

2018-19 Work Plan Template

All fields with an * are mandatory

Project Description Summary			Co-Chair Decision (March 8, 2018) *Decision Pool D: Project Not Funded. *Funding in 2018/19 is dependent upon the findings of the Deposition Monitoring Integration Review and Workshop.
Date *	Project/Work Plan Identifier (if applicable)	Program Type and Strategic Alignment *	
15-Jan-18	N/A	OSM - Focus Study	
Program Category *	Status *	Dept. ID	
Air/Atmosphere/Climate	New Project	1104 - 03418	
Project Leadership / Contact information			
Project Title *	Key Words (max 10) *		
Are Lakes and Tailings Ponds Sources of Atmospheric Ammonia?	Ammonia, lakes, tailings ponds, emissions, nitrogen, lichen, ecosystem effects		
Surname *	Given Name *	Title *	
Wentworth	Greg	Atmospheric Scientist	
Organization *	Department	Division	
Alberta Provincial	Environment and Parks	Environmental Monitoring and Science	
Branch *	Section/Unit (if applicable)	Phone *	
Science	Airshed Sciences	7802297236.00	
Email *	Mailing Address	City	
greg.wentworth@gov.ab.ca	10th Floor, 9888 Jasper Ave NW	Edmonton	
Postal Code	EMSD Executive Owner (If Applicable)		
T5J 5C6	Bill Donahue		
Project Information			
Project Objective(s) (Bullet Form) *	<ul style="list-style-type: none"> Determine if alkaline lakes and tailings ponds are significant sources of atmospheric ammonia (NH₃) in the Athabasca Oil Sands Region (AOSR); if so, determine the factor(s) governing emission rates. Assess whether summertime atmospheric NH₃ concentrations are sufficiently high to negatively impact lichen communities (a particularly sensitive species to nitrogen deposition) adjacent to lakes/ponds. 		
Plain Language Overview (100 words) *	<p>The sources of NH₃ in the AOSR are very poorly understood. However, NH₃ deposition composes the largest fraction of nitrogen deposition and are negatively affecting terrestrial and wetland ecosystems in the AOSR (see line 100). This focused study will determine, for the first time, whether alkaline lakes and tailings ponds are significant NH₃ sources in the region. Furthermore, it will evaluate lichen communities adjacent to lakes/ponds to assess whether direct NH₃ deposition is negatively impacting nearby terrestrial ecosystems.</p>		
Project Duration *	Project Original Start Date *	Estimated Completion Date *	
Multi-Year	1/5/2018	31/12/2021	
Specify Objectives This Project Will Address in 2018/2019. *	<ul style="list-style-type: none"> Perform site scoping visits to choose 3 alkaline lakes and 3 tailings ponds study sites (if possible). Recruit two MSc students to start in Sept. 2018 and/or Jan. 2019; field work will begin in summer 2019. 		
Specify Objectives This Project Will Address Beyond 2018/19 (if multi-year). *	<ul style="list-style-type: none"> Determine if the 3 study lakes and 3 tailings ponds are relevant summertime sources of NH₃. Assess if lichen communities (a particularly sensitive biomonitor for nitrogen deposition) within several km of lakes/ponds are negatively affected by direct NH₃ deposition. Build scientific capacity and credibility within EMSD by entering into a formal collaboration with Trent University and obtaining "Special Faculty" status for scientists. 		
List Key Questions/Hypotheses Related to Each Objective Stated Above. *	<ul style="list-style-type: none"> Alkaline lakes and tailings ponds are significant, and yet-to-be-investigated, sources of NH₃ in the AOSR. Emissions of NH₃ from lakes and tailings ponds are sufficiently high to negatively impact lichen communities within several kilometres of lakes/ponds. 		
Main Assumptions, Constraints, Dependencies. *	<ul style="list-style-type: none"> There are 3 lakes and 3 tailings ponds which are appropriate to study (e.g., accessible by truck, sufficiently alkaline, adjacent to lichen communities). Industry grants site access for tailings pond sampling. There is sufficient time to recruit two MSc. students for field work in the summer of 2019. 		

