

2018-19 Work Plan Template

All fields with an * are mandatory

Project Description Summary			Co-Chair Decision (March 8, 2018)
Date *	Project/Work Plan Identifier (if applicable)	Program Type and Strategic Alignment *	<p>* Decision Pool A: Workplan approved. * Approved at \$206,768</p> <p>* It is a requirement of funding that key members of the project team participate in a Deposition Monitoring Integration Workshop to be informed by the Oil Sands Monitoring Secretariat.</p> <p>* Adaptive monitoring for this project must consider in 18-19 results of the network optimization exercise. Any further growth of this monitoring program in 2019-20 is contingent on the outcome of the optimization exercise.</p> <p>*Funding expectations: as a minimum an annual progress report is required by February 28, 2019. All publications or products resulting from this work requires acknowledgement of funding from the Oil Sands Monitoring Program and are to be provided to the Oil Sands Monitoring Secretariat for tracking and any programmatic communications purposes. Work funded through the Oil Sands Program will be available for public dissemination.</p>
21/12/2017	A-LTM-S-2-1819	OSM - Long Term Monitoring	
Program Category *	Status *	Dept. ID	
Air/Atmosphere/Climate	Existing Project	1104 - 03418	
Project Leadership / Contact information			
Project Title *	Key Words (max 10) *		
Atmospheric Pollutant Passive Monitoring Network	Air Quality Trends, Spatial Air Quality Patterns, Atmospheric Deposition, Passive Monitoring		
Surname *	Given Name *	Title *	
Myrick	Bob	Director, Airshed Sciences	
Organization *	Department	Division	
Alberta Provincial	Alberta Environment and Parks	Environmental Monitoring and Science	
Branch *	Section/Unit (if applicable)	Phone *	
Science	Airshed Sciences	7802297290	
Email *	Mailing Address	City	
Bob.Myrick@gov.ab.ca	9888 Jasper Avenue	Edmonton	
Postal Code	EMSD Executive Owner (if Applicable)		
T5J 5C6	Bill Donahue		
Project Information			
Project Objective(s) (Bullet Form) *	<p>The primary monitoring objectives for the long-term passive air monitoring network in the Cold Lake and Peace oil sands regions are to:</p> <ol style="list-style-type: none"> (1) determine long-term trends and spatial variability in sulphur and nitrogen dioxide, hydrogen sulphide and/or ozone concentrations; and (2) inform potential future locations for continuous monitoring stations or additional focused monitoring. 		
Plain Language Overview (100 words) *	<p>The Passive Ambient Air Monitoring Program includes long-term monitoring using passive samplers in and around the Cold Lake and Peace River oil sands deposits. The monitoring programs are operated by the Lakeland Industry and Community Association (LICA) and the Peace River Area Monitoring Program (PRAMP) Committee, respectively. The Cold Lake network consists of 27 passive sampling stations that follow a 3 x 3 township grid pattern (more densely around oil sands facilities) and samples are collected every month. The network has been in operation since 2003 and measures ozone (O₃), nitrogen dioxide (NO₂), sulphur dioxide (SO₂) and hydrogen sulphide (H₂S). The Peace River passive monitoring network includes 13 passive sampling stations that are required by the Peace River Complex Operating Approval. Passive sites are distributed in the vicinity of the Peace River Complex facility. These passive monitors collect ambient concentrations of SO₂ and H₂S. Since the monitoring sites were originally intended to serve 'regulatory' monitoring objective, analysis and assessment is needed to transform it into a regional passive monitoring network.</p>		
Project Duration *	Project Original Start Date *	Estimated Completion Date *	
Multi-Year	Ongoing	Ongoing	
Specify Objectives This Project Will Address in 2018/2019. *	<p>The monitoring objectives of the passive monitoring systems implemented in the oil sands monitoring plan are to:</p> <ol style="list-style-type: none"> (1) Understand the spatial variation of sulphur and nitrogen dioxide, hydrogen sulphide and/or ozone concentration; (2) Determine long-term trends in air pollutants over a large geographical area; and (3) Examine between year differences. 		
Specify Objectives This Project Will Address Beyond 2018/19 (if multi-year). *	This is a long-term monitoring program and the objectives mentioned above will apply to all years.		
List Key Questions/Hypotheses Related to Each Objective Stated Above. *	<ol style="list-style-type: none"> (1)What are the spatial distribution of SO₂, NO₂, H₂S and/or ozone in the Cold Lake and Peace River oil sands regions? (2) What is the long-term trend of SO₂, NO₂, H₂S and/or ozone in the Cold Lake and Peace River oil sands regions? (3) Are there areas in these regions that require additional monitoring? (4) Are their changes of SO₂, NO₂, H₂S and/or ozone concentrations? 		

