

2018-19 Work Plan Template

All fields with an * are mandatory

Project Description Summary			Co-Chair Decision
Date *	Project/Work Plan Identifier (if applicable)	Program Type and Strategic Alignment *	<p>* Decision Pool A: Workplan approved. * Approved at \$178,000</p> <p>* It is a requirement of funding that key members of the project team participate in a Water Monitoring Integration Workshop to be informed by the Oil Sands Monitoring Secretariat.</p> <p>* Investigation of cause that is inclusive of oil sands stressors are to be informed by this project</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>
6/15/2018	W-IC-22-1819	OSM - Focus Study	
Program Category *	Status *	Dept. ID	
Watershed Sciences (Surface Water and Groundwater)	Existing Project		
Project Leadership / Contact information			
Project Title *	Key Words (max 10) *		
Correlation of Anthropogenic Stressors with Changes in Water Quality (Tributary Systems)	water quality, long term monitoring design, guidelines, contaminants		
Surname *	Given Name *	Title *	
Chambers	Patricia	Research Scientist	
Organization *	Department	Division	
ECCC			
Branch *	Section/Unit (if applicable)	Phone *	
WSTD		9053364529.00	
Email *	Mailing Address	City	
patricia.chambers@canada.ca	867 Lakeshore Rd	Burlington	
Postal Code	EMSD Executive Owner (if Applicable)		
L7S 1A1			
Project Information			
Project Objective(s) (Bullet Form) *	<p>(a) inform water quality models being run for the Athabasca River mainstem to track the transport and fate of contaminants;</p> <p>(b) establish the environmental conditions for the aquatic biological communities; and</p> <p>(c) explicitly link the data on atmospheric deposition to the snowpack to stream water quality.</p>		
Plain Language Overview (100 words) *	To further refine the design of a long-term water quality monitoring plan for the oil sands region, the 2012-2015 data set will be analyzed to answer the broad question "Are human activities affecting the geochemical cycles of potentially toxic trace metals in the oil sands regions?"		
Project Duration *	Project Original Start Date *	Estimated Completion Date *	
Multi-Year	4/1/2017	3/31/2019	
Specify Objectives This Project Will Address in 2018/2019. *	<p>* Provide new information on the potential for dissolved trace metals to affect ecological condition of tributaries to the Athabasca River.</p> <p>* Provide new information to inform the design of the long-term water quality monitoring plan for the OS region, specifically whether rain event sampling is required to adequately describe annual contaminant loads.</p> <p>* Geospatial analysis of several classes of water quality constituents (metals, major ions, polycyclic aromatic compounds, nutrients) to identify the quantity and timing of inputs to the Athabasca River.</p>		
Specify Objectives This Project Will Address Beyond 2018/19 (if multi-year). *	N/A		
List Key Questions/Hypotheses Related to Each Objective Stated Above. *	<p>1. Dissolved (versus total) trace metals are a better indicator of anthropogenic inputs and potential ecological effects.</p> <p>2. Classes of water quality constituents (i.e., metals, major ions, polycyclic aromatic compounds, nutrients) differ in their timing of delivery to the Athabasca River mainstem and, hence, their potential ecological consequences.</p> <p>3. Rainfall events represent a significant source of bioavailable contaminants, particularly at sites downstream of mining activities.</p>		
Main Assumptions, Constraints, Dependencies. *	The usual scientific assumptions/constraints when combining data from different sources (AEP and RAMP) and different time periods (e.g., methodology changes) and when performing statistical tests.		
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 checked="" 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	Classical Science	<input checked="" 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 type="checkbox"/> Lower Athabasca Region	

<input type="checkbox"/> Other	<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)		
Choose one		
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
Choose one	Choose one	Choose one
AEP ONLY: Protected Public Health and Safety from Environmental		
Choose one		
AEP ONLY: IMAG/IMSC Information Needs, Please Specify Which Need(s) is Being Addressed. File location M:\EMSD\Common\Portfolio Mgmt System Shared Docs		
AEP ONLY: How This Project Will Address Each Strategic Theme Selected Above.		
Project Methodology		
List the Key Project Phases and Provide Bullets for Each Major Task Under Each Project Phase. *	<p>Phase 1: What water chemistry parameters are better indicators of anthropogenic inputs associated with oil sands mining?</p> <p>Phase 2: What quantity of contaminants is delivered to the Athabasca River from its tributaries? Do the different classes of water quality constituents (i.e., bioavailable versus total metals as well as major ions, polycyclic aromatic compounds, nutrients) differ in their timing of delivery to the mainstem?</p> <p>Phase 3: What is the contribution of rainfall events to loading of bioavailable contaminants?</p>	
Describe How Changes in Environmental Condition Will Be Assessed. *	The design of a long-term water quality monitoring plan for the oil sands region will be further refined.	
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". *	Comparisons made to CCME and AEP water quality guidelines when relevant.	
Provide a Brief Description of the Methods By Project Phase. *	<p>Phase 1: Water chemistry data from the recent literature (2005-2015) will be compiled and then assessed for variability in chemistry at similar tributary sites among years, among hydrologic seasons and among analytical methods. Such comparisons will allow determination of the chemistry parameters and the hydrological/seasonal conditions best suited for water chemistry sampling in order to assess impacts from oil sands development.</p> <p>Phase 2: An integrated data set containing all water quality constituents for all sample dates and years is presently being assembled. This study will use the new integrated dataset to determine the proportion of the total contaminant load in the Athabasca River that is derived from tributary inputs, compare the proportions for the different classes of water quality constituents, and describe seasonal variability in delivery to the Athabasca River in relation to geospatial data.</p> <p>Phase 3: Using the 2012-2015 JOSMP tributary water chemistry database, differences in loads of bioavailable contaminants will be compared when calculated using (a) grab samples only versus (b) grab samples plus automated samples collected during rain events. Such comparisons will allow determination of whether rain events deliver significant quantities of contaminants to tributaries in the oil sands region (particularly at sites downstream of mining activity), and whether the proportion delivered during rain events differs between two major classes of chemical constituents (metals versus nutrients).</p>	
List the Key Indicators Measured. *	metals, major ions, nutrients	
Describe Sample Handling Procedures, if Not Applicable, State N/A. *	N/A	
List SOPs that Will Be Used, if Not Applicable, State N/A. *	N/A	

