EXH. JPH-20C
DOCKETS UE-240004/UG-240005
2024 PSE GENERAL RATE CASE
WITNESS: JAMES P. HOGAN

BEFORE THE
WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION

WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION, **Complainant,** **v.** **PUGET SOUND ENERGY,** **Respondent.**	**Docket UE-240004** **Docket UG-240005**

NINETEENTH EXHIBIT (NONCONFIDENTIAL) TO THE PREFILED DIRECT TESTIMONY OF

JAMES P. HOGAN

ON BEHALF OF PUGET SOUND ENERGY

REDACTED VERSION

FEBRUARY 15, 2024

PUGET SOUND ENERGY

UBK Spillway Stabilization

Corporate Spending Authorization (CSA)

Date Created:	Friday, February 17, 2023
Discretionary/ Non-Discretionary:	Non-Discretionary
Multi Year Rate Plan:	Specific
Equity Impact:	Yes
Strategic Alignment:	Operate the Business-Reliability
Estimated In-Service Date:	Friday, August 1, 2025
Current State (Business Need):	The Upper Baker Dam Spillway Stabilization Project is to address Potential Failure Modes (PFMs) that were identified in the FERC Part 12D Potential Failure Modes Analysis (PFMA) workshops conducted in 2014 and 2019. PFMs associated with the dam's right and left abutments have been evaluated and addressed in the Phase 1 and Phase 2 projects according to the recommendations made by the FERC approved Board of Consultants that is overseeing the project. The Phase 1 and 2 projects have evaluated PFMs associated with the dam's abutments and implemented instrumentation to monitor dam stability. The Phase 3 project is evaluating and addressing PFMs associated with stability and operation of the dam's spillway. PFMs S-UB-3 and F-UB-3 postulate a potential failure mode in the rock foundation of the spillway due to a seismic event or overstressing of the spillway during a large flood for an extended period of time. The initial assessment of this failure mode indicated that there are geologic features in the spillway's rock foundation that could result in foundation failure. It has been further identified that if the spillway rock foundation were to fail it could restart the movement in the foundation of Blocks 18 and 19 which potentially could result in failure of the dam. During the initial assessment of PFM F-UB-3 a new PFM associated with the rock apron immediately downstream of the spillway was also identified. Flow from the spillway impinges on the rock apron which has resulted in erosion of the rock over time as evidenced by the large pile of rock debris at the bottom of the apron. This PFM is being addressed by monitoring. Erosion thresholds and action limits have been developed and are in the DSSMP. When the threshold limit is hit the rock facing system design will be completed and when the action limit is hit construction will be implemented. These PFMs were identified as Category III under FERC Part 12D PFMA process during the 2014 PFMA workshop but were recategorized as Category II during the 2019 PFMA workshop (a credible failure mode).

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Desired State (Proposed Solution):

Three alternatives were developed to stabilized the existing spillway foundation. The first alternative is to support the slope with Grade 150, 1.75-inch diameter, 70-foot long post-tensioned rock anchors installed on 11-foot centers. The second proposed alternative is to fill the existing sluiceway structure with rock excavated from the tailrace channel and grout, creating a grouted rock buttress to support the base of the slope, employing two rows of Grade 150, 1.75-inch diameter, 26-foot long (embedded 13 feet into the sluiceway and 13-feet into the buttress), untensioned rock anchors installed in the sluiceway channel on 5-foot centers to provide additional shear resistance against sliding. The third alternative is a hybrid of alternatives one and two, utilizing some post-tensioned rock anchors and a rock and concrete buttress.

The preferred alternative is the drilled and grouted concrete buttress based on estimated cost. Currently the design has been completed, project advertised, and construction contractor selected. The project needs final FERC approval and then construction will begin in March, 2024.

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Outcome/Results (What are the anticipated benefits):	Upon completion, the anchored concrete buttress will be installed and the river channel will be back to original depths. The anchored buttress will address the spillway stability PFM and achieve acceptable factors of safety for operating the spillway.

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Redacted version

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Dependencies: No

Dependencies comment: None.

Escalation Included: Yes, escalation has been included per corporate guidance.

Total Estimated Costs: [redacted]

Estimated Five Year Allocation:

Funds Type	ID	Line Item Description	Previous Years Actuals	Fiscal 2024 Requested	Fiscal 2025 Requested	Fiscal 2026 Requested	Fiscal 2027 Requested	Fiscal 2028 Requested
Capital	k.10003.02.01.01	Capital	[redacted]					

Incremental O&M: Both

Qualitative Benefits:

The Upper Baker Dam Spillway Stabilization Project is to address foundation stability concerns in order to comply with FERC Dam Safety standards.

Quantitative Benefits:

Quantitative Benefits	Benefit Type	Previous Years	Fiscal 2023	Fiscal 2024	Fiscal 2025	Fiscal 2026	Fiscal 2027	Fiscal 2028	Remaining Costs	Life Total

Risk Summary:

Regulatory Approval (Rejection) - Frequent coordination with FERC, the BOC and agencies. Complete design and assessment of PFMs with the FERC 12D PFMA framework and identify and implement necessary mitigation strategies if needed.
Construction Cost - Costs are based on detailed estimate and submitted proposals. Mitigation Costs identified in this CSA update are assumed to be worst case based on known costs. Costs of actual mitigation needed to address PFMs are assumed to be within the costs currently identified.
Schedule - Monitored Monthly evaluation of project schedule. Mitigation Re-sequence activities, parallel activities, or extend schedule.

Print Timestamp: 1/9/2024 2 04 PM

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Change Summary:

Planning Cycle	Change Summary	Last Update Date
2023 Cycle 1	Increase of [redacted] since previous CSA for 2025 design and permitting costs. UBK Spillway Stabilization did not have these costs in 2025 but are required for planned construction in 2024. The construction costs of [redacted] in 2024 remain the same. UBK Spillway Stabilization previous CSA was part of the 5/26/2022 Various Generation System Safety, Reliability and Integrity Projects CSA. See document tab for attachment	3/15/2023
2023 Cycle 1	Equity Score added since receiving guidance and info on 3/22/2023.	3/24/2023
2023 Cycle 1	Updated Risk and Equity Scoring	3/27/2023
2023 Cycle 3	Updated previous years costs to put instrumentation in service. Updated status since near FERC approval and construction contract award.	1/9/2024

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Approval History:

Approved By	Date Approved
Approved by Cost Center Owner Likavec , Michael	3/28/2023
Approved by Director Sponsor Carlson , Mark	3/28/2023
Approved by Executive Sponsor Roberts , Ron	3/29/2023
CSA Status changed to Approved	3/29/2023
Approved by Cost Center Owner Olsen , Mauren	12/5/2023
Approved by Director Sponsor Olsen , Mauren	12/5/2023
Approved by Executive Sponsor Olsen , Mauren	12/5/2023
CSA Status changed to Approved	12/5/2023