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Subject: FERC Acceptance for Filing in P-2149-156
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-Docket(s) No.: P-2149-156
-Filed By: Public Utility District No. 1 of Douglas County, Washington
-Signed By: Amber Nealy
-Filing Type: Environmental and Recreational Compliance Report
-Filing Desc: Public Utility District No. 1 of Douglas County, Washington submits the Final 2024 Total Dissolved Gas Abatement Plan Annual Report for the Wells Hydroelectric Project under P-2149.
-Submission Date/Time: 2/19/2025 12:48:45 PM
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RONALD E. SKAGEN
MOLLY SIMPSON
AARON J. VIEBROCK

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Public Utility District No. 1 of Douglas County

1151 Valley Mall Parkway · East Wenatchee, Washington 98802-4497 · 509/884-7191 · FAX 509/884-0553 · www.douglaspud.org

Via Electronic Filing

Honorable Debbie-Anne Reese
Secretary
Federal Energy Regulatory Commission
888 1st Street N.E.
Washington, D.C. 20426

February 19, 2025

Subject: 2024 Annual Report - Total Dissolved Gas Abatement Plan
Wells Hydroelectric Project – FERC License Article 401 (b)

Dear Secretary Bose:

Pursuant to Article 401(b) of the Federal Energy Regulatory Commission (FERC) license for the Wells Hydroelectric Project (Wells Project), the Public Utility District No. 1 of Douglas County (Douglas PUD) hereby submits the final Total Dissolved Gas Abatement Plan Annual Report (TDG Report) for calendar year 2024. Article 401(b) requires Douglas PUD to file an annual TDG Report with the FERC by February 28th during each year of the license.

The final 2024 TDG Report is attached as Appendix A to this letter. A draft version of this 2024 TDG report was distributed on January 10, 2025 to the Washington State Department of Ecology (Ecology) and all of the other parties to the Aquatic Settlement Agreement (ASA) including the United States Fish and Wildlife Service (USFWS), Washington State Department of Fish and Wildlife (WDFW), the Confederated Tribes of the Colville Reservation (CTCR) and the Confederated Tribes and the Bands of the Yakama Nation (Yakama Nation). No editorial comments were received during the 30 day comment period. Following review, all parties present during the February 12, 2025 Aquatic Settlement Work Group (Aquatic SWG) meeting approved the 2024 TDG Report. The USFWS approved the 2024 TDG Report on February 18, 2025 by email, as their official representative missed the February 12, 2025 conference call. The pre-filing consultation record supporting the review and approval of the 2024 TDG Report can be found in Appendix B.

The enclosed 2024 TDG Report is consistent with (1) the Water Quality Management Plan that is contained within the ASA, (2) Condition 6.7(2)(c)(iii) of Ecology's Clean Water Act Section 401 Water Quality Certification (401 Certification), and (3) the National Marine Fisheries Service Endangered Species Act Incidental Take Statement (ITS) Reasonable and Prudent Measure No. 2 for the Wells Project.

If you have any questions or require further information regarding the enclosed report, please feel free to contact me at (509) 881-2323, andrewg@dcpud.org or Mariah Mayfield at (509) 881-2326, mariah.mayfield@dcpud.org.

Sincerely,

Andrew Gingerich
Natural Resources Supervisor

Appendix A – 2024 Annual Report - Total Dissolved Gas Abatement Plan - Wells Hydroelectric Project

Appendix B – Pre-filing Consultation Record for the 2024 Annual Report – Total Dissolved Gas Abatement Plan - Wells Hydroelectric Project

Cc: Melissa Peterson – Ecology
Chad Brown – Ecology
Scott Carlon – NOAA Fisheries
Wells Aquatic Settlement Work Group
Wells Compliance
Mariah Mayfield – Douglas PUD
Shane Bickford – Douglas PUD

APPENDIX A

2024 ANNUAL REPORT TOTAL DISSOLVED GAS ABATEMENT PLAN FOR THE WELLS HYDROELECTRIC PROJECT

2024 ANNUAL REPORT
TOTAL DISSOLVED GAS ABATEMENT PLAN

WELLS HYDROELECTRIC PROJECT

FERC PROJECT NO. 2149

Public Utility District No. 1 of Douglas County
1151 Valley Mall Parkway
East Wenatchee, WA 98802-4331

Prepared for:

Washington Department of Ecology
1250 Alder St, Union Gap, WA 98903

And

Aquatic Settlement Work Group

February 2025

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1.0 INTRODUCTION

The 2024 Wells Hydroelectric Project (Wells Project) Gas Abatement Plan (GAP) was approved by the Washington State Department of Ecology (Ecology) via conference call on February 14, 2024, and subsequently submitted to the Federal Energy Regulatory Commission (FERC) on February 28, 2024. The FERC approved the GAP on April 15, 2024. The GAP and its associated measures represent a long-term strategy to achieve compliance with the Washington State Water Quality Standard (WQS) criteria for total dissolved gas (TDG) downstream of the Wells Project while continuing to provide safe passage for downstream migrating juvenile salmonids. This annual report summarizes the results from the 2024 monitoring season and describes the background, operations, and results of GAP implementation at the Wells Project in 2024. In addition, this report contains TDG performance for the Wells Project during the 2024 fish passage season, and TDG performance outside of the fish passage season. Data summarized in this report includes monitoring from January 1, 2024, to December 31, 2024.

1.1 Project Description

The Wells Project is owned and operated by Public Utility District No. 1 of Douglas County (Douglas PUD) and is located at river mile (RM) 515.6 on the Columbia River in the State of Washington (Figure 1). Wells Dam is located approximately 30 river miles downstream from the Chief Joseph Hydroelectric Project, owned and operated by the United States Army Corps of Engineers (USACE), and 42 miles upstream from the Rocky Reach Hydroelectric Project, owned and operated by Public Utility District No. 1 of Chelan County. The nearest town is Pateros, Washington, which is located approximately 8 miles upstream of Wells Dam.

The Wells Project is the chief generating resource for Douglas PUD. It includes ten generating units with a nameplate rating of 832,320 kW and a peaking capacity of approximately 840,000 kW. The design of the Wells Project is unique in that the generating units, spillways, switchyard, and fish passage facilities were combined into a single structure referred to as the hydrocombine. The hydrocombine is 1,130 feet long, 168 feet wide and has a top-of-dam elevation of 795 feet above mean sea level (msl). Upstream fish passage facilities are located on both sides of the hydrocombine.

The Methow and Okanogan rivers are tributaries to the Columbia River, which drain into the Wells Reservoir. The Wells Project boundary extends 1.5 miles up the Methow River and 15.5 miles up the Okanogan River. The surface area of the reservoir is 9,740 acres with a gross storage capacity of 331,200 acre-feet and usable storage of 97,985 acre-feet at the normal maximum water surface elevation of 781 feet msl.

1.2 Fixed Monitoring Site Locations

Fixed monitoring stations (FMS) for TDG are located above and below Wells Dam (Figure 1). All FMS are Hach® or Hydrotech HYDROLAB MiniSonde (MS5) instruments equipped with TDG and temperature probes, are deployed approximately 15 feet below normal surface water elevation and are calibrated monthly. The forebay station is located midway across the deck of Wells Dam

(47° 56’ 50.28” N, 119° 51’ 54.78” W). The tailrace station is located on the left bank of the Columbia River 2.6 miles downstream of Wells Dam (47° 54’ 46.86” N, 119° 53’ 45.66” W). In the spring of 2014, Douglas PUD installed a third FMS at Washburn Island (WSBW; 48° 5' 17.15" N, 119°40' 33.82" W), located approximately 7 miles downstream of Chief Joseph Dam. Data from the three stations are automatically transmitted by radio to Wells Dam, stored, forwarded to the USACE, and posted to the Douglas PUD’s public webpage (www.douglaspud.org). Weather data are recorded by Global Water, Inc. instrumentation, including an electronic barometer located on the deck of Wells Dam at 810 feet elevation.

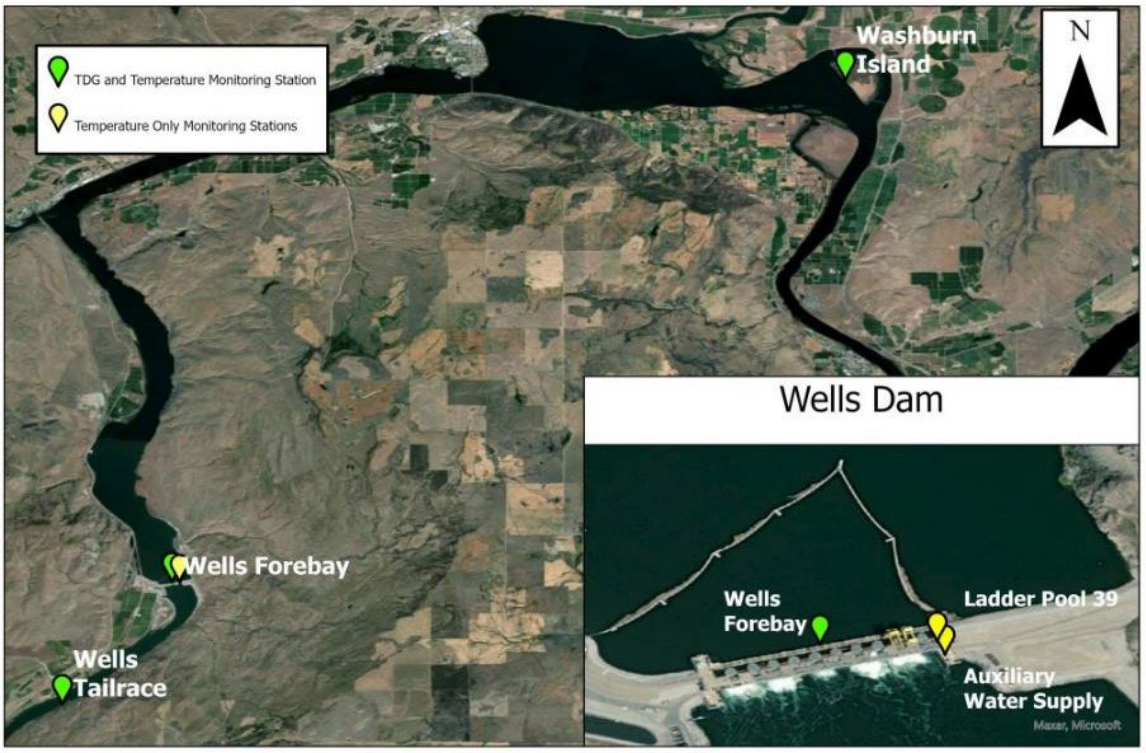

Figure 1. TDG and temperature fixed monitoring stations above and below Wells Dam.

1.3 Regulatory Framework

Washington Administrative Code (WAC) Chapter 173-201A identifies the WQS for surface waters in Washington State. Per the WQS, TDG measurements shall not exceed 110% saturation at any point of measurement in any state water body. The WQS provides for two exceptions to this rule: (1) for spill over dams to increase survival of downstream migrating juvenile salmon; and (2) during natural flood flows. Further, in 2019 the WAC was revised to allow for increased spill during the spring smolt migration period, generally recognized by Ecology to be occurring between April and June, but, for the Wells Project area, begins in April and continues until the juvenile bypass system is no longer operating. This generally occurs in early August and, in 2024, went until August 5, 2024. Douglas PUD received clarification of this rule in a response letter from Ecology dated November 21, 2024 (Attachment A). The revised WAC is written as follows:

(i) The water quality criteria established in this chapter for TDG shall not apply when the stream flow exceeds the seven-day, ten-year frequency flood (7Q-10 flow). The 7Q-10 flow for the Wells Project is 246,000 cubic feet per second (cfs), based on the hydrologic records from 1930 to 1998 and the USGS Bulletin 17B, "Guidelines for Determining Flood Flow Frequency" (Pickett et al. 2004). When river flow volume exceeds 7Q-10 flows, the WQS established in the WAC do not apply.

