

Peace Project Water Use Plan

Monitoring Programs and Physical Works

Annual Report: 2012

For Implementation Year: June 2011 to May 2012

Physical Works

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- [GMSWORKS-2: PCR Baseline TGP/Temperature](#)
- [GMSWORKS-3: PCR Side Channels](#)
- [GMSWORKS-4: PCR Hydraulic Habitat](#)
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- [GMSWORKS-6: PCR Mainstem Stage Discharge](#)
- [GMSWORKS-7: PCR Riparian Habitat Assessment](#)
- [GMSWORKS-8: DNR Demonstration Tributary](#)
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For Water Licences 123018, 123019, 123020, 123021, 123025

June 29, 2012

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BC Hydro Peace Project Water Use Plan Annual Report: 2012

1 Introduction

This document summarizes the status of Peace Project Water Use Plan (WUP) physical work and monitoring program projects as of May 31, 2012. BC Hydro is required to provide this information to the Comptroller of Water Rights (CWR) pursuant to sections 7, 4, 5, and 4 of Schedules A, B, C, and D, respectively, to the Peace Order made by the CWR under section 88 of the *Water Act* and dated August 9, 2007 (the "Order").

This Annual Report is available to the public.

2 Glossary

The following acronyms, words, or phrases used throughout this document have the meanings given below:

BCH: BC Hydro

Committee Report: The consensus recommendations of the WUP Committee set forth in their report of December 2003. An Executive Summary of those recommendations can be viewed online at:

http://www.bchydro.com/etc/medialib/internet/documents/environment/pdf/wup_peace_river_executive_summary_pdf.Par.0001.File.wup_peace_river_executive_summary.pdf

CWR: The Comptroller of Water Rights for the Province of British Columbia.

DNR: Dinosaur Reservoir.

GMS: Gordon M. Shrum Generating Station at WAC Bennett Dam.

FLNRO: Forests, Lands, and Natural Resource Operations.

Order: The order of the CWR, identified as the "Peace Order" and dated August 9, 2007, made pursuant to s. 88 of the *Water Act* of British Columbia and pertaining to implementation of the Peace WUP.

PCN: Peace Canyon Dam.

PCR: Peace River.

PSP: The Peace Spill Protocol, a group of projects to be implemented in the event of spill releases of water from WAC Bennett Dam or Peace Canyon Dam. The PSP is described in detail in Appendix 3 of the WUP and is ordered pursuant to Schedule D of the Order.

TGP: Total dissolved gas pressure.

ToR: Terms of Reference for WUP projects ordered by the CWR. The ToR can be viewed online at:

http://www.bchydro.com/planning_regulatory/water_use_planning/northern_interior.html

WLL: Williston Reservoir, also known as Williston Lake.

WUP: The Peace Project Water Use Plan accepted by the CWR on August 21, 2007. The WUP can be viewed online at:

http://www.bchydro.com/etc/medialib/internet/documents/environment/pdf/peace_river_water_use_plan.Par.0001.File.peace_river_wup.pdf

WUP Committee: The Peace Water Use Planning Committee as described in the Committee Report.

3 Background

The water use planning process for BC Hydro's Peace River hydroelectric facilities was initiated in February 2001 and completed in December 2003. The conditions proposed in the WUP for the operation of the facilities reflect the December 2003 consensus recommendations (the Committee Report) of the Peace Water Use Planning Committee (the WUP Committee).

Following review by the provincial Cabinet, BC Hydro submitted the WUP to the CWR in June 2006. The CWR accepted the WUP on August 21, 2007.

On August 9, 2007, BC Hydro was ordered to implement the operating conditions proposed in the WUP and to prepare terms of reference (ToR) for specified physical work and monitoring program projects.

GMSWORKS-11 FSJ Water Well, a proposed project relating to the water supply to the community of Fort St. John, was conducted outside the WUP and is not part of this report.

GMSWORKS-15 WLL Digital Elevation Model has been combined with GMSWORKS-14 Airphotos and is described in the section relating to the latter project.

Between February 9, 2008 and present, ToR were submitted to the CWR at various times for approval and leave to commence ordered projects. In addition, addendums to various ToR have been submitted to the CWR at various times for approval. Leave to commence all projects for which ToR or addendums have been submitted has been granted.

ToR for the following two ordered projects have not yet been submitted to the CWR:

- GMSWORKS-23: WLL Erosion Control Trial
- GMSMON-19: WLL Erosion Control

ToR for a portion of GMSWORKS-28 Industry Feasibility & Design Study relating to the community of Mackenzie's sewage outfall have been submitted to, and accepted by, the CWR. No ToR have yet been submitted for those portions of the project relating to the forest products mills in Mackenzie, but submission is expected in 2012.

The status of those projects is described in Section 5, below.

The WUP includes a number of "management plans", each addressing a key area of concern for the WUP Committee. Many WUP projects are intended to address specific management plans. The management plans and the projects addressing them are:

For Williston Reservoir:

- The Riparian and Wetland Habitat Management Plan, addressed primarily by GMSWORKS-16 and 17, and GMSMON-15.
- The Tributary Habitat Enhancement Management Plan, addressed primarily by GMSWORKS-19 and GMSMON-17.
- The Dust Control Management Plan, addressed primarily by GMSWORKS-20 and 21, and GMSMON-18.
- The Erosion Management Plan, addressed primarily by GMSWORKS-23 and GMSMON-19.
- The Williston Access, Navigation, and Safety Plan, addressed primarily by GMSWORKS-24 and GMSMON-20.
- The Debris Management Plan, addressed primarily by GMSWORKS-18 and 22 and GMSMON-16.
- The Peace/Williston Marine Radio Communications and Improved Signage Plan, addressed primarily by GMSWORKS-26.

For Dinosaur Reservoir, the Dinosaur Reservoir Management Plan, addressed primarily by GMSWORKS- 8, 9, and 12, and by GMSMON-14.

For the Peace River:

- The Peace Side Channel Plan, addressed primarily by GMSWORKS-3 and GMSMON-7.
- The Peace Ramping Plan, addressed primarily by GMSWORKS-3 and GMSMON-7.
- The Peace Flood Pulse Plan, addressed primarily by the Peace Spill Protocol (PSP), a collection of projects to be implemented in the event of a spill from the WAC Bennett or Peace Canyon Dams. The PSP includes GMSWORKS-2 and 7, and GMSMON-3, 4, 6, 7, 8, 9, 10, 11, 12, and 13.

The remainder of the Peace WUP projects either support multiple management plans or do not address a specific management plan.

The Order will be implemented until 2021, when the longest-running projects will end, except for ongoing maintenance on the GMSWORKS-26 marine communications system and any WUP boat ramps constructed.

A review of Williston Reservoir operations is to occur approximately five years after commencement of the WUP. The timing is not yet finalized but will likely be in 2014 because of the staggered start years of projects. During the review, the WUP Committee, as it is then constituted, will:

- 1) Consider the results of certain WUP projects and may recommend long-term operating constraints for Williston Reservoir to replace those currently in effect pursuant to the Order;
- 2) Review the results of certain projects and consider what adjustments, if any, are required to scope or methodology; and

- 3) Make decisions about proceeding with conditional next steps for appropriate projects.

A full review of the WUP will occur approximately ten years after commencement of the WUP. The timing is not yet finalized but the review will likely occur in 2021 or 2022 because of the staggered start years and fixed durations of the WUP projects.

4 Status

The following table outlines the dates that TOR for the Peace Water Use Plan monitoring programs and physical works were submitted to and approved by the CWR.

Table 4-1 Dates of Peace WUP TOR Submissions and Approvals by the Comptroller of Water Rights

