

5- YEAR LONG-TERM MONITORING OR OPERATIONAL ACTIVITY WORK PLAN

Changes to this Work Plan are only accepted via an Approved Addendum.

General Information		
Monitoring Category: <i>(From OSM long-term plan; choose from drop-down menu)</i>	Watershed Monitoring	
Strategic Monitoring Objective: <i>(From OSM long-term plan; choose from drop-down menu)</i>	Objective: Detect and report concentration levels and trends of chemical substances of concern in the aquatic environment that are likely to cause adverse human and/or environmental health effects.	
Work Plan Unique Identifier:	W-LTM-S-1-1718	
Monitoring Activity Title:	Surface Water Quantity Monitoring – Water Levels and Flows	
Geographic Location <i>(choose from drop-down menu, if Project Location is in more than one area choose from second drop-down)</i>	Athabasca Oil Sands Region	Athabasca River - Tributaries
Monitoring Site(s) Coordinates <i>(latitude and longitude)</i>	See gauge station schedule (separate document)	
Monitoring Organization and Responsible Manager:	Environment and Climate Change Canada	Malcolm Conly
	Alberta Environment and Parks	Anil Gupta
Date Monitoring initiated:	2012	
Specific Monitoring Objective: <i>(State the monitoring objective addressed through this monitoring)</i>	The establishment of long-term hydrometric data record that will be used to assess watershed hydrology and trends, to support the interpretation of water quality and aquatic ecosystem based measures, and to support modelling activities. Water level and discharge data will be accessible to external users in near-real time via web-access. Hydrometric data and discharge calculations are generated at a standard that is acceptable to the Water Survey of Canada. Overall operations will remain relatively unchanged however the operational delivery will begin to transition from third-party contractors to WSC and will result in an increase budget requirement for WSC. Note that this transition will take several years and will focus on the stations clearly identified as important for long-term operations.	

<p>Deliverables (Annual):</p> <p><i>What Data Reports will be produced and when?</i></p>	<p>Data Management Deliverable: data properly formatted and prepared</p> <p>Stations Operated by Water Survey of Canada:</p> <ul style="list-style-type: none"> Data is made available through Water Survey of Canada's Water Office and can be downloaded in CSV format http://wateroffice.ec.gc.ca/ <p>Data Management Deliverable: metadata prepared</p> <ul style="list-style-type: none"> Completed new or update metadata &/or monitoring site records including station metadata can be found at: https://www.ec.gc.ca/rhc-wsc/default.asp?lang=En&n=894E91BE-1 The following link will take you to Water Survey of Canada's "Hydrometric Data and Information Service Standards": http://ec.gc.ca/meteo-weather/default.asp?lang=En&n=36C4D3AB-1 Data Management Deliverable: Context Note Approved not applicable <p>Data Releases Ready</p> <ul style="list-style-type: none"> National Hydrometric Data (including for the WSC operated stations in the oil sands) is available through The Water Office - http://wateroffice.ec.gc.ca/ The Hydrometric Data is archived in the HYDAT database - http://ec.gc.ca/rhc-wsc/default.asp?lang=En&n=9018B5EC-1 and can be downloaded from: https://www.ec.gc.ca/rhc-wsc/default.asp?lang=En&n=9018B5EC-1 <p>Real-Time Data can be accessed through the Water Office - http://wateroffice.ec.gc.ca/mainmenu/real_time_data_index_e.html</p> <p>Stations Operated by AEP (or its Contractors)</p> <ul style="list-style-type: none"> Near Real Time and all historical data: Data is made available through former RAMP public website and can be downloaded in CSV format from the link below: http://www.ramp-alberta.org/ramp/data.aspx <p>Note: AEP will be investigating data management options that will allow for transition of data formerly managed via Ramp to be managed in the future by AEP.</p>
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Monitoring Plan Summary: *Please summarize the monitoring including relevant information such as background, objectives, monitoring area, methods/monitoring design, assumptions, outcomes, and references. These should align with the information provided in Appendix 1: Annual Monitoring Schedule.*

Water levels are monitored at key nodes throughout the lower Athabasca River system. These nodes represent the core hydrometric network which is integrated with all elements of the core water monitoring program. Water level data are used to calculate river and stream discharge to assess hydrologic status and trends and to support calculation of water chemistry loads, interpretation of aquatic chemistry and ecosystem (fish and benthos) monitoring information, water quantity management and river modelling.

