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July 28, 2010

Ms. Victoria Whitney
Chief, Division of Water Rights
California State Water Resources Control Board
1001 I Street, 14th floor
Sacramento, California 95812

Dear Ms. Whitney:

Subject: The Los Angeles Department of Water and Power's Mono Basin Feasibility Report In Response to the Stream Scientists' Final "*Synthesis of Instream Flow Recommendations to the State Water Resources Control Board and the Los Angeles Department of Water and Power, Final Report*", Reference: GSB *1631*

Thank you for the opportunity to respond to the "*Synthesis of Instream Flow Recommendations to the State Water Resources Control Board and the Los Angeles Department of Water and Power, Final Report*" (Synthesis Report). The Los Angeles Department of Water and Power (LADWP) would also like to thank the California State Water Resources Control Board (SWRCB)-appointed Stream Scientists, Dr. Bill Trush and Mr. Ross Taylor, and their teams for their many years of dedicated work in the Mono Basin.

The Stream Scientists submitted the final Synthesis Report on April 30, 2010, after considering comments from LADWP and interested parties on the draft Synthesis Report, submitted on February 1, 2010. The final report is a summary of the recommended actions based on a 12-year monitoring program and analyses, which also includes an important In-stream Flow Study that was conducted in 2009.

Per SWRCB Order 98-05, Section 1.b. (2)(a) and (b), and SWRCB's letter of February 26, 2010, LADWP has 120 days or until July 28, 2010, to evaluate the feasibility of the recommendations and suggestions in the Synthesis Report. LADWP

has analyzed the recommendations and suggestions in the Synthesis Report and is herewith submitting the Mono Basin Feasibility Report.

If you have any questions, please contact Dr. Ali Karimi of my staff at (213) 367-0931.

Sincerely,

Martin L. Adams
Director of Water Operations

PCP/BWM:jmm

Enclosure

c/enc.: Mr. Greg Brown, SWRCB
Dr. Bill Trush, McBain and Trush
Mr. Ross Taylor, Taylor and Associates
Ms. Lisa Cutting, Mono Lake Committee
Mr. Mark Drew, California Trout
Mr. Steve Parmenter, Department of Fish and Game
Mr. Michael Schlafmann, Inyo National Forest
Dr. Ali Karimi, LADWP

MONO BASIN

FEASIBILITY REPORT

In Response to the Stream Scientists'
"Synthesis of Instream Flow Recommendations"
(Synthesis Report)
to
The State Water Resources Control Board
and
The Los Angeles Department of Water and Power,
of April 30, 2010

JULY 28, 2010
LOS ANGELES DEPARTMENT OF WATER AND POWER

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1.0 EXECUTIVE SUMMARY

Pursuant to Decision 1631 and subsequent Water Rights Order 98-05, the Los Angeles Department of Water and Power (LADWP) submits this Mono Basin Feasibility Report to the California State Water Resources Control Board (SWRCB) for consideration. The Report summarizes the feasibility of implementing the SWRCB-appointed Stream Scientists' new flow and other recommendations for the Mono Basin as proposed in the Synthesis Report (April 2010).

The Stream Scientists' recommendations, as required by SWRCB Decision 1631 and Water Rights Order 98-05, were made solely to benefit the local riparian and trout ecosystem in the Mono Basin. Water Rights Order 98-05, Section 1.b. (2) (a) provides in pertinent parts:

> "… *Licensee shall implement the recommendation of the monitoring team unless it determines that the recommendation is not* ***feasible****. Licensee shall have 120 days after receiving the recommendation from the monitoring team to determine whether to implement the recommendation of the monitoring team. …" Emphasized added.*

For this report, LADWP analyzed the feasibility of implementing the new stream flow and monitoring recommendations with respect to technical and financial feasibility as well as reasonableness. This is in accordance with Water Rights Order 98-05 Section 2.4 "Requirements and Evaluation Criteria Governing Restoration Plans Required by Decision 1631", which is rooted in Decision 1631 Order at 8.f (4) stating:

> *"The SWRCB will review the final proposed restoration plans based primarily on the following factors:*
>
> (*a) adequacy of the measures proposed to achieve restoration of the fisheries, streams, stream channels, waterfowl habitat and other public trust resources;*
> *(b) technical and financial feasibility; and*
> *(c) reasonableness."*

In this report, LADWP comments on the feasibility of implementing the stream flow and monitoring recommendations and suggestions made in the Synthesis Report. Analysis and any upgrades/modifications that would be required to implement the recommendations are also presented. The principal comments address export of water from the Mono Basin, management of the Mono Basin system, and the monitoring needs as follows:

1) Analysis of exports from the basin during the post-transition period shows that the long-term export will be approximately 21,700 AF/yr versus the 30,800 AF/yr

as projected in Decision 1631, a difference of 9100 AF/yr, considering constraints at Grant Lake and Mono Lake as discussed in this report.

2) Managing the Los Angeles Aqueduct and Grant Lake operations, including spilling to achieve the stream ecosystem peak flows, is important, but certain elements such as peak flow magnitudes and Grant Lake elevation at spill levels would present ongoing challenges (e.g., SCE operation, highly variable hydrologic conditions, etc.).
3) In light of the past 12 years of intensive stream monitoring, the proposed monitoring program by the Stream Scientists in the Synthesis Report can further be streamlined as indicated in this report.

In summary, LADWP respectfully requests that the SWRCB, in keeping with the tenor of Decision 1631, strive to maintain a balance between water supply and water for environmental benefit as identified in Section 7.0 of Decision 1631, "*Beneficial Uses Served by Water Supply*."

Furthermore, prolonged droughts and water shortages in California also make it imperative to have water available for human needs in such crucial times. Water is an extremely high-valued commodity. Since Decision 1631, LADWP has committed extensive resources to restore the Mono Basin and any call for further substantial commitments should account for balance between water for human needs and water for enhancing and restoring the environment.

2.0 BACKGROUND

The Stream Scientists, Dr. Bill Trush (stream expert) and Mr. Chris Hunter, recently replaced by Mr. Ross Taylor, (fishery expert), were charged under Water Rights Order 98-05 (Order 98-05) to evaluate the existing Stream Restoration Flows (SRFs) and baseflow provisions in achieving the goals of "*functional and self-sustaining stream system with healthy riparian ecosystem components*" and "*trout in good condition*" for Rush and Lee Vining Creeks in the Mono Lake Basin (Mono Basin). On January 27, 2010, the Stream Scientists submitted a public review draft Synthesis Report. On April 30, 2010, after considering comments by LADWP, stakeholders, and other parties, the Stream Scientists submitted the final Synthesis Report and its appendices, detailing their flow recommendations based on results and analyses of the past 12-years of monitoring for the Mono Basin. Per Order 98-05, the Los Angeles Department of Water and Power (LADWP) had 120 days to evaluate the "feasibility" of the recommendations.

The Stream Scientists' peak flow recommendations go beyond the parameters established in the controlling SWRCB Decision and Order. Also considered as part of the reasonableness factor is the apparent goal of the Stream Scientists' peak flow recommendations to restore Mono Basin to "pristine" conditions of many years before 1941 when LADWP started diversions, by recommending the mimicking of unimpaired hydrographs for Rush and Lee Vining Creeks. This should not be the restoration goal because by 1941, the ecosystem was already heavily altered by activities of the Southern California Edison (SCE) , agricultural operations, and livestock grazing. While pristine conditions may be ideal, they were not the restoration goals of Decision 1631 nor Order WR 98-05. Indeed, the Court of Appeal interpreted Fish and Game Code §5946 and §5937 to require that LADWP must release sufficient water into the streams "to reestablish and maintain the fisheries **which existed in them prior to its diversion of water."** *California Trout Inc. v. Superior Court* (1990) 218 Cal.App.3d 187, 213 (emphasis added). As evidentiary hearings progressed it was recognized that pre-1941 conditions may not be achievable and in some cases not desirable (Order 98-05, page 21 footnote).

However, over the years transpiring since the SWRCB decisions of the mid 90's, a theme of restoration goals, contrary to the court and SWRCB decisions mentioned above, has emerged that is disturbing to LADWP as it places additional responsibilities on LADWP that are inappropriate. LADWP is being asked to mitigate not only for our diversion impacts but impacts associated with pre-1941 conditions associated with other parties' activities such as SCE impoundments. For example, LADWP is being requested to mimic unimpaired flows as if SCE facilities were not present. This may detract from our ability to receive a balanced water right decision that recognizes a municipal water supply and balances human needs with that of Mono Basin resources. Given California's water supply status, it is imperative that LADWP achieves environmental goals in a water efficient manner since surplus water is not available. Mono Basin decisions affect the entire state of California from a water supply perspective. Placing the burden of rectifying all of the historical human activities in the Mono Basin places unfair requirements on LADWP's ability to exercise its water rights.

As acknowledged by the Stream Scientists, LADWP "*has demonstrated a strong commitment to the recovery of Mono Lake and its tributary streams while seeking to ensure a supply of water critical to the City of Los Angeles*." With that spirit, LADWP has analyzed the feasibility of implementing the Stream Scientists' recommendations as summarized in the following sections. For additional guidance regarding "feasibility", LADWP referred to "Feasibility" as defined in Public Resources Code §21061.1 (commonly known as the California Environmental Quality Act (CEQA)), as "*capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social and technological factors*."

3.0 SUMMARY OF STREAM SCIENTISTS' FLOW RECOMMENDATIONS

A principal element of the Synthesis Report was an evaluation and modification of the previously applied stream flow requirements (e.g., Stream Restoration Flows or SRFs). These flows are runoff year-type dependent that vary for each stream. Stream flow prescriptions consist of multiple elements, including a base flow, transition rates, peak flows, as well as other elements. The basic elements of the stream ecosystem flows (SEF) proposed in the Synthesis Report are shown in Table 1.

