STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
PO Box 47600 • Olympia, WA 98504-7600 • 360-407-6000
711 for Washington Relay Service • Persons with a speech disability can call 877-833-6341

March 29, 2019

David J. Ponganis
Director, Programs
U.S. Army Corps of Engineers
Northwestern Division
PO Box 2870
Portland, OR 97208-2870

Re: Total Dissolved Gas Short Term Modification

Dear David Ponganis:

On January 25, 2019, the Washington State Department of Ecology (Ecology) approved the U.S. Army Corps of Engineers (USACE) total dissolved gas (TDG) gas abatement plan (GAP). This approval allows the USACE to apply an adjustment of the TDG criteria to aid fish passage through the Columbia River System projects on the lower Columbia and Snake. The TDG criteria adjustment is provided under Chapter 173-201A-200(1)(f)(ii), Washington Administrative Code. Ecology's letter included a notice that the TDG GAP approval shall remain in effect and shall comply with any further TDG criteria that result from subsequent actions by Ecology, including short-term modifications or rule changes.

Enclosed is the an Administrative Order (Order) to modify TDG criteria at lower Columbia River and lower Snake River dams, in accordance with the 2019-2021 Spill Operation Agreement to which the USACE is signatory. This criteria modification is done in accordance with Chapter 173-201A-410

This Order modifies the adjusted TDG criteria for which the January 25, 2019 approval letter was issued. The criteria described in the Order is effective for the spring spill season for the duration of your TDG GAP approval or until such time that Ecology takes further action to supersede the Order. The modified criteria shall apply to compliance measures at the following Columbia River System dams within Washington State: Bonneville, The Dalles, John Day, McNary, Ice Harbor, Lower Monumental, Little Goose and Lower Granite.

Please contact me at (360) 407-6405 or Melissa Gildersleeve at (360)-407-6461 if you have questions.

Sincerely,

Heather R Bartlett
Water Quality Program Manager

Enclosure (1)

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

IN THE MATTER OF THE Short-Term Modification of Total Dissolved Gas Criteria at Chapter 173-201A-200(1)(f)(ii) WAC, Applicable to Lower Columbia River and Lower Snake River Dams	))))))	ADMINISTRATIVE ORDER

The Department of Ecology (Ecology) has issued this Administrative Order (Order) to modify total dissolved gas (TDG) criteria at lower Columbia River and lower Snake River dams, in accordance with the attached 2019-2021 Spill Operation Agreement (herein referred to as Spill Agreement) and with:

1. Chapter 90.48 Revised Code of Washington (RCW) - Water Pollution Control Act

2. Chapter 173-201A Washington Administrative Code (WAC) – Surface Water Quality Standards

This is an Administrative Order associated with the TDG criteria in the Surface Water Quality Standard. WAC 173-201A-200(1)(f)(ii) allows an adjustment of the TDG criteria to aid fish passage over hydroelectric dams including special fish passage exemptions for those applicable dams in the lower Snake and lower Columbia rivers.

This Administrative Order is a short-term modification of the adjusted criteria in WAC 173-201A-200(1)(f)(ii) and is issued in accordance with the short-term modification procedures in WAC 173-201A-410.

This short-term modification modifies the TDG criteria for areas on the lower Snake and lower Columbia rivers during the spring spill season that typically occurs April 3 through June 20 (April 3 – June 20 on the lower Snake River and April 10 – June 15 on the lower Columbia River).

FINDINGS

A Spill Agreement regarding 2019-2021 spill operations at the eight federal dams on the lower Snake and lower Columbia rivers has been signed by the states of Washington and Oregon, the Nez Perce Tribe, the Bonneville Power Administration, U.S. Army Corps of Engineers (USACE), and the Bureau of Reclamation. The Spill Agreement is supported by the states of Idaho and Montana and the Columbia River Inter-Tribal Fish Commission.

The focus and intent of the Spill Agreement is to further improve juvenile salmon and steelhead survival rates as they travel downriver through the eight federal dams on the lower Snake and lower Columbia rivers. The Spill Agreement seeks benefits to salmonid survival in concert with managing the Columbia River system for multiple congressionally authorized purposes, including power generation to ensure the Pacific Northwest of an adequate, efficient, economical, and reliable power supply.

