmental issues facing the First Nations and Métis communities in the Regional Municipality of Wood Buffalo. Eleven Aboriginal communities in the region participated. The purpose of the Roundtable was to hear the views of Aboriginal Peoples on the air, land, water and wildlife in our environment.

As a follow up, CEMA has secured funding and struck a new Aboriginal Task Group of participants to develop and improve our relationship with the First Nations and Métis communities.

6.0 CEMA WORKING GROUPS AND TASK GROUPS

6.1 Nitrogen Oxide and Sulfur Dioxide Management Working Group (NSMWG)

Co-Chairs - Calvin Duane (CNRL), David Spink (Fort McKay IRC), Kim Eastlick (ERCB), Program Manager – Nicole Walsh Mandate - To review the relevant science and develop a management system for current and projected emissions levels of NO _x and SO ₂ that provides appropriate levels of protection for

both terrestrial and aquatic receptors sensitive to acidification and eutrophication as well as for protection of human health and vegetation sensitive from three effects of ground-level ozone.

Importance/rationale of the work being undertaken –

Acidification: The goal of the NSMWG is to assist in the management of acid deposition from industrial activity by establishing criteria to maintain the chemical characteristics of soils and lakes to avoid adverse effects on ecosystems, plants, or animals in the management area.

Ozone: The goal of the NSMWG is to ensure that a ground level ozone management framework is in place that contributes to an environmental management system for ozone that protects human health and vegetation from human-caused ground-level-ozone.

Eutrophication: The NSMWG has developed Interim Management Recommendations and a work plan that will provide a basis for assessing and protecting the Wood Buffalo region from adverse effects of eutrophying air emissions. Available information indicates that eutrophying nitrogen deposition levels in the Regional Municipality of Wood Buffalo are generally below or well below reference levels (critical loads) used in Europe. Work needs to be undertaken to get better estimates of actual nitrogen deposition levels, assess appropriate critical loads for the Oil Sands region and define an appropriate management framework.

Scope - In accordance with its mandate, NSMWG Task Groups address the three main RSDS issues of Acidification, Ozone, and Eutrophication.

NSMWG 2007 Deliverables

NSMWG 2007 Deliverable	Importance
Reports –5 Acid Deposition Research Grants Annual Update Reports	Related to the Acid Deposition Management Framework it includes a research component to improve reliability of predicted responses and monitoring program to ensure protection of receptors during the research development phase of the plan.
Nitrogen Eutrophication Framework	This formed the basis for the “Proposed Interim Nitrogen (Eutrophication) Management Recommendations and Work Plan for the Regional Municipality of Wood Buffalo Area”.
Summary of CASA Symposium on Nitrogen	This product <i>A Primer on Nitrogen Emissions Issues</i> is a summary of the CASA 5 symposium on Nitrogen, focused on the environmental and health impacts of nitrogen oxide emissions.

NSMWG Future Deliverables

NSMWG Future Deliverable	Importance
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NSMWG Future Deliverable	Importance
<p>Reports - Acid Deposition Research Grants 2 Final Reports expected by Q4 2008 2 Final Reports expected in 2010</p>	<p>Related to the Acid Deposition Management Framework.</p>
<p>Report- Properties of Sensitive Soils</p>	<p>Related to the Acid Deposition Management Framework recommendation that acid deposition from industrial activity be managed to maintain the chemical characteristics of soils and lakes to avoid adverse effects on ecosystems, plants or animals in the management area.</p>
<p>Report- Quality Assurance/Quality Control of Soils Work</p>	<p>Confirmation that results between sensitive soils sampling programs and research grants are comparable and that there is a robust indicator for the MAGIC model.</p>
<p>Paleolimnology work related to acidification monitoring</p>	<p>Includes core top analysis (2005), core bottom analysis (2006) from 50 lakes, core collection from 20 lakes (2006), and detailed core analysis (2007/08) by the University. The results will be used to validate the acid deposition effects model, a part of the CEMA Acid Deposition Management Framework. As well as providing information on the natural variability of pH in the regional lakes over the last several hundred years.</p>
<p>Transition from Phase 1 to 2 of the Acid Deposition Framework</p>	<p>A joint effort between Alberta Environment and NSMWG transition involves re-running the deposition/effects models with new data and updating information in the framework.</p>
<p>Contract -Current and past Nitrogen and Sulfur deposition</p>	<p>To measure the Leaf Area Index (LAI) for Wood Buffalo Regional eco-sites including a review on the use and regional needs with respect to LAI inputs to acid and nitrogen deposition model which in turn are inputs for MAGIC model.</p>
<p>Conditional Time Averaged Gradient (COTAG) instrumentation</p>	<p>A follow up to previous Eutrophication Work the NSMWG will be working in collaboration with WBEA's TEEM program to purchase and operate a COTAG unit allowing for an assessment of actual nitrogen deposition rates to verify/calibrate the deposition models (CALPUFF and CASTNet_MLM).</p>

NSMWG Future Deliverable	Importance
Report- Nitrogen Loading and Biodiversity (CE Jones and Associates Ltd.)	Past and existing regional vegetation monitoring programs are reviewed to determine if they can be used to detect possible eutrophication related biodiversity changes.