Monitoring Program & Physical Works TOR	Order Clause (optional)	Original ToR Submission		Most Recent ToR Resubmission	
		Date Submitted	Date Approved	Date Submitted	Date Approved
GMSMON-01 PCR CREEL SURVEY	Schedule C.4.a	2008-04-10	2008-04-28	2011-08-26	2011-11-23 Approval to cancel
GMSMON-02 PCR FISH INDEX	Schedule C.4.b	2008-04-10	2008-04-28		
GMSMON-03 PCR FISH STRANDING	Schedule D.3.a	2008-02-07	2008-04-02	2008-11-03	2008-11-20
GMSMON-04 WACB ENTRAINMENT	Schedule D.3.b	2008-02-07	2008-04-02	2009-08-07	2010-01-20
GMSMON-05 PCR PRODUCTIVITY	Schedule C.4.c	2008-08-08	2008-09-15	2009-08-07	2010-01-20
GMSMON-06 PCR RIPARIAN FLOODING	Schedule D.3.c	2008-02-07	2008-04-02		
GMSMON-07 PCR SIDE CHANNEL FISHERIES	Schedule C.4.d	2008-02-07	2008-04-02	2011-06-27	2011-07-28
GMSMON-08 PCR SIDE CHANNEL RESPONSE	Schedule D.3.d	2008-02-07	2008-04-02		
GMSMON-09 PCR SPILL HYDROLOGY	Schedule D.3.e	2008-02-07	2008-04-02		
GMSMON-10 PCR SPILL PHOTOS	Schedule D.3.g	2008-02-07	2008-04-02	2009-03-24	2009-03-31
GMSMON-11 PCR SPILL TGP/TEMP	Schedule D.3.f	2008-02-07	2008-04-02	2009-08-07	2010-01-20
GMSMON-12 PCR WILDLIFE SURVEY	Schedule D.3.h	2008-02-07	2008-04-02	2008-11-03	2008-11-20
GMSMON-13 WLL FISH INDEX	Schedule D.e.i	2008-02-07	2008-04-02		
GMSMON-14 DNR TRIBUTARY HABITAT	Schedule B.e.a	2008-08-08	2008-09-15		
GMSMON-15 WLL WETLAND HABITAT	Schedule A.6.b	2008-08-08	2008-09-15		
GMSMON-16 WLL DEBRIS TRENDS	Schedule A.3.c, Schedule A.5.a	2008-11-26	2008-12-17		
GMSMON-17 WLL TRIBUTARY HABITAT	Schedule A.6.c	2008-08-08	2008-09-15		
GMSMON-18 WLL DUST CONTROL	Schedule A.6.d	2008-04-02	2008-04-28	2011-04-13	2011-06-01
GMSMON-19 WLL EROSION CONTROL	Schedule A.6.e	2011-10-03	2011-11-16		
GMSMON-20 WLL RECREATION USE	Schedule A.6.f	2008-08-08	2008-09-15		
GMSMON-21A WLL ARCHAEOLOGICAL OVERVIEW ASSESSMENT	Clause 7.a	2008-05-09	2008-06-02	2009-08-07	2010-01-20
GMSMON-21B WLL EROSION MONITORING OF ARCHAEOLOGICAL RESOURCES	Clause 7.b	2008-05-09	2008-06-02	2009-08-07	2010-01-20
GMSWLR ANNUAL REPORT		2008-02-07	2008-04-02	2010-08-27	2010-10-21
GMSWORKS-01 PCR AERIAL PHOTOS	Schedule C.1	2008-05-09	2008-06-02	2009-03-24	2009-03-31
GMSWORKS-02 PCR BASELINE TGP/TEMP	Schedule D.1	2008-02-07	2008-04-02		
GMSWORKS-03 PCR TRIAL SIDE CHANNELS	Schedule C.1.a	2008-05-09	2008-06-02	2011-06-27	2011-07-28
GMSWORKS-04 PCR HYDRAULIC HABITAT	Schedule C.1.b	2008-05-09	2008-06-02	2009-08-07	2010-01-20
GMSWORKS-05 PCR HYDRAULIC MODEL	Schedule C.1.b	2008-05-09	2008-06-02	2009-08-07	2010-01-20
GMSWORKS-06 PCR MAINSTEM STAGE DISCHARGE	Schedule C.1.b	2008-05-09	2008-06-02	2009-08-07	2010-01-20
GMSWORKS-07 PCR RIPARIAN HABITAT ASSESSMENT	Schedule C.1.c	2008-02-07	2008-04-02	2009-08-07	2010-01-20
GMSWORKS-08 DNR DEMONSTRATION TRIBUTARY	Schedule B.1.b	2008-05-09	2008-06-02	2009-08-07	2010-01-20
GMSWORKS-09 DNR TRIBUTARY INVENTORY & FEASIBILITY	Schedule B.1.a	2008-05-09	2008-06-02		
GMSWORKS-10 PCR INDUSTRY & TAYLOR WATER QUALITY ASSESSMENT	Schedule C.4.e	2008-11-26	2008-12-17		
GMSWORKS-12 DNR RECREATION ACCESS	Schedule B.2.a	2008-05-09	2008-06-02	2009-08-07	2010-01-20
GMSWORKS-13 PCR RECREATION ACCESS	Schedule C.2	2008-05-09	2008-06-02	2009-08-07	2010-01-20
GMSWORKS-14 WLL AIR PHOTOS & DEM	Schedule A.3.d	2008-05-09	2008-06-02		
GMSWORKS-16 WLL WETLAND INVENTORY	Schedule A.2.a	2008-05-09	2008-06-02	2009-08-07	2010-01-20
GMSWORKS-17 WLL TRIAL WETLANDS	Schedule A.2.a	2008-05-09	2008-06-02	2009-08-07	2010-01-20
GMSWORKS-18 WLL DEBRIS FIELD SURVEY	Schedule A.3.c	2008-11-26	2008-12-17		
GMSWORKS-19 WLL TRIAL TRIBUTARY(S)	Schedule A.2.b	2008-05-09	2008-06-02	2009-08-07	2010-01-20
GMSWORKS-20 WLL DUST SOIL MAPPING	Schedule A.3.a	2008-04-02	2008-04-28	2011-04-13	2011-06-01
GMSWORKS-21 WLL DUST CONTROL TRIAL	Schedule A.3.a	2008-04-02	2008-04-28	2012-08-03	2012-09-07
GMSWORKS-22 WLL DEBRIS REMOVAL	Schedule A.3.c, Schedule A.5.a	2008-11-26	2009-03-23	2008-11-26	2009-03-23
GMSWORKS-23 WLL EROSION CONTROL TRIAL	Schedule A.3.b	2011-10-03	2011-11-16		
GMSWORKS-24 WLL BOAT ACCESS	Schedule A.4	2008-05-09	2008-06-02	2009-08-07	2010-01-20
GMSWORKS-25 WLL BATHYMETRIC MAPPING	Schedule A.3.d	2008-05-09	2008-06-02	2011-06-08	2011-10-12
GMSWORKS-26 WLL COMMUNICATIONS/SAFETY	Schedule A.5.b, Schedule A.5.c, Schedule B.2.b, Schedule C.3.a	2008-05-09	2008-06-02	2009-08-07	2010-01-20
GMSWORKS-27 WLL FINLAY RIVER ACCESS INFORMATION PLAN	Schedule A.6.a	2008-08-08	2008-09-15	2009-08-07	2010-01-20
GMSWORKS-28 INDUSTRY FEASIBILITY AND DESIGN STUDY	Schedule A.1	2009-11-30	2010-01-11	2013-02-05	2013-02-13
GMSWORKS-29 LYNX CREEK	Schedule C.2.a	2010-04-16	2010-05-07		
GMSWORKS-30 BOAT RAMP DESIGN TAYLOR (Peace Island)	Schedule C.2.c	2010-04-16	2010-05-07	2012-07-25	2012-08-02
GMSWORKS-31 KWADACHA (Fort Ware)	Schedule A.4.b	2010-04-16	2010-05-07		
GMSWORKS-32 BOAT RAMP DESIGN DESERTER'S DUMP		2010-04-15	2010-06-28		
GMSWORKS-33 BOAT RAMP DESIGN INGENIKA (Billy's Bay)	Schedule A.4.b	2010-04-15	2010-06-28	2011-04-18	2012-04-03 Deferred
GMSWORKS-34 BOAT RAMP DESIGN FINLAY BAY	Schedule A.4.c	2010-04-15	2010-06-28	2011-04-18	Not approved to move forward 2012-04-03
GMSWORKS-35 BOAT RAMP DESIGN 6 MILE BAY	Schedule A.4.c	2010-04-15	2010-06-28	2011-04-18	Not approved to move forward 2012-04-03
GMSWORKS-36 BOAT RAMP DESIGN CUTTHUMB BAY	Schedule A.4.c	2010-04-15	2010-06-28	40651	Not approved to move forward 2012-04-03
GMSWORKS-37 BOAT RAMP DESIGN MACKENZIE LANDING	Schedule A.4.c	2010-04-15	2010-06-28	2011-04-18	2012-04-03
GMSWORKS-38 BOAT RAMP TAYLOR (Peace Island)	Schedule C.2.c	2012-07-25	2012-08-02	2012-11-21	Pending
GMSWORKS-40 BOAT RAMP DESIGN BLACKFOOT PARK	Schedule C.2.d	2010-04-15	2010-06-28	2011-04-18	2012-04-03 Deferred
GMSWORKS-41 BOAT RAMP DESIGN HALFWAY RIVER	Schedule C.2.b	2010-04-15	2010-06-28	2011-04-18	2012-04-03 Deferred
GMSWORKS-43 BOAT RAMP INGENIKA (Billy's Bay)	Schedule A.4.b	2011-04-18	2012-04-03 Deferred		
GMSWORKS-44 BOAT RAMP FINLAY BAY	Schedule A.4.c	2011-04-18	Not approved to move forward 2012-04-03		
GMSWORKS-45 BOAT RAMP 6 MILE BAY	Schedule A.4.c	2011-04-18	Not approved to move forward 2012-04-03		
GMSWORKS-46 BOAT RAMP CUTTHUMB BAY	Schedule A.4.c	2011-04-18	Not approved to move forward 2012-04-03		
GMSWORKS-47 BOAT RAMP MACKENZIE LANDING	Schedule A.4.c	2011-04-18	2012-04-03		
GMSWORKS-48 BOAT RAMP BLACKFOOT PARK	Schedule C.2.d	2011-04-18	2012-04-03 Deferred		
GMSWORKS-49 CAP BOAT RAMP DUNLEVY	Schedule A.4.a	2011-04-18	2012-04-03 Deferred		
GMSWORKS-51 BOAT RAMP HUDSONS HOPE (Dinosaur)	Schedule B.2	2011-04-18	2012-04-03	2012-09-12	2012-10-01
GMSWORKS-52 BOAT RAMP HALFWAY RIVER	Schedule C.2.b	2011-04-18	2012-04-03		
GMSWORKS-53 BOAT RAMP DESIGN HUDSONS HOPE (Dinosaur)	Schedule B.2	2010-04-15	2010-05-07	2012-09-12	2012-10-01
GMSWORKS-54 CAP BOAT RAMP DESIGN DUNLEVY	Schedule A.4.a	2010-04-15	2010-05-07	2011-04-18	2012-04-03 Deferred
GMSWORKS-56 HUDSONS HOPE MAINTENANCE (Dinosaur)	Schedule B.2	2011-04-18	2012-04-03		
GMSWORKS-57 DUNLEVY MAINTENANCE	Schedule A.4.a	2011-04-18	2012-04-03 Deferred	2012-07-20	2012-07-26
GMSWORKS-58 MACKENZIE MAINTENANCE	Schedule A.4.c	2011-04-18	2012-04-03		
GMSWORKS-63 TAYLOR MAINTENANCE (Peace Island)	Schedule C.2.c	2012-07-25	Pending		

5 Project Timing

Tables 5-1 and 5-2 outline the Peace WUP Physical Works and Monitoring Program projects implementation schedules.

