

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 B: Workplan approved with contingency * Approved at \$44,092 with contingency * Report for 2017-18 is required prior to funds being released for 2018/19. * This project is to be completed in the 2018/19 year. *Funding expectations: as a minimum a final report is required by March 31, 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>
20/12/2017	A-MD-1-1819	OSM - Focus Study	
Program Category *	Status *	Dept. ID	
Air/Atmosphere/Climate	Existing Project	1104 - 03418	
Project Leadership / Contact information			
Project Title *	Key Words (max 10) *		
Method Comparison of Wet Precipitation (NADP vs AB)	Precipitation Chemistry, Acid Deposition, National Atmospheric Deposition Program,		
Surname *	Given Name *	Title *	
Akilu	Yayne-abebe	Atmospheric Scientist	
Organization *	Department	Division	
Alberta Provincial	Alberta Environment and Parks	Environmental Monitoring and Science	
Branch *	Section/Unit (if applicable)	Phone *	
Science	Airshed Sciences	7802297204	
Email *	Mailing Address	City	
Yayne.Akilu@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) *	The primary monitoring objectives of the method comparison of wet precipitation sampler project are to: (1) Test the National Atmospheric Deposition Program (NADP) and Alberta precipitation chemistry monitoring protocol at co-located site(s); and (2) Quantify the differences between the data collected using the two monitoring protocols that use different equipment and laboratory analysis.		
Plain Language Overview (100 words) *	The US National Atmospheric Deposition Program (NADP) provides a long-term record of precipitation chemistry across the United States and parts of Canada; participating in NADP provides the opportunity for continent-wide comparability of AOSR precipitation data with over 365 sites across North America. While this will allow comparison to areas outside of the region, it may not allow comparison with future or historically collected data at other sites within the oil sands region or in Alberta. This study will compare the sample volume and analysis results collected using NADP with that of WBEA and AEP monitoring and laboratory analysis protocols. NADP precipitation samplers will be deployed at two sites that currently have precipitation chemistry monitoring (AMS 1 and AMS 6). Samples collected using the NADP equipment will be sent to NADP laboratory and WBEA and AEP samples will be sent to Innotech.		
Project Duration *	Project Original Start Date *	Estimated Completion Date *	
Multi-Year	1-Apr-17	31-Mar-20	
Specify Objectives This Project Will Address in 2018/2019. *	Primary Objectives: 1. Collect weekly precipitation samples at AMS 1 and AMS 6 using the two monitoring protocols 2. Analyse collected data to determine areas of equivalence, comparability and/or differences between the results associated with the two monitoring protocols		
Specify Objectives This Project Will Address Beyond 2018/19 (if multi-year). *	The objectives of the project in 2019/20 will be to inform future precipitation chemistry monitoring for the oil sands region and Alberta based on this comparison study.		
List Key Questions/Hypotheses Related to Each Objective Stated Above. *	The hypothesis for this project is "precipitation samples collected and chemical analysis conducted using NADP protocol and the Alberta Air Monitoring Directive will result in significantly different results".		
Main Assumptions, Constraints, Dependencies. *	- Contracts with WBEA can be executed by April 1, 2018 - There will be sufficient samples collected to test the hypothesis - The analysis results of ion concentrations will be available in a timely manner from the two laboratories		

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. <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 checked="" type="checkbox"/> Other	Knowledge System * Classical Science	Location (select all that apply) * <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 Air/Climate Change	AEP ONLY: Sustainable Economic Diversity No	AEP ONLY: Social Well-Being 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	Info Need #12 (Ecosystem Services), Info Need #30 (Environmental Health Risk in Alberta) and Info Need #37 (Long-Term Soil Acidification Monitoring Program): Improved protocols for precipitation quality monitoring will improve measurements of wet deposition on in the oil sands and throughout the province.	
AEP ONLY: How This Project Will Address Each Strategic Theme Selected Above.	Environmental and Ecosystem Health and Integrity: Atmospheric deposition is one stressor that can cause damage to environmental receptors. Improved measurements of wet deposition can provide more accurate measurements of total atmospheric deposition.	
Project Methodology		
List the Key Project Phases and Provide Bullets for Each Major Task Under Each Project Phase. *	Phase 1: Operate the existing precipitation chemistry monitors at the Bertha Ganter (AMS 1) and Athabasca Valley (AMS 7) sites using the Alberta protocols; Phase 2: Operate the existing NADP precipitation chemistry sampler at AMS 1 and deploy an additional NADP precipitation sampler at AMS 7; Phase 3: Collect weekly precipitation samples at AMS 1 and AMS 7 and send to respective laboratories. Phase 3: Analyze data collected to determine areas of equivalence, comparability and/or differences Phase 4: Prepare report	
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". *	N/A	
Provide a Brief Description of the Methods By Project Phase. *	To identify potential differences between the NADP program and the currently used provincial method, co-located precipitation samples will be collected weekly at Bertha-Ganter-Fort McKay Air Monitoring Station (AMS 1) and Fort McMurray (AMS 7). The co-located sampling will comply with the respective sampling protocol and will be deployed no further than 3 metres from each other. One of the co-located sample will be collected using the NADP protocol and sent to the NADP Central Laboratory for analysis. The other will be collected in accordance with Alberta's Air Monitoring Directive and sent to Alberta Innotech for analysis. The co-located samples will be collected and shipped in accordance with the respective monitoring protocol. The field notes will be kept by the operating technician in accordance with the respective monitoring protocols. Results from the paired sample will be analyzed using a non-parametric tool to test the stated hypothesis by Alberta Environment and Parks. In addition, the two sample collection protocols and reporting practices of the two programs will be reviewed to better understand improvement(s) gained by joining the NADP program.	
List the Key Indicators Measured. *	Ammonium, Calcium, Chloride, Magnesium, Nitrate, Phosphate, Potassium, Sodium, Sulfate, pH	
Describe Sample Handling Procedures, if Not Applicable, State N/A. *	Precipitation samples are collected weekly and sent for laboratory analysis. NADP samples will be handled as specified by NADP sampling protocol and collocated samples will be handled as specified in the Air Monitoring Directive Chapter 4 and SOP-007.	

