STATE OF CALIFORNIA
STATE WATER RESOURCES CONTROL BOARD

In the matter of:	)
City of Los Angeles Department of Water and Power,	)
Water Right Licenses Nos. 10191 and 10192	)
	)

SETTLEMENT AGREEMENT REGARDING CONTINUING IMPLEMENTATION OF WATER RIGHTS ORDERS 98-05 AND 98-07

I.
GENERAL PROVISIONS

1. Parties

The City of Los Angeles Department of Water and Power, California Department of Fish and Wildlife, California Trout, and Mono Lake Committee (Parties) hereby enter into this "Settlement Agreement Regarding Continuing Implementation of Water Rights Orders 98-05 and 98-07."

2. Recitals

2.1. Under Order 98-05 ¶ 1.b(2)(a) – (b), the Stream Monitoring Team evaluated the magnitude, duration, and frequency of flows necessary for the Restoration of Rush Creek, the need for an outlet to Grant Dam to achieve such flows, and related matters. The team presented its recommendations in *Mono Basin Stream Restoration and Monitoring Program: Synthesis of Instream Flow Recommendation to the State Water Resources Control Board and the Los Angeles Department of Water and Power, Final Report* (April 30, 2010) (Attachment 1) (hereafter, *Synthesis Report*).

2.2. Los Angeles Department of Water and Power (LADWP) determined that certain recommendations are not feasible. As an alternative to disputing that determination, other parties requested permission to undertake settlement negotiations. By letter dated November 1, 2010, the Water Board authorized such negotiations, and by subsequent letters, extended the deadline for completion until September 30, 2013.

2.3. This Settlement resolves all disputes between the Parties related to the feasibility of measures set forth in the *Synthesis Report*.

3. Purposes

The purposes of this Settlement are: (i) resolution of disputes between the Parties related to the *Synthesis Report;* (ii) provision and adaptive management of flows sufficient to complete stream restoration and fish protection required by Decision 1631, Orders 98-05 and 98-07 and relevant case law, including modification of Grant Lake Reservoir to release such flows; (iii) re-focusing the stream monitoring program on adaptive management and related improvements in the limnology and waterfowl monitoring programs; and (iv) reduction in LADWP's costs associated with modification of Grant Lake Reservoir and ongoing monitoring programs.

4. Definitions

4.1. **Appendix 1** means: Appendix 1 to the Settlement, proposing amendments to Water Right Licenses 10191 and 10192 for the review and approval of the State Water Resources Control Board ("SWRCB").

4.2. **Applicable Law** means: general law which (i) exists outside of this Settlement, including statute and regulation, and (ii) applies to obligations contemplated in this Settlement.

4.3. **CDFW** means: California Department of Fish and Wildlife.

4.4. **Contractual Obligation** means: those obligations under this Settlement that are not subject to the Final Order or other regulatory approval.

4.5. **Effective Date** is defined in Section 6.1.

4.6. **Final Order** means: a final order of the Water Board, other Regulatory Agency, or a Court, that is necessary for, or otherwise directly relates to, the performance of the measures proposed in Appendix 1. This includes, but is not limited to, the Water Board's order amending the Licenses as proposed in Appendix 1.

4.7. **Force Majeure** means: an event beyond the reasonable control of a Party that prevents that Party's timely performance of an obligation.

4.8. **LADWP** means: Los Angeles Department of Water and Power.

4.9. **Material Modification** means: any terms of a Final Order that have the effect of materially reducing the bargained-for benefits of a Party, in that Party's sole judgment.

4.10. **Mono Basin Licenses** means: Water Right Licenses 10191 and 10192, held by LADWP.

4.11. **Notice** is defined in Section 6.3.

4.12. **Parties** means: LADWP, CDFW, California Trout, and Mono Lake Committee, as signatories to this Settlement.

4.13. **Regulatory Agency** means any public agency which has regulatory jurisdiction over the measures proposed in Appendix 1.

4.14. **Regulatory Obligation** means: those obligations arising under this Settlement that become effective if approved in the Final Order.

4.15. **Significant New Information** means: information that was not available when the Final Order issued that bears materially on the effectiveness or sufficiency of the flows and other measures specified in Appendix 1 to achieve stream restoration and fish protection.

II.
IMPLEMENTATION OF SETTLEMENT

5. Obligation to Support Settlement

Within 10 days after the last Party has executed the Settlement, LADWP shall file a petition with the SWRCB to amend its Licenses as provided in Appendix 1. The Parties shall support a Final Order approving Appendix 1 (including findings, conclusions, and conditions) without Material Modification, and take other actions to achieve the bargained-for benefits of this Settlement, as follows.

5.1. Appendix 1A. Within 45 days after submittal of this petition, the Parties shall undertake to complete a form of document known as "living license," in consultation with the SWRCB's Office of Chief Counsel. This form will: (i) include all existing terms of the Licenses, (ii) show the Appendix 1 conditions as redline of those terms proposed to be amended, and (iii) also show the Appendix 1 findings and conclusions. Upon completion of this form, the Parties shall submit it as Appendix 1A, as a supplement to Appendix 1, for the SWRCB's approval of the terms proposed to be amended.

5.2. Approval. In any comments or testimony submitted to the SWRCB or other Regulatory Agency, the Parties shall support the approval of Appendix 1 without Material Modification. If the Water Board issues a Final Order approving Appendix 1 without Material Modification, the Parties shall not seek reconsideration or judicial review thereof. The Parties shall continue to support the Final Order if any other participant seeks reconsideration or judicial review; provided that each Party may choose a reasonable method of support and level of effort at its discretion.

5.3. Other Final Order. If a Final Order effects a Material Modification in Appendix 1, the Parties shall deem the Settlement to be modified to conform to the Final Order, unless a Party objects by Notice of Dispute Initiation pursuant to Section 7.2 within 10 days of such order. A Party may timely seek reconsideration or judicial review of such a Final Order; *provided* that the Party shall provide such Notice and, to the extent practicable, undertake and conclude Dispute Resolution Procedures before such action.

5.4. Continuing Obligation. If administrative and judicial remedies of the Final Order have been exhausted and have not resulted in Material Modification of Appendix 1, the Parties shall continue to support the Final Order as sufficient for the purposes stated in Section 3; *provided* that a Party who concludes that Significant New Information exists shall provide a Dispute Initiation Notice pursuant to Section 7.2. If a third party brings an action seeking to reopen the Final Order following exhaustion of remedies as described in Section 5.1, the Parties shall continue to support the Final Order unless Significant New Information, in that Party's judgment, demonstrates that the Final Order does not achieve the purposes stated in Section 3.

6. Implementation

6.1. Effective Date. Contractual Obligations shall be effective when all Parties have executed this Settlement. Regulatory Obligations shall be effective when the Water Board has issued a Final Order approving Appendix 1 without Material Modification as the basis for amending the Mono Basin Licenses, or the exhaustion of judicial review of the Final Order, whichever is later.

6.2. Governing Law. A Party's performance of Contractual Obligations shall be governed by applicable provisions of this Settlement. A Party's performance of Regulatory Obligations shall be governed by Applicable Law for such obligations.

6.3. Notice. Any Notice required by this Settlement shall be sent to all Parties by electronic mail or comparable means of delivery. A Notice shall be effective upon receipt. The list of authorized representatives of the Parties as of the Effective Date is attached as Attachment 2. Each Party shall provide timely Notice of any change in the authorized representatives, and LADWP shall maintain the current distribution list of such representatives. Failure to provide current contact information will result in a waiver of that Party's right to Notice under this Settlement.

6.4. Force Majeure. A Party shall not be deemed to breach a Contractual Obligation if it is unable to timely perform due to Force Majeure. The Party whose performance is delayed by Force Majeure shall provide Notice as soon as reasonably practicable, including: a description of the event causing the delay, an estimate of the anticipated delay, a description of the measures the Party will take

to avoid or minimize the delay, and a proposed schedule for performance of the obligation. Force Majeure as to Regulatory Obligations shall be addressed as provided in Applicable Law.

6.5. Remedies. The remedies for breach of Contractual Obligations are: Dispute Resolution Procedures pursuant to Section 7, and withdrawal pursuant to Section 9. The remedies for breach of Regulatory Obligations are: whatever remedies are available under Applicable Law.

7. Dispute Resolution Procedures

All disputes among the Parties regarding performance of Contractual Obligations shall be the subject to the Dispute Resolution Procedures.

7.1. General. The Disputing Parties shall devote those resources that are needed and reasonably available to resolve the dispute. The Disputing Parties shall cooperate to promptly schedule, attend, and participate in the dispute resolution. Unless otherwise agreed, each Disputing Party shall bear its own costs for its participation in any dispute resolution process initiated under this Settlement Agreement. Each Disputing Party shall promptly implement any resolution of the dispute.

7.2. Specific Procedures. A Party claiming a dispute shall provide the other Parties with a Dispute Initiation Notice.

A. The Notice shall describe: the matter in dispute, the identity of any other Party alleged to have not performed an obligation under the Settlement, and the specific relief sought.

B. The Disputing Parties shall hold at least one meeting to resolve the dispute, commencing within 10 days after the Dispute Initiation Notice. This meeting may be in person or by telephone.

C. The Disputing Parties shall provide Notice of any resolution of the dispute. This Notice shall state: the disputed matter, as initially described in the Dispute Initiation Notice; the alternatives which the Disputing Parties considered for resolution; whether resolution was achieved, in whole or part, and the specific relief to which the Disputing Parties have agreed.

D. If the dispute is not resolved within 30 days after the Dispute Initiation Notice, the Party claiming a dispute may pursue any and all other remedies authorized by Section 6.5 of this Settlement.

7.3. Regulatory Obligations

These procedures apply to disputes related to Contractual Obligations. Any disputes related to Regulatory Obligations will be subject to those procedures available under Applicable Law.

III.
OTHER PROVISIONS

8. **Amendment**

The Settlement may be amended only in written form signed by all of the Parties.

9. **Withdrawal**

A Party may withdraw from this Settlement in two circumstances: (i) a Final Order effects a Material Modification to Appendix 1, the Party objects to such modification, and the dispute between the Parties regarding such modification is not resolved pursuant to Section 7; or (ii) a Party objects that another Party is not performing its Contractual Obligations, and the dispute between the Parties regarding such non-performance is not resolved pursuant to Section 7. Withdrawal from this Settlement shall have no effect on any order adopted by the State Water Board or on a party's obligations to comply with such order.

10. Termination

This Settlement shall terminate if LADWP withdraws. A Party shall not have any further obligations under this Settlement if it withdraws or the Settlement terminates, except that the Parties agree that all communications related to the development of the Settlement shall be confidential as provided under Applicable Law. Termination of this Settlement shall have no effect on any order adopted by the State Water Board or on a Party's obligations to comply with such order.

11. No Precedent

This Settlement shall not be offered for or against a Party as an argument, admission, or precedent regarding any issue of fact or law in any administrative or judicial proceeding.

12. No Third Party Beneficiaries

This Settlement is not intended and shall not be construed to confer any right or interest in the public or any non-Party, and shall not authorize any non-Party to bring an action based on a claim arising from this Settlement.

13. Titles for Convenience Only

The titles in this Settlement are for convenience of reference and shall not be used to modify, explain, or interpret any provisions herein.

14. Entire Agreement in Writing

This is the entire Agreement between the Parties on this subject matter, and it supersedes any prior or contemporaneous communications.

15. Execution

Each signatory of this Settlement states that he or she is authorized to execute this Settlement and legally bind the Party he or she represents, and that such Party shall be fully bound by the Settlement upon such signature without any further act, approval, or authorization. The Settlement may be executed in counterparts.