Main Assumptions, Constraints, Dependencies. *		<p>- Contracts with airshed organizations can be executed by April 1, 2018</p> <p>- LICA and PRAMP will have the expertise, resources and ability to deliver the monitoring program</p> <p>- The review and revision of passive monitoring under the Peace River Complex approval will be operated by PRAMP for integration into the regional network</p>	
Partner Categories (select all that apply) * A partner is an individual, group, agency, community etc. that is an active participant in the project and in achieving the project deliverables.		Knowledge System *	Location (select all that apply) *
<input type="checkbox"/> Federal Government <input type="checkbox"/> Another AEP Division <input type="checkbox"/> Another GoA Department <input type="checkbox"/> University/Academic Institution <input type="checkbox"/> Solely delivered by GoA <input type="checkbox"/> Citizen Science <input type="checkbox"/> Indigenous Community or Organization <input type="checkbox"/> ENGO <input checked="" type="checkbox"/> Other		Classical Science	<input type="checkbox"/> Office or Laboratory <input type="checkbox"/> Sub-regional <input type="checkbox"/> Transboundary (provincial/territorial) <input checked="" type="checkbox"/> Lower Peace Region <input checked="" type="checkbox"/> Upper Peace Region <input checked="" type="checkbox"/> North Saskatchewan Region <input type="checkbox"/> Red Deer Region <input checked="" type="checkbox"/> Lower Athabasca Region <input type="checkbox"/> Upper Athabasca Region
AEP ONLY: Strategic Alignment to EMSD Outcomes			
AEP ONLY: Strategic Alignment to EMSD Science Plan, select 1-2 areas that apply (if Applicable)			
Ecosystems and Predicting Change			
Choose one			
AEP ONLY: Strategic Alignment to AEP Departmental Outcomes			
AEP ONLY: Environmental and Ecosystem Health and Integrity	AEP ONLY: Sustainable Economic Diversity	AEP ONLY: Social Well-Being	
Air/Climate Change	No	No	
AEP ONLY: Protected Public Health and Safety from Environmental			
No			
AEP ONLY: IMAG/IMSC Information Needs, Please Specify Which Need(s) is Being Addressed. File location M:\EMSD\Common\Portfolio Mgmt System Shared Docs	<p>•Info Need #17 (Current and historical status of Alberta's air quality): The data from this network is used to track the status and trends of air quality in the oil sands regions.</p> <p>•Info Need #12 (Ecosystem Services) and Info Need #37 (Long-term Soil Acidification Monitoring Program): Data from passive monitoring has been used by LICA to calculate dry deposition of acidifying substances. These data can be used to determine atmospheric deposition to the ecosystem.</p>		
AEP ONLY: How This Project Will Address Each Strategic Theme Selected Above.	<p>•Environmental and Ecosystem Health and Integrity - Passive monitoring data for sulphur dioxide and nitrogen dioxide can be used to assess input of acidifying substances to the ecosystem. Subsequent ecosystem monitoring can relate effects to atmospheric deposition of acidifying substances.</p>		
Project Methodology			
List the Key Project Phases and Provide Bullets for Each Major Task Under Each Project Phase. *	<p>The Cold Lake and Peace River passive monitoring programs have the following components:</p> <p>(1) Operation of passive monitoring network in the Cold Lake airshed including monthly sampling at 27 monitoring stations;</p> <p>(2) Operation of passive monitoring network in the Peace River airshed including monthly sampling at 13 monitoring stations for H₂S and SO₂ (PRAMP will work with AEP to transform the current regulatory passive monitoring network into a regional monitoring network); and</p> <p>(3) Deployment, collection and shipping to laboratory of new passive PAC (Polycyclic Aromatic Compounds) monitoring in the Cold Lake (6 collocated at current passive sites)and Peace River (1 site collocated with current continuous monitoring site) airsheds.</p>		
Describe How Changes in Environmental Condition Will Be Assessed. *	Changes in the environment will be assessed by analyzing spatial, seasonal and long-term trends in the two airsheds.		
Are There Benchmarks (e.g., objectives, tiers, triggers, limits, reference conditions, thresholds, etc.) Being Used to Assess Changes in Environmental Condition? If So, Please Describe, If Not, State "NONE". *	Alberta has ambient air quality objectives for monthly concentrations of sulphur dioxide. Otherwise, there are no monthly benchmarks.		
Provide a Brief Description of the Methods By Project Phase. *	<p>Passive sampling methods involve installation of a sampler that contains a sorbent that is specifically formulated to adsorb the pollutant of interest (e.g. SO₂, NO₂, O₃, H₂S). The samplers have no moving parts and require no power. Concentrations of pollutants are calculated based on the sampling rate of the chemical of interest onto the sorbent, which is calculated using meteorological conditions (wind speed, ambient temperature and relative humidity). Samplers are implemented in the field for one to three month time periods depending on the parameter and the season.</p> <p>For phases (1) and (2), operation and use of passive sampling systems are consistent with the requirements of the Air Monitoring Directive (Alberta Environment and Parks, 2016). For phase (3), passive sampling of PACs follows the protocol established by Environment and Climate Change Canada (Harner et al., 2013; Schuster et al., 2015).</p>		

