

**Terms of Reference**  
**Peace River Area Monitoring Program**  
**(PRAMP)**

**Approved 28 May 2015**

**INTRODUCTION:**

These Terms of Reference for the Peace River Area Monitoring Program (PRAMP) have been developed and will be implemented to satisfy the monitoring and modelling recommendations contained in [Decision 2014 ABAER 005: Report of Recommendations on Odours and Emissions in the Peace River Area \(March 31, 2014\)](#). The Peace River Area is defined in paragraph [5] of the Decision as the Three Creeks, Reno, Seal Lake and Walrus areas, as depicted in Figure 1. In paragraph [11] the Panel decided that the nature and sources of odours and emissions associated with heavy oil operations, including the transportation of energy resources from these operations, and the monitoring of those emissions in the area were within the scope of the Proceeding. In paragraph [171] the Panel states that a robust monitoring program is critical to ensure that emission-related problems are identified, corrective measures are taken, and compliance with the requirements, including the recommendations in this report, are achieved.

The Panel's recommendations may also apply to areas outside of the defined Peace River Area where development of heavy oil and bitumen occurs within the Peace River Oil Sands Area 1 and 2 (paragraph [32]), also shown in Figure 1. The boundaries of the monitoring program may be expanded by the AER to areas where people might be exposed to odours and emissions, based upon results of the geology recommendation.

The Peace River Area Monitoring Program will be overseen by a Committee with these Terms of Reference that were developed with the Three Creeks Multi Stakeholder Air Monitoring Sub-Committee (Sub-Committee), based on their current program. The Mission, Goals, Objectives and Strategies in *“italic font”* are from the Decision paragraphs [176]-[178] and are followed by the interpretation of the Committee. The Vision, Scope of Monitoring, Committee, Membership List and Operations are also discussed. These Terms of Reference are for the formation of the program and may be changed by the Committee in subsequent years.

The terms odours and emissions require definition for these Terms of Reference. Odours are detected in the ambient air by the people in the area. Emissions at a source are defined by the concentration and flow rate of each compound released. Upon release from the source the emissions disperse downwind and may be measured as a concentration in the ambient air by a monitoring device. When the word emissions is used it will be clarified as to whether source or ambient measurements apply.