Attachments

1. McBain & Trush, Inc. and Ross Taylor and Associates, *Mono Basin Stream Restoration and Monitoring Program: Synthesis of Instream Flow Recommendation to the State Water Resources Control Board and the Los Angeles Department of Water and Power, Final Report* (April 30, 2010)

2. List of Authorized Representatives of the Parties

Appendices

1. Proposed Amendments to Water Rights of Los Angeles Department of Water and Power

2. Mono Basin Operations Plan Outline

3. Ross Taylor and Bill Trush, "Technical Memorandum: Scope of Future Work for the Mono Basin Stream and Fisheries Monitoring Program to Accomplish Goals of Chapter 7 of the Synthesis Report" (2013)

4. Monitoring Metrics based on *Synthesis Report* Chapter 7 and Settlement Appendix 3

Dated: September 24, 2013

Ronald O. Nichols
General Manager
LOS ANGELES DEPARTMENT OF WATER AND POWER

Approved as to form and legality:

Michael N. Feuer
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Dated: September 24, 2013

David J. Edwards
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Charlton H. Bonham
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Dated: September 17, 2013

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Attorneys for CALIFORNIA TROUT

Mono Basin Settlement Agreement
Attachment 1

(Separate pdf file due to size)

Mono Basin Settlement Agreement
Attachment 2

AUTHORIZED REPRESENTATIVES OF THE PARTIES

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STATE OF CALIFORNIA
STATE WATER RESOURCES CONTROL BOARD

In the matter of:	)
City of Los Angeles Department of Water and Power,	)
Water Right Licenses Nos. 10191 and 10192	)
	)

APPENDIX 1.
PROPOSED AMENDMENTS TO WATER RIGHTS OF LOS ANGELES DEPARTMENT OF WATER AND POWER

I.
PROPOSED FINDINGS OF FACT AND CONCLUSIONS OF LAW

Findings of Fact

F1. Based on monitoring results to date, the Stream Monitoring Team recommended stream ecosystem flows (SEFs), modification of Grant Lake Reservoir facilities, and other measures for the protection of fisheries and creeks. See McBain & Trush, Inc. and Ross Taylor and Associates, *Mono Basin Stream Restoration and Monitoring Program: Synthesis of Instream Flow Recommendations to the State Water Resources Control Board and the Los Angeles Department of Water and Power, Final Report* (April 30, 2010) (*Synthesis Report*).

F2. Following the completion of the *Synthesis Report*, Licensee participated in facilitated discussions with California Department of Fish and Wildlife (CDFW), California Trout (CT), and the Mono Lake Committee (MLC) (together, Conservation Parties) to discuss the feasibility of the measures recommended in the *Report* and to resolve related disputes. As a result of these discussions, Licensee and the Conservation Parties entered a Settlement Agreement, which includes proposed amendments to Licensee's Mono Basin Water Rights Licenses. These proposed license amendments will implement all recommendations from the *Synthesis Report*. Licensee and the Conservation Parties agree that implementation of these recommendations is feasible, under the conditions established in the Settlement Agreement. The Board finds that implementation of these proposed amendments is feasible.

F3. The Board further finds that implementation of the proposed license amendments will significantly enhance the conditions of the fisheries and creeks resulting from implementation of the existing requirements in Decision 1631 and Orders 98-05 and 98-07. While such implementation could have incidental impacts on the channel form, water quality, fisheries, or other resources of a given creek, any such impacts will be *de minimis* compared to the benefits resulting from flow schedules which are as consistent as possible with restoring the ecological processes and conditions that benefitted the pre-1941 fishery.

F4. Adaptive management of flow requirements will further enhance their benefits, as monitoring improves our understanding of how best to manage flows to restore ecological processes and beneficial conditions in these creeks.

F5. The Mono Basin Monitoring Administration Team (MAT) will expedite administration of contracts with scientists assigned to conduct monitoring under Decision 1631,Orders 98-05 and 98-07, and Conditions 5 and 6 as approved in this Order.

F6. The proposed license amendments allow LADWP to export water in excess of the amount otherwise allowed by Decision 1631 ¶ 6.a, in order to offset a portion of the capital cost of the Grant Outlet. The Additional Export will be in an amount not to exceed 12,000 acre-feet. The Board finds this Additional Export will not materially delay the date when Mono Lake reaches 6,391 feet MSL.

F7. Decision 1631 ¶ 6.a(4) requires a hearing if Mono Lake does not reach elevation 6,391 feet MSL by September 28, 2014. The proposed license amendments continue that trigger date until September 28, 2020. Licensee and the Conservation Parties agreed to this continuation as part of a package of proposed license amendments designed to achieve implementation of the *Synthesis Report* expeditiously, without a contested Board hearing, and at a reasonable cost. The lake will continue, on average, to rise towards 6,391 feet MSL, and the trend in lake level remains within the ranges previously forecast by the Board for this transition period.

Conclusions of Law

C1. Adoption of this Order concludes the study process required by Order 98-05 ¶ 1.b(2)(a)-(b), resolves all disputes about the feasibility of implementing the Synthesis Report, and avoids the costs and delay otherwise resulting from administrative and other litigation associated with this process and report. **This Order constitutes the Board's final determination of the magnitude, duration, and frequency of the stream flows necessary for the restoration of Rush, Lee Vining, Parker, and Walker Creeks pursuant to Decision 1631 and Order 98-05, subject to (i) adaptive management and (ii) the Board's general authority.**

C2. LADWP's performance of the measures specified in Appendix 1 as approved in this Order, including funding obligations found below, along with its performance of any preexisting obligations that are not changed by such order, will be deemed to constitute all of LADWP's obligations for stream restoration, fish protection, and the related monitoring program under Decision 1631 and Orders 98-05 and 98-07.

C3. LADWP will not be subject to any additional requirements for stream restoration and fish protection under the authorities of Decision 1631 and Orders 98-05 and 98-07.

C4. The flows specified in Tables 1 and 2 will provide hydrologic variation which advances geomorphic and other ecological processes necessary for stream restoration. Although these flows may also incidentally cause adverse impacts to the channel form, water quality, fisheries, or other resources of a given creek, such impacts are found to be non-significant under CEQA, and LADWP will not be liable for any additional requirement, including release of flow or monetary expenditure, to remedy such impacts under any of the authorities that the Board administers.

C5. LADWP will be subject to the Board's general authorities for stream restoration, fish protection, and other purposes, as recognized by Decision 1631 paragraph 12.

C6. Licensee's bypass of the flows to Walker and Parker Creeks, as described in Section 1.c, below, is a condition of this Order and is not an abandonment, dedication, or donation of Licensee's property.

C7. Given the factual findings set forth above, the Board concludes that adopting the license amendments proposed by Licensee, and approved by the Conservation Parties, is consistent with the public interest in Mono Lake.

II.
PROPOSED CONDITIONS OF WATER RIGHTS

General: Appendix 1 will be reframed in Appendix 1A to redline existing terms and conditions in Decision 1631 and Orders 98-05 and 98-07. What follows is an intermediate form that, via editorial signals, describes how those existing terms are proposed to be modified by the Settlement.

Condition 1 replaces: Stream Restoration Flow (SRF) requirements in Order 98-05 ¶¶ 1(a)(1) - 1(a)(3) and 3, related requirements in Order 98-05 ¶1.b(2)(a)-(b) and 98-05 2.a, as well as base flow requirements in Decision 1631 ¶ 1.

1. Stream Ecosystem Flows

For the protection of streams and fisheries, Licensee shall release the Stream Ecosystem Flows (SEFs) stated in Tables 1 and 2 below. The flows shall remain in the stream channel and shall not be diverted for any other use.

a. General

(1). Purpose. These flow requirements implement the recommendations of the Stream Monitoring Team in *Mono Basin Stream Restoration and Monitoring Program: Synthesis of Instream Flow Recommendation to the State Water Resources Control Board and the Los Angeles Department of Water and Power, Final Report* (April 30, 2010) (Attachment 1) (hereafter, *Synthesis Report*).

(2). Minimums. These flows are minimums unless otherwise specified.

(3). Adaptive Management. Flow requirements in Tables 1 and 2 are subject to adaptive management as provided in Condition 5(b).

(4). Ramping. The ramping rates specified in Tables 1 and 2 apply to flow changes which occur as a result of Licensee's operation of its points of diversion. These rates shall be calculated based on the percentage of change in flow from the average flow over the preceding 24 hours. Licensee shall operate its points of diversion to not exceed maximum ramping rates that are specified in the Mono Basin Operations Plan (MBOP) specified in Condition 3. Licensee shall also operate to achieve the target ramping rates to the extent feasible, taking into account

operational or other limitations. The MBOP or Annual Operations Plan (AOP) shall specify alternative target rates when necessary to address such limitations. Pursuant to Condition 1.a(5), the Licensee is not required to report variance from a target ramping rate that is less than 10% of that rate.

(5). Unanticipated events. If an unanticipated event, including an emergency, prevents compliance with the SEFs or other requirement for the operation of Licensee's Mono Basin facilities, Licensee shall notify the Division of Water Rights as soon as practical, and not later than 5 business days of actual knowledge of the event. This notice shall include a written explanation of why the requirement was not met and any corrective actions.

b. Rush Creek. Licensee shall release flows from Grant Lake Reservoir as specified in Table 1. Prior to completion of the Grant Outlet as provided in Condition 2, Licensee shall release such flows to the extent possible given existing capacity of Mono Gate One Return Ditch and best efforts to use reservoir spills.

(1). Stored Water. When necessary in order to meet these flow requirements, Licensee shall release water from storage at Grant Lake Reservoir if storage exceeds 11,500 acre-feet. Licensee shall reduce otherwise allowable export to maintain at least 11,500 acre-feet of storage. If Grant Lake Reservoir is at or below 11,500 acre-feet of storage, Licensee shall release inflow or the flow requirement, whichever is less.

(2). Storage Rules and Criteria. In order to provide coldwater flow in Rush Creek, Licensee shall follow the following rules and criteria for Grant Lake Reservoir. Licensee shall reduce otherwise allowable export to meet these criteria; flow requirements shall not be so reduced.

i. In all years, Licensee shall store at least 20,000 acre-feet of water in Grant Lake Reservoir from July 1 through September 30.

ii. If Grant Lake is below 25,000 acre-feet of storage on July 1 in a Dry or Dry-Normal I year (as defined pursuant to Decision 1631), Licensee shall release all available water diverted from Lee Vining Creek through the Five Siphons Bypass to augment coldwater flow in Rush Creek. There shall be no augmentation of Rush Creek in other year types or for other purposes.

iii. From October 1 to March 31, Licensee shall undertake to avoid reservoir spills and avoid flows as specified in the MBOP that mobilize the bed of Rush Creek.

c. Parker and Walker Creeks. Licensee shall continuously bypass the flows of Walker and Parker Creeks as specified in Table 2-16 (p. 61) of the Synthesis Report, except as provided for in Section 1(a)(5) of this Order.

d. Lee Vining Creek. Licensee shall release bypass flows in Lee Vining Creek as specified in Table 2.

(1). Licensee shall release flow below its point of diversion at least equal to the flow specified, or the inflow, whichever is less.

(2). Licensee shall measure inflow at the flume upstream of the diversion pond and shall measure bypass flow at the diversion dam.

