

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 *	*Decision Pool D: Project Not Funded. * The Oil Sands Monitoring Program Secretariat will coordinate a discussion between the OSM Program Leadership, the Project Lead and the Lead of the Standards and Protocols Program for OSM to explore mechanisms, scope and timing for this proposed work.
18/01/18		OSM - Long Term Monitoring	
Program Category *	Status *	Dept. ID	
Watershed Sciences (Surface Water and Groundwater)	New Project	1104	
Project Leadership / Contact information			
Project Title *	Key Words (max 10) *		
SOP development for continuously recording data sondes	Deployment, data validation/verification, multi-parameter, sonde, calibration/maintenance		
Surname *	Given Name *	Title *	
Orwin	John	Director, Water Sciences	
Organization *	Department	Division	
Alberta Provincial	AEP	EMSD	
Branch *	Section/Unit (if applicable)	Phone *	
Science		4035923012	
Email *	Mailing Address	City	
John.Orwin@gov.ab.ca			
Postal Code	EMSD Executive Owner (if Applicable)		
T2E 7J2	Bill Donahue		
Project Information			
Project Objective(s) (Bullet Form) *	1) Review existing Canadian and international standard operating procedures (SOPs) related to the deployment and collection of data using multi-parameter sondes, including verification and validation approaches/methods for both surface water and groundwater 2) Write a comprehensive and scientifically credible deployment and data collection SOP that is consistent with national and international standards 3) Develop a robust and defensible data verification and validation approach that is consistent with national and international standards 4) To ensure that any SOP or data verification and validation methods are consistent, and compatible, with ongoing OSM data management and QA/QC work plans		
Plain Language Overview (100 words) *	The monitoring branch has been collecting surface water multi-parameter sonde data since the late 1980's and the semi-continuous nature of this data provides critical context to discrete water samples. However, a consistent methodology and process encompassing the deployment, collection, validation and verification of multi-parameter sonde data has not been developed. The deployment of these sondes and the need for the sonde data in other analytical application is likely to significantly increase as part of OSM evaluation and reporting. Additionally, there is a high probability that multi-parameter sondes will also be installed as part of future OSM groundwater programs. As a result, the development of a sonde specific SOP and data verification/validation process will address an important gap in EMSDs ability to provide defensible and traceable data both currently and in the future. The proposed workplan will help identify these gaps, improvements, and necessary processes that will become a Standard Operating Procedure as per EMSD requirements. Note that this SOP and data verification/validation process will not be directly addressing the data management aspects of sonde data. However, the aim to ensure that the results of this workplan will conform to the database requirements being developed under the OSM WISKI-Data management work plan.		
Project Duration *	Project Original Start Date *	Estimated Completion Date *	
Multi-Year	3/4/2018	31/03/20	
Specify Objectives This Project Will Address in 2018/2019. *	Objectives 1) and 2) will be completed in 2018/2019 with the expectation of significant progress on objectives 3) and 4). Evidence of significant progress could include, for example, data management process maps.		
Specify Objectives This Project Will Address Beyond 2018/19 (if multi-year). *	Completion of Objectives 3) and 4).		

