

ROCK CREEK - CRESTA PROJECT
FERC Project No. 1962

**Rock Creek - Cresta Relicensing
Settlement Agreement**

Electronic Distribution Copy
December 6, 2000

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**Rock Creek - Cresta Project
FERC Project No. 1962**

Rock Creek -Cresta Relicensing Settlement Agreement

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3 **Rock Creek - Cresta Project**
4 **FERC Project No. 1962**
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9 **Relicensing Settlement Agreement**
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17 **1. Introduction**
18

19 1.1 Parties. This SETTLEMENT AGREEMENT ("Settlement") is made and
20 entered into pursuant to Federal Energy Regulatory Commission ("FERC") Rule 602, 18
21 CFR § 385.602, by and among Pacific Gas and Electric Company ("Licensee"), the United
22 States Department of Agriculture Forest Service ("FS"), the United States Department of
23 the Interior Fish and Wildlife Service ("FWS"), the California Department of Fish and
24 Game ("CDFG"), California State Water Resources Control Board ("SWRCB"), Natural
25 Heritage Institute ("NHI"), American Whitewater ("AW"), Friends of the River ("FOR"),
26 Plumas County ("PC"), California Outdoors ("CO"), California Trout ("CT"), Chico
27 Paddleheads ("CP"), and Shasta Paddlers ("SP") each referred to individually as a "Party"
28 and collectively as "Parties." These thirteen Parties may also be referred to as the
29 "Original Parties."
30

31 The Parties to this Settlement agree as follows:
32

33 1.2 Recitals
34

35 1.2.1 On September 28, 1979, Licensee filed with the Federal Energy
36 Regulatory Commission ("FERC") an application for a new license ("New Project
37 License") for the Rock Creek - Cresta Project, FERC Project No. 1962 ("Project") located
38 on the North Fork Feather River ("NFFR") in Plumas and Butte counties, California.
39

40 1.2.2 On October 9, 1991 Licensee and CDFG entered into a Fish and
41 Wildlife Agreement ("1991 Fish and Wildlife Agreement") to establish minimum
42 streamflows and other resource management measures for the protection, mitigation, and
43 enhancement ("PM&E") of fish and wildlife resources affected by the Project. This
44 Agreement updates and supersedes the 1991 Fish and Wildlife Agreement.
45

1 1.2.3 On March 15, 1996 FS issued revised preliminary conditions for the
2 Project pursuant to 18 CFR §4.34 b(1) and in furtherance of its mandatory conditioning
3 authority under Section 4(e) (“Preliminary 4(e) Conditions”) of the Federal Power Act
4 (“FPA”). Various Parties and others subsequently submitted comments and appeals to
5 FERC and FS regarding the Preliminary 4(e) Conditions.
6

7 1.2.4 On November 1, 1996 FERC issued a Draft Environmental
8 Assessment for the Project (“DEA”) pursuant to the National Environmental Policy Act
9 (“NEPA”). Various Parties and others subsequently submitted comments to FERC
10 regarding the DEA.
11

12 1.2.5 In July 1998, Licensee, FS, FWS, CDFG, SWRCB, AW, FOR, PC,
13 NHI, CT, California Sportfishing Protection Alliance, SP, and CP met and agreed to
14 engage in discussions to resolve issues related to flow in the Rock Creek and Cresta
15 reaches of the NFFR. Since those initial discussions, Licensee has provided several
16 progress updates to the FERC and requested that additional time be allowed to continue the
17 process. Over time the group became known as the Rock Creek - Cresta Relicensing
18 Collaborative (“Collaborative”) and subcommittees were formed to discuss technical
19 issues on fisheries and whitewater recreation. Meetings of the Collaborative were
20 publicly noticed by FERC.
21

22 1.2.6 This Settlement is an end product of the Collaborative’s work.
23

24 1.3 Effective Date of Settlement. This Settlement becomes effective as of
25 September 18, 2000 (“Effective Date”).
26

27 1.4 Term of Settlement. The term of this Settlement shall commence on the
28 Effective Date and shall continue (unless terminated as otherwise provided herein) for the
29 term of the New Project License (subject to FERC's reserved authority under the New
30 Project License to require modifications), plus the term(s) of any annual license(s) which
31 may be issued after the foregoing New Project License has expired, or until the effective
32 date of any FERC order approving surrender of all or part of the Project under the FPA.
33

34 1.5 Definitions.
35

- 36 i. AF: acre-foot of water
- 37 ii. ADR: Alternative Dispute Resolution - see Paragraph 4.9.1.
- 38 iii. Basin Plan: The Water Quality Control Plan for the Central Valley
39 Region, the Sacramento and San Joaquin River Basins
40

- 1 iv. Beneficial Uses: Beneficial Uses include municipal and domestic
2 water supply, hydropower generation, water contact recreation,
3 canoeing and rafting, non-contact water recreation, cold freshwater
4 habitat, cold freshwater spawning habitat, and wildlife habitat, as
5 designated in the Basin Plan, or any revision thereto.
6 v. Block Loading: Operational mode of a powerhouse in which the
7 generation capacity (and resulting cfs release) is held at or near a
8 constant level for an extended period of time.
9 vi. Cap Flows: Maximum level to which the Minimum River Flow
10 level may be adjusted as provided in Appendix A, Table A.
11 vii. CD: Critically Dry water year type as defined in Appendix A,
12 Section II.
13 viii. cfs: cubic feet per second
14 ix. Collaborative: See Paragraph 1.2.5.
15 x. Controlled Spill: Release of water from a Project reservoir at
16 times when the release could have otherwise been controlled (not
17 spilled) by increasing the flow through the generating units or
18 controlling inflows by controlling releases from upstream
19 reservoirs.
20 xi. Cresta Reach: That portion of the NFFR between Cresta Dam and
21 the Cresta Powerhouse.
22 xii. DEA: Draft Environmental Assessment - see Paragraph 1.2.4.
23 xiii. Disputing Party; Disputing Parties: See Paragraph 4.9.1.
24 xiv. Dry: Dry water year type as defined in Appendix A, Section II.
25 xv. Effective Date: See Paragraph 1.3.
26 xvi. ESA: Federal Endangered Species Act - see Paragraph 2.6.1.
27 xvii. ERC: Ecological Resources Committee as established in
28 Appendix A, Section VIII and as fully described in Appendix B,
29 Section II.
30 xviii. FPA: Federal Power Act - see Paragraph 1.2.3.
31 xix. Good Faith: Honesty of purpose, free from intention to defraud,
32 faithful to one's duty or obligation.
33 xx. Heat Storm: A multi-day sequence of extreme temperatures across
34 California or the western-U.S. that results in near-record electricity
35 use and voluntary power use reductions or involuntary, rotating
36 power outages.
37 xxi. Inconsistent with this Settlement: See Paragraph 4.3.1.
38 xxii. Minimum River Flows: Required minimum flows in the Rock
39 Creek and Cresta reaches as provided in Section II of Appendix A.
40 xxiii. NA: not applicable
41 xxiv. NFFR: North Fork Feather River
42 xxv. NEPA: National Environmental Protection Act - see Paragraph
43 1.2.4.
44 xxvi. New Project License: See Paragraph 1.2.1.
45 xxvii. 1991 Fish and Wildlife Agreement. See Paragraph 1.2.2

- 1 xxviii. Normal: Normal water year type as defined in Appendix A,
2 Section II.
3 xxix. Notice: See Paragraph 5.9.
4 xxx. Prattville Intake Modifications: Physical improvements in the
5 vicinity of the Prattville Intake to attract cold water to the intake.
6 xxxi. Party; Parties: See Paragraph 1.1.
7 xxxii. PM&E: protection, mitigation or enhancement measure.
8 xxxiii. Project: See Paragraph 1.2.1.
9 xxxiv. Pulse Flows: Short term elevated levels of release from Projects
10 dams in amounts and durations specified in Appendix A, Table A.
11 xxxv. Ramping Rate: The rate of change in a flow release or spill from a
12 dam expressed as an increase or decrease in discharge (in cfs)
13 over a period of time. See Appendix A, Section II.5.
14 xxxvi. Reasonable Control Measures: Measures to control water
15 temperatures as specified in Section I of Appendix A.
16 xxxvii. Resolved Subjects: See Paragraph 2.2.
17 xxxviii. Rock Creek Reach: That portion of the NFFR between Rock
18 Creek Dam and Rock Creek Powerhouse.
19 xxxix. Section 4(e) Conditions: Any revision of FS' proposed license
20 conditions under FPA Section 4(e) subsequent to the Preliminary
21 4(e) Conditions issued on March 15, 1996.
22 xl. Submerged Curtain/Skimmer Wall: A design concept for a
23 Prattville Intake Modification that consists of a flexible membrane
24 blocking warm water strata and up to 1250 feet long placed
25 upstream of the Prattville Intake to allow the intake to attract colder
26 water
27 xli. Uncontrolled Spill: Release of water from a Project reservoir at
28 times when flow into the reservoir, excluding releases from
29 upstream reservoirs that can be controlled, exceeds to sum of the
30 instream flow release requirement plus the current flow capacity of
31 the generating units.
32 xlii. Water Year Type: See Appendix A, Section II.
33 xliii. Wet: Wet water year type as defined in Appendix A, Section II.
34
35
36

1 **2. Purpose of Settlement**
2

3 2.1 Purpose. The purpose of this Settlement is to resolve among the Parties all
4 streamflow issues for ecological purposes and river-based recreational use and other
5 Resolved Subjects in support of FS issuing its Final 4(e) Conditions and FERC issuing a
6 New Project License. For this purpose, the Parties agree that this Settlement constitutes an
7 entire agreement that provides an appropriate balancing of hydroelectric power generation
8 with the Resolved Subjects.
9

10 2.2 Resolved Subjects. Except as provided in Paragraph 2.3, the Parties agree
11 that this Settlement fairly, reasonably, and appropriately resolves streamflows and other
12 subjects listed in Table 1 (“Resolved Subjects”) in support of FS issuing Final 4(e)
13 Conditions and FERC issuing a New Project License.
14

15 **Table 1**

16 **Subjects Resolved by this Settlement**
17

- 18
- 19 (a) Streamflows for PM&E of fish, wildlife, and other aquatic biota in Project-
20 affected stream reaches
 - 21 (b) Streamflows for PM&E of riparian habitat in Project-affected stream reaches
 - 22 (c) Streamflows for stream channel maintenance in Project-affected stream
23 reaches
 - 24 (d) Streamflows for whitewater boating and other river-based recreation on the
25 Rock Creek and Cresta reaches
 - 26 (e) Water quality associated with Project operations and facilities, including
27 water temperatures
 - 28 (f) Streamflow fluctuations from Project operations, including Ramping Rates
 - 29 (g) Streamflow gaging for compliance monitoring
 - 30 (h) Stream ecology monitoring
 - 31 (i) Whitewater boating use monitoring
 - 32 (j) Streamflow information for use by the public
 - 33 (k) Access facilities for whitewater boating on the Rock Creek and Cresta reaches
 - 34 (m) Adjustment of PM&E measures stated in Appendix A and B through adaptive
35 management over the term of the license
 - 36 (n) Facility modifications to implement the PM&E measures stated in Appendix A
 - 37 (o) Administration of Settlement Agreement
 - 38 (p) Term of New Project License
 - 39 (q) River sediment management
40
41

1 the Interior's independent authority under FPA Section 18 to prescribe fishways, or
2 Licensee's right to dispute such authority.

3
4 2.6.2 CWA Responsibilities Not Affected. Nothing in this Settlement is
5 intended to or shall be construed to limit or otherwise affect the authority or
6 responsibilities of Licensee, SWRCB, or any other Party under the Clean Water Act,
7 Porter-Cologne Water Quality Control Act, or implementing regulations, in connection
8 with: (a) the relicensing proceedings for the North Fork Feather River Project (No. 2105)
9 and Poe Project (No. 2107); or (b) any proceeding to amend the New Project License to
10 protect Beneficial Uses through coordinated operations of the Project, the North Fork
11 Feather River Project and Poe Project. In particular, this Settlement shall not affect the
12 SWRCB's authority to impose additional or more stringent requirements for Project Nos.
13 2105 and 2107 as part of the relicensing proceedings for those projects. In any proceeding
14 where the SWRCB has legal authority to require compliance with water quality standards
15 or other appropriate requirements, and in light of its 1987 waiver of the water quality
16 certification of the New Project License for this Project, this Settlement shall not be
17 construed as a representation that the measures incorporated into this Settlement are
18 adequate to ensure compliance with such standards and requirements.

19
20 2.7 Reservation of Claims, Rights, and Responsibilities. Each Party reserves
21 all claims, rights, and responsibilities, which it may otherwise have with respect to any
22 subjects not listed as Resolved Subjects. Nothing in this Settlement is intended or shall be
23 construed to affect or restrict any Party's participation in or comments about compliance
24 with the New Project License, future relicensing of the Project subsequent to the current
25 relicensing, or any other project licensed to Licensee.

26
27 2.8 Term of New Project License. The Parties agree that the term of the New
28 Project License shall be for a nominal period of 30 years and do not object if the FERC
29 may choose to extend the term as needed to make the Project No. 1962 license expiration
30 coincident with the expiration of new licenses anticipated on Project No. 2105 and No.
31 2107.

34 **3. Use of Settlement in New Project License and Section 4(e) Conditions**

35
36 3.1 Protection, Mitigation, and Enhancement Measures Recommended to be
37 Included in New Project License. Subject to Paragraphs 3.2 and 3.3, the Parties
38 respectfully request that FERC accept and incorporate, without material modification, as
39 license articles all of the PM&E measures stated in Appendix A of this Settlement. Subject
40 to the same limitation, the Parties further request that FERC not include in the New Project
41 License additional articles on Resolved Subjects except as may be necessary to enable
42 FERC to ascertain and monitor Licensee's compliance with the conditions of the New
43 Project License and its rules and regulations under the FPA.

44
45 3.2 Protection, Mitigation, and Enhancement Measures Recommended to be
46 Included in Section 4(e) Conditions. The Parties respectfully request that FS accept and

1 incorporate, without material modification, as Section 4(e) Conditions all relevant PM&E
2 measures stated in Appendix A of this Settlement. The Parties further request that FS not
3 include in its Section 4(e) Conditions additional conditions on Resolved Subjects. FS
4 agrees to propose as Section 4(e) Conditions on Resolved Subjects the PM&E measures
5 stated in Appendix A of this Settlement which it determines are within its jurisdiction to
6 prescribe as Section 4(e) Conditions, except to the extent that any changes result from its
7 analysis under NEPA, National Forest Management Act, and any other applicable law or
8 regulation. This paragraph shall not be read to predetermine or limit the outcome or lawful
9 discretion of FS in issuing Section 4(e) Conditions or in adopting Section 4(e) Conditions
10 inconsistent with those recommended herein.

11
12 3.3 Relationship of Settlement to Section 7 Consultation. The Parties
13 acknowledge that if FERC submits the PM&E measures stated in Appendix A as part of the
14 proposed action for consultation under Section 7 of the ESA, FWS may in its lawful
15 discretion identify PM&E measures different from or additional to those set forth in
16 Appendix A and Appendix B to minimize the effects of take of listed species.

17
18 3.4 Measures Agreed to But Not to be Included in the New Project License or
19 Section 4(e) Conditions. Measures agreed to among the Parties which are not to be
20 incorporated in the New Project License or FS Section 4(e) Conditions are stated in
21 Appendix B.

22 23 24 **4. Implementation of Settlement**

25
26 4.1 Support of Settlement. The Parties shall be bound by this Settlement for the
27 term stated in Paragraph 1.4, provided the New Project License is consistent with the terms
28 of this Settlement, and specifically the PM&E measures stated in Appendix A hereto.

29
30 4.2 Support for Issuance of New Project License. To the extent permitted by
31 applicable law, the Parties shall support or advocate through appropriate written
32 communications to FERC and FS, this Settlement and the PM&E measures stated in
33 Appendix A hereto. For Resolved Subjects and subject to Paragraph 3.3, the Parties agree
34 not to propose, support, or communicate to FERC or FS any comments, recommended
35 PM&E measures, or license conditions other than ones consistent with this Settlement.
36 Subject to Paragraph 3.3, prior to the issuance of the New Project License, and at the
37 request of Licensee, the Parties shall timely support this Settlement in written
38 communications to any other administrative agency with advisory or mandatory
39 conditioning authority over issuance of the New Project License, provided this sentence
40 shall not apply to the agency exercising the authority.

41 42 4.3 New Project License, Final 4(e) Conditions, or Other Mandatory 43 Conditions Inconsistent with this Settlement

44
45 4.3.1 New Project License. If the New Project License issued by FERC
46 contains any material modification of the PM&E measures stated in Appendix A or

1 Appendix B, incorporates fewer than all of the PM&E measures stated in Appendix A, or
2 includes additional measures related to Resolved Subjects (“inconsistent with this
3 Settlement”), this Settlement shall be deemed modified to conform to the New Project
4 License, unless a Party provides Notice that it disputes the inconsistency within 30 days
5 after the date of the license order, and that Party initiates the Alternative Dispute
6 Resolution (“ADR”) procedures stated in Paragraph 4.9.1 - Paragraph 4.9.3. The
7 disputing Party(s) may, in addition, initiate the rehearing procedure described in Paragraph
8 4.4.1. If the New Project License does not contain all of the PM&E measures stated in
9 Appendix A because FERC expressly determines that it does not have jurisdiction to adopt
10 or enforce the omitted PM&E measures, the Parties agree that they shall be bound by the
11 entire Settlement, including those recommended PM&E measures omitted by FERC,
12 provided the New Project License contains those PM&E measures stated in Appendix A
13 over which FERC determines it does have jurisdiction and the New Project License is
14 otherwise consistent with this Settlement.
15

16 4.3.2 Final 4(e) Conditions. If any Final 4(e) Condition is inconsistent
17 with this Settlement, this Settlement shall be deemed modified to conform to the Final 4(e)
18 Conditions, unless a Party provides Notice that it disputes the inconsistency during the 45-
19 day appeal period under 36 CFR § 215.13, and that Party initiates the ADR procedures
20 stated in Paragraph 4.9.1 - Paragraph 4.9.3. The disputing Party(s) may, in addition,
21 initiate the appeal procedure described in Paragraph 4.4.2. If the Final 4(e) Conditions do
22 not contain all of the PM&E measures stated in Appendix A because FS expressly
23 determines that it does not have jurisdiction to adopt or enforce the omitted PM&E
24 measures, the Parties shall be bound by the entire Settlement, including those recommended
25 PM&E measures omitted by FS, provided the Final 4(e) Conditions contain those PM&E
26 measures stated in Appendix A over which FS determines it does have jurisdiction and the
27 Final 4(e) Conditions are otherwise consistent with this Settlement.
28

29 4.3.3 Other Mandatory License Conditions. If an agency other than FS
30 files with FERC any mandatory license condition that is inconsistent with this Settlement,
31 this Settlement shall be deemed modified to conform to such condition, unless a Party
32 provides Notice that it disputes the inconsistency within 30 days after the date of filing of
33 such condition, and that Party initiates the ADR procedures stated in Paragraph 4.9.1 -
34 Paragraph 4.9.3. The disputing Party(s) may, in addition, initiate any appeal procedure
35 applicable to the agency that issued such condition. If such mandatory license conditions
36 do not contain all of the PM&E measures stated in Appendix A because the issuing agency
37 expressly determines that it does not have jurisdiction to adopt or enforce the omitted
38 PM&E measures, the Parties agree that they shall be bound by the entire Settlement,
39 including those recommended PM&E measures omitted by the issuing agency, provided the
40 mandatory license conditions contain those PM&E measures stated in Appendix A over
41 which issuing agency determines it does have jurisdiction, and the mandatory license
42 conditions are otherwise consistent with this Settlement.
43

44 4.4 Appeal of New Project License, Final 4(e) Condition, or other Mandatory
45 License Conditions Inconsistent with this Settlement.
46

1 4.4.1 Appeal to FERC. Any Party may petition FERC for rehearing or
2 seek judicial review of any New Project License article, or omission of PM&E measures
3 stated in Appendix A, that is inconsistent with this Settlement. The ADR requirements
4 stated in Paragraph 4.9.1 - Paragraph 4.9.3 do not preclude any Party from timely filing for
5 and pursuing rehearing under 18 C.F.R. § 385.713(b), or judicial review, of the
6 inconsistent license article or any other license article that relates to subjects not listed as a
7 Resolved Subject. However, the Parties shall follow the ADR procedures stated in
8 Paragraph 4.9.1 - Paragraph 4.9.3 to the extent reasonably practicable while such appeal of
9 an inconsistency is pursued. If any Party or non-Party files for administrative rehearing or
10 judicial review of any New Project License article that is inconsistent with this Settlement,
11 Licensee's duties under this Settlement related to that article are suspended to the extent
12 necessary to enable Licensee to comply with the license. If a Party has filed for rehearing
13 or judicial review of any New Project License article that is inconsistent with this
14 Settlement and the Parties subsequently agree to modify this Settlement to conform to the
15 inconsistent article, the filing Party(s) shall withdraw the appeal, or recommend such
16 withdrawal, as appropriate. Except as provided in Paragraph 4.3.1 for omissions based on
17 jurisdiction, if any New Project License article is inconsistent with this Settlement after a
18 final and non-appealable administrative or judicial decision on the appeal, this Settlement
19 shall be deemed modified to conform to the final decision unless a Party provides Notice
20 that it disputes the inconsistency within 45 days after the date of the final decision and
21 initiates the ADR procedures stated in Paragraph 4.9.1 - Paragraph 4.9.3. Except as
22 necessary to fulfill a statutory or regulatory responsibility or policy, the Parties have a
23 continuing duty to support this Settlement, or as appropriate, recommend such support,
24 during an administrative rehearing or judicial review.