6.2 Reclamation Working Group (RWG)

RWG is comprised of the main Working Group and 5 Subgroups:

Co-Chairs – Ron Lewko (Syncrude), Tanya Richens (Alberta Environment)	
Program Manager:	Nicole Walsh
Technical Program Manager:	Théo Charette
Technical Program Manager:	Veronica Chisholm
Mandate - To produce and maintain guidance documents that provide recommendations and best practices which ensure that reclaimed landscapes within the Athabasca oil sands region meet regulatory requirements, satisfy the needs and values of stakeholders, and are environmentally sustainable.	
<p>Importance/rationale of the work being undertaken - RWG produces and/or updates a series of guidance documents relating to reclamation in the oilsands region including:</p> <ul style="list-style-type: none"> - <i>Land Capability Classification System for Forest Ecosystems in the Oilsands (LCCS)</i> - <i>Guidelines for Reclamation to Forest Vegetation in the Athabasca Oilsands Region (Revegetation Manual)</i> - <i>Guideline for Wetland Establishment on Reclaimed Oil Sands Leases (Wetlands Guideline)</i> - <i>End Pit Lake Technical Guidance Document</i> - <i>Guide to the Landscape Design Checklist in the Athabasca Oil Sands Region</i> - <i>Reclamation Certification Guidance Document</i> 	
Scope – RWG's work applies to surface mineable oil sands and other surface disturbances including <i>In Situ</i> . Goals and objectives for the RWG are coordinated with other CEMA working groups and other related groups (such as the Canadian Oil Sands Network for Research and Development (CONRAD)) to avoid duplication and overlap.	

CEMA has split the RSDS Theme 1 (sustainable ecosystems and land-use) into two objectives, with SEWG being responsible for the first objective and RWG taking responsibility for the second objective. These objectives are:
Objective 1 (SEWG) to define the relationship between the environmental effects of development and ecosystem sustainability.
Objective 2 (RWG) to define the process and standards needed to return developed land to sustainable ecosystems with desired end land use values.

<p>Biodiversity & Wildlife Subgroup (BWSG) Co-Chairs - Joanne Hogg (Canadian Natural) and Arthur Dupuis (Albian Sands)</p>
<p>Mandate - To provide recommendations on reclamation techniques and methods of assessments for wildlife habitat and biodiversity capability.</p>
<p>Description of work - Updating the wildlife and biodiversity sections of the <i>Guidelines for Reclamation to Forest Vegetation in the Athabasca Oilsands Region</i> (Revegetation Manual).</p>
<p>Importance/rationale of work - Recommendations related to wildlife habitat and biodiversity reclamation are incorporated into the Revegetation Manual.</p>
<ul style="list-style-type: none"> • Development of a field monitoring program to evaluate and address data gaps associated with recommendations and guidelines developed as part of the Wildlife and Biodiversity Sections for the Revegetation Manual.

<p>End Pit Lakes Subgroup (EPLSG) Chair - Xiaoying Fan (Suncor)</p>
<p>Mandate - To develop a guidance document for the establishment of end pit lakes in the reclaimed landscapes. It will be used to guide planning and research respecting the development and management of end pit lakes including design factors that can be addressed at the present time and critical paths for questions related to science and management needs for lake planning.</p>
<p>Description of work - EPLSG is producing an End Pit Lakes Guidance Document – scheduled for completion in late 2012.</p>
<p>Importance/rationale of work - Recommendations related to the design of end pit lakes for use in reclamation / closure planning; development of End Pit Lakes Guidance Document.</p>

<p>Reclamation Certification Subgroup (RCSG) Co-Chairs – John Begg (ASRD), Kelly Williams (AENV)</p>
<p>Mandate - Provide recommendations on provincial regulatory requirements and</p>

processes for reclamation certification of oil sands mining developments in the Regional Municipality of Wood Buffalo with the potential for application for other surface mines (e.g. coal mines) within the Province.

Description of work - Developing Recommendations for Oil Sands Reclamation Certification Process and Criteria, which is focused on the reclamation certification process identifying established criteria, highlighting criteria data gaps and providing recommendations on how best to address criteria data gaps.

Importance/rationale of work – Clarification of reclamation certification process / criteria in the oil sands region through a series of recommendations that will be directed to regulators and documented in a Recommendations for Oil Sands Reclamation Certification Process and Criteria.

Soils & Vegetation Subgroup (SVSG)
Chair - Justin Straker (Fort McKay IRC) and Clayton Dubyk (Albian Sands)

Mandate - To develop optimal, operational scale reclamation methods (e.g., soil handling, soil prescriptions, and revegetation techniques) that will ensure that equivalent land capability and desired end land uses are achieved on reclaimed landscapes.