<p>List Key Questions/Hypotheses Related to Each Objective Stated Above. *</p>	<p>1) Review existing Canadian and international standard operating procedures (SOPs) related to the deployment and collection of data using multi-parameter sondes, including verification and validation approaches/methods</p> <ul style="list-style-type: none"> • What are the most applicable existing methods for multi-parameter data sonde deployment? • Do standards vary between surface water and groundwater deployment? • What are the accepted, best management practices for dealing with data gaps/noise in multi-parameter sonde data? • What data verification/validation approaches or methods do other jurisdictions apply to multi-parameter sonde data and are they appropriate for OSM? <p>2) Write a comprehensive and scientifically credible deployment and data collection SOP that is consistent with national and international standards</p> <ul style="list-style-type: none"> • What is the most effective format for information delivery? <p>3) Develop a robust and defensible data verification and validation approach that is consistent with national and international standards</p> <ul style="list-style-type: none"> • To what extent can multi-parameter sonde data verification and validation be automated? • What are the most appropriate verification and validation criteria for individual parameters (e.g. turbidity, electrical conductivity)? • What are appropriate data quality flags and how should they be applied? <p>4) To ensure that any SOP or data verification and validation methods are consistent, and compatible, with ongoing OSM data management and QA/QC work plans</p> <ul style="list-style-type: none"> • Does the SOP or preferred data verification/validation method require adjustment to conform with existing data management structure(s)? • Will existing or future data management structure(s) result in different data collection and/or data validation/verification approaches being required and if so, what effect will be the effects on data quality? 	
<p>Main Assumptions, Constraints, Dependencies. *</p>	<p>The main constraint on this work plan will be human resourcing.</p>	
<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.</p>	<p>Knowledge System *</p>	<p>Location (select all that apply) *</p>
<p><input type="checkbox"/> Federal Government <input type="checkbox"/> Another AEP Division <input type="checkbox"/> Another GoA Department <input type="checkbox"/> University/Academic Institution <input checked="" 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</p>	<p>Classical Science</p>	<p><input checked="" type="checkbox"/> Office or Laboratory <input checked="" 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 checked="" type="checkbox"/> Red Deer Region <input checked="" type="checkbox"/> Lower Athabasca Region <input checked="" type="checkbox"/> Upper Athabasca Region</p>
<p>AEP ONLY: Strategic Alignment to EMSD Outcomes</p>		
<p>AEP ONLY: Strategic Alignment to EMSD Science Plan, select 1-2 areas that apply (if Applicable)</p>		
<p>Climate Variability and Change Ecosystems and Predicting Change</p>		
<p>AEP ONLY: Strategic Alignment to AEP Departmental Outcomes</p>		
<p>AEP ONLY: Environmental and Ecosystem Health and Integrity</p>	<p>AEP ONLY: Sustainable Economic Diversity</p>	<p>AEP ONLY: Social Well-Being</p>
<p>Water (Surface and Ground)</p>	<p>Yes</p>	<p>Yes</p>
<p>AEP ONLY: Protected Public Health and Safety from Environmental</p>		
<p>Yes</p>		
<p>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>	<p>Unknown at this time</p>	
<p>AEP ONLY: How This Project Will Address Each Strategic Theme Selected Above.</p>	<p>Data will be readily available for scientific needs.</p>	
<p>Project Methodology</p>		
<p>List the Key Project Phases and Provide Bullets for Each Major Task Under Each Project Phase. *</p>	<p>Phase 1</p> <ul style="list-style-type: none"> • Literature review of relevant field deployment and maintenance/calibration protocols • Determine which protocols are relevant to Alberta conditions (surface water and groundwater) <p>Phase 2</p> <ul style="list-style-type: none"> • Determine which components are required for the development of a SOP manual • Write Multi-parameter Sonde Deployment and Collection SOP <p>Phase 3</p> <ul style="list-style-type: none"> • Conduct internal review and revision of the Multi-parameter Sonde Deployment and Collection SOP <p>Phase 4</p> <ul style="list-style-type: none"> • Literature review of relevant multi-parameter sonde data verification/validation approaches/methods • Determine which protocols are relevant to Alberta conditions (surface water and groundwater) <p>Phase 5</p> <ul style="list-style-type: none"> • Seek feedback from staff (data management, science, EMOB and possibly external) on best practice approaches applicable to surface water and groundwater in Alberta • Document agreed upon data verification/validation approach 	

Describe How Changes in Environmental Condition Will Be Assessed. *	N/A
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". *	None
Provide a Brief Description of the Methods By Project Phase. *	<p>Phase 1</p> <ul style="list-style-type: none"> • Reading and assessing field deployment and maintenance/calibration protocols via peer reviewed literature or Government publications (e.g. United States Geological Survey) • Determine which protocols are relevant to Alberta conditions (surface water and groundwater) based on existing protocols and by speaking with other experts (Govt., academia, equipment manufacturers) where applicable <p>Phase 2</p> <ul style="list-style-type: none"> • Write an outline of the Multi-parameter Sonde Deployment and Collection SOP based on outcomes of Phase 1. Review outline with EMOB staff and science staff • Write complete first draft of the Multi-parameter Sonde Deployment and Collection SOP <p>Phase 3</p> <ul style="list-style-type: none"> • Conduct internal review and revision of the Multi-parameter Sonde Deployment and Collection SOP with qualified EMSD staff to refine the Multi-parameter Sonde Deployment and Collection SOP • Final document should be reviewed by at least one hydrologist, one water quality specialist, one hydrogeologist and two EMOB staff to confirm validity and scientific rigour of the SOP as well as the practicalities of implementation <p>Phase 4</p> <ul style="list-style-type: none"> • See Phase 1 methods
List the Key Indicators Measured. *	N/A
Describe Sample Handling Procedures, If Not Applicable, State N/A. *	N/A
List SOPs that Will Be Used, If Not Applicable, State N/A. *	Will be defined/developed in this workplan
Describe the QA/QC Plan, If Not Applicable, State N/A. *	The Standards group within EMOB will be engaged as part of this work plan.
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. *	No
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.	This is a process workplan that will define how we utilize, deploy and verify/validate time series data from multi-parameter sondes for surface and ground water.