25
26 4.4.2 Appeal to FS. A Party may seek administrative rehearing or
27 judicial review of any Final 4(e) Condition, or omission of PM&E measures stated in
28 Appendix A, that is inconsistent with this Settlement. The ADR requirements of Paragraph
29 4.9.1 - Paragraph 4.9.3 do not preclude any Party from timely filing and pursuing an appeal
30 under 36 CFR § 215.13, or judicial review, of any Final 4(e) Condition that is inconsistent
31 with this Settlement, or any other Final 4(e) Condition that relates to subjects not listed as a
32 Resolved Subject. However, the Parties shall follow ADR procedures stated in Paragraph
33 4.9.1 - Paragraph 4.9.3 to the extent reasonably practicable while any such appeal of an
34 inconsistency is pursued. If a Party has filed for administrative rehearing or judicial
35 review of any Final 4(e) Condition that is inconsistent with this Settlement and the Parties
36 subsequently agree to modify this Settlement to conform to the inconsistent condition, the
37 filing Party(s) shall withdraw the appeal, or recommend such withdrawal, as appropriate.
38 Except as provided in Paragraph 4.3.2 for omissions based on jurisdiction if any Final 4(e)
39 Condition is inconsistent with this Settlement after the final and non-appealable decision
40 on appeal, this Settlement shall be deemed modified to conform to the final decision,
41 unless a Party provides Notice that it disputes the inconsistency within 45 days after the
42 date of the final decision, and that Party initiates the ADR procedures stated in Paragraph
43 4.9.1 - Paragraph 4.9.3. Except as necessary to fulfill a statutory or regulatory
44 responsibility or policy, all Parties have a continuing duty to support this Settlement, or as
45 appropriate, recommend such support, during an administrative rehearing or judicial
46 review.

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4.4.3 Appeal to other Agency with Mandatory Conditioning Authority.

Any Party may seek administrative rehearing or judicial review of any mandatory license condition that, as filed with FERC by an agency other than FS, is inconsistent with this Settlement. The ADR requirements stated in Paragraph 4.9.1 - Paragraph 4.9.3 do not preclude any Party from timely filing and pursuing such appeal of a mandatory license condition that is inconsistent with this Settlement, or any other mandatory license condition that relates to subjects not listed as a Resolved Subject. However, the Parties shall follow ADR procedures stated in Paragraph 4.9.1 - Paragraph 4.9.3 to the extent reasonably practicable while any such appeal of an inconsistency is pursued. If a Party has filed for administrative rehearing or judicial review of any mandatory license condition that is inconsistent with this Settlement, and the Parties subsequently agree to modify this Settlement to conform to the inconsistent condition, the filing Party(s) shall withdraw the appeal, or recommend such withdrawal, as appropriate. If any mandatory license condition is still inconsistent with this Settlement after a final and non-appealable administrative or judicial decision on the appeal, this Settlement shall be deemed modified to conform to the final decision, unless a Party provides Notice that it disputes the inconsistency within 45 days after the date of the final decision, and that Party also initiates the ADR procedures stated in Paragraph 4.9.1 - Paragraph 4.9.3. Except as necessary to fulfill a statutory or regulatory responsibility or policy, all Parties have a continuing duty to support this Settlement, or as appropriate, recommend such support, during such administrative rehearing or judicial review.

4.5 Cooperation Among Parties. The Parties shall cooperate in the performance

of this Settlement and compliance with related license articles. Among other things, the Parties shall cooperate in implementing the PM&E measures, conducting studies, performing monitoring, and conducting all other activities within their statutory or regulatory authorities related to the measures stated in Appendices A & B of this Settlement, as may be modified in the New Project License. Further, subject to Paragraph 2.6, inclusive of 2.6.1 and 2.6.2, and upon Licensee's request, the Parties shall provide written communications of support in any administrative approval that may be required for implementation of this Settlement or related articles of the New Project License, provided this sentence shall not apply to the agency exercising the authority.

4.5.1 Responsibility for Costs. Licensee shall pay for the cost of actions

required of Licensee by this Settlement or the New Project License. Licensee shall have no obligation to reimburse or otherwise pay any other Party for its assistance, participation, or cooperation in any activities pursuant to this Settlement or the New Project License unless expressly agreed to by Licensee or as required by law.

4.5.2 Licensee Solely Responsible for Operations of Project. By entering

into this Settlement, none of the Parties, except for Licensee, have accepted any legal liability or responsibility for the operation of the Project.

4.5.3 Availability of Funds. Implementation of this Settlement for a Party

that is a federal agency is subject to the requirements of the Anti-Deficiency Act, 31 United

1 States Code, Section 1341, and the availability of appropriated funds. Nothing in this
2 Settlement is intended or shall be construed to require the obligation, appropriation, or
3 expenditure of any money from the U.S. Treasury. The Parties acknowledge that the Parties
4 that are federal agencies shall not be required under this Settlement to expend any federal
5 agency's appropriated funds unless and until an authorized official of each such agency
6 affirmatively acts to commit such expenditures as evidenced in writing. Implementation of
7 this Settlement by Parties that are state agencies is subject to the availability of
8 appropriated funds. Nothing in this Settlement is intended or shall be construed to require
9 the obligation, appropriation, or expenditure of any money from the Treasury of the State of
10 California. The Parties acknowledge that the Parties that are state agencies shall not be
11 required under this Settlement to expend any appropriated funds unless and until an
12 authorized official of each such agency affirmatively acts to commit such expenditures as
13 evidenced in writing.
14

15 4.5.4 FS Participation in Settlement. FS is not included in the definition
16 of the words "Party" or "Parties" as used in Paragraphs 3.1, 3.2, 4.1, 4.2, 4.3.2, 4.4.1,
17 4.4.2, 4.5, and 4.7.1 of this Settlement. Additionally, FS' obligations under and
18 participation in this Settlement are fulfilled upon issuance of a New Project License
19 containing Final 4(e) Conditions that are no longer subject to administrative appeal or
20 judicial review. Notwithstanding any provision to the contrary, nothing in this Settlement
21 is intended or shall be construed to create FS authority over a subject that is not within its
22 existing authority.
23

24 4.5.5 Escalation of Costs. Unless otherwise indicated, costs specified as a
25 year 2000 cost basis shall be escalated (starting in January 2001) based on the U. S. Gross
26 Domestic Product - Implicit Price Deflator (GDP-IPD). Costs not specified as a year 2000
27 cost basis are constant dollars not subject to escalation.
28

29 4.6 Implementation Schedule. Implementation of the PM&E measures stated in
30 Appendix A shall begin after issuance of the New Project License and consistent with the
31 schedule specified in Appendix A (as may be modified by the New Project License).
32 Implementation of the measures stated in Appendix B shall begin consistent with the
33 schedule specified in Appendix B. Within six months after issuance of the New Project
34 License, Licensee shall prepare and provide to all Parties Licensee's planned schedule for
35 implementing the PM&E measures recommended in this Settlement and incorporated in the
36 New Project License. The schedule shall specify dates for initiation, progress reporting,
37 monitoring and completion, as appropriate, for each such PM&E measure and shall include
38 milestones for major activities.
39

40 4.7 Reopener or Amendment of New Project License.

41
42 4.7.1 Reopener. Except as required to fulfill statutory or regulatory
43 responsibilities or as provided in Paragraph 4.7.2, a Party to this Settlement may seek to
44 modify, or otherwise reopen during the term of this Settlement the PM&E measures from
45 this Settlement included in the New Project License, only if and when significant new
46 information not known or understood as of the date of issuance of the New Project License

1 reasonably demonstrates that such proposed modification or other cause of reopener is in
2 furtherance of the public interest under the FPA or other applicable law. In such an event,
3 that Party shall provide Licensee at least 90-day Notice to consider the new information
4 and that Party's position. A Party shall not be required to comply with this 90-day Notice
5 provision if it believes an emergency situation exists, or if required to meet its
6 responsibilities under applicable law. Notwithstanding the provisions of this paragraph,
7 any Party may seek to reopen the New Project License to implement future changes in
8 applicable law, or to protect Beneficial Uses through coordinated operations of this
9 Project, North Fork Feather River Project (No. 2105), and Poe Project (No. 2107), in
10 connection with the relicensing proceedings for the latter two projects.

11
12 4.7.2 Amendment. Nothing in this Settlement is intended or shall be
13 construed to affect or limit the right of Licensee to seek amendments of the New Project
14 License, provided that Licensee may seek a Project license amendment which would
15 adversely affect this Settlement only if Licensee, relying on significant new information not
16 known or understood as of the date of issuance of the New Project License, can reasonably
17 demonstrate in the amendment proceeding that the amendment is in furtherance of the public
18 interest under the FPA or other applicable law. Prior to filing a proposed license
19 amendment which relates to a Resolved Subject or would otherwise affect this Settlement,
20 Licensee shall provide the Parties at least 90-day Notice of its intention to do so, and
21 promptly following the giving of such Notice, shall consult with Parties responding within
22 30 days of such Notice regarding the need for and the purpose of the amendment, provided
23 Licensee shall not be required to comply with this 90-day Notice provision if it believes
24 an emergency situation exists or if required to meet its responsibilities under applicable
25 law or an order of an agency with jurisdiction over Licensee. In such an emergency
26 situation, Licensee shall give Notice to the ERC and FS within 5 days of the event. In any
27 application for a Project license amendment that relates to a Resolved Subject or would
28 otherwise affect this Settlement, Licensee shall provide with its application documentation
29 of its consultation with the responsive Parties, summarize the positions and
30 recommendation of the responsive Parties and provide its response to those positions and
31 recommendations. Licensee shall not oppose an intervention request by any Party that
32 satisfies FERC's procedural requirements in a proceeding for a Project license amendment
33 that any Party has concluded would adversely affect this Settlement. A Project license
34 amendment that, as approved by FERC, would adversely affect this Settlement is subject to
35 Paragraph 4.3.1. Further, a Project license amendment that, as approved by FERC, would
36 adversely affect this Settlement may be considered by a Party as significant new
37 information, allowing that Party to invoke the reopener provision in Paragraph 4.7.1.

38
39 4.8 Amendment of Settlement. This Settlement may be amended at any time
40 through the term of the New Project License plus the term(s) of any annual license(s) which
41 may be issued after the foregoing New Project License has expired, after Notice, with the
42 unanimous agreement of all Parties still in existence and responsive within 30 days of such
43 Notice. Any amendment of this Settlement shall be in writing and executed by the
44 responding Parties.

45
46 4.9 Dispute Resolution

1
2 4.9.1 General. Except to the extent that FERC, FS, or other agency with
3 jurisdiction over a Resolved Subject has a procedure that precludes implementation of
4 Paragraph 4.9.1 - Paragraph 4.9.3, and to the extent specified for the ERC in Appendix B,
5 all disputes among the Parties regarding any Party's performance or compliance with this
6 Settlement, including resolution of any disputes related to any New Project License article,
7 Final 4(e) Condition, or mandatory license condition filed with FERC by an agency other
8 than the FS, that is inconsistent with this Settlement, shall be the subject of a non-binding
9 alternative dispute resolution ("ADR") procedure among the disputing Parties, as stated in
10 this Paragraph 4.9.1 - Paragraph 4.9.3. Each Party participating in a dispute ("disputing
11 Party," or collectively, "disputing Parties") shall cooperate in Good Faith to promptly
12 schedule, attend and participate in the ADR. The disputing Parties agree to devote such
13 time, resources and attention to the ADR as is needed to attempt to resolve the dispute at
14 the earliest time possible. Each disputing Party shall implement promptly all final
15 agreements reached, consistent with its applicable statutory and regulatory responsibilities.
16 Nothing in Paragraph 4.9.1 - Paragraph 4.9.3 is intended or shall be construed to affect or
17 limit the authority of FERC, FS, or other agency with jurisdiction over a Resolved Subject,
18 to resolve a dispute brought before it in accord with its own procedure and applicable law.
19

20 4.9.2 ADR Procedures. A Party claiming a dispute shall give Notice of
21 the dispute within 30 days of the Party's actual knowledge of the act, event, or omission
22 that gives rise to the dispute, unless this Settlement provides otherwise. If the dispute
23 includes a claim that any New Project License article, Section 4(e) Condition, or
24 mandatory license condition filed with FERC by an agency other than FS, is inconsistent
25 with this Settlement, and the claim arises prior to rehearing or appeal, the Notice shall be
26 made within the time periods specified in Paragraphs 4.3.1, 4.3.2, or 4.3.3, respectively.
27 If the dispute includes a claim that any New Project License article, Section 4(e)
28 Condition, or mandatory license condition filed with FERC by an agency other than FS, is
29 inconsistent with this Settlement, and the claim arises during or after rehearing or appeal,
30 the Notice shall be made within the time periods specified in Paragraphs 4.4.1, 4.4.2, and
31 4.4.3, respectively. At a minimum and in any dispute subject to these ADR procedures, the
32 disputing Parties shall hold two informal meetings within 30 days after Notice, to attempt
33 to resolve the disputed issue(s). Any disputing Party may request that a FERC employee
34 facilitate these informal meetings to assist in resolving the dispute. If the informal meetings
35 fail to resolve the dispute, the disputing Parties shall attempt to resolve the dispute using a
36 neutral mediator jointly selected within 15 days after Notice by a disputing Party that the
37 informal meetings did not resolve the dispute. The disputing Parties shall select a mediator
38 from the sources described in 18 CFR §385.604(c)(3). Absent an agreement for equitable
39 allocation of costs of the mediator, the Parties shall select a FERC employee as mediator.
40 The mediator shall mediate the dispute during the next 60 days after their selection. Any of
41 these time periods may be reasonably extended or shortened by agreement of the disputing
42 Parties, or as necessary to conform to the procedure of an agency or court with jurisdiction
43 over the dispute. Unless otherwise agreed among the disputing Parties, each disputing
44 Party shall bear its costs for its own participation in the ADR procedures.
45

1 4.9.3 Enforcement of Settlement After Dispute Resolution. Any Party may
2 seek in a court of competent jurisdiction specific performance of this Settlement by any
3 other Party, after compliance with the ADR procedures stated in Paragraph 4.9.1 -
4 Paragraph 4.9.3. No Party shall be liable in damages for any breach of this Settlement, any
5 performance or failure to perform a mandatory or discretionary obligation imposed by this
6 Settlement, or any other cause of action arising from this Settlement. The time used to
7 comply with the ADR procedures shall be excluded from computing any applicable statute
8 of limitations, except where applicable law precludes such exclusion when computing
9 time. Nothing in Paragraph 4.9.1 - Paragraph 4.9.3 is intended or shall be construed to
10 affect or limit the jurisdiction of any agency or court as established under applicable law.
11

12 4.10 Withdrawal From Settlement.
13

14 4.10.1 Withdrawal of a Party from Settlement. A Party may withdraw from
15 this Settlement only in the following circumstances: (a) a disputing Party claiming a
16 material breach or violation of this Settlement may withdraw once the Party has complied
17 with the ADR procedures stated in Paragraph 4.9.1 - Paragraph 4.9.3 to attempt to resolve
18 the dispute; or (b) a Party objecting to a final and non-appealable order issuing a New
19 Project License that is inconsistent with this Settlement may withdraw once the Party has
20 complied with the ADR procedures stated in Paragraph 4.9.1 - Paragraph 4.9.3 to attempt
21 to resolve the objection. In addition, Licensee may withdraw as provided in Paragraph
22 4.10.2. In addition, when required to fulfill statutory or regulatory responsibility, a Party
23 that is an agency may suspend participation or, if necessary, withdraw from this Settlement,
24 without first using the ADR procedures stated in Paragraph 4.9.1 - Paragraph 4.9.3.
25 Finally, a Party may withdraw as provided in Paragraph 5.3.
26

27 4.10.2 Withdrawal of Licensee from Settlement. In addition to the
28 provisions of Paragraph 4.10.1, Licensee may withdraw from this Settlement without first
29 complying with the ADR procedures stated in Paragraph 4.9.1 - Paragraph 4.9.3 if a
30 participant in the Collaborative does not execute, or in the case of the FWS, initial this
31 Settlement by the Effective Date, or a Party withdraws from this Settlement, and Licensee
32 reasonably determines at its sole discretion that the failure to execute or the withdrawal (a)
33 may adversely affect the likelihood of FS issuing Final 4(e) Conditions consistent with this
34 Settlement; (b) may adversely affect FERC's issuance of a New Project License consistent
35 with this Settlement; or (c) substantially diminishes the value of this Settlement to
36 Licensee. Licensee shall exercise the right to withdraw from this Settlement as provided in
37 this paragraph within 30 days of Licensee's knowledge of the event creating the right to
38 withdraw.
39

40 4.10.3 Method of Withdrawal. A Party may exercise its right to withdraw
41 from this Settlement by giving Notice. Withdrawal is effective 10 calendar days after
42 Notice. A Party that is an agency may suspend participation in this Settlement as provided
43 in Paragraph 4.10.1 by giving Notice.
44

45 4.10.4 Continuity After Withdrawal. The withdrawal of a Party, other than
46 Licensee, does not terminate this Settlement for the remaining Parties. If a Party withdraws

1 from this Settlement, the withdrawing Party shall not be bound by any term contained in this
2 Settlement. Additionally, except for Licensee, the withdrawing Party shall be deemed to
3 have resigned from the ERC upon the effective date of the withdrawal and shall not be
4 eligible for membership in the ERC for a period of 5 years. The withdrawing Party shall
5 continue to be bound by the Collaborative protocols, to the extent permitted by applicable
6 law.

7
8 4.11 Termination of Settlement. This Settlement shall terminate as to all Parties
9 and have no further force or effect upon expiration of the New Project License and any
10 annual licenses issued after expiration thereof or upon withdrawal from this Settlement of
11 Licensee. If this Settlement is terminated, this Settlement and all documents related to its
12 development, execution, and submittal to FERC shall be deemed confidential and shall not
13 be discoverable or admissible in any forum or proceeding for any purpose to the fullest
14 extent allowed by applicable law, including 18 C.F.R. § 385.606. This provision does not
15 apply to the results of resource studies or other technical information developed for use by
16 the Collaborative.

17
18
19 **5. General Provisions**

20
21 5.1 Non-Severable Terms of Settlement. The terms of this Settlement are not
22 severable one from the other. This Settlement is made on the understanding that each term
23 is in consideration and support of every other term, and each term is a necessary part of the
24 entire Settlement.

25
26 5.2 No Third Party Beneficiaries. Without limiting the applicability of rights
27 granted to the public pursuant to applicable law, this Settlement shall not create any right
28 or interest in the public, or any member thereof, as a third party beneficiary hereof, and
29 shall not authorize any non-Party to maintain a suit at law or equity pursuant to this
30 Settlement. The duties, obligations and responsibilities of the Parties with respect to third
31 parties shall remain as imposed under applicable law.

32
33 5.3 Successors and Assigns. This Settlement shall apply to, and be binding on,
34 the Parties and their successors and assigns. Upon completion of a succession or
35 assignment, the initial Party shall no longer be a Party to this Settlement. No change in
36 ownership of the Project or transfer of the existing or New Project License by Licensee
37 shall in any way modify or otherwise affect any other Party's interests, rights,
38 responsibilities or obligations under this Settlement. Unless prohibited by applicable law,
39 Licensee shall provide in any transaction for a change in ownership of the Project or
40 transfer of the existing or New Project License, that such new owner shall be bound by,
41 and shall assume the rights and obligations of this Settlement upon completion of the
42 change of ownership and approval by FERC of the license transfer. In the event applicable
43 law prohibits the new owner from assuming the rights and obligations of this Settlement,
44 any Party may withdraw from this Settlement. A transferring or assigning Party shall
45 provide Notice to the other Parties at least 30 days prior to completing such transfer or
46 assignment.

1
2 5.4 Failure to Perform Due to Force Majeure. No Party shall be liable to any
3 other Party for breach of this Settlement as a result of a failure to perform or for delay in
4 performance of any provision of this Settlement due to any cause reasonably beyond its
5 control. This may include, but is not limited to, natural events, labor or civil disruption, or
6 breakdown or failure of Project works. The Party whose performance is affected by a
7 force majeure shall make notify the other Parties in writing within seven (7) days after
8 becoming aware of any event that such affected Party contends constitutes a force majeure.
9 Such notice will: identify the event causing the delay or anticipated delay; estimate the
10 anticipated length of delay; state the measures taken or to be taken to minimize the delay;
11 and estimate the timetable for implementation of the measures. The affected Party shall
12 make all reasonable efforts to promptly resume performance of this Settlement, and, when
13 able to resume performance of its obligations and give the other Parties written notice to
14 that effect.

15
16 5.5 Governing Law. The New Project License and any other terms of this
17 Settlement over which a federal agency has jurisdiction shall be governed, construed, and
18 enforced in accordance with the statutory and regulatory authorities of such agency. This
19 Settlement shall otherwise be governed and construed under the laws of the State of
20 California. By executing this Settlement, no federal agency is consenting to the jurisdiction
21 of a state court unless such jurisdiction otherwise exists. All activities undertaken pursuant
22 to this Settlement shall be in compliance with all applicable law.

23
24 5.6 Elected Officials Not to Benefit. No member of or delegate to Congress
25 shall be entitled to any share or part of this Settlement or to any benefit that may arise from
26 it.

27
28 5.7 No Partnership. Except as otherwise expressly set forth herein, this
29 Settlement does not and shall not be deemed to make any Party the agent for or partner of
30 any other Party.

31
32 5.8 Reference to Regulations. Any reference in this Settlement to any federal or
33 state regulation shall be deemed to be a reference to such regulation, or successor
34 regulation, in existence as of the date of the action.

35
36 5.9 Notice. Except as otherwise provided in this paragraph, any Notice
37 required by this Settlement shall be written. It shall be sent to all Parties still in existence
38 by first-class mail or comparable method of distribution, and shall be filed with FS and
39 FERC. For the Purpose of this Settlement, a Notice shall be effective 7 days after the date
40 on which it is mailed or otherwise distributed. When this Settlement requires Notice in
41 less than 7 days, Notice shall be provided by telephone, facsimile or electronic mail and
42 shall be effective when provided. For the purpose of Notice, the list of authorized
43 representatives of the Parties as of the Effective Date is attached as Appendix C. The
44 Parties shall provide Notice of any change in the authorized representatives designated in
45 Appendix C; and Licensee shall maintain the current distribution list of such
46 representatives.