Table 1: Summary of Stream Scientists' Flow Recommendations

Creek	Year Type	SEF Baseflows		SEF Peak Flow Release
		April – Sept.	Oct. – March	
Rush				
	Dry	30	27	
	Dry-Normal I	40	27	
	Dry-Normal II	40	27	200 cfs for 3 days
	Normal	40	27	380 cfs for 3 days
	Wet-Normal	40	27	550* cfs for 3 days
	Wet	40	27	650* cfs for 5 days
	Extreme-Wet	40	27	750* cfs for 5 days
Lee Vining				
	Dry	30**	16	**Apr-Sept:** Between 30 - 250 cfs, apply diversion rates; Above 250 cfs, allow peak to pass. **Oct-Mar:** Bypass Baseflow
	Dry-Normal I	30**	16	
	Dry-Normal II	30**	16	
	Normal	30**	18-20	
	Wet-Normal	30**	20-28	
	Wet	30**	20-30	
	Extreme-Wet	30**	20-30	
Parker & Walker				
	All	Flow through conditions		

**In combination with spill from Grant Lake spillway.*
***Diversion Rates with 30 cfs as minimum to be sent down the Creek. Above 250 cfs is passed through.*

4.0 FEASIBILITY OF IMPLEMENTING THE RECOMMENDATIONS

The feasibility of implementing the various flow recommendations and associated actions has been analyzed from an operational and monitoring standpoint considering the reasonableness of the proposal, as well as its implication to technical and financial feasibility. The major elements that require significant modification are discussed below. A response to the Stream Scientists' recommendation, in terms of feasibility or need for additional information/study, is also presented. An analysis of LADWPs response concludes each subsection.

4.1 STRUCTURAL AND OPERATIONAL MODIFICATION

Stream Scientists' Recommendation – In response to stakeholder's comments submitted for the draft Synthesis Report (January 27, 2010), the Stream Scientists in the final Synthesis Report suggested that if SCE fails to cooperate with LADWP in meeting the peak stream ecosystem flows (SEF), then structural and/or operational modification to Grant Lake Dam provide the only other option for LADWP to reliably provide peak magnitudes to lower Rush Creek.

LADWP Response – This suggestion requires further analysis and discussion beyond the scope of this Feasibility Report.

Analysis – Structural and operational modification of Grant Lake Dam and the associated facilities would include considerable amount of capital costs, as well as operations and maintenance expenditures. Due to the complexity of the analysis the determination of feasibility for this item can not be completed by the deadline of July 28, 2010. LADWP will seek to set up a mutually agreeable schedule with the SWRCB and the stakeholders in the future to discuss the analyses needed.

LADWP recommends that such discussions must be in accordance with the provision of Decision 1631 Order 8.f (4), which states:

> *"The SWRCB will review the final proposed restoration plans based primarily on the following factors:*
>
> (*a) adequacy of the measures proposed to achieve restoration of the fisheries, streams, stream channels, waterfowl habitat and other public trust resources;*
> *(b) technical and financial feasibility; and*
> *(c) reasonableness."*

4.2 SOUTHERN CALIFORNIA EDISON (SCE)

Stream Scientists' Recommendation – Recommendations for Lee Vining and Rush Creek stream flows vary between the two creeks. The recommendation for Lee Vining Creek is formulated as a maximum allowable export based on flows upstream of the

diversion structure, and are designed to allow higher and more frequent passing of snowmelt peaks. Grant Lake storage and outlet are used to manage flows during peak flow events. Attaining the necessary snowmelt flood magnitudes for Rush Creek will require assistance by SCE and United States Forest Services (USFS) to release greater peak floods which then could spill from Grant Lake into Rush Creek. Recommended peak flow conditions for various runoff year types are shown in Table 2.

Table 2: Stream Scientists' Recommended Rush Creek Peak SEF Releases

Runoff Year Type	Peak Flow (cfs)	Duration (days)	Timing Window
Dry	**None**	-	-
Dry-Normal	**None**	-	-
Dry-Normal II	**200**	3	June 8 – June 22
Normal	**380**	3	June 19 – July 4
Wet-Normal	**380**	4	June 26 – July 13
	550*	3	
Wet	**380**	5	July 5 – July 19
	650*	5	
Extreme-Wet	**380**	8	July 9 – July 22
	750*	5	

**In combination with spill from Grant Lake*

LADWP Response – Partially feasible.

Analysis – LADWP submitted a letter officially requesting comments from SCE on the new recommendations and the feasibility of providing assistance in achieving the high flows. A copy of the Synthesis Report was also enclosed for SCE's reference. SCE's response is repeated below (and the full letter is also enclosed in the Section 6, Appendix):

> ***"****These recommendations for the most part are the exact opposite of what is already required in SCE's U.S. Forest Service (USFS) 4(e) conditions and Federal Energy Regulatory Commission (FERC) licenses, which necessitate that we accumulate and hold storage for recreation purposes during the summer months, and then drain the storage during the winter months before the inflows start arriving with the next spring runoff.*
>
> *In addition, these recommendations would conflict with SCE's existing water rights, and with the longstanding contractual arrangements between SCE and LADWP pertaining to the operations of those reservoirs.*
>
> *Consequently, as an initial, generalized response, we have to say that we can not implement the recommendations in the report. Nevertheless, we do not rule out the possibility of attempting to coordinate our operations with you to achieve at least some of the report's recommendations, especially during years of above normal snowpacks when there are unavoidable spill conditions.*

However, the determinations of any such opportunities would require more specific information in terms of the actual modifications to the existing operations of SCE facilities that would be needed. Accordingly, upon being presented with more detailed requests by either LADWP or the SWRCB, we would be happy to sit down with you and discuss the possibilities at that time."

SCE operates reservoirs upstream of LADWP's facilities at Lee Vining and Rush Creeks for hydropower generation purposes; hence flows are modified in magnitude and timing in downstream reaches. Essentially the Stream Scientists are requesting LADWP to undo what SCE does to the hydrograph. The recommended peak flows including spill to augment peak flows for Wet–Normal, Wet, and Extreme-Wet runoff year-types for Rush Creek are only possible if SCE is able to provide water to meet the peak flows within the timing windows. Similarly, for Lee Vining Creek, the Stream Scientists' recommendation is to allow for higher and more frequent passing of unimpaired snowmelt peaks, which also requires SCE's cooperation.

Recommendations of 550 cfs with spill (Wet-Normal), 650 cfs (Wet), and 750 cfs (Extreme-Wet), as acknowledged in the Synthesis Report, will require SCE to coordinate and time their releases or/and spills from one or more of their reservoirs (Rush Meadows, Gem, and Agnew) so that simultaneous Grant Lake spills can occur. Achieving such cooperation had been difficult in the past as SCE operates under Federal Energy Regulatory Commission (FERC) licenses and United States Forest Services (USFS) recreational requirements for reservoir storage levels requiring certain storage capacity by a certain period. SCE also changes its operations due to upgrades or maintenance work that requires delaying releases of water downstream. It is also important to note that coordination with SCE will not simply require passing flows from upstream of SCE reservoirs to downstream reaches. In many years unimpaired flows may not attain the desired targets identified in the Synthesis Report. This will require SCE to augment stream flow from storage to attain the recommended peak flows below Grant Lake (i.e., lower Rush Creek). Nevertheless, in light of SCE's above response, LADWP will work with Stream Scientists, stakeholders and SCE's to detail possible SCE's operational modifications that would assist in achieving the recommended high peak flows downstream when enough water is available.

LADWP is also required to consult with the California State Division of Safety of Dams regarding the spilling of water from the Grant Lake.

4.3 POST-TRANSITION

Post-transition conditions begin when Mono Lake water surface elevation achieves 6,391 feet. Topics addressed herein are:

- Synthesis Report's Simulated Post-Transition Diversions and Implications on Long-Term Mono Basin Export
- Long-Term Variability Under Historic Hydrology

The following discussion addresses these topics in relation to recommendations and comments in the Synthesis Report that pertain to the post-transition period.

4.3.1 Synthesis Report's Simulated Post-Transition Diversions and Implications on Long-Term Mono Basin Export

Stream Scientists' Recommendation – The Synthesis Report's Section 6.3 presents a summary of Rush Creek and Lee Vining Creek post-transition diversions as a combined annual diversion for each runoff year. Table 3, below, is a reproduction of Table 6-2, which presents this information in the Synthesis Report.

Table 3: Synthesis Report's Table 6-2, Simulated Post-Transition Diversions

Runoff Year	Runoff Year Type	Simulated Future Rush Creek and Lee Vining Creek Diversions (AF)	Percent of Annual Mono Basin Yield Diverted
1990	Dry	10,467	18%
1991	Dry	19,358	25%
1992	Dry	20,190	28%
1993	Wet-Normal	42,665	30%
1994	Dry	19,984	26%
1995	Extreme-Wet	71,214	33%
1996	Wet-Normal	55,323	34%
1997	Wet-Normal	34,804	24%
1998	Wet	50,116	29%
1999	Normal	27,161	24%
2000	Normal	30,710	27%
2001	Dry-Normal I	30,074	32%
2002	Dry-Normal II	23,959	26%
2003	Dry-Normal I	33,993	32%
2004	Dry-Normal II	27,247	30%
2005	Wet-Normal	64,163	35%
2006	Wet	59,557	32%
2007	Dry	1,825	3%
2008	Normal	10,268	12%
Average:		33,320	26%

LADWP Response – Not presently feasible. Post-transition diversions on Table 6-2 do not represent available export.

Analysis – This table is vague concerning what defines a "diversion" versus an "export." An analysis to examine the long-term annual average export was completed by LADWP. In this analysis the following assumptions were made:

- All SEF's required by the Synthesis Report have been achieved, with the exception of meeting peak flows in excess of MGORD capacity using Grant Lake spill.
- Initial (April 1st) Mono Lake elevation 6391.0 ft above mean-sea-level.

- Grant Lake storage rules are in place to improved storage management.
- All Mono Lake elevation export restrictions are applied.
- Grant Lake minimum storage (i.e., below 11,500 AF of storage) operations were applied:
    - All SEF requirements cease and releases are set at flow through conditions.
    - Exports are terminated.

The 29-year hydrology from April 1, 1980 to March 31, 2009 (1980 to 2008 runoff years) was employed. Initial findings indicated that the hydrologic sequence notably affected the average long-term annual export volume. To arrive at a more robust average long-term annual export volumes and examine the potential range of volumes, multiple hydrologic sequences were examined. Specifically, 29 analyses were completed with the historic hydrology, each starting with a different year from the available record. To complete this assessment the historic hydrology was repeated multiple times.