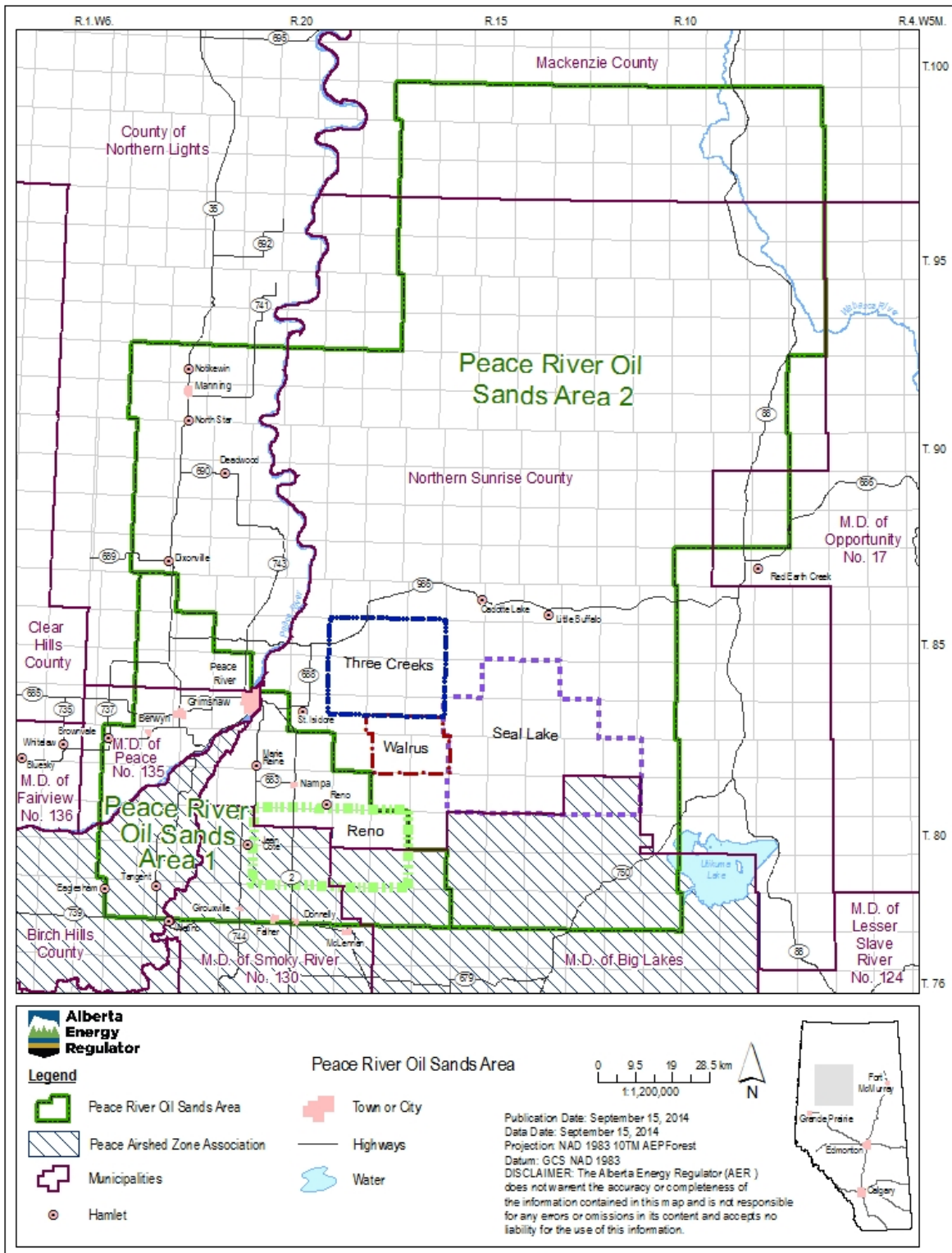


Figure 1 Peace River Oil Sands Area

**VISION:**

The Peace River Area heavy oil and bitumen operations' emissions will not cause odours that affect human health.

**MISSION:**

*"The Peace River Area will have an air quality monitoring program that provides credible and comprehensive data to permit the identification and appropriate response to odour and emission related issues."*

PRAMP accepts the Panel's mission statement. PRAMP will monitor emissions in the ambient air and estimate source emissions from heavy oil and bitumen production operations in the Peace River Area. The data will be evaluated to manage source emissions to minimize odours.

**SCOPE OF MONITORING**

Currently, the Peace River Area Monitoring Program for odours and emissions consists of: continuous monitoring to determine the concentrations of hydrocarbons and sulphur gases present in ambient air; intermittent canister sampling to determine concentrations of volatile organic compounds; and supporting meteorology measurements. Concentrations of hydrocarbons are reported as total hydrocarbons (THC) and non-methane hydrocarbons (NMHC), both as parts per million of methane. Sulphur gases are reported as total reduced sulphur (TRS) compounds as parts per billion of hydrogen sulphide (H<sub>2</sub>S) and sulphur dioxide (SO<sub>2</sub>) as parts per billion of SO<sub>2</sub>. The ambient air is sampled intermittently when continuously monitored hydrocarbon concentrations exceed a set point that triggers an air sample to be collected in a canister. The intermittent canister samples are analyzed for volatile organic compounds and reported as parts per billion. Meteorological measurements include wind speed/direction and ambient pressure and temperature. At the kick-off of PRAMP there will be two monitoring stations in Three Creeks area and one in the Reno area.

The Peace River Area Monitoring Program is not intended to be an airshed monitoring program as it focuses on only odours and emissions from heavy oil and bitumen operations in the Peace River Area. Other criteria air contaminants are not monitored for as the Panel did not identify them as a source of odours. For the same reason, other industrial emitters in the area such as the pulp mill and agricultural operations are not participating. The scope of monitoring may change, as determined by the Committee.

## GOALS:

*“The air quality monitoring program would”*

1. *“Assist in verifying that air quality is improving and odours are being minimized as a result of operational and regulatory improvements.”*

Continuous ambient monitoring results for total hydrocarbon, non-methane hydrocarbon and sulphur compounds will be analyzed to determine trends over time. Odour complaints will be correlated to monitoring results to verify that operational and regulatory improvements are effective.