1
2 5.10 Paragraph Titles for Convenience Only. The titles for the paragraphs of this
3 Settlement are used only for convenience of reference and organization, and shall not be
4 used to modify, explain, or interpret any of the provisions of this Settlement or the
5 intentions of the Parties.
6

7
8 **6. Execution of Settlement**
9

10 6.1 Signatory Authority. Each signatory to this Settlement certifies that he or
11 she is authorized to execute this Settlement and to legally bind the Party he or she
12 represents, and that such Party shall be fully bound by the terms hereof upon such signature
13 without any further act, approval, or authorization by such Party.
14

15 6.1.1 Initialing by FWS. By initialing this Settlement, FWS signifies its
16 agreement to this Settlement subject to review of the effects of this Settlement under
17 Section 7 of ESA on species listed or proposed for listing under that law. Provided FWS
18 issues a non-jeopardy biological opinion at the conclusion of the Section 7 consultation
19 that is consistent with this Settlement, FWS agrees to become at that time signatory to this
20 Settlement.
21

22 6.2 Disclosure of Other Agreements. Except for the 1991 Fish and Wildlife
23 Agreement, each Party represents that it is not a party to any other existing agreement with
24 any Party or non-Party relating to this Settlement. If a Party subsequently determines that it
25 has such an agreement, such Party shall provide Notice of the terms of that agreement.
26

27 6.3 Signing in Counterparts. This Settlement may be executed in any number of
28 counterparts, and each executed counterpart shall have the same force and effect as an
29 original instrument as if all the signatory Parties to all of the counterparts had signed the
30 same instrument. Any signature page of this Settlement may be detached from any
31 counterpart of this Settlement without impairing the legal effect of any signatures thereon,
32 and may be attached to another counterpart of this Settlement identical in form hereto but
33 having attached to it one or more signature pages.
34

35 WHEREFORE, for valuable consideration, which is hereby acknowledged, and by
36 authorized representatives, the Parties execute this Settlement effective as of September 18,
37 2000.
38

1 Pacific Gas and Electric Company

2
3 _____
4 by _____
5 (Print) (Title)

6
7
8 United States Department of Agriculture Forest Service

9
10 _____
11 by _____
12 (Print) (Title)

13
14
15 United States Department of the Interior Fish and Wildlife Service

16
17 _____ (intitial)
18 by _____
19 (Print) (Title)
20 _____ (signature)
21 by _____
22 (Print) (Title)

23
24
25 California Department of Fish and Game

26
27 _____
28 by _____
29 (Print) (Title)

30
31
32 California State Water Resources Control Board

33
34 _____
35 by _____
36 (Print) (Title)

37
38
39 Natural Heritage Institute

40
41 _____
42 by _____
43 (Print) (Title)

1 Friends of the River

2

3

4 by _____

5 (Print) (Title)

6

7

8 Plumas County

9

10

11 by _____

12 (Print) (Title)

13

14

15 California Outdoors

16

17

18 by _____

19 (Print) (Title)

20

21

22 California Trout

23

24

25 by _____

26 (Print) (Title)

27

28

29 Chico Paddleheads

30

31

32 by _____

33 (Print) (Title)

34

35

1
2
3
4
5
6
7
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11
12
13
14

American Whitewater

by _____
(Print) (Title)

Shasta Paddlers

by _____
(Print) (Title)

1 **Relicensing Settlement Agreement**

2 **Appendix A**

3
4
5 Protection, Mitigation and Enhancement Measures Recommended to be Included in the
6 New Project License and FS Final 4(e) Conditions and Used in Other Regulatory
7 Approvals

8
9 **Section I. Water Temperature**

10
11 **1. Water Temperature Requirement.** In order to reasonably protect cold freshwater
12 habitat, Licensee shall maintain mean daily water temperatures of 20 degrees Celsius or
13 less in the Rock Creek and Cresta Reaches, to the extent that Licensee can reasonably
14 control such temperatures. Reasonable Control Measures are: the flow schedules stated in
15 Section II, Table A below and implementation of the measures stated in this Section I.
16 Further measures to maintain mean daily water temperatures of 20 degrees Celsius or less
17 in the Rock Creek and Cresta Reaches may be required by subsequent amendment of the
18 New Project License under FERC's reservation of authority as provided in Paragraph 6
19 below.

20
21 **2. Prattville Intake Control Measure.** Licensee shall, within three months after issuance
22 of a New Project License, initiate a modeling study to evaluate the anticipated
23 effectiveness of the Prattville Intake Modification control measures. The study shall be
24 completed as soon as practicable but no later than one year after issuance of New Project
25 License. The ERC and FS will evaluate the effectiveness of such control measures after
26 review of the study results.

27
28 Subject to the provisions of Paragraph 5 below which sets forth the Licensee's total
29 financial commitment for Reasonable Control Measures as set forth in Paragraphs 2 and 4
30 of this section, the ERC and FS shall affirmatively determine which Prattville Intake
31 Modification control measures, if any, shall be implemented. This determination shall be
32 based on a finding that the modification control measures will effectively contribute to the
33 maintenance of mean daily water temperatures of 20 degrees Celsius or less in the Rock
34 Creek and Cresta Reaches. This determination shall also be based on the best scientific
35 information available, the use of sound scientific methods, consideration of the relative
36 cost of different Prattville Intake Modification control measures, and the relative
37 temperature control benefits of such measures and alternatives thereto.

38
39 Licensee shall construct any Prattville Intake Modifications and commence operation for
40 selective withdrawal of coldwater from Lake Almanor no later than one winter and one
41 following summer season after issuance of the New Project License and the affirmative
42 determination of the ERC and FS above, unless that schedule is impractical due to any
43 further regulatory approval required for such control measures. In the event that further
44 regulatory approval is required, Licensee shall promptly apply for such approval, and shall

1 implement the control measures no later than one winter and one following summer season
2 after obtaining the requisite approval.

3
4 **3. Water Temperature Monitoring.** Licensee shall implement a water temperature
5 monitoring program. The program shall continue for no less than five years after
6 installation of the Prattville Intake Modification, or five years after a determination
7 pursuant to Paragraph 2 of this section that the Prattville Intake Modification will be
8 ineffective and therefore should not be constructed. During the term of the New Project
9 License, the monitoring and reporting requirements set forth herein may be reduced or
10 terminated after it is demonstrated to the satisfaction of the ERC and the FS that mean daily
11 temperatures of 20 degrees Celsius or less have been and will be achieved, or that a given
12 requirement is not necessary to determine whether this temperature objective will be met.

13
14 The temperature monitoring program shall consist of continuous temperature and flow
15 monitoring in the Rock Creek, Cresta, Belden and Seneca reaches, along with temperature
16 monitoring in their major tributaries, from June 1 through September 30, at the sites
17 designated below for 15 years following issuance of the New Project License.

18 Continuous temperature monitoring shall be conducted at gages NF 57 below Rock Creek
19 and NF 56 below Cresta, from June 1 through October 31, for the term of the New Project
20 License. Flow monitoring shall be conducted at existing flow gages.

21
22 Temperature monitoring data will be used to develop and verify a model that predicts, with
23 reasonable accuracy, the temperature profile of the river based on data from NF 56 and NF
24 57. Once the temperature model has been determined by the ERC and FS to be reasonably
25 accurate for determining downstream temperature, the ERC and FS may reduce the number
26 of non-telemetered sites or the frequency of reporting data.

27
28 Monitoring sites in Rock Creek and Cresta Reaches shall be located as follows:

29
30 Rock Creek Reach:

- 31 NFFR below Rock Creek Dam
- 32 NFFR at the NF57 gage (data telemetered to Rock Creek PH)
- 33 NFFR above Bucks Creek
- 34 Chips Creek
- 35 Milk Ranch Creek
- 36 Chambers Creek
- 37 Jackass Creek
- 38 Bucks Creek
- 39 Bucks PH Tailrace
- 40 NFFR above Rock Creek PH
- 41 Rock Creek PH Tailrace

1 Cresta Reach:

- 2 NFFR below Cresta Dam
- 3 NFFR at the NF56 gage (data telemetered to Rock Creek PH)
- 4 NFFR above Cresta PH
- 5 Rock Creek
- 6 Grizzly Creek.

7
8 If monitoring results from gages NF 57 and NF 56 demonstrate that mean daily water
9 temperatures regularly exceed 20 degrees Celsius in the Rock Creek or Cresta reaches in
10 October, the Licensee shall monitor at the following sites in October: NFFR below Rock
11 Creek Dam; NFFR above Bucks Creek; NFFR above Rock Creek PH; NFFR below Cresta
12 Dam; and NFFR above Cresta PH. The temperature monitoring program also shall include
13 continuous water temperature monitoring at a reasonably accessible site on the Middle
14 Fork Feather River, for the period June 1 through September 30. In addition, Licensee
15 shall monitor water temperature profiles in Lake Almanor and Butt Valley Reservoir, and
16 collect other data (e.g., water velocity measurements) as needed to evaluate the efficacy of
17 temperature control measures, for the period June 1 through September 30. Finally,
18 Licensee shall maintain two meteorology monitoring stations, one at the Project and
19 another at Project No. 2105, at which data shall be collected for the period May 1 through
20 October 31. License shall provide the meteorological data to any member of the ERC or
21 FS upon request.

22
23 Licensee shall provide monitoring results for 9 years of the first 15 years after issuance of
24 a New Project License to the ERC and the FS on a weekly basis in dry or critically dry
25 water years, or bi-weekly in normal and wet water years, for the following monitoring
26 sites: NFFR below Rock Creek Dam; NFFR at the NF 57 gage; NFFR above Bucks Creek;
27 NFFR above Rock Creek PH; NFFR below Cresta Dam; NFFR at the NF 56 gage; and
28 NFFR above Cresta PH. The ERC and FS shall determine which 9 years these monitoring
29 results shall be collected and provided to them. This determination shall be made by the
30 ERC and FS by May 1 of each year. Reporting of these monitoring results to the ERC and
31 FS shall be undertaken in a reasonable manner and form to be specified in the temperature
32 monitoring plan required below. In addition to the foregoing, reporting of continuous
33 temperature monitoring results from NF 56 and NF 57 gages shall be made available to any
34 member of the ERC or FS upon request for the term of New Project License.

35
36 If water temperatures monitored at NF 56 or NF 57 exceed a mean daily average of 20
37 degrees Celsius for two consecutive days, Licensee shall provide notice to the ERC and
38 FS. The Licensee shall inform the ERC and FS of any actions being taken by the Licensee
39 to maintain water temperatures at a mean daily average of 20 degrees Celsius or less.
40 Analysis of the effectiveness of these actions shall be included in the annual Monitoring
41 Report.

42
43 The Licensee shall submit to FERC an annual Monitoring Report that includes all
44 monitoring results for the prior year and analyzes the effectiveness of the control measures
45 in achieving mean daily temperatures of 20 degrees Celsius or less in the Rock Creek and
46 Cresta Reaches. The report shall be submitted no later than May 31 of each year. The

1 Monitoring Report shall be prepared in consultation with the ERC and FS and shall be
2 provided to them on submittal.

3
4 Licensee shall prepare a water temperature monitoring plan which provides for
5 implementation (including a schedule for implementation) of the temperature monitoring
6 program described above. The plan shall be prepared in consultation with the ERC and
7 FS. As soon as practicable but not later than one year after issuance of the New Project
8 License, Licensee shall file the plan with the SWRCB for approval. Licensee shall
9 thereafter submit the plan to FERC for approval. If FERC modifies the plan as submitted,
10 the Licensee shall comply with the plan as approved by FERC.

11
12 **4. Additional Reasonable Control Measures.** Within five years of the date when the
13 Commission approves the water temperature monitoring plan, the Licensee shall prepare a
14 report that evaluates whether mean daily temperatures of 20 degrees Celsius or less have
15 been and will be achieved in the Rock Creek and Cresta Reaches, and if not, whether
16 additional reasonable control measures are available. The report shall include
17 recommendations for the implementation of any such measures.

18
19 The report shall include all modeling and monitoring results required by Paragraph 2 and 3
20 above. It shall also factor in economic considerations in evaluating whether additional
21 temperature control measures are reasonable.

22
23 Subject to the provisions of Paragraph 5 below which sets forth the Licensee's total
24 financial commitment for Reasonable Control Measures as set forth in Paragraphs 2 and 4
25 of this section, the ERC and FS shall make an affirmative determination whether additional
26 temperature control measures shall be implemented. This affirmative determination shall
27 be based on the best scientific information available, the use of sound scientific methods,
28 consideration of the relative cost of different control measures, and other relevant factors.
29 As soon as practicable after such affirmative determination, Licensee shall implement any
30 additional reasonable control measures for which no further regulatory approval is
31 necessary. Licensee shall promptly apply for regulatory approval for any other additional
32 reasonable control measures that the ERC and FS affirmatively determine shall be
33 implemented.

34
35 **5. Coldwater Habitat and Fishery Mitigation and Enhancement Fund (Fund).** On
36 issuance of the New Project License, Licensee shall establish a tracking account and fund a
37 total of \$5,000,000 (current dollars) for expenditure on water temperature control
38 measures. Seventy-five months after such issuance of the New Project License, Licensee
39 shall add to the Fund an additional amount not to exceed \$2,000,000 (January 2001 dollars,
40 escalated per Paragraph 4.5.5 of this Settlement), provided the ERC and FS make an
41 affirmative determination, based on the first 5 years of monitoring results, that further
42 measures are necessary to maintain mean daily water temperatures of 20 degrees Celsius in
43 the Rock Creek and Cresta Reaches, and that the additional funding is appropriate for this
44 purpose. The balance in the Fund shall accrue interest at the 90-day commercial paper rate
45 as published by the Federal Reserve Bank of New York, credited on a quarterly basis.

1 The primary purpose of the Fund shall be the temperature control measures described in
2 Paragraphs 2 and 4 of this section, exclusive of the development and implementation of the
3 temperature monitoring plan pursuant to Paragraph 3 of this section. The Fund may be used
4 to undertake other measures that directly enhance coldwater habitat and fishery in the Rock
5 Creek and Cresta Reaches, if the ERC and FS determine that further expenditure on
6 temperature control measures will not be effective in maintaining a mean daily water
7 temperatures of 20 degrees Celsius or less in these reaches. The Fund shall not be used,
8 however, to compensate the Licensee for foregone power generation due to flow schedules
9 stated in Section II, Table A below. The Fund may be used to purchase additional flow
10 only if the ERC has determined that no other reasonable temperature control measures are
11 available.

12
13 Decisions on expenditures to be charged to the Fund shall be made by the ERC and FS.
14 Such decisions shall be based on the best scientific information available and the use of
15 sound scientific methods. No expenditure shall be made and charged to the Fund in
16 absence of any necessary regulatory or other legal approval, or for actions that would be in
17 conflict with any regulatory, legal, or contractual requirement.

18
19 All temperature control measures identified pursuant to Paragraphs 2 and 4 of this section
20 shall be funded from the Fund. If the Prattville Intake Modification is determined to be the
21 Submerged Curtain/Skimmer Wall pursuant to Paragraph 2 of this section, Licensee shall
22 debit the Fund \$3,000,000 for the cost of its design and construction. Licensee shall retain
23 any difference between \$3,000,000 and the actual design and construction cost of the
24 Submerged Curtain/Skimmer Wall. Any design and construction costs in excess of
25 \$3,000,000 and future operation and maintenance costs will not be debited from the Fund.

26
27 Any unallocated Fund balance after the New Project License expiration plus the term(s) of
28 any annual license(s), which may be issued after license expiration or license surrender
29 shall revert back to Licensee. Licensee shall distribute an accounting statement to FERC,
30 ERC and the FS within 30 days after January 1 of each year after the Fund is established,
31 summarizing the Fund balance, accrued interest, and previous charged amounts. Licensee
32 shall administer all work and payments under the Fund in a manner consistent with its
33 normal business practices. Licensee's cost of administering the Fund account shall not be
34 charged to the Fund.

35
36 Funding under this paragraph may be used in conjunction with funds that may be available
37 from other sources, including but not limited to Licensee's other relicensing proceedings
38 on the NFFR.

39
40 **6. Reservation of FERC Authority.** FERC reserves authority to reopen for cause the
41 New Project License to protect Beneficial Uses of the NFFR through coordinated
42 operations of this Project, North Fork Feather Project (No. 2105) and Poe Project (No.
43 2107). Such reopener may occur in conjunction with the relicensing proceedings for Nos.
44 2105 and 2107.

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Section II. River Flow Management

1. Minimum River Flows. For the preservation and improvement of fisheries resources in the Project area, Licensee shall maintain specified Minimum River Flows and Pulse Flows below Project dams as measured at gages NF-56 and NF-57 in accordance with Table A below. Table A provides for adjustments in flow releases over the term of the license. Minimum River Flows at the levels specified in the first 5-year period shall be initiated within 60 days of issuance of a New Project License. The first official test year shall begin on the January 1 of the year following issuance of a New Project License. Test years shall be on a calendar year basis and the first 5-year test period shall last until December 31 of the fifth full year after issuance of a New Project License. On January 1 of the sixth full year after issuance of a New Project License the Minimum River Flows shall increase automatically to the levels of the second 5-year period. Minimum River Flows shall be maintained at the second 5-year level for a five year test period provided at least four consecutive non-critically dry years occur. If the test period is interrupted by one or more critically dry years the test period shall be extended as determined by the ERC and FS. Adjustments to required Minimum River Flows after the completion of the second 5-year test period shall be made as specified by the ERC and FS. Such adjustments shall not exceed the Cap Flows applicable for the third 5-year test period. The length of the third 5-year test period shall be subject to the same conditions as the second 5-year test period (may be extended by the ERC and FS in the event critically dry years occur). Adjustments after the third 5-year test period shall be as specified by the ERC and FS, and such adjustments shall not exceed the Cap Flows applicable for the third 5-year test period. FERC shall be advised of the status of the test periods in the ERC's annual report.

Table A.1

Rock Creek Reach Minimum River Flow, Pulse, and Ramping							
First 5-Year Flow Period - Normal & Wet Years							
Season	Month	Base Flow (cfs) (5)	Pulse (cfs) (6)	Ramping Rate (cfsD/hr)	Block Loading	Boating Flow (cfs)	Launch Window
Spring	Mar	250	2 @ >1600	rise & fall from EBF (1)	Belden (3)	-	-
	Apr	250	2 @ >1600	rise & fall from EBF (1)	Belden (3)	-	-
	May	250	2 @ >1600	rise & fall from EBF (1)	Belden (3)	-	-
Summer & Fall	Jun	220	1 @ >1000 (2)	300/400 cfs rise/150 cfs fall (4)	Belden (3)	1600	10 - 4 pm
	Jul	180	0	400 cfs rise/150 cfs fall	no	1200	10 - 4 pm
	Aug	180	0	400 cfs rise/150 cfs fall	no	1000	10 - 4 pm
	Sep	180	0	400 cfs rise/150 cfs fall	no	1000	10 - 4 pm
	Oct	180	0	400 cfs rise/150 cfs fall	no	1000	10 - 4 pm
	Nov	180	0	400 cfs rise/150 cfs fall	no	-	-
Winter	Dec	200	0	400 cfs rise/150 cfs fall	no	-	-
	Jan	225	0	400 cfs rise/150 cfs fall	no	-	-
	Feb	225	0	400 cfs rise/150 cfs fall	no	-	-

Notes:

- (1) Rise and fall to follow E. Branch Feather rate, to be achieved by holding Belden and Rock Creek PHs constant during pulse (unless RCPH decreased to maintain flow > target pulse). Pulse event can be terminated when EBF flow is constant (+-100 cfs/hr), at which time normal operations resume, and spill may be reduced at 150 cfs/hr. Same rise and fall ramping limitations apply to non-pulse spill events past diversion dam between March and first 2 weeks of June.
- (2) In first 2 weeks of June, a pulse of 1000 cfs (from EBF or supplemented) of at least 12 continuous hours in duration should occur, assuming flows at NF57 are not already >3000 cfs.
- (3) If flows at NF57 are between 275 and 3000 cfs, Belden will be block loaded to avoid having spills start and stop at Rock Creek Reservoir.
- (4) 300 cfs/hr rise during first 2 weeks of June, 400 cfs/hr rise for second 2 weeks of June if spill is from operations.
- (5) Minimum monthly flow to be measured at Licensee gage NF57.
- (6) Pulses are 12 hrs continuous duration, and no riparian flows occur.

Table A.1 (continued)

Rock Creek Reach Minimum River Flow, Pulse, and Ramping							
First 5-Year Flow Period - Dry Years							
Season	Month	Base Flow (cfs) (5)	Pulse (cfs) (6)	Ramping Rate (cfsD/hr)	Block Loading	Boating Flow (cfs)	Launch Window
Spring	Mar	200	2 @ >1000	rise & fall from EBF (1)	Belden (3)	-	-
	Apr	200	2 @ >1000	rise & fall from EBF (1)	Belden (3)	-	-
	May	200	0	rise & fall from EBF (1)	Belden (3)	-	-
Summer & Fall	Jun	175	0	300/400 cfs rise/150 cfs fall (4)	no	1000	10 - 1 pm
	Jul	150	0	400 cfs rise/150 cfs fall	no	800	10 - 1 pm
	Aug	150	0	400 cfs rise/150 cfs fall	no	800	10 - 1 pm
	Sep	150	0	400 cfs rise/150 cfs fall	no	800	10 - 1 pm
	Oct	150	0	400 cfs rise/150 cfs fall	no	-	-
	Nov	150	0	400 cfs rise/150 cfs fall	no	-	-
	Dec	150	0	400 cfs rise/150 cfs fall	no	-	-
Winter	Jan	180	0	400 cfs rise/150 cfs fall	no	-	-
	Feb	180	0	400 cfs rise/150 cfs fall	no	-	-

Notes:

- (1) Rise and fall to follow E. Branch Feather rate, to be achieved by holding Belden and Rock Creek PHs constant during pulse (unless RCPH decreased to maintain flow > target pulse). Pulse event can be terminated when EBF flow is constant (+/-100 cfs/hr), at which time normal operations resume, and spill may be reduced at 150 cfs/hr. Same rise and fall ramping limitations apply to non-pulse spill events past diversion between March and end of May.
- (3) If flows at NF57 are between 275 and 3000 cfs, Belden will be block loaded to avoid having spills start and stop at Rock Creek Reservoir.
- (4) 300 cfs/hr rise during first 2 weeks of June, 400 cfs/hr rise for second 2 weeks of June if spill is from operations.
- (5) Minimum monthly flow to be measured at Licensee gage NF57.
- (6) Pulses are 12 hrs continuous duration, and no riparian flows occur.

