

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 \$1,493,925</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>*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>
6/20/2018	B-LTM-5-1819	OSM - Long Term Monitoring	
Program Category *	Status *	Dept. ID	
Biodiversity, Land, Ecosystem Health Sciences	Existing Project		
Project Leadership / Contact information			
Project Title *	Key Words (max 10) *		
Biodiversity Monitoring - Benthic Macroinvertebrates	Benthic Macroinvertebrates, Athabasca river mainstem, Lower Athabasca River, Birch Mountains, nutrients, major ions, trace metals, PAHs, chlorophyll a		
Surname *	Given Name *	Title *	
Glozier (1)	Nancy	Research Scientist	
Culp (2)	Joseph	Section Head	
Organization *	Department	Division	
ECCC			
Branch *	Section/Unit (if applicable)	Phone *	
WSTB (1)		3069756057	
WSTD (2)		5064717727	
Email *	Mailing Address	City	
nancy.glozier@canada.ca	11 Innovation Blvd	Saskatoon, Sk	
joseph.culp@canada.ca	Wilfrid Laurier University, 75 University Avenue West	Waterloo, ON	
Postal Code	EMSD Executive Owner (If Applicable)		
S7N 3H5 (1)			
N2L3C5 (2)			
Project Information			
Project Objective(s) (Bullet Form) *	Through benthic macroinvertebrate monitoring, provide the necessary data and information to address key questions detailed in the Monitoring Plan Summary related to the effects of Oil Sands development on the ecological integrity and condition of the Lower Athabasca River and its tributaries.		
Plain Language Overview (100 words) *	This JOSM program focused on BMI because they are relatively sedentary, can be sensitive to multiple stressors, are critical components of fish habitat, and are the most common aquatic group used for aquatic bioassessments globally. Aquatic biomonitoring of BMI provides a direct measure of change in biotic populations and assemblages in relation to benchmark or reference conditions. The robust monitoring program developed during JOSM is used to measure baseline ecological condition and assess biological change associated with current and future development in aquatic ecosystems of the Lower Athabasca River and its tributaries. This BMI monitoring incorporates recommendations from the JOSM program including those for sampling frequency and methodology. Monitoring is conducted annually at established sites to assess BMI status and trends. By associating patterns of BMI biodiversity with water and sediment chemistry, physical habitat measurements, and other supporting environmental variables, this program aims to determine whether ecological effects are occurring in response to cumulative stressors associated with human activity in the region.		
Project Duration *	Project Original Start Date *	Estimated Completion Date *	
Multi-Year	4/1/2017	3/31/2022	
Specify Objectives This Project Will Address in 2018/2019. *	<p>1) ATHABASCA RIVER MAINSTEM WORKPLAN * Athabasca River Mainstem Biomonitoring Plan: Ten cobble sites (M0, M1A, M2 or M2A, M3, M3B, M4, M6, M8 & M9 plus one of M1, M7, M7c) will be sampled with 5 replicate samples taken per reach. * Completion of Mainstem Data Acquisition and Analysis From Previous Year</p> <p>2) TRIBUTARIES - LOWER ATHABASCA, AND BIRCH MOUNTAINS WORKPLAN * Tributaries Biomonitoring Plan: will focus on kick sampling and expanded CABIN protocol in erosional habitats. Primary sites will be sampled annually to track temporal changes in reference and test sites. * Completion of Tributary Data Acquisition and Analysis from previous year</p>		
Specify Objectives This Project Will Address Beyond 2018/19 (if multi-year). *	Continuation of above		
List Key Questions/Hypotheses Related to Each Objective Stated Above. *	<p>The specific bioassessment questions for the BMI component include:</p> <ul style="list-style-type: none"> • What is the current status of the BMI assemblage in these ecosystems and are these assemblages changing through time? • Are there differences in BMI assemblages among reference and potentially impacted sites and are these relationships changing through time? • What predictive relationships exist that link system environmental drivers (including development stress) to BMI assemblage responses? • Is there evidence of cumulative effects of development on BMI assemblages in the Lower Athabasca River and/or in its tributaries? 		

