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32
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34
35 UNITED STATES DISTRICT COURT
36 DISTRICT OF OREGON
37

38 NATIONAL WILDLIFE FEDERATION, et al.,

39
40 Plaintiffs,

41
42 and

43
44 STATE OF OREGON,

45
46 Intervenor-Plaintiff

Civ. No. 01-0640-RE (Lead Case)
Civ. No. 05-0023-RE
(Consolidated Cases)

Declaration of
DAVID J. PONGANIS

1

2 v.

3
4 NATIONAL MARINE FISHERIES SERVICE,
5 U.S. ARMY CORPS OF ENGINEERS and
6 U.S. BUREAU OF RECLAMATION,

7
8 Defendants,

9
10 and

11
12 NORTHWEST IRRIGATION UTILITIES, PUBLIC
13 POWER COUNCIL, WASHINGTON STATE FARM
14 BUREAU FEDERATION, FRANKLIN COUNTY
15 FARM BUREAU FEDERATION, GRANT COUNTY
16 FARM BUREAU FEDERATION, AND STATE OF
17 IDAHO,

18
19 Intervenor-Defendants.

20
21 _____
22
23 COLUMBIA SNAKE RIVER IRRIGATORS
24 ASSOCIATION, AND EASTERN OREGON
25 IRRIGATORS ASSOCIATION,

26
27 Plaintiffs

28
29 v.

30
31 DONALD L. EVANS, in his official capacity as
32 Secretary of Commerce, NOAA FISHERIES, and
33 D. ROBERT LOHN, in his official capacity as
34 Regional Director of NOAA Fisheries,

35
36 Defendants.

37 _____
38
39 I, David J. Ponganis, declare and state as follows:

40 QUALIFICATIONS:

41
42 1. I have been employed with the U.S. Army Corps of Engineers (Corps) since 1980. At the
43 present time I serve as Endangered Species Act program specialist and Water Quality

DECLARATION OF DAVID J. PONGANIS

Page 2 of 28

1 Program Manager for the Northwestern Division. I have a B.A. in Environmental Planning
2 from the University of California, Santa Cruz, California and a M.S. in Civil Engineering,
3 Infrastructure Planning and Management from Stanford University, Palo Alto, California.

4 2. I am employed by the Corps' Northwestern Division in the Portland, Walla Walla, and Fish
5 District Support Team. Among other functions, this office is responsible for strategic
6 direction and management oversight of Northwestern Division program activities related to
7 Columbia River Basin salmon and other fish affected by the Federal Columbia River Power
8 System (FCRPS). I participate as a Corps' representative in the coordination and
9 collaboration on Federal efforts to recover endangered fish in the Columbia River Basin. I
10 have participated in ESA Section 7 consultations on the operation of Corps' projects in the
11 Columbia River since 1992. Based on this experience, I have extensive knowledge of the
12 operation of the FCRPS.

13 3. In this declaration, I will address the potential impacts of implementing Plaintiffs' requested
14 injunctive relief concerning decreasing water particle travel time by 10% in the lower Snake
15 and Columbia rivers, increasing summer spill operations, and the consequences of the relief
16 sought on congressionally authorized project uses. In addition I will address the relationship
17 of the 2000 Biological Opinion Reasonable and Prudent Alternative (RPA) to the actions
18 contained in the Action Agencies Updated Proposed Action (UPA).

20 BACKGROUND

21 4. The Columbia River Basin contains a series of major federal dams and reservoirs authorized
22 by Congress. This system of hydro-projects was developed as part of a comprehensive
23 regional plan to provide for a number of uses. Congress made clear its intent to develop and

1 operate the projects within the Columbia River Basin in a coordinated system that takes into
2 account all the authorized project uses. This comprehensive development plan¹, authorized
3 the Corps to construct, operate and maintain 12 of the 14 Federal projects on the Columbia
4 and Snake rivers referred to as the FCRPS. The authorized project uses for the Corps'
5 projects in the FCRPS include flood control, hydropower generation, irrigation, recreation,
6 navigation, fish and wildlife, water quality, and municipal and industrial water supply.

- 7 5. The Corps' FCRPS projects are operated in a coordinated manner with the U.S. Bureau of
8 Reclamation (Reclamation) projects, with certain Canadian reservoir projects pursuant to the
9 Columbia River Treaty (Treaty) between the U.S. and Canada, and several Public Utility
10 District projects on the mid-Columbia. Bonneville Power Administration (BPA) is
11 responsible for marketing and transmission of power generated from the Corps' projects.
- 12 6. The FCRPS is a very large and complex system and when making operational decisions the
13 Corps must take into account a multitude of statutory responsibilities, treaty obligations, and
14 trust responsibilities to federally recognized Tribes. Most pertinent to the issues raised in this
15 lawsuit are the Corps' responsibilities under the Endangered Species Act (ESA); however,
16 the Corps' actions must also be consistent with the congressionally authorized project
17 purposes, the National Environmental Policy Act (NEPA), the Clean Water Act (CWA), the
18 Columbia River Treaty between Canada and the United States², and the Pacific Northwest
19 Electric Power Planning and Conservation Act (Northwest Power Act).

¹ H.D. 531 authorized Libby, Albeni Falls, John Day, The Dalles, and discusses what later became Dworshak as a potential project in the comprehensive system. Bonneville was authorized by, P.L. 74-409; McNary, Ice Harbor, Lower Monumental, Little Goose, and Lower Granite were authorized in 1938, H.D. 704; Chief Joseph was authorized in 1946, H.D. 693; and Dworshak was authorized in 1962, H.D. 403.

² The Treaty Between The United States of America and Canada Relating to Cooperative Development of the Water Resources of the Columbia River Basin, 1964. The Canadian Entity (B.C. Hydro) and the U.S. Entity (represented by the Corps of Engineers and Bonneville Power Administration) carry out the Columbia River Treaty.

