H8. The Regulatory Requirements Associated with the State PM10 Standards Should Be More Completely Described

Summary of Comments

One commenter noted that achieving the state 24-hour PM10 standards will require a significantly higher lake level than that necessary to achieve the federal 24-hour PM10 standards. This commenter requested that the EIR provide additional discussion of whether the state PM10 standards represent a regulatory requirement that must be met or a goal that can be balanced against other considerations.

Response

CARB was contacted to determine whether the state PM10 standard is a regulatory requirement or a goal that can be balanced. When contacted about this issue, CARB cited Section 40001 of the California Health and Safety Code. That code states that the air districts shall adopt and enforce rules and regulations to achieve and maintain the state and federal ambient air quality standards. This response indicates that CARB believes the state PM10 standard is a regulatory requirement rather than a goal.

The California Clean Air Act effectively sorted the state ambient air quality standards into two groups distinguished in part by the extent of new regulatory requirements. The California Clean Air Act includes an ultimate goal that all ambient air quality standards be attained at the earliest practical date, but specific planning and regulatory program requirements were set only for the ozone, carbon monoxide, nitrogen dioxide, and sulfur dioxide standards.

The California Clean Air Act explicitly required that CARB provide a report to the legislature addressing the practical prospects for and implications of programs that would be required to attain the state ambient air quality standards for PM10, visibility-reducing particles, sulfates, lead, and hydrogen sulfide. The CARB report to the legislature suggested an approach to PM10 problems that did not include uniform control requirements, annual emission reduction targets, or classification of nonattainment areas by the severity of the problem. Instead, the report endorsed an approach of tailoring control program requirements to each nonattainment area. The report recommended that PM10 control programs be targeted toward those components of ambient PM10 that pose the greatest health risk, rather than focusing exclusively on aggregate PM10 concentrations in the context of the numerical standards.

The CARB report recognizes the difficulties inherent in trying to attain the state PM10 standards and notes that there may be limited areas where the state PM10 standards cannot be consistently attained due to emissions associated with wind erosion. The report also notes that efforts are needed to reduce the impact of human activities that disturb ground surfaces and that more research is needed to investigate methods to reduce wind erosion from undisturbed ground surfaces.

VISUAL RESOURCES (I)

I1. Criteria Used to Judge the Significance of Visual Impacts Are Inappropriate and Conclusions Are Unsupportable

Summary of Comments

The criteria for judging the significance of visual resource impacts are flawed or too limiting, and the underlying assumptions pertaining to the significance thresholds are not presented. Impact conclusions are unsubstantiated and appear to support the superiority of certain alternatives.

Response

After further review of data collected during preparation of the draft EIR, new data available since publication of the draft EIR, and written comments on the draft EIR, the criteria for judging the significance of visual resource impacts have been revised. Under the new criteria, a project alternative is considered to have a significant adverse impact on scenic quality if one of the following conditions would occur:

- a permanent loss from view, through toppling and flooding, of more than 35% of all the tufa towers found at visually important locations or

- a reduction of more than 35% in the total number of visually conspicuous birds at Mono Lake, including gulls and other visually important species.

Other criteria remain as stated on page 3I-37 of the draft EIR.

The 35% criteria for judging the significance of adverse impacts on the scenic quality of tufa and visually conspicuous birds is based on suggestions by USFS managers of the scenic area in USFS's written comments (comment 3-64). Although a 10% reduction (the previous threshold) in tufa towers or in numbers of visually conspicuous birds may or may not be readily perceptible to visitors of Mono Lake, a 35% reduction would be noticeable and would have a recognizable influence on landscape character.

The procedure for applying these criteria also was modified. In the draft EIR, criteria were applied to assess a potential significant impact wherever it occurred, even if the impact were localized and did not adversely affect resources in other locations. This procedure has been modified to focus on localized effects on visual elements that are important to the scenic quality of an important viewing location, as well the entire basin. This modification permits consideration of scenic quality impacts related to changes in resource elements, such as tufa groves, that have both location-specific and basinwide importance to scenic quality.

Under the 6,390-Ft Alternative, basinwide reductions in tufa would be below the criterion of 35% loss, which includes toppling and inundation. Therefore, implementation of the 6,390-Ft Alternative will not result in basinwide significant adverse impacts on scenic resources. As noted in the draft EIR, several beneficial, basinwide visual effects would occur under the 6,390-Ft Alternative, and the overall effect of implementation on the scenic quality of the basin will be positive. However, at South Tufa Grove, if the highstand under the 6,390-Ft Alternative is reached, approximately 60% of all the tufa visible at 6,372 feet would be lost from view due to toppling and inundation. As reported in the draft EIR, 50% of *all* towers (not 50% of the small towers) will be toppled. Such a substantial and permanent loss of tufa at South Tufa Grove would be a significant adverse impact on the visual quality at this location, which is heavily visited. Table 3I-6, which shows the effects of the project alternatives on tufa towers, has been modified to be consistent with these revisions. (Refer to Chapter 7, "Errata to the Draft Environmental Impact Report".)

Sand tufa, although an important visual feature, is visible only in the areas in which it occurs. Sand tufa is not visible from distances beyond a few hundred feet and thus is not a characteristic feature of the Mono Lake landscape. The towers are found at locations visited by relatively few people; these locations are not considered key observation points by USFS, and sand tufa is not considered to be a recreational attraction in USFS's Comprehensive Management Plan for the basin (see Comment 3-63). Although the destruction of sand tufa through inundation by rising lake waters is considered an adverse impact, this impact would not affect basinwide scenic quality or scenic quality of an important location; consequently, the impact is not considered significant. According to Dr. Stine, additional sand tufa likely would become visible in the newly eroded faces of wave-cut cliffs if the lake surface were to rise above 6,390 feet.