List the Key Indicators Measured. *	SO ₂ , NO ₂ , O ₃ , H ₂ S, PACs
Describe Sample Handling Procedures, If Not Applicable, State N/A. *	Sample handling procedures are provided in standard operating procedure documents located at http://environmentalmonitoring.alberta.ca/resources/standards-and-protocols/ . PAC monitoring protocols are available from ECCE.
List SOPs that Will Be Used, If Not Applicable, State N/A. *	Sample handling procedures are provided in standard operating procedure documents located at http://environmentalmonitoring.alberta.ca/resources/standards-and-protocols/ . PAC monitoring protocols are available from ECCE.
Describe the QA/QC Plan, If Not Applicable, State N/A. *	Quality assurance and quality control needs to be conducted in accordance with the Air Monitoring Directive and SOPs for data QA/QC developed by AEP and each airshed. Specific quality assurance plans are available from AEP and each airshed.
Describe How Indigenous Communities are Involved in the Project Design, Data Collection, and Analysis (Knowledge Co-creation) and How is their Consent Sought. If Not Applicable, State N/A. *	Indigenous communities are involved through inclusion in LICA and PRAMP.
Components Delivered by Others	
List by Project or Project Phase Each Component That Will Be Delivered by An External Party (including analytical laboratories) and Name the Party. State None if Not Required. *	All monitoring in this project plan is delivered by the Lakeland Industry and Community Association (LICA) and the Peace River Area Monitoring Program (PRAMP) Committee.
Will These Components be Delivered Under Grant or Contract or Both? Please Describe and Name the Associate Work Plan/Grant/Contract for These Services if Not Included Within This Work Plan. *	All monitoring in this project plan is delivered by LICA and PRAMP through a contract with AEP.
Monitoring Site Locations and Coordinates (for all sites, please add them to the Monitoring Site Location tab - a separate excel sheet)	
Attach Map of Locations. Distinguish Indicators by Station if Necessary. Distinguish Sampling Frequency by Station if Necessary.	Maps of air monitoring in each airshed is available. See "Passive Monitoring Sites" tab.
Project Schedule	
FOR OIL SANDS MONITORING PROJECTS ONLY: A coordinated field monitoring schedule for the OSM Program is required. Please complete the attached document named "OSM Program Field Monitoring Schedule" in addition to this work plan. Fill as much as you can recognizing that scheduling changes will occur and the scheduling document will be updated regularly. Please note the scheduling document will be shared with stakeholders.	Monitoring is ongoing. Monitoring sites are indicated in the tabs called "LICA Stations" and "PRAMP Stations".
FOR OIL SANDS MONITORING PROJECTS ONLY: Have You Coordinated With Other Project Leads On Field Logistics? If So, Please Specify. *	Monitoring field logistics are coordinated by LICA and PRAMP. Sample site and sample collection of this program is aligned with that of (A-MD-2-1819 Atmospheric Process Study - Deposition and Effects) for efficient field work.
Other	
Additional Details.	Sample collection for the seven PAC monitoring locations is included in this project plan. Laboratory analysis and reporting of results is included in project A-MD-2-1819 Atmospheric Process Study - Deposition and Effects. Also, based on recommendations from AEP, the sampling frequency of the LICA passive monitoring network will be increased from bi-monthly to monthly.
Will Capacity Building and Training be a Component of the Project and If So, Explain How. If Not, State N/A. *	N/A

Environmental Impact and Considerations.	N/A
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Data Management and Digital Assets

Will Data be Produced as a Result Of This Project? *	Type of Quantitative Data Variables	Frequency Of Collection
Yes	Discrete	Monthly

Data Collection Period: Start Date - End Date	Timeline For Upload Period: Start Date - End Date
Ongoing	Ongoing

Is There a Data Sharing Agreement? (Yes or No).	No
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Will the Data Include Traditional Knowledge as Defined by and Provided by an Indigenous Representative, Community or Organization (Yes / No).	No
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Platform/Location of Data Storage.	www.lica.ca and www.pramp.ca. Data is also provided to AEP.
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Project Deliverables

Proposed 2018-19 Deliverable Type (for each deliverable outline document, presentation, meeting, etc.)