Description of work - SVSG works to update both the LCCS and the Revegetation Manual through the development and implementation of projects, studies and monitoring programs designed to address uncertainties and provide evidence to support the manuals guidelines and recommendations.

Importance/rationale of work - To provide recommendations and guidelines to improve reclamation techniques and practices related to soil handling and reclamation prescriptions and revegetation techniques, which are documented in the updated LCCS and Revegetation Manuals.

Wetlands & Aquatics Subgroup (WASG)
Co-Chair - Ann Garibaldi (CE Jones & Associates) & Christine Daly (Suncor)

Mandate - Support the creation of a range of sustainable wetlands for oilsand reclamation and restoration of disturbed wetlands in the Athabasca oilsands region by advancing the development of guidelines.

Description of work - WASG works to develop updates of the *Guideline for Wetland Establishment on Reclaimed Oil Sands Leases (Wetlands Guideline)*.

Importance/rationale of work - Provide recommendations relating to wetland reclamation techniques.

RWG 2007 Deliverables
<p>Wildlife & Biodiversity</p> <p>Components of Revegetation Manual 2nd Edition (2008): Appendix J: Wildlife Habitat Reclamation Guidelines.</p>
<p>End Pit Lake</p> <p>End Pit Lake Technical Guidance Document End Pit Lake Background Document Phase II modeling report</p>
<p>Reclamation Certification</p> <p>Recommendations for Oil Sands Reclamation Certification Process and Criteria</p>
<p>Soil & Vegetation</p> <p>2007 Reclamation Monitoring Plots Report (soils, vegetation and forestry) Plot Network Database Field based protocol manual for reclamation monitoring plots LCCS Manual 3rd Edition (2011) (Calibration Research & Manual Revision) LCCS Calculator (to derive LCCS ratings) Hydrocarbon Phase I Report (information necessary for preparing for Phase II – a field based assessment and incorporation in the 2011 Version of the LCCS Manual)</p>
<p>Wetlands & Aquatics</p> <p>Wetlands Guideline 2nd Edition (2007)</p>
<p>Innovation Fund</p> <p>Integration Workshop</p>

RWG Future Deliverables
<p>Wildlife & Biodiversity</p> <p>Wildlife & Biodiversity Components of Revegetation Manual 2nd & 3rd Edition (2008 & 2013) Revegetation Manual – Biodiversity Reclamation Guidelines Wildlife Habitat and Biodiversity Guideline – Field Assessment Design Biodiversity TEK Workshops</p>

<p>End Pit Lake</p> <p>End Pit Lake Technical Guidance Document (2012) Communication Tools – Interactive map and model interface (2008) Geotechnical input to Guidance Document (2008-2009) Lake sediment oxygen demand (2009)</p>
<p>Reclamation Certification</p> <p>Recommendations for a Reclamation Certification Process and Criteria (2008)</p>
<p>Soil & Vegetation</p> <p>Revegetation Manual 2nd & 3rd Edition (2008 & 2013) (Calibration Research & Manual Revision) Juvenile Plot Assessment Definition of Timber Productivity Rating (approvals) Plot Network Maintenance Field based protocol manual for reclamation monitoring plots Field based assessment Database (integrated database with all soils, vegetation and forestry data from the plot network as well as reclamation applications) Vegetation Synthesis Priority Shrub Fact Sheets Forest Productivity in Naturally Saline Landscapes of Alberta's Boreal Forest Forecast Modeling Growth Yield Curves and LCCS Evapotranspiration Measurements on Reclaimed Landscapes Instrumented Watersheds Assessment</p>
<p>Wetlands & Aquatics</p> <p>Wetlands Guideline 3rd Edition (2012) Testing of 2nd Edition during fen construction (2008-2011)</p> <ul style="list-style-type: none"> • Fen creation workshop (2008) • Vegetation establishment on fens (2010) <p>Wetlands Performance Assessment</p> <ul style="list-style-type: none"> • Bacterial communities as indicators (2009) • Waterfowl as indicators (2008) • Amphibians as indicators (2008) • Indices assessment (2010) • Monitoring program design to assess reclaimed wetland performance (2009) <p>Water Quality & Treatment</p> <ul style="list-style-type: none"> • Effectiveness of wetlands for treatment (2008) • Effects of salinity on vegetation (2008) • Role of nutrient enrichment on wetland development (2009)

Societal Values

- Indigenous ecological classification of wetlands (2011)

Innovation Fund

Operational Reclamation Techniques Report (2008)

Reclamation Research Database (2008)

Landscape Design Principles (2008)

Assessment of Best Management Practices for soil salvage and placement (2008+)

6.3 Surface Water Working Group (SWWG)

The SWWG is composed of the main Working Group and 6 Task Groups.

Co-Chairs - Chris Fordham (Suncor) & Pat Marriott (AENV)

Program Manager – Katherine Duffett

Mandate - To develop management recommendations related to the water quantity and quality of the water bodies in the Regional Municipality of Wood Buffalo.

