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**Subject:** Fwd: Decision Support Package Final Draft  
**Date:** Thursday, June 2, 2016 9:30:52 PM  
**Attachments:** [.png](#)  
[Decision Support Presentation 2-June-2016 Final DRAFT.pptx](#)

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Scott O'Brien

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**Subject: Fw: Decision Support Package Final Draft**

Hi Scott

Please see attached draft. Would like you to confirm if you are good with last slide. We had some wording on the slide related to no diversion in 2016 ....places North Dam on critical path to meet full supply in 2018, however this has been removed from the attached slides. Let me know if you want changes made and I can make them tonight.

Thank you

Clyde

*(See attached file: Decision Support Presentation 2-June-2016 Final DRAFT.pptx)*

**Clyde McLean**

**Area Manager River Management/Habitat/Site Restoration**


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You owe it to yourself, and your family, to make it home safely every day. What have you done today so that nobody gets hurt? 

# Decision Support Package

## River Closure Readiness – Phase 3 Preparatory Work

2-June-2016

Boundless Energy



Take a  
**MOMENT**  
for Safety

# Purpose

- Decision for River Closure:
  - Preparatory Works supporting river closure was scheduled to commence 2-May
  - 1<sup>st</sup> step approval on 02-May (el 18.5 m Cofferdam 2 & 3 crest levels)
  - 2<sup>nd</sup> step approval on 20-May (el. 16.5 m Area J Cofferdam 2 & 3 crest level)
  - 3<sup>rd</sup> step to be approved prior to 2-June (ie. 1 month later than scheduled).
- Problem Definition:
  - Andritz's progress on P1A work required for commencement of river closure has improved. Completion of P1A work in Jul-2016 achievable.
  - LCP decision required to allow Barnard to continue preparatory work supporting 2016 river closure schedule – including timely completion of cofferdam to create ice cover and install log boom.

# Key Messages

Key Messages	Supporting Information
<p><b>1</b> <b>Resources/Systems/Processes</b> are ready to support river closure</p>	<ul style="list-style-type: none"> <li>• Certificate of Work Completions</li> </ul>
<p><b>2</b> <b>Astaldi Spillway Readiness</b> is on schedule for river closure</p>	<ul style="list-style-type: none"> <li>• Status of work complete</li> </ul>
<p><b>3</b> <b>Andritz Spillway Readiness</b> is behind schedule for river closure</p>	<ul style="list-style-type: none"> <li>• Status of work complete</li> <li>• Issues</li> <li>• Mitigation</li> </ul>
<p><b>4</b> <b>Barnard</b> is ready to proceed with preparatory works for river closure</p>	<ul style="list-style-type: none"> <li>• Status</li> <li>• Risks</li> <li>• Alternatives</li> </ul>
<p><b>5</b> <b>Recommend phased approach</b> to river closure Preparatory Works</p>	<ul style="list-style-type: none"> <li>• Continue with Preparatory Works – removal of remaining portions of cofferdams 2 &amp; 3. Partial removal of RCC Cofferdam.</li> </ul>

1

Key stakeholders are ready for river closure and stakeholders are committed to meeting winter headpond work scopes as per Certificate of Work Completion forms.

Stakeholders	River Closure	Winter Headpond
Environment & Reg. Compliance	Yes	Yes
Comm. & Stakeholder Relations	Yes	Yes
River Management	Yes	Yes
Engineering	Yes	Yes
LCP Safety	Yes	NA
CH0008 (Gilbert Group)	NA	Yes
CH0009 (Barnard)	Yes	Yes
CH0049 (Log boom anchors )	NA	Yes
C4 (Clearing and relocation 138kv line)	NA	Pending

