

1 Q. Please provide a copy of the *Reliability Plan for Hydraulic Production for 2019–2021*.

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4 A. Please refer to PUB-NLH-032, Attachment 1 for the Reliability Plan for Hydraulic Production
5 for 2019–2021.

	2019				TOTAL
	Q1	Q2	Q3	Q4	
Item Count	3	8	11	22	44
Complete	7				7
% Complete	233%	0%	0%	0%	16%

Asset Management Area	Location	Milestone	Category	Deliverables	2019				2020				2021				Responsibility	Complete (Yes=1)					
					Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4							
People	General	-	Organizational Structure	Modify organizational structure Restructure LTAP groups in BDE/EXP to better focus on short term technical support and Long term planning													P. Robbins	1					
		a			x																		
		b		Ensure identified employees are trained in the areas of asset management. Establish updated KRAs to reflect new Organizational Structure.	x												B. Peddle / P. Winsor	0					
		-		Ensure identified employees are trained in the areas of asset management.																			
		a		Training	Develop training plan for identified employees		x											B. Peddle / P. Winsor	1				
		b				Establish target timeframes for identified training.		x							B. Peddle / P. Winsor	1							
		c				Execute 2019 yearly deliverables of training plan.			x								B. Peddle / P. Winsor			0			
		d				Execute 2020 yearly deliverables of training plan.				x											B. Peddle / P. Winsor	0	
		e				Execute 2021 yearly deliverables of training plan.								x									B. Peddle / P. Winsor
		-		Ensure identified employees are trained in the area of asset condition monitoring.																			
		a		Training	Develop training plan for identified employees			x											B. Peddle / P. Winsor				
		b				Establish target timeframes for identified training.			x						B. Peddle / P. Winsor	1							
		c				Execute 2020 yearly deliverables of training plan.				x							B. Peddle / P. Winsor	0					
		d				Execute 2021 yearly deliverables of training plan.								x						B. Peddle / P. Winsor	0		
		-		Ensure identified employees are trained in troubleshooting.																			
		a		Training	Determine appropriate troubleshooting training course and develop three year training plan for identified employees.			x														B. Peddle / P. Winsor	1
		b				Execute 2019 yearly deliverables for troubleshooting training.				x					B. Peddle / P. Winsor	0							
		c				Execute 2020 yearly deliverables for troubleshooting training.							x				B. Peddle / P. Winsor	0					
		d				Execute 2021 yearly deliverables for troubleshooting training.								x					B. Peddle / P. Winsor	0			
		-		Develop formal training package on Work Management Practices for new hires and employee transfers																			
		a		Training	Prepare material for training plan.				x													P. Winsor	0
		b				Establish knowledge checks for follow up.									P. Winsor	0							
		-		Improve communication of Reliability/Performance and conformance to process with employees																			
a		Information	Create slides for Hydro TV in BDE/EXP to promote focus on Reliability/Performance and conformance to process.				x									S. Smith	1						
b				Establish a corporate intranet page focused on Reliability/Performance and conformance to process.									S. Smith	0									

Process	General	Capital Program	Operational Oversight	Engineering Directives	Operational Technology	Forced Outages	Spares	Preventative Maintenance Program	Operational Technology	Improvements to documentation handover between LTAP Group and Project Execution group.								
		-								Develop a documentation completion checklist for Capital projects.	x						B. Peddle	0
		a								Implement the use of newly created checklist.		x					B. Peddle	0
		b								Develop a Reliability Improvement Team Establish team members, leadership sponsor.						P. Winsor	1	
		-								Identify mandate for team and structure of reporting for 2019.	x					P. Winsor	0	
		a								PI Data creating alerts in JDE Develop a plan for the implementation of PI data based condition alerts in Hydro Plants.		x				P. Winsor	0	
		b								Implement yearly deliverables as per PI data alerts plan.			x			P. Winsor	0	
		c								Begin implementation of data, based on asset criticality.				x		P. Winsor	0	
		-								Temporary Changes Engineering Directive Prepare Engineering Directive.						S. Smith	1	
		a								Implementation of process for Temporary Changes through an Engineering directive using JDE Condition Alerts	x					S. Smith	0	
		b								Storage Program for Software, Settings, etc. Discuss with OT team options for securely storing latest software revisions (relay settings, PLC programs, module configs, etc.)		x				D. Cole	0	
		-								Complete inventory of data to be stored.			x			C. Hussey	0	
		a								Implement storage system for this data for Hydraulic Production facilities.				x		D. Cole	0	
		b								Forced Outage Standard Improvements Update FO Standard to reflect changes to org structure and based on 2018 audit findings.						S. Smith	1	
		c								Review compliance to Forced Outage Standard and report on findings		x				S. Smith	0	
		d								Review compliance to Forced Outage Standard and report on findings			x			S. Smith	0	
		e								Quality improvements to FO Investigation Process - executive summary - Quarterly reports.	x					S. Smith	0	
		-								Development of PM Program for Critical Spares Determine spares which require PM program						R. Willcott / D. Cole	0	
		a								Develop PM program for spares			x			M. Lambert / C. Ezeoru	0	
		b								Implement PM Program				x		M. Lambert / C. Ezeoru	0	
		c								Develop Program for Lube/Oil Storage Develop inventory of lubes and oils used on site.						R. Willcott	0	
		-								Establish labelling/storage program.						R. Willcott	0	
		a								Development and implementation of new FO Database Continue working with Operational Technology Team.						S. Smith	0	
		b								Complete user testing of new program.						S. Smith	0	