(ii) The TDG criteria may be adjusted to aid fish passage over hydroelectric dams that spill for anadromous juvenile fish as of the 2020 spill season. The elevated TDG levels are intended to allow increased fish passage via spill without causing more harm to fish populations than caused by turbine fish passage. The following special fish-passage exemptions for the Snake and Columbia rivers apply when spilling water at dams is necessary to aid fish passage:

(A) TDG must not exceed:

- *An average of 115% as measured in the forebays of the next downstream dams and must not exceed an average of 120% as measured in the tailraces of each dam (these averages are calculated as an average of the twelve highest hourly readings in a calendar day, relative to atmospheric pressure); and*
- *A maximum TDG saturation level of 125% calculated as an average of the two highest hourly TDG measures in a calendar day during spillage for fish passage.*

(B) To further aid fish passage during the spring spill season (generally from April through June[1]), spill may be increased up to the following levels as measured at the tailrace fixed-site monitoring location:

- *A maximum TDG saturation level of 125% calculated as an average of the twelve highest hourly TDG measures in a calendar day; and*
- *A maximum TDG saturation level of 126% calculated as an average of any two consecutive hourly TDG measures.*

These TDG criteria may be applied in place of (A) of this subsection (above; see WAC 173-201A-200) during spring spill operations when applied in accordance with the following conditions:

- *In addition to complying with the requirements of WAC Chapter 173-201A, the tailrace maximum TDG criteria at hydropower dams shall be applied in accordance with Endangered Species Act consultation documents associated with spill operations on the Snake and Columbia rivers, including operations for fish passage. The Endangered Species Act consultation documents are those by which dams may*

[1] Attachment A. This rule is applied through bypass termination (July or August) at Wells Dam in order to meet conditions of juvenile fish bypass requirements contained within the Districts Section 10 ESA Biological Opinion.

legally operate during the time that the adjusted criteria in (B) of this subsection are in use.

- *Application of the tailrace maximum TDG criteria must be accompanied by a department approved biological monitoring plan designed to measure impacts of fish exposed to increased TDG conditions throughout the spring spill season. Beginning in the year 2021, plans must include monitoring for nonsalmonid fish species and must continue for a minimum of five years, and thereafter as determined by the department.*

- *TDG must be reduced to allowances specified in (A) of this subsection if the calculated incidence of gas bubble trauma in salmonids (with a minimum sample size of 50 fish required weekly) or nonsalmonids (with a minimum sample size of 50 fish required weekly) exceeds:*
    - *Gas bubble trauma in nonpaired fins of 15%; or*
    - *Gas bubble trauma in nonpaired fins of 5% and gas bubbles occlude more than 25% of the surface area of the fin.*

If gas bubble trauma exceeds these biological thresholds, additional monitoring must demonstrate the incidence of gas bubble trauma below biological thresholds before TDG can be adjusted to allowances specified in this subsection. Gas bubble trauma monitoring data shall be excluded from comparison to biological thresholds when higher than normal river flow contributes to excess spill above the ability to meet (B) above. This monitoring data exclusion shall apply for one full calendar day after reduced river flow allows attainment of (B) above.

1.4 Gas Abatement Plan Approach

1.4.1 Structural

No permanent structural modifications were proposed or conducted in the 2024 monitoring season. Spill Gate 9 was unavailable during the 2023 bypass period but was put back into service on July 31, 2023, and, as such, Spill Gate 9 was used as the primary gate for concentrated spill when flows exceeded plant capacity in 2024.

1.4.2 Consultation

Consistent with prior consultation requirements, Douglas PUD directs all correspondence related to TDG compliance to Ecology's Hydropower Projects Manager located in the Central Region Office (Union Gap, Washington 98903). In addition, Douglas PUD annually consults with the Aquatic Settlement Work Group (Aquatic SWG) and Habitat Conservation Plan Coordinating Committee (HCP CC) for specific TDG and WQS documents pursuant to Douglas PUD's 401 Water Quality Certification (401 Certification). Final documents that have received committee and stakeholder approval are submitted to the FERC for approval and towards complying with the consultation and approval requirements contained within the FERC license for the Wells Project.

2.0 OPERATIONS

2.1 Description of Fish-Passage Season Flow

The Wells Anadromous Fish Agreement and HCP required Douglas PUD to provide juvenile fish bypass passage opportunities for greater than 95% of the downstream migrating juvenile fish covered by the HCP (Plan Species). The HCP-defined juvenile fish passage season starts April 1st and runs through August 31st of each year. Douglas PUD annually reviews fish passage statistics and uses that information to tune operation during subsequent years to ensure that greater than 95% of the juvenile outmigration is afforded a non-turbine passage route through Wells Dam. Based upon prior-year information, the juvenile fish bypass started on April 9 (0:00) and ended on August 5 (24:00). As required, TDG performance was monitored during this period and transmitted to the USACE, Northwest Division on a real-time basis (www.nwd-wc.usace.army.mil) and made available on Douglas PUD's public webpage (https://douglaspud.org/environmental-stewardship/for-regulatory-agencies/total-dissolved-gas-and-temperature-monitoring/). Historical data continues to be available for download at both websites.

Data from 1969 to 2024 show that average monthly flows at the Wells Project range from an October average low of 55.9 kcfs to a June average high of 116.8 kcfs (Table 1; Figure 2). Discharge in 2024 was lower than both the historic average and the 10-year average (Figure 2). Flows at the run-of-river Wells Project are determined by upstream storage releases at the Grand Coulee Hydroelectric Project and Canadian storage projects, with typically less than 10% of the total river flow provided by the two rivers that flow into the Columbia River within the Wells Project (Okanogan and Methow rivers). Tributary inputs from the Methow and Okanogan rivers are often referred to as "side-flows," which enter the Columbia River within the Wells Project area.

Table 1. Monthly average river discharge (kcfs) from the Wells Project, 1969-2024.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Mean
2024	72.7	60.6	72.6	75.6	99.5	116.8	115.4	94.1	57.7	55.9	88.2	94.4	83.6
Average since 1969	109.1	108.5	105.1	115.9	153.2	163.4	133.6	105.8	73.7	73.5	88.2	100.6	110.3
Minimum since 1969	67.4	69.9	56.0	51.9	55.2	73.7	53.4	63.9	49.3	51.0	63.8	72.6	--
Maximum since 1969	159.2	180.7	193.9	203.8	266.3	348.7	253.8	181.3	123	108.9	110.0	149.0	--
10YR mean (2015-2024)	108.9	110.8	98.1	107.4	158.7	152.0	121.2	103.4	63.8	61.3	90.3	96.8	106.1

Late-winter and early-spring flows were lower than average and there was not a typical spring run-off in 2024, rather, the flows remained low throughout spring (Figure 2). Stream flows never exceeded the 7Q-10 value of 246 kcfs. After the lower spring and early-summer flows, discharge remained near average levels from July to the end of October (Figure 2).

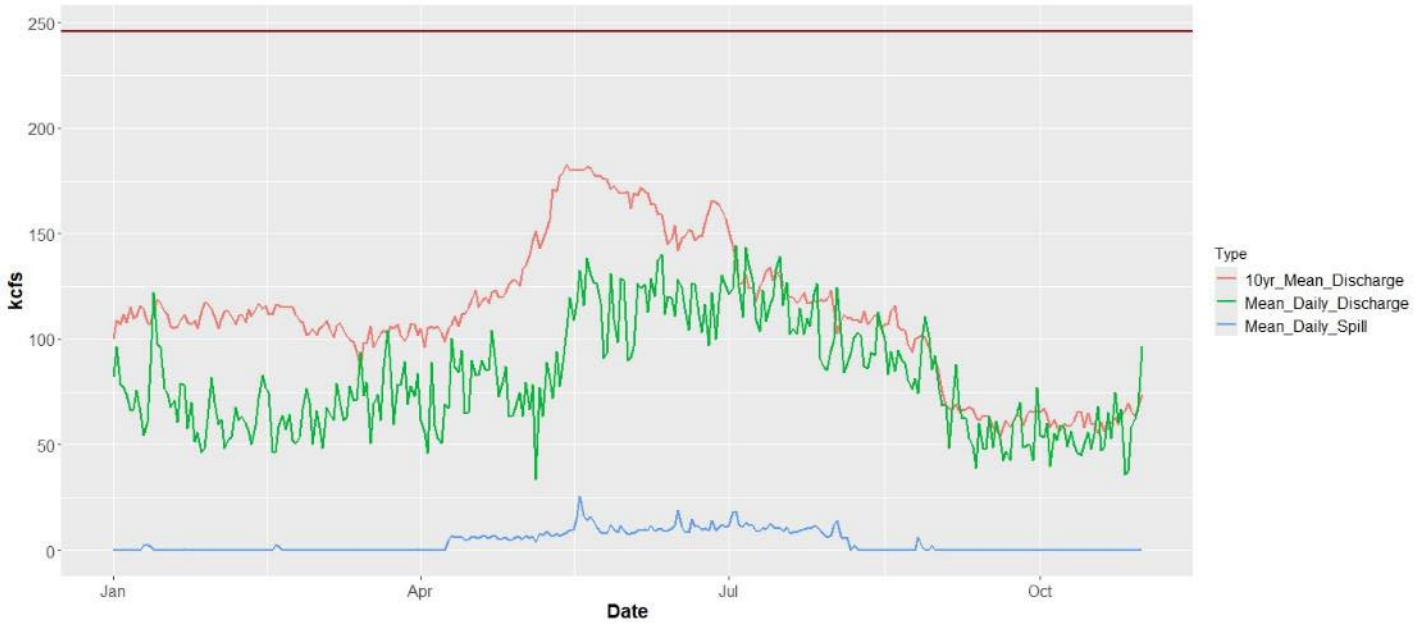

Figure 2. **2024 mean daily discharge and mean daily spill, compared to 10-year mean daily discharge. Dark red reference line indicates the 7Q-10 values of 246 kcfs.**

2.2 Fish Bypass Program

Wells Dam is a hydrocombine, and the spillbays are located directly above the turbine intakes. Research at Wells Dam in the mid-1980s demonstrated that a modest amount of spill could effectively guide a high proportion of downstream migrating juvenile salmon away from turbines and into a surface-oriented bypass system. A Juvenile Bypass System (JBS) was subsequently developed at the Wells Project in the late 1980s. The Wells Dam JBS was engineered based on biological research and hydraulic modeling and utilizes flow-constricting barriers deployed in five of the eleven spillbays to effectively attract and safely guide fish through the Wells Project. The JBS has since proven to be the most efficient system on the mainstem Columbia River, providing high levels of fish protection and survival that has met approval from various fisheries agencies and tribes (Skalski et al. 1996). The passage and survival performance measures contained within the FERC-approved HCP have been consistently exceeded for spring migrating plan species (Bickford et al. 2001; Gingerich et al. 2020; see Section below).

2.3 Fish Bypass Spill Quantities and Duration

The Wells Dam JBS uses up to 2.2 kcfs of water for each of the five bypass/spillbays. Under normal conditions, the JBS will use roughly five to eight percent of the total river flow for fish guidance. The bypass spill has a small influence on TDG production (~0-2%) while providing a safe and highly effective, non-turbine passage route for over 92% of the spring-migrating and 96% of the summer-migrating juvenile salmonids. The HCP-defined juvenile fish migration period runs from April 1st to August 31st of each year. The HCP CC retains annual operating oversight that

includes the potential to operate the JBS as early as April 1 and as late as August 31 to ensure that at least 95% of the spring and summer migrations of juvenile salmonids are provided with a safe, non-turbine passage route over Wells Dam. Any spill that occurs between April 1st and August 31st is deemed to have a beneficial effect on migrating juvenile salmonids.