Table A.1 (continued)

Rock Creek Reach Minimum River Flow, Pulse, and Ramping							
First 5-Year Flow Period - Critically Dry Years							
Season	Month	Base Flow (cfs) (5)	Pulse (cfs) (6)	Ramping Rate (cfsD/hr)	Block Loading	Boating Flow (cfs)	Launch Window
Spring	Mar	110	1 @ >1000	rise & fall from EBF (1)	Belden (3)	-	-
	Apr	110	1 @ >1000	rise & fall from EBF (1)	Belden (3)	-	-
	May	150	0	rise & fall from EBF (1)	Belden (3)	-	-
Summer & Fall	Jun	150 (7)	0	300/400 cfs rise/150 cfs fall (4)	no	1000	10 - 1 pm
	Jul	150 (7)	0	400 cfs rise/150 cfs fall	no	800	10 - 1 pm
	Aug	150 (7)	0	400 cfs rise/150 cfs fall	no	800	10 - 1 pm
	Sep	150 (7)	0	400 cfs rise/150 cfs fall	no	800	10 - 1 pm
	Oct	150 (7)	0	400 cfs rise/150 cfs fall	no	-	-
	Nov	110	0	400 cfs rise/150 cfs fall	no	-	-
	Winter	Dec	110	0	400 cfs rise/150 cfs fall	no	-
	Jan	110	0	400 cfs rise/150 cfs fall	no	-	-
	Feb	110	0	400 cfs rise/150 cfs fall	no	-	-

Notes:

- (1) Rise and fall to follow E. Branch Feather rate, to be achieved by holding Belden and Rock Creek PHs constant during pulse (unless RCPH decreased to maintain flow > target pulse). Pulse event can be terminated when EBF flow is constant (+/-100 cfs/hr), at which time normal operations resume, and spill may be reduced at 150 cfs/hr
- (3) if flows at NF57 are between 275 and 3000 cfs, Belden will be block loaded to avoid having spills start and stop at Rock Creek Reservoir.
- (4) 300 cfs/hr rise during first 2 weeks of June, 400 cfs/hr rise for second 2 weeks of June if spill is from operations.
- (5) Minimum monthly flow to be measured at Licensee gage NF57.
- (6) Pulses are 12 hrs continuous duration, and no riparian flows occur.
- (7) The base flow of 150 cfs shall be increased to 200 cfs, or to any flow between 150 and 200 cfs, to the extent necessary to contribute to the maintenance of mean daily temperatures of 20 degrees Celsius or less in the Rock Creek Reach. Similarly, this increased flow shall be reduced back to the 150 cfs base flow when not required to maintain mean daily temperatures of 20 degrees Celsius in the Rock Creek Reach. For the first three years after issuance of a New Project license, or until a temperature model as referred to in Section I, Paragraph 3 is developed, Licensee shall use the mean daily water temperature measured at NF 57 to determine whether and how to implement this flow provision. This flow provision shall not apply, and the base flow shall remain at 150 cfs, if the ERC and FS determine, based on a review of temperature monitoring results or by assessment from a reasonably accurate water temperature model, that the increase in base flows will not result in a reduction in water temperature New Project beneficial to cold freshwater habitat, or the cost of the increase in base flow is dramatically disproportional to the benefit. To implement this flow provision, Licensee shall, in consultation with the ERC and FS, submit to FERC for approval, as soon as practicable but no later than one year after issuance of a license, a Critically Dry Year Flow Operations and Compliance Plan. The plan shall establish reasonable procedures and criteria to support maintenance of mean daily water temperatures of 20 degrees Celsius. These procedures and criteria shall be similar for both increasing flows up to 200 cfs (or any flow between 150 and 200 cfs) and decreasing flows back to 150 cfs.

Table A.1 (continued)

Cresta Reach Minimum River Flow, Pulse, and Ramping							
First 5-Year Flow Period - Normal & Wet Years							
Season	Month	Base Flow (cfs) (5)	Pulse (cfs) (6)	Ramping Rate (cfsD/hr)	Block Loading	Boating Flow (cfs)	Launch Window
Spring	Mar	250	2 @ >1600	rise & fall from EBF (1)	Belden (3)	-	-
	Apr	250	2 @ >1600	rise & fall from EBF (1)	Belden (3)	-	-
	May	250	2 @ >1600	rise & fall from EBF (1)	Belden (3)	-	-
Summer & Fall	Jun	240	1 @ >1000 (2)	300/400 cfs rise/150 cfs fall (4)	Belden (3)	1600	10 - 4 pm
	Jul	220	0	400 cfs rise/150 cfs fall	no	1200	10 - 4 pm
	Aug	220	0	400 cfs rise/150 cfs fall	no	1000	10 - 4 pm
	Sep	220	0	400 cfs rise/150 cfs fall	no	1000	10 - 4 pm
	Oct	220	0	400 cfs rise/150 cfs fall	no	1000	10 - 4 pm
	Nov	220	0	400 cfs rise/150 cfs fall	no	-	-
	Dec	240	0	400 cfs rise/150 cfs fall	no	-	-
Winter	Jan	240	0	400 cfs rise/150 cfs fall	no	-	-
	Feb	240	0	400 cfs rise/150 cfs fall	no	-	-

Note:

- (1) Rise and fall to follow E. Branch Feather rate, to be achieved by holding Belden, Rock Creek, & Cresta PHs constant during pulse (unless Cresta PH decreased to maintain flow > target pulse). Pulse event can be terminated when EBF flow is constant (+/-100 cfs/hr), at which time normal operations resume, and spill may be reduced at 150 cfs/hr. Same rise and fall ramping limitations apply to non-pulse spill events past diversion dam between March and first 2 weeks of June.
- (2) In first 2 weeks of June, a pulse of 1000 cfs (from EBF or supplemented) of at least 12 continuous hours in duration should occur, assuming flows at NF56 are not already > 3000 cfs.
- (3) If flows at NF56 are between 275 and 3000 cfs, Belden & Rock Creek will be block loaded to avoid having spills start and stop at Cresta Reservoir.
- (4) 300 cfs/hr rise during first 2 weeks of June, 400 cfs/hr rise for second 2 weeks of June if spill is from operations.
- (5) Minimum monthly flow to be measured at Licensee gage NF56, and at least 100 cfs will be released from Cresta Diversion Dam at all times.
- (6) Pulses are 12 hrs continuous duration, and no riparian flows occur.

Table A.1. (continued)

Cresta Reach Minimum River Flow, Pulse, and Ramping							
First 5-Year Flow Period - Dry Years							
Season	Month	Base Flow (cfs) (5)	Pulse (cfs) (6)	Ramping Rate (cfsD/hr)	Block Loading	Boating Flow (cfs)	Launch Window
Spring	Mar	200	2 @ >1000	rise & fall from EBF (1)	Belden (3)	-	-
	Apr	200	2 @ >1000	rise & fall from EBF (1)	Belden (3)	-	-
	May	200	0	rise & fall from EBF (1)	Belden (3)	-	-
Summer & Fall	Jun	190	0	300/400 cfs rise/150 cfs fall (4)	no	1000	10 - 1 pm
	Jul	175	0	400 cfs rise/150 cfs fall	no	800	10 - 1 pm
	Aug	175	0	400 cfs rise/150 cfs fall	no	800	10 - 1 pm
	Sep	175	0	400 cfs rise/150 cfs fall	no	800	10 - 1 pm
	Oct	175	0	400 cfs rise/150 cfs fall	no	-	-
	Nov	175	0	400 cfs rise/150 cfs fall	no	-	-
	Dec	190	0	400 cfs rise/150 cfs fall	no	-	-
Winter	Jan	190	0	400 cfs rise/150 cfs fall	no	-	-
	Feb	190	0	400 cfs rise/150 cfs fall	no	-	-

Notes:

- (1) Rise and fall to follow E. Branch Feather rate, to be achieved by holding Belden, Rock Creek, & Cresta PHs constant during pulse (unless Cresta PH decreased to maintain flow > target pulse). Pulse event can be terminated when EBF flow is constant (+- 100 cfs/hr), at which time normal operations resume, and spill may be reduced at 150 cfs/hr. Same rise and fall ramping limitations apply to non-pulse spill events past diversion during March - first 2 weeks of June.
- (3) If flows at NF56 are between 225 and 3000 cfs, Belden & Cresta will be block loaded to avoid having spills start and stop at Cresta Reservoir.
- (4) 300 cfs/hr rise during first 2 weeks of June, 400 cfs/hr rise for second 2 weeks of June if spill is from operations.
- (5) Minimum monthly flow to be measured at Licensee gage NF56, and at least 100 cfs will be released from Cresta Diversion Dam at all times.
- (6) Pulses are 12 hrs continuous duration, and no riparian flows occur.

Table A.1 (continued)

Cresta Reach Minimum River Flow, Pulse, and Ramping							
First 5-Year Flow Period - Critically Dry Years							
Season	Month	Base Flow (cfs) (5)	Pulse (cfs) (6)	Ramping Rate (cfsD/hr)	Block Loading	Boating Flow (cfs)	Launch Window
Spring	Mar	100	1 @ >1000	rise & fall from EBF (1)	Belden (3)	-	-
	Apr	100	1 @ >1000	rise & fall from EBF (1)	Belden (3)	-	-
	May	140	0	rise & fall from EBF (1)	Belden (3)	-	-
Summer & Fall	Jun	140 (7)	0	300/400 cfs rise/150 cfs fall (4)	no	1000	10 - 1 pm
	Jul	140 (7)	0	400 cfs rise/150 cfs fall	no	800	10 - 1 pm
	Aug	140 (7)	0	400 cfs rise/150 cfs fall	no	800	10 - 1 pm
	Sep	140 (7)	0	400 cfs rise/150 cfs fall	no	800	10 - 1 pm
	Oct	140 (7)	0	400 cfs rise/150 cfs fall	no	-	-
	Nov	100	0	400 cfs rise/150 cfs fall	no	-	-
	Dec	100	0	400 cfs rise/150 cfs fall	no	-	-
Winter	Jan	100	0	400 cfs rise/150 cfs fall	no	-	-
	Feb	100	0	400 cfs rise/150 cfs fall	no	-	-

Notes:

- (1) Rise and fall to follow E. Branch Feather rate, to be achieved by holding Belden, Rock Creek, & Cresta PHs constant during pulse (unless Cresta PH decreased to maintain flow > target pulse). Pulse event can be terminated when EBF flow is constant (+/- 100 cfs/hr), at which time normal operations resume, and spill may be reduced at 150 cfs/hr.
- (3) If flows at NF56 are between 225 and 3000 cfs, Belden & Cresta will be block loaded to avoid having spills start and stop at Cresta Reservoir.
- (4) 300 cfs/hr rise during first 2 weeks of June, 400 cfs/hr rise for second 2 weeks of June if spill is from operations.
- (5) Minimum monthly flow to be measured at Licensee gage NF56, and at least 100 cfs will be released from Cresta Diversion Dam at all times.
- (6) Pulses are 12 hrs continuous duration, and no riparian flows occur.
- (7) The base flow of 140 cfs shall be increased to 200 cfs, or to any flow in between 140 and 200 cfs, to the extent necessary to contribute to the maintenance of mean daily temperatures of 20 degrees Celsius or less in the Cresta Reach. Similarly, this increased flow shall be reduced back to the 140 cfs base flow when not required to maintain mean daily temperatures of 20 degrees Celsius in the Cresta Reach. For the first three years after issuance of a New Project license, or until a temperature model as referred to in Section I, paragraph 3 is developed, Licensee shall use the mean daily water temperature measured at NF 56 to determine whether and how to implement this provision. This flow provision shall not apply, and the base flow shall remain at 140 cfs, if the ERC and FS determine, based on a review of temperature monitoring results or by assessment from a reasonably accurate water temperature model, that the increase in base flows will not result in a reduction in water temperature beneficial to cold freshwater habitat, or the cost of the increase in base flow is dramatically disproportional to the benefit. To implement this flow provision, Licensee shall, in consultation with the ERC and FS, submit to FERC for approval, as soon as practicable but no later than one year after issuance of a New Project license, a Critically Dry Year Flow Operations and Compliance Plan. The plan shall establish reasonable procedures and criteria to maintain mean daily water temperatures of 20 degrees Celsius. These procedures and criteria shall be similar for both increasing flows up to 200 cfs (or any flow between 140 and 200 cfs) and decreasing flows back to 140 cfs.

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Table A.2

Rock Creek Reach Minimum River Flow, Pulse, and Ramping							
Second 5-Year Flow Period - Normal & Wet Years (8)							
Season	Month	Base Flow (cfs) (5)	Pulse (cfs) (6)	Ramping Rate (cfsD/hr)	Block Loading	Boating Flow (cfs)	Launch Window
Spring	Mar	350	2 @ >1600	rise & fall from EBF (1)	Belden (3)	-	-
	Apr	350	2 @ >1600	rise & fall from EBF (1)	Belden (3)	-	-
	May	350	2 @ >1600	rise & fall from EBF (1)	Belden (3)	-	-
Summer & Fall	Jun	260	1 @ >1000 (2)	300/400 cfs rise/150 cfs fall (4)	Belden (3)	1600	10 - 4 pm
	Jul	260	0	400 cfs rise/150 cfs fall	no	1200	10 - 4 pm
	Aug	260	0	400 cfs rise/150 cfs fall	no	1000	10 - 4 pm
	Sep	260	0	400 cfs rise/150 cfs fall	no	1000	10 - 4 pm
	Oct	260	0	400 cfs rise/150 cfs fall	no	1000	10 - 4 pm
	Nov	260	0	400 cfs rise/150 cfs fall	no	-	-
Winter	Dec	350	0	400 cfs rise/150 cfs fall	no	-	-
	Jan	350	0	400 cfs rise/150 cfs fall	no	-	-
	Feb	350	0	400 cfs rise/150 cfs fall	no	-	-

Notes:

- (1) Rise and fall to follow E. Branch Feather rate, to be achieved by holding Belden and Rock Creek PHs constant during pulse (unless RCPH decreased to maintain flow > target pulse). Pulse event can be terminated when EBF flow is constant (+-100 cfs/hr), at which time normal operations resume, and spill may be reduced at 150 cfs/hr. Same rise and fall ramping limitations apply to non-pulse spill events past diversion dam during March - first 2 weeks of June.
- (2) In first 2 weeks of June, a pulse of 1000 cfs (from EBF or supplemented) of at least 12 continuous hours in duration should occur, assuming flows at NF57 are not already > 3000 cfs.
- (3) If flows at NF57 are between 275 and 3000 cfs, Belden will be block loaded to avoid having spills start and stop at Rock Creek Reservoir.
- (4) 300 cfs/hr rise during first 2 weeks of June, 400 cfs/hr rise for second 2 weeks of June if spill is from operations.
- (5) Minimum monthly flow to be measured at Licensee gage NF57.
- (6) Pulses are 12 hrs continuous duration, and no riparian flows occur.
- (8) Implementation of flow in this table is automatic after first 5 years.

Table A.2 (continued)

Rock Creek Reach Minimum River Flow, Pulse, and Ramping							
Second 5-Year Flow Period - Dry Years (8)							
Season	Month	Base Flow (cfs) (5)	Pulse (cfs) (6)	Ramping Rate (cfsD/hr)	Block Loading	Boating Flow (cfs)	Launch Window
Spring	Mar	280	2 @ >1000	rise & fall from EBF (1)	Belden (3)	-	-
	Apr	280	2 @ >1000	rise & fall from EBF (1)	Belden (3)	-	-
	May	280	0	rise & fall from EBF (1)	Belden (3)	-	-
Summer & Fall	Jun	210	0	300/400 cfs rise/150 cfs fall (4)	no	1000	10 - 1 pm
	Jul	210	0	400 cfs rise/150 cfs fall	no	800	10 - 1 pm
	Aug	210	0	400 cfs rise/150 cfs fall	no	800	10 - 1 pm
	Sep	210	0	400 cfs rise/150 cfs fall	no	800	10 - 1 pm
	Oct	210	0	400 cfs rise/150 cfs fall	no	-	-
	Nov	210	0	400 cfs rise/150 cfs fall	no	-	-
Winter	Dec	280	0	400 cfs rise/150 cfs fall	no	-	-
	Jan	280	0	400 cfs rise/150 cfs fall	no	-	-
	Feb	280	0	400 cfs rise/150 cfs fall	no	-	-

Notes:

- (1) Rise and fall to follow E. Branch Feather rate, to be achieved by holding Belden and Rock Creek PHs constant during pulse (unless RCPH decreased to maintain flow > target pulse). Pulse event can be terminated when EBF flow is constant (+/-100 cfs/hr), at which time normal operations resume, and spill may be reduced at 150 cfs/hr. Same rise and fall ramping limitations apply to non-pulse spill events past diversion dam during March - first 2 weeks of June.
- (3) If flows at NF57 are between 275 and 3000 cfs, Belden will be block loaded to avoid having spills start and stop at Rock Creek Reservoir.
- (4) 300 cfs/hr rise during first 2 weeks of June, 400 cfs/hr rise for second 2 weeks of June if spill is from operations.
- (5) Minimum monthly flow to be measured at Licensee gage NF57.
- (6) Pulses are 12 hrs continuous duration, and no riparian flows occur.
- (8) Implementation of flow in this table is automatic after first 5 years.

Table A.2 (Continued)

Rock Creek Reach Minimum River Flow, Pulse, and Ramping							
Second 5-Year Flow Period - Critically Dry Years							
Season	Month	Base Flow (cfs) (5)	Pulse (cfs) (6)	Ramping Rate (cfsD/hr)	Block Loading	Boating Flow (cfs)	Launch Window
Spring	Mar	110	1 @ >1000	rise & fall from EBF (1)	Belden (3)	-	-
	Apr	110	1 @ >1000	rise & fall from EBF (1)	Belden (3)	-	-
	May	150	0	rise & fall from EBF (1)	Belden (3)	-	-
Summer & Fall	Jun	150 (7)	0	300/400 cfs rise/150 cfs fall (4)	no	1000	10 - 1 pm
	Jul	150 (7)	0	400 cfs rise/150 cfs fall	no	800	10 - 1 pm
	Aug	150 (7)	0	400 cfs rise/150 cfs fall	no	800	10 - 1 pm
	Sep	150 (7)	0	400 cfs rise/150 cfs fall	no	800	10 - 1 pm
	Oct	150 (7)	0	400 cfs rise/150 cfs fall	no	-	-
	Nov	110	0	400 cfs rise/150 cfs fall	no	-	-
	Dec	110	0	400 cfs rise/150 cfs fall	no	-	-
Winter	Jan	110	0	400 cfs rise/150 cfs fall	no	-	-
	Feb	110	0	400 cfs rise/150 cfs fall	no	-	-

Notes:

- (1) Rise and fall to follow E. Branch Feather rate, to be achieved by holding Belden and Rock Creek PHs constant during pulse (unless RCPH decreased to maintain flow > target pulse). Pulse event can be terminated when EBF flow is constant (+-100 cfs/hr), at which time normal operations resume, and spill may be reduced at 150 cfs/hr.
- (3) If flows at NF57 are between 275 and 3000 cfs, Belden will be block loaded to avoid having spills start and stop at Rock Creek Reservoir.
- (4) 300 cfs/hr rise during first 2 weeks of June, 400 cfs/hr rise for second 2 weeks of June if spill is from operations.
- (5) Minimum monthly flow to be measured at Licensee gage NF57.
- (6) Pulses are 12 hrs continuous duration, and no riparian flows occur.
- (7) The base flow of 150 cfs shall be increased to 200 cfs, or to any flow between 150 and 200 cfs, to the extent necessary to contribute to the maintenance of mean daily temperatures of 20 degrees Celsius or less in the Rock Creek Reach. Similarly, this increased flow shall be reduced back to the 150 cfs base flow when not required to maintain mean daily temperatures of 20 degrees Celsius in the Rock Creek Reach. For the first three years after issuance of a New Project license, or until a temperature model as referred to in Section I, Paragraph 3 is developed, Licensee shall use the mean daily water temperature measured at NF 57 to determine whether and how to implement this flow provision. This flow provision shall not apply, and the base flow shall remain at 150 cfs, if the ERC and FS determine, based on a review of temperature monitoring results or by assessment from a reasonably accurate water temperature model, that the increase in base flows will not result in a reduction in water temperature beneficial to cold freshwater habitat, or the cost of the increase in base flow is dramatically disproportional to the benefit. To implement this flow provision, Licensee shall, in consultation with the ERC and FS, submit to FERC for approval, as soon as practicable but no later than one year after issuance of a New Project license, a Critically Dry Year Flow Operations and Compliance Plan. The plan shall establish reasonable procedures and criteria to support maintenance of mean daily water temperatures of 20 degrees Celsius. These procedures and criteria shall be similar for both increasing flows up to 200 cfs (or any flow between 150 and 200 cfs) and decreasing flows back to 150 cfs.