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 checked="" 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 type="checkbox"/> Other	Classical Science	<input type="checkbox"/> Office or Laboratory <input type="checkbox"/> Sub-regional <input type="checkbox"/> Transboundary (provincial/territorial) <input type="checkbox"/> Lower Peace Region <input type="checkbox"/> Upper Peace Region <input 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 #6 (Airshed Support): numerous WBEA publications have highlighted the need to better understand NH₃ sources (e.g., Clair and Percy, 2015; Fenn et al., 2015; Hsu et al., 2016), since it is a major component of N-deposition which is negatively impacting ecosystems.</p> <p>•Info Need #12 (Ecosystem Services): lichen is commonly used as biomonitor to forecast negative effects of enhanced NH₃ deposition.</p> <p>•Info Need #30 (Environmental Health Risk): gather data on uncharacterized NH₃ sources and deposition to assess risk exposure to lichen (a sentinel species sensitive to N-deposition).</p>	
AEP ONLY: How This Project Will Address Each Strategic Theme Selected Above.	Environmental and Ecosystem Health and Integrity: This 3-year focused study will provide invaluable information on potentially significant, yet uncharacterized, sources of NH ₃ . This information is necessary to predict ecosystem changes, specifically for jack pine forests and wetlands, both of which are known to be impacted by enhanced N-deposition from Oil Sands activities (e.g., Clair and Percy, 2015; Vile et al., 2014; Wieder et al., 2016a, b). Recommendations developed at the joint AEP-ECCC OSM Deposition Integration Workshop (held in Toronto in September 2017) include the need to better understand NH ₃ sources in the region to allow for better predictions of ecosystem changes in the AOSR.	
Project Methodology		
List the Key Project Phases and Provide Bullets for Each Major Task Under Each Project Phase. *	<p>•Phase 1: perform field visit to select sampling sites that meet site selection criteria (June 2018); recruit two MSc students (by January 2019).</p> <p>•Phase 2: conduct biweekly field measurements of atmospheric NH₃, meteorology, and aqueous parameters to determine if the lakes/ponds are NH₃ sources. Conduct lichen sampling and community surveys to assess impacts (if any) of elevated NH₃ levels (June-Sept 2019).</p> <p>•Phase 3: conduct laboratory measurements on lake water and tailings pond samples to assess which water chemistry/biological parameters govern NH₃ emissions (Oct 2019-Dec 2020).</p> <p>•Phase 4: analyze, synthesize, and report on findings through: (i) several peer-reviewed publications, (ii) two MSc theses, (iii) several conference presentations, and (iv) one public AEP report (to be submitted by Dec 2021).</p>	
Describe How Changes in Environmental Condition Will Be Assessed. *	Atmospheric measurements and lichen sampling/surveys will be conducted along transects at increasing distances (up to several kilometres) away from lakes/ponds. If lakes/ponds are significant sources, and if enhanced NH ₃ is affecting lichen communities, then chemical and biological gradients will be detected along the measurement transects. Furthermore, by comparing measured NH ₃ to lake/pond parameters, emissions of NH ₃ from each lake/pond can be calculated and compared to other (known) sources of NH ₃ in the region.	
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". *	Yes - a critical atmospheric level of 1 µg NH ₃ m ⁻³ (as an annual average) for lichens has been observed (Cape et al., 2009). Summertime NH ₃ concentrations in the AOSR exceed this critical level. The co-located NH ₃ and lichen measurements will help assess the efficacy of this critical level for lichens in the AOSR.	