<input type="checkbox"/> Peer-reviewed Journal Publication	<input type="checkbox"/> Peer-reviewed Conference Proceeding	<input type="checkbox"/> Non-peer reviewed Conference Proceeding
Q1 - Deliverable, Comments	Q1 - Deliverable, Comments	Q1 - Deliverable, Comments
Q2 - Deliverable, Comments	Q2 - Deliverable, Comments	Q2 - Deliverable, Comments
Q3 - Deliverable, Comments	Q3 - Deliverable, Comments	Q3 - Deliverable, Comments
Q4 - Deliverable, Comments	Q4 - Deliverable, Comments	Q4 - Deliverable, Comments
<input checked="" type="checkbox"/> Technical Report	<input type="checkbox"/> Book Chapter	<input type="checkbox"/> Public Dissemination Document
Q1 - Deliverable, Comments	Q1 - Deliverable, Comments	Q1 - Deliverable, Comments
Monthly data reports and data presentations will be prepared.		
Q2 - Deliverable, Comments	Q2 - Deliverable, Comments	Q2 - Deliverable, Comments
Monthly data reports and data presentations will be prepared. LICA- 2017 LICA Annual Report will include presentations of passive data		
Q3 - Deliverable, Comments	Q3 - Deliverable, Comments	Q3 - Deliverable, Comments

Prepare and submit validated passive data in an agreed format to AEP.		
Q4 - Deliverable, Comments	Q4 - Deliverable, Comments	Q4 - Deliverable, Comments
Prepare and submit validated passive data in an agreed format to AEP.		
<input type="checkbox"/> Conference Presentation(s)	<input type="checkbox"/> Stakeholder Presentation	<input type="checkbox"/> Key Engagement/Participation Meeting *
Q1 - Deliverable, Comments	Q1 - Deliverable, Comments	Q1 - Deliverable, Comments
Choose one	Choose one	Name of Meeting, Year, Location, Dates, Participant Groups and Number of Participants.
Q2 - Deliverable, Comments	Q2 - Deliverable, Comments	Q2 - Deliverable, Comments
Choose one	Choose one	Name of Meeting, Year, Location, Dates, Participant Groups and Number of Participants.
Q3 - Deliverable, Comments	Q3 - Deliverable, Comments	Q3 - Deliverable, Comments
Choose one	Choose one	Name of Meeting, Year, Location, Dates, Participant Groups and Number of Participants.
Q4 - Deliverable, Comments	Q4 - Deliverable, Comments	Q4 - Deliverable, Comments
Choose one	Choose one	Name of Meeting, Year, Location, Dates, Participant Groups and Number of Participants.
<input type="checkbox"/> EMSD Strategic & Operational Publication	<input type="checkbox"/> Other Documents	
Q1 - Deliverable, Comments	Q1 - Deliverable, Comments	
Q2 - Deliverable, Comments	Q2 - Deliverable, Comments	
Q3 - Deliverable, Comments	Q3 - Deliverable, Comments	
Q4 - Deliverable, Comments	Q4 - Deliverable, Comments	
Proposed Deliverables After 2018/2019 for the project funds received in 2018/2019		
<input type="checkbox"/> Peer-reviewed Journal Publication	<input type="checkbox"/> Peer-reviewed Conference Proceeding	<input type="checkbox"/> Non-peer reviewed Conference Proceeding
Q1 - Deliverable, Comments	Q1 - Deliverable, Comments	Q1 - Deliverable, Comments