Table A.2 (Continued)

Cresta Reach Minimum River Flow, Pulse, and Ramping							
Second 5-Year Flow Period - Normal & Wet Years (8)							
Season	Month	Base Flow (cfs) (5)	Pulse (cfs) (6)	Ramping Rate (cfsD/hr)	Block Loading	Boating Flow (cfs)	Launch Window
Spring	Mar	350	2 @ >1600	rise & fall from EBF (1)	Belden (3)	-	-
	Apr	350	2 @ >1600	rise & fall from EBF (1)	Belden (3)	-	-
	May	350	2 @ >1600	rise & fall from EBF (1)	Belden (3)	-	-
Summer & Fall	Jun	325	1 @ >1000 (2)	300/400 cfs rise/150 cfs fall (4)	Belden (3)	1600	10 - 4 pm
	Jul	325	0	400 cfs rise/150 cfs fall	no	1200	10 - 4 pm
	Aug	325	0	400 cfs rise/150 cfs fall	no	1000	10 - 4 pm
	Sep	325	0	400 cfs rise/150 cfs fall	no	1000	10 - 4 pm
	Oct	325	0	400 cfs rise/150 cfs fall	no	1000	10 - 4 pm
	Nov	325	0	400 cfs rise/150 cfs fall	no	-	-
Winter	Dec	350	0	400 cfs rise/150 cfs fall	no	-	-
	Jan	350	0	400 cfs rise/150 cfs fall	no	-	-
	Feb	350	0	400 cfs rise/150 cfs fall	no	-	-

Notes:

- (1) Rise and fall to follow E. Branch Feather rate, to be achieved by holding Belden, Rock Creek, & Cresta PHs constant during pulse (unless Cresta PH decreased to maintain flow > target pulse). Pulse event can be terminated when EBF flow is constant (+/- 100 cfs/hr), at which time normal operations resume, and spill may be reduced at 150 cfs/hr. Same rise and fall ramping limitations apply to non-pulse spill events past dam during March - first 2 weeks of June.
- (2) In first 2 weeks of June, a pulse of 1000 cfs (from EBF or supplemented) of at least 12 continuous hours in duration should occur, assuming flows at NF56 are not already > 3000 cfs.
- (3) If flows at NF56 are between 275 and 3000 cfs, Belden & Rock Creek will be block loaded to avoid having spills start and stop at Cresta Reservoir.
- (4) 300 cfs/hr rise during first 2 weeks of June, 400 cfs/hr rise for second 2 weeks of June if spill is from operations.
- (5) Minimum monthly flow to be measured at Licensee gage NF56, and at least 100 cfs will be released from Cresta Diversion Dam at all times.
- (6) Pulses are 12 hrs continuous duration, and no riparian flows occur.
- (8) Implementation of flow in this table is automatic after first 5 years.

Table A.2 (Continued)

Cresta Reach Minimum River Flow, Pulse, and Ramping							
Second 5-Year Flow Period - Dry Years (8)							
Season	Month	Base Flow (cfs) (5)	Pulse (cfs) (6)	Ramping Rate (cfsD/hr)	Block Loading	Boating Flow (cfs)	Launch Window
Spring	Mar	280	2 @ >1000	rise & fall from EBF ⁽¹⁾	Belden (3)	-	-
	Apr	280	2 @ >1000	rise & fall from EBF ⁽¹⁾	Belden (3)	-	-
	May	280	0	rise & fall from EBF ⁽¹⁾	Belden (3)	-	-
Summer & Fall	Jun	260	0	300/400 cfs rise/150 cfs fall (4)	no	1000	10 - 1 pm
	Jul	260	0	400 cfs rise/150 cfs fall	no	800	10 - 1 pm
	Aug	260	0	400 cfs rise/150 cfs fall	no	800	10 - 1 pm
	Sep	260	0	400 cfs rise/150 cfs fall	no	800	10 - 1 pm
	Oct	260	0	400 cfs rise/150 cfs fall	no	-	-
	Nov	260	0	400 cfs rise/150 cfs fall	no	-	-
Winter	Dec	280	0	400 cfs rise/150 cfs fall	no	-	-
	Jan	280	0	400 cfs rise/150 cfs fall	no	-	-
	Feb	280	0	400 cfs rise/150 cfs fall	no	-	-

Notes:

- (1) Rise and fall to follow E. Branch Feather rate, to be achieved by holding Belden, Rock Creek, & Cresta PHs constant during pulse (unless Cresta PH decreased to maintain flow > target pulse). Pulse event can be terminated when EBF flow is constant (+/-100 cfs/hr), at which time normal operations resume, and spill may be reduced at 150 cfs/hr. Same rise and fall ramping limitations apply to non-pulse spill events past dam during March - first 2 weeks of June.
- (3) If flows at NF56 are between 225 and 3000 cfs, Belden & Cresta will be block loaded to avoid having spills start and stop at Cresta Reservoir.
- (4) 300 cfs/hr rise during first 2 weeks of June, 400 cfs/hr rise for second 2 weeks of June if spill is from operations.
- (5) Minimum monthly flow to be measured at Licensee gage NF56, and at least 100 cfs will be released from Cresta Diversion Dam at all times.
- (6) Pulses are 12 hrs continuous duration, and no riparian flows occur.
- (8) Implementation of flow in this table is automatic after first 5 years.

Table A.2 (Continued)

Cresta Reach Minimum River Flow, Pulse, and Ramping							
Second 5-Year Flow Period - Critically Dry Years							
Season	Month	Base Flow (cfs) (5)	Pulse (cfs) (6)	Ramping Rate (cfsD/hr)	Block Loading	Boating Flow (cfs)	Launch Window
Spring	Mar	100	1 @ >1000	rise & fall from EBF (1)	Belden (3)	-	-
	Apr	100	1 @ >1000	rise & fall from EBF (1)	Belden (3)	-	-
	May	140	0	rise & fall from EBF (1)	Belden (3)	-	-
Summer & Fall	Jun	140 (7)	0	300/400 cfs rise/150 cfs fall (4)	no	1000	10 - 1 pm
	Jul	140 (7)	0	400 cfs rise/150 cfs fall	no	800	10 - 1 pm
	Aug	140 (7)	0	400 cfs rise/150 cfs fall	no	800	10 - 1 pm
	Sep	140 (7)	0	400 cfs rise/150 cfs fall	no	800	10 - 1 pm
	Oct	140 (7)	0	400 cfs rise/150 cfs fall	no	-	-
	Nov	100	0	400 cfs rise/150 cfs fall	no	-	-
	Dec	100	0	400 cfs rise/150 cfs fall	no	-	-
Winter	Jan	100	0	400 cfs rise/150 cfs fall	no	-	-
	Feb	100	0	400 cfs rise/150 cfs fall	no	-	-

Notes:

- (1) Rise and fall to follow E. Branch Feather rate, to be achieved by holding Belden, Rock Creek, & Cresta PHs constant during pulse (unless Cresta PH decreased to maintain flow > target pulse). Pulse event can be terminated when EBF flow is constant (+/-100 cfs/hr), at which time normal operations resume, and spill may be reduced at 150 cfs/hr.
- (3) If flows at NF56 are between 225 and 3000 cfs, Belden & Cresta will be block loaded to avoid having spills start and stop at Cresta Reservoir.
- (4) 300 cfs/hr rise during first 2 weeks of June, 400 cfs/hr rise for second 2 weeks of June if spill is from operations.
- (5) Minimum monthly flow to be measured at Licensee gage NF56, and at least 100 cfs will be released from Cresta Diversion Dam at all times.
- (6) Pulses are 12 hrs continuous duration, and no riparian flows occur.
- (7) The base flow of 140 cfs shall be increased to 200 cfs, or to any flow in between 140 and 200 cfs, to the extent necessary to contribute to the maintenance of mean daily temperatures of 20 degrees Celsius or less in the Cresta Reach. Similarly, this increased flow shall be reduced back to the 140 cfs base flow when not required to maintain mean daily temperatures of 20 degrees Celsius in the Cresta Reach. For the first three years after issuance of a New Project license, or until a temperature model as referred to in Section I, Paragraph 3 is developed, Licensee shall use the mean daily water temperature measured at NF 56 to determine whether and how to implement this provision. This flow provision shall not apply, and the base flow shall remain at 140 cfs, if the ERC and FS determine, based on a review of temperature monitoring results or by assessment from a reasonably accurate water temperature model, that the increase in base flows will not result in a reduction in water temperature beneficial to cold freshwater habitat, or the cost of the increase in base flow is dramatically disproportional to the benefit. To implement this flow provision, Licensee shall, in consultation with the ERC and FS, submit to FERC for approval, as soon as practicable but no later than one year after issuance of a New Project license, a Critically Dry Year Flow Operations and Compliance Plan. The plan shall establish reasonable procedures and criteria to maintain mean daily water temperatures of 20 degrees Celsius. These procedures and criteria shall be similar for both increasing flows up to 200 cfs (or any flow between 140 and 200 cfs) and decreasing flows back to 140 cfs.

Table A.3

Rock Creek Reach Minimum River Flow, Pulse, Ramping, & Riparian Third 5-Year Flow Period - Normal & Wet Years (9)								
Season	Month	Base Flow/Cap & Riparian (cfs) (5)	Pulse (cfs) (6)	Riparian (10)	Ramping Rate (cfsD/hr)	Block Loading	Boating Flow (cfs)	Launch Window
Spring	Mar	350/525 & 1000	2 @ >1600	yes	rise & fall from EBF (1)	Belden (3)	-	-
	Apr	350/525 & 800	2 @ >1600	yes	rise & fall from EBF (1)	Belden (3)	-	-
	May	350/525 & 600	2 @ >1600	yes	rise & fall from EBF (1)	Belden (3)	-	-
Summer & Fall	Jun	600 to 260/390	1 @ >1000 (2)	yes	300/400 cfs rise 150 cfs fall (4)	Belden (3)	1600	10 - 4 pm
	Jul	260/390	0	no	400 cfs rise 150 cfs fall	no	1200	10 - 4 pm
	Aug	260/390	0	no	400 cfs rise 150 cfs fall	no	1000	10 - 4 pm
	Sep	260/390	0	no	400 cfs rise 150 cfs fall	no	1000	10 - 4 pm
	Oct	260/390	0	no	400 cfs rise 150 cfs fall	no	1000	10 - 4 pm
	Nov	260/390	0	no	400 cfs rise 150 cfs fall	no	-	-
	Winter	Dec	350/525	0	no	400 cfs rise 150 cfs fall	no	-
	Jan	350/525	0	no	400 cfs rise 150 cfs fall	no	-	-
	Feb	350/525	0	no	400 cfs rise 150 cfs fall	no	-	-

Notes:

- (1) Rise and fall to follow E. Branch Feather rate, to be achieved by holding Belden and Rock Creek PHs constant during pulse (unless RCPH decreased to maintain flow > target pulse). Pulse event can be terminated when EBF flow is constant (+100 cfs/hr), at which time normal operations resume, and spill may be reduced at 150 cfs/hr. Same rise and fall ramping limitations apply to non-pulse spill events past diversion dam during March - first 2 weeks of June.
- (2) In first 2 weeks of June, a pulse of 1000 cfs (from EBF or supplemented) of at least 12 continuous hours in duration should occur, assuming flows at NF57 are not already in excess of 3000 cfs.
- (3) If flows at NF57 are between 275 and 3000 cfs, Belden will be block loaded to avoid having spills start and stop at Rock Creek Reservoir.
- (4) 300 cfs/hr rise during first 2 weeks of June, 400 cfs/hr rise for second 2 weeks of June if spill is from operations.
- (5) Minimum monthly flow to be measured at Licensee gage NF57.
- (6) Pulses are 12 hrs continuous duration.
- (9) Minimum flows in this table set by the ERC based on monitoring results
- (10) Riparian test flows elevate base flow from March 15-30, 1000 cfs continuous. For April 1-30, 20 of 30 days at 800 cfs, for May 1-31, 20 of 30 days at 600 cfs, base/cap flow otherwise. From June

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1 - 15, ramp in two steps to base/cap. After the 5-yr test and assoc. monitoring, riparian releases may cease unless significant resource improvement is observed.

Table A.3 (Continued)

Rock Creek Reach Minimum River Flow, Pulse, Ramping, & Riparian								
Third 5-Year Flow Period - Dry Years ⁽⁹⁾								
Season	Month	Base Flow/Cap & Riparian (cfs) ⁽⁵⁾	Pulse (cfs) ⁽⁶⁾	Riparian ⁽¹⁰⁾	Ramping Rate (cfsD/hr)	Block Loading	Boating Flow (cfs)	Launch Window
Spring	Mar	280/420 & 800	2 @ >1000	yes	rise & fall from EBF ⁽¹⁾	Belden ⁽³⁾	-	-
	Apr	280/420 & 640	2 @ >1000	yes	rise & fall from EBF ⁽¹⁾	Belden ⁽³⁾	-	-
	May	280/420 & 480	0	yes	rise & fall from EBF ⁽¹⁾	Belden ⁽³⁾	-	-
Summer & Fall	Jun	480 to 210/310	0	yes	300/400 cfs rise 150 cfs fall ⁽⁴⁾	no	1000	10 - 1 pm
	Jul	210/310	0	no	400 cfs rise 150 cfs fall	no	800	10 - 1 pm
	Aug	210/310	0	no	400 cfs rise 150 cfs fall	no	800	10 - 1 pm
	Sep	210/310	0	no	400 cfs rise 150 cfs fall	no	800	10 - 1 pm
	Oct	210/310	0	no	400 cfs rise 150 cfs fall	no	-	-
	Nov	210/310	0	no	400 cfs rise 150 cfs fall	no	-	-
Winter	Dec	280/420	0	no	400 cfs rise 150 cfs fall	no	-	-
	Jan	280/420	0	no	400 cfs rise 150 cfs fall	no	-	-
	Feb	280/420	0	no	400 cfs rise 150 cfs fall	no	-	-

Notes:

- (1) Rise and fall to follow E. Branch Feather rate, to be achieved by holding Belden and Rock Creek PHs constant during pulse (unless RCPH decreased to maintain flow > target pulse). Pulse event can be terminated when EBF flow is constant (+-100 cfs/hr), at which time normal operations resume, and spill may be reduced at 150 cfs/hr. Same rise and fall ramping limitations apply to non-pulse spill events past diversion dam during March - first 2 weeks of June.
- (3) If flows at NF57 are between 275 and 3000 cfs, Belden will be block loaded to avoid having spills start and stop at Rock Creek Reservoir.
- (4) 300 cfs/hr rise during first 2 weeks of June, 400 cfs/hr rise for second 2 weeks of June if spill is from operations.
- (5) Minimum monthly flow to be measured at Licensee gage NF57.
- (6) Pulses are 12 hrs continuous duration.
- (9) Minimum flows in this table set by the ERC based on monitoring results
- (10) Riparian test flows elevate base flow from March 15-30, 800 cfs continuous. For April 1-30, 20 of 30 days at 640 cfs, for May 1-31, 20 of 30 days at 480 cfs, base/cap flow otherwise. From June 1 - 15, ramp in two steps to base/cap. Riparian releases occur only in first year of consecutive dry year sequences. After the 5-yr test and assoc. monitoring, riparian releases may cease unless significant resource improvement is observed.

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Table A.3 (Continued)

Rock Creek Reach Minimum River Flow, Pulse, Ramping, & Riparian Third 5-Year Flow Period - Critically Dry Years								
Season	Month	Base Flow (cfs) (5)	Pulse (cfs) (6)	Riparian (6)	Ramping Rate (cfsD/hr)	Block Loading	Boating Flow (cfs)	Launch Window
Spring	Mar	150	1 @ >1000	no	rise & fall from EBF (1)	Belden (3)	-	-
	Apr	150	1 @ >1000	no	rise & fall from EBF (1)	Belden (3)	-	-
	May	150	0	no	rise & fall from EBF (1)	Belden (3)	-	-
Summer & Fall	Jun	150 (7)	0	no	300/400 cfs rise 150 cfs fall (4)	no	1000	10 - 1 pm
	Jul	150 (7)	0	no	400 cfs rise/150 cfs fall	no	800	10 - 1 pm
	Aug	150 (7)	0	no	400 cfs rise/150 cfs fall	no	800	10 - 1 pm
	Sep	150 (7)	0	no	400 cfs rise/150 cfs fall	no	800	10 - 1 pm
	Oct	150 (7)	0	no	400 cfs rise/150 cfs fall	no	-	-
	Nov	110	0	no	400 cfs rise/150 cfs fall	no	-	-
	Dec	110	0	no	400 cfs rise/150 cfs fall	no	-	-
Winter	Jan	110	0	no	400 cfs rise/150 cfs fall	no	-	-
	Feb	110	0	no	400 cfs rise/150 cfs fall	no	-	-

Notes:

- (1) Rise and fall to follow E. Branch Feather rate, to be achieved by holding Belden and Rock Creek PHs constant during pulse (unless RCPH decreased to maintain flow > target pulse). Pulse event can be terminated when EBF flow is constant (+/-100 cfs/hr), at which time normal operations resume, and spill may be reduced at 150 cfs/hr
- (3) If flows at NF57 are between 275 and 3000 cfs, Belden will be block loaded to avoid having spills start and stop at Rock Creek Reservoir.
- (4) 300 cfs/hr rise during first 2 weeks of June, 400 cfs/hr rise for second 2 weeks of June if spill is from operations.
- (5) Minimum monthly flow to be measured at Licensee gage NF57.
- (6) Pulses are 12 hrs continuous duration, and no riparian flows occur in critically dry years
- (7) The base flow of 150 cfs shall be increased to 200 cfs, or to any flow between 150 and 200 cfs, to the extent necessary to contribute to the maintenance of mean daily temperatures of 20 degrees Celsius or less in the Rock Creek Reach. Similarly, this increased flow shall be reduced back to the 150 cfs base flow when not required to maintain mean daily temperatures of 20 degrees Celsius in the Rock Creek Reach. For the first three years after issuance of a New Project license, or until a temperature model as referred to in Section I, Paragraph 3 is developed, Licensee shall use the mean daily water temperature measured at NF 57 to determine whether and how to implement this flow provision. This flow provision shall not apply, and the base flow shall remain at 150 cfs, if the ERC and FS determine, based on a review of temperature monitoring results or by assessment from a reasonably accurate water temperature model, that the increase in base flows will not result in a reduction in water temperature beneficial to cold freshwater habitat, or the cost of the increase in base flow is dramatically disproportional to the benefit. To implement this flow provision, Licensee shall, in consultation with the ERC and FS, submit to FERC for approval, as soon as practicable but no later than one year after issuance of a New Project license, a Critically Dry Year Flow Operations and Compliance Plan. The plan shall establish reasonable procedures and criteria to support maintenance of mean daily water temperatures of 20 degrees Celsius. These procedures and criteria shall be similar for both increasing flows up to 200 cfs (or any flow between 150 and 200 cfs) and decreasing flows back to 150 cfs.

Table A.3 (Continued)

Cresta Reach Minimum River Flow, Pulse, and Ramping							
Third 5-Year Flow Period - Normal & Wet Years (9)							
Season	Month	Base Flow/Cap (cfs) (5)	Pulse (cfs) (6)	Ramping Rate (cfsD/hr)	Block Loading	Boating Flow (cfs)	Launch Window
Spring	Mar	350/525	2 @ >1600	rise & fall from EBF (1)	Belden (3)	-	-
	Apr	350/525	2 @ >1600	rise & fall from EBF (1)	Belden (3)	-	-
	May	350/525	2 @ >1600	rise & fall from EBF (1)	Belden (3)	-	-
Summer & Fall	Jun	325/440	1 @ >1000 (2)	300/400 cfs rise 150 cfs fall (4)	Belden (3)	1600	10 - 4 pm
	Jul	325/440	0	400 cfs rise/150 cfs fall	no	1200	10 - 4 pm
	Aug	325/440	0	400 cfs rise/150 cfs fall	no	1000	10 - 4 pm
	Sep	325/440	0	400 cfs rise/150 cfs fall	no	1000	10 - 4 pm
	Oct	325/440	0	400 cfs rise/150 cfs fall	no	1000	10 - 4 pm
	Nov	325/440	0	400 cfs rise/150 cfs fall	no	-	-
	Dec	350/525	0	400 cfs rise/150 cfs fall	no	-	-
Winter	Jan	350/525	0	400 cfs rise/150 cfs fall	no	-	-
	Feb	350/525	0	400 cfs rise/150 cfs fall	no	-	-

Notes:

- (1) Rise and fall to follow E. Branch Feather rate, to be achieved by holding Belden, Rock Creek, & Cresta PHs constant during pulse (unless Cresta PH decreased to maintain flow > target pulse). Pulse event can be terminated when EBF flow is constant (+/-100 cfs/hr), at which time normal operations resume, and spill may be reduced at 150 cfs/hr. Same rise and fall ramping limitations apply to non-pulse spill events past diversion dam during March - first 2 weeks of June.
- (2) In first 2 weeks of June, a pulse of 1000 cfs (from EBF or supplemented) of at least 12 continuous hours in duration should occur, assuming flows at NF56 are not already > 3000 cfs.
- (3) If flows at NF56 are between 275 and 3000 cfs, Belden & Rock Creek will be block loaded to avoid having spills start and stop at Cresta Reservoir.
- (4) 300 cfs/hr rise during first 2 weeks of June, 400 cfs/hr rise for second 2 weeks of June if spill is operations.
- (5) Minimum monthly flow to be measured at Licensee gage NF56, and at least 100 cfs will be released from Cresta Diversion Dam at all times.
- (6) Pulses are 12 hrs continuous duration, and no riparian flows occur.
- (9) Minimum flows in this table set by the ERC based on monitoring results.