- 1 7. These responsibilities are superimposed on the challenges presented in making day-to-day
2 operational decisions for this very large and complex river system while contending with
3 uncertainties such as weather forecasts, water supply forecasts, and run-off conditions.
- 4 8. The Corps, Reclamation and BPA (collectively the “Action Agencies”) all have responsibilities
5 related to FCRPS operations and have engaged in several ESA Section 7 consultations on the
6 operation of the FCRPS since 1992 - with the first ESA listings of Snake River salmonid
7 species.
- 8 9. The strategy throughout these consultations has been directed at improving conditions for the
9 listed salmonids by improving habitat conditions, safer dam passage, augmentation of river
10 flow, and research activities to obtain data to make sound decisions on how best to improve
11 conditions for the listed species.
- 12 10. Following the remand of the 2000 BiOp in accordance with this court’s order in *National*
13 *Wildlife Federation v. NMFS*, Civ. No. 01-640-RE (D. Oregon), it was decided that it would
14 be appropriate for National Marine Fisheries Service’s (NMFS or NOAA Fisheries) to base
15 the 2004 BiOp on an action reflecting the Action Agencies’ current and planned future
16 operations, rather than to reanalyze the proposed action set forth in the 1999 Biological
17 Assessment. Accordingly, during the consultation process, the Action Agencies developed an
18 Updated Proposed Action (UPA) (A.R. 87), which was finalized and transmitted to NOAA
19 Fisheries on November 24, 2004. (NOAA A.R. A 1).
- 20 11. The UPA represents a considered approach to system operations to benefit fish while also
21 providing for authorized project uses. In developing this comprehensive set of actions, the
22 Action Agencies took into account a historical range of water conditions recognizing there
23 would be high and low runoff years. The range of water conditions analyzed in the

1 consultation with NMFS generally included a fifty year period of 1928 to 1978, including
2 drought conditions as well as flood events.

3 12. NMFS considered the UPA and made a no jeopardy determination in their November 30,
4 2004 Biological Opinion on the operation of FCRPS for salmon and steelhead (2004 BiOp).
5 (NOAA A.R. A 1).

6 7 INCREASING WATER VELOCITIES IN THE SNAKE AND COLUMBIA RIVERS

8
9 13. Plaintiffs' assert that adequate water velocity in the Snake and Columbia rivers is critical for
10 salmon and steelhead survival. To provide greater velocity, plaintiffs suggest decreasing
11 water particle travel time by at least 10% in the Snake River (from the head of Lower Granite
12 reservoir to Ice harbor) between June 20, 2005 and August 31, 2005 - with the decrease
13 distributed evenly during this period, over and above what the water particle travel time
14 would be under the 2004 BiOp UPA; and, a similar reduction of travel time (10 % or
15 greater), in the Columbia River (from its confluence with the Snake River to Bonneville
16 Dam) between July 1, 2005 and August 31, 2005.

17 14. Decreasing water particle travel time (WPTT) is not a new concept. Over thirteen years ago,
18 the Action Agencies examined a variety of reservoir drawdown and flow augmentation
19 alternatives in the 1992 Options Analysis/Environmental Impact Statement (1992 OA/EIS)
20 (A.R. 230) with the objective of decreasing WPTT. WPTT is an engineering calculation to
21 determine the amount of time it would take for water to travel a certain distance. The 1992
22 OA/EIS used engineering models to calculate the number of days it would take for water to

1 travel the lower Snake and Columbia rivers with different assumptions for flows and
2 elevations at which the projects were operated.

3 15. There are three basic approaches to decreasing WPTT in the run-of-river³ projects in the
4 lower Snake and Columbia rivers. One approach is to decrease the cross-sectional area of the
5 projects by drawing down the level of the reservoir pool and operating at a lower elevation.
6 The OA/EIS displays engineering calculations to determine the WPTT associated with
7 operating the run-of-river projects at the maximum elevation (full pool), at the minimum
8 operating pool (MOP) elevation and, for certain projects, at lower than MOP elevation.

9 16. A second approach is to release additional water from upstream storage projects to increase
10 flows (and therefore decrease WPTT) in the run-of-river projects. The OA/EIS displays
11 engineering calculations to compute WPTT with increasing flows at different run-of-river
12 pool elevations.

13 17. The third approach is a combination of the first two (both flow augmentation and operating
14 mainstem lower Columbia and Snake River projects at lower elevations).

15 18. In the discussion below, I am providing information to the court on actions at Corps' projects
16 and the impacts associated with those actions to provide the 10% decrease in WPTT
17 requested by plaintiffs. I recognize this discussion addresses drawdown and additional flow
18 augmentation at Corps projects apart from combining these actions, or considering other
19 Action Agencies measures. However, given time constraints, the complexity of the FCRPS,
20 and the various agencies multiple responsibilities, it is problematic to speculate about the
21 impacts from combining alternatives discussed by the different agencies (i.e., utilizing

³ A run-of river project is a project constructed to operate over a small range in pool fluctuations, typically to provide for navigation. Generally the amount of flow into the project equals the releases out of the project given minimal storage capacity in the project. For instance, the pool elevations in the lower Snake River projects range from 3 to 5 feet, even though the height of the dams approaches 100 feet.

1 reservoir drawdowns of Corps projects in combination with flow augmentation from Corps
2 and/or Reclamation projects).

3 19. There are significant technical difficulties that are raised in examining the actions each
4 agency can consider. Attempting to examine the consequences, trade-offs and impacts of
5 combined actions in the short time frame available would not be prudent, and would be better
6 considered on the basis of comprehensive study with public input as has been taking place
7 for a number of years.

8 20. Since the 1992 OA/EIS and the ESA §7 consultations on the operation of the FCRPS, there
9 have been many changes in system operations that have increased the WPTT in both the
10 Snake and Columbia rivers. For instance, the Corps changed the operation of the mainstem
11 lower Snake River projects from full pool to MOP, and drafted Dworshak Dam from full
12 pool elevation 1600 feet to elevation 1520 feet. These actions already decrease WPTT (*see*
13 *Henriksen's declaration*). The Action Agencies implemented actions to decrease WPTT after
14 a careful analysis of the consequences and impacts from taking the action, biological
15 evaluation of the benefits and adverse effects, and consideration of public input as part of the
16 decision-making process over the last 13 years.