The average annual export for each 29 year sequence was calculated. The maximum value was 27,000 AF/yr, the minimum value was 15,000 AF/yr, and the average long-term annual export was 21,700 AF/yr. This analysis indicates two important factors:

- Long-term average annual export is a function of the hydrologic sequence and can vary considerably depending on the sequence of runoff year types.
- Long-term average annual export is on the order of 21,700 AF/yr, considerably lower than the Decision 1631 value of 30,800 AF/yr ("*Beneficial Uses Served by Water Diversions*", page 164).

The export discrepancy suggests that the proposed SEF flows would lead to nearly a 30 percent reduction in annual average export from those identified in Decision 1631.

These findings illustrate that annual averages and simple mass balances are an inappropriate measure to identify system yield and suggests that SEFs are too high to sustain Decision 1631 post-transition export volumes. Section 6.3 "*Annual Yield, SEF Releases, and Export Volumes*" of the Synthesis Report presented an average annual diversion volume (also termed "yield" in the Synthesis Report) from Lee Vining Creek and Rush Creek of 33,320 AF (Table 6-2, Synthesis Report, shown above). This annual volume is the sum of two independent mass balance calculations: one for Lee Vining Creek and the other for Rush Creek. Each calculation was considered independently and results reported on an annual basis (Table 6-3, Synthesis Report). Although values for Table 6-3 have been updated, the changes are minor and do not have an appreciable impact on this discussion.

The two volumes from Lee Vining (11,437 AF/yr) and Rush Creeks (21,883 AF/yr) were summed in the Synthesis Report and presented as average annual diversion or yield – that water in excess of required stream releases – equal to 33,320 AF/yr. However, this presentation is misleading (the section is titled "*Annual Yield, SEF Releases, and Export Volumes*"), suggesting that available export may be on the order of 33,320 AF/yr. The

analysis included in the Synthesis Report was overly simplistic and neglected several critical elements of operations in the Mono Basin, some of which have been identified in the response to stakeholder's comments to the draft Synthesis Report. These include:

1) Miscellaneous gains and losses were not included in the analysis;
2) Grant Lake filling and subsequent spill management was assumed to be fully met from Rush Creek inflows;
3) Grant Lake minimum storage constraints, which have direct effects on both SEFs and export, were not included;
4) Mono Lake elevation constraints (consistent with rules outlined in the SWRCB specified Mono Lake elevation conditions), will further constrain export; and
5) Lee Vining Creek diversions into Grant Lake experience evaporation loss and directly or indirectly support Rush Creek SEFs, reducing the effective "yield" from Lee Vining Creek identified in the Synthesis Report.

When these factors are taken into account, actual exports are estimated to be approximately 21,700 AF/yr[1].

An additional overarching concern in this analysis was the consideration of hydrology timing and reservoir operations when determining available water for export. The simple mass balancing of flows in Table 6-3 on an annual basis ignored the shorter term (month-to-month, day-to-day, and even sub-daily) variability in the system. Day-to-day operations frequently experience capacity constraints, and the associated shortages that are masked when longer-term (e.g., annual) average values are employed. In sum, the tabulated values in Table 6-3 of the Synthesis Report are theoretical maximum yields for Rush Creek and Lee Vining Creek that cannot be achieved given new operational conditions and legal conditions on Mono Basin operations outlined in Decision 1631.

Furthermore, LADWP is concerned that during Wet and Extreme-Wet years excess water that could be available for export cannot be exported due to limited storage and conveyance capacity in downstream facilities.

4.3.2 Long-Term Variability Under Historic Hydrology

Hydrological variability within the Mono Basin is an expected and natural feature. Runoff year designations for the Rush Creek SEFs (template hydrographs) that have the same water year type designation can have substantially different flow timings and volumes. This variability can impact the time it takes Mono Lake to achieve post-transition conditions and the annual exports from the basin (discussed in previous sections).

The length of time to attain a Mono Lake level of 6,391 ft will be dependent on not only the future hydrology, but on the sequence of events that will occur in that future hydrology. Dry years will result in falling lake levels, and only in selected normal year

[1] Grant storage rules curves are included in this analysis to manage storage.

types and wetter year types will raise the lake. Such natural variability should be considered in assessing time to attain post-transition conditions and ranges of potential transition periods.

4.4 GRANT LAKE RESERVOIR (GRANT LAKE)

Operations at Grant Lake directly impact the flows in lower Rush Creek and the volumes of water available for export. The major elements of the Synthesis Report that impact Grant Lake are discussed below.

4.4.1 Grant Lake Storage Management

Stream Scientists' Recommendation – Synthesis Report recommendations regarding Grant Lake storage are limited to specifying three threshold storages/elevations:

1) a minimum storage volume of 11,500 AF;
2) a minimum Grant Lake elevation of 7,100 ft (approximately 20,000 AF storage volume) should be maintained during July, August, and September of all runoff years; and
3) in Wet-Normal, Wet, and Extreme-Wet runoff years, Grant Lake elevation should be at the spillway elevation (7,130 ft or 47,171 AF) for at least a two week period to facilitate spills.

LADWP Response – Not Feasible.

Analysis – The above mentioned threshold values overlook the critical role of actively managing Grant Lake storage throughout the year to (a) facilitate meeting such thresholds should they be adopted, (b) to support SEFs, and (c) to manage storage for water supply (Mono Basin export).

Grant Lake operating rules would assist in management of the system during the post-transition years, particularly in wetter than Normal years when excess water may be available for export. Assessment of rule curves during transition has not been completely investigated, but may be an important element of peak flow management. Analysis of formal Grant Lake operating rules compared to a "no rules" case, identifies the usefulness of flexible management and the possibility of maintaining storage levels, flows, and exports during drier months of certain year types. Additional flexibility is an important attribute of managing operational aspects (SEFs, storage, export) of Grant Lake due to the highly variable hydrologic conditions that naturally occur within the basin.

4.4.2 Grant Lake Spill

Stream Scientists' Recommendation – Provide additional stream ecosystem flows via spill from Grant Lake in the Wet-Normal and above years.

LADWP Response – Not presently feasible.

Analysis – The recommendations of providing additional flow to lower Rush Creek via Grant Lake spill cannot be readily and consistently achieved with current facilities without SCE's assistance. The peak SEFs increase by 100 cfs for each of the wetter year type (Wet-Normal = 550 cfs, Wet = 650 cfs, and Extreme-Wet = 750 cfs). In the 1980 to 2008 hydrology, the peak flows in Rush Creek for each year type were below the proposed SEF peaks indicating that there was insufficient water available in the system to meet these requirements unless SCE is willing to release more water to Rush Creek or the diversion limits from Lee Vining Creek are modified so that additional water could be provided.

For example, in 2006 (a Wet year type), the observed peak flow was 483 cfs on June 7th. The peak SEF requirement associated with a Wet year type is 650 cfs. Even if the full 45 cfs (new diversion table recommendation) were to be diverted from Lee Vining Creek, the total available water of 528 cfs would be over 100 cfs short of the recommended 650 cfs requirement. This simple calculation does not take into consideration evaporation or miscellaneous losses, nor the timing and storage issues associated with SCE operations upstream. (Also, see the comment in Section 4.3.1.)

4.4.3 Grant Lake Level in Restricting Export

Stream Scientists' Recommendation – The Synthesis Report recommends: 1) no exports before the end of peaking operations; 2) no exports if Grant Lake falls below 11,500 AF; and 3) no exports in July, August, and September when Grant Lake storage falls below 20,000 AF.

LADWP Response – Not presently feasible.

Analysis – These three restrictions have not been assessed in light of potential restrictions on short-term (transition) and long-term (post-transition exports). All three of these restrictions have the potential to constrain export opportunities, reducing the annual export of 16,000 AF during transition and compromising the post-transition long-term export volume of 30,800 AF/yr.

Export allocations and conditions are specified in Decision 1631 Order 6.a(3) and at this time LADWP is allowed 16,000 AF annually for export, even if Grant Lake falls below 11,500 AF. The Stream Scientists recommendations severely limit exports during dry years and will require drawing from storage to meet requirements in extremely dry years. These conditions are not feasible in light of LADWP's necessary operations.

Terminating export from Mono Basin can adversely affect conditions in the upper Owens River and downstream. Mono Basin exports have historically been an important component of the overall water supply and operations of the Los Angeles Aqueduct. There are a number of environmental projects and conditions that must be accounted for downstream of Mono Basin that could be adversely affected by restrictions of both water supplies and timing of exports. These include Crowley Lake operations, the Owens River Gorge Rewatering, the Lower Owens River Project (LORP), Owens Lake

Dust Control Project, irrigation demands, and legal obligations for environmental enhancement projects under the Inyo/LA Agreement and 1997 Memorandum of Understanding.

Mono Basin decisions of the past have also received significant criticisms regarding the failure to recognize down-system impacts of less water. For instance, the Upper Owens River thermal problems are exacerbated during dry years and without exports this situation will only worsen. Spawning runs out of Crowley Lake will be greatly inhibited due to the fish barrier (thermal barrier) created by Hot Creek's influence on the river and lack of moderating water from above. Irrigation on the Upper Owens River for private ranches and LADWP ranchers also becomes severely restricted. Crowley Lake experiences algal blooms leading to local and downstream water quality issues. Decision 1631 included extensive consideration of balancing Mono Basin environmental issues (both stream flows and Mono Lake levels) with beneficial uses of water supply, and of particular interest were replacement waters when exports were reduced. Prior to adoption of Synthesis Report recommendations, LADWP recommends a thorough examination of potential impacts on Mono Basin exports and consideration of ongoing increases in demands (including downstream Owens River restoration demands: Lower Owens River Project, Owens Lake Dust Control, etc.) and identification of replacement waters if exports fall below Decision 1631's identified 30,800 AF. Such impacts could have implications at the state level, e.g., deliveries from the Sacramento-San Joaquin Delta, Colorado River, and local supplies would have to be increased to make up the difference.