The Spill Agreement is contingent on the implementation of a flexible spill operation that increases spill beyond the levels ordered by a federal court for the 2018 salmon migration season at the times of day

when regional energy demand is lower, and reduces spill during times of peak energy demand (early morning and late afternoon/evening) and highest energy market values. The federal court ordered spill was limited to the current allowable adjusted TDG criteria provided in Chapter 173-201A WAC to aid fish passage at these dams.

The flexible spill operations included in the Spill Agreement are contingent on Washington providing a short-term modification to the adjusted TDG criteria in WAC 173-201A-200(1)(f)(ii). Additionally, Ecology is acting to allow the duration and averaging methods of the criteria to match those currently required by Oregon (that is the 12-hour chronic TDG averaging method, and the 2-hour acute maximum method as measured in the dam tailrace).

In accordance with the adjusted TDG criteria, dam operators submit a Gas Abatement Plan (GAP) to the Washington State Department of Ecology for approval prior to applying higher TDG criteria allowed to aid fish passage. On January 25, 2019 Ecology issued an approval of the U.S. Army Corps of Engineers 2018 Update to the Total Dissolved Gas Abatement Plan – Lower Columbia River and Snake River Projects submitted on November 19, 2018. The GAP approval remains in effect and allows the lower Columbia River and lower Snake River dams to apply the adjusted TDG criteria. This Order is a short-term modification of the adjusted TDG criteria to apply when increasing spill to aid fish passage.

ORDER MODIFYING ADJUSTED TDG CRITERIA

It is ordered that a short-term modification of the Surface Water Quality Standards be issued to aid fish passage during the spring spill season that typically occurs April 3 through June 20 (April 3 – June 20 on the lower Snake River and April 10 – June 15 on the lower Columbia River). This Administrative Order is effective for the spring spill seasons in 2019, 2020, and 2021 unless and until the short-term modification is superseded by a rulemaking or other action that revises WAC 173-201A-200(1)(f) TDG criteria prior to the end of the 2021 spring spill season.

The conditions listed below are under the authority of Chapter 90.48 RCW and Chapter 173-201A WAC and are intended to allow short-term modification of the state water quality standards. Except as specifically authorized below, all applicable provisions of the Chapter 173-201A WAC must be met.

A. General Conditions:

1. This order does not authorize direct, indirect, permanent, or temporary impact to waters of the state or related aquatic resources, except as specifically provided for in conditions of this Order.

2. This Order does not exempt and is conditioned upon compliance with other statutes and codes administered by federal, state, and local agencies.

3. Ecology retains continuing jurisdiction to make modifications to this Order if it appears necessary to further protect the public interest.

4. Nothing in this Order waives Ecology's authority to issue additional orders if Ecology determines further actions are necessary to implement the water quality laws of the state. Further, Ecology retains continuing jurisdiction to make modifications hereto if additional impact due to increased spill operations are identified, or if additional conditions are necessary to further protect the public interest.

B. Monitoring and Compliance with Water Quality Standards:

1. The fixed-site monitoring (FSM) locations in the forebay and tailrace of each hydropower dam must be maintained throughout the duration of this Order.

2. Forebay FSM monitoring location data shall be monitored for purposes of completing annual TDG reporting. Real-time TDG measurements at the forebay FSM locations shall not be used for compliance purposes while this Order is in effect.

3. Total dissolved gas shall be measured as a percent of total gas pressure relative to atmospheric pressure at each monitoring location.

4. Determining compliance with Washington TDG standards shall rely only on tailrace FSM location data. The TDG criteria for dam tailrace FSM locations shall be as follows:

a. The water quality compliance for TDG established in this Order shall not apply when the stream flow exceeds the seven-day, ten-year frequency flood calculated for each dam in the lower Columbia and lower Snake rivers.

b. TDG must not exceed an average of one hundred twenty percent as measured in the tailraces fixed-monitoring sites in the tailrace of each dam. These averages shall be measured as an average of the twelve highest hourly readings in a calendar day.

c. TDG must not exceed a two-hour instantaneous level of one hundred twenty-five percent of saturation for any two hours during the twelve highest hourly measurements per calendar day as measured in the fixed-monitoring sites in the tailrace of each dam.

RIGHT TO APPEAL

This Order may be appealed to the Pollution Control Hearing Board (PCHB) within 30 days of the date of receipt of this Order. The appeal process is governed by Chapter 43.21B RCW and Chapter 371-08 WAC. "Date of receipt" is defined in RCW 43.21B.001(2).