17 21. Plaintiffs' suggested "modest" decrease in WPTT by 10% is in addition to the actions already
18 undertaken by the Action Agencies to decrease WPTT and evaluated in the 1992 OA/EIS and
19 in the 1995 Columbia River System Operation Review EIS (SOR) (A.R. 226).

20 22. Decreasing WPTT by an additional 10% is even more difficult during summer low flow
21 conditions expected in 2005. More water is required to obtain the 10% decrease in WPTT
22 with low flow conditions because there is a relationship between the number of days it takes
23 for a water particle to travel and the flow conditions in the river.

1 23. To understand the relationship between changes in WPTT under differing flow conditions, I
2 reviewed data in the OA/EIS. Tables M-1 and M-2 (Attachment 1) show that in the lower
3 Snake River with the projects operated at MOP, the WPTT is 39.4 days with 20 kcfs flows
4 and 6.7 days 120 kcfs flows.

5 24. Plaintiffs' suggestion that obtaining a 10% in WPTT is "modest" is specious because the
6 actions required to obtain a 10% decrease in WPTT with the low flow conditions experienced
7 during the summer are significantly more difficult than they would under spring high flow
8 conditions; and, would have significant impacts and unintended consequences affecting the
9 congressionally authorized project uses, and compliance with other statutory responsibilities
10 and agreements.

11 25. As operators of the projects, the Corps has the expertise to analyze and evaluate the
12 consequences and impacts of different operations and configuration changes, and has the
13 responsibility to ensure that any changes in those operations or project modifications are
14 consistent with our authorities and obligations to act in accordance with the CWA, ESA,
15 NEPA and other applicable statutes, regulations, and treaties.

16 17 **Snake River**

18 26. For the Snake River, the options available to the Corps to decrease WPTT an additional 10%,
19 beyond the actions already taken by the Corps, are to draft additional water from Dworshak
20 Reservoir below elevation 1520 feet to provide additional flow augmentation, or drawdown
21 the lower Snake River run-of-river projects below MOP to reduce the cross-section of the
22 reservoirs. These alternatives were evaluated in the 1992 Options Analysis/EIS, the 1995
23 Columbia River System Operation Review, and the 2000 Lower Snake River Juvenile

1 Salmon Migration Feasibility Report/Environmental Impact Statement (Lower Snake EIS)
2 (A.R. 214).

3
4 Flow Augmentation Provided by Drafting Dworshak Reservoir

5 27. In order to achieve an additional 10% decrease in WPTT from June 21 to August 31 in the
6 Snake River by flow augmentation would require an additional 554 Kaf. (*see* Henriksen's
7 declaration). Dworshak Dam, a storage project located in the State of Idaho, is currently
8 drafted each year for ESA purposes from elevation 1600 feet to elevation 1520 feet between
9 the beginning of July and mid-September. For 2005, Dworshak Dam is expected to refill by
10 June 30, which would allow for the full 80 foot draft for flow augmentation. (*see* Henriksen's
11 declaration). Providing the additional flow augmentation water as suggested by plaintiffs'
12 would require an additional 50 foot draft from elevation 1520 feet to elevation 1470 feet.

13
14 Impacts Associated with Flow Augmentation Provided by Drafting Dworshak

15 28. As recognized in Pettit's declaration (page 25, paragraph 56), availability of water from the
16 reservoirs could be limited by the needs of other listed species in the upper basin. There are
17 other impacts that require consideration before concluding additional drafts suggested by the
18 Plaintiffs is warranted.

19 29. As documented in the various EIS's, there are impacts from drafting Dworshak Dam from
20 full pool to elevation 1520 feet in the summer. One of the critical reasons for limiting the
21 summer draft at Dworshak to elevation 1520 feet is a concern of NMFS and the Action
22 Agencies about reducing the availability of water for the following fish migration season by
23 NMFS and the Action Agencies. Quite simply, if excessive water is drafted from the storage

1 projects for flow augmentation in one year, it may compromise the Corps' ability to provide
2 flow augmentation water the following migration season. For instance, drafting Dworshak
3 another 50 feet this summer to elevation 1470 followed by a winter with less than average
4 water conditions, could result in Dworshak refill at elevation 1560 by July 2006 impacting
5 flow augmentation water available next year (*see* Graham's declaration).

6 30. Drafting Dworshak from elevation 1520 feet to elevation 1470 feet would further exacerbate
7 impacts to cultural resources from wind and wave action and increase the potential for
8 vandalism of cultural resource sites, and reduce access to available recreational boat ramps.
9 (*see* Graham's declaration)

10 31. An additional consideration is the implication the additional draft of Dworshak would have
11 on the agreement signed on March 31, 2005 by the Nez Perce Tribe and the Corps - a
12 component of the Snake River Basin Adjudication settlement. The Agreement addresses the
13 Nez Perce Tribe's use of 200,000 acre-feet of water in Dworshak Reservoir for the benefit of
14 fish consistent with Corps authorities. The Corps included the use of this water by the Nez
15 Perce Tribe and potential effects in the UPA addressed in the 2004 BiOp.

16
17 Operating Lower Snake River Projects Below MOP

18 32. A suggested component to decreasing WPTT suggested by plaintiffs' is to operate the four
19 lower Snake River projects at MOP. As mentioned above, for ESA purposes, MOP is the
20 recommended operation for the lower Snake River projects. However, the last few years,
21 Lower Granite has been operated 1 foot above MOP (MOP+1) to allow commercial
22 navigation vessels to navigate over high spots in the navigation channel, resulting from the
23 sediment build-up occurring since the last maintenance dredging.

1 33. Although plaintiffs' suggest operating the four lower Snake River projects at MOP as a
2 means of achieving a 10% decrease in WPTT, given the current condition of the navigation
3 channel noted above, the MOP operation would impede navigation and could result in safety
4 issues for the navigation industry. (*see* Graham's declaration) Further, this action will not
5 achieve the suggested change in WPTT.