Table 5-1: Schedule of Peace WUP Physical Works Projects Implementation as of June 2012

Project	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
GMSWORKS-1: PCR Aerial Photos	✓ ⁷	✓ ⁷	✓ ⁷	✓ ⁷					▪ ⁸	▪ ⁸				
GMSWORKS-2: PCR Baseline TGP/Temperature	✓	✓	✓	✓	u/w	▪	▪	▪	▪	▪	▪			
GMSWORKS-3: PCR Side Channels	Del	✓	✓		▪ ¹¹	▪	▪							
GMSWORKS-4: PCR Hydraulic Habitat	Del	✓	✓	✓	u/w ⁴									
GMSWORKS-5: PCR Hydraulic Model	Del	✓	✓	✓	u/w	▪ ⁶								
GMSWORKS-6: PCR Mainstem Stage Discharge	Del	✓	✓	✓	u/w ⁵	▪ ⁵	▪ ⁵	▪ ⁵						
GMSWORKS-7: PCR Riparian Habitat Assessment			✓	✓	u/w ⁴									
GMSWORKS-8: DNR Demonstration Tributary			✓			▪ ¹⁰	▪		▪ ⁵					
GMSWORKS-9: DNR Tributary Inventory & Feasibility		✓												
GMSWORKS-10: PCR Industry & Taylor Water Quality Assessment	Del	✓	✓	✓	✓ ⁴									
GMSWORKS-12: DNR Recreation Access	✓	✓	✓											
GMSWORKS-13: PCR Recreation Access	✓	✓	✓											
GMSWORKS-14: WLL Air Photos & DEM		✓	✓	✓							▪			
GMSWORKS-16: WLL Wetland Inventory		✓	✓											
GMSWORKS-17: WLL Trial Wetlands			✓	✓	▪ ¹¹	▪	▪ ⁵	▪ ⁵	▪ ⁵	▪ ⁵	▪ ⁵			
GMSWORKS-18: WLL Debris Field Survey		✓	✓	✓										
GMSWORKS-19: WLL Trial Tributaries	Del	✓			▪ ¹⁰	▪ ¹⁰	▪	▪ ⁵	▪ ⁵	▪ ⁵	▪ ⁵	▪ ⁵		
GMSWORKS-20: WLL Dust Source Survey		✓	✓	✓	▪									
GMSWORKS-21: WLL Dust Control Trial	✓	✓	✓	✓										
GMSWORKS-22: WLL Debris Management		✓	✓	✓	▪	▪	▪	▪	▪	▪	▪	▪ ³		
GMSWORKS-23: WLL Erosion Control Trial	Del ¹	Del ¹	Del ¹	Del ¹	Del ¹									
GMSWORKS-24: WLL Boat Access	Del	✓	✓											
GMSWORKS-25: WLL Bathymetric Mapping			✓	✓	u/w ⁴									
GMSWORKS-26: WLL Communications/Safety	Del	✓	Del	✓	u/w	▪ ⁵	▪ ⁵	▪ ⁵	▪ ⁵	▪ ⁵	▪ ⁵	▪ ⁵	▪ ⁵	▪ ^{5,9}
GMSWORKS-27: WLL Finlay River Access Information Plan		✓	✓											
GMSWORKS-28: Industry Feasibility & Design Study	Del	Del	✓ ²	✓ ²	u/w	▪								
GMSWORKS-28a: District of Mackenzie Effluent Discharge Feasibility & Design Study			✓	✓	▪ ⁶									
GMSWORKS-29 Lynx Creek Boat Launch Maintenance			✓	✓	▪	▪	▪	▪	▪	▪	▪	▪	▪	▪
GMSWORKS-30 Taylor Boat Launch Design			✓	✓	▪									
GMSWORKS-31 Kwadacha Boat Launch Maintenance			✓	✓	▪	▪	▪	▪	▪	▪	▪	▪	▪	▪
GMSWORKS-33 Boat Ramp Design Ingenika			✓	✓		▪								
GMSWORKS-34 Boat Ramp Design Finlay Bay			✓	✓										
GMSWORKS-35 Boat Ramp Design 6 Mile Bay			✓	✓										
GMSWORKS-36 Boat Ramp Design Cut Thumb bay			✓	✓										
GMSWORKS-37 Boat Ramp Design Mackenzie Landing			✓	✓	✓									
GMSWORKS-38 Taylor Ramp Construction					▪	▪								
GMSWORKS-40 Boat Ramp Design Blackfoot Park			✓	✓	✓									
GMSWORKS-41 Boat Ramp Design Halfway River			✓	✓										
GMSWORKS-51 Dinosaur Boat Ramp Construction (Hudson's Hope)					▪	▪								
GMSWORKS-53 Boat Ramp Design Hudson's Hope			✓	✓	✓									
GMSWORKS-54 Boat Ramp Design Dunlevy			✓	✓	✓									
Legend	▪ Program to be undertaken/initiated in identified year u/w Project is under way ✓ Project is completed for the year Del Project is delayed for the year													

Footnotes: 1. Delayed pending completion of outstanding commitments under contract between BC Hydro, the Province of BC, and the Tsay Keh Dene First Nation.
2. The industry portion of this project is delayed pending resolution of the status of the plants in Mackenzie. The community's sewage outfall portion is underway.
3. Final report completion only.
4. Final report completion.
5. Work in this year represents maintenance at existing sites.
6. Project wrap up costs, only (i.e. data archiving, report edits, etc.)
7. One of five flows captured in 2008, two additional flows captured in 2009, none in 2010, and the two remaining flows were captured in 2011.
8. Flows not captured in Year 9 will be taken in Year 10.
9. Maintenance work will continue in future years.
10. Project planning will be initiated in 2012; construction planned for 2014.
11. Project planning will be initiated in 2012; construction planned for 2013 or 2014.

Table 5-2: Schedule of Peace WUP Monitoring Program Projects Implementation as of June 2012

Project	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
GMSMON-1: PCR Creel Survey				Del ³	Del ⁷									
GMSMON-2: PCR Fish Index	✓	✓	✓	✓	▪	▪	▪	▪	▪	▪	▪ ²			
GMSMON-3: PCR Fish Stranding		✓	✓	✓	▪ ⁴									
GMSMON-4: WACB Entrainment	✓			✓	▪ ⁴									
GMSMON-5: PCR Productivity			Del ⁵	Del ⁵	Del ⁵	▪	▪	▪	▪	▪	▪	▪	▪	
GMSMON-6: PCR Riparian Flooding										▪ ⁴	▪ ⁴			
GMSMON-7: PCR Side Channel Fisheries			Del ⁵	Del ⁵	Del ⁵	▪	▪	▪	▪	▪	▪	▪	▪	▪ ²
GMSMON-8: PCR Side Channel Response					▪ ⁴									
GMSMON-9: PCR Spill Hydrology		✓	✓	✓	u/w									
GMSMON-10: PCR Spill Photos					▪ ⁴									
GMSMON-11: PCR Spill TGP/Temperature					▪ ⁴									
GMSMON-12: PCR Wildlife Survey		✓	✓		▪ ⁴									
GMSMON-13: WLR Fish Index	✓	✓												
GMSMON-14: DNR Tributary Habitat			✓	Del ⁶	▪		▪		▪		▪			
GMSMON-15: WLL Wetland Habitat			Del ⁶	✓	u/w	▪	▪	▪	▪	▪	▪	▪	▪	
GMSMON-16: WLL Debris Trends				▪	▪ ²	▪	▪ ²				▪	▪ ²		
GMSMON-17: WLL Tributary Habitat			Del ⁶	✓	u/w	▪	▪	▪	▪	▪	▪	▪	▪	
GMSMON-18: WLL Dust Control	✓	✓	✓	✓	u/w	▪	▪	▪	▪	▪	▪ ²			
GMSMON-19: WLL Erosion Control	Del ¹	Del ¹	Del ¹	Del ¹	Del ¹									
GMSMON-20: WLL Recreation Use		✓	✓	✓	u/w	▪	▪	▪	▪	▪	▪	▪ ²		
GMSMON-21A: WLL Archaeological Overview Assessment		✓	✓											
GMSMON-21B: WLL Erosion Monitoring of Archaeological Resources		Del	✓	✓	u/w	▪	▪	▪	▪	▪	▪			
Legend	▪ Program to be undertaken/initiated in identified year u/w Project is under way ✓ Project is completed for the year Del Project is delayed for the year													

- Footnotes:
1. Delayed pending completion of outstanding commitments under contract between BC Hydro, the Province of BC, and the Tsay Keh Dene First Nation.
 2. Final report completion only.
 3. Delayed pending discussions with CWR re suitability of study to meet management objectives.
 4. Opportunistic study to be implemented in the event of a spill meeting the criteria of the PSP.
 5. Delayed one year due to delay of corresponding WORKS projects.
 6. Delayed one year due to loss of resources.
 7. **Project cancelled.**

6 Peace WUP Physical Works Projects

6.1 GMSWORKS-1 – Peace River Aerial Photos

6.1.1 Status

This work was initiated in October 2008, and the first complete set of photos for all required flows was completed by 2011. A second set of photos will be undertaken in 2016.