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. *	Yes; there is a requirement for more time series monitoring in watersheds in Alberta, and management of this project will capture a process to enable these projects more efficiently and in a timely fashion.	
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	Continuous	Other
Data Collection Period: Start Date - End Date	Timeline For Upload Period: Start Date - End Date	
1980's to present	undefined as yet	
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.	Proposed as WISKI.	
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"/> 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
None	Choose one	Name of Meeting, Year, Location, Dates, Participant Groups and Number of Participants.
Multi-parameter Sonde Deployment and Collection SOP		
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"/> 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		
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
John Orwin, PI	Science Branch	Project coordination, scope, writing coordination, review
John Willis, Field Advisor	EMOB Branch	Advisory role in field deployment, review
Brian Jackson, Field Advisor	EMOB Branch	Advisory role in field deployment, review
Cynthia McClain, GW Advisor	Science Branch	Advisory role on ground water, meetings, review
Colin Cooke, Surface Water Advisor	Science Branch	Advisory role on surface water, meetings, review
Long Fu, Standards and Protocols Advisor	EMOB Branch	Standards and Protocols input and review in SOP development, meetings, review
Rita Lazar-Tippe, Data Management	IEAP Branch	Data management system concordance, meetings, review
TBD, Literature Review and draft SOP writing	EMOB Branch	Literature sourcing, summaries, draft SOP - two EMOB staff

AEP ONLY: Additional Human Resources Required from EMSD			
Name & Role	Branch - Section	Estimated time (% of annual FTE)	Salary Estimate Range
John Orwin, PI	Science Branch	9%	\$130,000 - \$150,000 (including 25% to cover benefits)
John Willis, Field Advisor	EMOB Branch	4%	\$110,000 - \$130,000 (including 25% to cover benefits)
Brian Jackson, Field Advisor	EMOB Branch	4%	\$110,000 - \$130,000 (including 25% to cover benefits)
Cynthia McClain, GW Advisor	Science Branch	3%	\$110,000 - \$130,000 (including 25% to cover benefits)
Colin Cooke, Surface Water Advisor	Science Branch	3%	\$110,000 - \$130,000 (including 25% to cover benefits)
Long Fu, Standards and Protocols Advisor	EMOB	2%	\$130,000 - \$150,000 (including 25% to cover benefits)
Rita Lazar-Tippe, Data Management	IEAP Branch	3%	\$130,000 - \$150,000 (including 25% to cover benefits)
TBD, Literature Review and draft SOP writing	EMOB Branch	26%	\$90,000 - \$110,000 (including 25% to cover benefits)

Financial Details and Budget Request		
Source of Funding Requested Year 1 - 2018/19		
	AEP ONLY: EMSD	OSM
Salaries and Benefits - AEP Chargeback		0
Salaries and Benefits - New OSM Staff		27300
Operations and Maintenance		
Consumable materials and supplies		
Conferences and meetings travel		2000
Field work travel		
Project-related travel		
Engagement		
Reporting		
External Contracts -		
Organization/Vendor/Suppliers		
Overhead		
Grants		
Capital		
Total budget request for the year	0	29300
Total budget approved		

Source of Funding Requested Year 2 - 2019/20		
	AEP ONLY: EMSD	OSM
Salaries and Benefits		TBD based off 2018/19 progress
Operations and Maintenance		
Consumable materials and supplies		
Conferences and meetings travel		
Field work travel		
Project-related travel		
Engagement		
Reporting		
External Contracts -		
Organization/Vendor/Suppliers		
Overhead		
Grants		
Capital		
Total budget request for the year	0	0
Total budget approved		

Source of Funding Requested Year 3 - 2020/21		
	AEP ONLY: EMSD	OSM
Salaries and Benefits		
Operations and Maintenance		
Consumable materials and supplies		
Conferences and meetings travel		
Field work travel		
Project-related travel		
Engagement		
Reporting		
External Contracts - Organization/Vendor/Suppliers		
Overhead		
Grants		
Capital		
Total budget request for the year	0	0
Total budget approved		

Source of Funding Requested Year 4 - 2021/22		
	AEP ONLY: EMSD	OSM
Salaries and Benefits		
Operations and Maintenance		
Consumable materials and supplies		
Conferences and meetings travel		
Field work travel		
Project-related travel		
Engagement		
Reporting		
External Contracts - Organization/Vendor/Suppliers		
Overhead		
Grants		
Capital		
Total budget request for the year	0	0
Total budget approved		
Budget Request for the Entire Project	0	29,300

Project Approval(s)

Proposal Submitted by		
Surname	Given Name	Organization
Orwin	John	EMSD, AEP
Signature	Date	
	02/12/2018	

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