



# Insider

ISSUE XVII, Fall 2011

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## CEMA HOSTS ELDERS WORKSHOP

On August 18, the Cumulative Environmental Management Association (CEMA) hosted its annual Elders Workshop at the Fort McMurray Lion's Park. Aboriginal Elders & youth from communities in Fort Chipewyan, Fort McKay, Fort McMurray, Anzac, Conklin, and Chard will unite for a day long workshop.

CEMA's Elders Workshop is an opportunity to discuss how CEMA is addressing the environmental issues of importance to the Aboriginal stakeholders in the region.

It is a chance for Elders to share first hand stories about First Nations and Métis culture, practices and way of life. An important element to the workshop is for youth to listen and learn from the Elders about their history and traditions over hundreds of years in Alberta.

The workshop will also include presentations about CEMA programs, information on the Traditional Environmental Knowledge (TEK) Mentoring Program, a Cree & Dene language session, a history of waterways, and a presentation of the Air We Breathe Video.



CEMA Elders Workshop 2011, Lions Park, Fort McMurray.

## President's Message

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Dear Members,

I trust that all members of the CEMA family had a relaxing, fun and warm summer.

I would like to start by offering my sincere thanks and congratulations to the Traditional Environmental Knowledge Advisory Committee (TEKAC) on another very successful Elders Workshop in August. It was due to the leadership of Co-Chairs Jumbo Fraser and Ainslie Campbell and our Aboriginal Coordinator Kim Dertien that the workshop was such a great event. All members of the TEKAC worked long and hard to make this annual gathering successful for Aboriginal Elders. Most importantly we acknowledge and thank the many Elders and youth from around the RMWB for joining us.

The start of September means a busy fall schedule for the CEMA Working Groups, Secretariat and Board. All the Working Groups are finalizing projects and research as a part of the 2011 work plan. The CEMA office under the leadership of our Executive Director, are busy with invoicing, hosting meetings and year end activities. The CEMA Board is working hard to prepare the 2012 budget and secure funding to ensure that CEMA's important world class research continues in the years ahead.



As we anticipate the selection of a new premier and cabinet shuffle, we can also look forward to government decision that will no doubt help answer some of the important questions that will have a direct impact on CEMA future business. Most noteworthy, the Lower Athabasca Regional Plan and its implications on CEMA. A recent draft plan was released to the public a short time ago with considerable debate, and we eagerly await a final decision. We further look forward to understanding opportunities for CEMA as part of the government response to the expert panel recommendations on monitoring.

We have a busy and exciting fall ahead.

*Rick*

# UPDATES ON WORKING GROUPS AND SUB-GROUPS

## SUSTAINABLE ECOSYSTEMS WORKING GROUP (SEWG)

### SEWG Welcomes New Co-Chair

SEWG would like to welcome the newest addition to our Co-Chair trio, Tim Vinge of ASRD. Tim was voted in at the June 23rd SEWG members meeting and we believe will be a nice addition to the team. Tim has a forestry background and has been doing work on access management as it relates to the Oil Sands Leadership Initiative (OSLI) project. The OSLI is a collaborative network between ConocoPhillips Canada, Nexen Inc., Statoil Canada, Suncor Energy Inc. and Total E&P Canada who have come together to serve one common goal: improving the oil sands industry's reputation by demonstrating and communicating environmental, social and economic performance and technological advancements. Currently, OSLI is working on a reclamation initiative aimed at restoring historical linear disturbances to improve caribou habitat and other biodiversity in the Algar Region of northeastern Alberta. OSLI believes a regional approach must be taken to land reclamation and caribou protection in the Algar Region, which is part of the East Side Athabasca River (ESAR) caribou range. This will be a nice tie-in with the work SEWG is currently undertaking on linear footprint management. Welcome Tim Vinge!

### SEWG Work Plan Status

SEWG is now into the final phases in the development of its coordinated linear footprint management recommendations and work plan. SEWG has posted a Request for Proposal to complete its fourth task which includes the planning and engagement of stakeholders into our work plan and recommendations. Intensive workshops are planned for 2012 and the engagement of concerned stakeholders both within the CEMA process and those not currently at the CEMA table will be addressed throughout these workshops and as part of the planning for the outcomes of this task. The selection of management tools and conceptually testing/applying these tools through modeling on the pilot project area will be completed as part of this task. Final recommendations are anticipated to be ready for delivery to government by the end of 2012.

- 1) Review access management and linear footprint management work to date, both from within RMWB and other Jurisdictions, and assess the body of work for application to the RMWB;
- 2) Select a sub-regional scaled project area within the RMWB on which to conceptually test and model linear footprint management strategies;
- 3) Develop a detailed linear feature characterization for the selected pilot project area.
- 4) Select suitable linear footprint planning and management tools and conceptually apply them to the selected project area; and,
- 5) Develop recommendations to GoA on the effectiveness of various linear footprint planning and management tools and strategies specific to the RMWB.