Q2 - Deliverable, Comments	Q2 - Deliverable, Comments	Q2 - Deliverable, Comments
Q3 - Deliverable, Comments	Q3 - Deliverable, Comments	Q3 - Deliverable, Comments
Q4 - Deliverable, Comments	Q4 - Deliverable, Comments	Q4 - Deliverable, Comments
<input checked="" type="checkbox"/> Technical Report	<input type="checkbox"/> Book Chapter	<input type="checkbox"/> Public Dissemination Document
Q1 - Deliverable, Comments	Q1 - Deliverable, Comments	Q1 - Deliverable, Comments
Monthly data reports and data presentations will be prepared.		
Q2 - Deliverable, Comments	Q2 - Deliverable, Comments	Q2 - Deliverable, Comments
Monthly data reports and data presentations will be prepared. LICA - 2018 LICA Annual Report will include presentations of passive data PRAMP - 2018 PRAMP Annual Report will include presentations of passive data		
Q3 - Deliverable, Comments	Q3 - Deliverable, Comments	Q3 - Deliverable, Comments
Monthly data reports and data presentations will be prepared.		
Q4 - Deliverable, Comments	Q4 - Deliverable, Comments	Q4 - Deliverable, Comments
Monthly data reports and data presentations will be prepared.		
<input type="checkbox"/> Conference Presentation(s)	<input type="checkbox"/> Stakeholder Presentation	<input type="checkbox"/> Key Engagement/Participation Meeting *
Q1 - Deliverable, Comments	Q1 - Deliverable, Comments	Q1 - Deliverable, Comments
Choose one	Choose one	Name of Meeting, Year, Location, Dates, Participant Groups and Number of Participants.
Q2 - Deliverable, Comments	Q2 - Deliverable, Comments	Q2 - Deliverable, Comments
Choose one	Choose one	Name of Meeting, Year, Location, Dates, Participant Groups and Number of Participants.
Q3 - Deliverable, Comments	Q3 - Deliverable, Comments	Q3 - Deliverable, Comments
Choose one	Choose one	Name of Meeting, Year, Location, Dates, Participant Groups and Number of Participants.

Q4 - Deliverable, Comments	Q4 - Deliverable, Comments	Q4 - Deliverable, Comments
Choose one	Choose one	Name of Meeting, Year, Location, Dates, Participant Groups and Number of Participants.
<input type="checkbox"/> EMSD Strategic & Operational Publication	<input type="checkbox"/> Other Documents	
Q1 - Deliverable, Comments	Q1 - Deliverable, Comments	
Q2 - Deliverable, Comments	Q2 - Deliverable, Comments	
Q3 - Deliverable, Comments	Q3 - Deliverable, Comments	
Q4 - Deliverable, Comments	Q4 - Deliverable, Comments	
All Completed Products		if a
multi-year project, specify all completed products to date (consistent format for the fields below). Add rows as required.		
Journal Paper		
Required Format: Author (follow APA citation format), Year, Title, Journal, Volume, Page Numbers, Open or Closed and Document Location		
Example: Jacoby, W. G. (1994). Public Attitudes Toward Government Spending. American Journal of Political Science, 38(2), 336-361.		
Fearon, J. D., & Laitin, D. D. (2003). Ethnicity, Insurgency, and Civil War. American Political Science Review, 97(01), 75. doi: 10.1017/S0003055403000534		
1) Harner, T., Su, K, Genualdi, S., Karpowicz, J., Ahrens, L., Mihele, C., Schuster, J., Charland, J-P., Naraya, J. Calibration and application of PUF disk passive air samplers for tracking polycyclic aromatic compounds (PACs). Atmos. Environ. 2013, 123-128.		
2) Schuster, J.K., Harner, T., Su, K., Mihele, C., Eng, A. First Results from the Oil Sands Passive Air Monitoring Network for Polycyclic Aromatic Compounds. Environ. Sci. Technol. 2015, 49, 2991-2998.		
3)		
4)		
5)		
Technical Report		
Required Format: Author, Year, Title, Publisher Location, Name of Publisher, Publisher, Document Location		
Example: Author, F.M. (Publication Year). Title of Report (Report No. XXX). Publisher City, State: Publisher		
1) Alberta Environment and Parks. 2016. http://aep.alberta.ca/air/legislation/air-monitoring-directive/ .		
2)		
3)		
4)		
5)		
Book Chapter		
Required Format: Author, Year, Title of Paper, Editors, Title of Book, Page Numbers, Location of Publisher, Name of Publisher, Document Location		
Example: Hemingway, E. (1999). The Killers. In J. Updike & K. Kenison (Eds.), The Best American Short Stories of the Century (pp.78-80). Boston, MA: Houghton Mifflin)		
1)		
2)		
3)		
4)		
5)		
Conference Proceeding		
Required Format: Author, Year, Title of Paper, Editors, Title of Proceedings, Name of Conference Location of Conference, Publisher Location, Name of		
Example: Author of Paper, A., & Author of Paper, B. (Year, Month date). Title of Paper. In A. Editor, B. Editor, & C. Editor. Title of Published Proceedings. Paper Presented at Title of Conference: Subtitle of Conference, Location (inclusive page numbers). Place of Publication: Publisher.)		
1)		
2)		