Table A.3 (Continued)

Cresta Reach Minimum River Flow, Pulse, and Ramping							
Third 5-Year Flow Period - Dry Years (9)							
Season	Month	Base Flow/Cap (cfs) (5)	Pulse (cfs) (6)	Ramping Rate (cfsD/hr)	Block Loading	Boating Flow (cfs)	Launch Window
Spring	Mar	280/420	2 @ >1000	rise & fall from EBF (1)	Belden (3)	-	-
	Apr	280/420	2 @ >1000	rise & fall from EBF (1)	Belden (3)	-	-
	May	280/420	0	rise & fall from EBF (1)	Belden (3)	-	-
Summer & Fall	Jun	260/350	0	300/400 cfs rise/150 cfs fall (4)	no	1000	10 - 1 pm
	Jul	260/350	0	400 cfs rise/150 cfs fall	no	800	10 - 1 pm
	Aug	260/350	0	400 cfs rise/150 cfs fall	no	800	10 - 1 pm
	Sep	260/350	0	400 cfs rise/150 cfs fall	no	800	10 - 1 pm
	Oct	260/350	0	400 cfs rise/150 cfs fall	no	-	-
	Nov	260/350	0	400 cfs rise/150 cfs fall	no	-	-
Winter	Dec	280/420	0	400 cfs rise/150 cfs fall	no	-	-
	Jan	280/420	0	400 cfs rise/150 cfs fall	no	-	-
	Feb	280/420	0	400 cfs rise/150 cfs fall	no	-	-

Notes:

- (1) Rise and fall to follow E. Branch Feather rate, to be achieved by holding Belden, Rock Creek, & Cresta PHs constant during pulse (unless Cresta PH decreased to maintain flow > target pulse). Pulse event can be terminated when EBF flow is constant (+/-100 cfs/hr), at which time normal operations resume, and spill may be reduced at 150 cfs/hr. Same rise and fall ramping limitations apply to non-pulse spill events past diversion dam during March - first 2 weeks of June.
- (3) If flows at NF56 are between 225 and 3000 cfs, Belden & Cresta will be block loaded to avoid having spills start and stop at Cresta Reservoir.
- (4) 300 cfs/hr rise during first 2 weeks of June, 400 cfs/hr rise for second 2 weeks of June if spill is from operations.
- (5) Minimum monthly flow to be measured at Licensee gage NF56, and at least 100 cfs will be released from Cresta Diversion Dam at all times.
- (6) Pulses are 12 hrs continuous duration, and no riparian flows occur.
- (9) Minimum flows in this table set by the ERC based on monitoring results.

Table A.3 (Continued)

Cresta Reach Minimum River Flow, Pulse, and Ramping							
Third 5-Year Flow Period - Critically Dry Years							
Season	Month	Base Flow (CFS) (5)	Pulse (cfs) (6)	Ramping Rate (cfsD/hr)	Block Loading	Boating Flow (cfs)	Launch Window
Spring	Mar	100	1 @ >1000	rise & fall from EBF (1)	Belden (3)	-	-
	Apr	100	1 @ >1000	rise & fall from EBF (1)	Belden (3)	-	-
	May	140	0	rise & fall from EBF (1)	Belden (3)	-	-
Summer & Fall	Jun	140 (7)	0	300/400 cfs rise 150 cfs fall (4)	no	1000	10 - 1 pm
	Jul	140 (7)	0	400 cfs rise/150 cfs fall	no	800	10 - 1 pm
	Aug	140 (7)	0	400 cfs rise/150 cfs fall	no	800	10 - 1 pm
	Sep	140 (7)	0	400 cfs rise/150 cfs fall	no	800	10 - 1 pm
	Oct	140 (7)	0	400 cfs rise/150 cfs fall	no	-	-
	Nov	100	0	400 cfs rise/150 cfs fall	no	-	-
	Winter	Dec	100	0	400 cfs rise/150 cfs fall	no	-
	Jan	100	0	400 cfs rise/150 cfs fall	no	-	-
	Feb	100	0	400 cfs rise/150 cfs fall	no	-	-

Notes:

- (1) Rise and fall to follow E. Branch Feather rate, to be achieved by holding Belden, Rock Creek, Cresta PHs constant during pulse (unless Cresta PH decreased to maintain flow > target pulse). Pulse event can be terminated when EBF flow is constant (+/-100 cfs/hr), at which time normal operations resume, and spill may be reduced at 150 cfs/hr.
- (3) f flows at NF56 are between 225 and 3000 cfs, Belden & Cresta will be block loaded to avoid having spills start and stop at Cresta Reservoir.
- (4) 300 cfs/hr rise during first 2 weeks of June, 400 cfs/hr rise for second 2 weeks of June if spill is from operations.
- (5) Minimum monthly flow to be measured at Licensee gage NF56, and at least 100 cfs will be released from Cresta Diversion Dam at all times.
- (6) Pulses are 12 hrs continuous duration, and no riparian flows occur.
- (7) The base flow of 140 cfs shall be increased to 200 cfs, or to any flow in between 140 and 200 cfs, to the extent necessary to contribute to the maintenance of mean daily temperatures of 20 degrees Celsius or less in the Cresta Reach. Similarly, this increased flow shall be reduced back to the 140 cfs base flow when not required to maintain mean daily temperatures of 20 degrees Celsius in the Cresta Reach. For the first three years after issuance of a New Project license, or until a temperature model as referred to in Section I, Paragraph 3 is developed, Licensee shall use the mean daily water temperature measured at NF 56 to determine whether and how to implement this provision. This flow provision shall not apply, and the base flow shall remain at 140 cfs, if the ERC and FS determine, based on a review of temperature monitoring results or by assessment from a reasonably accurate water temperature model, that the increase in base flows will not result in a reduction in water temperature beneficial to cold freshwater habitat, or the cost of the increase in base flow is dramatically disproportional to the benefit. To implement this flow provision, Licensee shall, in consultation with the ERC and FS, submit to FERC for approval, as soon as practicable but no later than one year after issuance of a New Project license, a Critically Dry Year Flow Operations and Compliance Plan. The plan shall establish reasonable procedures and criteria to maintain mean daily water temperatures of 20 degrees Celsius. These procedures and criteria shall be similar for both increasing flows up to 200 cfs (or any flow between 140 and 200 cfs) and decreasing flows back to 140 cfs.

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2
3 **2. Water Year Type.** Minimum streamflows vary depending on the magnitude of the
4 annual runoff from the river basin. Water years have been separated into four water year
5 types based on the California Department of Water Resources (DWR) records of annual
6 inflow to Lake Oroville (Oroville) from 1930-1999: Wet, Normal, Dry, and Critically
7 Dry (CD). Licensee shall determine water year type based on the predicted unimpaired
8 inflow to Oroville and spring snowmelt runoff forecasts provided by Licensee and DWR
9 each month from March through May. The water year types are defined as follows:

- 10
11 Wet: Greater than or equal to 5,679 thousand acre feet (TAF) inflow to
12 Oroville
13 Normal: Less than 5,679 TAF but greater than or equal to 3,228 TAF inflow to
14 Oroville
15 Dry: Less than 3,228 TAF but greater than or equal to 2,505 TAF inflow to
16 Oroville
17 CD: Less than 2,505 TAF inflow to Oroville
18

19 Licensee shall make a forecast of the water year type on or about March 10 and operate for
20 the remainder of that month and until the next forecast based on that March forecast. New
21 forecasts will be made on or about the tenth of April and May after the snow surveys are
22 completed and operations will be changed as may be appropriate. The May forecast shall
23 be used to establish the water year type for the remaining months of the year until the next
24 March, when forecasting shall begin again. Licensee shall provide Notice to FS, FERC,
25 and the ERC of the final water year type determination within 30 days of making the
26 determination.
27

28 **3. River Flow Measurement.** For the purpose of determining the river stage and
29 Minimum River Flow below the Rock Creek and Cresta dams, Licensee shall use, operate
30 and maintain the existing gage locations (designated as USGS gage numbers 11.4032.00
31 and 11.4043.30) consistent with all requirements of the USGS and FERC. The minimum
32 100 cfs release at Cresta Dam will be verified by records from flow meters on release
33 facilities at the dams or by records of radial gates operations.
34

35 **4. Initial Year Flow Variation Allowance.** Licensee shall have a one year interim test
36 procedure that will allow variations in flow releases of up to 10% below the minimum
37 flows specified in Table A.1 and of a duration no longer than 24 hours, provided that
38 Licensee targets flows above the specified level to help minimize the frequency of any
39 under-releases and Licensee compensates for each under-release by providing over-
40 releases of sufficient flow and duration to equal the cumulative volume of the under-
41 release within sixty days.
42

43 **5. Ramping Rates.** For the preservation and improvement of aquatic resources in the
44 Project area, Licensee shall control river flows during controllable periods by ramping as
45 follows:
46

1 A. Basic Ramping Rates. During periods when ramping can be controlled, the
2 following will be the initial Ramping Rates during the first three years after acceptance
3 of the new license. These rates will be followed as close as reasonably practicable
4 given radial gate operating limitations. Revision to these rates may occur as the result
5 of the monitoring plan as provided under item F below. Water to accommodate future
6 adjustments to Ramping Rates as applied to controlled Pulse Flow releases shall be
7 made up from the total volume of water for such Pulse Flows, or Minimum River
8 Flows.

9
10 March, April and May - 250 cfs/hr. up-ramp and 150 cfs/hr. down-ramp

11 June 1 - June 15 - 300 cfs/hr. up-ramp and 150 cfs/hr. down-ramp

12 Remainder of the year - 400 cfs/hr. up-ramp and 150 cfs/hr. down-ramp
13

14 B. Uncontrolled Spill Flows below 3000 cfs. Except during emergencies, up-Ramping
15 Rates will, within limits as discussed herein, match the rise occurring in the East
16 Branch of the North Fork Feather River at the time that the flow capacity of the
17 generating units is exceeded. Physical limitations of existing gates and controls, dam
18 safety considerations, and other limitations may prevent an exact match of rates.
19 Down-ramping will be at the rate of fall of the East Branch of the North Fork Feather
20 River provided that as the flow approaches the point that spill can be eliminated,
21 Licensee will make a Good Faith effort to not exceed the basic down-ramp rate
22 specified in Section 5.A above when increasing powerhouse flow. During Pulse Flow
23 events as defined in the flow schedule, Licensee may hold the generating unit(s)
24 constant below maximum capacity or reduce the generation to produce the required
25 Pulse Flow. The up-Ramping Rate resulting from reduction in generation plus the
26 observed rise in the East Branch of the North Fork Feather River shall not exceed the
27 basic Ramping Rates under Section 5.A above. Pulse events can be terminated when
28 East Branch flow is constant (flow rate is not fluctuating more than +/- 100 cfs/hr.) at
29 which time normal operations resume and spill may be reduced at the basic down-ramp
30 rate.

31
32 C. Uncontrolled Spills above 3000 cfs. Radial gates operate to release spills up to
33 approximately 3000 cfs at which time the drum gates typically begin operation. Drum
34 gate operation can not be as closely controlled as radial gate operation and the
35 potential impacts to the downstream ecological system due to the Ramping Rate are
36 substantially less than at lower flow levels. Therefore, no Ramping Rate will be
37 imposed for operation above 3000 cfs.
38

39 D. Controlled Spills. If spills are necessary for efficient operation, such as the
40 bypassing of water around a powerhouse to allow its use at upstream or downstream
41 powerhouses, or for special releases such as Pulse Flows required under the Flow
42 Schedule at times when natural flows are not available and for whitewater flows, the
43 ramping shall follow the basic Ramping Rate.
44
45

1 E. Emergencies. Licensee shall make a Good Faith effort to control Ramping Rates
2 within the parameters provided in this Settlement but shall not be in violation of the
3 rates in the event that the rates are exceeded due to a unit tripping off-line, and
4 subsequent restoration, or other conditions beyond the reasonable control of Licensee.
5

6 F. Ramping Study. The potential affects associated with Ramping Rates will be
7 evaluated in connection with recreation and Pulse Flow releases, as described in
8 Section V.2 of this agreement. This study shall include a minimum testing period of
9 three years. If during this period the ERC and FS determine that changes are needed to
10 the initial level of the basic Ramping Rates, Licensee will submit to the FERC revised
11 Ramping Rates as soon as practicable.
12

13 **6. Annual Ramping Data Review.** As part of the annual data provided to the ERC and
14 FS by January 15 of each year, Licensee shall provide information on its operations during
15 the previous calendar year including Ramping Rates experienced at Rock Creek and Cresta
16 Dams at times that spill occurred.
17

18 **7. Fishery Monitoring Plan.** To evaluate fish populations and angler use/catch at Rock
19 Creek-Cresta, Licensee shall prepare a Fishery Monitoring Plan, in consultation with the
20 ERC, and FS, and file such plan with FERC as soon as practicable but not more than one
21 year after issuance of the New Project License. Unless otherwise agreed by the ERC and
22 FS, stocking of fish in the reservoir or river reaches will not be implemented. Also, due to
23 the low probability of entrainment of trout in the Project intakes, entrainment studies will
24 not be required.
25

26 **8. Riparian Monitoring Plan.** To evaluate the riparian response to the flow regime in
27 Table A, Licensee shall prepare a Riparian Monitoring Plan, in consultation with the ERC
28 and FS, and file such plan with FERC within one year of issuance of a New Project
29 License.
30

31 **9. Macroinvertebrate Sampling Plan.** To assess possible changes in macroinvertebrate
32 assemblage in response to watershed management actions including changes to instream
33 flow and temperature, Licensee shall develop a Macroinvertebrate Sampling Plan in
34 consultation with the ERC and FS, and file such plan with FERC within one year of
35 issuance of a New Project License.
36

37 **Section III. Habitat Improvements**

38

39 **1. Fishery Habitat Improvements.** To provide improved trout production through
40 instream enhancement of passage, spawning and recruitment, Licensee shall complete the
41 following items A and B within one year and items C and D within 2 years of issuance of a
42 New Project License.
43
44

1 A. Provide appropriate size spawning gravel to cover an area of approximately 75
2 square feet at Granite Creek, tributary to the North Fork Feather River, and maintain
3 this spawning gravel site on an as-needed basis as determined by the ERC.
4

5 B. Mechanically remove portions of the existing weir located 100 feet upstream of the
6 mouth of Rock Creek at Cresta Reservoir and downstream of the Union Pacific
7 Railroad bridge crossing Rock Creek, tributary to the North Fork Feather River.
8

9 C. Construct, operate, and maintain a spawning channel at Opapee Creek, tributary to
10 the North Fork Feather River. The design of the spawning channel will be similar to
11 that described in the March 31, 1987, Bechtel Construction, Inc. report entitled
12 "Tributary Improvement Feasibility Study for Selected Streams in the North Fork
13 Feather River Drainage."
14

15 D. Construct, operate, and maintain a spawning channel at Milk Ranch Creek, tributary
16 to the North Fork Feather River. The design of the spawning channel will be similar to
17 that described in the March 31, 1987, Bechtel Construction, Inc. report entitled
18 "Tributary Improvement Feasibility Study for Selected Streams in the North Fork
19 Feather River Drainage."

20 **2. Fishery Habitat Monitoring Plan.** To evaluate the success of spawning channels at
21 Opapee and Milk Ranch Creeks and fish passage at selected tributaries, Licensee shall
22 prepare a Fishery Habitat Monitoring Plan, in consultation with the ERC and FS, and file
23 such plan with FERC within one year of issuance of a New Project License.

24 **3. River Terrace Plantings.** To enhance habitat conditions on the upper banks of the
25 NFFR in the Project area, Licensee shall prepare a Terrace Planting Plan, in consultation
26 with the ERC and FS, and file such plan with FERC within one year of issuance of a New
27 Project License. Planting sites will include Rogers Flat, lower Opapee Flat, Chambers
28 Creek, the lower end of Shady Rest and two other sites to be determined for a total of six
29 sites.

30 **4. Terrace Planting Monitoring Plan.** Licensee shall also prepare, in consultation with
31 the ERC and FS, a Terrace Planting Monitoring Plan and file such plan with FERC within
32 one year of issuance of a New Project License. This plan shall determine-survival, vigor
33 and canopy development of riparian species established at planting sites and maintained
34 through accepted horticultural techniques.
35

36 **Section IV. River Sediment Management**

37

38 **1. Drum and Radial Gate Operating Plan.** For the purposes of improving sediment
39 recruitment through the Rock Creek and Cresta reaches, Licensee shall, to the extent
40 feasible, develop a Drum and Radial Gate Operation Plan that would promote bedload
41 movement through the Rock Creek and Cresta reservoirs between December 1 and March
42 30. Licensee shall prepare this plan in consultation with the ERC and FS, and file the plan
43 with FERC within one year of issuance of a New Project License. The plan will include

1 an evaluation of risk of damage to the gates, release pipes, powerhouse intakes, or other
2 facilities.

3
4 **2. River Sediment Management Monitoring Plan.** Licensee shall also develop, in
5 consultation with the ERC and FS, a River Sediment Management Monitoring Plan to
6 evaluate the effectiveness of the Gate Operation Plan over a five year test period and file
7 that plan with FERC within one year of issuance of a New Project License. Releases of
8 water from the drum and radial gates for the purposes of the test program shall be from
9 December 1 to March 30. The test shall be for a period of 5 normal or wet years. At the
10 end of five year test period, the ERC and FS shall evaluate the results of the sediment
11 management program and recommend to FERC future sediment management actions. If the
12 test program is determined to be successful by the ERC and FS, it shall be implemented for
13 the life of the New Project License.

14
15 If the ERC determines the test program to be unsuccessful, Licensee shall, within one year
16 of this determination, develop a plan for experimental gravel placement in consultation
17 with the ERC and FS. This experimental program will evaluate placement of a quantity of
18 gravel not to exceed 200 cubic yards. If the ERC determines this program to be successful,
19 then a program of gravel addition not to exceed 100 cubic yards annually shall be
20 implemented for the life of the New Project License.

21 **Section V. Recreation Flow Management**

22
23 **1. Recreational Flows.** For the purposes of improving and enhancing public recreation,
24 Licensee shall implement, as early as possible but no later than one year after issuance of
25 the New Project License, the following recreational flow schedule and other provisions
26 presented in Table B, Recreation Flow Schedule.

27
28 A. Recreation Flow Schedule Flow releases will occur at both the Rock Creek and
29 Cresta dams according to the schedule below. Flow releases will occur on Saturdays
30 or Sundays between the hours of 10am and 4pm during wet or normal water years, and
31 between the hours of 10am and 1pm during dry years. When scheduling flow releases,
32 holiday weekends will be given priority over non-holiday weekends.
33

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Table B - Recreation Flow Schedule

Month	Release amount in Cubic Feet per Second (cfs)		Release Days per Month				User Day Triggers			
	Dry *	Normal **	Dry Start	Dry Cap	Normal Start	Normal Cap	Rock Creek Reach		Cresta Reach	
							Normal /Dry Up	Down	Normal /Dry Up	Down
June	1000cf	1600 cfs	1 day	4 days	1 day	5 days	120/110	60	60/50	40
July	800 cfs	1200 cfs	1 day	4 days	1 day	4 days	130/130	60	60/65	40
Aug	800 cfs	1000 cfs	1 day	4 days	1 day	4 days	150/160	60	80/80	50
Sep	800 cfs	1000 cfs	1 day	4 days	1 day	4 days	180/190	80	100/95	60
Oct	800 cfs	1000 cfs	0	0	1 day	2 days	180	80	100	60

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* Dry and Critically Dry years
 ** Normal and Wet years

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B. Recreation Flow Calendar. An annual recreation flow calendar will be established with initial recreation flow days occurring on the first full weekend of the month. If Licensee is required to make a June Pulse Flow release, such release shall be scheduled coincident with a June recreation flow day(s). An annual planning meeting will be held each year in March. This meeting will discuss expected water year type, results of monitoring efforts, Licensee maintenance needs that may conflict with recreation flow releases, and other issues relevant to on-water recreation.

C. Flows Made on Consecutive Days. Recreation flow releases from Rock Creek and Cresta dams will be made on consecutive days. Increases or decreases in the number of recreation flow releases as a result of monitoring will be made to the recreation flow calendar on weekends starting with the second weekend of the month. If there is an odd number of recreation flow releases due to additional days, then the odd recreation flow release will occur on the first weekend day following the consecutive weekend day recreation flow release.

D. Recreation Flow Postponement. Licensee may postpone up to one weekend of recreation flow releases in July and one weekend of recreation flow releases in August during heat waves provided Licensee gives a 48-hour notice to the recreation community. Postponement will be based on projected Heat Storm conditions. Postponed recreation flow releases will be made up on the next available weekend in the same month or rolled into the following month if no weekends are available. Also in the event of an emergency which would preclude the release of a scheduled flow,

1 Licensee shall provide as much notice as possible and arrangements for the
2 rescheduled day or days.
3

4 E. Triggers for Adjustments. Observed boater use in boater days will be monitored to
5 determine whether release days should be added or subtracted. A boater day is
6 defined as use of either the Rock Creek or Cresta reaches for any part of a given day.
7 Boater use data will be collected on each scheduled recreation flow release days. A
8 day of recreation flow will be added to the recreation flow schedule the next year after
9 100% exceedance of the up-trigger is met for each day in a particular month of that
10 year. A day of recreation flow will be subtracted from the recreation flow schedule
11 for the next year after 100% exceedance of the down-trigger are not met in a particular
12 month of that year. Days will be adjusted to the same month in which use is monitored.
13 Recreation flow releases will not decrease below 1 release per month, unless
14 unacceptable adverse ecological impacts are observed. Flow release days will not be
15 added or subtracted during the initial 3 years after issuance of the license to allow for
16 the biologic monitoring in item (V.2) below.
17

18 F. Ramping Rates. Initial Ramping Rates will be as defined in the Section II.5.A .
19 Subsequent ramp rate adjustments made by the ERC and FS, and approved by FERC if
20 necessary, will come out of the total volume of water released during the recreation
21 flow release, except in dry years, provided that Licensee shall not be required to
22 provide additional flow if the ramping time for dry years increases by more than a
23 factor of 2.
24

25 **2. Recreation and Pulse Flow Biological Evaluation.** Licensee shall prepare, in
26 consultation with the ERC and FS, a Flow Evaluation Plan and file such plan with FERC
27 within one year of issuance of a New Project License. This Plan will be designed to
28 evaluate the effects of recreation and Pulse Flow releases on aquatic biota, and the metrics
29 to be used in this determination. If, after 3 years of data collection and assessment, either
30 beneficial, neutral, or no significant adverse effects (as determined by the ERC and FS) are
31 observed, recreation flow release days will be added as supported by on-water
32 recreational use monitoring in item V.1.E above. Days will be adjusted after that period as
33 supported by ecological and on-water recreational use monitoring
34

35 **3. Recreation Stream Flow Information.** Each year Licensee shall make recreation
36 stream flow information available to the public via toll-free phone and/or Internet.
37 Summer streamflow release schedules and streamflows below the diversion dams shall be
38 provided during various periods and in various formats, as described below.
39

40 A. By April 10, a preliminary forecast shall be made of the dates and flow targets of
41 scheduled recreational releases from the Rock Creek and Cresta Diversion Dams. The
42 forecast shall be updated by May 10, with weekly updates if changes occur, thereafter
43 through October 15.
44

45 B. To allow whitewater recreational users to take advantage of streamflows that result
46 from snowmelt or storms, hourly averages of streamflows at the Rock Creek and Cresta

1 reach gages (Licensee gages NF57 and NF56, respectively) shall, within 4 hours of
2 collection, be posted on the Internet site for the current and prior 6 days for the entire year.
3 All streamflow values shall be rounded to the nearest even hundreds value, be in cfs, and
4 plots or tables showing these data will be labeled “These provisional data have not been
5 reviewed or edited and may be subject to significant change.” The Licensee may, at their
6 discretion but limited by their Good Faith intent to routinely and continuously provide this
7 flow information, block the posting of this information when the information is determined
8 by the Licensee to have significant market value that could adversely affect Licensee
9 bidding activities and power or ancillary services prices.