6.2 GMSWORKS-2 – Peace River Baseline TGP and Temperature

6.2.1 Status

Monitoring equipment was purchased in August 2008 and the temperature gauges deployed the following month. Temperature readings are downloaded quarterly. The project will continue until 2019.

6.3 GMSWORKS-3 – Peace River Side Channels

6.3.1 Status

The inventory work associated with this project was initiated in May 2009 and was completed in January 2010. A final report for the inventory stage was completed in May 2010.

Implementation of construction works was delayed as result of the changes to the ToR and the spatial boundary of the study area. Planning for implementation based on the revised ToR is scheduled for late 2012/2013, with construction works scheduled for 2013 or 2014.

6.4 GMSWORKS-4 – Peace River Hydraulic Habitat

6.4.1 Status

This work was initiated in May 2009 and is scheduled to be completed by January 2011. Delays in delivering the 2011 aerial photos has meant that this project deliverable date has been changed to July 2012.

6.5 GMSWORKS-5 – Peace River Hydraulic Model

6.5.1 Status

This work was initiated in May 2009 and is scheduled to be completed by January 2013. Work is progressing according to the schedule.

6.6 GMSWORKS-6 – Peace River Mainstem Stage Discharge

6.6.1 Status

This work was initiated in May 2009 and is scheduled to be completed by January 2015.

6.7 GMSWORKS-7 – Peace River Riparian Habitat Assessment

6.7.1 Status

Year 1 work was completed in 2010/2011 and the second and final year of the project will be completed in 2012. The final report will be submitted with the 2013 annual report.

6.8 GMSWORKS-8 – Dinosaur Reservoir Demonstration Tributary

6.8.1 Status

This project has been delayed to allow for additional discussions with FLNRO regional staff to ensure the proposed approach, as recommended by the GMSWORKS-9 study, is acceptable. The detailed design phase is currently scheduled to commence in 2013.

6.9 GMSWORKS-9 – Dinosaur Reservoir Tributary Inventory and Feasibility

6.9.1 Status

This project was undertaken by Triton in the second half of 2009 and completed in early 2010.

6.10 GMSWORKS-10 – Peace River Industry and Taylor Water Quality Assessment

6.10.1 Status

This work was initiated in May 2009 and is scheduled to be completed by December 2012. Based on the results of Years 1 and 2 a limited additional work program was recommended for Year 3. There appeared to be little justification for continuing with Years 4 and 5 of the original five-year study program as recommended in the 2010 report. A decision was made to follow the recommendations of the consultant and complete this project in Year 3. The Year 3 Final Report will be submitted with the 2013 annual report.

6.11 GMSWORKS-12 – Peace and Williston Recreational Access (Feasibility of Boat Ramps)

6.11.1 Status

This project is complete.

6.12 GMSWORKS-13 – Peace River Recreational Access

6.12.1 Status

This project is complete.

6.13 GMSWORKS-14 – Williston Air Photos and DEM

6.13.1 Status

The first stage of work was initiated in April 2009 and completed in December 2010. The second set of air photos was scheduled to be acquired in 2013, but those photos

were taken in spring of 2011 to take advantage of the very low reservoir level, thus assisting several Peace projects including dust mitigation, wetlands and tributaries, and bathymetry. Advancing those photos did not negatively affect the project budget. The third set of photos is scheduled to be acquired in 2018. An update on the results of the Spring 2011 photo session will be provide in the 2013 annual report to the CWR.

6.14 GMSWORKS-16 – Williston Wetland Inventory

6.14.1 Status

This project is complete.

6.15 GMSWORKS-17 – Williston Trial Wetlands

6.15.1 Status

This work has not started. It is currently planned to begin in 2013.

6.16 GMSWORKS-18 – Williston Debris Field Survey

6.16.1 Status

AECOM was contracted in 2009 and submitted their final report in June 2010. BC Hydro has reviewed the report and determined that report has adequately answered all three management questions. However, further to the contractual agreement with Tsay Keh Dene and Kwadacha First Nations regarding the joint planning of certain projects within the Peace WUP, BC Hydro has not received a review of the June 2010 AECOM report from Tsay Keh Dene.

The Williston Reservoir Debris Management Strategy was also completed under this project heading. AECOM submitted their final report in April 2011. This report identifies options to be considered in a debris management strategy and makes recommendations on what to include in a strategy but did not produce a strategy as requested. More work will be required to complete a debris management strategy. BC Hydro and Tsay Keh will discuss the option of submitting an Addendum to the CWR regarding additional work under GMSMON-16 to complete the Debris Management Strategy. Further to the contractual agreement with Tsay Keh Dene and Kwadacha First Nations regarding the joint planning of certain projects within the Peace WUP, BC Hydro has not received a review of the April 2011 AECOM report from Tsay Keh Dene.

6.17 GMSWORKS-19 – Williston Reservoir Trial Tributaries

6.17.1 Status

Project planning will commence in 2013, and construction works are scheduled for 2014.

6.18 GMSWORKS-20 – Williston Dust Mapping

6.18.1 Status

This work was initiated in May 2009. The final season of field data was collected in 2012. A final project report is expected for February 2013.

6.19 GMSWORKS-21 – Williston Dust Control Trials

6.19.1 Status

This project was originally scoped to be a three-year feasibility study. Work was initiated in April 2008. The tillage and irrigation trials that had originally concluded in 2010 have been extended to test the feasibility of new equipment and to demonstrate the dust control effectiveness of all the equipment used to roughen beaches. Vegetation trials continue with annual reports expected in February of each year. The current estimated project completion date is with submission of the contractors' final reports in 2015. The report for 2012 will be submitted with the 2013 annual report.

6.20 GMSWORKS-22 – Williston Targeted Debris Management

6.20.1 Status

This is a 10-year project. Work was initiated in May 2009 and is scheduled to be completed by January 2019. Annual reports are expected in January of each year. The January 2012 report will be submitted with the 2013 annual report.

6.21 GMSWORKS-23 – Williston Erosion Control Trial

6.21.1 Status

This project will investigate the feasibility of erosion controls at the Tsay Keh village site and implement any chosen solution on a trial basis. The project has not been designed or awarded.

BC Hydro, the Province of British Columbia, and the TKD have signed an agreement with respect to certain grievances of the TKD. The final agreement impacts certain changes to Indian Reserve status in the area that may impact this project. This project is on hold pending resolution of Reserve creation.

6.22 GMSWORKS-24 – Finlay Reach Access

6.22.1 Status

This project is complete.

6.23 GMSWORKS-25 – Williston Reservoir Bathymetry

6.23.1 Status

This work was initiated in April 2010 and is scheduled to be completed by January 2013.

6.24 GMSWORKS-26 – Williston Communication and Safety

6.24.1 Status

This work was initiated in January 2009. Installation and commissioning of the radio communications network for Williston reservoir is expected to be completed by May 2013. Installation of signs at boat ramp facilities will commence in the spring of 2013 and proceed according to the construction schedules for each facility.

The maintenance portion of the project will continue through to 2029.

6.25 GMSWORKS-27 – Finlay River Access Information Plan

6.25.1 Status

This project is complete.

6.26 GMSWORKS-28 – Industry Feasibility & Design Study

6.26.1 Status

The components of this project relating to the Mackenzie mills resumed in early 2012, with project completion expected by December, 2013.

6.27 GMSWORKS-28A – District of Mackenzie Effluent Discharge Feasibility & Design Study

6.27.1 Status

Contractor's report has been submitted and is under review by BC Hydro.

6.28 GMSWORKS-29 – Lynx Creek Boat

6.28.1 Status

This project has not yet begun. A site visit was carried out in May 2011 by a BC Hydro representative and an engineering consultant from Moffatt & Nichol. At that time structural maintenance was not deemed necessary as the ramp, road and breakwater appear to be in good working condition. Non-structural routine maintenance is underway annually or as necessary.

6.29 GMSWORKS-30 – Peace Island Park

6.29.1 Status

Due to ongoing erosion problems and difficulties faced by users due to infrastructure failure, it was determined in 2011 that a new launch facility was required at the site. A construction project was initiated in 2012 (GMSWORKS-38) and is expected to be available for public use by the spring of 2013.