6 34. Another approach to achieve an additional 10% in WPTT from June 20 to August 31 in the
7 Snake River is to operate the run-of-river projects at an elevation below MOP. The lower
8 Snake River run-of-river projects are Lower Granite, Little Goose, Lower Monumental, and
9 Ice Harbor dams, all located in the State of Washington. At Lower Granite, the MOP
10 elevation is 733 feet. The plaintiffs suggest the Corps could operate Lower Granite Dam at an
11 elevation 10 feet below MOP, i.e. elevation 723 feet. But, based on the engineering
12 calculations in the 1992 OA/EIS, a deeper draft would be required. Specifically, in order to
13 achieve the 10% decrease in WPTT suggested by plaintiffs, it would require operating Lower
14 Granite Dam *below* elevation 723 feet *and* the other three lower Snake Projects below MOP.

15 35. Based on the 1992 OA/EIS data, the difference in WPTT between operating all four lower
16 Snake River projects at MOP, and operating Lower Granite at elevation 723 feet with the
17 other three projects at MOP and a flow of 40,000 cfs, WPTT is reduced from 19.8 to 19.1
18 days – only yielding a 3.5% decrease. To achieve the 10% decrease, I estimate it would
19 require operating Lower Granite at 723 feet and taking the other three Snake River projects
20 approximately 5 feet below MOP, which has significant consequences as discussed below.

1 Impacts Associated with Operating the Lower Snake River Projects Below MOP

2 36. The two significant consequences of operating the lower Snake River projects below MOP
3 are to the fish facilities and navigation.

4 37. The adult fish ladder exit and the operation of the juvenile fish facilities would be affected by
5 operating Lower Granite Dam at elevation 723 feet (*see* Ocker's declaration). Operating
6 Little Goose, Lower Monumental and Ice Harbor below MOP also raises concerns about
7 adult fish ladder entrances and exits, as well as juvenile fish facilities. Both juvenile and
8 adult fish facilities were designed to operate between MOP and full pool (a three to five foot
9 range at the lower Snake River projects). Assuming these projects are operated at five feet
10 below MOP to achieve the 10% reduction in WPTT, these adult and juvenile facilities would
11 be inoperable, and have serious consequences to adult and juvenile fish passage.

12 38. Operating Lower Granite at elevation 723 feet would eliminate navigation beyond Lower
13 Granite Dam, one of the congressionally authorized project uses, because there would be
14 insufficient water to allow barges to transit the navigation lock. It would also impact water
15 supply lines and wells, and exposes cultural resource sites to erosion and potential vandalism.
16 (*see* Graham's declaration).

17 39. Operating the other three lower Snake River projects at an estimated 5 feet below MOP
18 would reduce the depth of water at the navigation lock, and eliminate navigation through
19 these three projects.

20 40. The Corps does not have the authority to eliminate the congressionally authorized use of
21 navigation and would ordinarily need to engage in careful statutory environmental review to
22 analyze the impacts described above before undertaking a change in operations as suggested
23 by the plaintiffs.

Columbia River

1
2 41. The options available to the Corps to decrease WPTT by an additional 10% from July 1 to
3 August 31 in the lower Columbia River are through flow augmentation provided by upstream
4 Columbia storage projects and operating the Corps lower Columbia projects at lower
5 elevations than currently operated.

6
7 Flow Augmentation Provided by Drafting Storage Projects Supplying the Columbia River

8 42. In the 1995 NMFS Biological Opinion on the operation of the FCRPS, the RPA identified the
9 Corps' Libby project and Reclamation's Hungry Horse and Grand Coulee projects to provide
10 for summer flow augmentation, but specified limits on the summer draft elevations. These
11 summer operations continue to this day and already represent an decrease in the WPTT in the
12 Corps' four lower Columbia River projects. Again, what the plaintiffs are asking for is an
13 additional decrease in WPTT over and above what is currently being achieved.

14 43. In order to decrease the WPTT by an incremental 10% over the existing flow augmentation
15 strategy in the lower Columbia, an additional release of 1.96 MAF (Million Acre Feet) from
16 the upstream storage projects in the Columbia would be required. Assuming an additional
17 475 kaf was released from July 1 to August 31 from storage projects in the Snake River basin
18 to achieve a 10% reduction in WPTT in the Snake River, an additional 1.485 MAF would
19 still be needed from upstream Columbia River storage projects (*see* Henriksen's declaration).
20 The upstream Columbia storage projects are Libby and Hungry Horse dams, located in the
21 State of Montana, and Grand Coulee and Albeni Falls dams located in the State of
22 Washington.

1 44. There are a number of complications in determining how to allocate additional drafts from
2 these upstream Columbia projects to provide the suggested decrease in WPTT. In the absence
3 of studies conducted on alternatives using Corps and Reclamation projects, an assessment of
4 the feasibility of implementing additional flow augmentation of 1.485 MAF is not possible.
5 Each upstream storage project is subject of a Section 7 consultation with the U.S. Fish and
6 Wildlife Service on various listed species assuming current summer draft limits. If these draft
7 limits are changed to provide for the additional 1.485 MAF, it would change how and when
8 the water is released from these projects - potentially impacting downstream water
9 temperatures and TDG, refill, pool elevations, treaty considerations, listed and resident fish
10 and wildlife, and other resources. The impacts would also change depending upon how the
11 1.485 MAF was allocated amongst the projects. Based on my experience over the last 13
12 years concerning changes in the FCRPS operations, there are a variety of factors and trade-
13 offs to be evaluated, as well as public notification and tribal consultation that should be
14 completed before a decision of this magnitude is made.

15
16 Impacts Associated with Drafting Upstream Columbia River Storage Projects

17 45. As mentioned above, allocating the additional drafts among the upstream Columbia storage
18 projects to achieve an additional 1.485 MAF, is complicated and requires a thorough
19 consideration of impacts. However, assuming the Corps' Libby project was allocated one-
20 third of the needed 1.485 MAF, the releases out of Libby would increase by about 4 kcfs
21 (4,032 cfs), which roughly approximates a similar increase in the lower Columbia River. The
22 additional release of 4 kcfs would result in drafting Libby from elevation 2439 feet to about
23 elevation 2427 feet. The concerns expressed below are an example of the types of analysis

1 that should be completed for any upstream Corps or Reclamation storage project prior to
2 implementing additional drafts for flow augmentation to decrease WPTT by 10% in the
3 lower Columbia River.