10
11 C. Licensee shall install and maintain one simple staff gage/depth indicator in both the
12 Rock Creek and Cresta reaches and provide a rough rating table to be posted at the nearby
13 recreational/launch area that reasonably correlates the gage height with flow measured in
14 cubic feet per second (cfs). Rating tables shall be updated as needed, no more often than
15 annually. Licensee will make a Good Faith attempt to locate the staff gages/ depth
16 indicators in locations that are easily accessible for public reference.

17
18 Licensee shall make a Good Faith effort to make scheduled recreation streamflow releases
19 on the days when such releases are forecast to occur. The Licensee has the discretion to
20 cancel scheduled releases up to 48 hours prior to the release during Heat Storm conditions
21 (see Section V.1.D, Recreation Flow Postponement). All provisions for recreation
22 streamflows are subject to the safe operability of the Project facilities and equipment
23 necessary to provide such streamflows. Licensee shall make a Good Faith effort to
24 maintain the operability of such Project facilities and equipment and shall not schedule
25 discretionary outages of such Project facilities and equipment in conflict with providing the
26 recreation streamflows described below. The flow information may be made available to
27 the public via a third party. The flow information protocols described above may be
28 modified upon mutual agreement of Licensee, FS, AW, and acceptance by FERC.

30 **Section VI. River Recreation Facilities**

31
32 **1. River Recreation Access Plan.** Within eighteen (18) months of the date of issuance of
33 the New Project License and for the purposes of enhancing public access, Licensee shall
34 develop in consultation with the ERC and FS, a River Access Management Plan, and file
35 such plan with FERC. In developing the plan, Licensee shall consider the following
36 (prioritized in order of importance):

- 37 • vehicle access to the bench directly downstream of Rock Creek Dam;
- 38 • public access downstream of Cresta Dam;
- 39 • public access to Licensee lands directly downstream of Cresta powerhouse (old
40 Licensee employee housing site); and
- 41 • public access at the confluence of the NFFR with Rock Creek at the upper end of
42 Cresta Reservoir.

43
44 The plan will also include an implementation and funding schedule. Licensee will match
45 funds contributed for recreational access enhancements at these sites up to a cap of

1 \$300,000. \$100,000 shall be provided without matching funding and \$200,000 shall be
2 subject to matching funding from other sources. These funds will be escalated as specified
3 in Paragraph 4.5.5 of this Settlement.
4

5 Licensee shall prepare the plan and schedule in consultation with FS, FWS, CALTRANS,
6 Plumas and Butte Counties, AW, and other appropriate parties. Licensee shall include
7 with the plan documentation of consultation, copies of comments and recommendations on
8 the completed plan after it has been prepared and provided to the entities, and specific
9 descriptions of how the entities comments are accommodated by the plan. Licensee shall
10 allow a minimum of 30 days for the entities to comment and to make recommendations
11 prior to filing the plan with FERC for approval. If Licensee does not adopt a
12 recommendation, the filing shall include Licensee's reasons, based on Project-specific
13 information.
14

15 **2. Shady Rest.** Licensee shall continue to operate and maintain the rest area located at
16 Shady Rest. This site shall also include appropriate river use and natural history
17 interpretive measures and other information appropriate for river use.
18

19 **Section VII. Public Recreation Monitoring**

20

21 Licensee shall prepare, in consultation with the ERC and FS, a Recreation Monitoring Plan
22 and file such plan with FERC within one year of issuance of a New Project License. This
23 plan will monitor recreational use during recreation flow release events and monitor
24 fishing recreation through a creel census program. Licensee shall also cooperate with the
25 FS should FS wish to perform other recreational surveys in the Project area.
26

27 **Section VIII. Ecological Resources Committee**

28

29 Licensee shall, within 3 months of issuance of a New Project License, in coordination with
30 the Parties, establish the ERC for the purpose of assisting Licensee in the design of
31 monitoring plans, review and evaluation of data, and preparation of adaptive management
32 measures for implementation by Licensee as provided in this Settlement. Licensee shall
33 provide to FERC, FS, and the ERC by May 31 of each year an annual report of the
34 activities of the ERC. Licensee shall provide Notice to FERC within 30 days (but prior to
35 implementing the change) of any decisions by the ERC or FS that result in changes to
36 Project operations or facilities.

1 **Appendix B**
2
3

4 Protection, Mitigation and Enhancement Measures that the Parties agree are appropriate
5 and necessary, and made a part of the Agreement, but are not recommended to be Included
6 in New Project License and FS Final 4(e) Conditions.
7

8 **Section I. Objectives**
9

10 The following objectives are desirable outcomes. It is recognized that factors beyond
11 Licensee's control could affect attainment of these objectives as determined by the ERC
12 and FS, and that some or all of the objectives may not be achievable within the PM&E
13 measures included in Appendix A of this Settlement. Licensee agrees to work toward
14 achievement of these objectives by implementing the terms of this Settlement. The
15 objectives were developed by the Rock Creek - Cresta Relicensing Collaborative as the
16 basis for measures to become Section 4(e) Conditions and license articles. Fishery
17 performance desired outcomes may be revised during the 15 year study based on site
18 specific analyses of limiting factors, production potential or other biological
19 considerations by the ERC. These objectives are intended to provide guidance for future
20 activities of the ERC and FS, and are subject to review and amendment or modification as
21 scientific based data are obtained from monitoring and other sources. If, after review and
22 analysis of the data, the ERC determines that after exhausting the adaptive management
23 measures included in this Settlement the objectives are not achieved, further actions by
24 Licensee are not required absent reopener or license amendment.
25

26 **Water Temperature Objective**
27

28 In order to reasonably protect cold freshwater habitat, maintain mean daily water
29 temperatures of 20°C or less in the Rock Creek and Cresta Reaches up to the funding and
30 flow limits in Appendix A.
31

32 PM&E Measures that Address this Objective: The Parties believe that the PM&E
33 measures set forth in Appendix A, Section I, Paragraph 1 will assist in achieving this
34 objective.
35

36 **Fishery Objective**
37

38 Achieve a desired goal of an excellent trout fishery and functioning ecosystem to all
39 naturally occurring species. According to the best available information on conditions
40 prior to the Project, fishery performance criteria will include:
41

- 42 a. Wild rainbow trout population with 4 age classes.
- 43 b. Fish catch 80% wild trout/ 20% non-game fish.
- 44 c. Average wild trout caught > 9.7 inches fork length.
- 45 d. Adult rainbow trout available for catch > 17 inches.

- 1 e. Harvestable component of 595 lbs/mile wild trout.
- 2 f. Wild trout biomass 62 lbs/acre (catch).
- 3 g. Angler catch rate of one fish per angling hour including catch and release.
- 4

5 PM&E Measures that Address this Objective: The Parties believe that the following
6 actions described in this Settlement will serve to accomplish the goal, and the desired
7 fishery performance outcomes:
8

- 9 a. Flow management through Minimum River Flows, operations and Ramping
10 Rates.
- 11 b. Spawning, passage and recruitment improvements.
- 12 c. Water temperature management.
- 13 d. Sediment/habitat/gravel improvement.
- 14 e. Fisheries management through California Fish and Game Commission
15 adoption of catch-and-release or other conservation oriented sportfishing
16 regulations.
- 17 f. Annual standing crop surveys using creel, snorkel and electrofishing
18 methods.
- 19 g. Measurement of downstream juvenile recruitment.
- 20 h. Monitoring tributaries and spawning channels for fish passage.
- 21 i. Hydro project flow fluctuation ramping studies and impacts.
- 22 j. Habitat and sediment evaluation.
- 23 k. Water temperature monitoring.
- 24 l. Macroinvertebrate surveys
- 25 m. Riparian assessment
- 26 n. Evaluate and report annually the above monitoring actions and provide
27 annual reports comparing new information with past results and progress
28 towards the fishery performance desired outcomes.
- 29

30 **Macroinvertebrate Objective**

31
32 Macroinvertebrate indices (metrics) in Project reaches should be comparable to reference
33 reaches located within and outside the NFFR drainage. The ERC and FS, for areas within
34 its jurisdiction, will develop numerical objectives based on the collection and review of
35 additional macroinvertebrate data.
36

37 PM&E Measures that Address this Objective: The Parties anticipate that the initial
38 ecological requirements that move closer to mimicking the natural hydrograph will
39 work toward achieving this objective. The Parties further believe that the additional
40 Minimum River Flows listed in Table A of Appendix A and river sediment
41 management adopted under this Settlement will further aid in achieving this objective.
42

43 **Natural Hydrograph Objective**

44 Provide a hydrologic regime that approaches the natural annual hydrograph.

1 PM&E Measures that Address this Objective: The Parties believe that this objective is
2 addressed by the Minimum River Flows, Pulse Flow, and Ramping Rate requirements
3 in Appendix A of this Settlement. The Parties believe that Appendix A of this
4 Settlement provides a framework to evaluate the appropriate magnitude, timing and
5 duration of streamflow necessary to promote a favorable biotic response.
6

7 **Flow Fluctuations Objective**

8 Minimize Project-caused flow fluctuations uncharacteristic of the natural hydrograph to
9 protect biota and maintain public safety.

10 PM&E Measures that Address this Objective: The Parties believe that this objective is
11 addressed by the Minimum River Flows, Pulse Flow, Block Loading, Ramping Rate
12 requirements, and other potential mitigative measures in Appendix A of this Settlement.
13

14 **Geomorphology Objective**

15
16 Maintain fluvial processes to provide for balanced sediment transport, channel bed
17 material mobilization and distribution, and channel structural stability distribution that
18 contribute to diverse aquatic habitat and healthy riparian habitat.
19

20 PM&E Measures that Address this Objective: The Parties anticipate that the
21 implementation of Minimum River Flows, Pulse Flow and river sediment management
22 provisions included in Appendix A of this Settlement will work toward meeting this
23 objective.
24

25 **Riparian Habitat Objective**

26
27 Maintain a functioning ecosystem for riparian resources.
28

29 PM&E Measures that Address this Objective: The Parties anticipate that the
30 ecological requirements that move closer to mimicking the natural hydrograph will
31 work toward achieving this objective. The Parties believe that stream ecological
32 monitoring included in Appendix B as well as Minimum River Flows and Terrace
33 Plantings under Appendix A will further aid in achieving this objective.
34
35

1 **Threatened, Endangered, and Sensitive Species Objective**

2 Ensure that PM&E measures developed by the Collaborative and ERC are consistent with
3 any FS biological evaluation for sensitive species or any biological opinion issued under
4 the federal or state Endangered Species Act.

5
6 PM&E Measures that Address this Objective: The Parties anticipate that the
7 ecological requirements included in Appendix A of this Settlement and the flow
8 fluctuation study efforts will assist in meeting this objective.
9

10 **Hydropower Operations Objective**

11
12 Ensure that the Project continues to be a competitive source of least cost, reliable, and
13 flexible hydroelectric power generation.

14
15 PM&E Measures that Address this Objective: This objective has been considered in
16 all of the PM&E measures in Appendix A.
17

18 **Recreation Streamflow Objective**

19
20 Provide recreation streamflows that address a spectrum of opportunities, avoid significant
21 ecological impacts, minimize user and ecological conflicts, are consistent with
22 hydropower operations, and maintain a high degree of user satisfaction, as determined by
23 user surveys.
24

25 PM&E Measures that Address this Objective: The Parties believe that the recreation
26 streamflows specified in Appendix A address this objective. The specified ecological
27 and recreational boating monitoring will assist in determining if this objective is being
28 met.
29

30 **Recreational Access Objective**

31
32 Provide river recreation facilities that are consistent with Recreation Opportunity
33 Spectrum (ROS) class (or equivalent), physical, social, and ecological carrying capacity
34 of the resource and demand levels, with the possibility of adjustment based on user
35 satisfaction.
36

37 PM&E Measures that Address this Objective: The Parties believe that the potential
38 whitewater boating access facilities specified in Appendix A address this objective.
39
40

1 **Streamflow Information Objective**

2
3 Provide streamflow information for Project-affected whitewater runs that is available to
4 the general public and is adequate for river recreation use while protecting Licensee's
5 proprietary information.

6
7 PM&E Measures that Address this Objective: The Parties believe that the streamflow
8 information measures specified in Appendix A will achieve this objective.

9
10 **Resource Protection Objective**

11
12 Ensure that recreation and Pulse Flows do not adversely affect other resources.

13
14 PM&E Measures that Address this Objective: The Parties believe that the Recreation
15 and Pulse Flow Biological Evaluation will assist in avoiding impacts on sensitive
16 amphibians and other sensitive resources.

17
18 **Section II. Ecological Resources Committee (ERC)**

19
20 **Purpose:** The primary purpose of this committee will be to assist Licensee in design of
21 the monitoring plans, review and evaluation of data, and making specific decisions
22 regarding ecological resources and flow related issues to be addressed by Licensee
23 as provided in this Settlement.

24 **Members:** The membership of the ERC shall consist only of representatives of the
25 Original Parties to this Settlement except FS, which will designate a liaison(s) to
26 the ERC. The ERC may add to its membership by unanimous agreement not subject
27 to dispute resolution.

28
29 **Establishment:** Licensee shall establish the ERC within 3 months of issuance of a New
30 Project License. Licensee shall establish the ERC on an interim basis within 1
31 month after the Effective Date of this Settlement for the limited purpose of assisting
32 Licensee in actions specified in this Settlement and scheduled for implementation in
33 advance of issuance of the New Project License.

34
35 **Meetings:** Licensee shall hold an Annual Meeting of the ERC prior to April 30 of each
36 year to discuss the results of the previous year's monitoring, actions to be taken and
37 information to be submitted to the FERC. Additional meetings may occur as the
38 Committee deems necessary.

39
40 **Conduct of Meetings:** Licensee shall be responsible for chairing each meeting and
41 providing timely meeting notes. Licensee shall arrange meeting times and places
42 that are acceptable to as many ERC members as possible.

1 **Meeting Notices:** The Annual Meeting will be Noticed to all ERC members and FS, and
2 representatives of all ERC members and FS may attend. Meetings other than the
3 Annual Meeting may be held on Notice of no less than 7 days. The ERC shall
4 adopt procedures for reasonable public participation consistent with applicable
5 law.
6

7 **Responsibility of the ERC:**

- 8 • Work cooperatively with Licensee to develop and implement monitoring
9 programs as described in Appendices A and B of this Settlement.
- 10 • Meet at least annually to review data and effectiveness of the monitoring effort.
- 11 • Analyze monitoring results including:
 - 12 1) An evaluation and report of existing information created during the past
13 license operations for use in comparison to future monitoring results.
 - 14 2) An evaluation and report of monitoring during the first five year period of
15 increased instream flows and comparison to item 1)
 - 16 3) An evaluation and report of monitoring during the second five year period
17 of increased instream flows and comparison to item 1) and 2).
 - 18 4) An evaluation and report of monitoring during the third five year period of
19 increased instream flows and comparison to item 1), 2) and 3).
 - 20 5) An evaluation and report of monitoring during subsequent years as
21 determined by the ERC.
 - 22 6) An evaluation and report of monitoring results of recreation flow releases.
23 The schedule for this report shall be determined by the ERC.
- 24 • Provide recommendations concerning flow releases and Project operation for
25 inclusion in any reports to be submitted by Licensee to FERC. The ERC may
26 also identify non-Project factors which influence achieving the desired
27 ecological outcomes.
- 28 • The ERC may adopt goals and objectives for the biological parameters or
29 resources being monitored and evaluated.
- 30 • Modify schedules and procedures set forth in Appendix B for preparing data
31 and reports as may be necessary to achieve the objectives provided herein.
32
33

34 **Monitoring Data and Other Information:** The data collected under the monitoring
35 programs will be compiled and distributed annually by January 15, or an alternate
36 date agreeable to the ERC and FS, to each ERC member and FS by the ERC
37 member responsible for performing the monitoring. Each ERC member shall be
38 responsible for sharing in a timely manner information of which it is aware that is
39 relevant to the work of the ERC.
40
41

1 **Annual Report:** Licensee shall submit a draft annual report to the ERC and FS each year.
2 This report shall summarize the results of any ongoing ecological monitoring or
3 study effort, changes that are to be implemented under the license and do not
4 require FERC approval, proposed changes for which Licensee will request FERC
5 or FS approval, including a proposed schedule for such approval, and a summary
6 of any unresolved issues and proposed actions to resolve such issues. All ERC
7 members and FS shall have 30 days to review and comment on a draft of the annual
8 report prior to its submittal to FERC.
9

10 **Flow Cap Evaluations, Recommendations and Measures Implemented by ERC:**

11 All flow cap evaluations, recommendations and measures implemented by the ERC
12 will require that the ERC make an affirmative determination of the benefit of such
13 action. This determination shall be based on consideration of all power and non-
14 power benefits, cost effectiveness, other impacts of the proposed measures, the use
15 of the best scientific information available, and sound scientific methods.
16

17 **Decision Making and Dispute Resolution:** The ERC members shall work collaboratively
18 to make decisions and resolve issues assigned to the ERC under this Settlement.
19 Consistent with Paragraph 2.6 of this Settlement, FS shall be responsible for
20 decisions within FS' existing authority, including issuance of Section 4(e)
21 Conditions and approvals thereunder. FS acknowledges that the ERC shall be
22 responsible for decisions that are assigned to ERC under this Settlement and that
23 are not within the FS' existing authority. Further, FS and ERC acknowledge their
24 mutual intent that, consistent with Paragraph 2.6 of this Settlement, the Section 4(e)
25 Conditions shall provide for cooperation with regard to any decisions that are
26 assigned to the ERC and that are also within the FS' authority.
27

28 Reference documents to be used by the ERC shall include, but not be limited to, the
29 new Project license, this Settlement, relevant FERC orders, and the Basin Plan.
30

31 If the participating ERC members are unable to reach mutual agreement on an issue,
32 the dispute resolution procedures provided in Paragraph 4.9.1 - Paragraph 4.9.3 of
33 this Settlement shall be used. In the event a disputed issue is not resolved in a
34 timely manner, Licensee shall prepare and file a request that FERC, FS, or other
35 agency with jurisdiction over the dispute, as appropriate, decide the issue in a
36 timely manner. Each ERC member and FS shall be free to provide its support for
37 Licensee's filing or to file separate comments.
38

39 Notwithstanding the forgoing, in the event of a dispute over (a) whether to construct
40 the Prattville Intake Modifications, or which modifications to construct, or (b)
41 whether to implement additional temperature control measures in accordance with
42 Paragraph 4 of Appendix A, Section I, the matter shall be resolved by the Chief of
43 the SWRCB, Division of Water Rights, after use of alternative dispute resolution
44 procedures as may be specified by the Division Chief. The Division Chief's
45 determination shall be subject to administrative and judicial review in accordance
46 with the statutes, regulations, and case law governing the SWRCB. The Division

1 Chief's determination shall be subject to the limitations of Paragraph 5 of Appendix
2 A, Section I.
3

4 **Funding:** Each member to the ERC shall be responsible for funding its representation on
5 the ERC and, to the extent the internal resources of an agency allows, assisting in
6 data collection and other efforts of the ERC at its own cost. Study efforts that
7 require the collection of data by Licensee or a consultant shall be paid for by
8 Licensee. Contracts for work funded by Licensee shall be entered into and directed
9 by Licensee unless otherwise mutually agreed.
10

11 **Section III. Habitat Mitigation**

12

13 **1. Humbug Valley.** - To provide additional enhancement to the fishery and wildlife
14 resources within the North Fork Feather River watershed, Licensee will make specified
15 phased improvements to its Humbug Valley land presently leased to a third party for cattle
16 grazing. Licensee land, encompassing approximately 2,300 acres, is located in the general
17 vicinity of Township 27 North, Range 6 East; Township 26 North, Range 7 East, Township
18 26 North, Range 6 East; and Township 27 North, Range 7 East, Mount Diablo Base and
19 Meridian. A map is included in Attachment to this Agreement.
20

21 A. PHASE A, as described in this section, shall commence following issuance of a
22 New Project License for the Project and proceed on a mutually acceptable schedule.
23

- 24 a) Licensee, in consultation with the ERC and FS, shall develop and implement a
25 plan to design, construct, and maintain the following in an approximately 230
26 acre parcel (Attachment I, Parcel A) of land in the upper Humbug Valley as
27 generally described in the August 6, 1989, report by Dr. Lee Erickson, entitled
28 "Humbug Valley Irrigation System Assessment":
29
- 30 i) Approximately 1.5 miles of wire cattle fencing and appropriate cattle guards,
31 or additional fencing, commencing the first summer season following issuance
32 of a New Project License and as mutually agreed to accomplish the purposes of
33 this Phase A.
 - 34 ii) Four (4) stream improvements, at locations to be mutually agreed upon by the
35 ERC. Scheduling to be mutually agreed upon by ERC.
 - 36 iii) Selective planting of riparian vegetation. Scheduling to be mutually agreed
37 upon by the ERC.
 - 38 iv) Limited or prohibited, as necessary, cattle grazing for 3 to 5 years to be
39 followed by controlled grazing at levels which will not adversely affect
40 fisheries, riparian vegetation or water quality. Scheduling to be mutually
41 agreed upon by the ERC.
42
- 43 b) For use as a planning tool, Licensee shall prepare, with the concurrence of ERC
44 in consultation with FS, and implement within one year of issuance of the New
45 Project License a general resource management plan that addresses the
46 following goals:

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- i) Improve aquatic and riparian habitat of Yellow Creek.
 - ii) Minimize consumptive water use under the present grazing lease.
 - iii) Minimize erosion and transport of sediment to downstream areas.
 - iv) Evaluate the compatibility of grazing with future resource needs.
 - v) Make recommendations for the best use of the existing resources.
- c) Within the riparian zone of Yellow Creek bounded by the existing split-rail cedar fence, commonly referred to as the “Cal-Trout fence”, Licensee shall identify species and develop and implement methods for vegetating the riparian zone and establishing “islands” of vegetated habitat along the stream, leaving open space between islands to enhance fly fishing opportunities.
- d) To minimize cattle intrusion into the riparian zone of Yellow Creek, Licensee shall construct fencing which closes the gap in the Cal-Trout fence at Yellow Creek campground. If the fence encloses the campground, cattle guards shall be installed on the road through the campground.
- e) Licensee shall armor two existing cattle fords within the Cal-Trout fence.
- B. PHASE B, as described in this Section, shall commence in June, 2006, and be implemented within one year.
- a) Licensee, in consultation with the ERC and FS , shall develop and implement a plan to design, construct and maintain the following in an approximately 160 acre parcel of land (Attachment I, Parcel B), in the upper Humbug Valley as described in the August 6, 1989, report by Dr. Lee Erickson, entitled “Humbug Valley Irrigation System Assessment”:
- i) Approximately 0.5 miles of wire cattle fencing.
 - ii) A minimum of four (4) stream improvements at locations to be mutually agreed upon by the ERC.
 - iii) Selective planting of riparian vegetation.
 - iv) Limited cattle grazing for 3 to 5 years to be followed by controlled grazing at levels which will not adversely affect fisheries, riparian vegetation or water quality.
- C) PHASE C, as described in this Section, shall be implemented during the period from 2011 until license expiration, in addition to work performed under PHASE B.
- a) The ERC and FS shall review the needs for further enhancement work within Humbug Valley and shall meet at least once annually to determine collectively the extent of enhancement necessary. Licensee shall provide the following funding for future enhancement work resulting from the Committee recommendations:

- 1 i) For the years 2011 through 2020, Licensee shall provide annual funding of
2 \$25,000 (2000 dollars) starting in 2011 and escalated from 2000 to the year of
3 payment as specified in Paragraph 4.5.5 of this Settlement.
4 ii) For the years 2021 through the year of license expiration, Licensee shall
5 provide annual funding of \$12,000 (2000 dollars) escalated to the year of
6 payment as specified in Paragraph 4.5.5 of this Settlement.
7
8 b) To implement this Phase C, the parties may establish an interest-bearing account
9 and appropriate procedures for the accounting and disbursement of funds. Any
10 funds remaining in the account upon termination of this Agreement shall be returned
11 to Licensee.