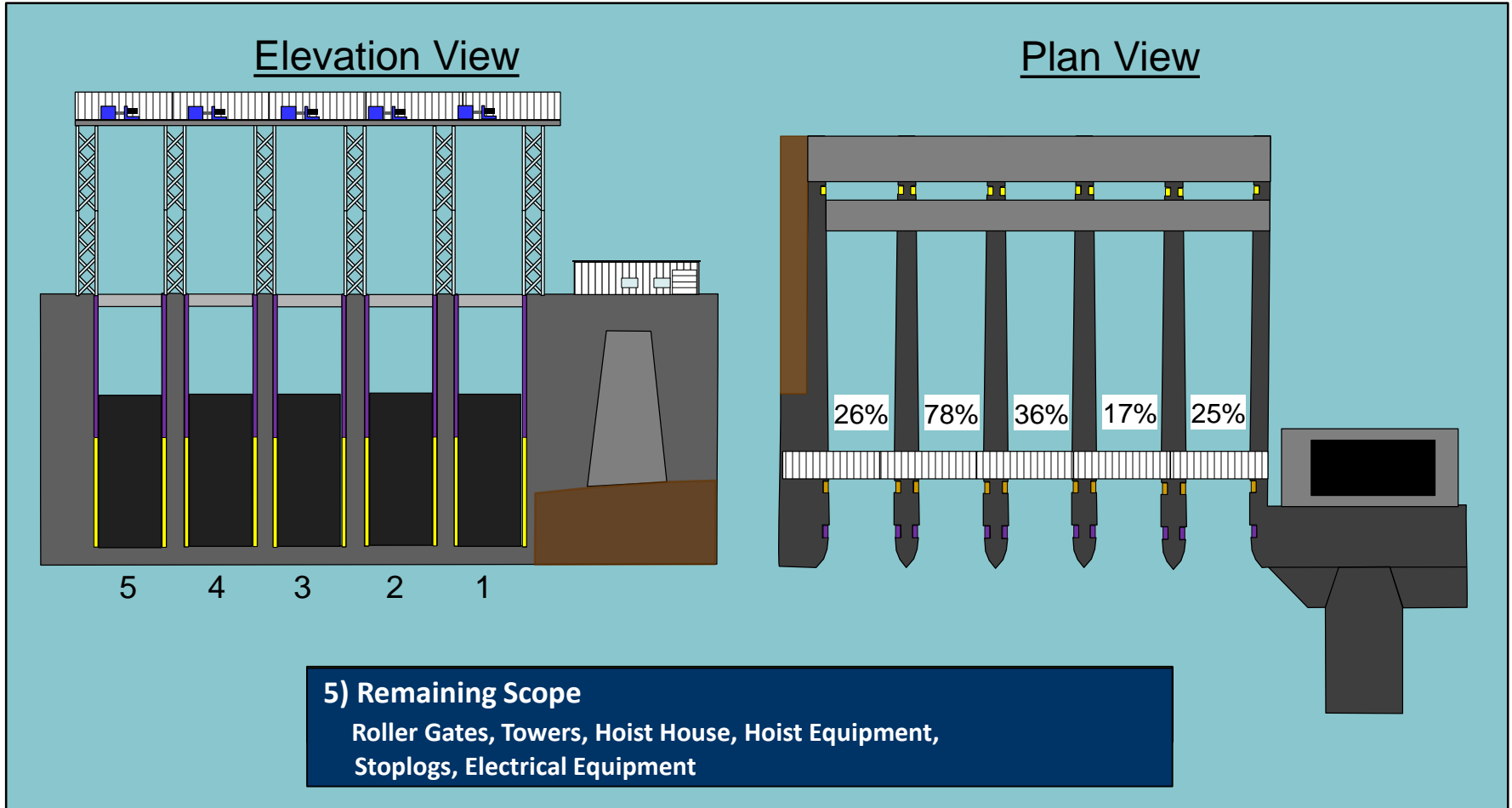
**2** Astaldi has spillway discharge liner work in progress and working with Completions team. Punchlist items for all other P1A work activities required to support river closure are being cleared.



- Spillway discharge liner and rock bolting to be completed to meet river closure. Liner install now at 50%.
- All other critical work has been completed, punchlist items identified and corrections being made. All work will be completed on schedule to meet river closure.
- Photo shows liner progress (30-May)



**3** Andritz progress on P1A work scopes on the Spillway for river closure at 70.8% as of 28-May-2016.



3

## Several key Contractor performance issues being mitigated by LCP:

### Current Issues:

- Andritz management of subcontractors
- Andritz plan for remaining P1A
- Andritz commercial position with regards to acceleration costs to be addressed separately

### 3 Issue: Andritz Management

- Andritz is showing success in managing subcontractors to achieve reasonable productivity levels
- Productivity continues to improve
- LCP team continues to work very closely with Andritz to assist daily coordination
- Organizational improvements to Andritz site team implemented.