Main Assumptions, Constraints, Dependencies. *	<ul style="list-style-type: none"> Nutrient inputs from Ft. McMurray and Oil Sands Developments may affect biological processes in the river and have the potential to confound the effects of Oil Sands stressors including contaminants; Contaminant inputs to the mainstem arise from several possible pathways (including atmospheric transport, tributary inflows, groundwater flux, etc.). These contaminant inputs likely act as stressors that may modify biological composition of benthic food webs; Nutrient and contaminant effects on benthic food webs should be detectable through a suite of diagnostic, bioassessment indicators; Timely securement of contracts (e.g., external labs) is critical; Budget O&M and PY requirements for B-LTM-5-1748 are linked (logistics, shared sampling crews, equipment, etc.,) to the Benthic Biodiversity Baseline work in the Oil Sands Regions Cold Lake and Peace River B-RC-9-1718; and Budget O&M and PY requirements for B-LTM-5-1748 are linked (logistics, shared sampling crews, equipment etc.,) to the Monitoring Benthic Macro Invertebrates: Investigation of Cause of Nutrient Signatures in the Athabasca River Study B-IC-1-1718. 	
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 <input type="checkbox"/> Other	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 checked="" type="checkbox"/> Lower Athabasca Region <input checked="" 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 Choose one	AEP ONLY: Sustainable Economic Diversity Choose one	AEP ONLY: Social Well-Being 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. *	Phase 1: ATHABASCA RIVER MAINSTEM WORKPLAN A: Athabasca River Mainstem Biomonitoring Plan (2017-2022) and Deliverables B: Completion of Mainstem Data Acquisition and Analysis From Previous Year Phase 2: TRIBUTARIES - LOWER ATHABASCA, AND BIRCH MOUNTAINS WORKPLAN A: Tributaries Biomonitoring Plan (2017-2022): Lower Athabasca, and Birch Mountains and Deliverables B: Completion of Tributary Data Acquisition and Analysis from previous year - Lower Athabasca, and Birch Mountains	
Describe How Changes in Environmental Condition Will Be Assessed. *	Measurement of aquatic ecosystem health by monitoring benthic macroinvertebrate (BMI) assemblages in the mainstem of the Athabasca River and its tributaries.	
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". *	Reference conditions in areas outside oil sands geology have been established	

Provide a Brief Description of the Methods By Project Phase. *	<p>Phase 1: A: The design identifies 9 cobble locations (M0, M1A, M2, M3, M3B, M4, M6, M8 & M9) to be sampled each year with another 3 cobble sites (M1, M7, M7c) to be sampled once every 3 years. (Sampling of sand reaches has been discontinued as the assessment of 2012-2015 JOSM data indicated these sites have low biodiversity and high variability.) B: * BMI samples collected in autumn of the previous year will be sorted, identified and enumerated along with Quality Assurance/Quality Control (QA/QC) analysis according to Environment Canada (2012, 2014). * Water quality samples collected in autumn of the previous year will be analysed, verified and validated. * Sediment quality samples collected in autumn of the previous year will be analysed, verified and validated. * Semi-permeable membrane device (SPMD) samples collected in autumn of the previous year will be analysed and QA/QC completed. * Chlorophyll-a (Chl-a) samples collected in autumn of the previous year will be analysed and QA/QC completed. * Analysis of all data collected in the autumn of the previous year will be undertaken and placed into context of the previous sampling years.</p> <p>Phase 2: A: * The biomonitoring plan for tributary sites in the Lower Athabasca River and Birch Mountains area will focus on kick sampling and expanded CABIN protocol in erosional habitats. It is intended that primary sites outlined below will be sampled annually to track temporal changes in reference and test sites. Additional reference and test sites will be sampled on a rotational basis with particular attention to those years when hydrologic conditions are outside of the normal range (extreme high or low flows). * Greater than 100 sampling locations were established between 2011-2016. From these locations a total of 50 erosional sites will be sampled annually from autumn of 2017-2021 in the Lower Athabasca River, Oil Sands Minable Area and Birch Mountains B: * BMI samples collected in autumn of the previous year will be sorted, identified and enumerated along with QA/QC analysis according to Environment Canada (2012, 2014). * Water quality samples collected in autumn of the previous year will be analysed, verified and validated. * Sediment quality samples collected in autumn of the previous year will be analysed, verified and validated. * SPMD samples collected in autumn of the previous year will be analysed and QA/QC completed. * Chl-a samples collected in autumn of the previous year will be analysed and QA/QC completed. * Data analysis of all data collected in the autumn of the previous year will be undertaken and placed into context of the previous sampling years.</p>
List the Key Indicators Measured. *	Benthic macroinvertebrate (BMI) stress, nutrients, major ions, trace metals, PAHs, chlorophyll <i>a</i>
Describe Sample Handling Procedures, If Not Applicable, State N/A. *	Sample handling procedures are provided in standard operating procedure documents available internally and by request.
List SOPs that Will Be Used, If Not Applicable, State N/A.*	<p>SOPs available internally and by request: 1) OSM Benthic Methods Manual (in preparation, target March 2018); includes CABIN 400 µm mesh 3 minute traveling kick sampling approach at 5 locations within each study reach (based on assessment of 2012-2015 FY JOSM data); Supporting habitat measures as per Oil Sands Benthic Methods Manual and field data sheet. 2) Environment and Climate Change Canada's National Laboratory for Environmental Testing (NLET) methods</p> <p>Further Standards and Protocols are available on the EMSD website: http://environmentalmonitoring.alberta.ca/resources/standards-and-protocols/</p>
Describe the QA/QC Plan, If Not Applicable, State N/A. *	<p>Quality assurance and quality control procedures follow previously published methods: * Environment Canada. 2012. Wadeable streams field manual, Canadian Aquatic Biomonitoring Network (CABIN). (http://publications.gc.ca/collections/collection_2012/ec/En84-87-2012-eng.pdf). * Environment Canada. 2014. Laboratory methods for Canadian Aquatic Biomonitoring Network (CABIN): Processing, Taxonomy, and Quality Control of Benthic Macroinvertebrate Samples. (http://publications.gc.ca/collections/collection_2015/ec/En84-86-2014-eng.pdf).</p>
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.	An interactive map of all sampling locations is available on the ECCC OSM portal at: http://environmental-maps.canada.ca/osm/App/index?GOCTemplateCulture=en-CA
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	
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. *	ECCC staff will work with AEP to transfer methods were applicable to build capacity between the organizations in order to complete this work.	
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	
01/08/2018 - 30/09/2018	2018-2020	
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.	Final data will be submitted to the appropriate data portal (primarily the Oil Sands Monitoring Data Portal). Analysis of the data will be made available through publications in peer-reviewed literature.	
Project Deliverables		
Proposed 2018-19 Deliverable Type (for each deliverable outline document, presentation, meeting, etc.)		
<input type="checkbox"/> Peer-reviewed Journal Publication	<input checked="" 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.
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
<i>Detailed Information of Other Documents</i>
1)
2)
3)
4)
5)
Conference Presentation
<i>Required Format: Presenter, Date, Location, Title, Platform or Poster, Conference Name</i>
1)
2)
3)
4)
5)
Stakeholder Presentation
<i>Required Format: Presenter, Date, Location, Title, Platform or Poster, Name of Meeting</i>
1)
2)
3)
4)
5)
Key Engagement/Participation Meeting
<i>Required Format: Meeting Host, Date, Location</i>
1)
2)
3)
4)
5)