Provide a Brief Description of the Methods By Project Phase. *	<p>•Phase 1: a several-day field visit by Greg Wentworth and Prof. Shaun Watmough will be co-ordinated with the local airshed (WBEA) to choose the most appropriate sites.</p> <p>•Phase 2: 8 passive air samplers (a commonly used method in the AOSR, see Hsu et al., 2016) will be deployed per site along a transect. Surface water samples will be collected manually and analyzed according to Whitefield et al. (2010). Lichen samples will be collected at each air sampling site and analyzed for N concentration and ¹⁵N signature (to aid in source apportionment). Epiphytic lichen surveys will also be conducted at each site to assess community composition.</p> <p>•Phase 3: synthetic lake and tailings pond water will be created in the laboratory and inoculated with lake water microbial communities. Key parameters (e.g., pH, N content, temperature) will be altered to assess their impact on NH₃ emissions.</p> <p>•Phase 4: N/A.</p>
List the Key Indicators Measured. *	<p>•Atmospheric: NH₃, wind speed, wind direction, air temperature, relative humidity</p> <p>•Aqueous: [NH₄⁺], dissolved inorganic nitrogen, dissolved organic nitrogen, total organic carbon, temperature, pH, major anions/cations</p> <p>•Lichens: N content, ¹⁵N isotopic signature, community composition</p>
Describe Sample Handling Procedures, If Not Applicable, State N/A. *	The above measurements are routine. SOPs will be followed to ensure sample integrity and data reliability. Field blanks will be collected.
List SOPs that Will Be Used, If Not Applicable, State N/A. *	WBEA SOPs will be followed for the atmospheric measurements to ensure comparability with passive air samplers from the spatially extensive Forest Health Monitoring program (http://www.wbea.org/resources/quality-assurance/standard-operating-procedures). Surface water measurements will be conducted according to Whitfield et al. (2010).
Describe the QA/QC Plan, If Not Applicable, State N/A. *	Passive air samplers will be deployed in duplicate and co-located measurements that differ by more than 25% (the approximate measurement uncertainty) will be flagged and removed. Surface water measurements will also be taken in duplicate and subjected to similar QA/QC criteria. Field blanks will be collected and subtracted from ambient samples. Detection limits will be calculated as three times the standard deviation of field blank signals. Ambient values below the detection limit will be flagged and removed.
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. *	N/A
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. *	<p>•Phase 1: will be delivered in collaboration with Prof. Shaun Watmough (Trent University).</p> <p>•Phase 2: will be delivered in collaboration with Prof. Watmough and two MSc students; lab work and analyses will be done at Trent University by the Watmough lab.</p> <p>•Phase 3: will be delivered by Prof. Watmough and two MSc students; lab work and analyses will be done at Trent University.</p> <p>•Phase 4: peer-reviewed publications will be delivered in collaboration with Prof. Watmough and two MSc students; the two MSc theses will be produced by the MSc students; the external AEP report will be led by Greg Wentworth.</p>
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. *	If this project is approved, these components will be delivered through a grant to Prof. Watmough at Trent University. The Grant Business Case will be developed and submitted to the Grants Review Committee once the project is approved. This is a new project.
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.	To be determined by site visit in June 2018.
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.	See attached (NOTE: field visits in 2018/19 will be for site selection; no sampling will occur). The "OSM Sampling Field Schedule" tab will be completed once sites are selected.