### Data Gathering and LiDAR Acquisition

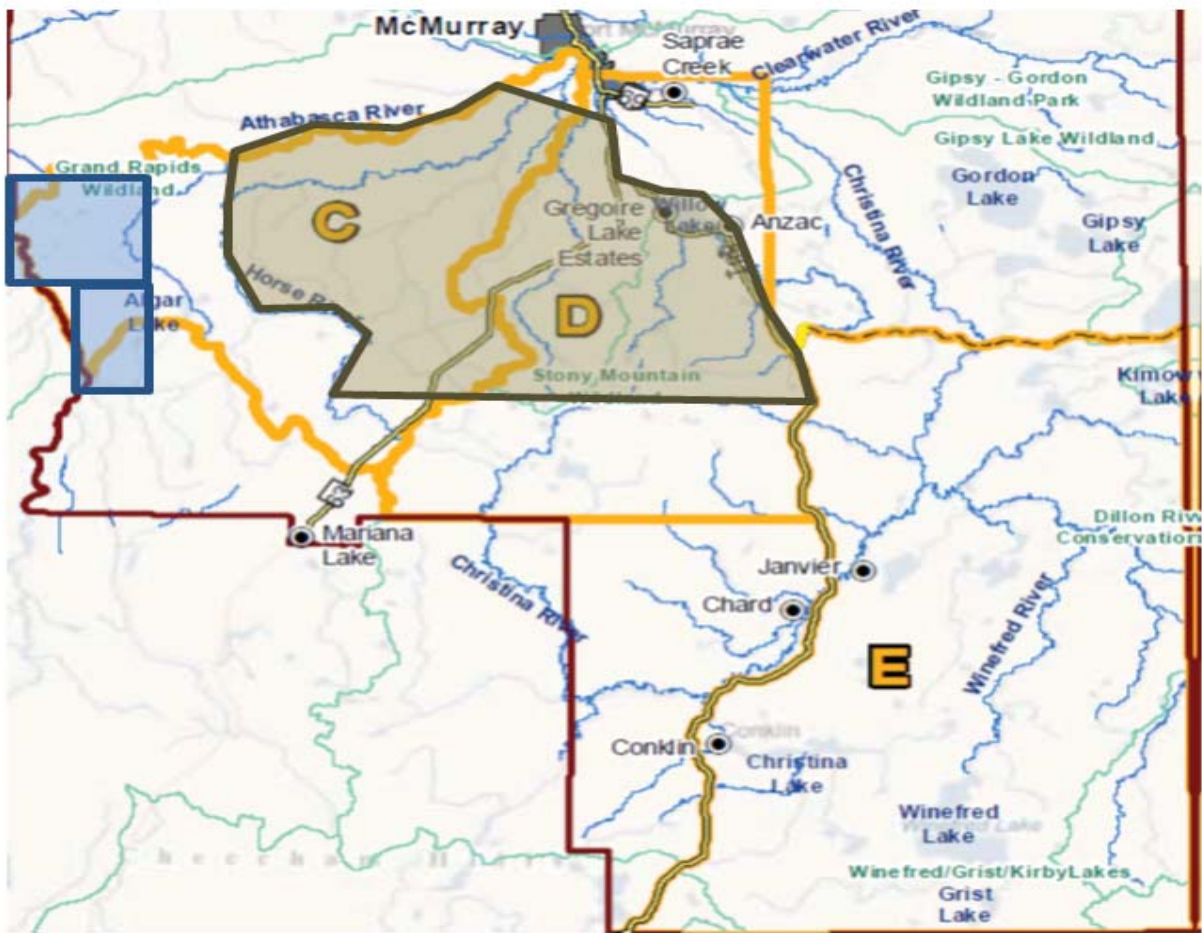
Once the pilot project area had been selected (see attached map opposite page), SEWG had posted an RFP to develop a detailed linear feature characterization for the selected pilot project area as part of task 3 of its work plan. It was then noted that we should compile and gather as much data as we could for the pilot area to ensure that learning's were as well-informed as they could be. One area where SEWG felt data was lacking but could be useful was in obtaining LiDAR (Light Detection and Ranging). Luckily our members stepped in to save the day and pulled together to provide us with proprietary LiDAR coverage for over 70% of our study area. A special thanks goes out to Nexen, Jacos, ConocoPhillips, ASRD and a brand new member to CEMA, STATOil. It should be noted that some of these members do not even have representation at SEWG but were willing to share data if it meant providing a better product for CEMA and better informed recommendations for GoA. THANK YOU!

# UPDATES ON WORKING GROUPS AND SUB-GROUPS

SUSTAINABLE ECOSYSTEMS WORKING GROUP (SEWG)

## SELECTED PILOT AREA

### DRAFT LINEAR FOOTPRINT CASE STUDY AREA



# UPDATES ON WORKING GROUPS AND SUB-GROUPS

## RECLAMATION WORKING GROUP (RWG)

### RECLAMATION WORKING GROUP (RWG)

Co-Chairs: Tanya Richens (AENV) & Stephen Tuttle (CNRL)

Program Administrator: Kyle Harrietha

Technical Program Managers: Theo Charette (Aquatic) & Gillian Donald (Terrestrial)

The RWG has had a busy three quarters in 2011 and has initiated its entire program for the year.