2. *“Operate transparently and give residents and stakeholders timely access to data and information in a manner that is readily understood.”*

PRAMP’s operation will be transparent to the members and the public. A communication plan will be developed to provide real-time access to monitoring data on a website. Regular, readily understood summaries of monitoring results from Goal #1, 3 and 4 will also be provided.

3. *“Demonstrate that oil and gas operators have effective control mechanisms.”*

The ambient monitoring results and odour complaints will be analyzed to determine if source control mechanisms for emissions result in improved air quality (see Goal #1 above). Results of AER odour inspection sweeps of facilities will be reported.

4. *“Verify that air quality is at acceptable levels and that emissions residents are exposed to are below toxic thresholds.”*

Canister sampling for volatile organic compounds and reduced sulphur compound concentrations will be compared to health exposure thresholds defined by Alberta Health. Alberta Health will not develop new health exposure thresholds. Alberta Health will review relevant health thresholds available from other jurisdictions, and recommend suitable health thresholds. PRAMP will compare measured compound concentrations to the recommended exposure thresholds to provide an indicator of what compounds are a potential health concern. Odour thresholds from the Proceeding and the Stantec report will also be compared to measurements.

Based on the outcome of Goals 1, 3 and 4, PRAMP may modify the continuous monitoring and the canister sampling/analysis program, recommend additional studies for specific compounds, and/or recommend further emission source controls.

## OBJECTIVES:

*“To accomplish these goals, the monitoring program would”*

1. *“Characterize emissions and odours associated with heavy oil operations.”*

Odours and emissions (both source and ambient) for the Reno area were characterized in submissions the Panel considered at the Proceeding. The Three Creeks Multi Stakeholder Air Monitoring Sub-Committee conducted emission studies in 2014. Emission factors from these studies will be used to track month to month source emissions based on the publicly available monthly flaring, venting, and production rates. Canister monitoring of volatile organic compounds at the source and in the ambient air will be compared.

2. *“Identify and measure dominant sources of emissions in the area.”*

Source emission contributions due to truck loading/unloading and fugitive emissions will be estimated based on the studies mentioned in objective #1 to identify the dominant sources. Ambient monitoring will also be used by PRAMP to identify remaining sources of emissions in the area by using pollutant roses that show the wind direction sector the emissions originated from.

3. *“Determine representative odour units for various sources.”*

Odour units are a measure of how many times a source or ambient sample must be diluted before it is not detected by a panel of trained analysts. Source odour units for casing and tank top gas and ambient odour unit dispersion modelling predictions were provided in the Reno area emissions studies considered during the Proceeding. Venting of tank top gas was shown to be a dominant source of odours, thus venting was eliminated. Further monitoring for odour units will be dependent on Alberta Environment and Sustainable Resource Development requirements based on the Clean Air Strategic Alliance Odour Management Team recommendations.

4. *“Give timely, real-time data on ambient emission and odours in the area.”*

A communication plan will be developed to provide real-time access to monitoring data and regular summaries of monitoring results in understandable terms.

## STRATEGIES:

*“The Panel recommends that the AER engage industry, residents, and stakeholders to establish a scientific and technically credible regional air quality monitoring program for the Peace River area that, to the extent possible,”*