FOR OIL SANDS MONITORING PROJECTS ONLY: Have You Coordinated With Other Project Leads On Field Logistics? If So, Please Specify. *		Will co-ordinate with WBEA (local airshed) on field logistics and site selection.	
Other			
Additional Details.		Despite the abundance of evidence of negative ecosystem impacts in the AOSR from enhanced N-deposition (e.g., Clair and Percy, 2015; Vile et al., 2014; Wieder et al., 2016a, b), the major sources of NH ₃ (the largest component of N-deposition) are still poorly understood (e.g., Clair and Percy, 2015; Fenn et al., 2015; Hsu et al., 2016; Shephard et al., 2015; Whaley et al., 2017). Specifically, it is currently unknown if: 1) alkaline lakes and tailings ponds are important NH ₃ sources, and 2) atmospheric NH ₃ directly impacts N-sensitive species (lichens) in the AOSR. This 3-year focused study will address these specific unknowns and provide much needed information to help assess the impacts of NH ₃ emissions in the AOSR.	
Will Capacity Building and Training be a Component of the Project and If So, Explain How. If Not, State N/A. *		Yes. This project will train two MSc students at Trent University. Furthermore, if this project is approved, Greg Wentworth has tentatively been offered "Special Faculty" status and will serve on the supervisory committee for both MSc students. This will provide management experience for Dr. Wentworth and build scientific capacity within EMSD through strategic partnerships with universities. It also leverages the facilities and expertises of Prof. Watmough's lab.	
Environmental Impact and Considerations.		N/A	
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	Other	
Data Collection Period: Start Date - End Date	Timeline For Upload Period: Start Date - End Date		
6/1/2019 to 9/1/2019	Sep-20		
Is There a Data Sharing Agreement? (Yes or No).	No, not yet.		
Will the Data Include Traditional Knowledge as Defined by and Provided by an Indigenous Representative, Community or Organization (Yes / No).	No.		
Platform/Location of Data Storage.	To be determined. Storage of data obtained from AEP atmospheric focused studies is a currently unresolved issue.		
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 type="checkbox"/> Technical Report	<input type="checkbox"/> Book Chapter	<input type="checkbox"/> Public Dissemination Document
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 type="checkbox"/> Conference Presentation(s)	<input type="checkbox"/> Stakeholder Presentation	<input checked="" 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.
		Site Selection Meeting, 2018, Fort McMurray, June 2018, 3 participants (Greg Wentworth, Prof. Watmough, and WBEA representative)
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 type="checkbox"/> Technical Report	<input type="checkbox"/> Book Chapter	<input type="checkbox"/> Public Dissemination Document
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 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)		
2)		
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)
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
Greg Wentworth (0.10 FTE)	AEP	Co-lead: site selection, project design, field sampling, analyses, reporting
Prof. Shaun Watmough	Trent University	Co-lead: site selection, project design, student recruitment, field sampling, analyses, reporting
MSc Student #1	Trent University	Conduct field work (atmospheric/water/lichen sampling), analyses, write MSc thesis/paper
MSc Student #2	Trent University	Conduct laboratory work on lake/pond parameters, analyses, write MSc thesis/paper

AEP ONLY: Additional Human Resources Required from EMSD

Name & Role	Branch - Section	Estimated time (% of annual FTE)	Estimated Salary Range
Greg Wentworth	Science	10	\$90,000 - \$110,000 (including 25 to cover benefit)
			Choose one
			Choose one
			Choose one
			Choose one
			Choose one
			Choose one
			Choose one
			Choose one
			Choose one

Financial Details and Budget Request

Source of Funding Requested Year 1 - 2018/19		
	AEP ONLY: EMSD	OSM
Salaries and Benefits - AEP Chargeback		10500
Salaries and Benefits - New OSM Staff		0
Operations and Maintenance		
Consumable materials and supplies		
Conferences and meetings travel		
Field work travel		2000
Project-related travel		
Engagement		
Reporting		
External Contracts - (for Prof. Watmough, broken down in 4th tab)		30000
Overhead		
Grants		
Capital		
Total budget request for the year		42500
Total budget approved		
Source of Funding Requested Year 2 - 2019/20		
	AEP ONLY: EMSD	OSM
Salaries and Benefits - AEP Chargeback		11000
Salaries and Benefits - New OSM Staff		TBD
Operations and Maintenance		
Consumable materials and supplies		
Conferences and meetings travel		1500
Field work travel		2,000
Project-related travel		
Engagement		
Reporting		
External Contracts - (for Prof. Watmough, broken down in 4th tab)		108240
Overhead		
Grants		
Capital		
Total budget request for the year		122740
Total budget approved		
Source of Funding Requested Year 3 - 2020/21		
	AEP ONLY: EMSD	OSM
Salaries and Benefits - AEP Chargeback		11000

Salaries and Benefits - New OSM Staff		TBD
Operations and Maintenance		
Consumable materials and supplies		
Conferences and meetings travel		1500
Field work travel		
Project-related travel		1500
Engagement		
Reporting		2800
External Contracts - (for Prof. Watmough, broken down in 4th tab)		21120
Overhead		
Grants		
Capital		
Total budget request for the year	0	37920
Total budget approved		