As well, in recent months the CEMA Board has approved the following RWG reports:

- Alberta Regeneration Standards for the Mineable Oil Sands (TECO 2011)
- Developing Baseline Site Index Estimates for the Ecosite Area Summary Table (TECO 2011)
- Best Management Practices for Conservation of Reclamation Materials in the Mineable Oil Sands Region of Alberta (MacKenzie 2011)
- Renewing the Health of Our Forests Final Report Volume II: Biodiversity Traditional Knowledge of the Oil Sands Region (SENES 2010)

The RWG has been continuing with indicator development for its criteria and indicators (C&I) framework and a workshop is planned for November 18th, 2011. The C&I Framework is scheduled to be completed in 2012. Development of the C&I framework within CEMA supports identification and communication of the expectations between the operators, regulators and stakeholders. The understanding between the parties of how reclamation success will be measured is improved. Members of the CEMA RWG are developing the content and concept for use of the framework. CEMA's 44 participating members will have the opportunity to review and comment on the final report prior to the CEMA Board of Director's decision to forward the recommendations to the Alberta government. Use of the C&I Framework will ultimately inform the operator and regulator as to the readiness of the site for reclamation certification. All RWG sub-groups and task groups are in the process of developing indicators for the C&I Framework in their areas of responsibility.

With respect to financial and administrative issues in 2011 the RWG has undertaken a comprehensive budget review at the request of CEMA's Executive Director and has reduced planned spending in 2011 by \$899,766 due to funding constraints and has made the requisite adjustments to the 2012 budget to reflect amended work plan timelines. The RWG currently has a budget of \$2,739,207 for 2011 of which all monies have been committed. In other words, the RWG had initiated approximately 100% of planned program spending in 2011. The RWG has also completed its second budget submission for 2012 and is seeking \$3,295,294 in funding to further its workplan. This is consistent with the spending numbers in recent years and is a marked improvement in forward budget planning for the RWG versus the initial numbers given in 2010 for 2011. It is also in line with the overall capacity of the RWG to carry out its program.

### RWG – BIODIVERSITY TASK GROUP (BTG)

Chair: Shanti Berryman (Fort McKay)

The Biodiversity Task Group has completed a synthesis for applying the reference condition approach for monitoring reclamation areas in the Athabasca oil sands region which is being led by Dr. Jan Ciborowski and his team from the University of Windsor and the University of Alberta. However, further work is now being undertaken to complete detailed appendices for the synthesis and a final report is expected in 2012.

The BTG has also reviewed the response of the CEMA Board to the recommendations from the SENES TEK report and has budgeted funding for further work based on the response of the CEMA Board. The BTG is also developing a plain language document of the Phase 3 SENES report and a final report with a detailed methodology and the aforementioned document is expected in early 2012.

# UPDATES ON WORKING GROUPS AND SUB-GROUPS

## RECLAMATION WORKING GROUP (RWG)

### RWG – BIODIVERSITY TASK GROUP (BTG)

Background on SENES TK project:

The Biodiversity Task Group (BTG) sponsored a three-phase/three-year Biodiversity Traditional Knowledge (TK) Study in the Athabasca oil sands region that was undertaken during 2008-2011. The core objective of the study was to develop recommendations and guidance based on traditional knowledge for reclamation planning for biodiversity as part of the workplan of the Reclamation Working Group (RWG). The holistic nature of the scientific concept “biodiversity” required a more open approach to research with aboriginal people than had previously been the standard where projects were more narrowly scoped based on the scientific definition of biodiversity.

In Phase I, aboriginal participants identified an alternative concept of biodiversity that expanded the scientific focus on the environmental and biophysical realm to include social and cultural aspects of the landscape. Phases I and II identified a new methodology referred to as the Two Roads approach which defined a distinct space for aboriginal questions, objectives and ways of knowing. To further develop the concept of the Two Roads approach, the RWG sponsored a regional workshop as a third phase of the study. The regional workshop was used to test and validate the Two Roads concept with the four aboriginal communities who participated in Phases I and II and with members of other aboriginal communities from the region that were not involved in Phases I and II. By the conclusion of the three phases of this study, a high participation level was achieved, with 76 individuals from eight partnering aboriginal organizations participating in at least one phase of the study.

A key message from the aboriginal participants throughout all phases of the Biodiversity TK Study was that project gathering traditional knowledge from aboriginal participants should develop and provide project deliverables that communicate directly to the aboriginal participants of the project (Biodiversity TK Research Team 2010). The study also demonstrated that a cross-cultural Two Roads approach requires documentation of the process and results which is written in two forms: one that is a technical document summarizing methods, results, discussion and theory to fulfill the scientific component and communicate to RWG; and another that is a common language document that is targeted for the aboriginal participants and is based on traditional knowledge summarizing the results and conclusions of the three phases using stories, quotes, photographs, written contributions from community researchers and other formats. For example, the BTG requested that the final deliverable of the Phase III Regional Workshop component be written as a technical report documenting the social science methodologies utilized throughout the three phases of the Biodiversity TK Study to gather traditional knowledge and the theoretical aspects of defining an indigenous research methodology (referred to as the Aboriginal Road in the Two Roads approach).

The BTG and the lead author of the technical report and main facilitator of the three phases identified that a common language document, summarizing the achievements of the three phases for the aboriginal participants of the Biodiversity TK Study is recommended to provide documentation that is culturally appropriate for the aboriginal participants. The BTG concluded that the development of the common language document is the final step in the Biodiversity TK Study. The technical document prepared for Phase III will be amended to include the process used to develop the common language document using the Two Roads approach. The amended Phase III report will provide a comprehensive methodology for the Two Roads, setting an established and tested framework for future traditional knowledge projects.