From 2003 to 2011, the HCP CC directed the District to operate the JBS on a fixed schedule between April 12 and August 26 in an effort to provide a non-turbine passage route for at least 95% of the spring and summer migrations of juvenile salmonids. In 2012, Douglas PUD evaluated past performance of the Wells Dam JBS operating dates relative to observed annual run timing (at the Rocky Reach Bypass) for both spring and summer migrants. With that data, a request was made to and granted by the HCP CC to revise the bypass operating dates in 2012 to start April 9 and end August 19. These new dates were therefore used in 2012-2020 to operate the JBS for migrating juvenile salmonids. Again in 2020, after nine more years of data collection, Douglas PUD requested that the bypass window end ten days earlier on August 9 in 2021. Given the long history of data collection and analysis, the HCP CC approved the request to have the bypass period operate between April 9 and August 9 in 2021, and JBS operation within those dates readily provided JBS passage for greater than 95% of the spring and summer migrants. In 2022, a retrospective analysis of the Wells Dam smolt passage dates estimated that more than 95% of the spring migrants passing Wells Dam were afforded a bypass opportunity at Wells Dam. However, the same analysis showed that the bypass should have ran two more days until August 11th to provide 95% bypass operations coverage for summer migrant salmonids. Given the limitations of the retrospective analysis and the failure in 2022 to provide a non-turbine passage route to 95% of summer migrating salmonids, the HCP CC will consider the use of RealTime Forecasters for estimating cumulative passage of juvenile salmonids at Wells Dam in the future, and to end the JBS each year once 95% passage has been reached at Rocky Reach Dam[2], rather than on a fixed date. RealTime Forecasters is a publicly available program created by University of Washington School of Aquatic and Fishery Sciences staff associated with the Columbia Basin Research office (Beer 2022) and available online at https://www.cbr.washington.edu/analysis/rt. Juvenile anadromous salmonids that pass Wells Dam before and after the bypass system is shut down for the year benefit from spill at the Wells Project and therefore Douglas PUD annually develops a GAP and conducts biological and physical monitoring in order to obtain an Ecology approved TDG adjustment for the entire juvenile salmonid migration period (April 1st to August 31st).

3.0 IMPLEMENTATION RESULTS

3.1 Fisheries Management

[2] *Using Rocky Reach Dam JBS index counts, and program RealTime Forecasters is a conservative approach to ending bypass operations at the Wells Project since it does not correct for the travel date delay between Wells Dam and Rocky Reach Dam. If 95% of the run is completed at Rocky Reach, then some value greater than 95% will have passed Wells Dam given that travel times for summer Chinook between Wells and Rocky Reach dams are more than one day and had a median of 11 days in the most recent analysis (Buchanan and Townsend 2023).*

3.1.1 Fish Passage Efficiencies

No new fish passage efficiency studies were conducted at the Wells Project in 2024. However, three years of bypass efficiency studies have shown the Wells Dam JBS to be the most efficient juvenile salmonid collection system on the Columbia River with fish passage efficiencies averaging 92% for spring migrants (steelhead, Sockeye Salmon, and spring Chinook Salmon) and averaging over 96% for summer migrants (summer/fall Chinook Salmon; Skalski et al. 1996).

3.1.2 Survival Studies

No survival studies were conducted in 2024, with the most recent survival confirmation study completed in 2020. The average project survival estimates for all five survival studies completed at Wells Dam using yearling spring migrants is 0.9604 (SE=0.0098). These results indicate that the Wells Project has the highest rate of project survival for spring migrating fish on the Columbia and Snake rivers.

3.1.3 Run-Timing Evaluation

Based on analysis conducted by Drs. Rebecca Buchanan and Richard Townsend of Columbia Basin Research, in 2024 Douglas PUD surpassed the HCP requirement to provide bypass operations during at least 95% of the juvenile salmon and steelhead migration taking place at Wells Dam for all salmonid groups except wild yearling Chinook (Buchanan and Townsend 2024). The onset of bypass operations at Wells Dam in 2024 continued with the schedule determined in 2021, starting at 00:00 on April 9. Unlike previous years, the end date of bypass operations in 2024 was informed by the predicted 95% passage date of subyearling Chinook Salmon at Rocky Reach Dam generated by RealTime Forecaster, as described above. In 2024, bypass operations at Wells Dam ceased at 24:00 on August 5. Buchanan and Townsend (2024) summarized the success of the 2024 juvenile bypass season end date and specifically for subyearling Chinook showing the effectiveness of the "New" Program RealTime Forecaster:

> *"An estimated 99.49% of the run-of-river subyearling Chinook salmon migration was covered in 2024, with 0.51% passing after bypass operations ceased (Table 3, Program RealTime). Additionally, bypass operations at Wells Dam covered 99.70% of the PIT-tagged subyearling Chinook Salmon outmigration (hatchery and wild fish combined). The PIT-tagged subyearling Chinook Salmon result represented mostly hatchery fish (80.7% hatchery, 19.3% wild) in 2024. The 2024 results for all monitored Plan Species were consistent with historical trends (2012–2023) and exceeded the HCP goals of providing bypass operations for equal to or greater than 95% of the spring outmigration of juvenile Plan Species."*

3.2 Biological Monitoring

The 2024 Wells Project GAP and the biological monitoring requirement of the WAC governing TDG adjustments for juvenile fish passage call for biological monitoring. Pursuant to the 2024 GAP, weekly GBT monitoring occurred at the Rocky Reach JBS and in the Wells Dam tailrace. Further, additional monitoring occurred when observed TDG levels were above 125%, consistent with the National Marine Fisheries Service (NMFS) recommendations (NMFS 2000). GBT monitoring began on April 4, 2024, and continued through August 7, 2024, at Rocky Reach Dam consistent with the 2024 GAP. Each week, Douglas PUD endeavored to examine no fewer than 50 resident and 50 anadromous fish for GBT. However, due to low passage rates at the Rocky Reach JBS, there were several weeks when the 50 fish minimum was not met. In total, 738 smolts were encountered in the Rocky Reach JBS and examined for GBT (Table 2). Various non-anadromous fish were also examined at Rocky Reach JBS. Within the Wells Tailrace, 1044 resident fish were examined for GBT (Table 3). In 2024, no GBT was observed at the Rocky Reach JBS or in the Wells Tailrace sampling.

Table 2. Summary of fish sampled at the Rocky Reach Juvenile Bypass System for GBT in 2024. None of the fish examined had signs of GBT.

	Chinook Salmon		Chiselmouth		Coho Salmon		Largemouth Bass		Mountain Whitefish		Pacific Lamprey		Peamouth		Rainbow Trout/Steelhead		Redside Shiner		Sockeye Salmon		Threespine Stickleback		
Date	# exam	# w/ GBT	# exam	# w/ GBT	# exam	# w/ GBT	# exam	# w/ GBT	# exam	# w/ GBT	# exam	# w/ GBT	# exam	# w/ GBT	# exam	# w/ GBT	# exam	# w/ GBT	# exam	# w/ GBT	# exam	# w/ GBT	**TOTAL**
4/4/2024	1	0																					**1**
4/22/2024	44	0			3	0									4	0			1	0			**52**
5/2/2024	50	0			2	0									4	0			1	0			**57**
5/6/2024	48	0			4	0									4	0							**56**
5/13/2024	11	0													1	0			40	0			**52**
5/23/2024									1	0					16	0			34	0			**51**
5/29/2024	13	0			15	0									10	0	7	0	5	0	1	0	**51**
6/6/2024	29	0			22	0			4	0											16	0	**71**
6/14/2024	49	0			3	0			4	0					2	0					1	0	**59**
6/19/2024	49	0							3	0													**52**
6/27/2024	27	0			1	0			22	0					3	0	1	0			4	0	**58**
7/3/2024	15	0	1	0					4	0			2	0	5	0					9	0	**36**
7/8/2024	3	0							1	0											1	0	**5**
7/15/2024	45	0					1	0	1	0	1	0			1	0					3	0	**52**
7/22/2024	52	0																			1	0	**53**
7/29/2024	58	0							3	0											1	0	**62**
8/7/2024	20	0																					**20**
Species Total	**514**	**0**	**1**	**0**	**50**	**0**	**1**	**0**	**43**	**0**	**1**	**0**	**2**	**0**	**50**	**0**	**8**	**0**	**81**	**0**	**37**	**0**	**788**

Table 3. Summary of fish collected for GBT examination via electrofishing in the Wells Tailrace, 2024. None of the fish examined had signs of GBT.

	Bluegill		Bridgelip Sucker		Carp		Chinook Salmon		Chiselmouth		Largescale Sucker		Mountain Whitefish		Northern Pikeminnow		Peamouth		Prickly Sculpin		Rainbow Trout/Steelhead		Redside Shiner		Smallmouth Bass		Sockeye Salmon		Sucker spp		Tench		Threespine Stickleback		Total
Date	# exam	# w/ GBT	# exam	# w/ GBT	# exam	# w/ GBT	# exam	# w/ GBT	# exam	# w/ GBT	# exam	# w/ GBT	# exam	# w/ GBT	# exam	# w/ GBT	# exam	# w/ GBT	# exam	# w/ GBT	# exam	# w/ GBT	# exam	# w/ GBT	# exam	# w/ GBT	# exam	# w/ GBT	# exam	# w/ GBT	# exam	# w/ GBT	# exam	# w/ GBT	
4/8/2024									1	0	10	0			2	0							42	0											**55**
4/15/2024											7	0											79	0											**86**
5/2/2024			1	0							7	0			1	0					1	0	46	0											**56**
5/6/2024							1	0			4	0	1	0	1	0							45	0									1	0	**53**
5/13/2024									10	0	11	0			10	0							53	0	2	0							3	0	**89**
5/23/2024									3	0	7	0			10	0	3	0					46	0									2	0	**71**
6/5/2024					1	0			3	0	11	0			3	0							36	0					1	0					**55**
6/11/2024					1	0	1	0	2	0	14	0			3	0							59	0	3	0									**83**
6/19/2024					2	0			6	0	9	0			7	0							51	0					1	0	1	0	1	0	**78**
6/27/2024					1	0			5	0	1	0			8	0	1	0					50	0					6	0					**72**
7/3/2024											10	0			2	0							1	0	3	0	1	0							**17**
7/8/2024											16	0			8	0					1	0	9	0	1	0			13	0	1	0			**49**
7/15/2042											7	0											74	0					2	0					**83**
7/22/2024									19	0	7	0			40	0							9	0					22	0	1	0			**98**
7/29/2024					1	0			9	0	8	0			6	0	4	0					14	0	2	0	2	0	7	0	1	0			**54**
8/5/2024	1	0	1	0	1	0			6	0	7	0			13	0	1	0	1	0			10	0	1	0			3	0					**45**
Species Total	**1**	**0**	**2**	**0**	**7**	**0**	**2**	**0**	**64**	**0**	**136**	**0**	**1**	**0**	**114**	**0**	**9**	**0**	**1**	**0**	**2**	**0**	**624**	**0**	**12**	**0**	**3**	**0**	**55**	**0**	**4**	**0**	**7**	**0**	**1044**

3.3 Water Quality Forums

Douglas PUD has actively participated in regional water quality forums with Ecology, Washington Department of Fish and Wildlife, NMFS, Tribal Agencies, the U.S. Fish and Wildlife Service, the USACE, and other Mid-Columbia PUDs (i.e., Grant and Chelan counties). Notably, in 2024, Douglas PUD participated in monthly water supply webinars provided by NOAA's Northwest River Forecast Center from January-June. Since 2020 and the onset of the Covid-19 pandemic, there has been some reduction in regional coordination of water quality issues and topics. At the end of 2020, the USACE cancelled their regional review of TDG monitoring in the Snake and Columbia Rivers, normally held in Portland each year. Douglas PUD looks forward to participating in these forums again in the future.

3.4 Physical Monitoring

3.4.1 Overview

TDG monitoring at the Wells Project currently occurs year-round as required by Douglas PUD's Wells Project 401 Certification. As required by Douglas PUD's Quality Assurance Project Plan for TDG, FMS sensors are serviced and calibrated at least once per month or sooner if calibration issues are observed in the data.

In 2014, an additional reservoir monitoring station was installed at Washburn Island (RM 537.5) to collect TDG data representative of water quality entering the Wells Project from Chief Joseph Dam. The current Chief Joseph Dam tailwater station (CHQW) Minisonde TDG sensor is deployed along the right bank of the Columbia River, 0.75 miles downstream from Chief Joseph Dam. The river right location of the USACE TDG sensor precludes it from collecting bulk flow data, and instead the sensor monitors spillbay water disproportionally. Under some conditions, water coming from Chief Joseph Dam spillbays has a lower TDG concentration than the powerhouse. For example, when the Chief Joseph Dam forebay has high concentrations of TDG (e.g. greater than 120%) as a result of high spill volumes from Grand Coulee Dam and limited degassing through Rufus Woods Reservoir, water sent through the spillbays at Chief Joseph Dam may actually be stripped of gas via the spill deflectors. However, powerhouse TDG concentrations are essentially identical to those in the forebay and can be missed by the CHQW sensor since powerhouse flows orient to river left rather than river right where the TDG sensor resides. As a result of the CHQW location and the orientation of spill and powerhouse flows, bulk flows leaving the federal system and entering the Wells Project are not accurately monitored. The Washburn Island location installed and operated by Douglas PUD allows water quality managers and the Aquatic SWG Parties to:

1) Better understand TDG degassing in the Wells Project and expected TDG saturation in the Wells forebay.