4 46. For the Corps' Libby project, any additional flow augmentation to help contribute to an
5 incremental decrease in WPTT by 10% would have to be assessed for impacts, at a
6 minimum, to the ESA listed bull trout and Kootenai River white sturgeon (sturgeon), the
7 Columbia River Treaty with Canada, International Joint Commission rules, and the
8 Northwest Planning and Conservation Council's (Council) Fish and Wildlife Program
9 Amendments⁴.

10 47. The additional release of water from Libby Dam to provide more flow augmentation water
11 may exceed powerhouse capacity, requiring the spill of excess water, which would likely
12 exceed the State of Montana's TDG standard and, consequently, potentially harm fish below
13 the project. (*see* Henriksen's declaration)

14 48. The Corps and BPA are currently in consultation with the U.S. Fish and Wildlife Service on
15 the effects of the operation of Libby Dam on listed sturgeon and bull trout and are reporting
16 on the status of the consultation to the U.S. District Court for the District of Montana.

17 49. Also, in accordance with the Northwest Power Act, the Corps must take into account the
18 Council's Fish and Wildlife Program Amendments when considering modifications to
19 project operations. The Amendments are aimed at limiting the draft limits to protect resident
20 fish and wildlife resources. Additional releases beyond the 20 foot draft limits (elevation
21 2439 feet) from Libby are not consistent with the recommendations for Libby Dam
22

⁴ In accordance with the Northwest Power Act.

1 operations in the Fish and Wildlife Program Amendments.

2
3 Operating Lower Columbia Projects at MOP

4 50. The other approach to incrementally decrease the WPTT by 10% from July 1 to August 31 in
5 the lower Columbia River is to operate the projects at lower pool elevations. Below I will
6 discuss the drawdown of John Day and The Dalles as the projects plaintiffs have suggested
7 would be suitable for achieving a decrease of 10% in WPTT.

8 *JOHN DAY DAM*

9 51. John Day Dam is located at river mile 215.6 on the Columbia River and it is authorized for
10 flood control, navigation, power generation, recreation, irrigation, water quality and fish and
11 wildlife. The reservoir (Lake Umatilla) covers 49,300 acres and is about 76.4 miles in length
12 to the tailrace of McNary Dam. Full pool is approximately elevation 268 feet. Unlike the
13 other lower Columbia River projects, the MOP elevation provides for 534,000 acre-feet of
14 flood control storage space down to elevation 257 feet. This infrequently used 11 foot
15 operating range, was intended to for short duration flood control operations during the flood
16 control season. While the consequences of operating other run-of-river projects at MOP in
17 the summer months are minimal, the impacts of operating John Day at MOP for two months
18 in the non-flood control season to public and private facilities around the dam are significant.

19 52. The currently planned operation, consistent with the practice under the 2000 BiOp, is to
20 begin the spring at elevation 262.5 feet and increase the elevation over the summer to reduce
21 impacting the operation of agricultural irrigation pump stations on the reservoir. As summer
22 continues, and river flows drop, John Day is generally operated at higher elevations near the
23 upper pool operating elevation of 265.

1 53. A reconnaissance-level study of operating John Day at MOP was initiated in 1991 in
2 response to the Northwest Power Planning Council Columbia Fish and Wildlife Program,
3 and the results were documented in a report entitled, John Day Reservoir Minimum
4 Operating Pool Technical Report, (1994 John Day Report) dated April, 1994. (A.R. 179).

5 54. The 1994 John Day Report evaluated operating John Day at MOP (elevation 257 feet) from
6 May 1 through August 31. Benefits and impacts to migrating anadromous fish, project
7 operations, the environment, and other uses of the reservoir were evaluated. The discussion
8 below presents information based on an analysis of a four-month operation at MOP, but
9 similar outcomes would result with a two-month MOP operation to achieve the 10% decrease
10 in WPTT.

11 55. Operating John Day at MOP will decrease WPTT relative to the current operations. Under an
12 average flow of 123 kcfs during August, the reduction in WPTT through the John Day pool
13 is calculated to be from 10.3 to 8.8 days in August. This flow condition is similar to the
14 Columbia River flows expected this summer (137 kcfs) with a WPTT of 16.1 days from the
15 confluence of the Snake River to Bonneville Dam (*see* Henriksen's declaration). This
16 reduction of 1.5 days represents a 9% reduction in WPTT in the Columbia River from the
17 confluence of the Snake River to Bonneville dam.

18
19 *THE DALLES DAM*

20 56. The MOP elevation at The Dalles is 155 feet, and full pool elevation 160 feet. Typically, the
21 reservoir is operated between elevations 157 and 160. It is estimated that the reduction in
22 WPTT by operating The Dalles at MOP from current operations is approximately 0.08 day.

1
2 Impacts Associated With Operating Lower Columbia Projects At MOP

3 *JOHN DAY DAM*

4 57. The following information addresses the impacts of operation of John Day Dam at MOP
5 based on the 1994 John Day Report.

6 58. Generally, project facilities at the dam (powerhouse, navigation locks, spillway, and fish
7 passage facilities) are operational at MOP. However, several issues with regard to reduced
8 effectiveness of the adult and juvenile fish passage facilities were identified in the 1994 John
9 Day Report.

10 59. **Fish Facilities:** MOP operation would require modification of the auxiliary water supply to
11 the adult fish ladders at John Day. Ladder entrances at McNary Dam would need to be
12 lowered in order to accommodate the lower tailrace elevation and to meet current adult
13 passage criteria. These modifications could not be accomplished by July 2005. John Day
14 juvenile bypass facilities were designed to operate within established criteria at MOP, but
15 performance of bypass system guidance and orifice passage efficiencies under the lowered
16 pool operations is uncertain. Reduced guidance efficiency would be expected to result in
17 more juveniles passing the dam through the turbines.