A key component of the scope of work for the common language document is to define a verification process for this document that enables participants of the study to verify the draft common language document and traditional knowledge concepts presented within. Participants will be requested to verify: (1) their personal quotes included in the draft common language document, and (2) the presentation of the traditional knowledge concepts and stories in the draft common language document. As the methodology for the Two Roads approach has developed throughout the Biodiversity TK Study, the BTG has identified that the verification process of traditional knowledge by the participants needs to be assessed and defined with considerations to emerging verification approaches in the social sciences literature.

The purpose of this amendment is for the development of the common language document, described above, to summarize the results of the three phases of the Biodiversity TK Study for distribution to the 76 aboriginal participants of the project. The goals of developing this document are as follows:

1. to address the recommendation from the Phase II report to provide the results of the study back to the aboriginal participants;
2. to write a common language document summarizing the three phases of the Biodiversity TK Study for the aboriginal participants in a format that directly communicates to the participants; and
3. to define the methodology for developing a common language document to finalize the Two Roads Approach as a framework for implementing future TK studies. The technical report prepared for Phase III will be amended to include the methodology for developing the common language document.

# UPDATES ON WORKING GROUPS AND SUB-GROUPS

## RECLAMATION WORKING GROUP (RWG)

### RWG – CLOSURE COORDINATION TASK GROUP (CCTG)

Co-Chairs: Audrey Lanoue (Syncrude) & Brett Purdy (AENV)

Due to the significant commitments on the part of long range planning, reclamation and closure specialists, it was difficult to find the necessary resources and time to fulfill the requirements to address issues being proposed at the CCTG table and to meet regulatory deadlines for completion of reclamation and closure plans in December 2011. In addition, the 'new' reclamation and closure plans are being created to meet the 'new' regulatory requirements irrespective of any 'process' that may be reviewed and proposed by CCTG. Thus, as a result, the RWG suspended formal CCTG meetings for the remainder of 2011 and will reconsider the CCTG workplan in 2012.

### RWG – RECLAMATION CLASSIFICATION SYSTEM TASK GROUP (RCSTG)

Chair: Rob Vassov (Syncrude)

The RCSTG recently reviewed the preliminary report of Summit Environmental Consultants. The objectives of the Summit project is to conduct a global literature review of land classification systems used for disturbed land (terrestrial to and including wetlands); compile a database of citations, abstracts, attributes of the classification system; to summarize and synthesize the literature review into categories; and to provide recommendations regarding the reviewed classification systems and how they may be informative to building the reclamation classification system. The RCSTG has also initiated a project with Apex Resource Management Solutions to discuss state and transition models and their potential role in the development of a reclamation classification system.

#### Background on Apex Project

The Reclamation Classification System Task Group (RCSTG) has a mandate to develop a reclamation classification system (RCS) for as built landforms and conceptual planning based primarily on substrate (soil and below) conditions and landform morphology to delineate homogeneous reclamation units that will correspond to ecological (primarily vegetation) response. Two of the objectives of this mandate are to:

1. Identify the components of a classification system needed to develop a conceptual model.
2. Define requirements and class units of each component of conceptual model.

State and transition (ST) models have been identified as a tool to assist in developing the reclamation classification system and the conceptual model. ST models are box-and-arrow diagrams in which boxes represent observed or theoretical ecosystem states and arrows represent observed or theoretical transitions among these states. ST models can be used to map system behaviour in the absence of an adequate predictive model. An ST model framework can be described at multiple scales and lead to the development of testable hypotheses in which transition probabilities can be theorized and/or empirically generated (Jackson 2002).

Several questions have been identified during the development of the reclamation classification system, including:

1. How should the reclamation landscape be stratified?
2. What is the link between hydrology and edaphic conditions across the landscape?
3. How can the RCS represent as built reclamation landforms and inform conceptual planning?

ST models could be used to:

1. Map existing reclamation landscapes to identify current states.
2. Map conceptual closure landscapes from closure plans to identify future states.
3. Review and incorporate existing data to define transitions for current states and future states.

### RWG – WILDLIFE TASK GROUP (WTG)

Co-Chairs: Lorne Gould (Fort McKay) & Josh Martin (Suncor)

The WTG is in the process of completing its synthesis of habitat models used in the oil sands region in a contract being led by LGL and has recently reviewed the draft report. The objectives of the project are as follows:

1. To review and summarize habitat models used in oil sands region EIA submissions and regional wildlife habitat mapping.
2. To review and summarize how habitat model data and habitat models are used to develop oil sands closure plans.
3. To summarize the validation method and status of existing validated models.
4. To recommend a list of models to be validated, provide recommendations for selecting candidate models and describe potential validation procedures of non-validated models.