Water level data are transmitted via satellite or cellular telemetry and are available in near-real time through Alberta Environment and Parks (AEP) and Water Survey of Canada (WSC). Near-real time discharge reporting is also being phased in throughout the lower Athabasca River system.

Meteorological monitoring is also conducted to inform the interpretation of hydrometric data and to support modelling. The meteorological monitoring program supplements existing meteorological monitoring.

Appendix 1 – Annual Monitoring Schedule

(Please provide detailed information on the specifics of your monitoring schedule including – **locations, schedule, methods, SOPs, QA/QC data release, references**)

<u>Sampling Locations/Sites</u>	<u>Sampling Schedule (timing/frequency)</u>	<u>Compounds to be Analyzed</u>	<u>SOPs to be Consulted</u> <i>(hyperlinks accepted)</i>	<u>QA/QC Complete & Date Data to be Released</u>
See attached	See attached Note: low priority stations have been removed from cost estimates as they may not be operated in the future.	N/A	http://ec.gc.ca/meteo-weather/default.asp?lang=En&n=36C4D3AB-1	Annually

References:

See document: JOSM Hydrometric and Climate Monitoring Network Design (Nov 7, 2016)

Appendix 2 – Detailed Multi-Year Financial Breakdown: if changes are to be made then an Addendum must be Complete and Approved.

Includes transition over 2-3 year timeline. Costs will be focused on establishing and operating high and medium priority stations with main infrastructure construction (e.g., Bank operated cableways) deferred to subsequent years. stations built and transferred per year – total cost ~ \$14.5M in five years and will require one or two more years to complete transition

Budget requirements	Year 1 (2017- 2018)		Year 2 (2018- 2019)		Year 3 (2019- 2020)		Year 4 (2020- 2021)		Year 5 (ongoing)	
	OSM Funding	External Funding	OSM Funding	External Funding	OSM Funding	External Funding	OSM Funding	External Funding	OSM Funding	External Funding
1) Salaries and benefits										
a) Appendix 3 - Totals	\$647,327	tbd	\$700,000		\$700,000		\$700,000		\$700,000	
2) Operations and Maintenance										
Hydrometric Operations – Active station operations WSC	\$444,600	tbd	\$475,000		\$475,000		\$475,000		\$475,000	
Hydrometric Operations and Data management - AEP	\$751,896	tbd	\$750,000		\$850,000		\$850,000		\$850,000	
Transition – Station construction (estimates will vary depending on priority lists provided by AEP)	\$794,411 (will include some capital costs that will need to be sorted out)	tbd	\$675,000 (will include some capital costs that will need to be sorted out)		\$275,000 * (will include some capital costs that will need to be sorted out)		0		0	
Real-time Water Quality	\$9000	tbd	\$9000		\$9,000		\$10,000		\$12,000	
Data Review					\$120,000 + \$85,000 (salary-tbd)		\$120,000 + \$85,000 (salary-tbd)			
ECCC overhead to SSC, CSS & Accommodation - O&M & salary (but not EDP for WSC)	\$167,766		~\$170,000		~\$150,000		~\$150,000		~\$150,000	
Grand Total	\$2,815,000		\$2,780,000		\$2,664,000		\$2,390,000		\$2,187,000	

Note: Barring unforeseen circumstances all stations that are high and medium priority will have transitioned to WSC by the end of year 3 of the plan

Appendix 3 – Staffing Plan

(Complete the following detailed staffing plan; add or delete categories as required)

Responsible Role	Year 1 – Budget Allocation		Year 2 – Budget Allocation		Year 3 – Budget Allocation		Year 4 – Budget Allocation		Year 5 – Budget Allocation	
	OSM Funding	External Funding	OSM Funding	External Funding	OSM Funding	External Funding	OSM Funding	External Funding	OSM Funding	External Funding
Science Expertise										
Technical/Field Staff										
Administrative and Program Coordination										
Grand Total <i>(inserted into Appendix 2)</i>	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$

Appendix 4 - Approvals

Project Submitted by:		
Name: Malcolm Conly/ Anil Gupta		
Organization: Hydrological Operations & Engineering Services – West & North; National Hydrological Services; Meteorological Services of Canada; Environment and Climate Change Canada Alberta Environment and Parks	Signature:	Date: May 26, 2017
Project Approved by:		
Dr. Monique Dubé (AEP)		Dr. Kevin Cash (ECCC)
Signature 		Signature 
Date		Date