6.30 GMSWORKS-31 – Kwadacha

6.30.1 Status

A maintenance contract is in place.

6.31 GMSWORKS-33 – Boat Ramp Design Ingenika

6.31.1 Status

Local users have requested a relocation of the planned site for this facility. A feasibility study for a new site will commence in 2013.

6.32 GMSWORKS-34 – Boat Ramp Design Finlay Bay

6.32.1 Status

The project has been deferred until recreational demand warrants upgrade work at this facility.

6.33 GMSWORKS-35 – Boat Ramp Design 6 Mile Bay

6.33.1 Status

The project has been deferred until recreational demand warrants upgrade work at this facility.

6.34 GMSWORKS-36 – Boat Ramp Design Cut Thumb Bay

6.34.1 Status

The project has been deferred until recreational demand warrants upgrade work at this facility.

6.35 GMSWORKS-37 – Boat Ramp Design Mackenzie Landing

6.35.1 Status

Construction work on the upper ramp at this facility is scheduled for spring 2013.

6.36 GMSWORKS-38 – Taylor Boat Ramp Construction

6.36.1 Status

Construction work to build a new ramp at Peace Island Park is scheduled for the fall of 2012. Design work was completed under GMSWORKS-30.

6.37 GMSWORKS-40 – Boat Ramp Design Blackfoot Park

6.37.1 Status

Designs have been submitted to Comptroller of Water Rights for review. Construction work at this facility is pending the finalization of a Licence of Occupation.

6.38 GMSWORKS-41 – Boat Ramp Design Halfway River

6.38.1 Status

Designs have been submitted to Comptroller of Water Rights for review.

A recommendation was made to delay approval of a new boat launch at Halfway River until the next stage in the Site C approval process as this site would be inundated if Site C were to proceed. Maintenance of the site will continue. There was unanimous consent with local stakeholders to hold off any construction until a final decision on Site C is made.

6.39 GMSWORKS-51 – Dinosaur Boat Ramp Construction (Hudson’s Hope)

6.39.1 Status

Construction work to build a new ramp and floating dock is scheduled for the fall of 2012. Design work was completed under GMSWORKS-53.

6.40 GMSWORKS-53 – Boat Ramp Design Hudson’s Hope

6.40.1 Status

Designs have been submitted to Comptroller of Water Rights for review. Construction work at this facility is scheduled for fall 2012, under project GMSWORKS-51.

6.41 GMSWORKS-54 – Boat Ramp Design Dunlevy

6.41.1 Status

Due to erosion concerns at the existing ramp, the feasibility of a more favorable orientation is under investigation. Construction work at this facility is scheduled for spring 2014.

7 Peace WUP Monitoring Program Projects

7.1 GMSMON-1 – Peace River Creel Survey

7.1.1 Status

On November 23, 2011, the CWR approved a request to cancel GMSMON-1 due to the scope, schedule and budget of this WUP monitoring project being insufficient to meet the ToR objectives.

7.2 GMSMON-2 – Peace River Fish Index

7.2.1 Status

Field work was successfully completed in 2011 and the annual report received in June 2012.

7.3 GMSMON-3 – Peace River Fish Stranding

7.3.1 Status

Opportunistic study to be implemented in the event of a spill. There has not been a spill event to date. Pre-spill work was completed in 2010.

7.4 GMSMON-4 – WAC Bennett Dam Entrainment

7.4.1 Status

Opportunistic study to be implemented in the event of a spill. There has not been a spill event to date.

7.5 GMSMON-5 – Peace River Productivity

7.5.1 Status

The PCR Productivity monitoring program will assess the effectiveness of the PCR Side Channels and the PCR Ramping Plans, and address a data gap in the ecological knowledge of periphyton and invertebrate communities in Peace River side channel habitat.

The CWR was asked to render a decision on extending the geographic extents of the project area to include side channels downstream of the Pine River, in order to reduce potential effects that Site C (if it proceeds) may have on GMSWORKS-3, PCR Side Channels. On July 28, 2011, the CWR approved the extension of the study area to include site 102.5R, downstream of the Pine River confluence. Pending confirmation of the feasibility of the selected sites, this project is expected to commence in the spring of 2013 to provide baseline data in advance of GMSWORKS-3.

7.6 GMSMON-6 – Peace River Riparian Flooding

7.6.1 Status

Opportunistic study to be implemented in 2017 and 2018 in the event of a spill release prior to 2017. There has not been a spill event to date.

7.7 GMSMON-7 – Peace River Side Channel Fisheries

7.7.1 Status

This PCR Side Channel Fisheries program will monitor side channels enhanced through physical works to assess their effectiveness at improving fish habitat.

The CWR was asked to render a decision on extending the geographic extents of the project area to include side channels downstream of the Pine River, in order to reduce potential effects that Site C (if it proceeds) may have on GMSWORKS-3, PCR Side Channels. On July 28, 2011, the CWR approved the extension of the study area to include site 102.5R, downstream of the Pine River confluence. Pending confirmation of the feasibility of the selected sites, this project is expected to commence in the spring of 2013 to provide baseline data in advance of GMSWORKS-3.

7.8 GMSMON-8 – Peace River Side Channel Response

7.8.1 Status

Opportunistic study, to be implemented in the event of a spill. There has not been a spill event to date. The sites to be monitored will be based on the site selection process imbedded in GMSWORKS-3.

7.9 GMSMON-9 – Peace River Spill Hydrology

7.9.1 Status

Opportunistic PSP study with a pre-spill research component that commenced in June 2009. There has not been a spill event to date.

7.10 GMSMON-10 – Peace River Spill Photos

7.10.1 Status

Opportunistic study to be implemented in the event of a spill. There has not been a spill event to date.

7.11 GMSMON-11 – Peace River Spill TGP and Temperature

7.11.1 Status

Opportunistic study to be implemented in the event of a spill. There has not been a spill event to date.

7.12 GMSMON-12 – Peace River Wildlife Stranding Survey

7.12.1 Status

Opportunistic PSP study with a pre-spill research component that commenced in May 2010. There has not been a spill event to date.

7.13 GMSMON-13 – WLL Fish Index

7.13.1 Status

This project is complete.

7.14 GMSMON-14 – Dinosaur Reservoir Tributary Habitat

7.14.1 Status

This monitoring project for the DNR Demonstration Tributary (GMSWORKS-8) commenced in June 2010, but has since been delayed to allow for additional discussions with FLNRO regional staff to ensure the proposed approach for the demonstration tributary, as recommended by the GMSWORKS-9 study, is acceptable.

7.15 GMSMON-15 – Williston Wetland Habitat

7.15.1 Status

Work began in April 2011 and is to be completed by February 2021. The Year 1 report was received in January 2012. The Year 2 report will cover a second year of pre-enhancement conditions and will be submitted by February 2013.

7.16 GMSMON-16 – Williston Debris Trends

7.16.1 Status

The project has been rescheduled to begin April 2013 and run through January 2014, with a second project year from April 2015 to January 2016, and the third year from April 2018 to January 2019. Final reports are expected in January of each project year.

7.17 GMSMON-17 – Tributary Habitat Review

7.17.1 Status

This work began in April 2011 and is to be completed by February 2021. Annual reports are expected in February of each year.

7.18 GMSMON-18 – Williston Dust Control

7.18.1 Status

This work was initiated in April 2008 and is scheduled to be completed by March 2017. Annual final reports are expected in February of each year. A ToR resubmission was approved in June 2009, April 2010, and June 2011 with respect to required changes to scope and budget. Presently, scope, schedule, and budget are in compliance. The February 2012 report will be submitted with the 2013 annual report.

7.19 GMSMON-19 – Williston Erosion Control

7.19.1 Status

BC Hydro, the Province of British Columbia, and the TKD have signed an agreement with respect to certain grievances of the TKD. The final agreement impacts certain changes to Indian Reserve status in the area that may impact this project. This project is on hold pending resolution of Reserve creation.

7.20 GMSMON-20 – Reservoir Recreation Use

7.20.1 Status

This work was initiated in May 2009 and is scheduled to be completed by February 2019. Annual final reports are expected in February of each year.

7.21 GMSMON-21A – Heritage and Culture Information Plan: Archaeological Overview Assessment

7.21.1 Status

This project is complete.

7.22 GMSMON-21B – Peace River Erosion Monitoring – Archaeological Resources

7.22.1 Status

This monitoring project commenced in the spring of 2010 and will continue annually.

8 Peace WUP Project Costs

Table 7-1 summarizes the financial status of all Peace WUP projects as of May 31, 2012.