Importance/rationale of the work being undertaken – To address the following RSDS issues:

- Changes in flows, sediment concentrations and channel regime in receiving streams in local basins and their impacts on fish habitat.
- Restructuring of drainage regimes may contribute to increased erosion and result in impacts to wetlands and change flow rates in tributaries, increase sediment concentrations, and have impacts on fish habitat.
- Changes in open water areas, including lakes and streams. This is an overall issue of watershed management and cumulative changes in flow regimes due to development.
- Impacts of multiple developments on long-term hydrological and biological integrity of watersheds such as the Muskeg River and Kearl Lake.
- Use of chemical specific guidelines for toxic elements of water discharges instead of "Toxic Units"; e.g., from end pit lakes.
- Changes in water quality of streams, rivers, and lakes due to an individual project and multiple projects, and monitoring and assessment of effects of water pollutants in the downstream region (Athabasca and PAD).
- Changes in the Athabasca River water quality and the quality of tributaries.
- Monitoring and assessment of effects of water of effects water pollutants in the

downstream region (the effects need to include water quality, sediment quality, benthos and fish).

- Untreated drinking water aesthetics - smell and taste.
- Silt and other contaminants increase from logging and development.
- Effects of industrial effluents on fish health - disease, deformities and fish tainting.
- In-stream flow needs in the Athabasca River and developed tributaries

Scope - SWWG is addressing RSDS issues that focus on surface water quality and quantity and the sustainability of watersheds in the region.

Instream Flow Needs Technical Task Group (IFNTTG)

Chair - Andrew Paul (Alberta Government)

Mandate – 1) Evaluate IFN within the delta region of the lower Athabasca River(LAR), initiate development/recommendations for a monitoring program that tests assumptions of the IFN, and assess the spatial and temporal distribution of fish species in the LAR. 2) Provide technical IFN support and evaluation tools to SWWG for their Phase II structured decision-making process.

Description of work - The work currently being developed by the IFNTTG includes -

- Instream Flow Needs Segmentation Study – Delta Region, Lower Athabasca River (LAR). Work conducted Sep 2007 – Jan 2008.
- Ice-covered and open-water hydraulic surveys and modeling in the delta region of the LAR. Work ongoing Jan 2008 – Sep 2008.
- Site reconnaissance to determine optimal locations for telemetry receiver placement was completed. The telemetry receivers will be used in the Fish and Fish Habitat Studies project to be initiated in 2008 to further knowledge on the spatial location and migration patterns of fish species within the LAR (Burbot, Lake Whitefish, Longnose Sucker, Flathead Chub). Fish species had been identified as potential target fish species for understanding the effects of low winter flow in the LAR.
- Expert workshop to initiate development of a monitoring program that tests assumptions of the IFN was held in Q1 of 2007.
- A research grant was provided to the University of Alberta to investigate the population structure and genetic diversity of Walleye within the Athabasca River and Lake Athabasca using DNA microsatellite markers. This will allow for an assessment of whether riverine fish are a sink population for lake fish or a separate and evolutionary unique stock.
- Development of objectives, impact hypotheses, performance measures and evaluation tools for the Phase II structured decision-making process.

Importance/rationale of work - Overall, this work contributes to achieving the following RSDS issue:

RSDS Issue # - 47

Topic - Surface Water - Water Quantity

RSDS Issue Description - In-stream flow needs in the Athabasca River and developed tributaries

Watershed Integrity Task Group (WITG)

Chair: Abdi Siad-Omar (Alberta Government)

Mandate - To establish management objectives and systems to address the integrity of the Muskeg River Watershed.

Description of work - The Task Group has worked to gain an understanding of how to approach developing a water management system for the Muskeg River Watershed in the following way -

- Previous work -
 - Workshop to explore the sustainability of the Muskeg River Watershed given the current scale of planned development. The workshop produced recommendation to develop a management plan for the watershed some examples are: creating clear definitions, acting in a timeline manner, gathering TEK, coordinating with related regional initiatives and defining broad management objects.
 - Modeling An investigation level model for the Muskeg River was developed that identified uncertainty and future data and research needs. Water management and mitigation strategies for water handling systems that minimize environmental impacts were also produced from this research.
 - Information gathering The natural range of variability of physical, chemical and biological characteristics of streams in the Athabasca Oilsands Region was assessed to help establish criteria for streams constructed on both natural and reclaimed material to support fish habitat. Natural analogues of “active channels with fish habitat” and “active channels without fish habitat” were evaluated in the field to understand their physical, chemical and biological characteristics.
- Current work:
 - Currently compiling GIS information for the Muskeg River Watershed to be synthesized with TEK information in order to develop an accurate understanding of the state of the watershed. From this point, on values, goals and indicators that were used for the state of the watershed work will be revisited and possibly adapted to create an adaptive management plan for the Muskeg River Watershed.