LADWP submitted comments regarding the modifications of the snowmelt bench and peak flow during Dry and Dry-Normal years during the public review period. Those comments will be repeated here because exports during drier years are crucial from the water supply point of view. Mono Basin export during the post-transition period will be variable, with the largest volumes available in wetter years. However, during these wetter years, export may be reduced due to downstream storage and conveyance capacity limitations. This condition makes drier year exports potentially more important than wetter years from a water supply perspective. The importance of maintaining 16,000 AF/yr during transition and 30,800 AF/yr during post-transition is important for LADWP in meeting near-term and long-term water supply.

4.4.4 Grant Lake Storage for Two Week Period Between June 15th-July 15th

Stream Scientists' Recommendation – Grant Lake storage level should be at the spillway elevation for a two week period between June 15th and July 15th in Wet-Normal and above runoff years.

LADWP Response – Not presently feasible.

Analysis – The Synthesis Report proposed SEF requirements for Rush Creek included a controlled or managed spill component ("snowmelt peak (spill)") in Wet-Normal and above year types. To facilitate these "peak" flows, the Synthesis Report recommends that Grant Lake be maintained at capacity for the two weeks prior to the spill event. In

most cases, this would require that Grant Lake be at capacity from mid-June to mid-July. Filling and maintaining Grant Lake at capacity largely depends on conditions in the reservoir (e.g., how much water is in the reservoir on April 1st), the required stream ecosystem flows in April, May and June, the volume of water being provided by the Lee Vining Conduit, and the inflows from Rush Creek. Maintaining Grant Lake at capacity also requires that enough water flow into the reservoir to offset evaporation and other miscellaneous losses (e.g., seepage).

From runoff years 1980 to 2008, there have been twelve runoff years that were Wet-Normal or above. In most of these runoff years, achieving the target elevation requires having between 31,500 AF and 45,500 AF already in Grant Lake on April 1st. Having this range of required storage on April 1st is dependent upon operations and hydrological conditions from the previous runoff year. Between April 1st and mid-June, local runoff into Grant Lake from Rush Creek and Lee Vining Conduit inflows can augment Grant Lake storage. Without diversions from Lee Vining, the existing storage in Grant Lake must be higher (typically several 1,000 AF) on April 1st to achieve the spillway elevation by June 15th. Periods when Grant Lake elevation is below the spillway are typically prolonged when diversions from Lee Vining are prohibited.

Inflows from Rush Creek, and upstream flows in Lee Vining Creek, are controlled by releases (or spills) from SCE facilities upstream. The 1980 to 2008 flows in Rush Creek were sufficient to achieve capacity storage on June 15th, but were often unable to maintain that storage volume. Typically, when releases are increased to meet peak flow requirements associated with the SEF schedule, the storage in Grant Lake drops below capacity and spills abate. In only three of the twelve runoff years, were storages at the spillway elevation for the entire period coinciding with maximum required release.

Additional challenges in maintaining Grant Lake at spillway elevation, let alone attain the desired peak flows include:

1) Sub-daily variability in Rush Creek inflows due to snowmelt response to meteorological conditions.
2) Routing flows through Grant Lake to spill: the reservoir will attenuate peak inflows.
3) Incidental spill while attempting to hold Grant Lake at the spillway invert, resulting in inefficient use of water. Incidental spill may be due to sub-daily variation in inflow (first point) or due to modest, short-term increases in runoff (e.g., short-term minor peak), variability in Lee Vining Creek diversions, wind, and potentially other factors.
4) If Grant Lake is held below the spillway to account for the aforementioned points, a considerable amount of the primary snowmelt peak may be required to “top off” Grant Lake to attain the spill. Subsequently, sufficient storage must be developed to fill Grant Lake above the spillway (i.e., develop sufficient head) to convey the desired flows.

4.5 RUSH CREEK

The elements of the Synthesis Report pertaining to Rush Creek include Mono Gate One Return Ditch (MGORD), water Releases to Rush Creek and template hydrographs, and long-term variability under historic hydrology are discussed below.

4.5.1 Mono Gate One Return Ditch (MGORD)

Stream Scientists' Recommendation – A flow of 380 cfs in the MGORD in Normal and above years.

LADWP Response – Not fully feasible presently.

Analysis – The proposed SEF of 380 cfs through MGORD is not attainable with the current infrastructure due to the following factors:

Safety Concerns

- LADWP's engineering and hydrology teams believe that peak flows to MGORD can safely be sustained to a maximum of 350 cfs. The main concerns over the proposed 380 cfs are 1) at 380 cfs MGORD is at original design capacity, which would put maximum stress on the berm. Growth of vegetation and sediment deposit in the ditch will continue to reduce the flow capacity ; 2) there are several historical seeps through which water flows out of and under MGORD ; and 3) there continues to be a problem with gophers burrowing through the berm which lead to leaks and reduces the structural integrity of the berm. All of which heighten the possibility that at flows of 380 cfs, a breach could dewater considerable portions of Rush Creek and cause flood damage to Highway 395. As a result, LADWP recommends changing the 380 cfs peak release to 350 cfs due to the aforementioned limitations and safety considerations associated with MGORD.
- During the research for the Mono Gate One upgrade project, it was discovered that the Grant Lake outlet pipe has a maximum design flow capacity of 371 cfs. This flow rate is when the outlet pipe is flowing to the Mono Craters tunnel and may be unsafe if the full flow has to make a 90 degree turn to the MGORD.

Design Capacity Uncertainty

- As mentioned above, during the research for the Mono Gate One upgrade project, it was discovered that the Grant Lake outlet pipe has a maximum design flow capacity of 371 cfs.
- During the 1996 analysis conducted by the ad hoc Flow Subcommittee, it was concluded and recommended that the MGORD capacity be increased to between 350 and 380 cfs. Thus, the design capacity was not set at 380 cfs. Indeed, the MLC in a letter dated October 31, 2003, acknowledged that the capacity of MGORD would need to be tested after the rehabilitative work.

4.5.2 Water Releases and Template Hydrographs

Stream Scientists' Recommendation – Stream Scientists have stated that the recommended hydrographs are templates and not the final recommended annual hydrographs. They noted that small-magnitude (such as 3 percent to 6 percent) hydrograph transitions in the Rush Creek SEF cannot necessarily be reproduced in LADWP releases.

LADWP Response – Feasible with modification.

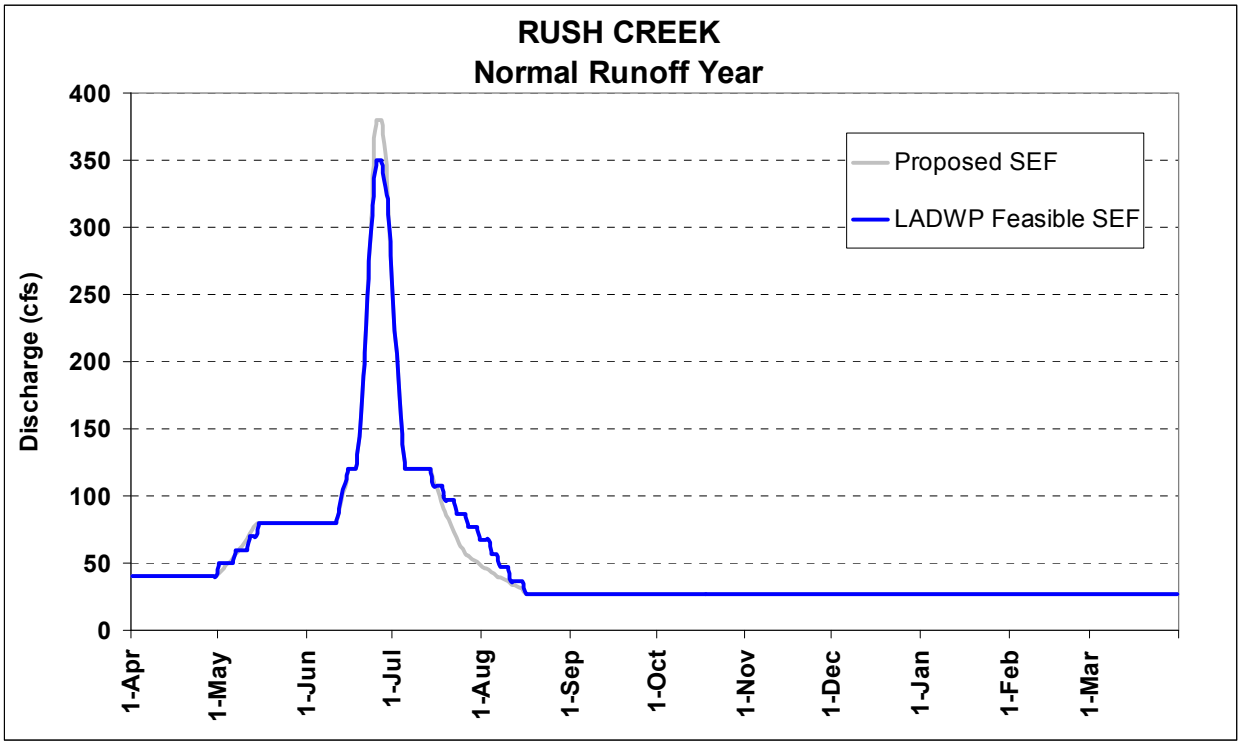
Analysis – Small daily flow rate releases such as 3 to 6 percent are unreasonable and operationally not feasible. The Stream Scientists have indicated that the recommended annual hydrographs for Rush Creek must be considered templates and have acknowledged that small-magnitude hydrograph transitions can not all be feasibly reproduced.

LADWP can feasibly operate water releases to lower Rush Creek from Grant Lake using a minimum increment of 10 cubic feet per second (cfs) or 10 percent, whichever is greater. The eight foot gate used to operate release flows from Grant Lake is not suited for small changes in flows. Once the gate is moved during a flow change, the gate must be reseated, and the reseating of the gate by itself can change flows by a few cfs. Also, the method of determining flows can have a margin of error up to a few cfs, again causing problems with achieving a specific flow down MGORD. With very small flow changes, trying to unseat a massive gate, move it slightly, reseat it, and then wait several hours for the flows to travel to MGORD, all in an environment where flow measurement error is greater than the actual flow change, is impractical, especially in light of the inability to define the ecological implications of a given small flow difference (such as between 35 and 41 cfs, for instance).