### 3 Issue: Plan for remaining P1A scope

- Andritz plans have improved. Continuous refinement to plans continue. Civil subcontractor (CRT) now out of upstream area, simplifying mechanical planning and coordination for remaining heavy mechanical installation work.
- LCP working with Andritz to mitigate delays. Tower Crane collision with South Stair Tower potential 5-7 day delay to critical path. Rescheduling in process. Working on alternate available workfronts.
- LCP continues to provide significant input to Andritz to assist development of completions and commissioning deliverables.

### 3 Issue: Andritz Commercial Position

- Andritz is aware that they are on critical path for diversion.
- Commercial discussions set aside to allow everyone to focus on completing tasks at hand.

**3** Based on recent progress, Andritz is forecasted to meet P1A work scopes for river closure by 21-Jul-2016.

**Minimum Diversion Phase Scope - Spillway**  
 Progress up to: May 28, 2016

Date: 5/30/2016

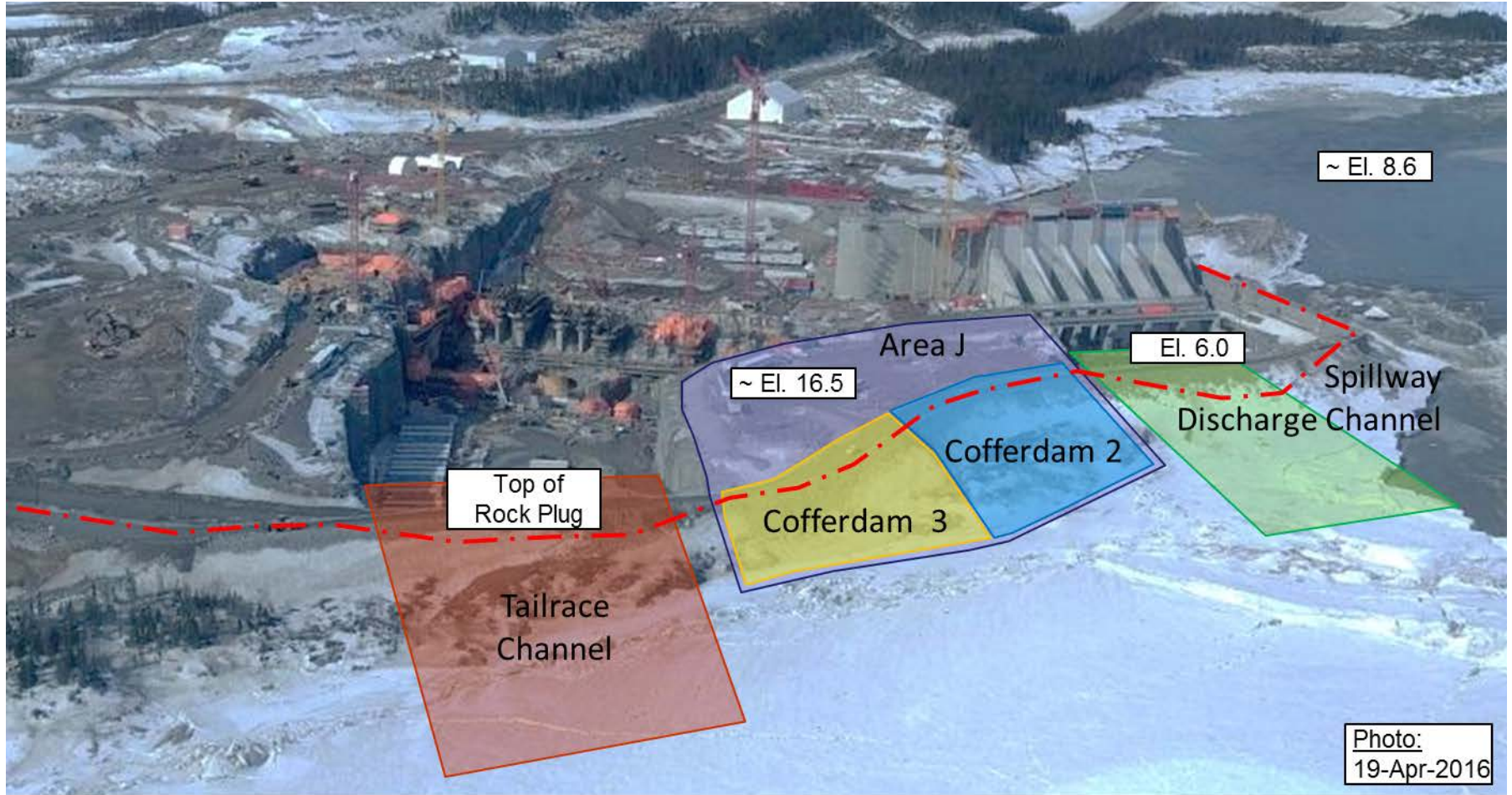
Minimum Diversion Scope - Spillway	Budget Hours Data					Progress Data			Schedule Plan/Actual Dates														
	Weight Factor	Budget Hrs	Planned Hrs	Earned Hrs	Togo Hrs	Plan %	% Complete	Var.	Start	Finish	Aug-15	Sep-15	Oct-15	Nov-15	Dec-15	Jan-16	Feb-16	Mar-16	Apr-16	May-16	Jun-16	Jul-16	
Install Concrete	79.2%	77,327	77,327	65,791	11,536	100.0%	85.1%	-14.9%	10-Sept-15A	22-May-16													
Install Structural	8.2%	8,000	8,000	636	7,364	100.0%	8.0%	-92.1%	21-Feb-16A	31-May-16													
Install Electrical	3.5%	3,422	3,368	1,334	2,088	98.4%	39.0%	-59.4%	18-Apr-16A	5-Jun-16													
Install Gates	6.5%	6,328	6,168	1,368	4,960	97.5%	21.6%	-75.9%	6-Mar-16A	4-Jun-16													
Commissioning	2.6%	2,565	1,904	0	2,565	74.2%	0.0%	-74.2%	17-Apr-16	16-Jun-16													
<b>Total</b>	100%	97,642	96,767	69,129	28,513	99.1%	70.8%	-28.3%															