Table 8-1: Peace Project WUP Monitoring Programs and Physical Works Costs

		Costs approved by CWR	Total Forecast (Life to Date Actuals and Forecast)	Variance Total to Approved	Explanation	Corrective Action
Monitoring Programs	Activity					
Peace River Annual Report	OR	\$8,198	\$7,761	\$437	Guide to explanations below	Guide to corrective action below
GMSMGMT1 Peace River and Dinosaur Reservoir Monitoring Program Projects						
					Project originally approved for \$293K, but cancelled subsequent to expenditures to review the management objectives.	
GMSMON#1 PCR CREEL SURVEY	OR		\$9,938	(\$9,938)		
GMSMON#1 Direct Management 001	OR		\$9,938	(\$9,938)		
GMSMON#1 Implementation 002	OR		\$0	\$0		
GMSMON#2 PCR FISH INDEX	OR	\$2,285,174	\$2,285,174	\$0		
GMSMON#2 Direct Management 001	OR	\$112,133	\$112,133	\$0		
GMSMON#2 Implementation 002	OR	\$2,173,041	\$2,173,041	\$0		
GMSMON#3 PCR FISH STRANDING	OR	\$165,449	\$165,449	\$0		
GMSMON#3 Direct Management 001	OR	\$17,079	\$17,079	\$0		
GMSMON#3 Implementation 002	OR	\$148,370	\$148,370	\$0		
GMSMON#4 WACB ENTRAINMENT	OR	\$362,544	\$362,544	\$0		
GMSMON#4 Direct Management 001	OR	\$35,945	\$35,945	\$0		
GMSMON#4 Implementation 002	OR	\$326,599	\$326,599	\$0		
GMSMON#5 PCR PRODUCTIVITY	OR	\$1,133,979	\$1,133,979	\$0		
GMSMON#5 Direct Management 001	OR	\$129,576	\$129,576	\$0		
GMSMON#5 Implementation 002	OR	\$1,004,403	\$1,004,403	\$0		
GMSMON#6 PCR RIPARIAN FLOODING	OR	\$226,273	\$226,273	\$0		
GMSMON#6 Direct Management 001	OR	\$31,213	\$31,213	\$0		
GMSMON#6 Implementation 002	OR	\$195,060	\$195,060	\$0		
GMSMON#7 PCR SIDE CHANNEL FISHERIES	OR	\$841,652	\$841,652	\$0		
GMSMON#7 Direct Management 001	OR	\$148,761	\$148,761	\$0		
GMSMON#7 Implementation 002	OR	\$692,891	\$692,891	\$0		
GMSMON#8 PCR SIDE CHANNEL RESPONSE	OR	\$69,846	\$69,846	\$0		
GMSMON#8 Direct Management 001	OR	\$16,812	\$16,812	\$0		
GMSMON#8 Implementation 002	OR	\$53,034	\$53,034	\$0		
GMSMON#9 PCR SPILL HYDROLOGY	OR	\$68,979	\$68,979	\$0		
GMSMON#9 Direct Management 001	OR	\$18,979	\$18,979	\$0		
GMSMON#9 Implementation 002	OR	\$50,000	\$50,000	\$0		
GMSMON#10 PCR SPILL PHOTOS	OR	\$297,996	\$297,996	\$0		
GMSMON#10 Direct Management 001	OR	\$10,951	\$10,951	\$0		
GMSMON#10 Implementation 002	OR	\$287,045	\$287,045	\$0		
GMSMON#11 PCR SPILL TGP/TEMP	OR	\$57,127	\$57,127	\$0		
GMSMON#11 Direct Management 001	OR	\$21,546	\$21,546	\$0		
GMSMON#11 Implementation 002	OR	\$35,581	\$35,581	\$0		
GMSMON#12 PCR WILDLIFE SURVEY	OR	\$205,448	\$205,448	\$0		
GMSMON#12 Direct Management 001	OR	\$20,214	\$20,214	\$0		
GMSMON#12 Implementation 002	OR	\$185,234	\$185,234	\$0		
GMSMON#13 WLL FISH INDEX	OR	\$124,909	\$73,816	\$51,093	Project completed.	Efficiencies found during project implementation.
GMSMON#13 Direct Management 001	OR	\$14,296	\$12,796	\$1,500		
GMSMON#13 Implementation 002	OR	\$110,613	\$61,020	\$49,593		
GMSMON#14 DNR TRIBUTARY HABITAT	OR	\$150,364	\$150,364	\$0		
GMSMON#14 Direct Management 001	OR	\$57,080	\$57,080	\$0		
GMSMON#14 Implementation 002	OR	\$93,284	\$93,284	\$0		
GMSMGMT1 PEACE RIVER & DINOSAUR RESERVOIR MANAGEMENT PLAN PHYSICAL WORKS PROJECTS						
GMSWORKS#1 PCR AERIAL PHOTOS	OR	\$709,994	\$709,994	\$0		
GMSWORKS#1 Direct Management 001	OR	\$15,317	\$15,317	\$0		
GMSWORKS#1 Implementation 002	OR	\$694,677	\$694,677	\$0		
GMSWORKS#2 PCR BASELINE TGP/TEMP	OR	\$254,554	\$254,554	\$0		
GMSWORKS#2 Direct Management 001	OR	\$77,340	\$77,340	\$0		
GMSWORKS#2 Implementation 002	OR	\$177,214	\$177,214	\$0		
GMSWORKS#3 PCR TRIAL SIDE CHANNELS	OR	\$548,139	\$548,139	\$0		
GMSWORKS#3 Direct Management 001	OR	\$128,339	\$128,339	\$0		
GMSWORKS#3 Implementation 002	OR	\$419,800	\$419,800	\$0		
GMSWORKS#4 PCR HYDRAULIC HABITAT	OR	\$134,816	\$134,816	\$0		
GMSWORKS#4 Direct Management 001	OR	\$17,728	\$17,728	\$0		
GMSWORKS#4 Implementation 002	OR	\$117,088	\$117,088	\$0		
GMSWORKS#5 PCR HYDRAULIC MODEL	OR	\$270,648	\$270,648	\$0		
GMSWORKS#5 Direct Management 001	OR	\$31,742	\$31,742	\$0		
GMSWORKS#5 Implementation 002	OR	\$238,906	\$238,906	\$0		
GMSWORKS#6 PCR MAINSTEM STAGE DISCHARGE	OR	\$306,437	\$326,437	(\$20,000)	Additional funds required to meet prescribed standards.	Re-submit TOR on January 31, 2013.
GMSWORKS#6 Direct Management 001	OR	\$37,664	\$62,502	(\$24,838)		
GMSWORKS#6 Implementation 002	OR	\$268,773	\$263,935	\$4,838		
GMSWORKS#7 PCR RIPARIAN HABITAT ASSESSMENT	OR	\$181,857	\$181,857	\$0		
GMSWORKS#7 Direct Management 001	OR	\$22,854	\$22,854	\$0		
GMSWORKS#7 Implementation 002	OR	\$159,003	\$159,003	\$0		
GMSWORKS#8 DNR DEMONSTRATION TRIBUTARY	OR	\$247,265	\$247,265	\$0		
GMSWORKS#8 Direct Management 001	OR	\$63,222	\$63,222	\$0		
GMSWORKS#8 Implementation 002	OR	\$184,043	\$184,043	\$0		
GMSWORKS#9 DNR TRIBUTARY INVENTORY & FEASIBILITY	OR	\$41,013	\$32,016	\$8,998	Project completed.	Efficiencies found during project implementation.
GMSWORKS#9 Direct Management 001	OR	\$16,031	\$8,890	\$7,141		
GMSWORKS#9 Implementation 002	OR	\$25,000	\$23,125	\$1,875		
GMSWORKS#10 PCR INDUSTRY & TAYLOR WATER QUALITY ASSESSMENT	OR	\$220,253	\$220,253	\$0		
GMSWORKS#10 Direct Management 001	OR	\$69,761	\$69,761	\$0		
GMSWORKS#10 Implementation 002	OR	\$150,492	\$150,492	\$0		
GMSWORKS#12 DNR RECREATION ACCESS	OR	\$118,729	\$71,586	\$47,143	Project completed.	Efficiencies found during project implementation.
GMSWORKS#12 Direct Management 001	OR	\$60,765	\$15,400	\$45,365		
GMSWORKS#12 Implementation 002	OR	\$57,964	\$56,186	\$1,778		
GMSWORKS#13 PCR RECREATION ACCESS	OR	\$326,409	\$129,833	\$196,576	Project completed.	Efficiencies found during project implementation.
GMSWORKS#13 Direct Management 001	OR	\$96,825	\$15,319	\$81,506		
GMSWORKS#13 Implementation 002	OR	\$229,584	\$114,514	\$115,070		
GMSMGMT2 WILLISTON RESERVOIR MANAGEMENT PLAN MONITORING STUDIES						
GMSMON#15 WLL WETLAND HABITAT	OR	\$981,420	\$981,420	\$0		
GMSMON#15 Direct Management 001	OR	\$157,922	\$157,922	\$0		
GMSMON#15 Implementation 002	OR	\$823,498	\$823,498	\$0		
GMSMON#16 WLL DEBRIS TRENDS	OR	\$215,563	\$215,563	\$0		
GMSMON#16 Direct Management 001	OR	\$46,859	\$46,859	\$0		
GMSMON#16 Implementation 002	OR	\$168,704	\$168,704	\$0		
GMSMON#17 WLL TRIBUTARY HABITAT	OR	\$1,467,158	\$1,467,158	\$0		
GMSMON#17 Direct Management 001	OR	\$133,598	\$133,598	\$0		
GMSMON#17 Implementation 002	OR	\$1,333,560	\$1,333,560	\$0		
GMSMON#18 WLL DUST CONTROL	OR	\$4,784,865	\$4,784,865	\$0		
GMSMON#18 Direct Management 001	OR	\$184,905	\$184,905	\$0		
GMSMON#18 Implementation 002	OR	\$4,559,960	\$4,559,960	\$0		
GMSMON#19 WLL EROSION CONTROL	OR		\$2,634	(\$2,634)	Not approved.	Re-submit TOR November 30, 2012.
GMSMON#19 Direct Management 001	OR		\$2,634	(\$2,634)		
GMSMON#19 Implementation 002	OR		\$0	\$0		
GMSMON#20 WLL RECREATION USE	OR	\$268,906	\$268,906	\$0		
GMSMON#20 Direct Management 001	OR	\$115,060	\$115,060	\$0		
GMSMON#20 Implementation 002	OR	\$153,846	\$153,846	\$0		
GMSMON#21A WLL ARCHAEOLOGICAL OVERVIEW ASSESSMENT	OR	\$113,614	\$111,608	\$2,006	Project completed.	Efficiencies found during project implementation.
GMSMON#21A Direct Management 001	OR	\$16,186	\$18,388	(\$2,202)		
GMSMON#21A Implementation 002	OR	\$97,428	\$93,220	\$4,208		
GMSMON#21B WLL EROSION MONITORING OF ARCHAEOLOGICAL RESOURCES	OR	\$705,659	\$705,659	\$0		
GMSMON#21B Direct Management 001	OR	\$119,954	\$119,954	\$0		
GMSMON#21B Implementation 002	OR	\$585,705	\$585,705	\$0		