Importance/rationale of work - Previous and current work is imperative to achieve the following work plan items -

- RSDS Issue - #36

<p>Topic Surface Water - Surface Water RSDS Issue Description - Changes in flows, sediment concentrations and channel regime in receiving streams in local basins and their impacts on fish habitat.</p> <ul style="list-style-type: none"> • RSDS Issue - #37 Topic Surface Water - Drainage Regime RSDS Issue Description - Restructuring of drainage regimes may contribute to increased erosion and result in impacts to wetlands and change flow rates in tributaries, increase sediment concentrations, and have impacts on fish habitat. • RSDS Issue - #39 Topic Surface Water - Surface Water RSDS Issue Description - Changes in open water areas, including lakes and streams. This is an overall issue of watershed management and cumulative changes in flow regimes due to development. • RSDS Issue - #68 Topic Surface Water - Sustainability RSDS Issue Description - Impacts of multiple developments on long-term hydrological and biological integrity of watersheds such as the Muskeg River and Kearn Lake.
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<p>Water Quality Task Group (WQTG) Chair - Preston McEachern (Alberta Environment)</p>
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<p>Mandate: To develop and recommend reach specific quality objectives and management systems to protect identified water uses in the lower Athabasca River.</p>

<p>Description of work:</p> <ul style="list-style-type: none"> • A project completed in 2007 involved development of the following: <ul style="list-style-type: none"> ○ Establishment of reach specific water quality characteristics for the purpose of setting water quality objectives. ○ Defined procedures and established data evaluations processes for setting water quality objectives. ○ Determined water quality objectives for group 1 and group 2 parameters with potential consideration of EPL and tributary discharges.
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<p>Importance/rationale of work - To address the WQTG's RSDS issues -</p> <ul style="list-style-type: none"> • RSDS Issue - #40 Topic Surface Water - Water Quality RSDS Issue Description - Use of chemical specific guidelines for toxic elements of water discharges instead of "Toxic Units"; e.g. from end pit lakes. • RSDS Issue - #41 Topic Surface Water - Water Quality RSDS Issue Description - Changes in water quality of streams, rivers, and lakes due to an individual project and multiple projects, and monitoring and assessment of effects of water pollutants in the downstream region (Athabasca and PAD). • RSDS Issue - #42 Topic Surface Water - Water Quality RSDS Issue Description - Changes in the Athabasca River water quality and the

<p>quality of tributaries.</p> <ul style="list-style-type: none"> • RSDS Issue - #43 Topic Surface Water - Water Quality RSDS Issue Description - Monitoring and assessment of effects of water of effects water pollutants in the downstream region (the effects need to include water quality, sediment quality, benthos and fish). • RSDS Issue - #44 Topic Surface Water - Water Quality RSDS Issue Description - Untreated drinking water aesthetics - smell and taste. • RSDS Issue -#45 Topic Surface Water - Water Quality RSDS Issue Description Silt and other contaminants increase from logging and development. • RSDS Issue #46 Topic Surface Water - Water Quality RSDS Issue Description - Effects of industrial effluents on fish health - disease, deformities and fish tainting.

<p>Socio-Economic Task Group (ETG) Chair: John Sedley (Fort McKay IRC)</p>
<p>Mandate: To support the SWWG by providing socio-economic analysis and advice.</p>
<p>Description of Work:</p> <ul style="list-style-type: none"> • The ETG’s work plan has been initiated with planning for a project to complete a literature review on existing socio-economic data. This is to enable the group to participate in the development of a Phase 2 Water Management Framework recommendation by performing trade-off analysis on management scenarios from a socio-economic standpoint.
<p>Importance/Rationale of Work: Current work is imperative to achieve the following RSDS issue –</p> <p>RSDS Issue - #47 Topic - Surface Water - Water Quantity RSDS Issue Description - In-stream flow needs in the Athabasca River and developed tributaries.</p>

<p>Phase 2 Framework Task Group (P2FTG) Chair: Rick Courtney (Shell)</p>
<p>Mandate: To develop a range of water management scenarios and the approach for decision-making in order to work with stakeholders for development of a Phase II Water Management Framework recommendation.</p>
<p>Description of Work:</p> <ul style="list-style-type: none"> • The task group reviewed options for development of a Phase 2 recommendation. • The review suggested a structured decision-making process used in the British Columbia Water Use Planning could be appropriate. Compass Resource Management was contacted and a workshop to review the process was run in

August 2007.

- A sole-source contract to develop the terms of reference and a guideline for the process was let to Compass.
- A sole-source request for proposal to facilitate a structured decision-making process for the Phase 2 recommendation was developed by P2FTG and sent to Compass just before year-end.

Importance/Rationale of Work: Current work is imperative to achieve the following RSDS issue –

RSDS Issue - #47

Topic - Surface Water - Water Quantity

RSDS Issue Description - In-stream flow needs in the Athabasca River and developed tributaries.

Water Requirements and Engineering Mitigation Task Group (WREM)

Chair: Stuart Lunn (Imperial)

Mandate: A companion group at CEMA to the RIWG group leading work on gathering the water requirements for the oil sands industry and the mitigation options for periods of low water availability.

