ONTARIO POWER GENERATION ENTERPRISE PROJECT OFFICE - MONTHLY REPORTING | MARCH 2021

84235 - PHT LRV Modifications (Waterhammer)

PERIOD: **March 2021**

PM: Ishaque, Waleed | **SPONSOR:** Miniere, Dominique | **TYPE:** Capital | **PHASE:** Execution | **SCALE:** A

NARRATIVE DISCUSSION & EXPLANATION

Overview:

The project scope and objective is to mitigate legacy waterhammer issue by replacing the existing Liquid Relief Valves (LRV) with a new advanced model. Unit 2 LRVs have been installed and declared in service successfully. Unit 3 installation has begun. The LRV assembly welding is complete at CanAtom prefabrication facility. Unit 1 and 4 execution Gate 3C funding was approved and contract award is on track for May 15, 2021.

Project Highlights for Period:

1) Unit 3 Shutdown Cooling Room modification I/P. 60% complete. Target FOI May 5, 2021.
2) Unit 3 LRV and Class 1 pipe spool assembly hydrotest complete at CanAtom Cambridge fabrication site.
3) Unit 3 LRV welding and mock-up I/P at Darlington Energy Complex (DEC).

Plan for Upcoming Period:

Unit 3 SDC room pipe modification completion and mock-up training ahead of mobilization inside reactor vault in June 2021.

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KEY INDICATORS

	Safety	No safety incidents to report.
	Quality	N-2021-05118 SDC room re-bar did not get picked by scans.
1.20	Schedule (SPI)	Schedule is on track.
0.92	Cost (CPI)	Project is on track for U3 cost spending.
	Engineering	Unit 2 EC closeout complete. Unit 1, 3 and 4 ECs approved.
	Procurement	No issues.
	Construction	N-2021-03912 for rebar interference detected in SDC room. Field Change Issued.
	In-Service	U2 AFS REIS'ed in Apr. 2020 for ~$2M. Additional ~$600K for U2 closeout I/P.
63%	Forecast (1 Month)	Due to concrete re-bar interferences, workers were re-allocated to other work. Work expected to resume in April 2021.
41%	% Released Spent	$1.26M cost adjustment, due to accrual reversal process. In addition, this months negative adjustment is due to a CCF implementation for schedule changes.

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KEY ISSUES, ACTIONS AND RISKS

ISSUE	ACTIONS
1) Overall project cost is off balance due to a $1.3M credit applied in Feb 2021 from a prepaid account for Unit 3 LRV milestone payment. This will be corrected through Inventory Charge to the project in June 2021.	1) Notify Supply Chain about the shipment of valves from CanAtom to OPG. Owner: Waleed. TCD: June 02, 2021. 2) Confirm cost balance through ECOSYS. Owner: Waleed. TCD: June 15, 2021.
2) 50396 - Remove Unit 3 commissioning work order holds.	Working meeting with Ops Assessing to walkthrough the commissioning work plan. TCD: Feb.19, 2021. Owner: Waleed. Remove ENA holds from WO 5455703 and 5455704. TCD: Feb. 19, 2021. Owner: Waleed

KEY RISKS & OPPORTUNITIES (Top 3 ranked)	ACTION (MITIGATION/MONITOR)	RISK SCORE	POST SCORE
17253 - Unit 3 - OPEX show that 30% - 40% weld failures would occur requiring rework.	51790 - Perform orbital welding and manual welding training during mock-up to prepare for Unit 3 execution.	16	8
56639 - Unit 1 - Excessive weld failures on 6 inch and 8 inch lines during installation.	51915 - Unit 1 - Issue contingency weld repair construction work package	16	8
56648 - Unit 4 - Weld failures on 6 inch and 8 inch lines during installation.	52511 - Unit 4 - Issue contingency weld repair construction work package	16	8

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PERFORMANCE SUMMARY

COST SUMMARY ($k)	% of Plan	Plan	Forecast	Actual	Variance	Δ Period
Period - This Month	(106%)	(345)	584	365	710	N/A
Cumulative - Life-to-Date	76%	46,752	N/A	35,335	(11,417)	710
Released	58%	86,787	50,320	N/A	(36,466)	(235)
Life Cycle - At Completion	87%	86,787	75,413	N/A	(11,373)	(219)

OVERALL PROGRESS		% of Plan		Plan	Forecast	Actual	Variance
	Overall:	40.7%	Period:	(0.4%)	0.5%	0.4%	0.8%

KEY MILESTONES (Tier 1 and 2)	Plan	Forecast	Variance (D)	Δ Period (D)
GR3C - Gate 3C OAR Approval	24-Mar-2021	03-Mar-2021 (A)	(21)	-84
FOI - Finish of Installation (FOI)- SDC- HA193/HA195 - U3	28-Apr-2021	28-Apr-2021	0	12
SOI - Start of Installation - U3	28-Jun-2021	28-Jun-2021	0	0
FOI - Finish of Installation - U3	28-Feb-2022	28-Feb-2022	0	3
AFS - AFS - U4	06-Jul-2026	06-Jul-2026	0	0