Significance criteria were selected based on the professional judgment of the draft EIR preparers after consideration of all available information. Although the perceptions of Mono Lake visitors were important considerations in developing these criteria, reliance on visitor's perceptions as the sole basis for judging significance would be impractical. A broader range of considerations that includes visitor's perceptions is needed.

The purpose of the visual impact assessment is to identify and report the effects associated with each project alternative. When possible, positive effects are described, in addition to adverse impacts. The study is not intended to "support" certain alternatives.

I2. The Methodology for Assessing Visual Impacts Is Flawed

Summary of Comments

The visual impact assessment is flawed because the analysis attempts to measure the wrong effects, does not consider changes in some resources, and does not adequately consider the sensitivity of viewers and key observation points.

Response

The goals of the visual impact assessment are discussed in the draft EIR on pages 3I-31 through 3I-37. The study was designed to assess changes on individual visual features at specific locations and to assess the overall, collective influence of the specific visual effects on scenic quality and landscape character.

As reported in the draft EIR, the assessment of visual impacts followed a multistep process and utilized information from a wide variety of sources, including visual simulations of the lake at different surface elevations and survey data collected from visitors to Mono Lake. All of this information was used to identify effects of the project alternatives. Although visual simulations and survey data were not developed specifically for the 6,377-Ft and 6,383.5-Ft Alternatives, impacts of these alternatives were determined through a process similar to that used for the other alternatives.

As part of the impact assessment, key features of the Mono Basin landscape that could be affected by project alternatives were identified. Tufa and birds were found to be the most critical. In distinguishing between various potentially affected features, a formal or structured process by which different features were assigned relative weights was not considered necessary. The most important features and the relative differences in their importance were identified based on the survey of public perceptions about the landscape, the location of popular visitor areas, and potential effects of the project alternatives on the landscape. The average preference scores obtained through the survey supported the conclusions that visitors considered tufa and birds to be the basin's most important visual features.

The contribution by birds to viewer appreciation of Mono Basin's landscape is well substantiated. The seasonality or timing of effects on the numbers of visually conspicuous birds was not considered in the analysis because these factors were not assumed to vary substantially between the alternatives. The visual impact assessment did not to attempt to identify differences between various bird species other than variations in their relative abundance, which was considered the most important factor affecting the quality of public viewing.

The visual analysis accounted for the sensitivity of different types of viewers, including those who simply travel through the area, destination travelers who visit Mono Basin for a specific experience, and

local residents, by determining their preferences for different visual elements in the visitor survey. Respondents to the visual preference survey were not asked about specific activities or if they belonged to special interest groups; however, the surveys were conducted during week days and weekends at different popular recreation sites over several weeks to obtain a representative sample of visitor types. The term "casual observers", which is taken from USFS technical manuals that describe USFS's officially adopted Visual Management System, refers to members of the general public who visit lands administered by USFS.

Describing the impacts on visual quality from each key observation point would have been an informative way of presenting the results of the study but would have required considerably more reporting of information and would not have changed the study conclusions. The findings were presented in a condensed format that highlighted distinctions between the project alternatives.

I3. The Analysis of the Effects on Tufa Is Flawed

Summary of Comments

The analysis of effects on tufa is flawed because it did not consider positive and negative effects of land-based tufa becoming water-based tufa, did not distinguish between submerged and toppled tufa or effects on small tufa towers compared to tufa domes and bulwarks, and did not accurately assess effects on sand tufa.

Response

The draft EIR analysis of the effects of the project alternatives on tufa and sand tufa was based on information developed by Dr. Scott Stine. Most of this information appears in Auxiliary Report 9, "Past and Future Toppling of Tufa Towers and Sand Tufa at Mono Lake, California". The information in Table 3I-6 of the draft EIR, "Effects on Tufa Towers Compared to the Point of Reference", was confirmed through personal communication with Dr. Stine. This table summarizes the effects of each project alternative at each of the main tufa groves, showing the number of tufa submerged at their bases (i.e., converted from visible land-based tufa to visible water-based tufa) and the number of tufa completely submerged (i.e., no longer visible above the lake's surface). For South Tufa Grove, the number of tufa towers expected to topple as a result of undercutting wave action as the lake elevation changes also is presented. The table indicates the percentage of small-diameter tufa towers expected to topple under each alternative. Dr. Stine could not determine if the larger diameter tufa towers, or domes, would also topple, but indicated that they may. He believes that only the tufa bulwarks appear unlikely to topple.

Toppling or complete submergence of tufa towers has little or no positive benefit to visual resources, as assessed in the draft EIR. Although completely submerged tufa could be viewed by divers

or snorkelers, relatively few people engage in these activities, and the number of potential viewers is an important consideration in identifying impacts. Tufa that becomes completely submerged at higher lake surface elevations is lost from view to the vast majority of visitors.

Since the draft EIR was published, Dr. Stine has reexamined the effects of project alternatives on sand tufa and has concluded that within the range of surface elevations that would occur under the 6,383.5-Ft Alternative, particularly its high stand, free-standing sand tufa currently exposed and visible at Mono Lake would be destroyed. Therefore, this adverse impact is associated with all project alternatives at or above 6,383.5 feet. However, as previously indicated, Dr. Stine considers it likely that additional sand tufa would become visible in the newly eroded faces of wave-cut cliffs if the lake surface were to rise above 6,390 feet. The USFS suggests that samples of sand tufa could be collected prior to a rise in lake level and displayed for interpretive purposes in the future (Comment 3-84).