3)

4)

5)

Public Dissemination Document

Required Format: Author, Year, Title, Journal / Report, Volume, Publisher, Page Number, Number of Pages, Document Location

1)

2)

3)

4)

5)

AEP ONLY: EMSD Strategic and Operational Publication

Required Format: Author, Year, Title, Publisher Location, Name of Publisher, Publisher, Document Location

1)

2)

3)

4)

5)

Other Documents

Detailed Information of Other Documents

1)

2)

3)

4)

5)

Conference Presentation

Required Format: Presenter, Date, Location, Title, Platform or Poster, Conference Name

1)

2)

3)

4)

5)

Stakeholder Presentation

Required Format: Presenter, Date, Location, Title, Platform or Poster, Name of Meeting

1)

2)

3)

4)

5)

Key Engagement/Participation Meeting

Required Format: Meeting Host, Date, Location

1)

2)

3)

4)

5)

Human Resources / Staffing Plan (roles and responsibilities)

Name & Role	Organization	Responsibilities
Mike Bisaga	Lakeland Industry and Community Association	LICA Project Leadership
Karla Reesor	Peace River Area Monitoring Program Committee	PRAMP Project Leadership
Bob Myrick	Alberta Environment and Parks	AEP Project Administrator
Yayne Aklilu	Alberta Environment and Parks	Science Advice

AEP ONLY: Additional Human Resources Required from EMSD

Name & Role	Branch - Section	Estimated time (% of annual FTE)
Bob Myrick	Science	10
Yayne Aklilu	Science	10

Financial Details and Budget Request

Source of Funding Requested Year 1 - 2018/19

	AEP ONLY: EMSD	OSM
Salaries and Benefits - AEP Chargeback		\$24,000
Salaries and Benefits - New OSM Staff		\$0
Operations and Maintenance		
Consumable materials and supplies		
Conferences and meetings travel		
Field work travel		
Project-related travel		
Engagement		
Reporting		
External Contracts - Organization/Vendor/Suppliers (LICA)		\$143,768
External Contracts - Organization/Vendor/Suppliers (PRAMP)		\$39,000
Overhead		
Grants		
Capital		
Total budget request for the year	0	\$206,768
Total budget approved		

Source of Funding Requested Year 2 - 2019/20

	AEP ONLY: EMSD	OSM
Salaries and Benefits - AEP Chargeback		\$24,000
Salaries and Benefits - New OSM Staff		\$0
Salaries and Benefits-non AEP		
Operations and Maintenance		
Consumable materials and supplies		
Conferences and meetings travel		
Field work travel		
Project-related travel		
Engagement		
Reporting		
External Contracts - Organization/Vendor/Suppliers (LICA)		\$145,000
External Contracts - Organization/Vendor/Suppliers (PRAMP)		\$48,000
Overhead		
Grants		
Capital		
Total budget request for the year		\$217,000
Total budget approved		

Source of Funding Requested Year 3 - 2020/21

	AEP ONLY: EMSD	OSM
Salaries and Benefits - AEP Chargeback		\$24,000
Salaries and Benefits - New OSM Staff		\$0
Salaries and Benefits-non AEP		
Operations and Maintenance		
Consumable materials and supplies		
Conferences and meetings travel		
Field work travel		
Project-related travel		
Engagement		
Reporting		
External Contracts - Organization/Vendor/Suppliers (LICA)		\$145,000
External Contracts - Organization/Vendor/Suppliers (PRAMP)		\$48,000
Overhead		
Grants		
Capital		
Total budget request for the year		\$217,000
Total budget approved		

Source of Funding Requested Year 4 - 2021/22

	AEP ONLY: EMSD	OSM
Salaries and Benefits - AEP Chargeback		\$24,000
Salaries and Benefits - New OSM Staff		\$0
Salaries and Benefits-non AEP		
Operations and Maintenance		
Consumable materials and supplies		
Conferences and meetings travel		
Field work travel		
Project-related travel		
Engagement		
Reporting		

External Contracts - Organization/Vendor/Suppliers (LICA)		\$145,000
External Contracts - Organization/Vendor/Suppliers (PRAMP)		\$48,000
Overhead		
Grants		
Capital		
Total budget request for the year		\$217,000
Total budget approved		
Budget Request for the Entire Project	0	\$857,768

Project Approval(s)