Description of Work: The WREM group is a companion group at CEMA to discuss work being led by industry through the Athabasca Regional Issues Working Group (RIWG). The task is in two parts. The first part is to develop a long term forecast of the amount of Athabasca River water required by the oil sands mining industry. This work was completed in 2007 and was presented to CAPP and CEMA's SWWG. The second task is to develop the advantages and disadvantages of different engineering mitigation options for periods of potential water shortage from the Athabasca River.

Importance/Rationale of Work: Current work contributes to:

RSDS Issue - #47

Topic - Surface Water - Water Quantity

RSDS Issue Description - In-stream flow needs in the Athabasca River and developed tributaries

SWWG 2007 Deliverables

Workshop held in 2007.

Recommendation for how to initiate development of a monitoring plan for the (LAR) that tests IFN assumption.

2007 Winter Bathymetric Surveys on Reach 3 of the Lower Athabasca River.
Report

2007 Winter Bathymetric Surveys on Reach 2 of the Lower Athabasca River

Four reports.

Instream Flow Needs Screening Study – Delta Region, Lower Athabasca River Report

Reconnaissance tasks for telemetry site identification for use in the fish and fish habitat studies project.

Two Reports

Segmentation Analysis for the Peace-Athabasca River Report

Phase 2 Water Management Framework Recommendation
Guidelines and terms of reference were developed for a structured decision making process for development of a Phase II recommendation
Workshop and Report

Reach Specific Water Quality Objectives for the Lower Athabasca River Report

2005 Hydrodynamic Surveys

Five reports (survey work completed in 2005, but reports approved in 2007)

P2FTG

Establishment of the Phase II Framework Task Group.

WREM

Establishment of the Water Requirements and Engineering Mitigation Task Group.
WREM presentation

Link: <http://www.oilsands.cc/publications/publications.asp>

ETG

Establishment of the Socio-Economic Task Group.

SWWG Future Deliverables

Muskeg River State of the Watershed Report. This includes TEK collection / integration report.

Socio-Economic data compilation and evaluation to support the LAR Management Framework (database and report).

Fish and Fish Habitat Studies

Reports on research to support the LAR Management Framework.

IFNTTG TPM

Technical Program Manager to support the work of the IFNTTG.

Survey and Modeling Assessment of the Lower Athabasca Delta
Reports on research to support the LAR Management Framework.

Develop the Water Management Framework Phase 2 recommendation
Phase II Structured Decision Making Process Facilitation.

LAR Monitoring Recommendations
Integration of monitoring workshops.

Other Riverine Component Studies
Research on riparian areas and geomorphology to support the LAR Water Management Framework. (reports)
Initiation of this project is dependent on funding availability.

IFN Assessment Tools
Validation of models created in previous hydrodynamic surveys in 2007. (reports)
Initiation of this project is dependent on funding availability.

Muskeg River Watershed Plan. This includes TEK collection / integration
Recommendation of a Watershed Management Plan for the Muskeg River Watershed.
2008 – 2009

Identify LAR Water Quality Objectives for all parameters and validation thereof.
Recommendations of LAR Water Quality Objectives for all parameters.

LAR Water Quality Management Framework
Recommendation for a Water Quality Management Framework.
2008-2009

6.4 Sustainable Ecosystems Working Group (SEWG)

SEWG is comprised of the main Working Group and 4 Task Groups:

Co-Chairs - Mike Norton (Environment Canada), Peter Koning (ConocoPhillips)

Program Manager - Margaret Luker

Mandate - SEWG's mandate is to develop and recommend a management system to address cumulative effects on ecosystems and landscapes in the Regional Municipality of Wood Buffalo (RMWB) based on sustainable development principles. This will be done by:

- Pursuing sustainable development, which is defined as shared responsibility that is based on integrating environmental protection with economic growth and resource use, and making full use of the available management tools and resources. Co-

operation among all regional stakeholders is a positive step toward achieving sustainable development (RSDS for the Athabasca Oilsands Area, 1999).

- Designing a Management System (MS) for Ecosystem and Landscape Sustainability. (This approach will be consistent with the provincial Integrated Resource Management (IRM) concept). Sustainability is an economic, social and ecological concept. It is a means of configuring civilization and human activity so that society and its members are able to meet their needs and express their greatest potential in the present, while preserving biodiversity and natural ecosystems, and planning and acting for the ability to maintain these ideals indefinitely.

Importance/rationale of the work being undertaken - SEWG is addressing three interrelated Category A themes on sustainable ecosystems, wildlife, and biodiversity. The management framework is being designed to achieve 12 environmental, economic and social/cultural goals identified by the multi-stakeholder group. Using 22 indicators to represent the 12 goals, the management framework will identify management objectives for the indicators developed through trade-off analysis to identify the goals and management strategies/tools that should be across the region. Ecosystem modeling will be used to make informed decisions about the trade-off analysis. The management objectives will be developed within three land zones within the RMWB:

1. Intensively developed zones where economics are the priority;
2. Protected zones where protection of the environment is the priority; and
3. Extensively developed zones where economic and environmental priorities are balanced.