I4. The Accuracy of the Photosimulations Is Suspect

Summary of Comments

The accuracy of the photosimulations is questionable because the procedures used for 3-D modeling and land surveying were not described, there are inconsistencies in the visual chapter and the household survey, and certain effects were not depicted in the simulations.

Response

The visual simulations were prepared using a proprietary multistep process, which has been applied successfully on numerous projects in recent years. Using the most recent and accurate topographic data available, a three-dimensional computer model of the lake and nearby areas was first developed. The model included land-based tufa features that also appeared in baseline color photographs serving as multiple registration points. The baseline color photographs were taken at well-known locations along the lakeshore, enlarged to 11 inches by 14 inches, and scanned using 486-based PC image-editing facilities. True-perspective views of the three-dimensional model were generated from the locations depicted in the baseline photographs.

The simulations were prepared to represent viewing conditions at the different camera stations. A 35-mm camera fitted with a standard 50-mm lens was used to photograph all the views. The baseline photographs were not taken using lenses of different focal length, such as a wide-angle lens, to avoid introducing inconsistent depths of field and other distortions. For the simulations of visual conditions at Mono Lake County Park, U.S. Highway 395 adjacent to the Old Marina, and South Tufa Grove, single-frame images were used. For the wider view taken from the east side of the Mono Basin National Forest

Scenic Area Visitor's Center, two frames were joined side to side. To fully represent the panorama from the Mono Lake Vista Point on U.S. 395 below Conway Summit, three frames were joined.

The original baseline images were then computer-edited to represent the appearance of the lake at the various surface elevations. Guidance on how to best represent resource conditions, such as changes in wetlands, nearshore vegetation, and riparian conditions along tributary streams, was provided by SWRCB consultants. Draft visual simulations were distributed to interested parties, including a technical advisory group, for review and comment.

As part of the review, Dr. Scott Stine surveyed land to provide instructions for revising the draft images to increase their accuracy. Comments from other reviewers on depictions of landscape conditions also were considered. Additional land surveys were conducted before final changes were made.

The visual simulations were intended to represent the average conditions associated with the lake elevation under each alternative. Conditions, such as dust storms, that do not occur under average conditions were not simulated.

The simulated images used in the household survey were the same used in the visual study, except that the image depicting the 6,380-foot lake elevation was not included. The image cited as the 6,375-foot lake elevation in household survey was the same image cited as the 6,374.5-foot lake elevation in the visual study. The surface elevation depicted in this simulation is actually 6,374.5 feet, which was the elevation of the lake surface on the day that the baseline photographs were taken.

I5. The Design and Administration of the Public Perception Survey and Interpretation of the Results Are Questionable

Summary of Comments

The methodology for presenting information to respondents in the public perception survey is questionable because conclusions are internally inconsistent, no frame of reference was provided to respondents, no instructions were given on how to view the images, labels may have influenced respondents, and the sequencing of images presented to respondents may have influenced them. The interpretation of results is questionable because demographic characteristics of the sample population are not presented, the responses to scenic beauty were misinterpreted, tests for response equivalence were not made, and the relative differences of ranking were not discussed.

Response

The procedure for creating photosimulations, described in the response to Comment I4, produced final images that vary in size, but that accurately represent the actual view from each observation point. Public responses were elicited in a consistent framework, and the issue of "correct viewing angle" does not apply. The only images used in the survey were photographs and photosimulations, and observers were not required to compare simulated scenes to computer models or actual landscapes. Testing for response equivalence between the simulated images and actual landscape conditions was irrelevant. As noted above, all photographs were taken with a 35-mm camera fitted with a 50-mm lens, the most common photographic format with which the public is readily familiar; therefore, no instructions on how to view the images were required.

The public perception/preference survey of Mono Lake visitors, which was conducted as a part of a larger, overall program to assess visual resource impacts, consisted of two main parts. In the first part, individual images depicting the appearance of Mono Lake from one of several popular locations under one of five different lake surface elevations where shown to observers. Because these images were presented one at a time, there was no opportunity for observers to compare one scene to any other. Observers were asked to rate the scenic beauty of each individual image on a 10-point scale. Although the results of the analysis of survey data indicated meaningful differences in observer ratings of scenic beauty, these differences did not appear to be well explained by lake surface elevation.

In the second part of the survey, observers were shown presentation boards that showed all five lake-level variations of a location on one board, which allowed observers to directly compare changes in lake appearance under different elevations. Observers were asked if they had a preference for one or more of the variations, based on scenic beauty, and, if so, to rank their preferences for the scenes from 1 (most preferred) to 5 (least preferred).

Analysis of the responses to part 2 indicated a clear pattern in preferences. Observers generally ranked the scene depicting the highest lake surface elevation as most preferred and the second-highest lake level as next most preferred; the scene showing the lowest lake level was ranked as least preferred. This pattern was consistent except for scenes of the Mono Lake County Park and South Tufa Grove, in which the simulations at the highest lake level showed tufa towers and foreground vegetation submerged and lost from view. For these locations, the highest lake level was ranked as least preferred whereas the second-highest level was ranked most preferred.

The survey results were used to provide an indication of how different lake levels influence the public's judgment of scenic beauty and to determine visual features that were most important to scenic quality. Survey results were not used as direct indicators of impact. Labels were not used on any images employed in the survey.

Photographic surrogates of landscape conditions have been used for many years to measure landscape aesthetics by presenting a variety of scenes to observers to obtain their responses to scenic

beauty. The survey was designed, implemented, and interpreted according to procedures described by Daniel and Boster (1976) in "Measuring Landscape Esthetics: The Scenic Beauty Estimation Method", USDA Forest Service Research Paper RM-167, Rocky Mountain Forest and Range Experiment Station, which offers a commonly applied and widely accepted approach to measuring scenic beauty of various landscape conditions. Responses to color photographs or color slides of landscape conditions correlate strongly with actual landscapes.