- a) *“builds on the efforts of the existing continuous air monitoring program”* PRAMP builds on the effort of the existing Three Creeks Multi-stakeholder Air Monitoring Sub-Committee’s continuous air monitoring program.
- b) *“includes the Reno area”* Baytex has installed a continuous air monitoring station in the Reno area, with the same capabilities as the two stations installed in the Three Creeks area.
- c) *“considers the studies and monitoring surveys conducted to date by ESRD, industry, Stantec, RWDI, Clearstone, Chemistry Matters, Odotech, and Dr. Zelt”* The Stantec report by the Sub-Committee summarized all of the monitoring done in the Three Creeks area up till 2013 and provides recommendations that the Committee will address. The Clearstone reports by the Sub-Committee provide an emission inventory for the Three Creeks area and field measurements of truck loading and tank cleaning emissions. Committee members will use the studies as necessary.
- d) *“provides greater geographic and spatial coverage by monitoring in areas of anticipated highest concentrations and where people might be exposed to odours and emissions”* Dispersion modelling by RWDI and Dr. Zelt studies mentioned in item c) indicated that the greatest impact will be on the residents nearest to the sources. As indicated in the Introduction, AER may direct PRAMP to expand the area to monitor in areas where people might be exposed to emissions and odour.
- e) *“is operated collaboratively by industry, residents, the AER, and other government agencies (using a Clean Air Strategic Alliance [CASA] type model)”* The governance of PRAMP described in these Terms of Reference are based on the CASA model. Note that as with other air sheds, it is a condition of the AER approval that operators participate in the regional monitoring program.
- f) *“provides transparent and real-time data to residents and stakeholders”* A communication plan will be developed to meet this requirement. Data will be routinely analyzed and interpreted for sharing with the public.
- g) *“assesses innovative monitoring technologies to better understand odours and emissions sources, and use the technology where appropriate”* The initial year of operation will focus on improved communication and data management. Innovative monitoring technologies will be identified and assessed in subsequent years.

The Committee may also work with other ambient monitoring focussed organizations such as the Peace Airshed Zone Association to minimize duplication of effort in developing the communication and data management plans.

## **COMMITTEE**

The Peace River Area Monitoring Program will be overseen by a Committee comprised of representatives of three member groups: industry, government and community. Members of the committee:

- Represent their organization's interests
- Participate actively by:
  - Making constructive contribution and helping others to do so
  - Providing input on goals, objectives, and solutions
  - Making a measurable contribution on behalf of their organization

**INDUSTRY MEMBERS:** Any corporation with developments that produce heavy oil and bitumen in the Peace River Area (see Figure 1) will become a member voluntarily, or as directed by an Alberta Energy Regulator approval condition. Service companies for these developments may become a member if deemed appropriate by the committee (by vote).

**GOVERNMENT MEMBERS:** Provincial Government, government department, or government agency having an economic stake, interest in, or responsibility for human health and/or ambient air emissions, or representing an interest likely to be affected or responsible for odour initiatives in the Peace River Area may become a member if acceptable to the committee (by vote).

**COMMUNITY MEMBERS:** Any person with an interest in odour and emissions or non-governmental organization who has as its primary objective the relationship between human health and ambient air emissions, or represents municipal districts, First Nations or Metis interests likely to be affected by odour initiatives in the Peace River Area may become a member if acceptable to the committee (by vote).

## **Numbers**

The Committee will have not less than ten (10) and not more than twenty (20) members. Each of the industry, government and community member groups should have approximately the same number of members but constitute no less than twenty-five (25%) percent and no more than forty-nine percent (49%) of the committee. Appendix 1 contains a list of members.

## **Terms**

Terms of service will be one year duration. There is no limit on the number of terms a committee member may serve. Each committee member may have one Alternate. The Alternate can only vote (excludes consensus decisions) in meetings if the member for whom he or she is alternate for is absent. Alternates are welcome and encouraged to participate in meetings where their member is also present.

If a member of the committee resigns they are expected to assist in finding a replacement (may be their alternate).

### **Meetings**

In the first year meetings will be held monthly or as often as may be required, and shall be called by the committee Co-Chairs. Meetings of the committee will be in Peace River or Calgary, or any place approved by the committee Co-Chairs within Alberta. Provisions should be made so that members and/or alternates can participate in a meeting by telephone or other means of communication if unable to attend the meeting physically.

### **Co-Chairs**

There will be three Co-Chairs, one representing each sector, as appointed by their sector. The Co-Chairs will be a committee member. Co-Chairs will alternately preside at all meetings of the committee and meet in between meetings to set the agenda for upcoming meetings. Co-Chairs will act as spokespersons for the committee.

### **Treasurer**

The treasurer will be a committee member from the industry group that reports performance against budget for costs associated with the operation of the Peace River Area Monitoring Program and whose company will manage the payment of costs. The treasurer will recover a share of the costs from industry members according to the terms agreed to by the industry members.

Contributions in kind by committee members' participation will be tracked, documented and reported.