Human Resources / Staffing Plan (roles and responsibilities)

Name & Role	Organization	Responsibilities
Dr. Robert Brua, Mainstem Co-Project Lead	ECCC	Design of mainstem field work, analysis of data, writing and data interpretation
Dr. Joseph Culp, Mainstem Co-Project Lead	ECCC	Design of mainstem field work, analysis of data, writing and data interpretation
WSTD Science Team Support	ECCC	Contribution to study design, data analysis and writing
WSTD Field and Lab Technical Lead and Support	ECCC	Logistics and delivery of field work and lab analyses
Nancy Glozier Tributary Project Lead	ECCC	Design of tributary field work, analysis of data, writing and data interpretation
WSTB Science Team Support	ECCC	Contribution to study design, data analysis and writing
WSTB Field and Lab Technical Lead and Support	ECCC	Logistics and delivery of field work and lab analyses

AEP ONLY: Additional Human Resources Required from EMSD

Name & Role	Branch - Section	Estimated time (% of annual FTE)	Salary Estimate Range

Financial Details and Budget Request

	Source of Funding Requested Year 1 - 2018/19		
	AEP ONLY: EMSD	OSM (ECCC)	OSM (AEP)
Salaries and Benefits		518038	40000
Operations and Maintenance		892887	43000
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	1410925	83000

Total budget approved		1,493,925
Source of Funding Requested Year 2 - 2019/20		
	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 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	1,410,925	83,000
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Project Approval(s)		
Proposal Submitted by		
Surname	Given Name	Organization
Glozier	Nancy	ECCC
Culp	Joseph	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

Add All Monitoring Site Locations and Coordinates (insert more rows if required)

Site Identifier *	Lat *	Long *
Site 1		
M0	54.7265	-113.301
Site 2		
M1	56.6416	-111.619
Site 3		
M1A	56.6219	-111.655
Site 4		
M2A	56.6927	-111.462
Site 5		
M3	56.7938	-111.404
Site 6		
M3B	56.9473	-111.443
Site 7		
M4	57.098	-111.565
Site 8		
M6	57.202	-111.61
Site 9		
M7	57.3579	-111.659
Site 10		
M7C	57.5114	-111.538
Site 11		
M8	57.657	-111.426
Site 12		
M9	58.0666	-111.368
DOVRIF01	57.1504	-111.911
DOVRIF02	57.156	-111.875