Many thousands of people visit Mono Lake each year, but only a small portion return many times. One-time visitors do not have the opportunity to compare the appearance of the lake and the basin to previous experiences. Depending on the length of time between visits for those who do return to Mono Lake, the ability to recollect how the lake and basin appeared under a different lake surface elevation may vary. Local residents generally can recall how the landscape appeared at different times and under different surface elevations and, as a group, are most sensitive to these changes. The presentation of scenes depicting various lake surface elevations one at a time and in random order is similar to the experience of the less frequent or one-time visitor. The presentation at one time of all five lake levels portrayed from one scene more closely relates to the experience of long-term local residents. As described above, both presentations were included in the survey.

Although demographic data and other information that could be used to assess the variability of the sample population were not collected, sampling procedures were designed to obtain a representative sample of visitors to Mono Lake. Surveys were conducted at the most popular visitor locations, including South Tufa Grove, Mono Basin National Forest Scenic Area Visitor's Center, and Mono Lake County Park. Because survey respondents were engaged in viewing Mono Lake and the basin, their frame of reference for judging photographs of Mono Lake was established. Consequently, it was unnecessary to show preview scenes or examples of Mono Lake scenery to prepare observers for responding to the survey.

RECREATION (J)

J1. Point of Reference for Recreation Impacts at Grant Lake Reservoir Is Inappropriate

Summary of Comments

The 1991 recreation season was inappropriate to use as the point of reference for Grant Lake reservoir because reservoir levels were unusually low in 1991.

Response

As explained on page 3J-26 of the draft EIR, the point of reference for assessing recreation impacts at Grant Lake reservoir was not based on actual reservoir levels in 1991 or any other historical year. Rather, point-of-reference conditions were defined by reservoir levels projected to result from historical runoff conditions and diversion practices and minimum release flows for lower Rush Creek. Specifically, point-of-reference conditions at Grant Lake reservoir are defined by an average level of 7,112 feet over the recreation season (Table 3J-13 of the draft EIR). This average exceeds the average 1991 level by approximately 17 feet.

J2. Use of Historical Visitor Data for Mono Lake Tufa State Reserve Results in Underestimation of Use and Economic Impacts at Mono Lake

Summary of Comments

Use of historical visitor data for Mono Lake Tufa State Reserve results in underestimation of recreation use at Mono Lake and of related economic impacts. Such underestimation could be corrected by using visitor data for the Mono Basin National Forest Scenic Area instead of data for the Tufa State Reserve, or by increasing historical use data for the Tufa State Reserve by multiplying those data by a correction factor to account for the systematic underestimation of the number visitors to Mono Lake before 1993.

Response

Baseline recreation use levels at Mono Lake reported in Table 3J-2 of the draft EIR were developed from visitor data for the Tufa State Reserve, rather than for the Mono Basin National Forest Scenic Area. Most of the Scenic Area consists of uplands up to several miles from the lakeshore that would be relatively unaffected by changes in the lake level, whereas the entire Tufa State Reserve is located within approximately 1 mile of the lakeshore.

California Department of Parks and Recreation initiated a new system for estimating visitor use of the Tufa State Reserve in 1993. This system is based on direct counting of cars and hikers instead of voluntary self-registration, and is considered to be more reliable than the old estimation system. Data collected under the new system were not available when the draft EIR was prepared.

Under the new system, total use of the Tufa State Reserve was projected to be approximately 254,000 in 1993, an increase of 57% over estimated use in 1992 under the former system. If the new system is relatively reliable, the large increase most likely indicates an underestimation bias in the former

system rather than the actual change in use. The 1983-1992 baseline use levels reported for Mono Lake in Table 3J-2 of the draft EIR could be substantially lower than actual use levels. However, these baseline use levels were not used to assess the recreation impacts of the water export alternatives. Projected changes in use, which were assessed based on the per-capita use rates of visitors, were used to evaluate the significance of changes in Mono Lake recreation opportunities. Baseline per-capita use rates were estimated from user surveys conducted for the EIR rather than from visitor data compiled by public agencies. The conclusions of the recreation impact assessment in the Chapter 3J of the draft EIR would not be affected if the use levels reported in Table 3J-2 were revised substantially upward.

The regional economic impacts of changes in recreation use at Mono Lake assessed in Chapter 3N of the draft EIR were, however, based on the baseline use levels reported in Table 3J-2. In particular, changes in the number of annual visitor days at Mono Lake and other affected recreation areas were used to project changes in regional recreation spending (Table 3N-17) and related income and employment (Table 3N-18). Changes in the number of visitor days resulting from implementation of each alternative (relative to the point of reference) were projected by multiplying the percentage changes in per-capita use from the recreation impact analysis times the baseline use levels reported in Table 3J-2. Thus, if historical use levels were systematically underestimated for Mono Lake, the regional economic impacts of changes from baseline use levels discussed in Chapter 3N would also be underestimated.

The importance of this potential historical underestimation of use at Mono Lake for the economy of the Mono-Inyo region can be analyzed by comparing spending associated with use of Mono Lake with total recreation-related spending in the region. As shown in Table 3N-9 of the draft EIR, recreation-related expenditures in Mono and Inyo Counties has exceeded $300 million per year since 1987. Annual spending resulting from use of Mono Lake under the point of reference was projected to be $3.1 million in the draft EIR, or approximately 1% of the regional total.