TABLE 1A			
RUSH CREEK STREAM ECOSYSTEM FLOWS			
Year-type: Extreme-Wet			
HYDROGRAPH COMPONENT	**TIMING**	**FLOW REQUIREMENT**	**RAMPING RATE**
Spring Baseflow	April 1 – April 30	40 cfs	
Spring Ascension	May 1 through May 14	40 cfs ascending to 80 cfs	Target: 5%
Spring Bench	May 15 through June 11	80 cfs	
Snowmelt Ascension	June 12 through June 21	80 cfs ascending to 220 cfs	Target: 10%
Snowmelt Bench	June 22 through August 10	220 cfs	
Snowmelt Flood and Snowmelt Peak	Starting between June 23 and July 19 with the 5-day peak between June 29 and July 29	220 cfs ascending to 750 cfs, release 750 cfs for 5 days, 750 cfs descending to 220 cfs	Target: 20% ascending and 10% descending
Medium Recession (Node)	August 11 through August 24	220 cfs descending to 90 cfs	Target: 6%
Slow Recession	August 25 through September 30	90 cfs descending to 27 cfs	Target: 3%
Fall and Winter Baseflow	October 1 through March 31	27 cfs target (25 cfs minimum and 29 cfs maximum).	

TABLE 1B			
RUSH CREEK STREAM ECOSYSTEM FLOWS			
Year-type: Wet			
HYDROGRAPH COMPONENT	**TIMING**	**FLOW REQUIREMENT**	**RAMPING RATE**
Spring Baseflow	April 1 – April 30	40 cfs	
Spring Ascension	May 1 through May 14	40 cfs ascending to 80 cfs	Target: 5%
Spring Bench	May 15 through June 11	80 cfs	
Snowmelt Ascension	June 12 through June 18	80 cfs ascending to 170 cfs	Target: 10%
Snowmelt Bench	June 19 through August 1	170 cfs	
Snowmelt Flood and Snowmelt Peak	Starting between June 20 and July 8 with the 5-day peak between June 27 and July 19	170 cfs ascending to 650 cfs, release 650 cfs for 5 days, 650 cfs descending to 170 cfs	Target: 20% ascending and 10% descending
Medium Recession (Node)	August 2 through August 15	170 cfs descending to 70 cfs	Target: 6%
Slow Recession	August 16 through September 11	70 cfs descending to 30 cfs	Target: 3%
Summer Baseflow	September 12 through September 30	30 cfs target 28 cfs minimum	
Fall and Winter Baseflow	October 1 through March 31	27 cfs target 25 cfs minimum and 29 cfs maximum	

TABLE 1C			
RUSH CREEK STREAM ECOSYSTEM FLOWS			
Year-type: Wet- Normal			
HYDROGRAPH COMPONENT	**TIMING**	**FLOW REQUIREMENT**	**RAMPING RATE**
Spring Baseflow	April 1 – April 30	40 cfs	
Spring Ascension	May 1 through May 14	40 cfs ascending to 80 cfs	Target: 5%
Spring Bench	May 15 through June 11	80 cfs	
Snowmelt Ascension	June 12 through June 17	80 cfs ascending to 145 cfs	Target: 10%
Snowmelt Bench	June 18 through July 23	145 cfs	
Snowmelt Flood and Snowmelt Peak	Starting between June 19 and July 1 with the 3-day peak between June 26 and July 10	145 cfs ascending to 550 cfs, release 550 cfs for 3 days, 550 cfs descending to 145 cfs	Target: 20% ascending and 10% descending
Medium Recession (Node)	July 24 through August 4	145 cfs descending to 67 cfs	Target: 6%
Slow Recession	August 5 through August 31	67 cfs descending to 30 cfs	Target: 3%
Summer Baseflow	September 1 through September 30	30 cfs target 28 cfs minimum	
Fall and Winter Baseflow	October 1 through March 31	27 cfs target 25 cfs minimum and 29 cfs maximum	

TABLE 1D			
RUSH CREEK STREAM ECOSYSTEM FLOWS			
Year-type: Normal			
HYDROGRAPH COMPONENT	**TIMING**	**FLOW REQUIREMENT**	**RAMPING RATE**
Spring Baseflow	April 1 – April 30	40 cfs	
Spring Ascension	May 1 through May 14	40 cfs ascending to 80 cfs	Target: 5%
Spring Bench	May 15 through June 11	80 cfs	
Snowmelt Ascension	June 12 through June 15	80 cfs ascending to 120 cfs	Target: 10%
Snowmelt Bench	June 16 through July 14	120 cfs	
Snowmelt Flood and Snowmelt Peak	Starting between June 17 and June 25 with the 3-day peak between June 23 and July 3	120 cfs ascending to 380 cfs, release 380 cfs for 3 days, 380 cfs descending to 120 cfs	Target: 20% ascending and 10% descending
Medium Recession (Node)	July 15 through July 26	120 cfs descending to 58 cfs	Target: 6%
Slow Recession	July 27 through August 16	58 cfs descending to 30 cfs	Target: 3%
Summer Baseflow	August 17 through September 30	30 cfs target 28 cfs minimum	
Fall and Winter Baseflow	October 1 through March 31	27 cfs target 25 cfs minimum and 29 cfs maximum	

TABLE 1E			
RUSH CREEK STREAM ECOSYSTEM FLOWS			
Year-type: Dry- Normal II			
HYDROGRAPH COMPONENT	**TIMING**	**FLOW REQUIREMENT**	**RAMPING RATE**
Spring Baseflow	April 1 – May 18	40 cfs	
Spring Ascension	May 19 through May 31	40 cfs ascending to 80 cfs	Target: 5%
Snowmelt Bench	June 1 through June 30	80 cfs	
Snowmelt Flood and Snowmelt Peak	Starting between June 2 and June 15 with the 3-day peak between June 6 and June 21 coinciding with Parker and Walker Creek peaks	80 cfs ascending to 200 cfs, release 200 cfs for 3 days, 200 cfs descending to 80 cfs	Target: 20% ascending and 10% descending
Medium Recession (Node)	July 1 through July 8	80 cfs descending to 48 cfs	Target: 6%
Slow Recession	July 9 through July 23	48 cfs descending to 30 cfs	Target: 3%
Summer Baseflow	July 24 through September 30	30 cfs target 28 cfs minimum	
Fall and Winter Baseflow	October 1 through March 31	27 cfs target 25 cfs minimum and 29 cfs maximum	

TABLE 1F			
RUSH CREEK STREAM ECOSYSTEM FLOWS			
Year-type: Dry- Normal I			
HYDROGRAPH COMPONENT	**TIMING**	**FLOW REQUIREMENT**	**RAMPING RATE**
Spring Baseflow	April 1 – April 30	40 cfs	
Spring Ascension	May 1 through May 14	40 cfs ascending to 80 cfs	Target: 5%
Snowmelt Bench	May 15 through July 3	80 cfs	
Medium Recession (Node)	July 4 through July 9	80 cfs descending to 45 cfs	Target: 6%
Slow Recession	July 10 through July 27	45 cfs descending to 30 cfs	Target: 3%
Summer Baseflow	July 28 through September 30	30 cfs target 28 cfs minimum	
Fall and Winter Baseflow	October 1 through March 31	27 cfs target 25 cfs minimum and 29 cfs maximum	

TABLE 1G			
RUSH CREEK STREAM ECOSYSTEM FLOWS			
Year-type: Dry			
HYDROGRAPH COMPONENT	**TIMING**	**FLOW REQUIREMENT**	**RAMPING RATE**
Spring Baseflow	April 1 – April 30	30 cfs	
Spring Ascension	May 1 through May 17	30 cfs ascending to 70 cfs	Target: 5%
Snowmelt Bench	May 18 through July 6	70 cfs	
Medium Recession (Node)	July 7 through July 12	70 cfs descending to 45 cfs	Target: 6%
Slow Recession	July 13 through July 27	45 cfs descending to 30 cfs	Target: 3%
Summer Baseflow	July 28 through September 30	30 cfs target 28 cfs minimum	
Fall and Winter Baseflow	October 1 through March 31	27 cfs target 25 cfs minimum and 29 cfs maximum	

TABLE 2A

LEE VINING CREEK STREAM ECOSYSTEM FLOWS

Timing: April 1 – September 30 Year-type: Extreme-Wet, Wet, Wet-Normal, Normal, Dry-Normal II

TIMING	INFLOW	FLOW REQUIREMENT
April 1 through September 30	30 cfs or less	Licensee shall bypass inflow.
	31 – 250 cfs	Licensee shall release flow in the amount corresponding to inflow which is displayed as blocks of 10 cfs (left-hand vertical column) and 1 cfs increments within such blocks (top horizontal row).
	251 cfs and greater	Licensee shall bypass inflow.

Inflow	0	1	2	3	4	5	6	7	8	9
30		30	30	30	30	30	31	32	33	34
40	30	31	32	33	34	35	36	37	38	39
50	35	36	37	38	39	40	41	42	43	44
60	45	46	47	48	49	50	51	52	53	54
70	55	56	57	58	59	60	61	62	63	64
80	60	61	62	63	64	65	66	67	68	69
90	70	71	72	73	74	75	76	77	78	79
100	75	76	77	78	79	80	81	82	83	84
110	85	86	87	88	89	90	91	92	93	94
120	95	96	97	98	99	100	101	102	103	104
130	100	101	102	103	104	105	106	107	108	109
140	110	111	112	113	114	115	116	117	118	119
150	120	121	122	123	124	125	126	127	128	129
160	130	131	132	133	134	135	136	137	138	139
170	135	136	137	138	139	140	141	142	143	144
180	145	146	147	148	149	150	151	152	153	154
190	155	156	157	158	159	160	161	162	163	164
200	160	161	162	163	164	165	166	167	168	169
210	170	171	172	173	174	175	176	177	178	179
220	180	181	182	183	184	185	186	187	188	189
230	190	191	192	193	194	195	196	197	198	199
240	195	196	197	198	199	200	201	202	203	204
250	200									

TABLE 2B

LEE VINING CREEK STREAM ECOSYSTEM FLOWS

Timing: April 1 – September 30 Year-type: Dry-Normal I, Dry

TIMING	INFLOW	FLOW REQUIREMENT
April 1 through September 30	30 cfs or less	Licensee shall bypass inflow.
	31 – 250 cfs	Licensee shall release flow in the amount corresponding to inflow which is displayed as blocks of 10 cfs (left-hand vertical column) and 1 cfs increments within such blocks (top horizontal row).
	251 cfs and greater	Licensee shall bypass inflow.

Inflow	0	1	2	3	4	5	6	7	8	9
30		30	30	30	30	30	30	30	30	30
40	30	30	30	30	30	30	30	30	30	30
50	30	30	30	30	30	30	30	30	31	32
60	32	33	34	34	35	36	36	37	38	38
70	39	40	41	41	42	43	43	44	45	45
80	46	47	47	48	49	49	50	51	52	52
90	53	54	54	55	56	56	57	58	59	59
100	60	61	61	62	63	64	64	65	66	66
110	67	68	69	69	70	71	72	72	73	74
120	74	75	76	77	77	78	79	80	80	81
130	82	82	83	84	85	85	86	87	88	88
140	89	90	91	91	92	93	94	94	95	96
150	97	97	98	99	100	100	101	102	103	103
160	104	105	106	106	107	108	109	109	110	111
170	112	112	113	114	115	115	116	117	118	118
180	119	120	121	121	122	123	124	124	125	126
190	127	128	128	129	130	131	131	132	133	134
200	134	135	136	137	138	138	139	140	141	141
210	142	143	144	144	145	146	147	148	148	149
220	150	151	151	152	153	154	155	155	156	157
230	158	158	159	160	161	162	162	163	164	165
240	165	166	167	168	169	169	170	171	172	172
250	173									

TABLE 2C				
LEE VINING CREEK STREAM ECOSYSTEM FLOWS				
Timing: October 1 – March 31 Year-type: All				
Maximum ramping at the beginning and end of this period is 20%.				
TIMING	**FLOW REQUIREMENT**			
	Extreme-Wet, Wet	**Wet-Normal**	**Normal**	**Dry-Normal II, Dry-Normal I, Dry**
October 1 through October 15	30 cfs	28 cfs	20 cfs	16 cfs
October 16 through October 31	28 cfs	24 cfs	18 cfs	
November 1 through November 15	24 cfs	22 cfs		
November 16 through March 31	20 cfs	20 cfs		

Condition 2 replaces the provision in Order 98-05 ¶ 1.b(2)(b)(2) requiring study of modifying Grant Dam.