To appeal, both of the following must be done within 30 days of the date of receipt of this Order:

1. File the appeal and a copy of this Order with the PCHB (see addresses below). Filing means actual receipt by the PCHB during regular business hours.
2. Serve a copy of the appeal and this Order on Ecology in paper form - by mail or in person. (See addresses below.) E-mail is not accepted.

An appeal must also comply with other applicable requirements in Chapter 43.21B RCW and Chapter 371-08 WAC.

Your appeal alone will not stay the effectiveness of this Order. Stay requests must be submitted in accordance with RCW 43.21B.320.

2019-2021 Spill Operation Agreement

December 2018

I. PARTIES

For purposes of this 2019-2021 Spill Operation Agreement (Agreement), the "Parties" means the State of Oregon, the State of Washington, the Nez Perce Tribe, the U.S. Army Corps of Engineers (Corps), the U.S. Bureau of Reclamation (Reclamation), and the Bonneville Power Administration (Bonneville).

II. PURPOSE

This Agreement describes planned 2019-2021 spring fish passage spill operations, using the flexible spill and power principle and objectives described below, and is intended to avoid litigation until the National Environmental Policy Act remand process (commonly referred to as the Columbia River System Operations Environmental Impact Statement and associated Records of Decision) ordered by the United States District Court for the District of Oregon in *National Wildlife Federation v. National Marine Fisheries Service,* Case No. 3:01-cv-00640, (*NWF et al v. NMFS*) is completed.

The Parties have entered into this Agreement in the spirit of regional collaboration with the shared goal of meeting the principles and objectives described below. In order for this collaboration to be possible, the Parties emphasize that, when this Agreement is not in effect, this Agreement is not intended to be used in any litigation or other forum as precedent for, or an endorsement of, any operation, and this Agreement does not represent an endorsement of any biological opinion NOAA Fisheries issues regarding the Columbia River System.

III. FLEXIBLE SPILL AND POWER PRINCIPLE AND OBJECTIVES

A. The principle central to this Agreement is implementing a flexible approach to providing spill to benefit juvenile spring fish passage in concert with managing the Columbia River System for multiple congressionally-authorized purposes, including power generation to assure the Pacific Northwest of an adequate, efficient, economical, and reliable power supply.

B. To fulfill this principle, and solely for purposes of this Agreement, the Parties have adhered, and will continue to adhere, to the following objectives in establishing the planned fish passage spill operations described in this Agreement:

1. Provide fish benefits, with the understanding that (i) in 2019, overall juvenile fish benefits associated with dam and reservoir passage through the lower Snake and Columbia rivers during the spring fish passage season must be at least equal to 2018 spring fish passage spill operations ordered by the Court, and (ii) in 2020 and 2021, these fish benefits are improved further (as estimated through indices of

improved smolt-to-adult returns, e.g., PITPH, reservoir reach survival, fish travel time); and

2. Provide federal power system benefits as determined by Bonneville, with the understanding that Bonneville must, at a minimum, be no worse financially compared to the 2018 spring fish passage spill operations ordered by the Court;[1] and
3. Provide operational feasibility for the Corps implementation that will allow the Corps to make appropriate modifications to planned spring fish passage spill operations.[2]

IV. DEFINITIONS

A. "Action Agencies" means the Corps, Reclamation, and Bonneville. These agencies jointly manage Columbia River System operations.

B. "Columbia River System" refers to the fourteen federal dam and reservoir projects within the Federal Columbia River Power System that are operated as a coordinated water management system for multiple congressionally-authorized project purposes.

C. "Fish" means salmon and steelhead species listed under the Endangered Species Act.

D. "Gas cap" refers to the applicable state Total Dissolved Gas (TDG) water quality standards (in percent TDG).

E. "Gas cap spill" means spill to the maximum spill level that meets, but does not exceed, the TDG criteria allowed under the applicable state water quality standard at the four Lower Snake River and four Lower Columbia River projects.

F. "Lower Columbia River projects" refers to McNary, John Day, The Dalles, and Bonneville dams.

G. "Lower Snake River projects" refers to Lower Granite, Little Goose, Lower Monumental and Ice Harbor dams.

H. "NEPA Remand Process" refers to development of the Columbia River System Operations Environmental Impact Statement. This Process will conclude upon the signature of Records of Decision by the Action Agencies.