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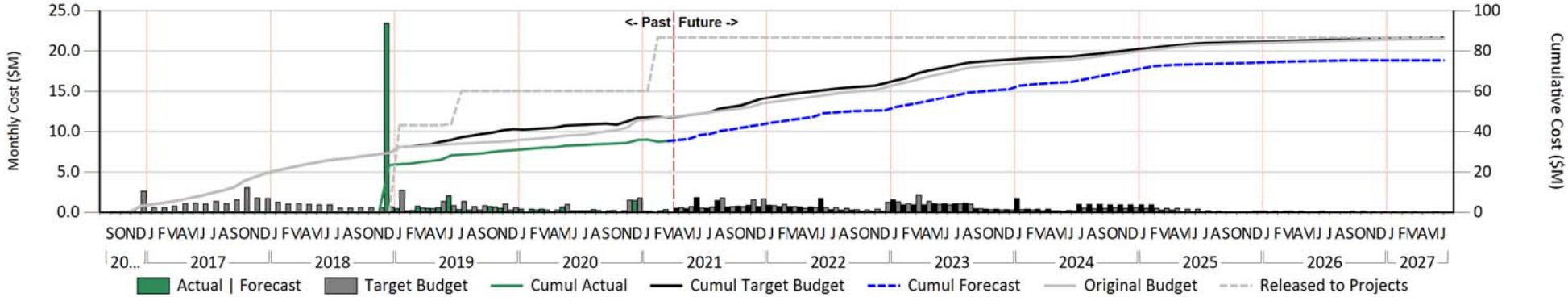
COST DETAILS



NEAR TERM COST BY PIEPCCC + OVERALL LIFE CYCLE COST PERFORMANCE ($k)

Description	Line Type	LTD	ETC	At Comp.	Dec 2020	Jan 2021	Feb 2021	Mar 2021	Apr 2021	May 2021	Jun 2021	Jul 2021	Aug 2021	Sep 2021	Oct 2021	Nov 2021
0 - Cost Management	Actual | Forecast	2,995	26,756	29,750	35	27	24	51	83	83	83	84	85	86	244	245
	Plan (TB)	14,830	9,929	24,759	1,637	-	-	(426)	19	26	45	45	960	45	45	713
1 - Project Management	Actual | Forecast	5,393	360	5,753	40	(18)	46	79	15	15	20	20	20	20	20	20
	Plan (TB)	4,672	4,738	9,409	9	9	12	9	9	31	29	55	70	56	56	70
2 - Inspection	Actual | Forecast	245	-	245	-	-	-	-	-	-	-	-	-	-	-	-
	Plan (TB)	2	-	2	-	-	-	-	-	-	-	-	-	-	-	-
3 - Engineering	Actual | Forecast	15,372	1,119	16,491	75	98	82	30	87	31	16	46	46	76	76	76
	Plan (TB)	15,799	7,142	22,941	64	72	114	138	100	156	112	106	125	106	106	125
4 - Procurement	Actual | Forecast	1,447	451	1,898	6	89	76	24	111	38	88	20	20	20	20	20
	Plan (TB)	1,676	3,160	4,836	130	68	85	(448)	191	86	36	24	30	24	24	30
5 - Construction	Actual | Forecast	9,836	11,118	20,955	1,285	2	(1,276)	179	228	329	1,671	346	1,319	514	459	524
	Plan (TB)	9,734	13,449	23,182	-	-	-	382	323	440	355	483	660	528	528	660
6 - Commissioning	Actual | Forecast	11	77	89	-	-	-	-	-	-	-	-	-	-	-	-
	Plan (TB)	39	387	426	-	-	-	-	-	-	-	-	-	-	-	-
9 - Closeout	Actual | Forecast	-	197	197	-	-	-	-	-	-	-	-	-	-	-	-
	Plan (TB)	-	1,231	1,231	-	-	-	-	-	-	-	-	-	-	-	-
U - Unallocated	Actual | Forecast	36	-	36	48	(13)	-	1	-	-	-	-	-	-	-	-
Total	**Actual | Forecast**	**35,335**	**40,078**	**75,413**	**1,488**	**185**	**(1,049)**	**365**	**524**	**496**	**1,878**	**515**	**1,490**	**716**	**819**	**885**
	Plan (TB)	**46,752**	**40,034**	**86,787**	**1,840**	**149**	**210**	**(345)**	**641**	**738**	**577**	**714**	**1,846**	**761**	**761**	**1,599**