2. Grant Outlet

LADWP shall modify the Grant Lake Reservoir Facilities to include an outlet which assures reliable delivery of the flow requirements specified in Table 1 (Grant Outlet).

a. Further Approvals of Design. Licensee shall undertake further due diligence to choose among designs capable of reliably releasing the flows specified in Table 1. Within 18 months, Licensee shall petition the Division of Water Rights to approve a design, including engineering specifications, for the Grant Outlet. That petition shall include any environmental analysis of that design required under the California Environmental Quality Act. By that date, it shall also apply for any other regulatory approvals necessary for construction, operation, and maintenance of this facility, including any necessary environmental analysis. Licensee shall request and take all reasonable steps to obtain such further approvals so as to permit Licensee to complete construction, and begin operation, within four years of the Final Order.

b. Construction and Operation. Licensee shall begin construction of the Grant Outlet within 12 months of receiving necessary regulatory approvals. Licensee shall complete construction and begin to operate Grant Outlet within 18 months of receiving such final regulatory approvals.

c. Progress Reports. Licensee shall submit quarterly progress reports to the Division of Water Rights during the design, permitting, and construction of Grant Outlet. If it cannot achieve a deadline for reasons beyond its control, Licensee shall timely request an extension of time from the Division of Water Rights, and other Parties may reply.

d. Funding. In order to offset the capital cost of Grant Outlet, Licensee may divert up to 12,000 acre-feet of water from the Mono Basin additional to the amount otherwise permitted by D-1631 ¶ 6.a(3) for the period when Mono Lake is at or above 6,380 feet and below 6,391 feet MSL ("Additional Export").

(1). Compliance. Licensee shall not divert Additional Export in a manner that causes a variance from the flow and minimum storage requirements specified in Condition 1.

(2). Schedule. The additional export will become available on the following schedule:

i. 4,000 acre-feet upon receipt of final permits to construct the Grant Outlet;

ii. 4,000 acre-feet upon active construction of the Grant Outlet;

iii. 2,000 acre-feet subsequent to the first wet year in which the outlet is operated to release the flows specified in Table 1; and

iv. 2,000 acre-feet subsequent to the second wet year in which the outlet is operated to release the flows specified in Table 1.

(3). Adjustment. The schedule and amount of Additional Export are subject to adjustment in four circumstances:

i. By further agreement between the Parties and the further approval of the Division of Water Rights.

ii. If non-licensee funds are timely secured to pay for all or part of the capital cost of the Grant Outlet. In that event, the Additional Export shall be reduced by an acre-foot amount equivalent to value of the funding using the current Metropolitan Water District Full Service Untreated Volumetric Cost Tier II rate.

iii. If the total value of the Additional Export, as measured by the current Metropolitan Water District Full Service Untreated Volumetric Cost Tier II rate, exceeds 50% of the capital cost of the Grant Outlet. In that event, the Additional Export shall be reduced to ensure that the value of the Additional Export does not exceed 50% of the capital cost.

iv. If, for any reason, Grant Outlet does not begin operation within four years of the date of the Final Order. In that event, Licensee shall not be allowed any Additional Export and shall compensate for any Additional Export that has already occurred, by reducing further allowable export by an equivalent amount.

(4). Planning. Licensee shall develop the schedule and other specifications for Additional Export in the Mono Basin Operation Plan and Annual Operations Plan.

Condition 3 replaces the requirement in Order 98-05 ¶ 2(a)-(b) for a Grant Lake Operations and Management Plan.

3. Mono Basin Operations Plan

Licensee shall develop, implement, and periodically revise a Mono Basin Operations Plan (MBOP). The MBOP shall specify the rules, guidelines, and criteria for operation

of Licensee's Mono Basin facilities to meet all applicable requirements across all year-types.

a. Content. Licensee shall base the MBOP on the Licensee's *Grant Lake Operations and Management Plan* (Feb. 29, 1996) as approved in Order 98-05 ¶ 2, taking into account the flow requirements in Condition 1, the capabilities of the Grant Outlet, and other subsequent requirements and information. MBOP shall: (1) be consistent with the outline attached as Appendix 2, (2) provide for development of Annual Operations Plans (AOP); and (3) supplement the rules and criteria for storage in Grant Lake Reservoir as specified in Condition 1.b(2) as necessary to assure reliable operation of the Grant Outlet to deliver the flow requirements in Table 1.

b. Initial Planning Process. Within one year, Licensee shall develop the MBOP and submit it to the Division of Water Rights, for approval.

(1). Licensee shall consult with Stream Monitoring Team and Parties in the development of the initial MBOP and any revision thereto. It shall provide a draft plan for their review and comment. Licensee shall convene a meeting to address such comments. A representative of the Division of Water Rights may attend.

(2). Licensee shall use eSTREAM or an equivalent daily planning tool for this purpose. Licensee shall grant Parties permission to use the model, including any update, to assist with the development of the plan or revision.

(3). The Division of Water Rights shall review and approve the plan, subject to appropriate modifications.

c. Revisions. Following such initial approval, Licensee shall develop and submit appropriate revisions to the MBOP when construction of Grant Outlet is complete, and every five years following such completion of construction, or more frequently if recommended by the Stream Monitoring Team, to take into account operating experience for Grant Outlet. For such revisions, the Licensee shall follow the procedures specified in Condition 3.b.

Condition 4 revises Order 98-05 ¶ 3.

4. Annual Operations Plan

Licensee shall develop and implement Annual Operations Plans consistent with MBOP.

a. Content. AOP shall specify Licensee's plans to operate its Mono Basin facilities for the runoff year to reliably release flow requirements and meet all other

applicable requirements, taking into account the year-type and other specific circumstances.

(1). It shall be consistent with the MBOP.

(2). It shall incorporate any adaptive management of flow requirements recommended by the Stream Monitoring Team, as provided in Condition 5.b.

(3). It shall provide for electronic reporting to the Stream Monitoring Team and Parties describing the implementation of specified plan of operation, including actual runoff, exports, and bypass flows.

b. Development. By May 15 of each year, Licensee shall develop and submit an AOP to the Division of Water Rights for review and approval.

(1). By March 31 of each year, the Licensee shall convene a meeting to prepare for developing the AOP, and specifically to address any adaptive management of SEFs, monitoring results, and forecasts of hydrology and exports. The meeting shall include: Stream Monitoring Team, Parties, and others as appropriate.

(2). By April 15, Licensee shall distribute a draft AOP to the Stream Monitoring Team and Parties for review and comment. Not later than May 5 Licensee shall convene an in-person meeting to discuss and resolve such comments. A representative of the Division of Water Rights may attend.

(3). By May 15, Licensee shall submit the final AOP. The Division of Water Rights shall review and approve the AOP, subject to appropriate modifications.

c. Reporting. Following approval, Licensee shall report implementation of the AOP.

(1). Licensee shall submit a monthly report to the Stream Monitoring Directors and the other Parties, not later than ten calendar days after the end of the month. Each report shall include actual runoff and operations data by comparison to the AOP forecasts, and actual and projected adjustments in operations necessary to respond to changed or unanticipated conditions.

(2). Licensee shall meet and confer with the Stream Monitoring Team and other Parties to address projections of significant adjustments in operations.

(3). Licensee shall submit a quarterly report to the Division of Water Rights. This report shall describe actions taken by the Licensee that relate to implementation of the AOP.

Condition 5 revises Order 98-05 ¶ 1.b, as amended by Order 98-07, as follows. Condition 5.a(1) replaces the requirements in pp. 93 - 110 in the Licensee's Stream and Stream Channel Restoration Plan (January 1997) as approved in Orders 98-05 and 98-07. Condition 5.a(2) replaces the termination criteria in Order 98-07 ¶ 1.b(5). Condition 5.b-c revises (supplements) the requirements in Order 98-05 ¶ 1.b(2)(c) for Annual Monitoring Reports. Condition 5.d replaces Order 98-05 ¶ 1.b(2)(a). Condition 5.e revises Order 98-05 ¶ 1.e.

5. Stream Monitoring and Restoration Program

a. Stream Monitoring. The Stream Monitoring Team shall monitor pursuant to the following requirements.

(1). The team shall conduct those tasks specified in Appendix 3, which implements Chapter 7 of the *Synthesis Report*. The team may adjust the priorities and other details for such tasks, on the basis of recommendation as provided in Condition 5.c.

(2). The Stream Monitoring Team shall apply the metrics stated in Appendix 4. The results of monitoring shall be used to:

i. inform adaptive management of the SEFs, restoration program, and operations of Licensee's Mono Basin facilities;

ii. inform the Board and the public of the status of stream and fishery restoration in light of the factors stated in Order 98-05 ¶ 1.b(4); and

iii. serve as the basis for any further revisions to or termination of the monitoring program.

b. Adaptive Management. The flow requirements in Condition 1 are subject to adaptive (including real-time) management to achieve the goals specified in Order 98-05 ¶ 1.b(4).

(1). Form. The Stream Monitoring Team may recommend adaptive management of flow requirements in one of two ways:

i. In the Annual Monitoring Report and in comments on the AOP, for implementation in the following year.

ii. On a real-time basis in response to unforeseen circumstances, especially during wetter than average years. Such recommendations shall be made by written notice to the Division of Water Rights. Such recommendations shall be developed in consultation with Licensee and Parties, each of whom shall designate representatives with the qualifications and authority necessary to assist in such adaptive management.

(2). Implementation. The Licensee shall implement such recommendation unless timely disputed pursuant to the procedure specified in Order 98-05 ¶ 5 and Condition 9.

(3). Range. Such adaptive management may modify the flow requirements specified in Table 1 or 2, by:

i. Modifying the start or end dates, duration, or ramping rate of a hydrograph component, or specifying the timing or magnitude of a flow release in excess of Table 1 or 2 due to other license requirements, in order to improve ecological functions; or

ii. Temporarily reducing flow for safety during stream monitoring activities.

(4). Limitations. Such adaptive management, including the range specified in paragraph (3), shall not materially: (i) increase the volume of water required to meet the flow requirements in the applicable table and the requirements of Decision 1631 ¶ 6, (ii) reduce allowable export, or (iii) increase Licensee's operational or capital costs. Further, such adaptive management does not authorize Licensee to take any action otherwise prohibited by its Licenses.

c. Annual Monitoring Reports. By February 1 of each year, the Stream Monitoring Team shall submit to the Licensee the Annual Monitoring Report specified by Order 98-07 ¶ 1.b(2)(c).

(1). The team shall consult with Licensee and the other Parties in the preparation of these reports. It shall provide draft reports for their review and comment.

(2). By May 15 of each year, Licensee shall submit these annual reports to the Division of Water Rights. Its submittal may include comments on the final report's findings and recommendations.

d. Periodic Overview Report. The Stream Monitoring Team shall develop a Periodic Overview Report on the Stream Monitoring and Restoration Program.

This shall occur after Licensee has operated Grant Outlet to release SEFs in two above-Normal runoff years, at least one of which is Wet or Extreme Wet.

(1). The report shall evaluate trends in stream conditions relative to the metrics stated in Condition 5.a(2), Appendix 4, and Order 98-05 ¶ 1.b(4). It shall make recommendations for changes to the stream monitoring and restoration program to increase effectiveness or reduce cost of the program, or for termination thereof.