The Alberta government has recommended the use of this TRIAD landscape management approach.

Scope - To address 17 RSDS issues on sustainable ecosystems, wildlife and biodiversity. SEWG looks at landscapes, vegetation and wetlands, wildlife and fish, plants, biodiversity, cultural and historic resources, and the interaction between land and water.

Modeling and Facilitated Workshops to Develop a Management Framework Chair – Mike Norton (Environment Canada)

Mandate - To provide administrative and consultant support in development of the Land Management Framework.

Description of work - Assist in the development and the completion of the management framework and associated modeling.

Importance/rationale of work - This task represents 90% of SEWG's current work and is key to completing SEWG's overall mandate.

<p>Wildlife Habitat Connectivity Chair – Amit Saxena (Devon Canada)</p>
<p>Mandate -To maintain habitat connectivity to sustain important wildlife in the region.</p>
<p>Description of work - The Task Group (TG) has conducted work to assess how/where wildlife moves and what the significance of this is through western science and Traditional Environmental Knowledge workshops. The TG is also tasked to evaluate the effects of disturbance on their movement, develop management objectives and assess the need for long term monitoring and research.</p>
<p>Importance/rationale of work - This work is importance for several reasons –</p> <ul style="list-style-type: none"> • This task falls under key RSDS Issues 63, 58, 59, 49, 50, 51, 52, 53, 54, 55, 64, 65, 69, and 71. • It is a key area of interest for First Nation and Métis. • AENV and the Energy and Utilities Board include this subject in their approvals. • Wildlife movement is essential to species population maintenance.

<p>Traditional Use Plants Chair – Justin Straker (Fort McKay IRC)</p>
<p>Mandate - To identify traditionally used (First Nations and Métis) plants of importance in the RMWB, and the areas where these plants are used.</p>
<p>Description of work -This information will likely ultimately be used by the Working Group to assess two things: 1) What is the impact of industrial development in the municipality on the ability of First Nations and Métis communities to continue traditional plant use, and is this impact threatening the viability of this activity; and 2) If viability of the activity is threatened, are there remaining areas of plant use that could be protected to conserve this resource, and where are they?</p>
<p>Importance/rationale of work - This information will be used to feed into the SEWG Management Framework and may form the basis of recommendations for protection of areas from future development.</p>

<p>Recreational Effects on Ecological Resources (Recreational Effects) Chair – Jos Lussenburg (Japan Canada Oilsands Ltd.)</p>
<p>Mandate - To protect more sensitive areas from recreational use while maintaining opportunities for recreation by targeting and identifying high recreation potential areas.</p>
<p>Description of work -The work involves contracting out the work to a GIS analyst to 1) Conduct a spatial analysis using a set of rules they develop with the Task Group’s guidance resulting in a high-low recreational potential map and 2) Identify the areas in the mapping product and through recommendations in the report in the Regional</p>

Municipality of Wood Buffalo where we would want to limit recreation use due to the sensitive nature of these areas.

Importance/rationale of work -The spatial product will be used as an additional layer or information piece to inform decisions on the land base.

SEWG 2007 Deliverables

Terrestrial Ecosystem Management Framework Recommendation
Continued development of the Terrestrial Ecosystem Management Framework Recommendation via workshops.

Completed work reports on:

Aboriginal Tools

Completed workshop on:

Traditional Environmental Knowledge Stories

SEWG Future Deliverables

Terrestrial Ecosystem Management Framework (TEMF)
Recommend Management Framework.
Recommendation

Reports:

Traditional Use Plants

Wildlife Habitat Connectivity

Spatially Representing Recreational Use

Communications:

Communication Workshop with Aboriginal Communities on Management Framework.

Communication and Awareness to Approve the Management Framework.

Further Recommendations:

Access Management Recommendations - Work towards recommending specific locations and policy approaches necessary for full framework implementation. Review approaches and initiate analysis. Engage affected user groups.

Protected Areas Recommendations - Work towards recommending specific locations and policy approaches necessary for full framework implementation. Review

approaches and initiate analysis.
Management Scenario Modeling Recommendations - Comprehensive management scenario modeling to support recommendations. Initiate work to reduce model uncertainties.

SEWG Recommendation Letter

Date Produced - Jan 2008

Regulator - ASRD

Regulatory response received/current status – Awaiting response from Government.

Why important – Requested maintenance of conservation options in respect of the Terrestrial Ecosystem Management Framework recommendation.

Conservation areas are recognized by SEWG as an integral part of the overall Management Framework. As part of a TRIAD strategy to managing regional ecosystems, conservation areas along with intensive and mixed-use areas are key to balancing the benefits and risks of development pressure on environmental, social, and economic indicators. However, SEWG has not fully completed the comprehensive analysis necessary to achieve a consensus recommendation on the number, location, duration and related attributes for new conservation areas. Further work will be required beyond June 2008 to develop these details of a recommendation for the establishment of new conservation areas. We note that the Alberta government's response to the Oil Sands Multi-stakeholder Committee pointed to CEMA as the source for recommendations on additional conservation areas.