List SOPs that Will Be Used, If Not Applicable, State N/A.*	<ul style="list-style-type: none"> Air Monitoring Directive Chapter 4: Monitoring Requirement and Equipment Technical Specifications, Section 5 Precipitation Chemistry Monitoring outlines the monitoring requirements SOP-007 (under review) 	
Describe the QA/QC Plan, If Not Applicable, State N/A.*	Precipitation Chemistry Data Handling and Preparation	
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 the WBEA.	
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.*	Laboratory analysis will be conducted by Innotech Alberta and the NADP Central Laboratory in Illinois. Sample collection will be conducted by WBEA. Data analysis and reporting will be conducted by AEP and WBEA.	
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.*	The majority of this work will be delivered through a contract with WBEA.	
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.	A map of the Bertha Ganter (AMS1) and Athabasca valley (AMS 7) stations are located in project plan A-LTM-S-1-1819.	
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.	Weekly precipitation samples will be collected at the existing monitoring 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 WBEA.	
Other		
Additional Details.	N/A	
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
Yes	Discrete	Monthly
Data Collection Period: Start Date - End Date	Timeline For Upload Period: Start Date - End Date	
April 1, 2017 to March 31, 2019	June 1, 2017 to May 31, 2019	
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.	Wood Buffalo Environmental Association and AEP (Excel files)	
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
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
Presentation showing the initial results of the protocol comparison.		
<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

Report showing the comparison of data collected using the two protocols.		
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	

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All Completed Products	if a
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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.

1) Fearon, J. D., & Laitin, D. D. (2003). Ethnicity, Insurgency, and Civil War. American Political Science Review, 97(01), 75. doi: 10.1017/S0003055403000534

- 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) National Atmospheric Deposition Program. (2014). National Trends Network. Retrieved November 08, 2016, from <http://nadp.sws.uiuc.edu/ntn/>

- 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
Sanjay Prasad	Wood Buffalo Environmental Association	WBEA Project Leadership
Bob Myrick	Alberta Environment and Parks	AEP Project Administrator
Yayne Aklilu	Alberta Environment and Parks	Science support

AEP ONLY: Additional Human Resources

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 (WBEA)		\$20,092
Overhead		
Grants		
Capital		
Total budget request for the year	0	\$44,092
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
Operations and Maintenance		

Consumable materials and supplies		
Conferences and meetings travel		
Field work travel		
Project-related travel		
Engagement		
Reporting		
External Contracts - Organization/Vendor/Suppliers (WBEA)		\$5,000
Overhead		
Grants		
Capital		
Total budget request for the year		\$29,000
Total budget approved		

Source of Funding Requested Year 3 - 2020/21		
	AEP ONLY: EMSD	OSM
Salaries and Benefits - AEP Chargeback		\$0
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 (WBEA)		
Overhead		
Grants		
Capital		
Total budget request for the year		\$0
Total budget approved		

Source of Funding Requested Year 4 - 2021/22		
	AEP ONLY: EMSD	OSM
Salaries and Benefits - AEP Chargeback		\$0
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 (WBEA)		
Overhead		
Grants		
Capital		
Total budget request for the year		\$0
Total budget approved		

Budget Request for the Entire Project	0	\$73,092
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Project Approval(s)
Proposal Submitted by

Surname	Given Name	Organization
Myrick	Bob	AEP

Signature	Date
	22-Dec-17

X

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)	<p>* Report for 2017-18 is required prior to funds being released for 2018/29. * This project is to be completed in the 2018/19 year. *Funding expectations: as a minimum a final report is required by March 31, 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>	
Condition(s) Addressed / Approval Granted		
Choose one		
OSM / EMSD Approval Post Removal of Condition(s)		
Name & Title	Signature	Date

Sampling Locations/Sites	Latitude	Longitude
Fort McKay - Bertha Ganter (AMS 1)	57.1894278	-111.640583
Athabasca Valley (AMS 7)	56.7336278	-111.390431