(2). In the development of the Periodic Overview Report, the Stream Monitoring Team shall consult with Licensee and Parties and shall provide a draft plan for their review and comment.

(3). The Stream Monitoring Team shall submit the Periodic Overview Report to the Division of Water Rights. In response to this report, Licensee may move for changes in the program or termination thereof. After considering any motion, responses thereto, or other comments by the Licensee or other Parties, the Division shall review and take final action on the recommendations in the report.

e. Channel Maintenance. Stream Monitoring Team shall reopen and maintain side-channel entrances as recommended on pp. 129 – 131 of the *Synthesis Report*. The team or subconsultant shall be responsible to comply with any permitting requirements, and Licensee shall support such permitting and provide land access as necessary.

Condition 6 revises Order 98-05 ¶ 4, as follows. Condition 6.a revises Order 98-05 ¶ 4.d.1. Condition 6.b revises the requirement in Order 98-05 ¶ 4.d(3) that Licensee file an annual report by April 1. It adds the requirement that the Limnology and Waterfowl Directors prepare scientific reports, conforming to the existing requirement for the Stream Monitoring Program. Condition 6.c revises (supplements) the requirements in Order 98-05 ¶ 4.d(3). Condition 6.d revises Order 98-05 ¶ 4.b.

6. Waterfowl Habitat Restoration Program.

a. Directors.

(1). Dr. John Melack (University of California Santa Barbara) shall direct and conduct the limnology monitoring described in Licensee's *Waterfowl Habitat Restoration Plan* (February 1996) as approved in Order 98-05 ¶4.d. The Division of Water Rights shall designate any successor, who shall have expertise in the limnology of saline lakes, after considering the recommendations of the Parties.

(2). Within 6 months of the Final Order, the Licensee and the Parties shall jointly nominate a director of the waterfowl population monitoring described in *Waterfowl Habitat Restoration Plan.* In the event of a dispute, the Division of Water Rights shall designate the director pursuant to the procedure provided in Order 98-05 ¶ 5.

b. Monitoring Program. The Limnology and Waterfowl Directors shall continue the previously authorized monitoring programs, as may be modified by the Division of Water Rights on the basis of the Periodic Overview Report, in response to a motion by Licensee or another Party, or as otherwise determined.

c. Annual Monitoring Report. By March 1 of each year, the Limnology and Waterfowl Directors shall each submit an Annual Monitoring Report to the Licensee, including evaluation of results and any recommendations for changes in the Waterfowl Habitat Restoration Program.

(1). In the development of their respective annual reports, the Limnology and Waterfowl Directors shall consult with the Licensee and other Parties and shall provide drafts for their review and comment.

(2). By May 15 of each year, Licensee shall submit the final Annual Monitoring Reports to the Division of Water Rights. Its submittal may include comments on the findings and recommendations stated in the reports. After considering any comments by Licensee or other Parties, the Division shall review and take final action on any recommendations stated in the reports.

d. Periodic Overview Report. Every five years, the Waterfowl and Limnology Directors shall jointly develop a Periodic Overview Report on the Waterfowl Program. The report shall evaluate trends and make recommendations for changes to the Waterfowl Program to increase effectiveness or reduce cost.

(1). In the development of the Periodic Overview Review, the Waterfowl and Limnology Monitoring Directors shall consult with Licensee and Parties and shall provide a draft report for their review and comment.

(2). The Waterfowl and Limnology Directors shall submit their Periodic Overview Report to the Division of Water Rights. In response to this report, Licensee may move for changes in the program or termination thereof. After considering any motion, responses thereto, or other comments by Licensee or other Parties, the Division shall review and take final action on any recommendations stated in the report.

e. Habitat Improvements. The Waterfowl Monitoring Director may recommend use of the funds authorized by Order 98-05 ¶ 4.b, for the purpose of improving

waterfowl habitat on U.S. Forest Service lands or elsewhere in the Mono Basin. This director or subconsultants shall be responsible to comply with any permitting requirements, and Licensee shall support such permitting and provide land access as necessary.

Condition 7 revises Order 98-05 1.b.(1) and 4.d, by establishing a new agency for the purpose of contracting with the Monitoring Directors.

7. Mono Basin Monitoring Administration Team.

a. Purposes. The Mono Basin Monitoring Administration Team (MAT) shall be established to: (1) develop an annual Expenditure Plan for monitoring and specified restoration actions; and (2) oversee a Fiscal Administrator's contracts with the Stream Monitoring Team, Limnology, and Waterfowl Directors (collectively, Monitoring Directors), for the performance of their respective monitoring tasks, and any contract for administrative services necessary for the MAT carry out its purposes.

b. Governance. The MAT shall consist of: CDFW, Mono Lake Committee, California Trout (with respect to the stream monitoring and restoration program only), and the Licensee.

(1). Within 6 months after the Final Order, the MAT members shall enter into an agreement specifying meeting and governance procedures, including procedures that provide for timely resolution of any disputes.

i. Under these procedures, the MAT shall carry out all actions approved by a majority of its members unless and until directed otherwise by the Division of Water Rights pursuant to Order 98-05 ¶ 5 and Condition 9. A MAT member may not delay or prevent action by inaction or failure to participate in votes.

ii. These procedures shall permit an independent annual audit under standard procedures used for a non-profit corporation. The cost of an audit shall be covered from a mutually agreeable source other than the funding provided by Licensee under Section 7.f.

(2). Each member shall designate a representative who shall participate in the MAT's deliberations and votes, as follows: (i) for Licensee, the Aqueduct Manager or higher; (ii) for CDFW, an Environmental Scientist or higher; (iii) for Mono Lake Committee, the Eastern Sierra Policy Director or higher; and (iv) for California Trout, the Eastern Sierra Program Manager or higher.

(3). The MAT shall conduct the tasks below in a manner that assures that funds are managed and used as authorized here and by further order of the Division of Water Rights.

c. Fiscal Administrator. The MAT shall select and supervise a Fiscal Administrator, who shall be responsible: to (1) enter into and administer contracts with Monitoring Directors, (2) pay their invoices, and (3) perform certain other administrative duties.

d. Administration of Monitoring Account.

(1). Account. The Fiscal Administrator shall establish and administer a Mono Basin Monitoring Account at a bank or similar financial institution.

(2). Contracting with Monitoring Directors.

i. The Fiscal Administrator shall prepare contracts and annual task orders with the Monitoring Directors, for the MAT's review and approval. Upon such approval, the Fiscal Administrator shall execute a contract or work order, as applicable.

ii. At the request of the applicable Monitoring Director, the Fiscal Administrator may enter into a conforming contract with a subconsultant for the performance of a monitoring task or a restoration project.

iii. The Monitoring Directors may assign tasks to Licensee's employees for performance, subject to the Licensee's approval and provided Licensee is responsible for the costs associated with such performance.

(3). Invoices. The MAT shall review invoices for consistency with the approved Expenditure Report and Plan and applicable work orders. Upon its approval of an invoice, MAT shall instruct Fiscal Administrator to pay the invoice.

e. Other Administration. The Fiscal Administrator, directly or through a contractor acceptable to the MAT, shall: (1) assist the Licensee, MAT, and Monitoring Directors in convening meetings related to the preparation of required plans and report, (2) report to the MAT on all contracts and expenditures, and (3) assist MAT in preparation of the Expenditure Report and Plan and related matters.

f. Funding. Licensee shall fund the Mono Basin Monitoring Account, as follows.

(1). Within 30 days of the Final Order, Licensee shall make one-time payments of: (i) $500,000 for stream restoration projects as specified in Condition 5.e; and (ii) $275,000, pursuant to Order 98-05 ¶ 4.b as amended by Condition 6.e.

(2). By November 1 of each year, Licensee shall make an annual payment to the Monitoring Account for the purpose of next year's monitoring and associated administrative costs. This payment shall be $575,000 (2013), of which $299,000 shall be for stream monitoring, and $276,000 for waterfowl and limnology monitoring. This payment shall be adjusted annually by CPI (Los Angeles-Riverside).

(3). Not later than September 1, the Licensee shall notify the Division of Water Rights if it disputes its obligation to provide such funding as required by Condition 7.f(2). Any such dispute shall be limited to the issue whether the MAT has performed as required by this condition. The Division shall undertake to resolve such dispute not later than November 1. Licensee shall not withhold any required payment to the Mono Basin Monitoring Account unless and until the Division authorizes such action following resolution of Licensee's dispute.

(4). The Division of Water Rights shall amend or end this funding obligation upon its termination of some or all of the monitoring programs, respectively. Under authority of Decision 1631 and Orders 98-05 and 98-07, the Division shall not increase the amount of funding required to be provided by Licensee.

g. Expenditure Report and Plan. By May 15 of each year, the MAT shall submit an Expenditure Report and Plan to the Division of Water Rights. The MAT, in consultation with the Monitoring Directors and the Fiscal Administrator, shall prepare a draft 30 days before final submittal.

(1). The report shall include an accounting of all expenditures, contracts, and related matters in that year.

(2). The plan shall propose a plan for expenditure of the annual funding for the following year's monitoring tasks. It may propose: priorities for monitoring within the scope of the approved monitoring programs, the carry-over of funds to subsequent years for non-annual monitoring tasks, and the use of funds to cover the necessary costs of administration, including the Fiscal Administrator.

(3). The Division of Water Rights shall review and approve the expenditure plan, subject to any appropriate modifications.

h. Termination of MAT. At any time after 10 years from the date of the Final Order, Licensee may request termination of MAT, and Division of Water Rights shall approve such termination upon approval of an alternative method to implement required monitoring programs. At any time, the Division may terminate the MAT on its own initiative, or on motion demonstrating that the MAT has not performed as required in this Condition 7, or that the MAT's continuing administration of the monitoring programs will not be cost-effective. Termination of the MAT shall not terminate Licensee's obligations under the Final Order. Any funds remaining in the Mono Basin Monitoring Account upon termination of the MAT shall revert to Licensee.

i. Limitations. The Licensee shall operate its Mono Basin facilities in compliance with all applicable requirements. It shall not delegate any such responsibility to the MAT.

Condition 8 amends Decision 1631 ¶ 6.a(4).

8. Lake Hearing

In the event that the water level of Mono Lake has not reached an elevation of 6,391 feet by September 28, 2020, the Board will hold a hearing to consider the condition of the lake and the surrounding area, and will determine if any further revisions to this license are appropriate.

Condition 9 amends (supplements) Order 98-05 ¶ 5.

9. **Dispute Resolution and Hearing Procedures**.

a. Parties. For the purpose of Order 98-05 ¶ 5, Parties means: CDFW, Mono Lake Committee, and California Trout.

b. Service. Any notice or other document submitted to the Division of Water Rights pursuant to these conditions shall be simultaneously served to the Parties by electronic mail or equivalent method.

c. Informal Dispute Resolution. The Division of Water Rights shall encourage and assist the Parties to undertake informal dispute resolution.

Mono Basin Settlement Agreement
Appendix 2

Mono Basin Operations Plan Outline

1.0 INTRODUCTION

Plan for management of Mono Basin streams (Lee Vining, Rush, Walker, Parker) and aqueduct facilities including Grant Lake Reservoir. Plan presents the Stream Ecosystem Flows (SEFs) and Mono Lake level requirements and identifies operational rules and procedures necessary to reliably deliver SEFs, follow lake level rules, and export water.

1.1 Background

Discuss D1631, GLOMP, Order 98-05, Synthesis Report.

1.2 Synthesis of Instream Flow Recommendations Report

Brief description & reason for the report. Briefly describe CAMMP modeling subgroup and insights gained from collaborative effort. That team reconstituted to develop MBOP.