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[1] Bonneville shall have sole discretion over how it conducts its financial analysis. Bonneville measured the financial cost of the 2018 Court-ordered operations using the methodology in Bonneville's rate proceedings for calculating the estimated average annual cost of additional planned spring fish passage spill in excess of planned spill levels in the Corps' 2017 Fish Operations Plan.

[2] As described in Section VI.A.

I. "PITPH" is the calculated probability, based on Passive Integrated Transponder (PIT) tag detections, that a juvenile fish will pass through one or more powerhouse routes on its outmigration. A PITPH of 0 signifies the fish is projected to pass through 0 of 8 turbines/bypasses and a PITPH of 8 signifies the fish passed through 8 of 8 turbines/bypasses.

J. "Spill cap" means the spill level (flow through the spillway measured in kcfs) at each project that the Corps estimates will maximize spill to a level that meets, but does not exceed, the Gas cap.

K. "120% TDG spill" means planned juvenile fish passage spill targeting the maximum level that meets, but does not exceed, the Gas cap for 120% TDG in the tailrace, with Spill caps derived by the Corps using the procedures referenced in Section VI.A, below.

L. "125% TDG spill" means planned juvenile fish passage spill targeting the maximum level that meets, but does not exceed, the Gas cap for 125% TDG in the tailrace, with Spill caps derived by the Corps using the procedures referenced in Section VI.A, below.

V. STATE WATER QUALITY STANDARDS

A. The TDG standard for the states of Washington and Oregon is 110%. Both states have provided exceptions to the TDG standard for juvenile fish passage spill operations on the lower Snake River and lower Columbia River. Oregon and Washington intend to work to harmonize their respective methodologies for measuring TDG for the duration of this Agreement. To the extent standards and/or methodologies differ between the two states, the Corps will apply the more stringent standard and/or methodology when operating under all applicable state TDG water quality standards. Oregon and Washington are responsible for any modifications to water quality standards that result from the processes contemplated below.

B. Washington:

1. Washington's current criteria adjustment standard provides that 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 measured as an average of the 12 highest consecutive hourly readings in any one day, relative to atmospheric pressure); and a maximum TDG one hour average of 125% must not be exceeded during spillage for fish passage. WAC § 173-201A-200(l)(f)(ii).

2. Washington Department of Ecology (Ecology) is in the process of considering a short-term modification that eliminates Washington's current forebay TDG standard at the Lower Snake River projects and Lower Columbia River projects

and aligns Washington's calculation methodology with Oregon's current methodology. Ecology acknowledges that there is a desire for this short-term modification to be in effect on or before April 3, 2019, and will work to render a timely decision.

3. Ecology also intends to consider whether to allow spring juvenile fish passage spill up to 125% TDG (as read in the tailrace) under certain conditions. Ecology expects to make a decision on the modification up to 125% TDG prior to the beginning of the 2020 spring juvenile fish passage spill season.

C. Oregon:

1. Oregon's current standard modification provides that spill must be reduced when the average TDG concentration of the 12 highest hourly measurements per calendar day exceeds 120% of saturation at monitoring stations in the tailraces of McNary, John Day, The Dalles, and Bonneville dams, and spill must be reduced when instantaneous TDG levels exceed 125% of saturation for any 2 hours during the 12 highest hourly measurements per calendar day at monitoring stations in the tailraces of McNary, John Day, The Dalles, and Bonneville dams. OR. ADMIN. R. 340-041-0031 and 340-041-104(3).

2. The Oregon Department of Environmental Quality (ODEQ) will ask the Oregon Environmental Quality Commission (EQC) to consider changing the current standard modification to allow spring juvenile fish passage spill up to 125% TDG (as read in the tailrace) at the four Lower Columbia River dams. This issue will be presented to the EQC in time for any potential modification to be in effect for the 2020 spring juvenile fish passage spill season.

VI. SPILL OPERATION

A. General Provisions for Implementing Planned Fish Passage Spill Operations

1. In implementing the planned fish passage spill operations, the Corps will use the process and procedures set forth in the annual Fish Operations Plan and Current Procedures for Setting Spill Caps to establish Spill caps and target spill levels.

2. In-Season Adjustments: In managing the Columbia River System for multiple congressionally-authorized project purposes, the Corps may adjust the planned fish passage spill operations to address conditions set forth in the section of the annual Fish Operations Plan entitled "Modifications to Planned Operations and In-Season Management."