18 60. **Irrigation:** Agricultural irrigation pumping stations on the reservoir will be impacted by
19 MOP operation. The 1994 John Day Report identified over 142,000 acres of farmland under
20 irrigation from John Day reservoir, with a crop value of \$246 M per year. At the time of the
21 study, we found that modifications to ensure pumping capability would be required at 20 of
22 21 pump stations on the reservoir. These stations range in capacity from 300 gallons per
23 minute to very large facilities capable of pumping over 250,000 gallons per minute. Most

1 stations appear to require relatively straightforward measures to extend intakes, however
2 several, including some of the larger stations, likely would require the addition of new low-
3 head pumping facilities. All irrigators would experience higher pumping costs due to the
4 higher lifts required with a lowered pool elevation. A review of the status of all irrigation
5 pumping facilities on the reservoir would be advisable if there were further consideration of
6 the MOP operation.

7 **61. Water Supply:** A municipal water supply would also be impacted as well as groundwater
8 users in the vicinity of the project. The City of Boardman, Oregon employs a Ranney well
9 for its municipal water supply. Extrapolating data from prior pumping tests at various pool
10 elevations above MOP, it is estimated that the facility would lose approximately 25% of its
11 capacity at MOP. Over 2,000 groundwater wells have been identified in the area. With very
12 preliminary information it is estimated that a small number of these wells (3%) could be
13 impacted to the point of requiring modifications for continued use. If MOP were
14 implemented, it is anticipated that an extensive monitoring program for ground-water wells
15 would be necessary.

16 **62. Recreation and Indian Treaty Fishing Access:** The majority of the 16 recreation sites on
17 Lake Umatilla would be impacted and modifications to extend boat ramps, swimming
18 beaches and dock facilities would be needed in order to maintain their current level of
19 service. Two of the sites (Sundale, and Quesnel parks) provide Indian treaty fishing access.
20 Several marinas would not be accessible without dredging, and to maintain channel depths at
21 two sites rock removal would be required.

22 **63. Fish and Wildlife:** Resident fish and wildlife habitat will be impacted by operating John Day
23 at MOP. In the 1994 John Day Report, which looked at an annual 4-month operation at

1 MOP, all of an estimated 8,400 acres of shallow water habitat including 2,100 acres of
2 marsh-riparian zones throughout the reservoir would be impacted by dropping water levels
3 and drying out these areas. The Umatilla National Wildlife Refuge and two state-managed
4 wildlife areas contain a significant portion of the habitat areas.

5 64. As reported in the 1994 John Day Report, a 4-month operation at MOP is expected to cause
6 loss of emergent marsh and riparian habitat, primarily at the upper end of the reservoir.
7 These losses would significantly impact resident and migratory wildlife using these habitats.
8 The existing shallow water habitat is also believed to be a benefit to rearing juvenile salmon.
9 The suggested John Day drawdown would occur during the warmest and driest season when
10 effects on the vegetation would be most severe. In addition, the drawdown could have an
11 impact on migrating Umatilla River adult salmon due to blockages at the mouth of that river.

12 65. Significant cultural resources exist on the project. Over 200 sites have been recorded. Over
13 600 additional sites have been projected to exist within the fluctuation zone. A monitoring
14 program would need to be implemented in conjunction with a drawdown operation.

15 *THE DALLES DAM*

16 66. To my knowledge there has been no evaluation of the specific biological benefits or the
17 impacts of operating The Dalles Dam at MOP. There is no specific information with regard
18 to public or private facilities that may be impacted by a MOP operation at The Dalles Dam.
19 Stable pool elevations are generally requested to support treaty fishing.

20 *SUMMARY OF DECREASING WPTT BY 10%*

21
22 67. As described above, the Corps has been evaluating alternatives for improving juvenile
23 salmon passage including decreasing WPTT for many years. Changes to the operation of the

1 FCRPS or modification to the projects requires careful evaluation of the effects, consistency
2 with the authorized project uses and existing laws, and notification to the public of the
3 changes. The FCRPS operation is very complex, requiring coordination with Canada, and
4 public and private utilities. In my experience of evaluating modifications to the operation of
5 the FCRPS over the last thirteen years, there are tradeoffs and consequences that require
6 careful consideration before any ad hoc implementation of potential approaches for achieving
7 reduced WPTT occurs. Any further incremental decreases in WPTT by providing additional
8 flow augmentation will have significant impacts as described above. Operating the mainstem
9 projects below MOP will eliminate navigation in the lower Snake River and is not consistent
10 with the Corps authorities to provide for project uses. Operating John Day at MOP has
11 significant impacts to irrigation, water supply, recreation and fish and wildlife resources. As
12 noted above, the Corps and the other Action Agencies have made significant modifications to
13 the operation and physical configuration of these projects, but in a considered and systematic
14 way. Some modifications required NEPA documentation, supplemental ESA consultation,
15 and all required the Corps to consider treaty and trust responsibilities to the Tribes and
16 notification to the public as required by 1990 Water Resource Development Act⁵.

18 IMPLEMENTATION OF INCREASED SUMMER SPILL

19
20 68. Since the issuance of the 2000 Biological Opinion on the operation of the FCRPS, the Corps
21 has coordinated juvenile passage spill at the mainstem Columbia and Snake river projects
22 with the Oregon Department of Environmental Quality (ODEQ), the Oregon Environmental
23 Quality Commission, and the Washington Department of Ecology (WDOE). These agencies
24 and Commission administer the water quality standards for their respective states.

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1 69. The 2000 Biological Opinion identified spill up to “gas caps” of 120% in the tailrace and
2 115% at the forebay of the next downstream project as an acceptable risk to juvenile salmon.
3 The Oregon Environmental Quality Commission after reviewing materials provided by the
4 Corps and NOAA Fisheries, and a public review of the ODEQ analysis, approved a
5 modification of the TDG standard to the “gas caps” for the period of 2003 to 2007 at the
6 lower Columbia River projects for purposes of fish passage spill in March 2003. (A.R. 199)

7 70. The WDOE, in a letter dated March 31, 2005, after reviewing materials provided by the
8 Corps, approved the gas abatement plans for Corps mainstem projects, which under
9 Washington State Water Quality Standards, provides for juvenile spill passage up to the “gas
10 caps” at the Snake and Columbia river projects until February 2008. (A.R. 6)

11 71. The suggested summer spill operations (i.e. spilling river flows in excess of station service)
12 by the plaintiffs at Snake River projects would exceed the States’ standards. (*see* Henriksen’s
13 declaration). These higher TDG levels are not consistent with the modified state water
14 quality standards for TDG coordinated with the ODEQ, the Oregon Environmental Quality
15 Commission, and the WDOE. There are also biological concerns and impacts to coordinated
16 research planned for 2005 (*see* Peter’s declaration).