# UPDATES ON WORKING GROUPS AND SUB-GROUPS

## RECLAMATION WORKING GROUP (RWG)

### RWG – WILDLIFE TASK GROUP (WTG)

The Wildlife Task Group (WTG) has also completed the first year of a three-year pilot project to test the protocols defined to assess the return of early successional wildlife species to reclaimed lands (CEMA contract 2009-0051 defined the protocols, CEMA contract 2010-0023 conducted one year of monitoring from August 2010 to June 2011). The monitoring program design was developed based on the long-term plot network managed by the Terrestrial Sub-Group (TSG). The monitoring program design outlines monitoring protocols to conduct small mammal trapping surveys, winter tracking and browsing surveys, and bird point count surveys. A spatial analysis using the GPS coordinates of the plot locations in the plot network was conducted and the monitoring program design illustrates the location of small mammal trapping and point count stations and transects to conduct the surveys on reclaimed plots in the plot network. Because the natural plots in the plot network are located in mature stands, no monitoring for early successional species is recommended at this time on these natural plots and establishment of plots in juvenile natural stands is recommended. The juvenile stands have not yet been identified and will not be included in year two or three of the pilot project.

The overall objectives of the Early Successional Wildlife Monitoring Program on Reclaimed Plots in the Oil Sands Region are:

1. To assess the return and re-establishment of early successional wildlife species on reclaimed terrestrial systems.
2. To evaluate the feasibility of the recommended protocols for monitoring on reclaimed terrestrial systems.
3. To develop recommendations for the wildlife appendix of the AENV 2010 report for early successional wildlife monitoring based on the monitoring program results.
4. To collect monitoring data to assist in the development of wildlife indicators for the Criteria and Indicators Framework.

## TERRESTRIAL SUB-GROUP (TSG)

### RWG – TERRESTRIAL SUB-GROUP (TSG)

Chair: Lelaynia Cox (Suncor Energy) & Brett Purdy (AENV)

At the June 23rd meeting of the Terrestrial Sub-Group long time RWG member Brett Purdy, representing Alberta Environment, was elected as the Co-Chair of the Terrestrial Sub-Group where he has joined the recently elected Lelaynia Cox from Suncor. A big thank-you to both of them for volunteering to take on Co-Chair responsibilities.

The TSG is currently working with Stantec to develop a field protocol for assessing characteristic species thresholds in polygons on reclamation areas the objectives of which are as follows:

1. Develop field protocol for assessing characteristic species thresholds in polygons on reclamation areas.
2. Collect data on reclamation areas to understand species composition and distribution in time and space by site type, and to test application of Table 5.3 to reclaimed vegetation communities.
3. Assess and provide comment on utility of characteristic species thresholds as an indicator of reclamation success.

The TSG has also initiated a contract with LGL after a competition for the evaluation and review of the Revegetation Manual Table 5.3 Characteristic Species Thresholds. The objectives of this project are as follows:

1. Review availability of fire origin natural juvenile stand data and identify potential survey locations within the boundaries described in the Assumptions below.
2. Collect data using protocols consistent with current baseline data (i.e., 100 m<sup>2</sup> plots) on fire origin natural juvenile stands to support evaluation of characteristic species thresholds in Table 5.3.
3. Recommend approaches to derivation of thresholds for Table 5.3 from data collected in Objective 2 and as combined with existing baseline data, considering ecosystem reclamation goals discussed in the Background and as refined by discussions with TSG.
4. Present variations of Table 5.3 based on recommended approaches in Objective 3.
5. Provide feedback on the suitability of using natural stand disturbance dynamics to develop reclamation targets for the mineable oil sands.



# UPDATES ON WORKING GROUPS AND SUB-GROUPS

## TERRESTRIAL SUB-GROUP (TSG)

TSG – FOREST PRODUCTIVITY TASK GROUP (FPTG)

Chair: Rob Vassov (Syncrude)

The FPTG is working with Associated Strategic Consulting Experts Inc. (ASCE) on a project to estimate early stand mortality. The objectives of the project are as follows:

1. Review historical reclamation practices and monitoring and research conducted on reclaimed landscapes.
2. Define early stand mortality on reclaimed landscapes.
3. Identify the challenges to quantifying early stand mortality on reclaimed landscapes.
4. Develop a sampling program design to assess early stand mortality.

The FPTG is in the process of completing its synthesis for Growth and Yield Model Development the objectives of which are as follows:

1. review the growth and yield program strategic recommendations technical document;
2. develop a questionnaire for the purposes of soliciting growth and yield modelling expertise;
3. distribute the questionnaire to experts; and
4. summarize the answers in tabular format to present to FPTG.

The FPTG also has a field tour and workshop planned for September 27th and 28th. This tour will include members of the FPTG and invited growth and yield modelling experts from North America and Germany. This field tour and workshop will include discussion on Oil Sands Region Modelling Needs; will discuss questions around whether existing models support the needs of the OR, what type of modelling approach should be developed, and how can this be achieved. The workshop will also focus on the technical requirements to develop modelling approach and identify next steps.

TSG – PLOT NETWORK TASK GROUP (PNTG)

Chair: Rob Vassov (Syncrude)

The PNTG is engaged in an assessment of the RWGs Long-term Plot Network (LTPN). The PNTG is currently working with LGL to conduct this assessment working closely with the task group. The purpose of this project is as follows:

1. Evaluate the current status of the LTPN;
2. Evaluate the newly defined goals and objectives of the LTPN; and
3. Identify modifications and provide recommendations for addressing the modifications to the existing LTPN.

The PNTG is planning to reinstate the long term plot monitoring network in 2012 after a thorough review of the LGL report.