B. 2019 Fish Passage Spill Operations

1. Spring Operations

a. To meet the flexible spill and power principle and objectives in Section III above, and if the conditions in Section IX.A and Section X are met, the Action Agencies will implement planned juvenile fish passage spring spill operations targeting the spill levels and times provided in **Attachment Table 1.1** in a manner consistent with the general spill implementation provisions in Section VI.A, above.

b. The Parties acknowledge that the 2019 spring spill operations set forth in this Agreement are contingent upon securing a modification to Washington's water quality standard as described in Section V.B, above.

2. Summer Operations

a. After implementing the juvenile fish passage spring spill operations in **Attachment Table 1.1**, the Action Agencies will then implement the 2019 planned juvenile fish passage summer operation shown in **Attachment Table 1.2.**

C. 2020 and 2021 Fish Passage Spill Operations

1. If the conditions in Sections V.B.3, V.C.2, IX.A, and X are met, and consistent with Section III, the Parties agree that 2020 and 2021 operations will incorporate spill up to and including 125% TDG as a tool for spring fish passage spill season. Collaborative technical work performed to date has identified representative spring spill operation scenarios. Preliminary analyses indicate these scenarios, which incorporate 125% TDG spill as a tool, meet the Section III principle and objectives (see **Attachment Tables 1.3a-b**).[3]

Building on further analysis of these representative scenarios and in consideration of 2019 results, the Parties will continue in good faith to evaluate the effect of different variables, such as project-specific spill levels and duration (both daily and seasonal), to refine 2020-2021 spring operations, and complete a final specific operations plan by September 1, 2019. If the Parties cannot agree on a refined operation, one of the two representative spring spill operations shown in **Attachment Tables 1.3.a-b** will be implemented in the 2020-2021 spill seasons

[3] Bonneville's analysis, in particular, is especially preliminary and has a high level of uncertainty. Bonneville's financial models were not designed to handle the data associated with daily changes in spill at 125% TDG spill. As a result, Bonneville does not yet have full confidence in the results of the models. Accordingly, the Parties recognize Bonneville will continue to revise its evaluation of the financial implications of any 125% TDG scenarios.

for such time as this Agreement remains in effect, or until the Parties can agree on refinements.

The representative operations shown in Attachment Tables 1.3.a-b do not incorporate 125% TDG spill on a 24-hour, 7-day basis simultaneously at all Lower Columbia River projects and Lower Snake River projects. Such an operation would be inconsistent with the flexible spill and power objectives that are central to this Agreement.

2. The Parties presume that adjustments to summer spill operations in 2020-2021 will likely be necessary to meet the power-cost objective in Section III.B.2. To that end, the Parties have developed the operation reflected in **Attachment Table 1.4**. This operation is designed to meet the power-cost objective, while limiting potential reductions in spill to the last two weeks of August. The Parties agree that, subject to the iterative process specified in Section VI.C.1 above, this operation represents the maximum reduction in summer spill that is compatible with the Section III principle and objectives.

3. The Parties commit to ensuring their analyses are transparent and collaborative. For example, the Parties will continue to share and explain the assumptions and outputs of the biological and financial models, as well as information on any structural or operational constraints that may affect implementation of this Agreement.

4. The Parties acknowledge that implementation of 2020-2021 spring spill operations is contingent upon securing a modification to Washington and Oregon's water quality standards to allow for spill up to 125% TDG as described in Section V above.

VII. MONITORING

With regard to monitoring associated with this Agreement, the Parties agree that:

A. Monitoring activities for juvenile and adult salmon and steelhead relative to mainstem hydrosystem operations and conditions are generally in place. In addition, the Parties support the installation of a PIT tag detection array on the Lower Granite Removable Spillway Weir as soon as feasible, currently anticipated for use in 2020.

B. No additional PIT tagging is needed for analyses for spring/summer Chinook and steelhead. Additional PIT tagging, above current levels, may be desired for summer migrating fall Chinook and sockeye.

C. Enhanced sampling of resident fish, invertebrates, and amphibians may be desirable in 2019. Enhanced sampling activities that meet monitoring needs may be required in 2020-

2021. Existing monitoring of TDG and Gas Bubble Trauma in salmonids will continue. TDG and Gas Bubble Trauma monitoring may be enhanced if deemed necessary and funded.