Daily per-capita spending levels were underestimated in the draft EIR, however (see the response to Comment J35). Daily per-capita spending levels for Mono Lake survey respondents averaged $28.38, or 2.4 times the level reported in the draft EIR. If, as indicated by revised California Department of Parks and Recreation information, baseline use at Mono Lake were 57% higher than reported in the draft EIR, actual spending attributable to use of Mono Lake would be 3.8 times greater than the $3.1 million reported in the draft EIR, or $11.7 million per year.

Higher per-capita spending and annual use at Mono Lake imply that Mono Lake has greater importance to the recreation sector of the regional economy than indicated in the draft EIR. Although the effects of alternative lake levels as measured in terms of regional spending, income, and employment would be greater than shown in Tables 3N-17 and 3N-18, the relative effects of implementing the various water-export alternatives would be qualitatively the same as shown in the draft EIR:

- recreation spending, income, and employment would increase relative to the point of reference under all alternatives except the No-Restriction and No-Diversion Alternatives and

- recreation spending, income, and employment would be maximized under the 6,390-Ft Alternative.

J3. The Beneficial Recreation Impacts of Partial-Submergence of Tufa at the 6,390-Ft Lake Level Should Be Analyzed

Summary of Comments

Many tufa that are land based at lake levels less than 6,390 feet would become partially submerged at levels exceeding 6,390 ft. Most visitors to Mono Lake consider partially submerged tufa to be visually preferable to land-based tufa because of the attractiveness of reflections of the tufa on the lake surface and other visual aspects of the tufa-water interplay. The beneficial impact of partial tufa submergence on the quality of lake-viewing experiences was not considered in the draft EIR.

Response

Increasing the level of Mono Lake to 6,390 feet would result in the complete toppling and inundation of one-half of the small and perhaps large tufa towers at South Tufa and in the partial submergence of many additional tufa that are land-based at lower lake elevations. These two phenomena (tufa toppling and partial submergence) tend to offset each other from the standpoint of sightseeing and lake-viewing opportunities. As discussed in Appendix V of the draft EIR, most people perceive destruction of tufa through toppling as diminishing, and partial submergence of tufa as enhancing, the lake's visual quality.

Partial submergence was not identified as a key environmental feature, and no threshold lake elevation for recreation opportunities was identified in Table 3J-6 of the draft EIR. Had a threshold been specified for partial submergence, lake elevations less than 6,390 feet and greater than 6,407-feet would have been associated with exceedance of the threshold and an adverse effect on recreation opportunities. Relative to the point of reference, these thresholds would have been exceeded substantially less often under the 6,390-Ft Alternative and recreation would have been beneficially affected.

Inclusion of recreation opportunity thresholds for partial tufa submergence would not have affected any draft EIR conclusions on recreation effects, however. Under the 6,390-Ft Alternative, sight-seeing and lake-viewing opportunities were considered beneficial relative to the point of reference, despite the absence of analysis of partial submergence. Under the 6,410-Ft and No-Diversion Alternatives, recreation opportunities at Mono Lake would be adversely affected (as concluded in the draft EIR) because nearly all tufa would be inundated and destroyed, while relatively few tufa would remain partially submerged.

J4. Extrapolating from Historical Angling Use Levels on the Lower Tributaries Results in Underestimation of the Long-Term Effects of Alternative Streamflows on Angling Use and Related Economic Effects

Summary of Comments

Angling use of the lower tributaries has been extremely low in recent years because of the historically degraded condition of their fisheries and lack of knowledge among California anglers about the recently improving fishing opportunities at the lower tributaries. As these fisheries are restored and anglers become aware of the restoration, angling use will increase to levels comparable to other eastern Sierra streams. In the draft EIR, use estimates for the lower tributaries were based on historical use levels. This approach resulted in underestimation of the long-term effects of alternative streamflows on angling use and their related regional economic effects.

Response

Angling use of the lower tributaries is likely to increase substantially from its current level of less than 600 visitor days per year to several thousand visitor days per year when the tributaries and their fisheries have been fully restored and the fishing public becomes aware that they have been restored.

Changes in average annual per-capita use and the average number of anglers using the tributaries each year could be affected by which water export alternative is implemented. For example, if the 6,383.5-Ft Alternative were implemented and lower Rush Creek streamflow averaged 95 cfs over the recreation season, more anglers would probably use lower Rush Creek and spend, on average, more days fishing each year than if the 6,372-Ft Alternative were implemented and the flow on lower Rush Creek averaged 36 cfs.

Projection of use effects on the lower tributaries in the draft EIR focused exclusively on the change in per-capita use and did not consider changes in numbers of anglers using these streams. As a result, the percentage changes in use of lower tributaries shown is Table 3J-12 of the draft EIR understate the relative differences in total use that would result under the various alternatives over the near term (i.e., the next 20 years).

Tables 3N-17 and 3N-18 project the effects of per-capita use changes on the lower tributaries from Table 3J-12 on total use and recreation expenditures and on regional economic output, personal

income, and employment, respectively. The use levels and spending levels shown in Table 3N-17 reflect current use and spending and substantially underestimate future use and spending levels when the streams are fully restored. Similarly, the output, income, and employment levels shown in Table 3N-18 reflect current levels and underestimate future levels during the postrestoration period.

Use levels for the lower tributaries will be small relative to use levels at Mono Lake and Lake Crowley reservoir, however, even when the streams are fully restored. Even if changes in use of the lower tributaries were, for example, 10 times greater than shown in Table 3N-17, total visitor days and spending at all affected areas would change by less than 0.5%. Similarly, effects on the regional economy shown in Table 3N-18 would not change appreciably if changes in numbers of visitors to the lower tributaries were taken into account.

CULTURAL RESOURCES (K)

No major issues have been identified.