1.3 Changes from GLOMP

Brief discussion of changes. More detailed discussions in body of report. Direct reader to sections where major changes are discussed. Include overview of revised hydrographs. Include overview of new infrastructure to support implementation of SEFs.

1.4 Document Organization

Include each chapter title, plus brief description of chapter. Brief description can be intro paragraph to chapter.

2.0 MONO BASIN HYDROLOGY

This section discusses Mono Basin hydrology. Year types are redefined based on the period of record and 50-year average runoff is updated every 5 years upon approval of MBOP revisions by the Chief of Division of Water Rights. Discussion of additional factors that may affect Mono Basin hydrology.

2.1 Mono Basin Overview

Provide overview of streams draining to Mono Lake. Streams are snowmelt-driven, and most of the contributing precipitation occurs in winter. Upstream SCE reservoirs also affect the timing of runoff, but usually there is little effect on volume over the course of the runoff year. Include revised projections of when Mono Lake will reach 6,391.

2.2 Recurrence Intervals

Analysis of overall annual runoff for period of record vs. the last 50 years. Compare with what was used in D1631.

2.3 Year Types

Define year types based on period of record and recurrence interval analysis.

2.4 Climate Change

Long-term changes observed and expected. Summarize already observed and probable future effects of climate change. Discuss findings of LADWP 2011 Eastern Sierra Climate Study.

3.0 LADWP MONO BASIN FACILITIES

Overview of operations, facilities, and limitations. Much of this (except Lee Vining facilities and planned Grant Outlet upgrade) can be taken from GLOMP with some revision.

3.1 Operations Overview

3.2 Mono Basin Facilities

3.2.1 Lee Vining Diversion Facility

Diverts water from Lee Vining Creek into Lee Vining Conduit. Langemann gate provides greater operating efficiency. Discuss in detail the different ways the facility can be managed and the pros and cons of each strategy.

3.2.2 Lee Vining Conduit

Runs from Lee Vining Creek at the Diversion Facility to Grant Lake Reservoir.

3.2.3 Walker Creek Diversion Facility

Provides capability to divert to Lee Vining Conduit, but no water is currently diverted during most year-types. Discuss in detail the sediment bypass procedures.

3.2.4 Parker Creek Diversion Facility

Provides capability to divert to Lee Vining Conduit, but no water is currently diverted during most year-types. Discuss in detail the sediment bypass procedures.

3.2.5 Lee Vining Conduit Siphon Bypass Facility

Allows diversion of Lee Vining water to Rush Creek. Used to achieve water temperatures in Rush Creek in Dry and Dry-Normal I years. Discuss in detail the operations procedures.

3.2.6 Grant Lake Reservoir

Regulates flow on Rush Creek, receives flow from Lee Vining Creek, and stores water for SEF, export, fishery, recreation, and marina purposes. Grant Lake Reservoir allows LADWP to provide higher peak flows to Rush Creek and lower base flows to Rush Creek and Lee Vining Creek than would otherwise occur from the regulated SCE flows.

3.2.7 Grant Lake Reservoir Outlet Facility (existing)

Regulates flow released from Grant Lake Reservoir. Flow goes to export or to Rush Creek through MGORD. Discuss in detail the operations procedures.

3.2.8 Grant Lake Reservoir Outlet Facility (new)

This is the new larger Grant Lake Reservoir outlet that delivers SEF flows to Rush Creek.

3.2.8.1 Facility Location
3.2.8.2 Facility Design and Specifications
3.2.8.3 Facility Construction
3.2.8.4 Facility Operation

3.2.9 Mono Gate One

Used to divert water released from Grant Lake Reservoir down Rush Creek through MGORD. Formerly difficult to operate and imprecise in regulating flow, but upgraded in 2009 and tested in 2011. Discuss upgrades and current operations in detail.

3.2.10 Mono Gate One Return Ditch

Returns flow from Grant Lake Reservoir to Rush Creek. Capacity is 380 cfs but maintenance and monitoring are needed in order to use that capacity. Ditch was tested in 2004 and 2011, and the tests provided some valuable data discussed in other sections. Discuss in detail the operations, maintenance, and monitoring procedures.

3.2.11 Mono Tunnels

Export passes from West Portal to East Portal through the Mono Craters Tunnel. Discuss in detail the operations, maintenance, and monitoring procedures.

3.3 Operational Limitations

Facilities are limited in their precision, which affects DWP's ability to regulate flows. SCE reservoirs regulate flow in Rush Creek upstream of Grant Lake Reservoir and in Lee Vining Creek. Discuss the operational limitations and accuracy of each facility.

4.0 MANAGEMENT RESOURCES

Resources available to effectively manage LADWP facilities, Mono Basin streams, reservoirs, and Mono Lake. (Portions of data and models sections can be taken from GLOMP with some revision.)

4.1 Data

4.1.1 Snow Surveys/Pillows

4.1.2 Field Reconnaissance

4.1.3 Flow Monitoring

All measuring stations post same-day information on the Internet. Discuss each measuring device and its accuracy. Discuss Website, Daily Aqueduct Report, and procedures and sources of error or down-time in detail. Discuss plans for upgrades or changes. Daily average data is included in annual reporting; discuss other sources of data (AS400) and the types of data and period of record. Discuss availability of different data sources.

4.2 Models

4.2.1 Runoff Forecast Model

The runoff forecast model is used to predict the annual runoff for the four streams and the monthly distribution of runoff. Operations are based on the year type predicted by the runoff forecast model on February 1, March 1, and April 1 and updated on May 1. Discuss the May 1 forecast protocol developed in 2011 and implemented in 2012.

4.2.2 Mono Basin Operational Model -- eSTREAM

The Grant Lake model previously was used for annual operations only. It did not have the capability to run useful multi-year simulations. eSTREAM, a MS-Excel-based model, was developed by Watercourse Engineering and has been improved by a collaborative effort between the parties. eSTREAM is a key tool that will be used each year to plan releases, exports, and reservoir levels specified in the AOP. Monthly runs will allow AOP adjustments based on actual events

4.2.3 Peak Snowmelt Prediction Model

The timing of the release of peak flows in Rush Creek should coincide, if possible, with the peaks in Parker and Walker Creeks. Rush Creek peak can be timed to coincide with seeding of riparian species in certain years. A peak snowmelt prediction model allows the timing of these peaks to be more accurately predicted, contributing to more efficient operations.

4.2.4 Degree-day Model for Predicting Cottonwood Seeding

This model was developed by McBain & Trush and used (?) by LADWP to predict peak seed release from cottonwoods. This model can be used in conjunction with the peak snowmelt prediction model in order to time Rush Creek's peak for each year's optimum ecological opportunities.

4.3 LADWP Personnel

4.3.1 Watershed Resources

4.3.2 Hydrographers

4.3.3 Water Operation Engineers

4.4 Other Entities

4.4.1 Mono Lake Committee, Cal Trout , California Dept. of Fish and Wildlife

4.4.2 Monitoring Administration Team (MAT)

4.4.3 Southern California Edison

4.4.4 US Forest Service

5.0 MONO BASIN STREAMFLOW HYDROGRAPHS

Contains SEFs. Discuss each hydrograph component, ramping rates, and other relevant elements. Discuss effects and considerations for successive year types.

5.1 Overview of SEF Hydrographs

Approach, what they accomplish.

5.2 Base Flows

Base flows provide fish habitat, BMI habitat, and groundwater and vegetation maintenance.

5.2.1 Spring Base Flow

5.2.2 Summer Base Flow

5.2.3 Fall Base Flow

5.2.4 Winter Base Flow

5.3 Rising Limb

5.3.1 Spring Ascension

5.3.2 Spring Bench

5.3.3 Snowmelt Ascension

5.4 Snowmelt Bench

The snowmelt bench provides a starting and ending point for the release of a snowmelt flood.

5.5 Snowmelt Flood

5.5.1 Peak Timing

5.5.2 Peak Magnitude and Frequency

5.5.2.1 Ecological Functions

Peak magnitude does geomorphic work and/or inundates floodplain for vegetation growth. Moves LWD etc. (get list from Synthesis Report), discuss instantaneous vs. daily average

5.5.2.2 Ecological Functions of Winter Floods

5.5.3 Peak Duration

5.5.3.1 Ecological Functions

Peak duration affects sediment movement and vegetation germination. Suspended sediment experiments in 2005 contributed to understanding.

5.5.4 Fast Recession

5.6 Recession Limb

5.6.1 Medium Recession (Node)

5.6.2 Slow Recession

5.7 Temperature Management

How to manage required temperature control releases from Lee Vining Creek into Rush Creek.

5.8 Ramping Rates

Purposes of Synthesis Report ramping rates. Ramping rate options for achieving better timing of Rush Creek peaks with Parker/Walker peaks and/or seedling germination, depending on whether maximum geomorphic work or maximum vegetation rooting is the goal for the year. Ramping guidance, targets, and minima from Synthesis Report.

Flexibility for quick reaction to opportunities/events and operational and facility limitations.

5.9 October 1 – March 31 Rush Creek flow limitations

Review license conditions designed to avoid negative fishery impacts during this time of year

5.10 Successive Year Type Effects

Successive dry years. Successive wet years. How operations are affected in these situations. Less runoff than predicted may be available after multiple dry years, and what actions to take at what thresholds as reservoir declines each year.

5.11 Adaptive Management of SEFs

Describe how SEFs may be adaptively managed, the limits on adjustments, and how annual adaptive management adjustments are determined and reported.

5.12 Interim Rush Creek SEF

Described modified Rush Creek SEFs that apply until the new Grant Lake Outlet is placed into service.

5.13 Streamflow Hydrographs

The complete SEF hydrographs for Rush, Lee Vining, Walker, and Parker creeks

6.0 GRANT LAKE RESERVOIR MANAGEMENT

6.1 Reservoir minimums

6.1.1 Minimum pool: 11,500 acre feet

6.1.2 Temperature minimum: 20,000 acre-feet July 1 – September 30

6.1.3 Trigger for temperature releases at five siphons: below 25,000 acre-feet July 1

6.2 Reservoir management approach required for new Grant Lake Outlet to function

Discuss how reservoir level management is integral to new Outlet having capability to reliably deliver Rush Creek SEF. Refer to reservoir management targets and rules in the "Operational Planning Guidelines" section.

7.0 MONO LAKE LEVELS

Streamflow planning should include water in addition to SEFs, when required, to meet lake level requirements. Describe lake level rules affecting exports. Provide forecast for lake level rise.

7.1 Lake Maintenance Water

Water needed to reach target lake level and maintain long-term management level. During transition period, and in certain post-transition period situations, flow in excess of the SEFs are released to achieve lake level requirements and comply with export rules. There are better and worse times of year to release that water. General guidance for releasing lake maintenance water to maximum benefit will be described here. The Annual Operation Plan will incorporate specific annual adaptively managed release schedules that specify when to release lake level maintenance water

7.2 Lake Level rules for exports

7.2.1 Transition Period

7.2.2 Post-transition period

7.3 Lake Level transition period

Provides current modeling forecast for the time needed for Mono Lake to achieve the 6,391 trigger elevation.

8.0 MONO BASIN EXPORTS

Discuss available exports. Discuss Upper Owens requirements. Describe desired schedule – timing and magnitude by year type--for exports from Grant Reservoir.

8.1 Available Exports

Exports are limited by Mono Lake levels, SEFs, GLR levels, Upper Owens flow cap, and downstream aqueduct constraints. Water available to export is managed throughout the year to maintain GLR levels and provide export.

8.2 Upper Owens River

Review export rules related to Upper Owens and their effect on scheduling exports.