2) Assure data quality at the Wells forebay TDG sensor since Washburn Island TDG values should correlate predictably with Wells forebay TDG values. Based on the

comparison of the sensors at these two locations, technicians can ensure reliable data collection by scheduling sensor servicing when data appears to be erroneous.

3) More accurately assess TDG production from the federal power system upstream of Wells Dam, which may support improved management towards minimizing TDG production in the Columbia River.

3.4.2 Data Evaluation and Analyses

Hourly TDG monitoring data were retrieved from the USACE, Northwest Division for three monitoring locations: the forebay of Wells Dam, tailrace of Wells Dam, and forebay of Rocky Reach Dam, or from the Douglas PUD dataset, available at https://douglaspud.org. The data were partitioned to include only readings obtained during specific time periods of non-bypass (January – March and September – December), spring fish bypass (April – August 5), and summer bypass (August 6 - 31). Data were stratified by monitoring site, ascending date, and ascending time. Data quality review included ensuring TDG sensor data was responding to each data request and not simply repeating data from the previous time interval or relaying inaccurate data as the result of a system failure (e.g., a failed membrane on the TDG sensor). Where data was perceived to be frozen or otherwise inaccurate, it was removed and, when feasible, replaced with accurate data collected by the adjacent, redundant sonde.

3.5 TDG Compliance

During the non-fish passage season, the TDG criterion in the Wells Tailrace is 110% (January–March and September–December). During the spring fish passage (April to August 5) season, compliance was calculated using the new regulatory criteria adopted by Ecology in 2019 and clarified in 2024 (Attachment A). Additionally, there are five compliance criteria for the 2024 fish passage adjustment that must be met in association with operation at the Wells Project as described in the 2024 GAP and reviewed in Section 1.3. These five compliance criteria apply differently between spring fish bypass (April to August 5) and summer bypass (August 6 to August 31) seasons but are waived when flows exceed the 7Q-10 value for the Wells Project (246 kcfs). For more information refer to WAC 173-201A-200.

3.5.1 Non-Fish Passage Season Compliance (Wells Tailrace 110%)

Pursuant to Douglas PUD's FERC Operating License and 401 Certification, in August 2013 Douglas PUD started collecting TDG data during the non-fish passage season. Non-spill flows at Wells Dam (through the turbine units and fishways) generate little to no additional dissolved gas, and spill outside the fish passage adjustment period is uncommon. There were six hourly instances on one day in which TDG values were observed higher than 110% outside of the fish bypass season during 2024 (Figure 3). In the early hours of February 19, 2024, TDG exceeded 110% due to a spill event and reached a high of 121.8% TDG before returning to normal values. This spill occurred as part of an effort to meet the Hanford Reach Agreement flow levels; operators spilled quickly to meet end of weekend water targets. This TDG likely could have been avoided with more communication with operators, especially as this was over a long holiday weekend.

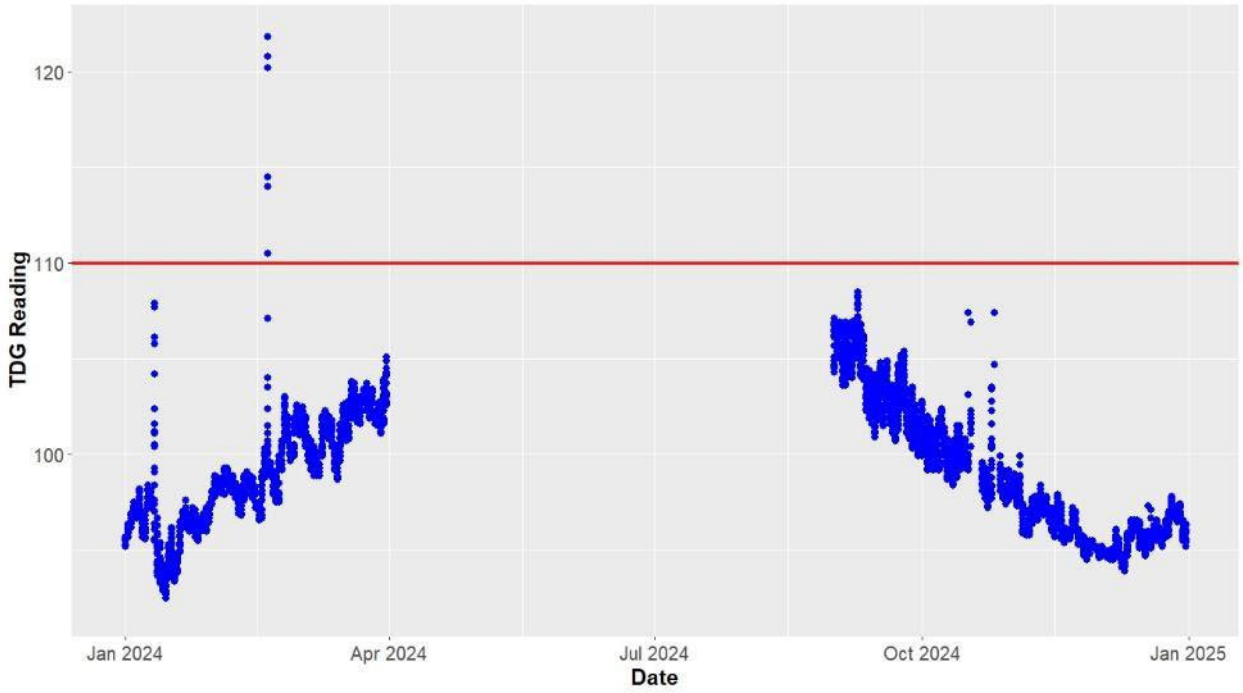

Figure 3. **Hourly TDG data for the Wells Tailrace during the non-fish bypass season in 2024. Values colored red and appearing above the reference line represent exceedances of the standard.**

3.5.2 Spring Fish Passage Season (April through August 5) Compliance

Mean of Highest 12-Hour TDG Values (Wells Tailrace: 125%)

In 2024, there were no instances of the mean highest 12-hour TDG values exceeding the 125% criteria from April through August 5.

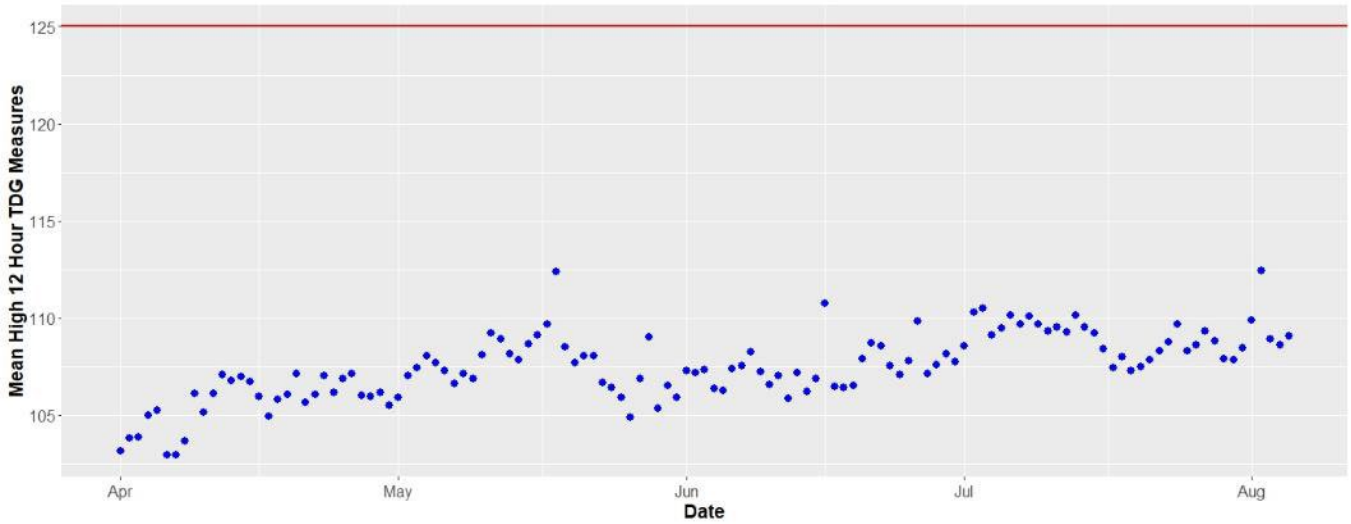

Figure 4. Mean highest 12-hour TDG measures in the Wells Tailrace from April through August 5, 2024. Reference line indicates the compliance standard of 125%.

Mean Consecutive 2-Hour TDG Values (Wells Tailrace: 126%)

In 2024, there were no exceedances of the 126% 2-hour consecutive mean TDG standard in the Wells Tailrace during the April – August 5 period.

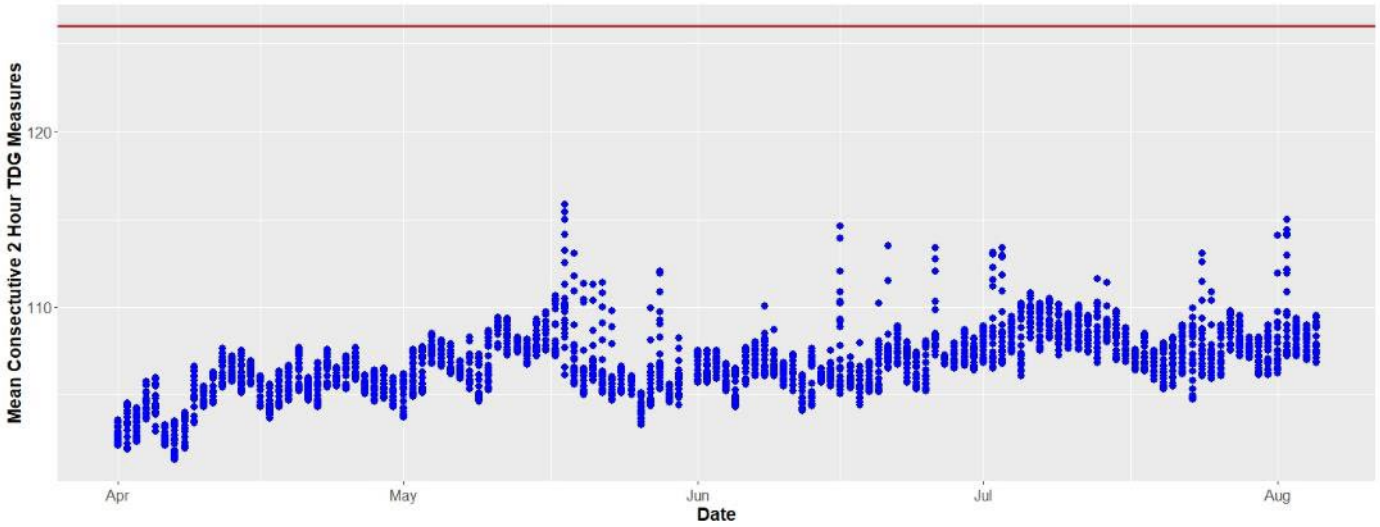

Figure 5. **Two-hour consecutive average TDG values for the Wells Tailrace, April through August 5, 2024. Reference line indicates the compliance level of 126%.**

3.5.3 Summer Fish Passage Season (August 6 to August 31) Compliance

Mean of Highest 2-Hour TDG Values (Wells Tailrace: 125%)

In 2024, there were no instances of the mean highest two-hour TDG values in the Wells Tailrace exceeding the 125% criteria between August 6 to August 31.