LOS ANGELES WATER SUPPLY (L)

L1. Assumptions about Reclamation Projects Included in the Water Supply Analysis Are Questionable

Summary of Comments

Several commenters questioned the draft EIR's assumptions about the reclamation projects included in the water supply analysis. Comments focused on the following issues:

- the reason for the differences between the draft EIR's projections of 119,000 af and LADWP's goal of 255,000 af,
- the schedule for implementing the reclamation projects,
- the reason for identifying reclamation projects that are not part of LADWP's plan, and
- the need to apply the MWD rebate to all reclamation projects.

Response

LADWP's goal of 255,000 af/yr includes effluent used for purposes other than replacing potable water supplies. The draft EIR estimate of 119,000 af/yr includes reclamation projects that would be used to replace potable water supplies with water from sources identified in Table 3L-3 in the draft EIR.

LADWP indicated that delays expected in its implementation schedule for reclamation projects would increase its reliance on MWD supplies. LADWP's most recent schedule for reclamation projects (included in its comments on the draft EIR) shows a slower rate of implementation than was assumed in the water supply analysis. Delayed implementation of most of the reclamation projects identified in the draft EIR would raise LADWP's water supply costs because LADWP would have to obtain more expensive water supplies as replacement. Although these delays would increase costs under each alternative, the incremental costs of each alternative compared to point-of-reference conditions likely would increase only slightly. Costs would increase more substantially if delays resulted in additional years of water supply shortages.

The reclamation projects discussed on page 3L-14 of the draft EIR are planned for water districts outside of LADWP's service area and were included to show that many water districts in southern California are taking steps to recycle and reclaim wastewater. These projects were not included in the estimate of water supply costs to LADWP.

The projects assumed to receive the MWD rebate were only those designated to receive the rebate in MWD's Urban Water Master Plan (UWMP), such as the LA Greenbelt and the West Basin projects. A recent agreement between LADWP and MLC commits AB 444 funds (ranging from $36 million to $50 million) to develop reclamation projects. One project, the East Valley Water Reclamation Project, has been identified to receive funding. Cost savings associated with the East Valley project were not included in the water supply analysis because the agreement was reached after the draft EIR was completed.

L2. The Water Supply Analysis Should Have Been Based on Stochastic Simulation of Water Supply Years

Summary of Comments

One commenter indicated that the water supply sampling method used to calculate the future average annual LA Aqueduct deliveries was overly simplistic. (The method used in the draft EIR was based on a single 20-year projection of 12 normal, 4 wet, and 4 dry years selected from the 50-year hydrologic record.) The commenter believed that a probability analysis should have been performed to support the likelihood that the 20-year projection period adequately represents the expected average future deliveries.

Response

More ambitious sampling procedures could have been used in the water supply cost analysis but likely would not have substantially changed the results. The conclusions of the differential analysis in the draft EIR depend on a comparison of alternative scenarios, using a given sampling method. Deviations arising from imperfections in the sampling method roughly cancel out in the comparisons. This situation would be different if deviations were to differ systematically between two lake levels, but the EIR preparers are not aware of any systematic differences (and none were suggested in the comments). Consequently, there is no reason to expect that the results of the analysis are biased.

The methods used to develop the 20-year projection period were designed to minimize the effects of sampling bias and other potential sources of bias. As stated in the draft EIR and above, 20 years were chosen randomly from the 50-year historical hydrological record. The number of dry, normal, and wet years was selected proportionate to how often each type of year occurred in the 50-year period (20%, 60%, and 20%, respectively). The representativeness of the sample was assessed by comparing the average water deliveries over the 20-year projection period to the average deliveries over the 50-year period under the 6,372-Ft, 6,377-Ft, 6,383-Ft, and 6,390-Ft Alternatives. The deviations varied by alternative, ranging from 0.5% under the 6,372-Ft Alternative to 2.2% under the 6,383-Ft Alternative. This level of deviation is considered acceptable for the type of differential analysis performed.

L3. The Source and Effects of Increased LADWP Demand for MWD Supply Were Not Considered

Summary of Comments

One commenter indicated that the draft EIR assumes that MWD supplies are available to replace Mono Basin water but does not consider the source or the impacts on other MWD member agencies. The commenter stated that MWD's future water supply is limited by the uncertainty of the various federal agencies to protect species in the Delta.

Response

The water supply analysis in the EIR assumed that MWD would meet increased demand from LADWP either from additional water supplies obtained from the Colorado River aqueduct, by water transfers from the Central Valley Project (CVP), or potentially by reductions in the amount of water available to other MWD member agencies.

According to the written testimony of Dr. Tim Quinn, Director of MWD's State Water Project and Conservation Division, MWD believes that it can obtain additional supplies to replace water required to

protect or restore Mono Lake without significant adverse impacts on its member agencies. MWD affirms that it intends to take whatever actions are necessary to maintain Colorado River deliveries at 1.2 million af in the future, more than double MWD's firm rights to Colorado River water. In the short-term, reduced Mono Lake diversions would be supplied from an increase in water supply from the Colorado River aqueduct.

If additional supplies of imported Colorado River water are not available to replace Mono Lake supplies over the longer term, it is assumed that MWD would obtain additional supplies from water transfers from the CVP or reduce, if necessary, the amount of water supplied to other MWD member agencies because of LADWP's preferential rights to MWD supplies. If reductions to other MWD member agencies are necessary, it was assumed that these member agencies would need to develop additional local supplies, such as reclamation, conservation, and groundwater. The analysis did not assume that increased LADWP demand for MWD water associated with reduced diversions from Mono Basin would be made up by additional exports from the Delta. Refer to the response to Comment X8 on the evaluation of environmental impacts of developing alternative water supplies.