### Background on LGL project

The Terrestrial Sub Group (TSG) of the Reclamation Working Group (RWG) of CEMA is tasked with understanding the capability that reclaimed landscapes in the AOSR have to return to forest cover patterns and processes equivalent to pre-disturbance conditions. In 2000, as part of this task, the TSG established a long-term plot network (LTPN). The purpose of the long-term monitoring program is to measure soil, vegetation and forest parameters to provide an assessment of change over time in reclamation and natural sites. The reclaimed sites include a variety of soil and planting prescriptions that have changed over time based on advancements in best management practices. This program includes both natural and reclaimed plots.

# UPDATES ON WORKING GROUPS AND SUB-GROUPS

## TERRESTRIAL SUB-GROUP (TSG)

### TSG – PLOT NETWORK TASK GROUP (PNTG)

Reclaimed plots are added to the network annually. From 2000 through to 2004, plots were located using a subjective stratification based on access, reclamation prescription and revegetation treatment. Beginning in 2005, new plots were added by overlaying a 1 km by 1 km grid on newly reclaimed areas. In 2008, the grid was intensified to a 500 m by 500 m nested grid to ensure that sufficient number of plots as well as soil prescriptions could be monitored over time. Reclaimed plots are re-measured every five years to measure changes in these newly established systems. Natural plots, which are located in mature stands, are measured every ten years since change in soils, vegetation and forestry parameters are expected to be relatively stable in these systems at maturity. The TSG has developed a database for the LTPN that stores data as well as informs on site re-measurements.

As of September 2009, 116 plots (50 natural and 66 reclaimed) have been established. Five plots have been destroyed, two reclaimed (9 and 74) and three natural (22, 57 and 64), either by road or pipeline construction or mining development. One natural plot (65) established in 2002 was burned by a forest fire and monitoring of this plot was completed again in 2004. Re-measuring of previously established reclaimed plots commenced in 2005. As of September 2010, 50 reclaimed plots originally established in 2000 to 2005 were re-sampled on the five-year re measurement schedule and five natural plots originally established in 2000 were re-sampled on the 10-year re measurement schedule.

## AQUATICS SUB- GROUP (ASG)

### RWG – AQUATICS SUB-GROUP

Co-Chairs: Roderick Hazewinkel (AENV) & Rachel Noble-Pattinson (Imperial)

The ASG is continuing to scope its workplan for the revision of the Guideline on Wetland Establishment on Reclaimed Oil Sands Leases (Wetlands Manual). As part of this work the ASG is retaining Westhawk Associates to conduct a user need assessment of the Wetlands Manual as a follow-up to the technical review of the 2007 wetlands manual undertaken by CH2MHill.

The ASG is also in the process of completing the development of a regional monitoring program to assess the effects of oil sands development on wetland communities. The main objective of this project, being led by Dr. Jan Ciborowski and a team from the University of Windsor and the University of Alberta, is to develop a regional wetland monitoring program that can address, at a minimum, the EPEA approval clauses but can be flexible enough to address other outcomes related to oil sands development (e.g., support the assessment of reclamation success). The intent of the program is that it would be based on defined regional objectives and outcomes and it would be delivered in a collaborative manner (e.g., oil sands companies, GoA, possibly researchers).

A draft report has been received by the ASG and it is expected to be finalized by the beginning of October 2011.

### ASG – END PIT LAKE MODELLING TASK GROUP (EPLMTG)

Chair: Andrews Takyi (Total)

Golder Associates is in the process of completing its work on Oil Sand End Pit Lake Physical/Biogeochemical Model Development. The EPLMTG has reviewed the model and it is currently being subjected to a peer review and Golder will make the required changes once the peer review is complete. This work is expected to be completed by the end of 2011.

# UPDATES ON WORKING GROUPS AND SUB-GROUPS

## AQUATICS SUB-GROUP (TSG)

### ASG – END PIT LAKE GUIDE TASK GROUP (EPLGTG)

Chair: Roderick Hazewinkel (AENV)

The EPLGTG is on schedule and on budget in the development of the Oil Sands End Pit Lake Guidance Document. The EPLGTG held a workshop on September 15th with the authors of the various chapters and task group members. The workshop included an overview of the 'Design and Construction Chapter', a general discussion on overall approach, a discussion on EPL Objectives and the input of authors and of Chapters 3, 4, 5, 6 and task group members on the 'Design and Construction' chapters.

Participants included the following experts: Dr. Angela Kupper (AMEC); Dr. Gord McKenna (BGC); Dr. Clint McCullough (Edith Cowan University, Australia); Mr. Jerry Vandenberg (Golder); Mr. Aaron Sellick (Norwest); Dr. Devin Castendyk (State University of New York, USA); and Dr. George Dixon (University of Waterloo).

The EPLGTG anticipates a document that is updated in content, clear in style, and tailored in format to practitioners' needs of focusing on design guidance. Goals for the EPLTGD are to provide regional design guidance to reclamation engineers and communicate to stakeholder issues and processes associated with the design of EPLs. Ultimately, another goal will be to seek acceptance by the GOA as a regional reclamation guidance document.

### ASG – TECHNOLOGY TRANSFER TASK GROUP (TTTG)

Chairs: Carla Wytrykush (Syncrude)

Technology transfer, in general, is the process by which theoretical research and knowledge is developed into practical applications. The main goal of the wetlands Technology Transfer is to translate knowledge and research on wetland processes and function into practical application for reclamation in the oil sands region. Later on, the ASG will incorporate this Technology Transfer into the Third Edition of the Wetlands Guide.