D. Validation of fish behavior assumptions inherent in the modeled fish benefits relative to Spill Passage Efficiency are important and may require additional evaluation.

E. Possible approaches, study designs and funding sources of any new monitoring activities discussed in this Section VII are being explored and discussed, but any additional monitoring Bonneville agrees to fund for the purposes of this Agreement must be within Bonneville's existing overall Fish and Wildlife Program budget. The Corps will continue current monitoring commitments in furtherance of this Agreement.

VIII. REPORTING

A. The Fish Operations Plans for 2019, 2020 and 2021 will include the same reporting provisions as those set forth in the 2018 Fish Operations Plans. The Corps will provide status updates at the regularly scheduled Technical Management Team (TMT) meetings about the spring fish passage spill operations including review of the project Spill caps and resultant TDG level during the relevant time period. The Corps will address clarifying questions of the status update at the TMT meeting. In the event that a dispute results from the Corps' status update of the project Spill caps and resultant TDG level, that dispute should be expeditiously elevated by the Party seeking resolution of the dispute to the Regional Implementation Oversight Group (RIOG) in accordance with the established Regional Forum process.

B. Parties to this Agreement agree to participate in the Regional Forum process in a manner that is consistent with the established processes of those groups and is respectful to all participants.

IX. EFFECTIVE DATE, WITHDRAWAL AND TERMINATION

A. Effective Date.

This Agreement shall become effective where the following two conditions are met:

1. Signatures by the Parties to this Agreement, and

2. The filing of a notice with the U.S. District Court for the District of Oregon in *NWF et al v. NMFS*, that contains representations by the Parties to this Agreement and the National Wildlife Federation, et al., plaintiffs that they do not intend to file or engage in any litigation in *NWF et al v. NMFS* while this Agreement is in effect.

B. Withdrawal.

Any Party may withdraw following conferral and notice pursuant to Section XI below, upon the occurrence of any of the following:

1. The Action Agencies do not continue to implement habitat, hatchery, and monitoring and evaluation actions that provide an equivalent level of protection to fish and wildlife as they are currently implementing under the Action Agencies' 2008 Records of Decision or Record of Consultation and Statement of Decision for the Columbia River System, as supplemented in 2010 and 2014, to the satisfaction of Oregon, Washington or the Nez Perce Tribe.

2. Failure to satisfy any of the conditions or commitments set forth in this Agreement.

3. A Reasonable and Prudent Alternative action providing a fish passage spill operation inconsistent with the provisions of this Agreement, which either U.S. Fish and Wildlife Service or NOAA Fisheries issues following an ESA consultation.

4. While this Agreement is in effect, the filing of any complaint or motion for declaratory, injunctive, or other relief in *NWF et al v. NMFS*, or the initiation of any new action in any court that relates to actions or operations addressed in NOAA Fisheries' 2008 Columbia River System biological opinion and the Action Agencies' 2008 Records of Decision or Record of Consultation and Statement of Decision, as supplemented in 2010 and 2014.

C. Termination.

1. The Agreement terminates automatically upon the completion of the NEPA Remand Process.

2. The Agreement terminates automatically should the Court in *NWF et al v. NMFS* modify the terms of this Agreement in any manner, including adopting some or all of the terms of the Agreement as a court order.

3. If modification of Washington or Oregon's water quality standards does not occur, any Party may terminate this Agreement.

4. If any Party withdraws from this Agreement pursuant to Section IX.B., above, the Agreement may be terminated by any Party following conferral and notice of termination pursuant to Section XI below.

X. FORBEARANCE, RESERVATION OF RIGHTS, NO PRECEDENTIAL EFFECT

A. While this Agreement is in effect, the State of Oregon and Nez Perce Tribe agree to forbear from filing motions or seeking relief (including declaratory or injunctive relief) in *NWF et al v. NMFS*, and from filing any new action in any court that relates to actions or operations addressed in NOAA Fisheries' 2008 Columbia River System biological opinion and the Action Agencies' 2008 Records of Decision or Record of Consultation and Statement of Decision, as supplemented in 2010 and 2014.

B. Nothing in this Agreement alters or modifies the Parties' rights (including any claims or defenses) in *NWF et al v. NMFS* or any other forum, and no Party makes any concessions regarding the legal validity, scientific validity, or economic cost/benefit of the spill operations contemplated in this Agreement, the Columbia River System Operations Environmental Impact Statement, or any biological opinion NOAA Fisheries issues on the Columbia River System.