In lieu of the 3 percent to 6 percent small rate of change specified by the SEFs, LADWP proposes keeping the smallest existing ramping rate as prescribed in Order 98-05, which is 10 cfs or 10 percent, whichever is greater. Flow changes of a minimum of 10 cfs increments are the smallest that can practicably be made to the MGORD in a reliable and operationally reasonable fashion. A sample hydrograph with LADWP feasible 10 cfs/10 percent ramping is shown below in Figure 1 for a Normal year type. LADWP would like to note that the recommended new SEFs will require more flow changes than currently done due to more ascension and recession nodes in the hydrographs as well as specific time periods the flow changes have to be made. This would entail more manpower and wear and tear on the outlet gate, potentially resulting in increased maintenance needs.

Further, LADWP supports the recommendations that allow for some flexibility in recommended flows. For example, a Rush Creek baseflow recommendation of 27 cfs is the mid-range of 25 to 29 cfs. However, as with the existing ramping schedules, precise flows will still be a challenge as explained earlier and operational flexibility should be allowed when more frequent flow changes are recommended.

Figure 1: Sample Feasible Hydrograph



Note: Maximum peak of "LADWP Feasible SEF" is 350 cfs because of MGORD capacity limitation

4.6 LEE VINING CREEK

The major elements of the Synthesis Report on Lee Vining Creek, including window of acceptable flows, and Lee Vining Creek flow diversion rate operations are discussed below.

4.6.1 Window of Acceptable Flows

Stream Scientists' Recommendation – As a rule-of-thumb, for a given flow release or flow diversion, the recommendation states that no greater than 5 percent change in stage height at Lee Vining Intake bracketing the targeted stage height is acceptable margin of error. For example, a targeted flow release of 40 cfs on Lee Vining Creek has stage height of 1.69 ft (using a stage-discharge rating curve introduced in Chapter 4). A 5 percent bracketing 1.69 ft would equal an upper stage of 1.73 ft and lower stage of 1.65 ft. Converting these upper and lower stage heights back to flow rates gives an upper flow release of 43 cfs and a lower flow release of 37 cfs, for a 6 cfs acceptable range.

LADWP Response – Feasible.

Analysis – The analyses performed allowing for some variations in flows that translated to a plus/minus allowable stage height change of 2.5 percent (total of 5 percent) are feasible to LADWP.

4.6.2 Lee Vining Creek Flow Diversion Rate Operations

Stream Scientists' Recommendation – A one cfs increment diversion rate for April 1 to September 30 period for all runoff years (Table 5 and Table 6).

LADWP Response – Feasible with modification.

Analysis – A one cfs diversion rates as presented in Tables 2-6 and 9-4 in the Synthesis Report are not operationally reasonable to LADWP. This is because with varying flow in the creek, the technology and accuracy of control gates are within plus or minus 5 percent of the flow (or 2 cfs, whichever is greater). LADWP proposes that 5 cfs increments be used (as shown in the Tables 7 and 8 below). These will allow for easier programming, accuracy, troubleshooting of the final structures, and help reduce wear and tear on the facilities.

In order to operate Lee Vining Creek and Lee Vining Conduit as recommended in the Synthesis Report, with a 5 cfs increment modification, LADWP would need to install another flow control gate in the Conduit and perform programmable controls to tie communications of both gates back to the upstream flume to control and maintain the dynamic pond level associated with variable flow and diversion conditions. This will allow the gate to be adjusted every morning to divert a pre-programmed diversion rate and release remaining (undiverted) flow to pass downstream of the intake to lower Lee Vining Creek. This gate would be used for the diversion period of April 1st to September 30th.

The Lee Vining Conduit steel grizzlies, which catches debris before it enters the conduit, would also need to be upgraded or replaced. LADWP would need two years from when the new flows are finalized to complete installations of such upgrades.

The existing gate below the Lee Vining Intake can be used for the bypass period of October 1st to March 31st without any modification. This gate allows operators to set a bypass flow to lower Lee Vining Creek and remaining (unpassed) flow to be diverted via the Lee Vining Conduit. In comparison these two gates would work in opposite fashion.

Table 5:
SEF Recommended Diversion Table
Dry and Dry-Normal I Year Type

Lee Vining Creek 'Above Intake' Discharge (tens of cfs)

	0	1	2	3	4	5	6	7	8	9
0	0	0	0	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0	0	0	0
20	0	0	0	0	0	0	0	0	0	0
30	0	1	2	3	4	5	6	7	8	9
40	10	11	12	13	14	15	16	17	18	19
50	20	21	22	23	24	25	26	27	27	27
60	28	28	28	29	29	29	30	30	30	31
70	31	31	31	32	32	32	33	33	33	34
80	34	34	35	35	35	36	36	36	36	37
90	37	37	38	38	38	39	39	39	39	40
100	40	40	41	41	41	41	42	42	42	43
110	43	43	43	44	44	44	44	45	45	45
120	46	46	46	46	47	47	47	47	48	48
130	48	49	49	49	49	50	50	50	50	51
140	51	51	51	52	52	52	52	53	53	53
150	53	54	54	54	54	55	55	55	55	56
160	56	56	56	57	57	57	57	58	58	58
170	58	59	59	59	59	60	60	60	60	61
180	61	61	61	62	62	62	62	63	63	63
190	63	63	64	64	64	64	65	65	65	65
200	66	66	66	66	66	67	67	67	67	68
210	68	68	68	69	69	69	69	69	70	70
220	70	70	71	71	71	71	71	72	72	72
230	72	73	73	73	73	73	74	74	74	74
240	75	75	75	75	75	75	76	76	76	77
250	77	0	0	0	0	0	0	0	0	0
260	0	0	0	0	0	0	0	0	0	0

Table 6:
SEF Recommended Diversion Table
Dry-Normal II – Extreme-Wet Year Type

Lee Vining Creek 'Above Intake' Discharge (tens of cfs)

	0	1	2	3	4	5	6	7	8	9
0	0	0	0	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0	0	0	0
20	0	0	0	0	0	0	0	0	0	0
30	0	1	2	3	4	5	6	7	8	9
40	10	11	12	13	13	14	14	14	14	14
50	15	15	15	15	16	16	16	16	16	17
60	17	17	17	17	17	18	18	18	18	18
70	19	19	19	19	19	20	20	20	20	20
80	20	21	21	21	21	21	21	22	22	22
90	22	22	23	23	23	23	23	23	24	24
100	24	24	24	24	25	25	25	25	25	25
110	25	26	26	26	26	26	26	27	27	27
120	27	27	27	28	28	28	28	28	28	28
130	29	29	29	29	29	29	30	30	30	30
140	30	30	30	31	31	31	31	31	31	31
150	32	32	32	32	32	32	32	33	33	33
160	33	33	33	33	34	34	34	34	34	34
170	34	35	35	35	35	35	35	35	36	36
180	36	36	36	36	36	37	37	37	37	37
190	37	37	37	38	38	38	38	38	38	38
200	39	39	39	39	39	39	39	39	40	40
210	40	40	40	40	40	41	41	41	41	41
220	41	41	41	42	42	42	42	42	42	42
230	42	43	43	43	43	43	43	43	43	44
240	44	44	44	44	44	44	44	45	45	45
250	45	0	0	0	0	0	0	0	0	0
260	0	0	0	0	0	0	0	0	0	0

Table 7: LADWP' Feasible Diversion Table Dry and Dry-Normal I

Lee Vining Creek 'Above Intake' Flow (cfs)	Conduit Diversion (cfs)
<30	0
30 ≤ Q < 35	5
35 ≤ Q < 40	10
40 ≤ Q < 45	15
45 ≤ Q < 50	20
50 ≤ Q < 60	25
60 ≤ Q < 70	30
70 ≤ Q < 90	35
90 ≤ Q < 110	40
110 ≤ Q < 130	45
130 ≤ Q < 150	50
150 ≤ Q < 160	55
160 ≤ Q < 170	60
170 ≤ Q < 200	65
200 ≤ Q < 240	70
240 ≤ Q < 250	75
250 ≤ Q	0

Table 8: LADWP Feasible Diversion Table Dry-Normal II – Extreme-Wet

Lee Vining Creek 'Above Intake' Flow (cfs)	Conduit Diversion (cfs)
30 ≤ Q < 35	0
35 ≤ Q < 40	5
40 ≤ Q < 50	10
50 ≤ Q < 80	15
80 ≤ Q < 100	20
100 ≤ Q < 130	25
130 ≤ Q < 170	30
170 ≤ Q < 200	35
200 ≤ Q < 240	40
240 ≤ Q < 250	45
250 ≤ Q	50

Flows in Lee Vining Creek experience diurnal variation, resulting in sub-daily variability in flow rates. LADWP would like to point out that when using such diversion rates as recommended, flows can fluctuate considerably during the day. For example, in a Normal year, the above flow in the morning when the day's adjustment is made may be 200 cfs which sets a 40 cfs diversion and 160 cfs flow to lower Lee Vining Creek, but in the afternoon, above flow could rise to 260 cfs, however there would still be a 40 cfs diversion setting to the conduit even though the diversion table says no diversion. With such a case, the flow during that day would increase from 160 to 220 cfs to lower Lee Vining Creek resulting in 60 cfs (38 percent) flow change for the day. Under this scenario, diversions would still be 40 cfs, even though the diversion table says no diversion. Diversion adjustment would be made the next morning.

To makes sure lower Lee Vining Creek has constant flow when undesirable flow changes occur, LADWP can set the existing Langemann gate to allow a minimum of 30 cfs flow in lower Lee Vining Creek. If upstream flow is less than 30 cfs, then the entire volume would remain in the Creek without any diversion (i.e. flow-through).