12
13 **2. Future Changes and Access.** Nothing in the Agreement shall encumber or limit any
14 legal or beneficial right Licensee may have in the Humbug Valley lands provided that
15 Licensee agrees to allow continued public access to Humbug Valley Lands to the same
16 extent that such access has occurred in the past. This access has included vehicle access
17 on existing roads and foot access on streambanks and lands. If Licensee sells, leases,
18 subdivides, or otherwise changes the legal nature of the lands from their present status, all
19 successors in interest shall be required to perform Licensee's obligations under this
20 Agreement during the remaining term of the Agreement.
21

22 **3. Fishing Regulations.** For the preservation and improvement of fishery and recreation
23 resources, the California Department of Fish and Game shall within one year following
24 signature of this agreement, request the California Fish and Game Commission to designate
25 the North Fork Feather River from Belden Bridge to Cresta Powerhouse (excluding
26 reservoirs) as a catch-and -release-only (artificial lures, barbless hooks and zero bag
27 limit) recreation fishery. All Parties to this agreement shall support and actively work to
28 seek the California Fish and Game Commission's approval of the request.
29

30 **4. Outside Funding.** For the purposes of improving and enhancing public recreation, FS
31 shall within two years following signature of this Settlement, request the California
32 Department of Boating and Waterways for matching funding for river access facilities
33 proposed pursuant to Section VI of Appendix A of this Settlement. All Parties to this
34 Settlement shall support and actively work to seek the California Boating and Waterways
35 approval of the request.
36

37 **5. Fishery Habitat Improvements.** Licensee shall make the following fishery and
38 riparian habitat improvements in addition to the improvements included in Appendix A:
39

- 40 A) Subject to approval by Caltrans, within one year of issuance of a New Project
41 License, maintain the existing fish ladder located on Rush Creek, a tributary of the East
42 Branch North Fork Feather River.
43

44 **Section IV. Block Loading**

45

1 To minimize the frequency of 1) fluctuation in the river stage and 2) Ramping Rates that
2 may be above the natural rise or fall rate of the NFFR, Licensee has implemented a
3 practice of Block Loading Belden Powerhouse at times when the flow at the NF 57 stream
4 gage is between the Minimum River Flow and 3,000 cfs. Within this flow range, if the
5 flow rate on Belden needs to be increased or decreased from Block Loading levels
6 between 0 and 40 MW, Licensee shall, to the extent reasonably possible, make adjustments
7 to Belden Powerhouse flows so as not to exceed, below Project dams, the basic Ramping
8 Rates in Appendix A, Section II.5.A. Licensee cannot operate Belden Powerhouse
9 between 40 and 70 MW and if a transition between these levels is needed, Licensee will
10 attempt to accomplish this transition with as little impact on these ramping rates as
11 possible. Licensee agrees to continue this Block Loading practice during March, April and
12 May until such time as a level for Ramping Rates may be established under Licensee's
13 Project No. 2105 license such that such fluctuations are no longer a concern.

14
15 Bucks Creek Powerhouse feeds water into Cresta Reservoir and is typically cycled to
16 follow daily system electric loads. As the maximum flow rate of this powerhouse is less
17 than 400 cfs and the impact of cycling is damped by Cresta Reservoir, Block Loading is
18 not required through Bucks Creek Powerhouse.

20 **Section V. Monitoring Plan**

22 **Introduction**

23
24 This outline describes the monitoring program proposed to meet the needs of this
25 Settlement. It has been limited to those items that are considered to be essential for
26 determining if the identified resource management objectives are being met. Funding for
27 these monitoring efforts would be provided by Licensee. Participation in the ERC and any
28 monitoring by the resource agencies or other interested members of the ERC or FS will be
29 at their own expense.

30
31 This Settlement provides for an "initial" set of Project Minimum River Flows to be
32 implemented for a 5-year period, followed by two successive 5-year periods with
33 modified Minimum River Flow regimes. Monitoring would be required during these
34 periods to enable the ERC and FS to determine if resource management objectives are
35 achievable and being met. Analysis of monitoring results from first two 5-year periods
36 would be used by the ERC and FS along with other information to determine any desired
37 changes in Minimum River Flow for the third 5-year period.

38
39 The duration of the monitoring program would span 15 qualifying study years (as defined
40 below). Monitoring conducted during the three successive 5-year periods (i.e., years 1-5,
41 years 6-10, and years 11-15) would represent resource conditions during each of these
42 periods of modified streamflows. Year 1 is defined as the first full year following
43 issuance of a New Project License starting on January 1. Monitoring of some elements
44 conducted in year 1 would update baseline resource conditions at the beginning of the
45 "initial" set of Project Minimum River Flows.

1 **Overall Program**

2
3 The ERC shall oversee completion of this monitoring program. The monitoring plan
4 specifies methods, timing, and rationale for monitoring. However, prior to
5 implementation, Licensee shall prepare final monitoring study plans, in consultation with
6 the ERC and FS, and file the plans with FERC. Licensee shall file with FERC, members
7 of the ERC and FS, an annual report or reports summarizing the results of the monitoring
8 effort as provided in Appendix B, Section II and the Water Temperature Monitoring Plan in
9 Appendix A, Section I.

10
11 Qualifying Study Years 1-15 Within Monitoring Plan

12
13 During study years 1-15, Licensee shall implement the following monitoring plan in
14 coordination with the ERC and FS. The monitoring shall be conducted as described
15 below, although exceptions to the monitoring plan can be made if the ERC determines that:
16 (1) there is a more appropriate or preferable methodology to use than that described in the
17 monitoring plan, or (2) monitoring may be reduced because resource objectives have been
18 met.

19
20 It is the intent of this Settlement to implement three 5-year tests of various Minimum River
21 Flows, Pulse Flows and Ramping Rates; however the duration of qualifying study years in
22 the second or third 5-year period may be extended to compensate for the occurrence of
23 critically dry years. In years 1-5, flows shall be implemented as described in Table A of
24 this Settlement and biological monitoring shall be conducted as described in this
25 monitoring plan. In the event that critically dry year flow releases interrupt the second or
26 third 5-year test, the timing of that 5-year test sequence may be adjusted. The following
27 examples of adjustments to the test sequence were developed by the environmental
28 subcommittee on February 23, 2000:

- 29
30 a) Year 6, Year 7, Critically Dry Year, Grace Year, Year 8, Year 9, Year 10 (Seven
31 years total in study sequence)
- 32 b) Year 6, Year 7, Year 8, Year 9, Critically Dry Year, (Five years total, no “Year
33 10”)
- 34 c) Year 6, Critically Dry Year, Critically Dry Year, Year 6 (Restart five year test
35 sequence)
- 36 d) Year 6, Year 7, Year 8, Critically Dry Year, Grace Year, Year 9, Year 10 (Seven
37 years total in study sequence)

38
39 A “grace year” is defined as an additional year added to the planned test sequence during
40 the second or third 5-year test periods primarily to allow for recovery of fish populations
41 from possible effects of reduced flows during a critically dry year. Monitoring is not
42 proposed during a critically dry year in second or third test period, but would resume in
43 the grace year in addition to the other qualifying years of the 5-year sequence.

44
45 **Fish Populations**

1 Method: Electrofishing during late summer/fall at a maximum of 9 stations first monitored
2 by CDFG 1989. Snorkel surveys of index sections (such as those being conducted for the
3 Poe Project) will be attempted if visibility permits.

4
5 Years: 1, 3, 4, 5, 8, 9, 10, 13, 14, 15

6
7 Rationale: Year 1 sampling provides baseline data to represent populations at the start of
8 the evaluation period. Sampling in the last 3 years of each 5-year period provides multiple
9 years for comparison to the objective, with sufficient response time to new streamflow
10 regimes.

11 **Creel Census**

12
13
14 Method: Angler surveys will be conducted using a comparable approach to CDFG 1989.

15
16 Years: 1, 3, 4, 5, 8, 9, 10, 13, 14, 15

17
18 Rationale: Selection of years is same as for the Fish Populations monitoring element.

19 **Tributary Trout Production**

20
21
22 Method: Downstream migrant trapping to identify timing and relative production of
23 juvenile trout will be conducted as feasible in three to five creeks, including Chambers,
24 Bucks, and Grizzly creeks. Sampling is proposed 2 consecutive days a week from June
25 through September. The intensity of the sampling may be adjusted based on the judgment of
26 the ERC.

27
28 Years: 1, 3, 4, 5, 8, 9, 10, 13, 14, 15

29
30 Rationale: Selection of years will provide an indication of trout recruitment from key
31 tributaries concurrent with the fish population and creel surveys.

32 **Spawning Channel Evaluation**

33
34
35 Method: Downstream migrant trapping to identify timing and relative production of
36 juvenile trout will be conducted in spawning channels proposed for Milk Ranch and
37 Opapee creeks. Sampling is proposed 2 consecutive days a week from June through
38 September. In addition, observations of use by spawning trout (presence of spawning fish
39 or redds) will also be attempted.

40
41 Years: 1, 2, 3, 4, 5, 8, 9, 10, 13, 14, 15

42
43 Rationale: Evaluation in years 1 and 2 will provide an initial indication of spawning
44 channel performance. If spawning channels are not completed in year 1, no supplemental
45 years are proposed for the evaluation beyond those outlined above. Monitoring in other
46 years will provide both an evaluation of spawning channel performance and an indication

1 of trout recruitment from spawning channels concurrent with the fish population and creel
2 surveys.

3
4 **Macroinvertebrates**

5
6 Method: California Stream Bioassessment Procedure will be used during late summer/fall
7 to survey benthic macroinvertebrates in the Rock Creek and Cresta reaches, NFFR
8 between the Belden Reach and Belden PH, and the East Branch NFFR. Study reaches
9 sampled in 1999 will be targeted; additional sites may be included as determined feasible
10 and necessary by the ERC and FS. A reference site on the M.F. Feather River near Milsap
11 Bar will also be added if determined feasible by the ERC and FS. North Fork Feather
12 River stations will be sampled at the same time in the Poe, Belden, and Seneca reaches as
13 part of the monitoring program for Projects 2107 and 2105. All results will be reported
14 together to CDFG and other interested members of the ERC and FS in order to facilitate
15 review on a watershed basis. To create a stronger tool for assessment of stream integrity,
16 the sampling methodology may be amended or modified by the ERC and FS.

17
18 Years: 1, 3, 4, 5, 8, 9, 10, 13, 14, 15

19
20 Rationale: The years identified above are the same as for the Fish Populations monitoring
21 element. However, since invertebrates respond more quickly than fish to changes in flow,
22 the ERC and FS will determine the actual study years based on water year type, with a
23 sampling program that includes a minimum of three study years out of any given five-year
24 test sequence. Selection of sample sites in the Rock Creek and Cresta reaches was based
25 on random selection of three riffles within population of identified suitable sites. Other
26 riffle types in the Rock Creek and Cresta reaches were judged to either be unsafe for
27 sampling at higher minimum flow, and/or to have substrate (i.e. boulders) that will
28 inappropriately limit the sensitivity of the CSBP analysis. Sites in the NFFR above Belden
29 PH and in the EBNFFR provide control reaches upstream of Rock Creek-Cresta to help
30 evaluate the effect of floods and fine sediment produced in the watershed upstream of the
31 Project. An additional site in the MFFR near Milsap Bar will provide a-reference site
32 with similar geomorphology to Rock Creek-Cresta. Application of the CSBP to evaluate
33 minimum instream flows is experimental and may be discontinued if the ERC and FS,
34 concludes that the approach is not useful.

35
36 **Recreation and Pulse Flow Evaluation**

37
38 Method: A study design will be developed by the ERC and FS, sixty days prior to the
39 initiation of scheduled recreation or Pulse Flow releases, to evaluate the effects of
40 recreation and Pulse Flows (and associated Ramping Rates) on the aquatic ecology. The
41 study will be designed to evaluate the range of flows and Ramping Rates contained in the
42 in-stream and recreation flow schedules. In developing the study design, the ERC and FS
43 will consider evaluating effects on (1) amphibian egg masses, (2) tadpoles, (3) fish, (4)
44 macroinvertebrates, (5) periphyton, (6) hyporheic community (7) birds, and (8) mammals.
45 This evaluation will consider both effects on habitat as well as populations, and will
46 include as a major component, actual surveys conducted during, or immediately before and

1 after actual flow events. Draft study outlines prepared by the USFWS (1999) and AW
2 (2000) and other relevant information will be considered by the ERC and FS. The ERC
3 and FS will determine the methodology, location, frequency, timing, and duration of data
4 collection. The ERC and FS will also determine the sequence of Ramping Rates and flow
5 levels to be monitored, within the specified flow ranges described in the in-stream and
6 recreation flow proposal. The actual timing and frequency of flow events may also be
7 adjusted by the ERC and FS, with accepted biological justification. The study design
8 developed by the ERC and FS will receive a scientific peer review prior to final
9 acceptance.

10
11 Years: 1, 2, 3, 4, and 5 (or choice of five alternative years to better ensure surveys during
12 appropriate conditions or water year types). In the event of a positive change in the
13 frequency of recreation flows, up to five additional years of monitoring, if the ERC and FS
14 determine the need for supplemental data.

15
16 Rationale: These surveys are needed to evaluate the impact of manufactured flow pulses
17 (including proposed Ramping Rates) on amphibians, fish, and invertebrates. The flow
18 schedule and Ramping Rates will be studied by the ERC and FS to determine if they have
19 adverse, beneficial or neutral effect on the river restoration goals previously identified by
20 this Settlement group. This effort will define both beneficial and significant adverse
21 effects, and the metrics to be used in this determination. The volume and number of
22 manufactured flow pulses may be modified if the ERC and FS find, through biologic
23 monitoring, that these flows are having significant adverse biologic effects.

24 25 **Riparian Vegetation**

26
27 Method: Riparian response to the flow regime in Table A would be monitored as a
28 function of species richness (diversity of species present), plant vigor (growth and
29 reproduction), and population demographics (age structure, mortality and recruitment of
30 key indicator species). These data would be collected along permanently established
31 transects. Baseline (pre-flow adjustment) data would be collected at each location in the
32 year prior to start of riparian test flows. Baseline data would include releve' sampling to
33 determine the existing riparian community type (in the sense of Holland, 1992) at each
34 sample location. All sampling would be scheduled for the late summer of the final year of
35 each five year flow period.

36
37 Years: 1, 5, 10, 15

38
39 Rationale. Collection of transect data provides for a detailed evaluation of riparian
40 vegetation response in the Rock Creek and Cresta reaches. Year 1 sampling provides
41 baseline data to represent the riparian plant community at the start of the evaluation period.
42 Monitoring at the end of each 5-year period provides an index of changes in riparian
43 conditions over that period of modified streamflow (it should be noted that 5 years is a
44 relatively short response time for riparian vegetation).

45

1 **Terrace Plantings**

2

3 Monitoring to evaluate the effectiveness of terrace plantings shall track survival, vigor and
4 canopy development of riparian species established at these sites and maintained through
5 accepted horticultural techniques. Specific performance goals (percent survival and
6 canopy cover of vegetation) will be set for this restoration work. Monitoring will be
7 designed to measure these performance parameters, and to determine whether goals are
8 being met. Monitoring will be conducted once each year in the late spring after leaf-out.

9

10 Years: 1, 2, 3 (Year 1 in this case is the first year following planting)

11

12 Rationale. Evaluation of the success of terrace plantings for an initial three-year period
13 will assure establishment of vegetation and permit timely replacement of individual plants
14 as needed to meet performance goals. If Licensee determines that replacement of
15 individual plants is unlikely to correct the problems identified, the ERC and FS will meet
16 to decide on the appropriate course of action.

17

18

1 **River Sediment Management (Drum and Radial Gate Operation to Promote Bedload**
2 **Movement through Reservoirs)**

3
4 Method: If this program is feasible (dependent on safety of program for dam operation),
5 the test program will be conducted for a period of 5 years. In order to monitor the
6 effectiveness of the drum and radial gates operational test program, seven river cross
7 sections shall be selected and monitored using Wolman Pebble Counts, sieve analysis, and
8 embeddedness measurements. In addition, reservoir bathymetry measurements shall be
9 made in Rock Creek and Cresta reservoirs as determined by the ERC and FS. During the
10 five-year test program, monitoring shall be conducted during the summer of each year that
11 reservoirs are operated to promote bedload movement.

12
13 Year: 1, 2, 3, 4, 5 (Data collected in Year 1 is expected to be a baseline year prior to
14 implementing a river sediment management program. The timing and duration of the
15 monitoring may be adjusted by the ERC and FS, in consideration of water year type and
16 Project operations.

17
18 Rationale: Monitoring of Wolman Pebble Counts, sieve analysis, and embeddedness
19 measurements at permanent cross-sections provides the basis for evaluating changes in
20 riffle sediment composition. In particular, this monitoring is to test whether the sediment
21 management program is effective in increasing the amount of gravel present in riffles and
22 bars in the Rock Creek and Cresta reaches. Year 1 sampling provides baseline data prior
23 to any modification of reservoir operating procedures. Monitoring after the high spring
24 runoff period during a 5-year test period provides an index of changes in channel sediment
25 composition during the sediment management test. Reservoir sampling during the test
26 period will help to verify the effect of such a sediment program on safe dam operation.

27
28 **Gravel Placement Experiment** (If the river sediment management experiment is
29 determined to be unsuccessful)

30
31 Method: If the ERC and FS determine that the experimental river sediment management
32 program is not effective in increasing the amount of gravel present in riffle habitat (or is
33 not safe to implement), USFWS has requested that an experimental program of gravel
34 addition be evaluated. The following program is proposed:

- 35 1. Experimental gravel placement would be using a maximum of 200 cubic yards of
36 clean washed river gravel purchased from a commercial aggregate supplier.
- 37 2. Gravel would be placed at sites in the Rock Creek and Cresta reaches to be
38 selected by the ERC and FS; these sites would have to be truck-accessible without
39 significant road preparation or development.
- 40 3. Gravel would be placed near the margin of the river, within the zone inundated at
41 summer minimum flow.
- 42 4. Gravel placement is proposed in late February or early March, prior to rainbow
43 trout spawning.
- 44 5. The success of gravel placement will be determined by its retention at the
45 placement site or its immediate vicinity. For example, gravel placed in the run
46 below the Rodgers Flat bridge could be evaluated by the amount of gravel retained

1 in the first riffle downstream. Initial criteria for evaluating gravel retention at or
2 near a placement site is proposed as 20% remaining after the end of the spring
3 runoff period of the year in which it was placed. Observations of trout spawning
4 (such presence of spawning fish or redds) will also be attempted.
5

6 Years: Beginning year 6, duration may extend for up to 5 years, depending on the rate of
7 gravel placement and the water year type (e.g. in a wet year the flow may be too high to
8 permit timely placement). Program may begin sooner than year 6 if the ERC and FS
9 determine that the river sediment management test is ineffective or unsafe.
10

11 Rationale: The high sediment transport capacity of the NFFR makes it unlikely that
12 mechanical placement of gravel could be effectively tracked other than locally at or near
13 the deposition site. In order to be considered effective, a significant fraction of the gravel
14 must be able to remain in place through at least the proposed seven mandatory Pulse Flow
15 releases.
16

17 **Water Temperature Monitoring:**

18
19 See Appendix A, Section I for water temperature monitoring requirements.
20

1 Appendix C

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