Source of Funding Requested Year 4 - 2021/22

AEP ONLY: EMSD		
Salaries and Benefits - AEP Chargeback		OSM
Salaries and Benefits - New OSM Staff		TBD
Operations and Maintenance		
Consumable materials and supplies		
Conferences and meetings travel		
Field work travel		
Project-related travel		
Engagement		
Reporting		5600
External Contracts - Organization/Vendor/Suppliers		
Overhead		
Grants		
Capital		
Total budget request for the year	0	11100
Total budget approved		

Budget Request for the Entire Project	0	214,260
--	---	---------

Project Approval(s)

Proposal Submitted by

Surname	Given Name	Organization
Myrick	Bob	AEP

Signature	Date
X	12-Feb-18

Proposal for OSM Reviewed by

Bob Myrick Director, Airshed Sciences	Signature	Date

AEP Administrator/Coordinator - Review	X for Bill Donahue Executive Director, Science	Date

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

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

Budget requirements	Year 1 (2018- 2019)		Year 2 (2019- 2020)		Year 3 (2020- 2021)		Year 3 (2021- 2022)	
	Cash	In-kind	Cash	In-kind	Cash	In-kind	Cash	In-kind
1) Salaries and benefits								
a) Principal Investigator (Shaun Watmough) – 0.15 FTE		\$30,000		\$30,000		\$30,000		\$30,000
b) MSc Students- 2 FTE	\$27,000		\$36,000		9000		0	
2) Operations and maintenance								
a) Lab Analyses			\$22,320					
b) Field Work			\$25,200					
3) Consumable Materials and supplies								
a) Consumable Materials and supplies			\$17,720		\$8,120		\$0	
4) Travel								
a) Conference and Field Travel	\$3,000		\$7,000		\$4,000		\$0	
Grand Total	\$30,000	\$30,000	\$108,240	\$30,000	\$21,120	\$30,000	\$0	\$30,000

Salaries and Benefits	11000
Operations and Maintenance	8120
Consumable materials and supplies	
Conferences and meetings travel	2000
Field work travel	
Project-related travel	2000
Engagement	
Reporting	2800
External Contracts - (MSc Student Salary)	9000
Overhead	
Grants	
Capital	

Oil Sands Monitoring Program - Field Sampling Schedule

Last Updated: d:

10/1/2018

Project Workpla

NEW

Project Lead and

Greg Wentworth (greg.wentworth@gov.ab.ca)

Completed by: Greg Wentworth

A coordinated field program schedule is needed to better support our interactions with stakeho

Region	Station Name and Description
---------------	-------------------------------------

Athabasca Oil S: Alkaline Lake #1 (placeholder)

Athabasca Oil S: Alkaline Lake #2 (placeholder)

Athabasca Oil S: Alkaline Lake #3 (placeholder)

Athabasca Oil S: Tailings Pond #1 (placeholder)

Athabasca Oil S: Tailings Pond #2 (placeholder)

Athabasca Oil S: Tailings Pond #3 (placeholder)

Iders including industry. This schedule will be

Station Code	OSM Site name (If applicable)	Latitude	Longitude	On First Nation Reserve or Métis Settlement?
N/A	N/A	TBD	TBD	
N/A	N/A	TBD	TBD	
N/A	N/A	TBD	TBD	
N/A	N/A	TBD	TBD	
N/A	N/A	TBD	TBD	
N/A	N/A	TBD	TBD	

On an industry lease?	Notes		
		April	May

TBD
TBD
TBD
Yes
Yes
Yes

All sites will be selected after a field visit in June 2018

Date of Sampling (please enter the days by station within the cell for each month)									
2018							2019		
June	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar

Site Selection Visit
 Site Selection Visit
 Site Selection Visit
 Site Selection Visit
 Site Selection Visit
 Site Selection Visit