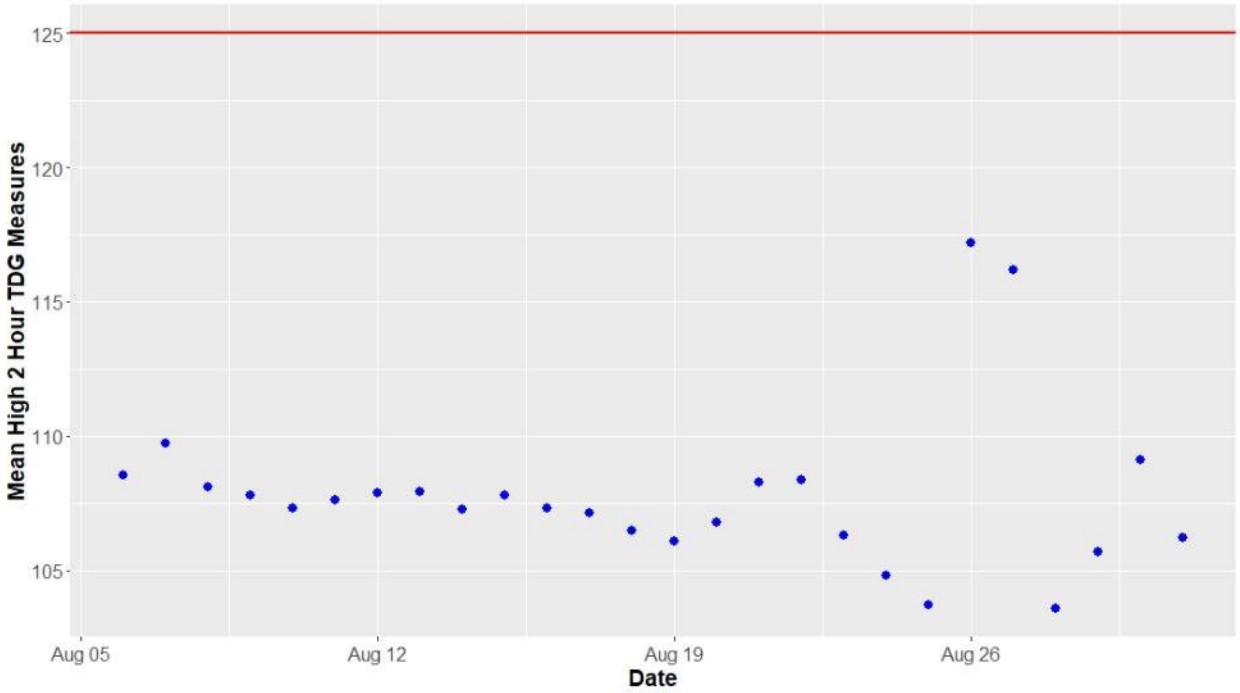

Figure 6. Mean highest 2-hour TDG measures in the Wells tailrace from August 6 to August 31, 2024. Reference line indicates the compliance standard of 125%.

Mean of Highest 12-Hour TDG Values (Wells Tailrace: 120%)

In 2024, there were no instances of the mean highest 12-hour TDG values in the Wells Tailrace exceeding the 120% criteria between August 6 to August 31.

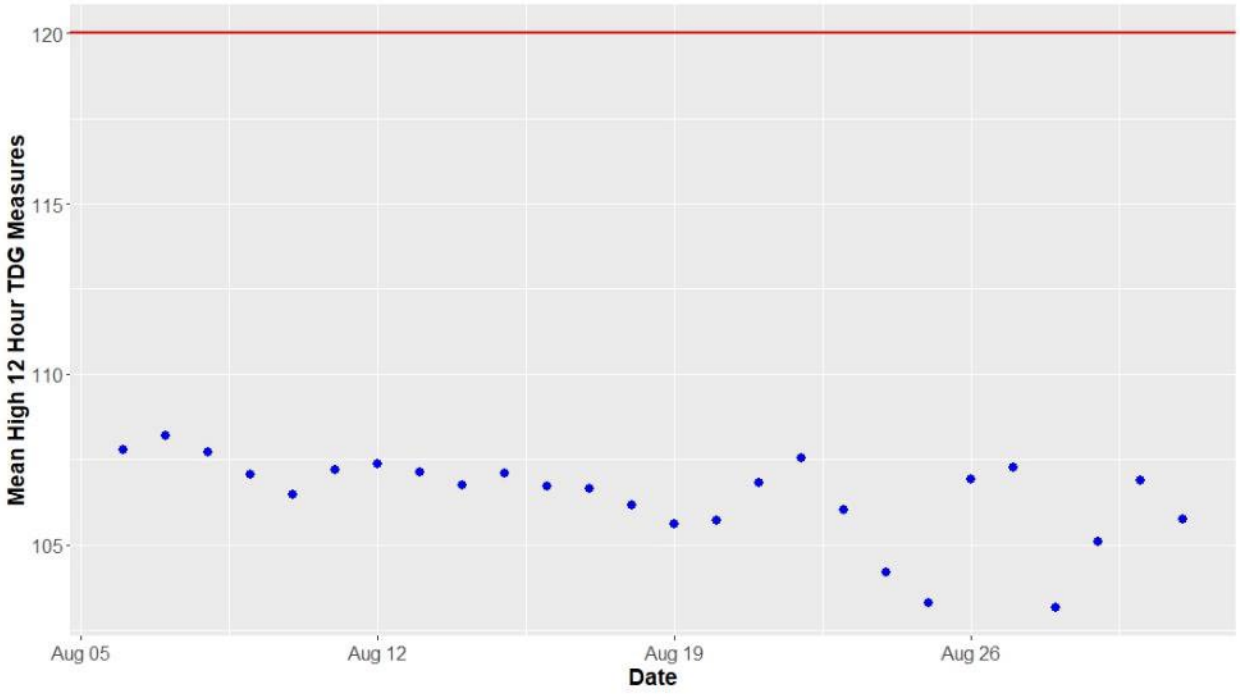

Figure 7. **Mean highest 12-hour TDG measures in the Wells Tailrace from August 6 to August 31, 2024. Reference line indicates the compliance standard of 120%.**

Mean of Highest 12-Hour TDG Values (Rocky Reach Forebay: 115%)

In 2024, there were no instances of the mean highest 12-hour TDG values in the Rocky Reach Forebay exceeding the 115% criteria between August 6 to August 31.

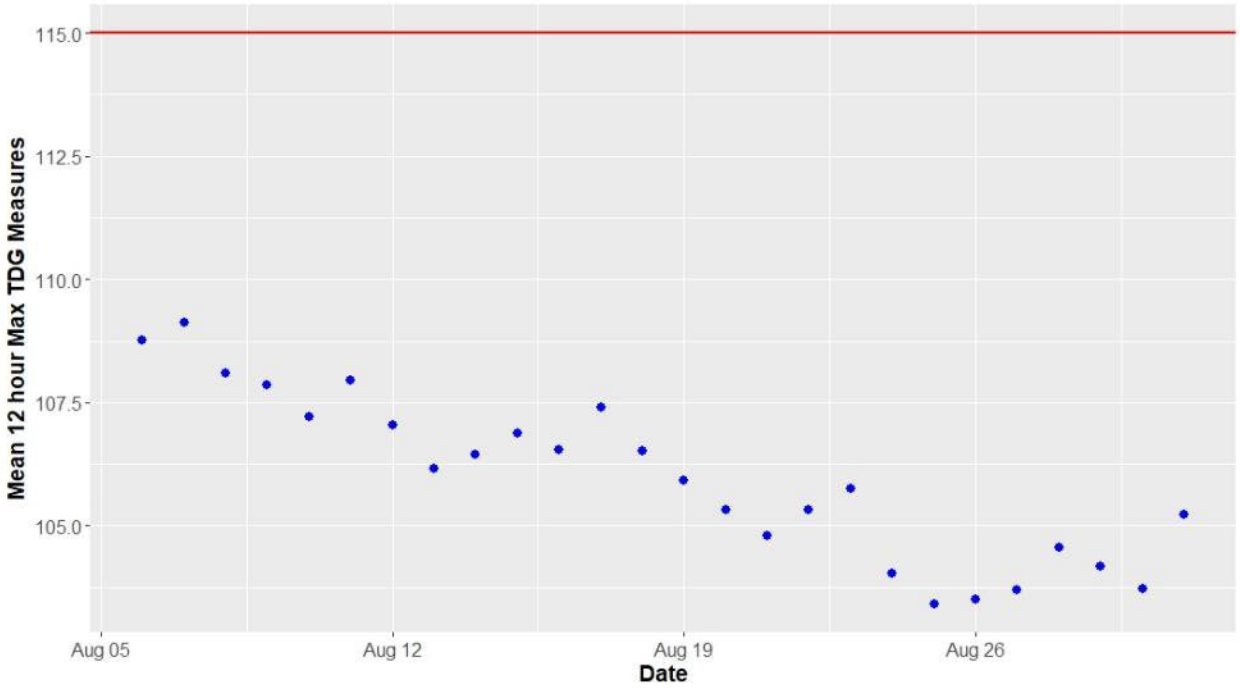

Figure 8. **Mean highest 12-hour TDG measures in the Rocky Reach Forebay from August 6 to August 31, 2024. Reference line indicates the compliance standard of 115%.**

Wells Forebay TDG Compliance

Above the Wells Project, the Environmental Protection Agency (EPA) and Tribal Water's TDG WQS standard is 110% and this measurement is directly affected by the management of upstream projects, including Chief Jospeh Dam. Historically, water entering the Wells Project Forebay is over 110%, which can make compliance at the Wells Project difficult. In 2024, the river flows were much less than normal and there was a highly muted spring/summer run-off event. Therefore, TDG values entering the Wells Project Forebay stayed under 110% for the entire year (Figure 9).

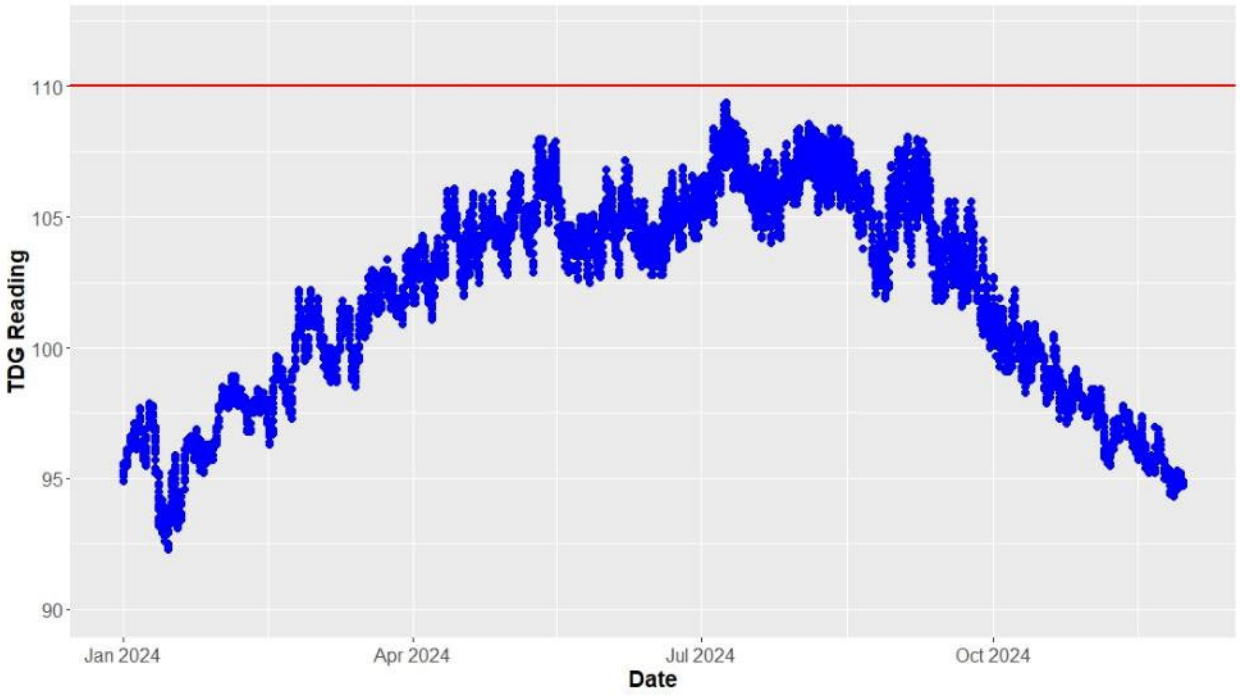

Figure 9. **Wells Forebay TDG from January to November 2024. The reference line at 110% represents the EPA and Tribal Waters compliance threshold.**

Table 4. TDG compliance at the Wells Project for the entire 2024 season.