Proposal Submitted by

Surname	Given Name	Organization
Myrick	Bob	AEP
Signature	Date	
	12-Feb-18	

X **Proposal for OSM Reviewed by**

Bob Myrick Director, Airshed Sciences	Signature	Date

AEP Administrator/Coordinator - Review **X**

	Signature	Date
	for Bill Donahue Executive Director, Science	

ECCC Administrator/Coordinator - Review	Signature	Date

OSM Project Approved by

AEP Co-Lead for OSM	Signature	Date

ECCC Co-Lead for OSM	Signature	Date

AEP ONLY: Proposal for EMSD Reviewed by

EMSD Director	Signature	Date

AEP ONLY: EMSD Project Approved by

EMSD Executive Director	Signature	Date

EMSD Chief Scientist	Signature	Date

OSM / EMSD Project Has Not Been Approved

Project Status	Date Notified	Date Required
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The project is conditionally approved. The following conditions are required before approval is granted.

List the Condition(s)

Condition(s) Addressed / Approval Granted

Choose one

OSM / EMSD Approval Post Removal of Condition(s)

Name & Title	Signature	Date

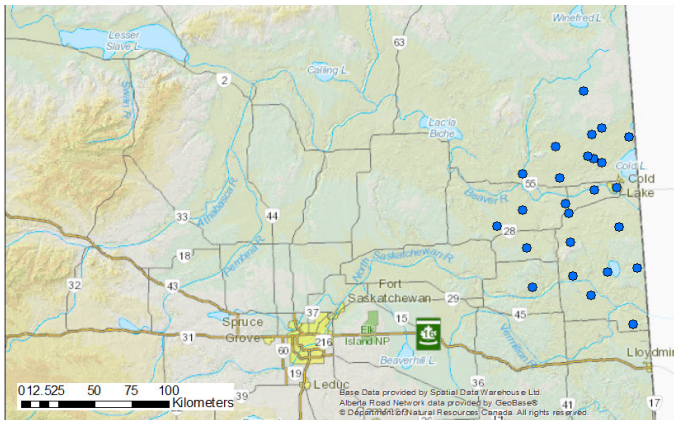


Figure 1 Long-term passive ambient air quality monitoring network in the Cold Lake oil sands region. Blue symbols indicate locations of passive sampling stations.

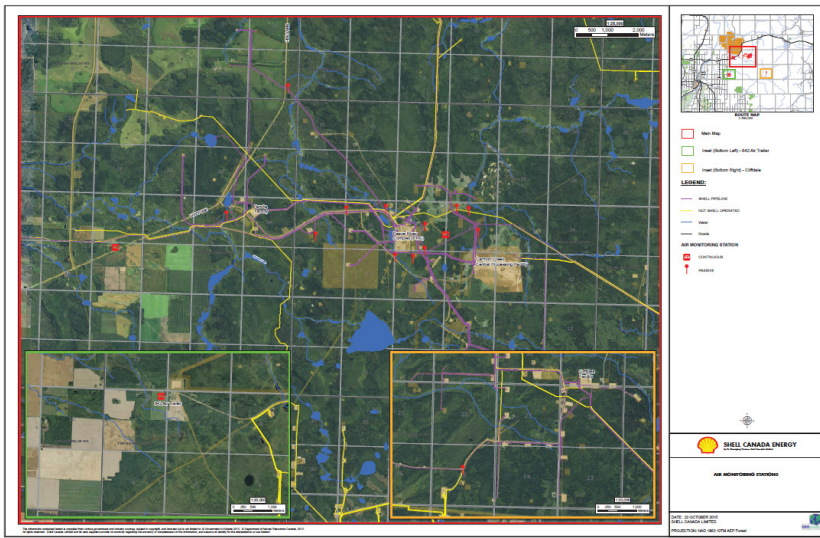


Figure 2 Long-term passive ambient air quality monitoring network in the Peace River oil sands region. Red symbols indicate locations of passive sampling stations.