		Costs approved by CWR	Total Forecast (Life to Date Actuals and Forecast)	Variance Total to Approved	Explanation	Corrective Action
Monitoring Programs						
GMSMGMT2 WILLISTON RESERVOIR MANAGEMENT PLAN PHYSICAL WORKS PROJECTS						
GMSWORKS#14 WLL AIR PHOTOS & DEM	OR	\$2,804,180	\$2,804,180	\$0		
GMSWORKS#14 Direct Management 001	OR	\$30,295	\$30,295	\$0		
GMSWORKS#14 Implementation 002	OR	\$2,773,885	\$2,773,885	\$0		
GMSWORKS#16 WLL WETLAND INVENTORY	OR	\$143,076	\$148,451	(\$5,375)	Final reporting resulted in additional Imp and DM costs	Project complete.
GMSWORKS#16 Direct Management 001	OR	\$12,656	\$14,956	(\$2,300)		
GMSWORKS#16 Implementation 002	OR	\$130,420	\$133,494	(\$3,074)		
GMSWORKS#17 WLL TRIAL WETLANDS	OR	\$479,630	\$479,630	\$0		
GMSWORKS#17 Direct Management 001	OR	\$78,264	\$78,264	\$0		
GMSWORKS#17 Implementation 002	OR	\$401,366	\$401,366	\$0		
GMSWORKS#18 WLL DEBRIS FIELD SURVEY	OR	\$258,412	\$305,623	(\$47,211)	Additional funds required.	Resubmit TOR by February 28, 2013.
GMSWORKS#18 Direct Management 001	OR	\$20,735	\$15,489	\$5,246		
GMSWORKS#18 Implementation 002	OR	\$237,677	\$290,134	(\$52,457)		
GMSWORKS#19 WLL TRIAL TRIBUTARY	OR	\$536,522	\$536,522	\$0		
GMSWORKS#19 Direct Management 001	OR	\$135,156	\$135,156	\$0		
GMSWORKS#19 Implementation 002	OR	\$401,366	\$401,366	\$0		
GMSWORKS#20 WLL DUST SOIL MAPPING	OR	\$733,672	\$733,672	\$0		
GMSWORKS#20 Direct Management 001	OR	\$35,587	\$35,587	\$0		
GMSWORKS#20 Implementation 002	OR	\$698,085	\$698,085	\$0		
GMSWORKS#21 WLL DUST CONTROL TRIAL	OR	\$2,998,110	\$3,504,157	(\$506,047)	Additional funds required.	Resubmit TOR by August 13, 2012.
GMSWORKS#21 Direct Management 001	OR	\$92,825	\$158,593	(\$65,768)		
GMSWORKS#21 Implementation 002	OR	\$2,905,285	\$3,345,564	(\$440,279)		
GMSWORKS#22 ONR WLL DEBRIS REMOVAL	ONR	\$5,470,099.19	\$5,470,099.19	\$0		
GMSWORKS#22 Direct Management ONR 001	ONR	\$75,919	\$75,919	\$0		
GMSWORKS#22 Implementation ONR 002	ONR	\$5,394,180	\$5,394,180	\$0		
GMSWORKS#22 OR WLL DEBRIS REMOVAL	OR	\$5,470,099	\$5,470,099	\$0		
GMSWORKS#22 Direct Management OR 001	OR	\$75,919	\$75,919	\$0		
GMSWORKS#22 Implementation OR 002	OR	\$5,394,180	\$5,394,180	\$0		
GMSWORKS#23 WLL EROSION CONTROL TRIAL	OR		\$106	(\$106)	Not approved.	Re-submit TOR November 30, 2012.
GMSWORKS#23 Direct Management 001	OR		\$106	(\$106)		
GMSWORKS#23 Implementation 002	OR		\$0	\$0		
GMSWORKS#24 WLL BOAT ACCESS	OR	\$891,306	\$212,865	\$678,441	Project completed.	Efficiencies found during project implementation.
GMSWORKS#24 Direct Management 001	OR	\$427,592	\$42,110	\$385,482		
GMSWORKS#24 Implementation 002	OR	\$463,714	\$170,755	\$292,959		
GMSWORKS#25 WLL BATHYMETRIC MAPPING	OR	\$1,379,386	\$1,379,386	\$0		
GMSWORKS#25 Direct Management 001	OR	\$50,979	\$50,979	\$0		
GMSWORKS#25 Implementation 002	OR	\$1,328,407	\$1,328,407	\$0		
GMSWORKS#26 WLL COMMUNICATIONS/SAFETY	OR	\$1,610,081	\$1,610,081	\$0		
GMSWORKS#26 Direct Management 001	OR	\$425,173	\$425,173	\$0		
GMSWORKS#26 Implementation 002	OR	\$1,184,908	\$1,184,908	\$0		
GMSWORKS#27 WLL FINLAY RIVER ACCESS INFORMATION PLAN	OR	\$82,146	\$73,699	\$8,447	Project completed.	Efficiencies found during project implementation.
GMSWORKS#27 Direct Management 001	OR	\$21,284	\$12,198	\$9,086		
GMSWORKS#27 Implementation 002	OR	\$60,862	\$61,501	(\$639)		
GMSWORKS#28a INDUSTRY FEASIBILITY AND DESIGN STUDY	OR	\$354,134	\$354,134	\$0		
GMSWORKS#28 Direct Management 001	OR	\$21,134	\$21,134	\$0		
GMSWORKS#28 Implementation 002	OR	\$333,000	\$333,000	\$0		
GMSWORKS#28b INDUSTRY FEASIBILITY AND DESIGN STUDY	OR		\$1,624,421	(\$1,624,421)	New project with unapproved cost forecasts.	Variance will self-correct when budget for study is approved.
GMSWORKS#28 Direct Management 001	OR		\$63,846	(\$63,846)		
GMSWORKS#28 Implementation 002	OR		\$1,560,575	(\$1,560,575)		
GMSWORKS BOAT RAMPS						
GMSWORKS#29 LYNX CREEK	OR	\$280,376	\$280,376	\$0		
GMSWORKS#29 Direct Management 001	OR	\$91,709	\$91,709	\$0		
GMSWORKS#29 Implementation 002	OR	\$188,667	\$188,667	\$0		
GMSWORKS#30 TAYLOR RAMP	OR	\$406,154	\$406,154	\$0		
GMSWORKS#30 Direct Management 001	OR	\$91,709	\$91,709	\$0		
GMSWORKS#30 Implementation 002	OR	\$314,445	\$314,445	\$0		
GMSWORKS#31 KWADACHA	ONR	\$354,136	\$354,136	\$0		
GMSWORKS#31 Direct Management 001	ONR	\$165,469	\$165,469	\$0		
GMSWORKS#31 Implementation 002	ONR	\$188,667	\$188,667	\$0		
GMSWORKS#32 Boat Ramp Design Deserter's Dump	ONR		\$54,866	(\$54,866)	Project cancelled subsequent to design expenditures.	
GMSWORKS#32 Direct Management 001	ONR		\$1,489	(\$1,489)		
GMSWORKS#32 Implementation 002	ONR		\$53,377	(\$53,377)		
GMSWORKS#33 Boat Ramp Design Ingenika	ONR		\$132,779	(\$132,779)	New project with unapproved cost forecasts.	Variance will self-correct when budget for ramp is approved.
GMSWORKS#33 Direct Management 001	ONR		\$14,781	(\$14,781)		
GMSWORKS#33 Implementation 002	ONR		\$117,998	(\$117,998)		
GMSWORKS#34 Boat Ramp Design Finlay Bay	ONR		\$62,736	(\$62,736)	Project cancelled subsequent to design expenditures.	
GMSWORKS#34 Direct Management 001	ONR		\$5,854	(\$5,854)		
GMSWORKS#34 Implementation 002	ONR		\$56,882	(\$56,882)		
GMSWORKS#35 Boat Ramp Design 6 Mile Bay	ONR		\$55,535	(\$55,535)	Project cancelled subsequent to design expenditures.	
GMSWORKS#35 Direct Management 001	ONR		\$4,666	(\$4,666)		
GMSWORKS#35 Implementation 002	ONR		\$50,869	(\$50,869)		
GMSWORKS#36 Boat Ramp Design Cutthumb Bay	ONR		\$59,186	(\$59,186)	Project cancelled subsequent to design expenditures.	
GMSWORKS#36 Direct Management 001	ONR		\$6,193	(\$6,193)		
GMSWORKS#36 Implementation 002	ONR		\$52,993	(\$52,993)		
GMSWORKS#37 Boat Ramp Design Mackenzie Landing	ONR	\$59,201	\$65,956	(\$6,755)	Additional funds required due to design revisions.	Re-submit TOR on January 31, 2013.
GMSWORKS#37 Direct Management 001	ONR	\$7,494	\$8,473	(\$979)		
GMSWORKS#37 Implementation 002	ONR	\$51,707	\$57,482	(\$5,775)		
GMSWORKS#40 Boat Ramp Design Blackfoot Park	OR		\$68,968	(\$68,968)	New project with unapproved cost forecasts.	Variance will self-correct when budget for ramp is approved.
GMSWORKS#40 Direct Management 001	OR		\$16,716	(\$16,716)		
GMSWORKS#40 Implementation 002	OR		\$52,251	(\$52,251)		
GMSWORKS#41 Boat Ramp Design Halfway River	OR		\$52,642	(\$52,642)	Project deferred. Unapproved costs forecasts.	TOR re-submission pending Site C development.
GMSWORKS#41 Direct Management 001	OR		\$11,093	(\$11,093)		
GMSWORKS#41 Implementation 002	OR		\$41,549	(\$41,549)		
GMSWORKS#42 Boat Ramp Deserter's Dump	ONR		\$0	\$0	Project cancelled.	
GMSWORKS#42 Direct Management 001	ONR		\$0	\$0		
GMSWORKS#42 Implementation 002	ONR		\$0	\$0		
GMSWORKS#43 Boat Ramp Ingenika	ONR		\$1,127,730	(\$1,127,730)	New project with unapproved cost forecasts.	Variance will self-correct when budget for ramp is approved.
GMSWORKS#43 Direct Management 001	ONR		\$112,268	(\$112,268)		
GMSWORKS#43 Implementation 002	ONR		\$1,015,462	(\$1,015,462)		
GMSWORKS#44 Boat Ramp Finlay Bay	ONR		\$113	(\$113)	Project cancelled subsequent to management expenditures.	
GMSWORKS#44 Direct Management 001	ONR		\$113	(\$113)		
GMSWORKS#44 Implementation 002	ONR		\$0	\$0		
GMSWORKS#45 Boat Ramp 6 Mile Bay	ONR		\$0	\$0	Project cancelled.	
GMSWORKS#45 Direct Management 001	ONR		\$0	\$0		
GMSWORKS#45 Implementation 002	ONR		\$0	\$0		
GMSWORKS#46 Boat Ramp Cutthumb Bay	ONR		\$113	(\$113)	Project cancelled subsequent to management expenditures.	
GMSWORKS#46 Direct Management 001	ONR		\$113	(\$113)		
GMSWORKS#46 Implementation 002	ONR		\$0	\$0		
GMSWORKS#47 Boat Ramp Mackenzie Landing	ONR	\$2,591,978	\$2,591,978	\$0		
GMSWORKS#47 Direct Management 001	ONR	\$22,762	\$22,762	\$0		
GMSWORKS#47 Implementation 002	ONR	\$2,569,216	\$2,569,216	\$0		