April – August 5	**Mean of Highest 12-Hour TDG Values: Wells Tailrace 125%**	
	Non-compliant measurements	0
	7Q-10 flow measurements	0
	Total measurements	126
	DCPUD compliance	**100.0%**
	Mean Consecutive 2-Hour TDG Values: Wells Tailrace 126%	
	Non-compliant measurements	0
	7Q-10 flow measurements	0
	Total measurements	2898
	DCPUD compliance	**100.0%**
August 6 to August 31	**Mean of Highest 2-Hour TDG Values: Wells Tailrace 125%**	
	Non-compliant measurements	0
	7Q-10 flow measurements	0
	Total measurements	25
	DCPUD compliance	**100.0%**
	Mean of Highest 12-Hour TDG Values: Wells Tailrace 120%	
	Non-compliant measurements	0
	7Q-10 flow measurements	0
	Total measurements	25
	DCPUD compliance	**100.0%**
	Mean of Highest 12-Hour TDG Values: Rocky Reach Forebay 115%	
	Non-compliant measurements	0
	7Q-10 flow measurements	0
	Total measurements	25
	DCPUD compliance	**100.0%**
Jan - Mar & Sept - Dec	**Wells Tailrace: <110% Standard**	
	Non-compliant measurements	6
	Total measurements	5086
	DCPUD compliance	**99.9%**

4.0 DISCUSSION OF GAS ABATEMENT MEASURES

4.1 Water Quality Attainment Plan Activities

As required by the Wells Project 401 Certification, Douglas PUD developed a Water Quality Attainment Plan (WQAP) that was approved by Ecology and the FERC in 2013. The WQAP provides a detailed strategy for achieving compliance with the TDG state WQS within a required ten-year timeframe (i.e., compliance schedule). In December 2023, Douglas PUD completed a draft WQAP 10-Year Review (Douglas PUD 2023) and submitted to Ecology. This report details all actions taken to meet WQS and the next steps for water quality attainment. Due to staff turnover at Ecology, approval of the WQAP 10-year review has been delayed but is expected to be approved and submitted to the FERC in 2025.

For 2024, the WQAP implementation actions include updating and implementing the Spill Playbook, continuing with biological monitoring for GBT, coordinating river flows with power sales and system operators, implementing the TDG prediction tool (found here: https://www.cbr.washington.edu/shiny/DAM_CONDITIONS/), and assessing the need to update any relevant TDG models.

In 2024, it was recommended via the Spill Playbook that primary spill would occur through Spill Gate 9, followed by Spill Gate 8. Biological monitoring (i.e., GBT monitoring in biota, as needed) continued in 2024 toward determining the impact on salmonids and resident fish pursuant to the Biological Monitoring Plan portion of the 2024 Wells Dam GAP.

4.2 Operational

River levels were below average for most of the year and there was not a typical spring run-off event (Table 1; Figure 2). For every month of the year, discharge was under both the 10-year average and the average since 1969. This meant that, even with ongoing maintenance and rehab on units, the Wells Project operated according to the spill playbook, with all non-juvenile bypass spill being released through Spill Gate 9.

4.2.1 Structural

No permanent structural modifications were proposed or completed during the 2024 monitoring season. Maintenance on Spill Gate 9 was completed by the 2024 spill season which allowed for the release of spill through Spill Gate 9.

5.0 CONCLUSIONS

TDG performance at the Wells Project during the 2024 season was excellent overall. Only 6 hours during the entire year were non-compliant with the WQS. Results support the continued implementation of the Spill Playbook to manage TDG production through operational means and suggest future operational performance should return to extremely high rates of compliance with TDG standards under average flow conditions. The six instances of exceedances of the 110% TDG

standard occurring outside the bypass period may have been avoidable, and these events are expected to continue to decrease as Douglas PUD maintains its emphasis on system operator training, utilization of the Columbia Basin Research's TDG RealTime Forecaster model, EAS accounting, and coordination with control room operators. Douglas PUD will emphasize testing the Spill Playbook in years where ten units are available 95% of the time (expectation of reliability). The ongoing turbine rebuild project currently only provides 9 out of 10 units for operation during the peak hydrograph, thereby reducing the amount of water that can be passed through the turbine units by approximately 15-20 kcfs. Turbine maintenance is expected to be completed in 2028. Lack of unit availability increases the difficulty of maintaining compliance with WQS because when the Wells Project inflow exceeds the reduced turbine capacity, the additional water must be spilled creating more opportunity for TDG increases in the Wells Tailrace. Despite this challenge, overall, Douglas PUD has maintained high TDG compliance with WQS. Douglas PUD will continue to work closely with Ecology towards meeting year-round TDG standards in subsequent years.

6.0 REFERENCES

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National Marine Fisheries Service (NMFS). 2000. Endangered Species Act – Section 7 Consultation: Biological Opinion. Consultation on Remand for Operation of the Columbia River Power System and 19 Bureau of Reclamation Projects in the Columbia Basin. F/NWR/2004/00727. November 30, 2005. Pages 5-6, 5-7, 5-53, 10-9, and Appendix E: Risk Analysis.

Pickett, P., H. Rueda, M. Herold. 2004. Total Maximum Daily Load for Total Dissolved Gas in the Mid-Columbia River and Lake Roosevelt. Submittal Report. Washington Department of Ecology, Olympia, WA. U.S. Environmental Protection Agency, Portland, OR. June 2004. Publication No. 04-03-002.

Skalski, J. R., G.E. Johnson, C.M. Sullivan, E. Kudera, and M.W. Erho. 1996. Statistical evaluation of turbine bypass efficiency at Wells Dam on the Columbia River, Washington. Canadian Journal of Fisheries and Aquatic Sciences 53:2188-2198.

7.0 ATTACHMENT A

LETTER OF CLARIFICATION REGARDING TOTAL DISSOLVED GAS STANDARDS DURING SPRING/SUMMER JUVENILE BYPASS OPERATIONAL PERIOD PREPARED BY WASHINGTON DEPARTMENT OF ECOLOGY DATED NOVEMBER 21, 2024, ISSUED FOR THE WELLS HYDROELECTRIC PROJECT.

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
PO Box 47600, Olympia, WA 98504-7600 • 360-407-6000

November 21, 2024

Andrew Gingerich
Natural Resources Supervisor
1151 Valley Mall Parkway
East Wenatchee, WA 98802

Re: Clarification of Total Dissolved Gas Standards During Spring/Summer Juvenile Bypass Operational Period

Dear Andrew:

Thank you for your letter of 5 June 2024 requesting clarification of the total dissolved gas (TDG) standard in relation to operation of the juvenile salmonid bypass system (JBS) at Wells dam. Ecology has reviewed the basis of your request regarding the application of the modified TDG criteria designed to aid fish passage. We appreciate the detailed description of the Wells Project juvenile fish passage program and the Public Utility District No. 1 of Douglas County (Douglas PUD) responsibilities to meet Section 10 Endangered Species Act (ESA) consultation, and the Anadromous Fish Agreement and Habitat Conservation Plan (HCP).

As you described, Douglas PUD is required to provide bypass operation for ≥95% of juvenile downstream smolt migration using the JBS. This requires the operation of the JBS in both spring and summer to meet the ≥95% downstream juvenile passage.

The current water quality standard for TDG, WAC 173-201A-200(f), includes the following provision:

> *WAC 173-201A-200(ii)(B), To further aid fish passage during the spring spill season (generally from April through June), spill may be increased up to the following levels as measured at the tailrace fixed site monitoring location:*
>
> • *A maximum TDG saturation level of 125 percent calculated as an average of the 12 highest hourly TDG measures in a calendar day; and*
> • *A maximum TDG saturation level of 126 percent calculated as an average of any two consecutive hourly TDG measures.*

It is evident that the operation of the JBS is intended to aid fish passage and that the Wells project, at times, increases TDG levels above forebay measurements during the operation of this system. Therefore, the application of the criteria under part B of the TDG standards is appropriate during JBS operations. Furthermore, conditions to utilize the modified criteria under part B of the TDG standard state that "*TDG criteria at hydropower dams shall be applied in*

accordance with Endangered Species Act consultation documents associated with spill operations on the Snake and Columbia rivers, including operations for fish passage."

As you have explained, Douglas PUD is required to operate the JBS system into summer months to meet HCP requirements of ≥95% spring and summer juvenile smolt downstream migration. The time-period stated in the TDG standards is *"generally from April through June"*. Ecology includes this general time-period to acknowledge when the majority of juvenile migration occurs in the Columbia basin. As stated in the rule, this is generally the period which requires adjustment to dam operations that result in higher TDG levels. As each dam on the Columbia and Snake Rivers experience juvenile downstream passage at different times, and each dams' operations are set to meet specific ESA requirements, this time-period was written with flexibility. Ecology understands that there are different beginning and ending juvenile fish passage operations between facilities. This period may also vary between years at a given dam. Therefore, part B of the TDG criteria may be applied, where appropriate, earlier then April and later than June as necessary to meet each dams' juvenile salmonid biological objectives.

Ecology concurs with Douglas PUD that when operating the JBS or other juvenile salmonid migration actions at the dam, part B of the criteria is applicable. Furthermore, Douglas PUD may only apply these modified criteria if operating in accordance with ESA consultation requirements. Given the migration period to meet Douglas PUD's ESA obligations of ≥95% juvenile passage requires operation of the JBS system outside the general season noted in the TDG standards, it is evident that the use of TDG, part B is necessary and appropriate.

If you have any questions regarding this clarification, please contact me at (360) 522-6441 or chad.brown@ecy.wa.gov.

Chad Brown
Water Quality Hydropower Unit Supervisor
Washington Department of Ecology

cc: Mariah Mayfield – Douglas PUD
Shane Bickford – Douglas PUD

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APPENDIX B

PRE-FILING CONSULTATION RECORD FOR THE 2024 ANNUAL REPORT TOTAL DISSOLVED GAS ABATEMENT PLAN FOR THE WELLS HYDROELECTRIC PROJECT

NOTICE TO AQUATIC SETTLEMENT WORK GROUP TO REVIEW THE TOTAL DISSOLVED GAS ABATEMENT PLAN 2024 ANNUAL REPORT

From:	Kristi Geris
To:	Andrew Gingerich; Blanchard, Monica R (DFW); Chad Brown; Chas Kyger; David Blodgett, III; Fety, Stuart B (FWS); Jason McLellan; John Ferguson; John Rohrback; murk; Kristi Geris; Laura.Heironimus@dfw.wa.gov; Mariah Mayfield; Verhey, Patrick M (DFW); Ralph Lampman (lamr@yakamafish-nsn.gov); RD Nelle
Subject:	FW: TDG Report and GAP/BOP
Date:	Friday, January 10, 2025 12:43:17 PM
Attachments:	2025_01_10 Douglas - Draft Wells Dam TDG GAP 2024 Annual Report.docx 2025_01_10 Douglas - Draft Wells Dam TDG GAP 2024 Annual Report_Att A Letter from ECY_11-21-24.pdf 2025_01_10 Douglas - Draft Wells 2025 GAP and BOP.docx

Hi ASWG Technical Reps: please see the email below from Mariah and the attached the draft 2024 TDG Report and draft 2025 GAP/BOP, which are available for a 30-day review with edits and comments due to Mariah by **February 9**, ahead of approval during the ASWG meeting on February 12.

The attached draft documents are also available for download from the Aquatic SWG Extranet Site, under: Documents > All by Mtg Date > 2/12/2025 (instructions below). Thanks! –kristi

Instructions:

To gain access to the Aquatic SWG Extranet Homepage, please use the following procedure:

* Visit: https://extranet.dcpud.net/sites/nr/aswg/
* Login using “Forms Authentication” (for non-Douglas PUD employees)

You should now be at the Aquatic SWG homepage.