Similarly, such sharp flow changes are possible during the transition from bypass operation to diversion rates operation and vise-a-versa. During such transitions, LADWP would follow the recommended 20 percent change per day for ramping to lower Lee Vining Creek to minimize undesirable flow changes. This means that depending on

the flow at transition time, as well as the forecasted year type, actual start dates for bypass regime in October or diversion rate regime in April will vary, highlighting the need for flexibility in the timing of operational requirements.

4.7 5-SIPHONS BYPASS

Stream Scientists' Recommendation – In drier runoff years, if Grant Lake storage falls below 25,000 AF by July 15th, all available Lee Vining Creek diversions should be diverted directly into Rush Creek via the 5-Siphons Bypass to cool Rush Creek through September 15th.

LADWP Response – Feasible with modification.

Analysis – If using the 5-Siphons becomes a routine operation, it may need to be upgraded for reliable usage. The 5-Siphons were installed in the original design to provide an automatic emergency release mechanism to prevent the Lee Vining Conduit from pressurizing. More recently, the 5-Siphons have been used to augment Rush Creek by routing Lee Vining Conduit water directly to lower Rush Creek without going through Grant Lake. This is achieved by gradually draining the flow in the Conduit, then having a crew go inside and install bulkheads just downstream of the 5-Siphons to force all Conduit flows to overflow out of the 5-Siphons. This process involves ramping flow down, bolting bulkheads in the Conduit, ramping flow back up, and then at the end reversing the procedure.

4.8 PARKER CREEK AND WALKER CREEK

The main element of the Synthesis Report pertaining to Parker and Walker Creek diversions is discussed below.

4.8.1 Curtailment of Diversion

Stream Scientists' Recommendation – Curtailment of diversion from Walker and Parker creeks in all year types, including Dry years.

LADWP Response – Not reasonable.

Analysis – LADWP believes curtailment of Walker and Parker is unreasonable. Existing Order 98-05 only allows LADWP to divert from Walker and Parker Creeks during Dry year type. However, LADWP chose not to divert from these creeks during this transition period because the supplies from Walker and Parker have not been necessary to maintain LADWP's 16,000 AF of annual export (this does not indicate that they will not be needed in the future). These water rights will increase in importance in the post-transition period when having the ability to divert water during the Dry year types will increase operational flexibility in the system. As such, LADWP should retain its water rights on Walker and Parker Creeks and have the option to divert water when necessary, especially in Dry years when water supplies are limited.

4.9 RUSH CREEK FLOW RELEASES COORDINATION

Stream Scientists' Recommendation – Coordinate Rush Creek flow releases with Parker and Walker creeks' hydrograph to augment flood peak magnitude below the Narrows and improve flood peak timing relative to annual woody riparian seed release.

LADWP Response – Not feasible.

Analysis – This coordination is challenging because it requires several hydrological and ecological processes to happen simultaneously. If spilling Grant Lake takes priority, then timing with Walker and Parker's peaks will most likely be infeasible because while waiting to fill Grant Lake, the peaks for Walker and Parker could pass. Additionally, the peak flow timing of Walker, Parker, and Rush Creek may not happen coincident because each year is different and accurately predicting hydrological processes is difficult. In addition, coordinating all three peak flows with peak woody riparian seed release is challenging because the peak seed release period varies from year-to-year. For example, this year (2010), Parker and Walker flows peaked weeks before the cottonwoods and willows put on seed and, as of June 25, 2010, the cottonwoods still had no seeds.

4.9.1 Dry Year Export Modification

Stream Scientists' Recommendation – 70 cfs for Dry year snow melt bench for Rush Creek.

LADWP Response – Not reasonable.

Analysis – LADWP believes this is unreasonable because it adds to the operational demands and has minimal, if any, ecological benefits. Under the flow scenarios described by the Stream Scientists, the streams never experience drought conditions. LADWP suggest eliminating the May 17th to July 6th snowmelt bench of 70 cfs for 51 days in Rush Creek in the Dry year type. Decision 1631 allows LADWP to divert 16,000 AF during the transition period. The Stream Scientists are concerned by this LADWP comment because it would provide less favorable thermal condition for fish and adversely affect riparian vegetation. However, the Stream Scientists also acknowledge natural occurrence of riparian vegetation diebacks during Dry years. They also suggest the more frequent uses of 5-Siphons to lower water temperature in Rush Creek. Approximately 3,000 AF of water would become available in the Dry year type by eliminating the snowmelt bench and improve LADWP's flexibility to operate the system to meet SEFs and 16,000 AF of export.

4.9.2 Dry-Normal Year Modification

Stream Scientists' Recommendation – Peak flow of 200 cfs for three days in Rush Creek during Dry-Normal Type II and spring snowmelt bench of 80 cfs during Dry-Normal Years.

LADWP Response – Not reasonable.

Analysis – LADWP believes this is unreasonable because it adds to the operational demands and has minimal, if any, ecological benefits. LADWP suggests eliminating Dry-Normal Type I and Type II years and replacing them with a single Dry-Normal type. The Dry-Normal year type requirements would be based on the Dry-Normal I year type requirements. This would free up an additional 1,160 AF during the years that were formerly classified as Dry-Normal Type II. LADWP also suggest reducing the snowmelt bench of 80 cfs to 70 cfs, which would free up an additional 1,012 AF during Dry-Normal years.

The Stream Scientists objected to the first suggestion arguing geomorphic benefits (spawning gravel transport), riparian regeneration (yellow willows), and shallow groundwater recharge would be eliminated in nine out of past 19 years (Dry and Dry-Normal). The second suggestion was objected based on the 80 cfs riparian threshold. However, considering the climate change scenario in Eastern Sierra which was considered by the Stream Scientists, reduced precipitation and warmer summer months would shift the runoff patterns to reduced stream flows including peak flows and snowmelt benches as suggested by LADWP (4.9.1 and 4.9.2). Thus, the runoff conditions favorable to achieve those ecological objectives may be reduced during drier years in future. LADWP would have to bear the burden of maintaining a system which would be unsustainable under the climate change scenario. During Dry- Normal Years, LADWP recommends a spring bench of 70 cfs (reduced from 80 cfs), which should meet the riparian maintenance objectives.

4.9.3 Runoff Forecasting

Stream Scientists' Recommendation – A May forecast to improve the accuracy of the runoff year forecast and the year-type designation.

LADWP Response – Feasible with modification.

Analysis – Decision 1631 (Order, Section 3, page 200) says "*Preliminary determinations of the runoff classification shall be made by Licensee in February, March, and April with the final determination made on or about May 1*." Order 98-05 (Table 1, footnote 1) says "*The Year Types are established based on the LADWP April 1 preliminary runoff forecast and may be adjusted after the final May 1st forecast is issued*." Neither states whether or not for a May 1st forecast, a snow survey is required.

A May 1st forecast had been impractical for several reasons. LADWP's forecasting models with polynomial regression equations and associated constants and coefficients, were developed using April 1st snow survey information. To input May 1st snow survey information into these models would be inherently inaccurate. In addition, in the past 60 years, there have been no May 1st snow surveys performed, with the exception of a couple of extremely wet years; so there exists no database with which to develop May 1st forecasting equations. Additionally, even if May 1st runoff equations for Mono Basin could be somehow developed, like their April 1st forecast counterparts, they would depend on the snow courses in the Mono Basin, which are measured by SCE, which does not perform May 1st snow surveys.

LADWP proposes to create a new methodology to make a better accurate May 1st forecast. The methodology would be an involved process, going through the State records and seeing how far back the snow-pillow data is available, then form some correlation between a change in April 1st forecasts vs. non-normal after-April 1st snowfall, and then testing the past years forecast for its accuracy. Once this methodology is developed, it will be shared with the parties.

4.10 MONITORING

LADWP is concerned that the monitoring program proposed in the Synthesis Report is more extensive than the existing program and that there is no specified end date. The major elements of the Synthesis Report pertaining to monitoring are discussed below considering the reasonableness to continue the monitoring as proposed, as well as its implication to technical and financial feasibility.

4.10.1 Grant Lake Elevation, Storage Volume, and Water Temperature

Stream Scientists' Recommendation – To better define Grant Lake water temperature regime and trophic status, water temperature and dissolved oxygen concentrations should be measured at one-meter depth intervals at the deepest part of the reservoir and adjacent to the MGORD's intake pipe. Depth profiles samples should be collected at least monthly in the summer and once during late winter. Monitoring should last at least three years, or until enough new data is collected to update Cullen and Railsback thermal gradient profiles and the Stream Temp model scenarios.

LADWP Response – Feasible with modification.

Analysis – LADWP believes this is unreasonable because the monitoring has no end date. LADWP already monitors and will continue to monitor Grant Lake elevation and storage. However, Grant Lake temperature and dissolved oxygen monitoring should be conducted for three years to update the Cullen and Railsback thermal gradient profiles and the Stream Temp model. Once the monitoring is done, a better understanding would have been gathered and there would be no need to conduct further monitoring.

4.10.2 Stream and Groundwater Hydrology and Temperature Monitoring

Stream Scientists' Recommendation – Water temperature loggers (and duplicate backup loggers) are currently deployed at six locations along Rush Creek below Grant Lake, and at two locations on Parker and Walker and Lee Vining creeks. One logger was recently deployed on upper Rush Creek at the 'Rush Creek at Damsite (Station 5013) LADWP gauge. Water temperatures should be measured at one-hour intervals though the year at established thermograph locations as well as several new locations. New locations include:

- In the Lee Vining Conduit at the head of the 5-Siphons Bypass
- At the confluence of the 5-Siphons Bypass with Rush Creek, and
- Rush Creek immediately upstream of Parker Creek.

LADWP Response – Feasible.

Analysis – Water temperature monitoring that is already in place should be continued, including Rush Creek at Damsite. Three new Onset Pro V2 stream temperature data loggers will be deployed. The locations of these loggers are Lee Vining Conduit at the head of the 5-Siphons Bypass, the confluence of the 5-Siphons Bypass with Rush Creek, Rush Creek immediately upstream of Parker Creek.

The stream temperature monitoring should be discontinued after five years or until Dry to Wet years are monitored.