C. The Parties agree that this Agreement is not intended to be construed as a consent decree enforceable as a court order in *NWF et al v. NMFS*, or otherwise cited or used as precedential on any legal or factual matter in *NWF et al v. NMFS*. The sole and exclusive remedy for any alleged breach or unresolved dispute under this Agreement (following good faith efforts by the Parties to resolve the dispute pursuant to Section XI below) is to withdraw from the Agreement.

D. Nothing in this Agreement shall be interpreted as or constitutes a commitment or requirement that Reclamation, the Corps, or Bonneville pay funds in contravention of the Anti-Deficiency Act, 31 U.S.C. § 1341.

E. Nothing in this Agreement shall be interpreted as limiting the authority granted to, or retained by, the State of Oregon or the State of Washington under the Federal Water Pollution Control Act (Clean Water Act) (33 U.S.C.§§ 1251-1387).

F. Nothing in this Agreement shall be construed as a waiver of any Party's sovereign immunity.

XI. MEET AND CONFER

A. The Parties agree to communicate the provisions of the Agreement to appropriate staff and work in good faith through existing RIOG coordination and adaptive management processes to implement the terms of this Agreement.

B. The Parties agree that a Party may exercise its withdrawal or termination options only after: (1) informing the Parties in writing of the issue to be addressed; (2) working in good faith with the Parties to resolve the issue; and (3), where the issue cannot be

resolved, provide written notice to the Parties that the Party is withdrawing from or terminating the Agreement.

C. As detailed in Section VIII, any disputes arising out of the Corps' status updates on project spill caps and resultant TDG level from spring fish passage spill operations at the regularly scheduled TMT meetings should be immediately elevated to the RIOG in accordance with the established Regional Forum process by the Party seeking resolution of a dispute. RIOG meetings to resolve any disputes will be conducted as appropriate under that established process.

XII. SIGNATURES

By signing below, the Parties represent they affirmatively support this Agreement and its implementation.

The signatures of the State of Oregon, the State of Washington, the Nez Perce Tribe, Reclamation, the Corps, and Bonneville appear on the following pages 11-16.

OREGON

Kate Brown

December 13, 2018

Kate Brown
Governor
State of Oregon

Date

NEZ PERCE TRIBE

12-14-18

Shannon F. Wheeler
Chairman
Nez Perce Tribe

Date

12-14-18

Casey L. Mitchell
Secretary
Nez Perce Tribe

Date

WASHINGTON

Jay Inslee
Governor
State of Washington

Dec 12, 2018
Date

BUREAU OF RECLAMATION

Lori Gray 12/14/18

Lorri Gray
Regional Director
Bureau of Reclamation

Date

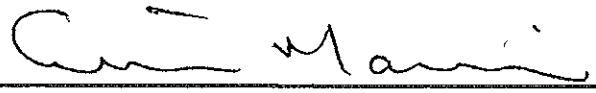
U.S. ARMY CORPS OF ENGINEERS

12 Dec 2018

Brigadier General D. Peter Helmlinger
Commander, Northwestern Division
U.S. Army Corps of Engineers

Date

BONNEVILLE POWER ADMINISTRATION



12/14/18

Elliot Mainzer
Administrator
Bonneville Power Administration

Date

Attachment

Table 1.1.
Planned 2019 spring spill operation, applying estimated 120% mean total dissolved gas spill caps and performance standard spill[4] flex operations.

Location	COE Estimated Mean 120% Total Dissolved Gas Spill Cap (16 hours)	Performance Standard Spill (8 hours)
Lower Granite	45 kcfs	20 kcfs
Little Goose	52 kcfs	30%
Lower Monumental	44 kcfs	30 kcfs (bulk spill pattern)
Ice Harbor	87 kcfs	30%
McNary	180 kcfs	48%
John Day	146 kcfs	32%
The Dalles	135 kcfs	40%
Bonneville	122 kcfs	100 kcfs

Key points:

- Spring spill operations would be initiated April 3 and April 10th and transition to summer spill operations on June 21 and June 16 at Lower Snake River projects and at Lower Columbia River projects, respectively.
- The 8 hours of performance standard spill would occur with some flexibility. Only Little Goose would be set to at least 4 hours in the a.m. (beginning near dawn and not to exceed 5 hours in the a.m.) and no more than 4 hours in the p.m. (generally near dusk) to help with adult passage issues. All other projects could spill either 3 or 4 hours for the performance standard spill a.m. time period and then up to a max of 5 hours in the performance standard spill p.m. period (not to exceed 8 hours in the day).
- No ponding above current MOP assumptions: Snake River - MOP+1.5 ft (to provide 1 ft. of useable space); John Day - MIP+2 ft (to provide 1.5 ft. of useable space).
- Controlled spill at Bonneville Dam capped at 150 kcfs due to erosion concerns.
- Controlled spill at The Dalles contained between the walls (Bays 1-8) unless river flows were over 350 kcfs then spill outside the walls would be permitted.
- Existing adaptive management processes will be employed to help address any unintended consequences that may arise in-season as a result of implementing these proposed spill operations.
- Spill may be temporarily reduced at any project if necessary to ensure navigation safety or transmission reliability.

[4] "Performance standard" spill is a NOAA Fisheries term and refers to spill levels intended to meet NOAA's performance standard testing, as described in the 2008 Biological Opinion and accompanying administrative record.

Table 1.2.
Planned summer spill operations, starting June 21 at Lower Snake River projects and June 16 at the Lower Columbia River projects through August 31, 2019; no spill curtailment criteria. Table 1.1 key points apply.

Location	Summer Spill Operation: Volume/Percent of Total Flow Routed to Spillway (June 21/16 – Aug 31)
Lower Granite	18 kcfs
Little Goose	30%
Lower Monumental	17 kcfs
Ice Harbor	30%
McNary	57%
John Day	35%
The Dalles	40%
Bonneville	95 kcfs

Table 1.3.a.

Representative spring spill alternative one, for implementation in 2020 and 2021. Six projects using 125% TDG flexible spill, John Day (JDD) using 120% TDG flexible spill and The Dalles (TDA) using 24 hour performance standard spill. Table 1.1 key points apply.

Location	COE Estimated mean 125% Total Dissolved Gas Spill Cap (16 hours), with alternative operation at JDD and TDA.	Performance Standard Spill (8 hours).
Lower Granite (125 flex)	72 kcfs	20 kcfs
Little Goose (125 flex)	79 kcfs	30%
Lower Monumental (125 flex)	98 kcfs	30 kcfs (bulk spill pattern)
Ice Harbor (125 flex)	119 kcfs	30%
McNary (125 flex)	265 kcfs	48%
John Day (120 flex)	146 kcfs	32%
The Dalles (Performance Standard)	40%	40%
Bonneville (125 flex)	150 kcfs	100 kcfs

Table 1.3.b.

Representative spring spill alternative two, for implementation in 2020 and 2021. Six projects using 125% TDG flexible spill with JDD and TDA using 24-hour performance standard spill. Table 1.1 key points apply.

Location	COE Estimated mean 125% Total Dissolved Gas Spill Cap (16 hours), with alternative operation at JDD and TDA.	Performance Standard Spill (8 hours)
Lower Granite (125 flex)	72 kcfs	20 kcfs
Little Goose (125 flex)	79 kcfs	30%
Lower Monumental (125 flex)	98 kcfs	30 kcfs (bulk spill pattern)
Ice Harbor (125 flex)	119 kcfs	30%
McNary (125 flex)	265 kcfs	48%
John Day (Performance Standard)	32%	32%
The Dalles (Performance Standard)	40%	40%
Bonneville (125 flex)	150 kcfs	100 kcfs

Table 1.4.

Planned summer spill operations for 2020 and 2021. Cessation of juvenile transportation June 21 through August 14 with allowance for Technical Management Team adaptive management adjustments.

Location	Initial Summer Spill Operation: Volume/Percent of Total Flow Routed to Spillway (June 21/16 – August 14)	Late Summer Transitional Spill Operation: Volume/Percent of Total Flow Routed to Spillway (August 15 – August 31)
Lower Granite	18 kcfs	RSW or 7 kcfs
Little Goose	30%	ASW or 7 kcfs
Lower Monumental	17 kcfs	RSW or 7 kcfs
Ice Harbor	30%	RSW or 8.5 kcfs
McNary	57%	20 kcfs
John Day	35%	20 kcfs
The Dalles	40%	30%
Bonneville	95 kcfs	55 kcfs - includes 5k corner collector