		Costs approved by CWR	Total Forecast (Life to Date Actuals and Forecast)	Variance Total to Approved		
Monitoring Programs	Activity				Explanation	Corrective Action
GMSWORKS#48 Boat Ramp Blackfoot Park	OR		\$149,675	(\$149,675)	New project with unapproved cost forecasts.	Variance will self-correct when budget for ramp is approved.
GMSWORKS#48 Direct Management 001	OR		\$3,815	(\$3,815)		
GMSWORKS#48 Implementation 002	OR		\$145,860	(\$145,860)		
GMSWORKS#49 CAP Boat Ramp Dunlevy	CAP		\$575,182	(\$575,182)	New project with unapproved cost forecasts.	Variance will self-correct when budget for ramp is approved.
GMSWORKS#49 Direct Management 001 CAP	CAP		\$55,182	(\$55,182)		
GMSWORKS#49 Implementation 002 CAP	CAP		\$520,000	(\$520,000)		
GMSWORKS#49 ONR Boat Ramp Dunlevy	ONR		\$293,176	(\$293,176)	New project with unapproved cost forecasts.	Variance will self-correct when budget for ramp is approved.
GMSWORKS#49 Direct Management 001 ONR	ONR		\$32,501	(\$32,501)		
GMSWORKS#49 Implementation 002 ONR	ONR		\$260,675	(\$260,675)		
GMSWORKS#51 Boat Ramp Hudsons Hope	ONR	\$1,042,385	\$1,042,385	\$0		
GMSWORKS#51 Direct Management 001	ONR	\$24,386	\$24,386	\$0		
GMSWORKS#51 Implementation 002	ONR	\$1,017,999	\$1,017,999	\$0		
GMSWORKS#52 Boat Ramp Halfway River	OR	\$180,000	\$180,000	\$0	New construction deferred; interim maintenance works approved.	TOR re-submission pending Site C development.
GMSWORKS#52 Direct Management 001	OR			\$0		
GMSWORKS#52 Implementation 002	OR	\$180,000	\$180,000	\$0		
GMSWORKS#53 Boat Ramp Design Hudsons Hope	ONR	\$57,693	\$62,010	(\$4,317)	Additional funds required due to design revisions.	Re-submit TOR on January 31, 2013.
GMSWORKS#53 Direct Management 001	ONR	\$5,965	\$9,389	(\$3,424)		
GMSWORKS#53 Implementation 002	ONR	\$51,728	\$52,621	(\$893)		
GMSWORKS#54 CAP Boat Ramp Design Dunlevy	CAP		\$0	\$0		
GMSWORKS#54 Direct Management 001 CAP	CAP		\$0	\$0		
GMSWORKS#54 Implementation 002 CAP	CAP		\$0	\$0		
GMSWORKS#54 ONR Boat Ramp Design Dunlevy	ONR		\$121,304	(\$121,304)	New project with unapproved cost forecasts.	Variance will self-correct when budget for ramp is approved.
GMSWORKS#54 Direct Management 001 ONR	ONR		\$46,236	(\$46,236)		
GMSWORKS#54 Implementation 002 ONR	ONR		\$75,067	(\$75,067)		
GMSWORKS#55 Blackfoot Maintenance	OR		\$113,545	(\$113,545)	New project with unapproved cost forecasts.	Variance will self-correct when budget for ramp is approved.
GMSWORKS#55 Direct Management 001	OR		\$23,545	(\$23,545)		
GMSWORKS#55 Implementation 002	OR		\$90,000	(\$90,000)		
GMSWORKS#56 Hudsons Hope Maintenance	ONR	\$100,000	\$100,000	\$0		
GMSWORKS#56 Direct Management 001	ONR		\$0	\$0		
GMSWORKS#56 Implementation 002	ONR	\$100,000	\$100,000	\$0		
GMSWORKS#57 Dunlevy Maintenance	ONR		\$0	\$0		
GMSWORKS#57 Direct Management 001	ONR		\$0	\$0		
GMSWORKS#57 Implementation 002	ONR		\$0	\$0		
GMSWORKS#58 Mackenzie Maintenance	ONR	\$150,000	\$150,000	\$0		
GMSWORKS#58 Direct Management 001	ONR		\$0	\$0		
GMSWORKS#58 Implementation 002	ONR	\$150,000	\$150,000	\$0		
GMSWORKS#59 Ingenika Maintenance	ONR		\$59,902	(\$59,902)	New project with unapproved cost forecasts.	Variance will self-correct when budget for maintenance is approved.
GMSWORKS#59 Direct Management 001	ONR		\$0	\$0		
GMSWORKS#59 Implementation 002	ONR		\$0	\$0		
GMSWORKS#60 Finlay Maintenance	ONR		\$0	\$0	Project cancelled.	
GMSWORKS#60 Direct Management 001	ONR		\$0	\$0		
GMSWORKS#60 Implementation 002	ONR		\$0	\$0		
GMSWORKS#61 6 Mile Maintenance	ONR		\$0	\$0	Project cancelled.	
GMSWORKS#61 Direct Management 001	ONR		\$0	\$0		
GMSWORKS#61 Implementation 002	ONR		\$0	\$0		
GMSWORKS#62 Cutthumb Maintenance	ONR		\$0	\$0	Project cancelled.	
GMSWORKS#62 Direct Management 001	ONR		\$0	\$0		
GMSWORKS#62 Implementation 002	ONR		\$0	\$0		
OR - Ordered Remissible						
ONR - Ordered Non-Remissible						

* Red values in parentheses denote overage.