17 72. Similarly to decreasing WPTT, there are consequences to increasing summer spill levels as
18 suggested by the plaintiffs. The Corps, along with the other Action Agencies and NOAA
19 Fisheries, over the past years has modified project spillways with flow deflectors and made
20 operational spill changes to improve juvenile fish passage consistent with coordinating with
21 the state agencies and commissions responsible for administering state water quality
22 standards.

1 73. The Corps is also pursuing a study of in-river versus transported juvenile fall Chinook (*see*
2 Peter's declaration), which could include summer spill at collector projects. A significant
3 difference between the Corps' and other Action Agencies' approach and the plaintiffs'
4 arbitrary "just do it" tactic, is that the Corps and NOAA Fisheries plan to develop a spread
5 the risk methodology for juvenile fall Chinook similar to the approach used to define spread
6 the risk for spring/summer Chinook, which has taken several years of study and is continuing
7 to be refined. The agencies will carefully evaluate survivals of both in-river and transported
8 fish to develop adequate information to apply to decision-making.

9 74. Additionally, the Action Agencies included in the UPA a further refinement on spread the
10 risk for juvenile spring Chinook by delaying the start of transport in the early spring, and
11 providing additional spill under certain conditions. This change was based on research results
12 - not arbitrarily implementing a change without an understanding of the risks to listed
13 species.

14 Implementation of the 2000 Biological Opinion Reasonable and Prudent Alternative Through the

15 Development of the Action Agencies Updated Proposed Action

16 75. The Action Agencies' UPA represents a balanced and careful approach to system operations
17 to benefit fish while simultaneously achieving the multiple hydrosystem purposes. The UPA
18 was prepared for NMFS's consideration for the 2004 BiOp. The actions described in the
19 UPA are discretionary actions that are consistent with providing for the authorized multiple
20 project purposes.

21 76. Following the remand of the 2000 BiOp, the Action Agencies decided to update their
22 proposed action to incorporate the on-going actions from the RPA, modified to reflect current
23 information and to target beneficial actions to those ESUs where survival gains were needed

1 the most. The Action Agencies produced a “crosswalk” between the 2000 BiOp RPA actions
2 and the UPA (NOAA A.R. C. 213), which describes the actions and measures contained in
3 the 2000 RPA and how they were integrated in the UPA, or were completed, or modified
4 through the adaptive management process.

5 77. As noted in the crosswalk, the UPA, like the 2000 BiOp RPA, focuses on actions that will
6 contribute to meeting performance standards, including those defined in terms of adult and
7 juvenile passage survival. In addition to continuing implementation of the 2000 RPA, the
8 Action Agencies included new, specific actions, formulated in consultation with NMFS to be
9 consistent with the court’s 2003 remand directions.

10 78. The UPA was provided in draft for review by NMFS on August 30, 2004 and for public
11 review on September 8, 2004. A subsequent draft was also provided to NMFS on October
12 26, 2004 and has been refined in response to comments received on NMFS’s draft Biological
13 Opinion. The UPA is a comprehensive description of how the Action Agencies will meet
14 their ESA responsibilities consistent with applicable federal and state laws including but not
15 limited to the CWA, NEPA, the Oil Pollution Prevention Act of 1990, the Northwest Power
16 Act, the project authorizing legislation, state water law, treaties and other applicable
17 regulations.

18 79. The UPA includes hydrosystem operations and configuration modifications, predator control
19 efforts, habitat actions, and hatchery measures. Specifically, the following Corps’ actions
20 contained in the UPA are discussed in greater detail below: (1) improved juvenile fish
21 passage; (2) continuing reservoir operations to increase river flows to benefit migrating fish;
22 (3) modification of fish transportation operations to improve juvenile survival; (4) expanded
23 predator control to manage impacts to juvenile fish; (5) improved estuary habitat; and (6)

1 continued support for regional Research, Monitoring and Evaluation (RM&E) studies. The
2 declarations of Sarah McNary from BPA and Ken Pedde from Reclamation provide further
3 details on actions included in the UPA.

4 **80. Improved juvenile fish passage.** The UPA continues the spring and summer spill program
5 for juvenile fish passage from the 2000 BiOp. As before, changes in spill levels at individual
6 dams can be adjusted based on run-off conditions, scientific information, and site-specific
7 performance evaluations. The Action Agencies will also continue to implement specific
8 capital improvements at improving juvenile fish passage, providing funding and
9 implementation priority to dams with the lowest juvenile passage survival rates. The priority
10 needs are determined in collaboration with the Federal, state and Tribal salmon managers and
11 reflected in the Implementation Plans. In the UPA, the Action Agencies made commitments
12 to install removable spillway weirs (RSWs) or similar surface bypass devices at all federal
13 lower Snake and Columbia River mainstem dams. These configuration modifications,
14 combined with operational spill levels based on biological performance, will result in
15 improved juvenile survival at federal dams compared with existing conditions for all ESUs.
16 Initial tests of the RSW at Lower Granite dam have shown enhanced survival with lower spill
17 levels. Testing is currently underway for the RSW installed at Ice Harbor Dam this spring.

18 **81. Continuing reservoir operations to increase river flows to benefit migrating fish.** As
19 discussed earlier, the Action Agencies will continue to operate federal storage reservoirs to
20 augment streamflows to benefit juvenile fish migration consistent with current
21 implementation of the 2000 BiOp as modified through implementation plans.

22 **82. Modification of fish transportation operations to improve juvenile survival.** The Action
23 Agencies will continue to collect and transport juvenile fish at Lower Granite, Little Goose,

1 Lower Monumental and McNary dams. Initiation of transport has been delayed until April
2 20th due to recent data indicating that transportation in the early part of April is not as
3 beneficial as leaving the fish in-river. Consequently, the UPA adds spill and reduces fish
4 transportation between April 3 and 20 when spring season projected average flows will be
5 above 70 kcfs at Lower Granite Dam. Although Snake River fall Chinook transportation is
6 still provided in the summer based on the best currently available science, a study to examine
7 in-river versus transport survival for summer migrating fish is being developed. (*see Peter's*
8 *declaration*). The transportation program will continue to be adaptively managed towards
9 improving the survival of affected ESUs.