Summary	Plan	10-Sept-15A	16-Jun-16	
	Current	10-Sept-15A	21-Jul-16	

4

Phase 3 Approvals (2-June):

Barnard to lower Cofferdam 2 to el. 6m. Lower Cofferdam 3 to top of Rock Plug (el. 11m).



4 Phase 3 Approvals (2-June):

RCC removed to el. 11.5m for River Closure Stockpile Development



Photo Date 19 Apr



## 5 Recommended Action - permit Barnard to continue removal work as per phased approach to prepare for 2016 River Closure

In summary – recommended LCP Action includes:

- Approve lowering Cofferdam 2 to el. 6m
- Approve removing Cofferdam 3 to top of rock plug (el. 11m)
- Approve RCC cofferdam lowering to el. 11.5 m

## 5 Risks associated with continued cofferdam removals need to be considered.

- Barnard will soon have completed all approved low risk preparatory works.
- Continued removal without diverting in 2016 results in:
  - Need to rebuild cofferdams RCC, 2 & 3 after removal.
  - Removal of cofferdams twice.
  - Total cost \$55M includes penalty for Barnard.
- Decision now to not divert in 2016 results in:
  - \$25M penalty for Barnard.

Based on Astaldi and Andritz's progress on Spillway Readiness and LCP Team Readiness recommendation is to proceed with removals in preparation for River Diversion in 2016.

Sharing our ideas in an open and supportive manner to achieve excellence.

# Teamwork

# Open Communication

Fostering an environment where information moves freely in a timely manner.

# Honesty and Trust

Being sincere in everything we say and do.

Relentless commitment to protecting ourselves, our colleagues, and our community.

# Safety

# Respect and Dignity

Appreciating the individuality of others by our words and actions.

# Leadership

Empowering individuals to help, guide and inspire others.

Holding ourselves responsible for our actions and performance.

# Accountability