The draft technology transfer document was recently completed by Marsha Trites and a workshop is planned for later this fall with invited experts to validate the findings outlined in the document.



From left to right:  
Kyle Harrietha (CEMA Program Administrator), Dr. Devin Castendyk (State University of New York, USA), Rod Hazewinkel (AENV, ASG Co-Chair), Carol Jones (Fort McKay Sustainability Group), Theo Charette (CEMA Technical Program Manager), Ainslie Campbell (Shell Albian Sands), Tara Rogers (ERCB), & Paul Aguas (ERCB).

# UPDATES ON WORKING GROUPS AND SUB-GROUPS

## GROUND WATER WORKING GROUP

Groundwater Working Group (GWWG)

Co-Chairs: Dustin Shauer (AENV), Doug Geller (Fort McKay First Nation), Victoria David (Cenovus)

Program Administrator: Melanie Dubois

In May of this year a letter was sent out to all CEMA members inviting them to participate on the GWWG. The original five members from the following agencies: Alberta Environment (AENV), Fort McKay First Nation, Ducks Unlimited, and Imperial Oil were selected by the CEMA Board in January to draft the terms of reference (ToR). GWWG has since expanded and now has members from the following organizations: Cenovus, Devon, JACOS, Total, Shell, Alberta Fish and Game Association, Statoil, and Husky. The “new” GWWG officially met on June 10th in Edmonton to draft a five year work plan, a 2011 work plan and the first draft of the 2012 budget request. Once consensus was reached on some early project priorities, GWWG decided to start drafting Request for Proposals (RFPs) and post them as soon as possible. Currently, GWWG is in the process of contract initiations for the following 2011 projects:

- Recommendations for Implementation of Various Panel Findings and LARP Groundwater Management Frame work
- Development of Complementary Information for Water Well Testing Guidelines
- Plain Language Description of Groundwater as it relates to Mining and In-Situ Operations
- Development of a Guideline for Groundwater Monitoring Practices
- Overview of Groundwater Initiatives and Groups
- Surface Water – Groundwater Interaction Scoping Initiative

On June 22nd, 2011 CEMA hosted a Groundwater Information Workshop at the Merit Hotel in Fort McMurray. The workshop was facilitated by Jon Fennell, the principal hydrogeologist at WorleyParsons. The purpose of the workshop was to give CEMA members an over view on the basics of ground water in the Regional Municipality of Wood Buffalo. His presentation covered flow characteristics, water quality, groundwater - surface water interactions, particulars about the oil sands with respect to flow conditions, ground water ages, and water level fluctuations based on work conducted over the last few years. Dustin Shauer, the GWWG co-chair, also gave a short presentation on the working group’s ToR and the draft 2011/2012 work plan.

The GWWG met on September 15th in Edmonton to select successful candidates for some of the RFPs, update the five year work plan and the 2012 budget request.

If you are a CEMA member and are interested in participating on the GWWG please contact the GWWG Program Administrator, Melanie Dubois, by phone (780) 799-3970 or by email [melanie.dubois@cemaonline.ca](mailto:melanie.dubois@cemaonline.ca) .

# UPDATES ON WORKING GROUPS AND SUB-GROUPS

## SURFACE WATER WORKING GROUP

Surface Water Working Group (SWWG)

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

Program Administrator: Melanie Dubois

Monitoring Technical Task Group (MTTG)

Chair: Rick Courtney (Shell)

The Adaptive Management Monitoring Recommendations for the Phase 2 Water Management Framework report was submitted to the Board for review in June. The Board approved the report with some revisions. MTTG is currently clarifying the direction provided by the Board and will make the changes when that is complete. The monitoring recommendation in the report encompasses a variety of items and they are broken down into status and trend monitoring (long term) and knowledge gaps (short term). The list of topics was based on issues identified in the Phase 2 structured decision making process as requiring further work and additional topics of concern. SWWG approved the following five knowledge gap studies to be undertaken with the 2011 budget: Validation of the Walleye Evaluation Criteria, Riparian Areas in the Delta, Beaver & Muskrat Habitat in the Delta, Access to Tributaries, and Navigation on the Athabasca River. Updates on the approved projects for 2011 are as follows:

- The Validation of the Walleye Evaluation Criteria contract was awarded to Bill Franzin of Laughing Water Arts & Science in late April. This project started in June and successfully finished in September; a final deliverable has been provided to CEMA and the contract is now closed.
- The Riparian Areas in the Delta and Beaver & Muskrat Habitat in the Delta contract was awarded to Golder Associates Ltd. Due to forest fires in the region, project initiation was later than anticipated. Golder was able to conduct the initial portion of the field survey in mid July and will return in the fall to complete the final portion of the field survey. The project is on target.
- The Access to Athabasca River Tributaries study was sole sourced to Martin Davies of Hatfield Consultants. MTTG decided to defer the project until 2012 because the bed of the river was affected by high spring flows making summer sampling an inaccurate representation of winter riverbed channel shape. The study was deferred to 2012 when winter sampling and the imagery can be taken in the same season. The project will still benefit from the synergy between the CEMA study requirements and a larger study Hatfield is conducting that ends in 2012.
- The Navigation on the Athabasca River contract was sole sourced to David Andres of Northwest Hydraulics; still in the contract negotiation phase.