8.3 Export scheduling

Review desired time pattern for exports. Review LADWP export goals for different year types. The export plan for each specific year will be developed in the Annual Operation Plan.

9.0 OPERATIONAL PLANNING GUIDELINES

This is the section of the report which will be used by operators and planners to schedule the releases and exports. Planning guidelines cover stream releases and export for each runoff year type. .

9.1 SEF schedules by year type for all four creeks

Adaptive management of the SEF schedule is also possible; how developed and how to incorporate into planning

9.2 SEF Adjustments for Interim Operation period

Modified Rush Creek rules until Grant Lake Reservoir outlet is operational including any temporary Reservoir rules necessary during construction.

9.3 Guidelines for additional release for Mono Lake level maintenance

Provides guidelines in tabular form for scheduling additional water releases to achieve and maintain Mono Lake levels. The timing of these flows may be also be identified in annual adaptive management specifications.

9.4 Grant Lake Reservoir Targets/Rules by Year Type

Detailed reservoir rules and targets necessary to assure reliable delivery of Rush Creek SEF utilizing new Grant Lake Outlet. Describe how these rules and targets were developed via modeling and other techniques. Describe compliance check points and prioritized corrective actions if targets not met.

9.4.1 Extreme Wet

9.4.2 Wet

9.4.3 Wet-Normal

9.4.4 Normal

9.4.5 Dry-Normal II

9.4.6 Dry-Normal I

9.4.7 Dry

9.5 Extenuating circumstances

10.0 ANNUAL OPERATIONS PLAN

Describe the purpose and goals of the Annual Operations Plan (AOP). Outline the procedure and timeline for development and submission to the State Water Board.

10.1 Purpose and goals

The AOP will describe how operations will work for the current year-type to accomplish exports and stream releases in accordance with the provisions of the water license. The goal is to develop the AOP in a collaborative manner with the involved parties to avoid disputes and assure smooth and efficient operations during the course of the year.

10.2 Contents

The AOP will provide specific daily and other information about the flow schedule, export, and all facility operations for the year ahead. The AOP will also review the prior year's plan and compare it to actual runoff and operations.

10.3 Adaptive Management

The AOP will incorporate adaptive management adjustments to the SEFs.

10.4 Development and update process

The AOP is created yearly. A draft plan is created in April and a final is completed in May. The final is submitted to the SWRCB by May 15.

Drafts will be circulated among the parties with meetings and phone calls as necessary to facilitate development of the final plan. An early May in-person meeting will be held to review the draft plan and resolve any issues.

In June, July, August, September, and October, updates of actual runoff, inflows, releases, exports, and reservoir levels for the previous month will be sent to the parties, evaluating forecast accuracy and identifying any necessary changes to the plan.

10.5 Annual Meeting

An annual in-person meeting will be conducted in early May or other convenient time to review the draft AOP and resolve outstanding questions before submission of the final AOP to SWRCB. Meetings will be in Bishop unless an alternate location is preferred by the parties.

10.6 Disputes

The goal is to produce an AOP that has support of LADWP and the settlement parties. Reasonable efforts will be made by all parties to resolve disagreements during AOP development process. Unresolved issues may be taken up with the Chief, Division of Water Rights when the AOP is submitted.

11.0 MONO BASIN OPERATIONS PLAN REVISIONS AND UPDATES

MBOP is a living document that should contain up to date information to maximize efficiency of LADWP operations, assure compliance, and facilitate communications with involved parties.

11.1 Revision Schedule

MBOP to be developed and revised consistent with the terms of the settlement agreement.

11.2 Revision Process

Revisions will be developed in collaboration with interested parties with goal of preparing a jointly supported document. Revision process to include circulation of changes, comment period, discussion meeting. Revised document will be submitted to Water Board for review, comment period, and final approval.

12.0 REFERENCES AND APPENDICES

12.1 (Final only) Comments and Responses to Comments on 2014 MBOP

12.2 2010 Synthesis Report

12.3 1996 Grant Lake Operations and Management Plan

Technical Memorandum

Scope of Future Work
For the Mono Basin Stream and Fisheries Monitoring Program
to Accomplish Goals of Chapter 7 of the Synthesis Report

Ross Taylor and Bill Trush

From April 26, 2013 Technical Memorandum

Ross Taylor met with LADWP, California Department of Fish and Wildlife, the Mono Lake Committee, and California Trout (the 'Parties' group) on February 12, 2013 to discuss Chapter 7 (topic: future monitoring) of the Stream Scientists' 2010 Synthesis Report. Chapter 7 outlines development of a stream and fisheries monitoring program and an adaptive management plan once the SEFs have been finalized operationally. Chapter 7 has been the focus of settlement discussions between the Parties regarding future monitoring goals and responsibilities, given the absence of the Stream Scientists from the Parties process. At this meeting, the Parties concluded that the Stream Scientists needed to recommend a monitoring package using Chapter 7 as a framework, and should consider how their recommended tasks would be incorporated into an adaptive management program, as well as budget each monitoring task. The Stream Scientists' recommendations would be considered part of a larger, overall monitoring plan that also recommends waterfowl surveys and Mono Lake limnology monitoring.

The February 12th meeting concluded with the Stream Scientists (Ross Taylor and Bill Trush) tasked with developing a recommended monitoring package based on tasks listed in Chapter 7. This package was to include information on how recommended tasks would be incorporated into an adaptive management program.

Ross Taylor and Bill Trush met jointly with the Parties on March 18, 2013 and presented a draft Technical Memorandum detailing a package of monitoring tasks. Discussion and review at the meeting and subsequent work by the Stream Scientists resulted in revisions to the package culminating in a finalized Technical Memorandum dated April 26, 2013. The Stream Scientists believe that the monitoring tasks in that Memorandum are suitable to accomplish the goals of Chapter 7 of the Synthesis Report, and they are listed here.

Future monitoring fell into three categories:

Compliance Monitoring to assure the State Water Resources Control Board (SWRCB) that LADWP is releasing the Rush, Parker, Walker, and Lee Vining Creek SEFs as specified in a new Order. LADWP staff

would be responsible for funding and executing the compliance monitoring, including Grant Lake Reservoir limnology.

Performance Monitoring informs all parties that the SEFs are achieving what they were expected to accomplish (i.e., performance) relative to the Desired Ecological Outcomes in Table 3.1 of the Synthesis Report. Performance monitoring could be used adaptively to fine-tune the SEFs.

Research Investigations Requiring Monitoring to improve/challenge our quantitative insight into key ecological processes—upon which the Synthesis Report was based—that could lead to innovative recovery actions.

Performance Monitoring

The stream and fisheries monitoring presented in Chapter 7 of the Synthesis Report outlined tasks that would guide an adaptive management program and focused on: (1) validating the SEF regimes were providing the intended ecological benefits and (2) assisting in fine-tuning the flow regimes within the recommended SEF hydrographs.

The Stream Scientists envision that recommended performance monitoring tasks would commence in the summer–fall of 2014 and would occur either annually or would be water-year triggered. Each year's monitoring efforts would be presented in report-format to the SWRCB. For example, an annual fisheries report would be drafted, similar to the annual compliance report developed by the Fisheries Stream Scientist. The Stream Scientists suggest meeting in-person for at least one of the two recommended semi-annual meetings. At year-8, it is recommended that an instream flow study be considered (in part depending on how well channel complexity has advanced) to re-evaluate expected changes in streamflow-habitat relationships in Rush and Lee Vining creeks. After year-10, the final reports would be summarized into a final review of the SEFs and recommendations regarding which performance monitoring tasks should continue.

The following section briefly describes each monitoring task's justification and concludes with a summary table of the tasks.

Fisheries-Based Performance Monitoring Tasks

Fisheries Monitoring Task #1: Annual Fisheries Sampling

Fisheries sampling should continue annually due to the short lifespan of brown and rainbow trout in Rush and Lee Vining creeks, as well as the quick response in growth and condition factors as related to water-year type and flow regimes. Annual fisheries sampling should commence in September of 2014 to maintain the continuous data set (started in 1999). Future monitoring should include mark-recapture estimates on Upper and Bottomlands reaches of Rush Creek and mainstem Lee Vining Creek. Depletion estimates should be made on the Lee Vining Creek side-channel and on Walker Creek. The MGORD section of Rush Creek should be sampled for a mark-recapture estimate in even years (two electrofishing passes) and for RSD and condition factors in odd years (one electrofishing pass). Finally, PIT tagging should be continued on an annual basis to track specific growth rates.

Fisheries Monitoring Task #1a: Single-pass Fisheries Sampling in Odd Years

An alternative to conducting the fisheries sampling every year for the generation of population estimates, is in odd-years to conduct only single-pass electrofishing in all sections of Rush, Lee Vining, and Walker creeks (as we currently do in the MGORD section of Rush Creek). Single-pass electrofishing in all sections results in a significantly reduced budget in the post-Synthesis Report monitoring period, but will still provide valuable information on an annual basis. Single-pass electrofishing in odd-years would still accomplish the following tasks:

1. Condition factor analysis based on weight and length data.
2. Length-frequency histograms to evaluate age-class structure.
3. RSD calculations to evaluate proportions of catchable-sized trout.
4. Annual growth calculations based on recaptures of previously PIT tagged fish.
5. Implanting of PIT tags in new fish.

Task #1a: Odd-year/Single-pass Fisheries Sampling Assumptions

This task's work-plan includes the following assumptions (1) Single-pass sampling will be conducted by a five-person crew comprised of two consultants (Principal and Senior fisheries biologists) and three employees (field technicians); (2) block fences will be used at the lower boundaries to prevent downstream fish movement at end of sections; (3) PIT tagging will continue to be used to track specific growth rates; (4) new PIT tags will be implanted during single-pass sampling; (5) single-pass effort would only require five field sampling days and two travel days; and (6) reporting costs for odd-year, single-pass sampling will also be reduced.

Fisheries Monitoring Task #2: Annual Fisheries Report

The annual report will present the data and provide an analysis and interpretation for each year's fisheries monitoring. Additional sub-tasks include entering and proofing data. These annual reports will

continue providing population estimates, age-class structure analysis, density estimates, condition factors and RSD-value calculations. The Task #2 work-plan assumes that the report is distributed as a PDF.

Fisheries Monitoring Task #2a: Single-pass Sampling Fisheries Report

The sub-tasks to prepare the fisheries reports for single-pass sampling events are similar to those described for Task #2. The numbers of hours for Task #2a report preparation are reduced because mark-recapture and depletion estimates would not be generated. The Task #2a work plan also assumes that the report is distributed as a PDF.

Fisheries Monitoring Task #3: Pool and Habitat Typing Surveys

One channel response to higher flow events is the production/maintenance of important habitats for brown trout in Rush and Lee Vining creeks. The pool and habitat typing surveys should be conducted the summer after above-normal runoffs, or every five years. During the next 10 years of monitoring, no more than three (3) pool surveys would be conducted. The work-plan was based on the following assumptions: (1) surveyed by the Principal and Senior fisheries biologists when they are already in the Mono Basin for the annual fisheries sampling to minimize travel costs, (2) four (10-hour) days to complete Rush Creek and two (10-hour) days to complete Lee Vining Creek, (3) surveys would cover the same reaches completed in RY2011, and (4) for report development, the work-plan assumes 20 hours for the Principal fisheries biologist and 60 hours for the Senior fisheries biologist.

Fisheries Monitoring Task #4: Monitor Water Temperatures

Future collection of water temperature data will be especially important on Rush Creek, both to track conditions during construction phases on GLR Dam and to track changes in temperature due to GLR management and climate change. Continuation of Lee Vining Creek temperature monitoring would be a lower priority than Rush Creek because the past long-term data have shown water temperatures in Lee Vining Creek are not a concern regarding fish growth and condition factor. Work-plan assumes downloading of data loggers four times per year.