L4. Procedures for Taking Potential Reductions in Colorado River Water into Account in the Draft EIR Analysis Are Unclear

Summary of Comments

One commenter requested additional information on how potential reductions in Colorado River water to MWD were incorporated in the draft EIR analysis. The basis for stating in the draft EIR that LADWP prefers water supplies from sources other than MWD was questioned. Another commenter stated that the draft EIR does not provide any basis for its statement that LADWP prefers other supplies due to MWD's water supply uncertainty.

Response

MWD's UWMP was used in conjunction with LADWP's UWMP to estimate LADWP's potential demand for MWD water. Page 4-19 of LADWP's UWMP shows that, under drought conditions, LADWP would demand from 280,000 to 300,000 af/yr of water from MWD between 1995 and 2010. These drought condition assumptions were used as the basis for the water supply analysis in the draft EIR.

These assumptions were considered reasonable. According to LADWP's UWMP, LADWP's preferential right to MWD water will range between 24% and 26% of MWD's total water supplies during the 1995-2010 period. Page 4-23 of LADWP's UWMP shows that under drought conditions, MWD's total water supply would range from 3.32 million af in 1995 to 3.27 million af in 2010. The Colorado River aqueduct would supply 620,000 af of MWD's total water supply, as specified in MWD's UWMP. (Refer

to the response to Comment L3 for additional information about MWD current assumptions about the availability of Colorado River water.)

These numbers are consistent with Table III-6 (page 60) of MWD's UWMP. Given these estimates, it is reasonable to assume that LADWP would demand up to 300,000 af/yr of MWD's total water supply of 3.27 million af/yr, which amounts to less than 10% of MWD's total supply, and is much less than LADWP's preferential right to MWD water. In addition, this allocation is less than the 385,000 af of water that MWD provided to LADWP in 1990 during the middle of the most recent drought.

LADWP's UWMP clearly indicates that LADWP is very concerned about the reliability of MWD water supplies. Statements throughout LADWP's UWMP describe MWD's supply as uncertain and imply that LADWP is aggressively pursuing the development of additional water supplies despite its large preferential right to MWD water.

L5. Mitigation Measures Are Speculative

Summary of Comments

Several commenters indicated that some of the water sources identified in draft EIR as mitigation for potentially significant water supply impacts were speculative. Questions were raised about water transfers and programs funded by AB 444.

Response

The sources identified in the draft EIR as mitigation for potentially significant water supply impacts include those that state and federal water resource agencies are currently considering to augment supplies to urban water users. Considerable uncertainty about the amount of water that can be contributed by these sources exists. However, the EIR preparers believe that sufficient water likely is available from these sources to mitigate for potentially significant water supply impacts associated with the loss of water supplies from Mono Basin. The water supply impacts that were considered significant range from an estimated 42,000 af/yr under the 6,383-Ft Alternative to 66,900 af/yr under the No-Diversion Alternative. This conclusion was based on estimates of water potentially available from these sources. The California Department of Water Resources (DWR) estimates in its State Water Plan (SWP) that 600,000 af of water are assumed available from the drought water bank to meet water needs. According to MWD, more than 800,000 af of supplies were available from the Governor's Drought Emergency Water Bank under drought-stressed conditions in 1991. MWD also states that additional supplies to replace water from Mono Basin can be obtained as long as state and federal regulatory agencies allow reasonable flexibility in SWP and CVP operations and access to an effective voluntary water market (written testimony of Dr. Timothy Quinn). Supplies from the Colorado River also are expected to help offset potential increases in demand

for MWD supplies in the short term. (Refer to the response to Comment L3 for additional information about MWD's intent to obtain additional Colorado River water supplies.)

The draft EIR stated that a provision in Public Law 102-575 indicated that water to be reclaimed through programs supported by this legislation was designated for replacing Mono Basin supplies. This statement was incorrect. As pointed out by MWD, the legislation refers to reclaimed water being used to "reduce the demand for imported water" but does not specifically mention Mono Basin.

The Mono Lake Committee and LADWP have filed an application with DWR for funding of reclamation projects pursuant to AB 444. DWR further notes that the future of the AB 444 program is uncertain because of funding constraints. Although opportunities to obtain funding for projects that could help offset Mono Basin water supply reductions diminish as time passes, this program is currently considered one of several mitigation measures that could potentially reduce water supply impacts.

Based on these considerations, it is reasonable to assume that the measures identified in the draft EIR could reduce the water supply impacts to a less-than-significant level.

L6. Demand Projections, Conservation, and Use of Best Management Practices Need to Be Addressed More Fully

Summary of Comments

Demand projections in the water supply analysis rely on information from LADWP's UWMP that is outdated and does not include consideration of the Best Management Practices agreement, the new water rate structure, federal and state laws requiring water-conserving plumbing fixtures, and appliance efficiency standards promulgated by the 1993 federal energy bill.

Response

The water supply analysis was conducted in fall 1992 before the drought had ended, before LADWP had adopted new water rates, and before the passage of the 1993 Federal Energy Act. Moreover, although the California Water Conservation Council issued a memorandum on assumptions and methodology for determining estimates of reliable water savings from the installation of ultra-low-flush toilets in July 1992, this information was not widely disseminated at the time and the draft EIR preparers did not obtain it until a year later. Consideration of this information in the analysis would not materially change the results because the alternatives would be affected similarly.

Some of the demand reduction measures, however, were considered in the analysis. Auxiliary Report 27 discusses the potential additional savings associated with Best Management Practices and other

conservation activities, including the use of ultra-low-flush toilets. The analysis roughly estimated the effect of these measures on demand, as compared to the projections in LADWP's 1990 UWMP. The analysis also indicated that hotter weather in dry years would raise demand beyond these projections. The analysis carefully evaluated the LADWP forecasting methodology compared to the MWD-MAIN model used by MWD and concluded that the LADWP projections were more reliable based on the information available at the time.