The following projects have been recommended by the MTTG and accepted by SWWG to be undertaken in 2012: Winter Ecology in the Delta – Mesohabitat, Winter Ecology in the Delta – Hydrology & Hydraulics in Segment 1, Winter Ecology in the Delta – Dissolved Oxygen in Segment 1, Perched Basins in the Delta, Connectivity of Richardson Lake, and Access to Tributaries. If other agencies are willing to complete all or part of this work, then MTTG would defer to those agencies.

# UPDATES ON WORKING GROUPS AND SUB-GROUPS

## AIR WORKING GROUP

In late 2010 the NOxSO2 Management Working Group (NSMWG) and the Trace Metals and Air Contaminants Working Group (TMAC) were merged into the Air Working Group (AWG). The AWG's mandate is to develop recommendations for regional air quality and air-related deposition management. The focus is air quality and deposition issues related to emissions associated with regional development that have the potential to significantly contribute to cumulative effects on air quality, health, and/or regional ecosystems, including vegetation and wildlife.

The AWG's work plan includes any ongoing work from NSMWG and TMAC, as well as new projects consistent with the broader mandate that includes issues which had not been within the scope of the previous two air-related working groups. The AWG is made up of several task groups which focus on the different ongoing AWG projects.

## EMISSIONS INVENTORY TASK GROUP

Implementation of the frameworks and plans that had been developed by NSMWG and TMAC rely to varying degrees on air quality and deposition modeling to assess environmental exposure to airborne and deposited substances emitted from oil sands industry and other sources in and around the Regional Municipality of Wood Buffalo (RMWB). This requires representative regional emissions inventory profiles over time from pre-industrial to a future date specific to the frameworks/plans.

The EITG was formed to initiate projects to identify inventory needs for the frameworks/plans, develop protocol for development of an air emissions database to meet these needs, and document model protocols for use with the frameworks/plans. In early 2011 they completed the initial phases of this work. The remaining phases are scheduled for late 2011 and early 2012 and include development of an air emissions database based on the protocol developed in 2011.

## OZONE TASK GROUP

The activities of this group are directed by the Ozone Management Framework (OMF), and current projects include a review of the OMF to determine whether or not the vegetation protection metrics used in the framework are still appropriate, or require revision. The metric review was recently initiated and is expected to be complete by the end of 2011. The results of this study may necessitate revision of the OMF.



JP104 Study Site



David Spink, John Dennis and Justin Straker

# UPDATES ON WORKING GROUPS AND SUB-GROUPS

## AIR WORKING GROUP

### NITROGEN EUTROPHICATION TASK GROUP

The work of this task group is based on the recommendations put forward in the Proposed Interim Nitrogen (Eutrophication) Management Recommendations and Work Plan for the Regional Municipality of Wood Buffalo Area (CEMA, 2008). The task group is currently involved in a five year project engaging Canadian and American experts to determine nitrogen critical loads in the RMWB. A detailed work plan was developed and study sites selected in 2010, and in mid-2011 the controlled nitrogen addition began. Nitrogen additions have been completed for this year and will resume in the early spring.

AWG members were invited to observe the nitrogen application events, and several people were able to see the study sites, the nitrogen application methods, and the vegetation sampling techniques being used. Nitrogen applications and sampling will occur several times per year until 2015, and a final report is expected in mid-2016. The results of this work will help determine whether or not a nitrogen eutrophication management framework is needed for the RMWB.

### ACID TASK GROUP

The ATG is involved in the staged implementation of the Acid Deposition Management Framework (ADMF). The Stage 3, and final, implementation has been ongoing since 2009 and involves the application of a time-to-effect model for soil and surface water acidification that will be used to determine the status of the region in terms of the soils and surface water criteria in the framework. This work is tied to that of the EITG, and will be complete in 2012.

### ODOUR TASK GROUP

The AWG and its predecessors, NSMWG and TMAC, have struggled with identifying an effective approach to address odour issues. Many people within the working group have different levels of understanding with respect to odour, and a workshop has been planned with the focus of increasing awareness of odour issues and perceptions of odour. This workshop will include guest speakers who can provide information on odour management in other jurisdictions.

This workshop represents an initial step in addressing odour concerns and will provide a basis for the AWG's 2012 odour related work.

### HEALTH TASK GROUP

The AWG has recently formed a Health Task Group to explore possible roles the working group may have in addressing the human, animal, and vegetative health concerns of stakeholders. They are currently working on identifying issues which are not already being addressed through existing initiatives and would benefit from the engagement of a multi-stakeholder organization.



Justin Straker



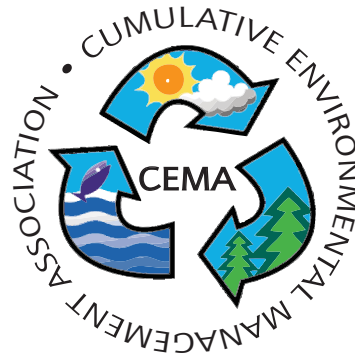
Helicopter used for nitrogen application at JP 104

## Upcoming Meetings

Board Members Meeting  
December 1st  
Fort McMurray

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SEWG  
December 7-8  
Fort McMurray



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