As SEWG's work has progressed since the formation of CEMA in 1999, oil sands development has also expanded. In particular, the sale of leases for oil sands development rights has continued. Once an area is leased, fragmentation of the forest by exploration activity disturbance is likely. Although the sale of leases does not guarantee that commercial bitumen production will occur in that specific location, it does open the door to that possibility and the accompanying ecological disturbance. Land under which no tenure exists presents the most options for designation of conservation areas, but these options continue to become more constrained.

CEMA recommends the Alberta Government suspend granting of new resource tenures on an interim basis until January 1, 2011 in order to maintain the conservation opportunity in the areas identified by CEMA as having high conservation value. Prior to January 1, 2011, CEMA will deliver to the Government of Alberta a specific recommendation on allocations of lands for conservation purposes within the context of the Management Framework.

6.5 Trace Metals & Air Contaminants Working Group (TMAC)

Co-Chairs - Jason Heisler (Suncor Energy), John Dennis (Fort McKay Industrial Relations Committee)

Program Manager – Daniel Stuckless

Mandate - To assess the risks posed by trace metals and trace air contaminants to human health and ecosystems under existing environmental management systems and, if required, recommend changes to adequately manage those risks.

Importance/rationale of the work being undertaken -

- Health Risk Project Stage I: Work undertaken in 2005 included a literature review and development of a Risk Communication plan for the Oilsands Region. The former was undertaken to determine if the human health risk determined in EIAs are appropriate and sufficient for TMAC to use in the development of the management framework and communication with respect to the identified priority pollutants. The latter project is designed to assist TMAC in identifying how to have ongoing communications on health issues with the stakeholders in the region.
- Human Health Risk Project Stage II: Several projects undertaken in 2007 will further assist TMAC to: 1) Understand community perceptions around air quality and health, 2) Prioritize the 39 priority substances identified by TMAC previously, 3) Develop a trace air contaminants management framework, and 4) Have ongoing communications with communities on the framework and other future projects.

Scope - Trace air contaminants include volatile organic carbon compounds (VOCs), polycyclic aromatic hydrocarbons (PAHs), reduced sulphur compounds, and particulate matter. Although emitted in more than trace amounts, sulphur dioxide and nitrogen oxides are also included for consideration from the perspective of human health risk.

TMAC 2007 Deliverables

Human Health Risk Project – Phase III

Risk Communication: enhanced Aboriginal communications.

Risk communication components built into Traditional Food Consumption Study Survey. Enhancement of remaining Aboriginal communities to be incorporated into 2008 work plan.

Aboriginal food consumption (dietary habits) survey (based on results of the feasibility study). Draft report due in March 2008.

Exposure based ranking of priority pollutants (Phase III).

Literature review and quantifying uncertainty in Health Risk Assessments.
Moved to 2008 work plan.

Complete Trace Air Contaminants Management Framework.

Wildlife health literature review of toxicity information.

TMAC Future Deliverables

Human Health Risk Project – Phase III
Risk Communication: enhanced Aboriginal communications.

Phase II
Aboriginal food consumption (dietary habits) survey.

Literature review and quantifying uncertainty in Health Risk Assessments.

Screening of trace metals.

Community Workshops.

Literature review and update on trace metals and air contaminants.

Trace Air Contaminants Management Framework.

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**MEMBER NAME
ASSOCIATE MEMBER*
(As of Dec. 31/07)**

Alberta Aboriginal Affairs & Northern Development	Pembina Institute
Alberta Conservation Association	Pembina Pipeline Corporation
Alberta Department of Energy*	Petro-Canada Oil and Gas
Alberta Energy and Utilities Board	Regional Municipality of Wood Buffalo
Alberta Environment	Saskatchewan Environment
Alberta Fish and Game Association	Suncor Energy Inc.
Alberta Pacific Forest Industries Inc.	Syncrude Canada Ltd.
Alberta Sustainable Resource Development	Synenco Energy Inc.
Albian Sands Energy / Shell Canada	Total ENP
Athabasca Tribal Council	Toxics Watch Society of Alberta
Birch Mountain Resources*	UTS Energy Corporation
Canadian Environmental Assessment Agency	Wood Buffalo National Park
Canadian Natural Resources Ltd.	
Canadian Parks and Wilderness Society	
Conklin Métis Local #193	
ConocoPhillips Canada	
Department of Fisheries and Oceans	
Devon Canada	
EnCana Corporation	
Environment Canada	
Fort Chipewyan Métis Local #125	
Fort McKay First Nation	
Fort McKay Métis Local #63	
Fort McMurray Environmental Association	
Fort McMurray Field Naturalists	
Fort McMurray Métis Local #2020	
Health Canada	
Husky Energy Ltd.	
Imperial Oil Resources	
Japan Canada Oilsands Ltd.	
Natural Resources Canada*	
Northern Lights Health Region	
OPTI / Nexen Canada Inc.	