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a	Asset Management Processes	Supporting Office of Asset Management with Implementation and Review of formal processes,	Support OAM in implementation of new business processes for 2019.	x						S. Smith		0
b			Complete review of 1 corporate business process.	x						S. Smith		0
c			Complete review of 1 corporate business process.		x					S. Smith		0
d			Complete review of 1 corporate business process.			x				S. Smith		0
-			Dam Safety Program									
a	Dam Safety		Develop a 3 year improvement plan.	x						M. Luther		0
-			Partial Discharge Monitoring Improvements									
a	Equipment Improvements		Install PD couplers on GF9	x						A. Martin		0
b			Establish periodic PD sampling PM program for GF4 and GF9		X					C. Ezeoru		0
-			Develop a plan to improve asset data monitoring capabilities in Exploits Generation.									
a	Equipment Improvements		Install PI Data Monitoring Equipment in GF Plant	x						A. Martin		0
b			Finalize multi-year implementation plan for the improvement of asset data monitoring.		x					D. Cole		0
c			Improve PI data capabilities as per 2020 portion of plan.			x				D. Cole		0
d			Improve PI data capabilities as per 2021 portion of plan.				x			D. Cole		0
-			Transformer testing/oil sampling program with TRO.									
a	Equipment Improvements		Prepare list of assets requiring routine oil samples.	x						D. Cole		0
b			Establish defined program for sampling with TRO resources.	x						D. Cole		0
c			Assess effectiveness of program and adjust as required.			x				D. Cole		0
-			Unit #7 Overhaul									
a	Equipment Improvements		Complete necessary governor testing and tuning as part of commissioning following unit overhaul.	x						R. Willcott		0
-			Develop local IR Scanning Program in Hydro Gen									
a	Preventative Maintenance Program		Establish IR Scanning PM Program for BDE Terminal Stations and other HG stations	x						C. Ezeoru		0
b			Implement IR scanning program for terminal stations associated with HG Plants	x						K. Inkpen		0
-			BDE Rough Zone Operation									
a	Equipment Assessments		Confirm bounds of BDE Units 1-7 Rough Zones	x						M. Lambert		0
b			Have the Automatic Generation Control (AGC) adjusted as required to reflect updated rough zones.		x					S. Smith		0

Exploits

Equipment		Bay d'Espoir	Equipment Assessments	BDE Penstock Life Extension																
		-		Review findings from final consultant reports.																
		a	Equipment Assessments	Ensure required work is included in long term plan, where appropriate.																0
		b																		0
		c		Complete preparation of necessary Capital Budget Application documents for penstock life extension work.																0
		-		Design Limits Analysis Review																
		a	Equipment Assessments	Complete an analysis of the design limits for the operation of BDE Units 1-6 and update the applicable operating instructions																0
		b		Complete an analysis of the design limits for the operation of BDE Unit 7 and update the applicable operating instructions																0
		-		Mobile Device PM Program Pilot																
		a	Preventative Maintenance Program	Develop plan for pilot project to complete PMs on CAT 1 & 2 using Tough Pad (or similar) for implementation following next release of JDE E1 (including mobile device use)																0
		b		Test use of mobile device for PM completion.																0
		-		Granite Canal Control System																
		a	Equipment Improvements	Complete operating project to assess control system.																0
		b		Submit Capital Budget Proposal for upgrade of control system																0
		-		Rotor Refurbishment																
		a	Equipment Improvements	Establish baseline and testing protocol, including trending, following completion of rotor refurbishment in Hinds Lake.																0
		-		TBD																
		-		Upper Salmon Asset Health System																
		a	Operational Oversight	Develop plan to ensure that newly installed system is properly leveraged.																0
		-		Rotor Rim Key Cracking - Unit Centering																
		a	Equipment Assessments	Assess and include Centering of the unit in the Long Term Plan where appropriate.																0
		-		Frazil Ice Investigation																
		a	Operational Oversight	Complete action resulting from Frazil Ice Investigation team that have been assigned to LTAP/Operations groups.																0
		-		Establish meaningful DAFOR target for SUK Unit																
		a	Forced Outages	Review 2018 outage data and report on findings																1
		b		Evaluate findings and establish reasonable DAFOR target and monitor 2019 performance against target.																1
		-		Star Lake Shear Pins - Resolution of Issues																
		a	Equipment Assessments	Evaluate report completed in 2018.																1
		b		Include execution of work in the Long Term Plan where appropriate.																0

Total: 44
 Total Completed: 13
 % Completed: 30