10 **83. Expanded predator control to manage impacts to juvenile fish.** In the UPA, the Action
11 Agencies expanded previous efforts to reduce consumption of juvenile salmon by birds and
12 other fish. Caspian tern management actions that reduce predation in the estuary will
13 continue to be implemented in 2005. In future years, additional actions are planned to further
14 reduce predation. The Action Agencies will also continue to investigate the effect of
15 predation on migrating juvenile salmonids enabling us to enhance existing predator
16 management programs as well as develop and implement additional predator management
17 actions to reduce levels of predation on juvenile salmonids.

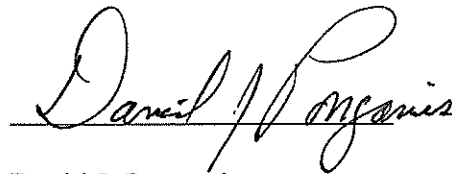
18 **84. Improve estuary habitat.** The Corps and BPA will continue to implement projects to
19 protect and enhance habitat along and adjacent to the mainstem Columbia River below
20 Bonneville Dam and tidal wetlands. In the UPA, there is a greater focus than was identified
21 in the 2000 BiOp RPA for these efforts, and the Action Agencies will implement actions that
22 NMFS agrees will provide survival improvements for listed ESUs. Currently, habitat actions
23 are underway at Crims Island.

1 **85. Continue to support regional Research, Monitoring and Evaluation (RM&E) studies.**

2 The Action Agencies are continuing to invest in studies to help improve our understanding of
3 how various actions affect fish survival and to fine-tune future actions and better measure
4 their results. Many of the studies are on the cutting-edge of scientific inquiry and will
5 require multiple years of investigation to provide results.

6 86. In summary, the UPA is a comprehensive set of actions that has taken into account years of
7 information concerning effects of actions on the listed species, including water velocities,
8 fish passage, and habitat modifications. Further, the UPA is consistent with the Corps
9 authorized project purposes and other applicable statutes, regulations, treaties, and other
10 responsibilities.

11 87. Pursuant to 28 U.S.C. § 1746, I declare under the penalty of perjury that the foregoing is true
12 and correct to the best of my knowledge, based on my education, experience and professional
13 judgment. Executed April 21, 2005, at Portland, Oregon.

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15
16
17


18 David J. Ponganis
19 Northwestern Division,
20 U.S. Army Corps of Engineers
21

ATTACHMENT 1

Table M-1. Estimated water particle travel time in the lower Snake River reach.

Project Reach	Miles	Elevation (ft)	Theoretical Travel Time (Days) by Discharge (kcfs) Category						
			20 kcfs	40 kcfs	60 kcfs	80 kcfs	100 kcfs	120 kcfs	140 kcfs
Lower Granite	32	738	10.8 days	5.4 days	3.6 days	2.7 days	2.2 days	1.8 days	1.5 days
			9.9	5.0	3.3	2.5	2.0	1.7	1.4
			6.0	3.1	2.0	1.5	1.3	1.0	0.9
			3.4	1.9	1.4	1.1	1.0	0.8	0.8
Little Goose	37	638	12.8	6.4	4.3	3.2	2.6	2.1	1.8
			11.7	5.8	3.9	2.9	2.3	2.0	1.7
			4.0	2.3	1.7	1.4	1.2	1.0	0.9
			8.7	4.3	2.9	2.2	1.8	1.5	1.3
Lower Monumental	29	540	8.3	4.1	2.8	2.0	1.7	1.4	1.2
			3.0	1.7	1.2	1.0	0.8	0.8	0.7
			9.5	4.9	3.2	2.5	1.9	1.7	1.4
			437	4.6	3.0	2.3	1.8	1.5	1.3
Ice Harbor	32	440	2.9	1.7	1.2	1.0	0.9	0.8	0.7
			9.0	4.6	3.0	2.3	1.8	1.5	1.3
			391 ^w	1.7	1.2	1.0	0.9	0.8	0.7
			42.3	21.4	14.2	10.7	8.5	7.2	6.2
Clearwater River ^{a/} Confluence to Snake-Columbia River Confluence	139	Max. Pools Min. Pools L. Gran. (710) ^{d/} Spillway	39.4	19.8	13.2	10.0	7.9	6.7	5.8
			35.5	18.2	12.1	9.3	7.3	6.1	5.5
			13.9	7.8	5.7	4.6	4.0	3.5	3.2
			7.8	5.7	4.6	4.0	3.5	3.2	3.2

Source: Calculated using Corps backwater models.

a/ Included water particle travel time from Ice Harbor Dam to confluence with Columbia River.

b/ Spillway crest elevation; actual water level would be somewhat higher and variable, depending upon inflow.

c/ All pools minimum pool except Lower Granite at 710 feet.

Table M-2. Estimated water particle travel time in the lower Columbia River reach.

Project Pool	Miles	Elevation (ft)	Theoretical Travel Time (Days) by Discharge (kcfs) Category		
			100 kcfs	200 kcfs	300 kcfs
Columbia-Snake River Confluence to McNary	32	340	4.3 days	2.2 days	1.4 days
		337	4.0	2.0	1.3
		335	3.8	1.9	1.3
John Day	75	268	12.7	6.4	4.3
		262	11.0	5.5	3.7
		257	10.1	5.0	3.4
The Dalles	24	160	1.8	0.9	0.6
		155	1.5	0.8	0.6
Bonneville	45	77	3.5	1.8	1.2
		70	2.9	1.5	1.0
Confluence of Snake River to Bonneville Dam	176	Max.	22.3	11.3	7.5
		Inter. ^{a/}	19.4	9.8	6.6
		Min.	18.3	9.2	6.3

Source: Corps, Walla Walla District.

a/ Uses two intermediate drawdown elevations at McNary and John Day and lower elevations at other projects.