If you encounter problems, or need a login username and password to access the site: Please feel free to contact me, Andrew Gingerich, or Julene McGregor [jmcgregor@dcpud.org; (509) 881-2236] and we will gladly assist you with questions or issues.

Kristi Geris
M (360) 220-3988

From: Mariah Mayfield <mariah.mayfield@dcpud.org>
Sent: Friday, January 10, 2025 10:32
To: Kristi Geris <kgeris@anchorqea.com>
Subject: TDG Report and GAP/BOP

Here are the 2024 TDG Annual Report (and Attachment A: Letter from Ecology) and the 2025 GAP/BOP reports for review. We will need to vote for approval at the February 12 meeting. Thanks!

Mariah Mayfield
Aquatic Resource Biologist

Douglas PUD
509-881-2326
DouglasPUD.org

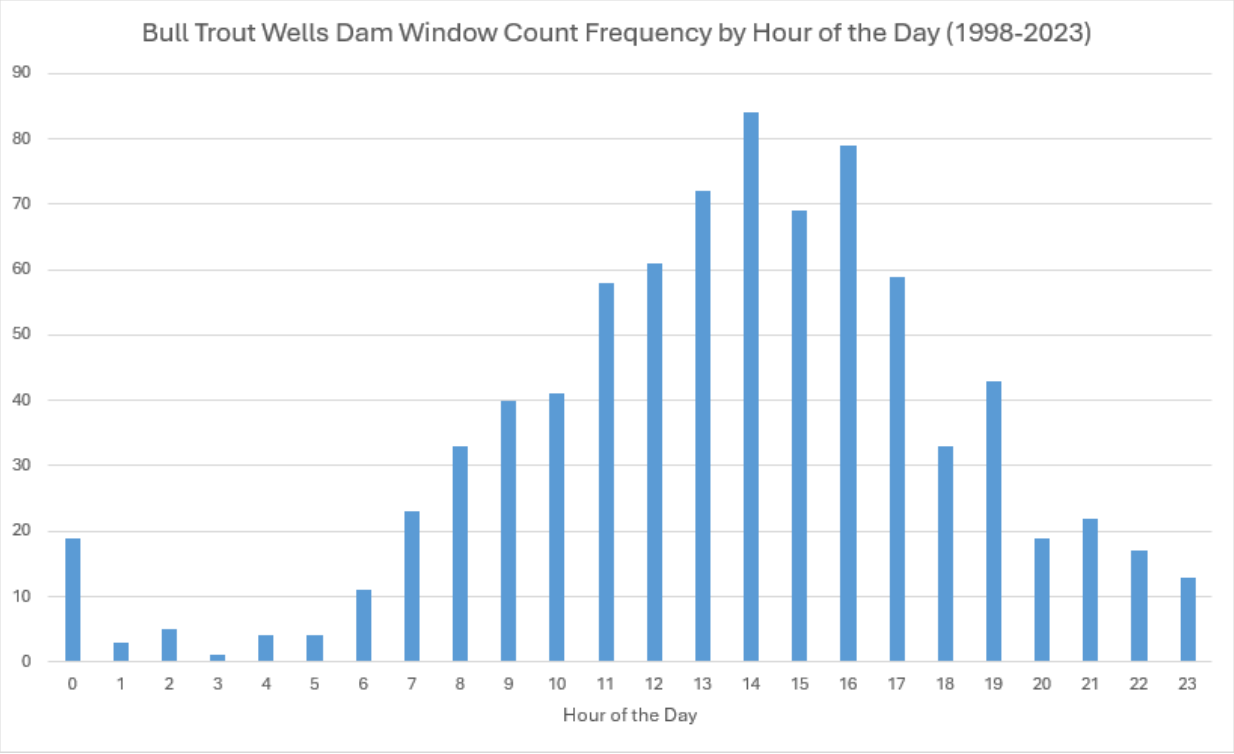
UNITED STATES FISH AND WILDLIFE SERVICE COMMENT ON THE DRAFT TOTAL DISSOLVED GAS ABATEMENT PLAN 2024 ANNUAL REPORT

From: Andrew Gingerich <andrew.gingerich@dcpud.org>
Sent: Wednesday, February 12, 2025 8:01 AM
To: Kristi Geris <kgeris@anchorqea.com>; Fety, Stuart B <stuart_fety@fws.gov>; Mariah Mayfield <mariah.mayfield@dcpud.org>; Neal, William (Travis) <william_neal@fws.gov>
Cc: Lucid, Michael K <michael_lucid@fws.gov>; Chas Kyger <chas.kyger@dcpud.org>; John Ferguson <jferguson@anchorqea.com>; Melissa Peterson <mepe461@ecy.wa.gov>; Verhey, Patrick M (DFW) <patrick.verhey@dfw.wa.gov>; Laura.Heironimus@dfw.wa.gov; Jason McLellan <Jason.McLellan@colvilletribes.com>; Ralph Lampman (lamr@yakamafish-nsn.gov) <lamr@yakamafish-nsn.gov>
Subject: RE: Aquatic SWG: 2/12

Thank you Stuart. Great feedback.

With respect to the 2025 GAP BOP. I think your training comment is a worthwhile one perhaps we can work on language and an appropriate section today for your suggested inclusion. We have done this internally but not formalized the effort in writing in the GAP- or at least we can make it more explicit. I am not opposed to the inclusion/revision. Good idea. Today I can show an example of a revised SOP that was created to avoid the 110% situation you described. We can at least described in the 2025 GAP that these kinds of things are occurring.

With respect to bull trout and lamprey ops; Another good question. Likewise, this topic came up with Bill Gale (USFWS) in the HCP Coordinating Committee side of things last year, and again this year at our most recent meeting. Last year in response to the question I provided Bill with the attached email. Last year the application was trapping for lamprey, but the same applies for proposed head differential treatments. I can discuss in detail today but we have essentially done the rudimentary analysis you have suggested for bull trout. Please see attached. The punchline is the proposed ops will begin at a time seasonally whereby the adfluvial bull trout run at Wells has wrapped up. Likewise, as you pointed out, one ladder will always be operating normally. We could also show the time stamp data for bull trout window counts at Wells (below). That confirms that at Wells Dam Bull Trout move during daylight hours. This is not so in the tribs but true at Wells based on our ladder counts 1998-2023. As such, any last minute bull trout will be offered further protection since the one ladder reduced differential will be at night.



82+% of Bull Trout show up in Wells Dam ladder windows between the daytime hours of 8 am to 7pm

Thanks again for your well-considered feedback. Please let me know if you would like to discuss further. Douglas PUD can cover both topics today and with Travis and company.

Andrew Gingerich
Natural Resources Supervisor
Douglas PUD
509-881-2323
DouglasPUD.org
Douglas PUD Logo

From: Kristi Geris <kgeris@anchorqea.com>
Sent: Wednesday, February 12, 2025 6:09 AM
To: Fety, Stuart B <stuart_fety@fws.gov>; Mariah Mayfield <mariah.mayfield@dcpud.org>; Neal, William (Travis) <william_neal@fws.gov>
Cc: Lucid, Michael K <michael_lucid@fws.gov>; Andrew Gingerich <andrew.gingerich@dcpud.org>; Chas Kyger <chas.kyger@dcpud.org>; John Ferguson <jferguson@anchorqea.com>; Melissa Peterson <mepe461@ecy.wa.gov>; Verhey, Patrick M (DFW) <patrick.verhey@dfw.wa.gov>; Laura.Heironimus@dfw.wa.gov; Jason McLellan <Jason.McLellan@colvilletribes.com>; Ralph Lampman (lamr@yakamafish-nsn.gov) <lamr@yakamafish-nsn.gov>
Subject: RE: Aquatic SWG: 2/12

Thank you for these comments, Stuart! We'll note your approval of the ASWG 1/8 minutes via email and will expect your vote on the decisions items soon. Copying the ASWG Technical Reps for their information. -kristi

Kristi Geris
M (360) 220-3988

From: Fety, Stuart B <stuart_fety@fws.gov>
Sent: Wednesday, February 12, 2025 04:40
To: Mariah Mayfield <mariah.mayfield@dcpud.org>; Kristi Geris <kgeris@anchorqea.com>; Neal, William (Travis) <william_neal@fws.gov>
Cc: Lucid, Michael K <michael_lucid@fws.gov>
Subject: Aquatic SWG: 2/12

Hello Mariah and Kristi,

I am on the East Coast for a training and will not be able to attend the meeting later today.

Travis will be able to attend on the Service's behalf; however, we are still waiting on guidance from our management team on how to integrate him into the ASWG, and thus have not been able to complete an official letter establishing his role and voting privileges. I realize this creates a disruption to the function of the working group and apologize. I plan to meet with Travis after the meeting to learn about the discussion surrounding the reports and can provide a vote for the Service on each item after briefing with Travis about any pertinent discussion.

I was able to review the *2024 Annual Report Total Dissolved Gas Abatement Plan* and the proposed *2025 GAP and BOP*. In my review, I did not note any reason not to vote in favor of either report. I did note that the 2024 report concluded with a recommendation that exceedances of the 110% TDG standard may have been avoidable and could decline with continued "emphasis on system operator training…and coordination" (among other factors) (p. 23). I did not notice any mention of these efforts (continued PUD staff training and coordination efforts) in the proposed *2025 GAP and BOP*. I think the plan could benefit from their inclusion. If appropriate, I would consider adding language that affirms such measures.

I am aware the HCP-CC raised concerns about the change in head differential at the collection galleries during the proposed lamprey study. I am also aware of the draft SOP from the HCP-CC giving tentative approval of the change in operations that Kristi sent 2/5. I note that the Service's Biological Opinion for the Wells Project assumes passage conditions for bull trout will be consistent with Section 4.4 and Appendix A of the Wells AFA/HCP. My interpretation is that operation at a head

differential other than that prescribed in Appendix A could be inconsistent with the assumptions of the bull trout BO unless there has been coordination with the CC and the Service.

I have not been able to find any specific mention of bull trout usage of fish ladders in relation to head differential within the BO. I am currently unsure how important this factor is for allowing bull trout passage. One portion of the BO speculates that subadult bull trout could benefit from lower flows within the fishways, e.g. “the only upstream passage avenue is the adult fishway which was designed for adult anadromous fish, and may be a velocity barrier for sub-adult bull trout” (p. 147).

As long as we can assume passage for bull trout will not be negatively impacted by the lower head differential the action proposed in the lamprey passage study should be covered by the analysis in the BO. The fact the head differential will only be altered at one structure at any time and such alterations will be temporary suggests any potential impacts - if any could be temporary in nature.

I would strongly encourage the PUD to gather all available data on bull trout passage or attempts during the lamprey study period and to include such observations (perhaps compared against historical observations) in analysis as appropriate. If head differential could be a long-term operation strategy, there could be need for future close consideration of bull trout fishway usage.

I have reviewed and approve the 1/8 meeting minutes.

Thank you for your partnership.

Best,

Stuart

Stuart Fety

Fish and Wildlife Biologist

US Fish and Wildlife Service

Washington Ecological Services

215 Melody Lane, Suite 103

Wenatchee, Washington 98801

stuart_fety@fws.gov | (564) 233 - 8434

I am out of the office every other Friday

FINAL AQUATIC SETTLEMENT WORK GROUP ACTION ITEMS SHOWING APPROVAL OF TOTAL DISSOLVED GAS ABATEMENT PLAN 2024 ANNUAL REPORT

FINAL

Meeting Action Items

Aquatic Settlement Work Group

To: Aquatic SWG Parties **Date:** February 13, 2025

From: John Ferguson, Chair, Anchor QEA

Re: **Final Action Items of the February 12, 2025, Aquatic SWG Meeting**

Below is a summary of action items from the Aquatic Settlement Work Group (SWG) meeting that was held at Wells Hatchery in Azwell, Washington, on Wednesday, February 12, 2025, from 10:00 a.m. to 11:20 a.m. Attendees are listed in Attachment A. These action items include the following:

Summary of Action Items

1. U.S. Fish and Wildlife Service (USFWS) will provide a vote via email on the *2024 Annual Report Total Dissolved Gas Abatement Plan* (2024 TDG Annual Report) and *2025 Total Dissolved Gas Abatement Plan* and appended *Wells Bypass Operating Plan* (2025 GAP/BOP) no later than Friday, February 21, 2025 (Items II-B and -C).
2. Aquatic SWG representatives will provide comments on the draft *2025 Aquatic Settlement Agreement and Workgroup Action Plan* (2025 ASA Action Plan) for discussion during the Aquatic SWG conference call on March 12, 2025 (Item II-D).
3. The Aquatic SWG meeting on March 12, 2025, will be held by Microsoft Teams conference call (Item III-A).