4.10.3 Groundwater Monitoring

Stream Scientists' Recommendation – Rush Creek 8 Channel piezometers 8C-2 and 8C-8 should continue to be monitored annually with dataloggers recording at hourly intervals. If MLC discontinues their seasonal groundwater monitoring, then LADWP should equip at least one (preferably more) piezometer in the Rush Creek 10-Channel array and one piezometer in the Lee Vining Creek 'C' piezometer array with a continuously recording datalogger. Data should be reported annually in tabular and graphic formats.

LADWP Response – Feasible with modification.

Analysis – LADWP believes this is unreasonable because the monitoring has no end date. Groundwater level is already in place would be continued. One additional data logger should be added to the Rush Creek 10-Channel piezometer array and one additional data logger to the Lee Vining Creek 'C' piezometer array set to record at hourly intervals.

The piezometer monitoring should be discontinued after five years or until dry to wet years are monitored. This should provide ample data to assess how the SEFs are affecting the hydrology and water temperatures.

4.10.4 Streamflow Gauging

Stream Scientists' Recommendation – Streamflow gauging at current (and future) LADWP sites should continue reporting daily flows and lake elevation metrics on a real-time basis on the LADWP website, and be made available in annual summary format.

LADWP Response – Feasible.

Analysis – Real time flows will be continuously posted on the LADWP website. As with any other real-time measuring instruments, technical glitches can occur and there may be problems from time-to-time.

Mono Lake elevation is currently read on a biweekly basis, and this number will be continuously posted on the website and the summary data are reported in the annual report.

4.10.5 Synoptic Stream Discharge Measurements

Stream Scientists' Recommendation – Synoptic stream discharge measurements should continue to be conducted on Rush Creek to determine the extent of groundwater recharge or discharge downstream of the Narrows during different seasons and stream flow periods.

LADWP Response – Feasible with modifications.

Analysis – LADWP believes this is unreasonable because the monitoring has no end date. Monthly synoptic stream discharge measurements on Rush and Lee Vining Creeks should be continued for two years. The two years should be enough to identify which sections of the creeks are gaining and which sections are losing water. Once the identification is made, it is not necessary to continue the measurements. With the new synoptic data, the SEFs can be refined, if necessary.

Flow measurement will be conducted in the 5-Siphons Bypass channel during a experimental release to determine if there are any flow losses compared to what is being measured at the Lee Vining Conduit so that the temperature model can be updated.

4.10.6 Rush Creek County Road Gage

Stream Scientists' Recommendation – The infrastructure remains in place for the gauging station at the Rush Creek County Road crossing. Installation of a physical infrastructure (e.g., a flume or hardened grade control structure) may be warranted. However, streamflow data from this site, or at a more feasible location very near this site, will be essential for assessing groundwater recharge dynamics during snowmelt peaks releases and for assessing implications of streamflow accretions and losses during baseflow periods.

LADWP Response – Not feasible.

Analysis – The Rush Creek County Road gauging station should not be re-operated. The area is too hydrologically unstable and the cross section changes too much to develop a reliable rating curve. With the monthly synoptic stream discharges on Rush and Lee Vining Creeks for two years, the gaining and losing creek sections should be identifiable.

4.10.7 Winter Baseflows

Stream Scientists' Recommendation – It was recommended that at least one more season of winter baseflow monitoring should be conducted during the winter of 2010-2011 at two of the five sections established on Lee Vining Creek and that a new section is studied on Rush Creek. On Lee Vining Creek, the Stream Scientists recommend that pool and riffle transects in Sections D and F are re-occupied during the winter of 2010-2011. On Rush Creek it is recommended that two transects (one pool and one riffle) are established just upstream of the Parker Creek confluence because synoptic flow

measurements identified the reach between Highway 395 and Parker Creek as Rush Creek's greatest losing reach.

LADWP Response – Feasible.

Analysis – The same methods from the last winter's ice monitoring should be used in Lee Vining Sections D and F and Rush Creek between Hwy 395 and Parker Creek during the winter of 2010 and 2011.

4.10.8 Geomorphic Monitoring Aerial Photography

Stream Scientists' Recommendation – Obtain high resolution, orthorectified aerial photographs of the Rush and Lee Vining Creek corridors from Grant Lake to Mono Lake (Rush Creek), from Hwy 395 to Mono Lake (Lee Vining Creek), and from the Conduit to Rush Creek for Parker and Walker creeks. Photographs should be true color images (four bands, including Near InfraRed), attain 3.5 cm pixel resolution, and use airborne GPS/IMU). Photographs should be obtained at 5-year intervals or after all Wet and Extreme-Wet runoff years.

LADWP Response – Feasible with modifications.

Analysis – Imagery should be one foot or better resolution, in true color as a single 4-band (red, green, blue, near infra-red). These four bands should be collected simultaneously with identical look angles, and precisely registered. The same aerial photo for the riparian vegetation mapping will be used for this geomorphic monitoring. Changes at such a small scale (3.5 cm) over five year period are most likely insignificant in ecologic, hydraulic, geomorphic, and hydrologic sense. Due to shadows and glares, 3.5 cm pixel resolution is less likely to achieve such high accuracy. In addition, LADWP lacks a capacity to store, access, and process such large size data. A 1 ft resolution used during 2009 approximately required 216 GB of storage space. A 3.5 cm pixel resolution would require approximately hundred times more storage capacity (21.6 TB). Microsoft XP operation system only provides the maximum RAM capacity of 4 GB. Thus, 3.5 cm pixel resolution aerial photos would not be able to be processed or accessed. Aerial photos should be obtained at five-year intervals until 2025. Geomorphic outcomes of the SEF's should be clear by then.

4.10.9 Geomorphic Monitoring Ground Photography

Stream Scientists' Recommendation – Continue photo monitoring at all monumented photo points established by Gary Smith (retired CDFG biologist) and McBain & Trush, on Rush Creek and Lee Vining Creek, at approximately 5-year intervals (less frequency may be required depending on the scale of change from year to year). Photo-monitoring points established along riparian band transects should also be reoccupied at the same 5-year interval, as a means of tracking changes in riparian vegetation structure.

LADWP Response – Feasible with modifications.

Analysis – LADWP believes this is unreasonable because the monitoring has no end date. Ground photography should be continued at five year intervals until 2020. LADWP believes geomorphic outcomes of the SEF's should be clear by then.

4.10.10 Riffle Crest Elevations

Stream Scientists' Recommendation – The Stream Scientists recommend that LADWP survey riffle crest thalweg elevations from the Narrows downstream to Mono Lake along Rush Creek and from top of A4 side-channel downstream to Mono Lake along Lee Vining Creek. Survey riffle crest thalweg elevation along Rush Creek side-channels 3D, and Lee Vining Creek A-3 and A-4 side-channels. This information should be collected at 5-year intervals or after all Wet and Extreme-Wet runoff years (along with aerial photography) and will provide the basis for determining the efficacy of maintaining side-channel openings for riparian vegetation recovery.

LADWP Response – Not feasible.

Analysis – See side channel maintenance below.

Riffle crest thalweg elevations should not be surveyed but determination of a cause(s) of channel narrowing is very important. If downcutting is the major cause of narrowing, then progressively larger flows are required to achieve the same ecological objectives, and riparian acreage criteria will not be met. Conversely, if aggradation is the major cause, then smaller flows will be required to achieve the same ecological objectives. Thus, monitoring of the existing cross sections in the lower Rush Creek at 5-year intervals or after all Wet and Extreme-Wet runoff years can provide information on not only downcuttings but also on a cause(s) of channel narrowing. In the Eastern Sierra all streams that are well vegetated and have healthy flood plains naturally incise the channel bottom because the banks are so heavily armored that flow energy is transferred to the channel bottom. This is how the streams deepen and narrow which is a positive channel geometry indicator. Downcutting infers an unnatural process. The culvert at the lower county road crossing on Rush creek limits the affect of a fluctuating lake level (acts as a control) in the upper reaches from there.

It is unnecessary to perform the riffle crest thalweg elevation survey because LADWP will follow the side channel opening criteria recommended by the Stream Scientists and approved by the SWRCB on October 6, 2008.

4.10.11 Sediment Bypass Operations

Stream Scientists' Recommendation – As stated in SWRCB Order 98-05, all sediment should bypass LADWP diversion structures on Parker and Walker Creeks (for the coarser bed material transported). Sediment storage occurs within the forebay pools (for finer bed material transported) and within each creek's delta (for the coarser bed material transported). LADWP's pilot operation using sluice pipes to transport sediment passing into the forebays shows promise. Effectiveness of the sluice pipes in passing all new fine sediment deposited will depend on the sequence of runoff year types encountered during pilot operations. LADWP must demonstrate that the sluice pipes

effectively transport the fine sediment transported in Wet as well as Dry runoff years. Coarse sediment (gravel and larger) is more likely to deposit in the delta (where each creek enters its forebay) during sediment mobilizing flood flows rather than farther downstream into the forebay. Significant transport will occur in the wettest years when the chance of having a 5-year flood peak and greater is likely, though even drier runoff years can still generate relatively big flood peaks. The Stream Scientists recommend surveying the bed topography of both deltas in 2010 as done for the forebays, then resurveying following the first 5-year or greater flood peak. The most difficult operational guideline is specifying a threshold increase in stored deltaic coarse sediment that would require excavation. Real-time sediment bypass (passing coarse sediment the same year it is deposited) does not appear warranted. However, delaying excavation until a large volume accumulates will likely create problems re-introducing this coarse sediment back into the mainstem channel downstream. Initially a 2 to 5 year time interval is specified, with surveys of the delta used to adjust this frequency if necessary.

LADWP Response – Feasible.

Analysis – The sediment bypass plan already in place should be followed.

4.10.12 Trout Habitat Surveys

Stream Scientists' Recommendation – Future habitat typing and pool surveys should occur on Rush and Lee Vining Creeks to monitor pool and deep-run habitats for brown trout. This information should be collected at 5-year intervals or after all Wet and Extreme-Wet runoff years. Because minimal changes in pool frequency occurred from RY2002 to RY2008 in Rush Creek between the bottom of the MGORD and the Narrows, it is recommended that future surveys begin at the base of the Narrows and extend downstream to the Mono Lake delta. All future Lee Vining Creek habitat typing and pool surveys should cover the 10,000 ft of channel originally surveyed in RY2008and RY2009 (Knudson et al. 2009). Future surveys should classify pools using the Platts et al. (1983) methods and measure maximum pool depths and thalweg riffle crest depths and elevations so that residual pool depths can be computed and compared to previous surveys.