Describe the QA/QC Plan, If Not Applicable, State N/A. *	N/A	
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. *	None	
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. *	Not Required	
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.	N/A	
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.	N/A	
FOR OIL SANDS MONITORING PROJECTS ONLY: Have You Coordinated With Other Project Leads On Field Logistics? If So, Please Specify. *	N/A	
Other		
Additional Details.		
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	
Data Management and Digital Assets		
Will Data be Produced as a Result Of This Project? *	Type of Quantitative Data Variables	Frequency Of Collection
No	Other	Other
Data Collection Period: Start Date - End Date	Timeline For Upload Period: Start Date - End Date	
N/A	N/A	
Is There a Data Sharing Agreement? (Yes or No).	No	
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.	Metadata and data are already on the OSM portal
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Project Deliverables

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

<input checked="" type="checkbox"/> Peer-reviewed Journal Publication	<input type="checkbox"/> Peer-reviewed Conference Proceeding	<input type="checkbox"/> Non-peer reviewed Conference Proceeding
Q1 - Deliverable, Comments The goal is to prepare two papers for publication in either 2018-19 or 2019-20	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 Choose one	Q1 - Deliverable, Comments Choose one	Q1 - Deliverable, Comments Name of Meeting, Year, Location, Dates, Participant Groups and Number of Participants.
Q2 - Deliverable, Comments Choose one	Q2 - Deliverable, Comments Choose one	Q2 - Deliverable, Comments Name of Meeting, Year, Location, Dates, Participant Groups and Number of Participants.
Q3 - Deliverable, Comments Choose one	Q3 - Deliverable, Comments Choose one	Q3 - Deliverable, Comments Name of Meeting, Year, Location, Dates, Participant Groups and Number of Participants.
Q4 - Deliverable, Comments Choose one	Q4 - Deliverable, Comments Choose one	Q4 - Deliverable, Comments Name of Meeting, Year, Location, Dates, Participant Groups and Number of Participants.

Proposed Deliverables After 2018/2019 for the project funds received in 2018/2019

<input checked="" type="checkbox"/> Peer-reviewed Journal Publication	<input type="checkbox"/> Peer-reviewed Conference Proceeding	<input type="checkbox"/> Non-peer reviewed Conference Proceeding
Q1 - Deliverable, Comments The goal is to prepare two papers for publication in either 2018-19 or 2019-20	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.
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		
<p>1) DROPPO IG, P DI CENZO, PA CHAMBERS, A ALEXANDER, J KIRK & D MUIR. 2018. Temporal and spatial trends in riverine suspended sediment and associated polycyclic aromatic compounds (PAC) within the Athabasca oil sands region. Science of the Total Environment 626: 1382-1392.</p> <p>2) ALEXANDER AC, PA CHAMBERS & DS JEFFRIES. 2017. Episodic acidification of 5 rivers in Canada's oil sands during snowmelt: a 25-year record. Science of the Total Environment 599-600: 739-749</p> <p>3) ALEXANDER AC & PA CHAMBERS PA. 2016. Assessment of 7 Canadian rivers in relation to stages in oil sands industrial development, 1972 to 2010. Environmental Reviews 24: 484-494.</p> <p>4)</p> <p>5)</p>		
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		
<p>1) Chambers, P. A., Alexander-Trusiak, A., Kirk, J., Manzano, C., Muir, D., Cooke, C. & R. Hazewinkel. 2018. Surface water quality of lower athabasca river tributaries. Oil Sands Monitoring Program Technical Report Series</p> <p>2)</p> <p>3)</p> <p>4)</p> <p>5)</p>		
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
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Total budget approved		
Budget Request for the Entire Project		178,000
0		
Project Approval(s)		
Proposal Submitted by		
Surname	Given Name	Organization
Chambers	Patricia	ECCC
Signature	Date	
Proposal for OSM Reviewed by		
EMSD Executive Director	Signature	Date
AEP Administrator/Coordinator - Review	Signature	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