Summary of Decisions

1. Aquatic SWG representatives present approved the *Wells Dam 2025 Adult Lamprey Approach and Passage Study Plan* (2025 Adult Pacific Lamprey Study Plan), as revised, understanding that minor details under the purview of the Wells Habitat Conservation Plan Coordinating Committee (Wells HCP-CC) may be slightly modified if requested. Washington State Department of Ecology (Ecology) abstained (Item II-A).
2. Aquatic SWG representatives present approved the 2024 TDG Annual Report (Item II-B).
3. Aquatic SWG representatives present approved the 2025 GAP/BOP, as revised, understanding that the Wells Dam bypass start date could be sooner than April 9, but no later than April 9, pending guidance from the Wells HCP-CC (Item II-C).

Agreements

1. There were no agreements discussed during today's meeting.

Review Items

1. The draft 2025 ASA Action Plan was distributed to the Aquatic SWG by Kristi Geris on February 12, 2025 (Item II-D).

Documents Finalized

1. There are no documents that have been recently finalized.

Attachment A – List of Attendees

Name	Role	Organization
John Ferguson	Aquatic SWG Chair	Anchor QEA
Kristi Geris†	Administration/Technical Support	Anchor QEA
Andrew Gingerich	Aquatic SWG Technical Representative	Douglas PUD
Chas Kyger	Aquatic SWG Technical Alternate	Douglas PUD
Mariah Mayfield	Aquatic SWG Technical Support	Douglas PUD
Travis Neal	Aquatic SWG Technical Support	U.S. Fish and Wildlife Service
Chad Brown	Aquatic SWG Policy Representative	Washington State Department of Ecology
Melissa Peterson†	Aquatic SWG Technical Representative	Washington State Department of Ecology
Patrick Verhey†	Aquatic SWG Technical Representative	Washington Department of Fish and Wildlife
Laura Heironimus†	Aquatic SWG Technical Alternate	Washington Department of Fish and Wildlife
Jason McLellan†	Aquatic SWG Technical Representative	Confederated Tribes of the Colville Reservation
Ralph Lampman	Aquatic SWG Technical Representative	Yakama Nation

Notes:
† Joined by phone.

UNITED STATES FISH AND WILDLIFE SERVICE EMAIL SHOWING APPROVAL OF TOTAL DISSOLVED GAS ABATEMENT PLAN 2024 ANNUAL REPORT

From:	Kristi Geris
To:	Fety, Stuart B; Neal, William (Travis)
Cc:	Andrew Gingerich; Chad Brown; Chas Kyger; jason.mclellan; John Ferguson; Laura.Heironimus@dfw.wa.gov; Mariah Mayfield; Verhey, Patrick M (DFW); lamr@yakamafish-nsn.gov; Melissa Peterson; Lucid, Michael K; Amber Nealy; Tom Kahler; Kristi Geris
Subject:	RE: [EXTERNAL] RE: TDG Report and GAP/BOP (for FWS approval)
Date:	Wednesday, February 19, 2025 6:23:43 AM

Excellent—thanks Stuart! I'll let the record show—

Aquatic SWG February 12, 2025, meeting minutes

- Aquatic SWG representatives present approved the 2024 TDG Annual Report (Item II-B). USFWS approved the report via email on February 18, 2025.
- Aquatic SWG representatives present approved the 2025 GAP/BOP, as revised, understanding that the Wells Dam bypass start date could be sooner than April 9, but no later than April 9, pending guidance from the Wells HCP-CC (Item II-C). USFWS approved the plan via email on February 18, 2025.

Kristi Gers
M (360) 220-3988

From: Fety, Stuart B <stuart_fety@fws.gov>
Sent: Tuesday, February 18, 2025 16:57
To: Kristi Geris <kgeris@anchorqea.com>; Neal, William (Travis) <william_neal@fws.gov>
Cc: Andrew Gingerich (andrewg@dcpud.org) <andrewg@dcpud.org>; Chad Brown <chbr461@ecy.wa.gov>; Chas Kyger <chask@dcpud.org>; jason.mclellan <jason.mclellan@colvilletribes.com>; John Ferguson <jferguson@anchorqea.com>; Laura.Heironimus@dfw.wa.gov; Mariah Mayfield <mariah.mayfield@dcpud.org>; Verhey, Patrick M (DFW) <patrick.verhey@dfw.wa.gov>; lamr@yakamafish-nsn.gov; Melissa Peterson <mepe461@ecy.wa.gov>; Lucid, Michael K <michael_lucid@fws.gov>
Subject: Re: [EXTERNAL] RE: TDG Report and GAP/BOP (for FWS approval)

Hello ASWG Members,

Thank you for your patience and cooperation in working with myself and Travis.

I have been able to debrief with Travis about the ASWG meeting discussion and have reviewed the *2024 Annual Report Total Dissolved Gas Abatement Plan* and *2025 Total Dissolved Gas Abatement Plan and appended Wells Bypass Operating Plan* (as edited, and with the understanding that bypass operations could start before, but no later than April 9th).

As the Fish and Wildlife Service's voting member I approve both reports.

Best,

Stuart

Stuart Fety
Washington Ecological Services
stuart_fety@fws.gov | (564) 233 - 8434
I am out of the office every other Friday

From: Kristi Geris <kgeris@anchorqea.com>
Sent: Wednesday, February 12, 2025 1:23 PM
To: Fety, Stuart B <stuart_fety@fws.gov>; Neal, William (Travis) <william_neal@fws.gov>
Cc: Andrew Gingerich (andrewg@dcpud.org) <andrewg@dcpud.org>; Chad Brown <chbr461@ecy.wa.gov>; Chas Kyger <chask@dcpud.org>; jason.mclellan <jason.mclellan@colvilletribes.com>; John Ferguson <jferguson@anchorqea.com>; Laura.Heironimus@dfw.wa.gov <Laura.Heironimus@dfw.wa.gov>; Mariah Mayfield <mariah.mayfield@dcpud.org>; Verhey, Patrick M (DFW) <patrick.verhey@dfw.wa.gov>; lamr@yakamafish-nsn.gov <lamr@yakamafish-nsn.gov>; Melissa Peterson <mepe461@ecy.wa.gov>
Subject: [EXTERNAL] RE: TDG Report and GAP/BOP (for FWS approval)

This email has been received from outside of DOI - Use caution before clicking on links, opening attachments, or responding.

Stuart, I forgot to mention about the 2025 GAP/BOP—

The document was approved as revised by all ASWG reps present, understanding that the Wells Dam bypass start date could be sooner than April 9, but no later than April 9, pending guidance from the Wells HCP-CC.

Briefly, Douglas PUD's 401 certification has a nexus with the Wells Habitat Conservation Plan Coordinating Committee (Wells HCP-CC), which requires vetting the annual GAP/BOP with the Wells HCP-CC with regard to safe passage of HCP Plan Species (salmonids). The GAP/BOP has been out for review in both forums (ASWG and Wells HCP-CC). Just this morning, Wells HCP-CC comments were received about possibly moving the bypass start date earlier to accommodate smolt migration, to be further discussed for approval during the

HCP-CC 2/25 meeting. No matter the decision, this will not change Douglas PUD's approach to TDG production and control (no impact to water quality).

Again, please reach out to Mariah with any Qs. Thanks! -kristi

Kristi Geris
M (360) 220-3988

From: Kristi Geris <kgeris@anchorqea.com>
Sent: Wednesday, February 12, 2025 12:00
To: Fety, Stuart B (FWS) <stuart_fety@fws.gov>; Neal, William (Travis) <william_neal@fws.gov>
Cc: Andrew Gingerich (andrewg@dcpud.org) <andrewg@dcpud.org>; Chad Brown <chbr461@ecy.wa.gov>; Chas Kyger <chask@dcpud.org>; Jason McLellan <Jason.McLellan@colvilletribes.com>; John Ferguson <jferguson@anchorqea.com>; Laura.Heironimus@dfw.wa.gov; Mariah Mayfield <mariah.mayfield@dcpud.org>; Verhey, Patrick M (DFW) <patrick.verhey@dfw.wa.gov>; Ralph Lampman (lamr@yakamafish-nsn.gov) <lamr@yakamafish-nsn.gov>; Kristi Geris <kgeris@anchorqea.com>; Melissa Peterson <mepe461@ecy.wa.gov>
Subject: RE: TDG Report and GAP/BOP (for FWS approval)

Hi Stuart and Travis!

Attached are the 2024 TDG Report and 2025 GAP/BOP, as approved by the ASWG during today's meeting.

USFWS has an action item to provide a vote via email on both documents no later than next **Fri 2/21**. A few notes—

2024 TDG Report

- No comments were received.
- Approved by all ASWG reps present.

2025 GAP/BOP

- FWS comments addressed under Section 2.1 (see RLSO).
- Ecology comments addressed under Section 1.2.4 and Section 2.2.2 (see RLSO).
- Approved as revised by all ASWG reps present.

Please reach out to Mariah with Qs! Thanks! -kristi

Kristi Geris
M (360) 220-3988

From: Kristi Geris <kgeris@anchorqea.com>
Sent: Friday, January 10, 2025 12:40

To: Andrew Gingerich (andrewg@dcpud.org) <andrewg@dcpud.org>; Blanchard, Monica R (DFW) <Monica.Blanchard@dfw.wa.gov>; Chad Brown <chbr461@ecy.wa.gov>; Chas Kyger <chask@dcpud.org>; David Blodgett, III <blod@yakamafish-nsn.gov>; Fety, Stuart B (FWS) <stuart_fety@fws.gov>; Jason McLellan <Jason.McLellan@colvilletribes.com>; John Ferguson <jferguson@anchorqea.com>; john.rohrback <john.rohrback@dcpud.org>; murk <murk@yakamafish-nsn.gov>; Kristi Geris <kgeris@anchorqea.com>; Laura.Heironimus@dfw.wa.gov; Mariah Mayfield <mariah.mayfield@dcpud.org>; Verhey, Patrick M (DFW) <patrick.verhey@dfw.wa.gov>; Ralph Lampman (lamr@yakamafish-nsn.gov) <lamr@yakamafish-nsn.gov>; RD Nelle <RD_Nelle@fws.gov>
Subject: FW: TDG Report and GAP/BOP

Hi ASWG Technical Reps: please see the email below from Mariah and the attached the draft 2024 TDG Report and draft 2025 GAP/BOP, which are available for a 30-day review with edits and comments due to Mariah by **February 9**, ahead of approval during the ASWG meeting on February 12.

The attached draft documents are also available for download from the Aquatic SWG Extranet Site, under: Documents > All by Mtg Date > 2/12/2025 (instructions below). Thanks! –kristi

Instructions:

To gain access to the Aquatic SWG Extranet Homepage, please use the following procedure:

* Visit: https://extranet.dcpud.net/sites/nr/aswg/
* Login using “Forms Authentication” (for non-Douglas PUD employees)

You should now be at the Aquatic SWG homepage.

If you encounter problems, or need a login username and password to access the site: Please feel free to contact me, Andrew Gingerich, or Julene McGregor [jmcgregor@dcpud.org; (509) 881-2236] and we will gladly assist you with questions or issues.

Kristi Geris
M (360) 220-3988

From: Mariah Mayfield <mariah.mayfield@dcpud.org>
Sent: Friday, January 10, 2025 10:32
To: Kristi Geris <kgeris@anchorqea.com>
Subject: TDG Report and GAP/BOP

Here are the 2024 TDG Annual Report (and Attachment A: Letter from Ecology) and the 2025 GAP/BOP reports for review. We will need to vote for approval at the February 12 meeting. Thanks!

Mariah Mayfield
Aquatic Resource Biologist

Douglas PUD
509-881-2326