LADWP Response – Feasible with modifications.

Analysis – LADWP believes this is unreasonable because the monitoring has no end date. Habitat typing and pool surveys should be continued on both Rush Creek from the Narrows to Mono Lake and Lee Vining Creek covering the 10,000 ft of channel originally surveyed in RY2008. Surveys should be conducted at five-year intervals and should be discontinued after 2025. The three sampling periods should provide adequate habitat and pool data to determine how the SEFs are affecting both creeks.

4.10.13 Side Channel Maintenance

Stream Scientists' Recommendation – Continued side-channel entrance maintenance is recommended for Lower Rush Creek 4 and 8 side-channel entrances in Lower Rush Creek to encourage perennial flow. Maintenance at the 3D entrance to

encourage perennial flow is also recommended. Entrance maintenance should not continue indefinitely, but have an exit strategy. More than a 2 ft drop in riffle crest thalweg (RCT) elevation between the mainstem channel and side-channel entrance creates an inhospitable environment for woody riparian regeneration in the Lower Rush Creek floodplain. The Stream Scientists recommend a guideline for terminating side-channel entrances when the adjacent mainstem RCT profile has dropped more than 2.0 ft. Although measuring future mainstem RCT elevation change is not difficult, measuring how much RCT elevation change already has occurred is. This can be accomplished by surveying RCT elevations down the entire side channel and adjacent mainstem channel. In addition these abandoned channels are still low, depressional areas in the floodplain that fill with water during high flow events promoting recruitment of woody riparian vegetation which benefits fish from allochtonous inputs and promotes riparian bird habitat as well.

LADWP Response – Not feasible.

Analysis – LADWP believes this is unreasonable because the monitoring has no end date. Side-channel maintenance on the 4Bii and the 8 channels should continue as recommended by the Stream Scientists and approved by the SWRCB on October 6, 2008. Maintenance of these side-channels should terminate in 2012.

4.10.14 Riparian Vegetation

Stream Scientists' Recommendation – Riparian vegetation can be mapped remotely in RY2015 and in RY2020 on 0.5 ft pixel resolution aerial photographs. Additionally, riparian vegetation mapped remotely in RY2020 would be compared with riparian vegetation maps developed in the field the same year. In RY2020, field and remotely developed riparian maps will be evaluated for accuracy. In Dry years, a qualitative visual survey should be conducted of riparian vegetation along streams where piezometers are located to determine whether riparian vigor has been maintained.

Additional study may be warranted to quantify how the patterns of wet and dry years have affected growth rates and vigor in locations where groundwater data were collected. Comparison of growth rates in RY2007 contrasted against growth rates in RY2009 would provide valuable insight into the specific effects that 30 and 80 cfs would have in a dry year (RY2007 did not have the thresholds met, RY2009 did).

LADWP Response – Feasible with modifications.

Analysis – LADWP believes 0.5 ft pixel resolution is unreasonable. Riparian vegetation should be mapped on one ft pixel resolution or better aerial photographs in years 2015 and 2020. Resolution should remain at 1 ft in order to accurately compare subsequent aerial photos to 2009 1 ft pixel resolution aerial photographs. The primary objective of the vegetation mapping is to track the woody riparian acreage, not species identification, thus 1 ft pixel resolution is sufficient to achieve this objective. In addition, it is unlikely to obtain higher accuracy with 0.5 ft pixel due to shadows and glares. Riparian vegetation should not be field mapped because numbers from aerial

photographs and vegetation ground survey conducted by McBain and Trush matched very closely in 2009. If there is no significant change in riparian cover between 2015 and 2020, riparian vegetation mapping should be discontinued in year 2020.

4.10.15 Trout Population Metrics

Stream Scientists' Recommendation – The fieldwork for long-term monitoring is similar to the existing annual population sampling occurring in September, including: conducting mark-recapture electrofishing in Rush Creek sections and the Lee Vining Creek mainstem section. Continue to implant PIT tags and recapture previously tagged fish for specific growth rate information. Conducting multiple-pass depletion electrofishing on Walker Creek and the Lee Vining Creek side-channel. Continue to implant PIT tags and recapture previously tagged fish for specific growth rate information. Sample the MGORD in even years with mark-recapture electrofishing to generate a population estimate, calculate RSD values, implant PIT tags, and recapture previously tagged fish for specific growth rate information. In odd years, conducting a single electrofishing pass to generate RSD (relative stock density) values, implant PIT tags, and recapture previously tagged fish for specific growth rate information. Annual electrofishing data should still be used to generate population estimates, length-frequency histograms, density estimates, biomass estimates, condition factors, and RSD values. Length and weights measured from recaptured PIT tagged fish will be used to calculate specific growth rates so that actual growth rates may be compared to predicted growth rates. Because individual fish are uniquely identified, growth (length and weight) for each fish can be computed. Annual growth can then be averaged over all fish of a similar age.

LADWP Response – Feasible with modifications.

Analysis – LADWP believes this is unreasonable because the monitoring has no end date. Fisheries monitoring in the Mono Basin should continue as prescribed in the Synthesis Report until 2015. This should provide sufficient data to determine if the SEFs are achieving what was intended. After 2015, only yearly mark recapture runs should be conducted at the Bottomlands section on Rush Creek and the Main Channel section on Lee Vining Creek. Every five years, a mark-recapture run will be conducted on the MGORD. Passive Integrated Tags (PIT) tags should no longer be implanted after 2015, but marked fish should still be scanned for tags to obtain specific growth rate information. All mark-recapture runs should produce population estimates, length-frequency histograms, density estimates, biomass estimates, condition factors, and Relative Stock Density (RSD) values. This monitoring should continue until the recommended metrics are met (Hunter 2007).

5.0 CONCLUSIONS

The Synthesis Report represents the culmination of a multi-year (i.e. 12 years process where the Stream Scientists invested considerable time and energy into the development of the stream ecosystem flows and recommendations. This Feasibility Report was designed to present comments and concerns identified by LADWP during its review of the Synthesis Report. While many issues were raised, the principal comments were with regards to exports, management of the system, and the monitoring needs. LADWP respectfully requests that SWRCB carefully consider the issues raised in the Feasibility Report.

As acknowledged by the Stream Scientists, LADWP "*has demonstrated a strong commitment to the recovery of Mono Lake and its tributary streams while seeking to ensure a supply of water for the City of Los Angeles*." All of the major elements of the Feasibility Report highlight the need for flexible operations and requirements in the Mono Basin. As identified in Decision 1631, and within this Report, there are multiple resources needs that depend on water from the Mono Basin. Conditions within Mono Lake and the associated inflowing streams depend on upstream flow and diversion management, as do conditions in the Owens River system downstream of the Mono Basin. When developing new operational requirements in the basin, it is critical to maintain a balance of the in-basin environmental needs, downstream environmental needs, and human water supply needs. The original Decision 1631 strove to provide balance and that theme should be continued.

Operational conditions proposed in the Synthesis Report were presented as if the ability to attain specific flows for specific periods, at specific frequencies and specific locations, were not constrained due to natural conditions, facility limitations, or other factors. The eastern Sierra Nevada hydrologic conditions that occurred in spring and early summer of 2010 – with high flows late in the runoff season – seem to be timely reminder of how variable natural conditions can be. Many were surprised by the late runoff and the elevated flows. Perhaps these conditions suggest that a measure of flexibility and adaptability is not just desired, but critical to balance the identified ecosystem function with water supply and hydropower benefits of Mono Basin waters.

6.0 APPENDIX

SCE's response letter to LADWP regarding the Synthesis Report's high flow recommendations, July 21, 2010.

Southern California Edison Company
Eastern Hydro Region
4000 Bishop Creek Rd, Bishop, California 93514

760-873-0724

July 21, 2010

Mr. Gene L. Coufal
Aqueduct Manager
Los Angeles Department of Water and Power
300 Mandich Street
Bishop, CA 93514-3449

Subject: New Rush Creek and Lee Vining Creek Flow Recommendations
Synthesis Report to the State Water Resources Control Board

Dear Mr. Coufal:

By letter of June 10, 2010, you asked me for assistance in carrying out the flow recommendations contained in the April 30, 2010 Synthesis Report to the State Water Resources Control Board (SWRCB), which was prepared by McBain & Trush, Inc. and Ross Taylor & Assoc. consulting firms as required by SWRCB Water Right Decision 1631 and SWRCB Order 98-05. The recommendations in that report are apparently centered on (i) and increase in the magnitude, duration, and frequency of streamflows during peak snowmelt runoff, and (ii) a reduction in winter base flows, for both Lee Vining and Rush Creeks, both of which contain upstream SCE hydroelectric storage facilities.

As you are aware, these recommendations for the most part are the exact opposite of what is already required in SCE's U.S. Forest Service (USFS) 4(e) conditions and Federal Energy Regulatory Commission (FERC) licenses, which necessitate that we accumulate and hold storage for recreation purposes during the summer months, and then drain the storage during the winter months before the inflows start arriving with the next spring runoff. In addition, these recommendations would conflict with SCE's existing water rights, and with the long-standing contractual arrangements between SCE and LADWP pertaining to the operations of those reservoirs.

Consequently, as an initial, generalized response, we have to say that we can not implement the recommendations in the report. Nevertheless, we do not rule out the possibility of attempting to coordinate our operations with you to achieve at least some of the report's recommendations, especially during years of above normal snowpacks when there are unavoidable spill conditions.

However, the determinations of any such opportunities would require more specific information in terms of the actual modifications to the existing operations of SCE facilities that would be needed. Accordingly, upon being presented with more detailed requests by either

LADWP or the SWRCB, we would be happy to sit down with you and discuss the possibilities at that time.

If you have any questions, I can be reached at 760-873-0724

Sincerely,

Dan K. Golden
Manager
Eastern Hydro Division
Bishop