The costs may include:

- costs associated with ambient air monitoring and associated studies;
- facilitation and engagement support; and,
- other costs as agreed to by the committee.

At this time there is no compensation for expenses related to Committee meetings. The Committee may decide otherwise.

### **Secretary - Facilitation Support**

PRAMP will receive facilitation and engagement support from a consultant that will advocate for effective and inclusive processes, and will not advocate for any outcome or decision for the technical matters being discussed. The facilitation and engagement support will include:

- Working with Co-Chairs to prepare a draft agenda for each meeting;
- Preparing meeting notes and circulating to members;
- Posting of meeting notes and other items, as directed by the Committee, to the PRAMP web site;
- Tracking action items;



- Summarizing the results of discussions during meetings, and noting areas of agreement and disagreement;
- Keeping terms of reference up to date;
- Contributing process ideas and options for the committee to consider, and remaining neutral on decisions taken by the committee; and,
- Engaging in dialogue with committee members outside of meetings, as appropriate, to share information, build understanding of various perspectives and advance the process.

### **Quorum**

The quorum for the transaction of business at any meeting of the committee shall consist of more than fifty percent (50%) of the committee members entitled to vote at a meeting of the committee provided that at least one representative from each member group is present. Meetings may be held without having a quorum of the committee present; provided, however, any business transacted at such meeting shall be null and void unless ratified at the next committee meeting.

### **Decision-Making**

Decision-making will be by consensus except in respect to matters of policy or administrative matters a majority of not less than two-thirds (2/3rds). Policy matters are changes to terms of reference goals and objectives. Administrative matters can include items such as membership, budgets, etc. In the above matters each member has one vote, and an alternate can vote only if their member is not present.

If a member is blocking a consensus decision it is incumbent on the member to propose an alternate solution. If consensus on a decision cannot be achieved, the Co-Chairs will meet to agree on a path forward to make the decision.

A member of the committee may be removed from the committee by a resolution passed by a majority of seventy-five percent (75%) at a meeting called for such purpose, if in the exercise of the discretion of the committee membership; a member has failed to meet their commitments and obligations to the committee.

## **FUTURE CONSIDERATIONS**

Monitoring results will be reviewed to determine if PRAMP's goals and objectives have been met. The committee will decide annually if monitoring should continue at a location.

The life-span of the committee will be revisited every three years to determine if the vision and mission of the committee have been achieved, are still appropriate and if there is still a need for the committee and the monitoring program.

The Alberta Environmental Monitoring, Evaluation and Reporting Agency (AEMERA) is the provincial organization responsible for measuring, assessing and informing the public on key ambient air, water, land and biodiversity indicators. AEMERA's primary focus in 2015 will be on environmental monitoring, evaluation and reporting in the oil sands. AEMERA will also coordinate current environmental monitoring activities in other areas of the province (such as the Peace River region), and will work to improve scientific oversight and public reporting on those activities. Moving forward, working with partners and stakeholders, AEMERA will develop plans and sustainable funding options for environmental monitoring, evaluation and reporting in other regions of the province to support the regional land use plans, and better meet the policy and decision-making needs in each of those regions.

## **OPERATIONS**

PRAMP will prepare an Operating Plan that details the tasks to collect and analyze the monitoring data. It will include a Network Assessment, a Monitoring Plan (both meeting ESRD requirements), a Data Management Plan, a Communications Plan and a 3 year Strategic Plan.

## **APPENDIX 1**

### **PRAMP MEMBERSHIP LIST BY GROUP**

#### **COMMUNITY**

Public members in Three Creeks area

Public member in Reno area

Public member(s) in other areas where monitoring occurs

Alberta Environmental Network

First Nations and Metis Communities

Northern Sunrise County and other municipalities where monitoring occurs

#### **INDUSTRY**

Baytex Energy

Murphy Oil Company

Penn West Petroleum

Shell Canada

Other Companies with an AER Approval PRAMP membership requirement

Other Service Companies acceptable to the Committee

#### **GOVERNMENT**

Alberta Energy Regulator

Alberta Environment and Sustainable Resource Development

Alberta Environmental Monitoring, Evaluation and Reporting Agency

Alberta Health Services

Alberta Health