Geomorphic and Woody Riparian-Based Performance Monitoring Tasks

Geomorphic Monitoring Task #1: Overall Main Channel Complexity in Rush Creek and Lee Vining Creek

Manning's Coefficient (n) is an empirically derived, unit-less measure of overall hydraulic roughness of the stream channel. In the Plan for Monitoring the Recovery of Mono Basin Streams (Blue Book: Analysis & Evaluation of Monitoring Data (January 12, 1997, p.8)), Manning's n was considered an important monitoring variable:

"*Similarly, changes in channel roughness, principally from riparian colonization, will be plotted through time (accomplished back-calculating Manning's n for specific flows on monitored cross-sections). A positive correlation of increasing roughness (now the dependent variable) with increasing floodplain deposition for a given flow magnitude and duration is expected, quantitatively demonstrating an important feedback loop for recovery.*"

Annual Reports projected the significance of increasing roughness (measured as Manning's n) on key geomorphic recovery processes (also specified in the Desired Ecological Outcomes on the Synthesis Report in Table 3-1, p. 66). The desirability of re-incorporating Manning's n back into long-term monitoring resides in its universality (collectively sensitive to many forms of roughness), relative ease of measurement given what it measures, and usefulness for predicting mainstem stage heights affected by greater roughness (e.g., in the future, lower streamflows will be needed to enter side-channels).

Eight channel reaches in Rush Creek and 3 channel reaches in Lee Vining Creek would be monitored for trends in Manning's n at bankfull discharge (approximately 350 cfs Rush Creek and 250 cfs Lee Vining Creek) and greater. For the initial set-up, each reach selected will need 1 to 3 cross-sections surveyed depending on local channel complexity, with passive peak stage recorders and stage plates installed. Once a reach's cross-sections have been surveyed and monumented, an estimate for reach-long slope must be surveyed. Reach selection would be coupled with Geomorphic Monitoring Task #2 --- occupying previous cross sections would be a priority. Fieldwork requirements for the set-up in RY2014 would be 12 field days with Principal investigator and two field technicians. Following average to wetter years, six field days with a Principal investigator and two field technicians are necessary for annual monitoring.

Geomorphic Monitoring Task #2: Floodplain Deposition in Lower Rush Creek and Lee Vining Creek

Three Desired Ecological Outcomes in Table 3-1 of the Synthesis Report specify emergent, intermediate, and advanced floodplain deposition as important recovery processes. Trend monitoring will require relatively short segments of channel cross-sections within the floodplain from Monitoring Task #1 that will receive detailed surveying of their floodplain surfaces for documenting long-term, net floodplain aggradation. Floodplain depositional processes in Lower Rush Creek often included initial scour during a

peak event with subsequent deposition all within the same flood event resulting in no net deposition. For long-term monitoring, we would only measure net deposition.

Geomorphic Monitoring Task #3: Establish and operate a continuous stream gaging station in Lower Rush Creek

Bill Trush has explored several feasible strategies for the installation and operation of an affordable flow gaging station on lower Rush Creek within the vicinity of the County Road crossing, as specified in the Synthesis Report. A flow gaging station at this location in lower Rush Creek is important because it would account for accretions from Parker and Walker Creeks as well as flow losses documented in past synoptic flow measurements.

Geomorphic Monitoring Task #4: Hydraulic Connectivity of Mainstem Channel to Floodplains

Desired Ecological Outcomes (Table 3-1, p.66 Synthesis Report): (1) Minimum streamflows recharging shallow groundwater and saturating emergent floodplain surfaces, (2) Off-channel spring/early-summer streamflow connectivity, and (3) Protect vigor of established riparian species along the mainstem and side-channel margins as well as on the floodplain.

This task is included in the Performance Monitoring, but bridges Compliance Monitoring, for keeping side-channels hydraulically connected to the mainstem channel as discussed in the Synthesis Report (p. 129 sets no timetable for terminating side-channel maintenance but does provide an inundation depth threshold) that requires groundwater/surface water monitoring and side-channel surveying/maintenance.

The 4-Floodplain and 8-Floodplain complex in Lower Rush Creek will need to be surveyed in RY2014 to establish a physical monitoring infrastructure. This will include high-end GPS monitoring for surveying riffle crest thalweg elevations in the mainstem, floodplains, and side-channels. A series of well-positioned benchmarks will make subsequent surveys easier to accomplish using more traditional surveying methods. Stage plates will be installed in the back of the 4-Floodplain and in the 4-Floodplain's side-channel; another gage plate will be installed in the first deep pool of the side-channel in the 8-Floodplain. This infrastructure of existing piezometers, a few a new additions, stage monitoring on floodplains and side-channels, riffle crest and 2 existing piezometers on Lee Vining Creek also will be monitored but the infrastructure can be made using traditional surveying.

1ST Year Set-Up in RY2014: Establish piezometer network, floodplain stage plates, side-channel invert benchmarks, and riffle crest elevations from the top of elevations, and side-channel entrance invert elevations will be monitored by an MLC intern in one day. Survey the B-1 Connector of the 4-Floodplain downstream to the bottom of the 4-Floodplain using high-grade GPS surveying methods (elevational error 1 to 2 cm). This task would require 5 field days for three field technicians plus office analyses and overlay of GPS data onto aerial photographs to make a master map from which to direct annual monitoring.

Geomorphic Monitoring Task #5: Photo Point Monitoring

During the Synthesis Report preparation, ground-based photos of distinct geomorphic features at several streamflows were almost as valuable as cross-section data for documenting and interpreting geomorphic change. The utility of photo point monitoring relies on a disciplined routine. The Principal investigators will need to spend a total of 10 hours re-occupying re-established photo-points at selected streamflows during the first year of fieldwork, then meet with MLC to schedule future photographic sessions. Photo management is critical. One technician will catalogue the photographs and provide a listing of new photographs in the annual report.

Woody Riparian Vegetation Monitoring Task #1: Measuring Cottonwood Vigor

Table 3-1 Desired Ecological Outcomes: *Protect vigor of established riparian species along the mainstem and side-channel margins as well as on the floodplain.*

1st Year Set-Up: Select floodplain locations and trees for sampling. Measure 10 years of stem growth at 10 floodplain locations within Lower Rush Creek and four locations within Lee Vining Creek; averaging 50 cottonwood branches measured for annual growth per floodplain location. This 1ST Year set-up will require 12 field days with a principal investigator and two field technicians.

Annual Monitoring of cottonwood vigor at 10 floodplain locations within Lower Rush Creek and four locations within Lee Vining Creek; 50 cottonwood branches measured for annual growth per floodplain location. Annual monitoring will require 6 field days with a principal investigator and two field technicians.

Woody Riparian Vegetation Monitoring Task #2: Woody Riparian Vegetation Acreage and Composition

Woody Riparian Vegetation Recovery **–** measure woody riparian vegetation acreage and composition last done in 2009 by John Bair, adding another column to Table 7-1, p. 130 of the Synthesis Report for RY2020.

Geomorphic/Woody Riparian Vegetation Monitoring Task #3

Prepare an Annual Report. Data presentation, analyses, reporting, and interpretation would culminate in an annual report. This task would require 40 hours of Principal investigator time and 2 technical assistants for 60 hours each for data management, directed analyses, and publishing.

Joint Fisheries and Geomorphic/Riparian-Based Performance Monitoring Tasks

Joint Monitoring Task #1: Semi-annual Meetings

Semi-Annual Meetings will be required for scientists to keep the Parties and SWRCB informed. The Stream Scientists recommend meeting twice yearly, similar to when the semi-annual restoration meetings used to occur. A meeting in the late-fall (November) would allow reporting of all the year's activities prior to drafting an annual report. A spring meeting (April-May) would focus on planning for the upcoming season's activities. Typically the type of water-year has been forecasted by the time the spring meeting is held, so flow-triggered monitoring activities could be anticipated and discussed at this meeting.

Joint Monitoring Task #2: Instream Flow Study

This task would re-evaluate streamflow/habitat relationships in the evolving stream channels of Rush and Lee Vining creeks. Instream flow studies conducted prior to the development of the Synthesis Report were considered necessary because the channels had experienced considerable change since the instream flow studies conducted in the late-1980s. We expect that further evolution of the channels will increase channel roughness and increase habitat complexity at lower baseflows.

Summary of Performance-Based Monitoring Tasks

TASK	FREQUENCY
Fisheries Task #1 and 1a: Population (two-pass) sampling in even years and single-pass sampling in odd-years	Annual
Fisheries Task #2 and 2a: Annual Reports for population sampling and single-pass sampling	Annual
Fisheries Task #3: Pool/Habitat Surveys	Every 5 years or after wetter years – 3 surveys max.
Fisheries Task #4: Water Temp Monitoring	Annual
Geomorphic Task #1a: Main Channel Complexity	One-time set-up RY2014
Geomorphic Task #1b: Main Channel Complexity	Normal RY's and wetter
Geomorphic Task #2: Floodplain Deposition	Normal RY's or wetter years
Geomorphic Task #3a: Lower Rush Creek Continuous Streamflow Gaging Station Establishment	One-time Site Selection and Installation
Geomorphic Task #3b: Lower Rush Creek Continuous Streamflow Gaging Station Operation	Annual
Geomorphic Task #4a: Hydraulic Connectivity of Mainstem Channel to Floodplains	One-time RY2014 Monitoring Set-up
Geomorphic Task #4b: Hydraulic Connectivity of Mainstem Channel to Floodplains	Annual
Geomorphic Task #5: Photo Point Monitoring	Annual
Woody Riparian Task #1a: Measuring Cottonwood Vigor	One-time set-up in RY2014 and 1st Year's Stem Growth Data
Woody Riparian Task #1b: Measuring Cottonwood Vigor	Annual
Woody Riparian Task #2: Re-assess Woody Riparian Acreage Recovery	Once in RY2020
Geomorphic and Woody Riparian Vegetation Task #3. Field Data Summary and Preliminary Analyses in Annual Report	Annual
Joint Task #1: Semi-Annual Meetings with Trust Committee	Twice a year in person – both principal scientists
Joint Task #2: Instream Flow Study - Streamflow/Habitat Relationships	Once at Year-8 or 9 of Monitoring Program

Mono Basin Settlement Agreement
Appendix 4

Monitoring Metrics Based upon
Synthesis Report Chapter 7 and Settlement Appendix 3

Monitoring Category	Metric	Units
Grant Lake Reservoir	elevation above sea level	feet (ft)
	storage volume	acre-feet
	water temperature	degrees F or C
Hydrology	stream flow	cubic feet per second (cfs)
	depth to groundwater	feet (ft)
	stream temperature	degrees F or C
	streamflow gains and losses	cubic feet per second (cfs)
Geomorphic	main channel complexity	Manning's n
	net floodplain aggradation	feet (ft)
	main channel length	feet (ft)
	riffle crest elevations	feet (ft)
	side channel stage heights	feet (ft)
	deep pool frequency	feet per pool per reach
	run frequency	feet per run per reach
	pool residual depth and channel width	feet (ft)
	pool cover	percent (%)
	bed topography of Parker and Walker diversion pond deltas and forebays	feet (ft)
Riparian vegetation	woody vegetation acreage	acres per reach (ac/reach)
	cottonwood shoot length	centimeters of growth per year (cm)/yr
Fisheries	trout biomass	kilograms per hectare (kg/ha)
	trout density	trout/kilometer (trout/km)
	trout relative condition factor	No units, 1.00 considered fish in average condition, <1.00 in poor condition. $K = W/_aL^b$
	relative stock density of catchable trout >225 mm	percent x 100
	relative stock density of trout >300 mm	percent x 100