SamplingLocations/Sites	Sampling Schedule (timing/frequency)	Compounds to be Analyzed	Latitude	Longitude	Airshed
Sand River	Monthly	SO2, NO2, O3	54.536583	-111.208983	LICA
Therien	Monthly	SO2, NO2, O3, H2S	54.31085	-111.226067	LICA
Flat Lake	Monthly	SO2, NO2, O3, H2S	54.072617	-111.2051	LICA
Lake Eliza	Monthly	SO2, NO2, O3, H2S	53.824167	-111.16605	LICA
Telegraph Creek	Monthly	SO2, NO2, O3	53.740682	-110.57655	LICA
Muriel-Kehewin	Monthly	SO2, NO2, O3	54.0934	-110.744367	LICA
Dupre	Monthly	SO2, NO2, O3	54.334617	-110.77965	LICA
La Corey	Monthly	SO2, NO2, O3, H2S, PACS	54.499667	-110.817917	LICA
Wolf Lake	Monthly	SO2, NO2, O3, H2S	54.695417	-110.842533	LICA
Foster Creek	Monthly	SO2, NO2, O3, H2S	55.033433	-110.504533	LICA
Primrose	Monthly	SO2, NO2, O3, H2S	54.758483	-110.452167	LICA
Maskwa	Monthly	SO2, NO2, O3, H2S	54.605183	-110.452633	LICA
Ardmore	Monthly	SO2, NO2, O3	54.4067	-110.462017	LICA
Frog Lake	Monthly	SO2, NO2, O3, H2S, PACS	53.89065	-110.384183	LICA
Clear Range	Monthly	SO2, NO2, O3, H2S	53.556483	-110.154233	LICA
Fishing Lake	Monthly	SO2, NO2, O3, PACS	53.90295	-110.076233	LICA
Beaverdam	Monthly	SO2, NO2, O3, H2S	54.16925	-110.23285	LICA
Cold Lake South	Monthly	SO2, NO2, O3, H2S	54.4137	-110.23285	LICA
Medley-Martineau	Monthly	SO2, NO2, O3	54.7243	-110.066183	LICA
Fort George	Monthly	SO2, NO2, O3, H2S, PACS	53.878302	-110.748065	LICA
Burnt Lake	Monthly	SO2, H2S	54.79104	-110.334242	LICA
Mahikan	Monthly	SO2, H2S	54.637381	-110.575382	LICA
Hilda Lake	Monthly	SO2, H2S	54.549305	-110.32879	LICA
Town of Bonnyville	Monthly	SO2, NO2, O3, PACS	54.275295	-110.740645	LICA
Cold Lake South Co-located	Monthly	SO2, NO2, O3			LICA
St. Lina	Monthly	SO2, NO2, O3, H2S, PACS	54.216389	-111.50295	LICA
Portable Station	Discontinued	Discontinued	54.367723	-110.703623	LICA
Add locations where PACs will be monitored					

SamplingLocations/Sites	Sampling Schedule (timing/frequency)	Compounds to be Analyzed	Latitude	Longitude	Airshed
Site 1	Monthly	SO ₂ , H ₂ S	N/A	N/A	PRAMP
Site 2	Monthly	SO ₂ , H ₂ S	N/A	N/A	PRAMP
Site 3	Monthly	SO ₂ , H ₂ S	N/A	N/A	PRAMP
Site 4	Monthly	SO ₂ , H ₂ S	N/A	N/A	PRAMP
Site 5	Monthly	SO ₂ , H ₂ S	N/A	N/A	PRAMP
Site 6	Monthly	SO ₂ , H ₂ S	N/A	N/A	PRAMP
Site 7	Monthly	SO ₂ , H ₂ S	N/A	N/A	PRAMP
Site 8	Monthly	SO ₂ , H ₂ S	N/A	N/A	PRAMP
Site 9	Monthly	SO ₂ , H ₂ S	N/A	N/A	PRAMP
Site 10	Monthly	SO ₂ , H ₂ S	N/A	N/A	PRAMP
Site 11	Monthly	SO ₂ , H ₂ S	N/A	N/A	PRAMP
Site 986	Monthly	SO ₂ , H ₂ S	56.376056	-116.940704	PRAMP
Site 842	Monthly	SO ₂ , H ₂ S and PACs	56.27511	-116.980782	PRAMP

PASSIVE MONITORING	PROJECTE D 2018-19	Notes/Changes
Activity		
Lab Analysis		Lab Analysis
Sample analysis	\$52,200	Monthly sample analysis, 27 multi-parameter sites
Data Management		Data Management
Reporting and data upload	\$9,000	
Data System Licensing	\$735	
Quality System Maintenance and Auditing	\$975	
Data Specialist	\$9,000	
Field Work		Field Work
Sample collection and deployment	\$36,000	Monthly sample analysis
Administration Costs		Administration Costs
Program Management, Salary, Expenses, Payroll	\$27,945	
Meeting Costs, Food, Stipend	\$2,525	
Insurance	\$782	
Utilities	\$442	
Maintenance, Rent, Taxes	\$2,032	
Office Supplies, Xerox, Postage, Capital Purchases	\$2,132	
Total	\$143,768	

PRAMP Operating Budget 2018-21

	2018-19	2019-20	2020-21
Passive Monitoring			
Existing Passive Monitors (13 Stations)	\$36,000	\$48,000	\$48,000
PAC Program with Environment Canada	\$3,000		