DOVRIF02A	57.1547	-111.874
DOVRIF04	57.1214	-112.013
DOVRIF04A	57.1163	-112.018
DOVRIF05	57.1744	-111.807
DOVRIF06	57.1591	-111.864
DOVRIF07	57.1375	-111.948
DUNRIF01	56.8596	-112.712
ELLSRIF01	57.2647	-111.733
ELLSRIF02	57.2446	-111.737
ELLSRIF03	57.3052	-110.673
ELLSRIF03A	57.2914	-111.698
ELLSRIF04	57.2807	-111.705
ELLSRIF04A	57.2758	-111.701
ELLSRIF05	57.2277	-111.959
ELLSRIF05A	57.2278	-111.97
ELLSRIF06	57.2183	-112.02
ELLSRIF07	57.2898	-111.709
ELLSRIF09	57.1513	-112.174
ELLSRIF10	57.1813	-112.112
ELLSRIF11	57.2388	-111.849
ELLSRIF12	57.2644	-111.716
ELLSRIF13	57.2298	-111.94
ELLSRIF14	57.2341	-111.775
JOSRIF01	57.2896	-111.711
FIRLOWER	57.5191	-111.112
FIRLOWER01	57.6152	-111.119
FIRLOWER02	57.6512	-111.209
FIRMID	57.4372	-110.894
FIRMID02	57.4698	-110.981
FIRMID03	57.3849	-110.617
FIRMID04	57.4034	-110.772
FIRRIFF01	57.3313	-110.442
FIRTRIB02	57.3213	-110.457
FIRTRIB03	57.2976	-110.457
FIRTRIB04	57.2265	-110.538
FIRUPPER01	57.3433	-110.495
FIRUPPER02	57.3707	-110.544
HIGHHILLS	56.7516	-110.506
HNGRIF01	56.6868	-111.368
HNGRIF02	56.6497	-111.357
HRSRIF01	56.703	-111.394
HRSRIF02	56.674	-111.421
MUSRIF1	57.1456	-111.569
MUSRIF2	57.1826	-111.57
JPRIFFDN	57.2508	-111.439
JPRIFUP	57.07	-111.331
JPRiff-Up-2	57.0638	-111.315
MCKRIF01	56.8402	-112.288

MCKRIF02	56.9614	-111.952
MCKRIF03	57.1777	-111.735
MCKRIF04	57.0599	-111.776
MCKRIF05	56.9227	-112.149
MCKRIF06	57.1031	-111.764
MCKRIF07	56.8469	-112.258
MCKRIF08	57.1527	-111.761
MCKRIF09	57.008	-111.848
MCKRIF10	56.9763	-111.874
MCKRIF11	57.0298	-111.817
MCKRIF12	57.1911	-111.671
MCKRIF15	57.2126	-111.71
<hr/>		
STBRIF01	57.0224	-111.477
STBRIF02	57.0244	-111.449
STBRIF03	56.9989	-111.403
STBRIF04	56.99	-111.369
STBRIF04A	56.993	-111.376
STBRIF05A	56.9914	-111.334
STBRIF05B	56.9916	-111.334
STBRIF06A	56.9914	-111.339
STBRIF06B	56.9915	-111.339
STBRIF07	56.9785	-111.297
STBRIF07A	56.9733	-111.287
STBRIF08	56.9271	-111.232
STBRIF09	56.9229	-111.228
STBRIF10	56.8688	-111.143
STBRIF10A	56.8692	-111.147
STBRIF11	56.821	-110.991
STBRIF12	56.8972	-111.202
STBRIF13	56.8251	-111.024
STBRIF16	56.8506	-111.084
STBRIF17	56.8514	-111.083
STBRIF19	56.8584	-111.063
STBRIF20	56.9594	-111.269
STBRIF21	57.0172	-111.439
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BIRTRIB01	58.2843	-113.199
BIRTRIB02	58.2223	-113.178
BIRTRIB03	58.153	-113.104
BIRTRIB04	58.2342	-112.762
BIRTRIB05	58.1755	-112.211
BIRTRIB06	58.1186	-113.032
BIRTRIB07	58.05	-112.933
BIRTRIB08	58.1042	-112.946
BIRTRIB09	57.9755	-112.107
BIRTRIB10	57.9993	-112
BIRTRIB11	58.028	-111.96
BIRTRIB12	58.2053	-112.741
BIRTRIB13	58.1716	-112.646

BIRTRIB14	58.1783	-112.719
BIRTRIB15	57.9279	-112.336
BIRTRIB16	57.9343	-112.251
BIRTRIB17	57.9568	-112.163
BIRTRIB18	57.9564	-112.129
BIRTRIB19	57.9	-112.037
BIRTRIB20	57.9873	-112.032
BIRTRIB21	57.9663	-112.121
JALRIFF01	57.9974	-112.913
JALRIFF02	57.9991	-112.842
JALRIFF03	57.9852	-112.783
JALRIFF04	57.9969	-112.819