The water supply analysis focused on estimating the incremental water supply costs of the different lake-level alternatives relative to point-of-reference conditions. Consequently, reducing demand by explicitly incorporating demand reduction measures into the demand projections would tend to lower the water supply costs for all alternatives. The differential effect would be small unless shortage costs were reduced.

L7. Significance Criteria Used to Assess Indirect Impacts on MWD Have No Justification

Summary of Comments

Some commenters stated that the historical average share of MWD supplies has no relevance for determining the significance of indirect water supply impacts on MWD.

Response

The historical average during the 20-year projection period was used to assess the significance of potential water supply impacts on MWD because it provided a context for assessing the extent to which implementation of the project alternatives could affect established patterns of regional water allocations. Alternative thresholds could have been selected; however, none were suggested by commenters on the draft EIR and a threshold based on historical share is a reasonable indicator of impact significance.

The draft EIR incorrectly stated that the significance criterion was based on LADWP's 19-year weighted average share of MWD supplies for 1971-1990, instead of a *20-year* weighted average. The criterion was based on the sum of MWD's total supplies during the 20-year projection period divided by the sum of LADWP's water supply received from MWD during the same period.

L8. The Drought/Acute Shortage Analysis Was Insufficient

Summary of Comments

One commenter stated that the water supply analysis should have considered the effects of different types of water years and that it does not address drought conditions. Another commenter stated that the drought analysis does not represent a worst-case analysis and that the minimum firm yield with an exceedance probability should be calculated. Another commenter suggested that a drought scenario be developed that illustrates a minimum firm yield with an exceedance probability associated with it.

Response

The effects of different types of water years on water supply were analyzed in a drought scenario, which consisted of 8 dry water years, 2 wet years, and 10 average water years as compared to 4 dry, 4 wet, and 12 average water years in the base case analysis. To consider the effects of a prolonged drought, the drought scenario assumed that the 8 dry years would occur in succession at the start of the 20-year projection period.

The results of the drought scenario analysis indicate substantial differences in water supply impacts compared to results of the base-case analysis. In the base-case analysis, water deliveries from the aqueduct were estimated to decrease by approximately 9.5% under the 6383.5-Ft Alternative compared to point-of-reference conditions (Table 3l-5 of the draft EIR). Analysis of the drought scenario shows that average water deliveries under the 6,383-Ft Alternative would decrease by 18% compared to point-of-reference conditions. A similar comparison can be made based on information presented in Table 3L-5.

The drought scenario contained in the draft EIR and described above was developed to represent a reasonable worst-case drought scenario for evaluation. No attempt was made to correlate this drought scenario with minimum firm yield or an exceedance probability. The minimum firm yield approach is believed unnecessary because, during drought periods, virtually all the water delivered through the LA Aqueduct comes from the Owens River basin rather than Mono Basin. Additionally, the assumption of 8 successive dry years exceeds the number of dry years (7) found in the hydrological record for Mono Basin.

The draft EIR incorrectly stated that the drought analysis was based on 8 dry water years, 4 wet years, and 8 average water years, instead of 8 dry years, *2* wet years, and *10* average years.

L9. Water Supply Modeling Did Not Adequately Address Lake Level Transition Periods

Summary of Comments

One commenter stated that the water supply analysis in the draft EIR does not take into account the transition period for Mono Lake to reach its equilibrium elevation and that MWD would be expected to supply most of LADWP's immediate water needs.

Response

The water supply modeling analysis specifically considers lake-level transition periods. The 50-year LAAMP model runs and the 20-year socioeconomic runs from which they were derived include a transition period to bring lake levels up to the target level. The length of the transition period varies, depending on the alternative being analyzed. For the 6,390-Ft, 6,410-Ft, and No-Diversion Alternatives, the target lake level is not reached in the first 20 years (the limit of the modeling run); consequently, the analysis of water supply impacts for these alternatives is based entirely on the transition period. For lower lake-level alternatives, the analysis includes evaluation of a transition period and an equilibrium period.

L10. Further Clarification and Justification of LA Basin Groundwater Pumping Assumptions Are Needed

Summary of Comments

One commenter stated that increased extractions of local groundwater from managed basins depends largely on regional water management and water quality constraints beyond LADWP's control. Another commenter stated that LADWP cannot depend solely on the groundwater supply to make up for shortages in LA Aqueduct supply. This commenter indicated that LADWP's groundwater supply was overestimated by 20,000 af/yr because the increase in groundwater pumping is due to a projected increase in recharge from the East Valley project, not in recharge from returned water.

Response

The groundwater assumptions in the water supply analysis recognize that LADWP has historically influenced and is expected to continue to influence decisions on groundwater pumping, including LADWP's right to groundwater in the San Fernando, Sylmar, and Central Basins.

The water supply model assumes that the maximum amount of groundwater that can be pumped each year is equivalent to the city's groundwater rights for that year plus any surplus water stored in the ground from previous years. This assumption is based on information in LADWP's UWMP, including information on groundwater contamination and clean-up activities that LADWP is undertaking to maintain and increase its groundwater capacity.

The comment on overestimating groundwater supplies refers to footnote "**" of Exhibit 4.0-2 in LADWP's UWMP. Although this footnote confirms that the increase in groundwater production is due to groundwater recharge from reclaimed water, it does not state the source of that reclaimed water. For the water supply modeling analysis in the draft EIR, East Valley reclamation water was assumed to increase from 15,000 af/yr in 1995 to 35,000 af/yr by 2010. The East Valley project is ultimately expected to yield up to 50,000 af/yr of reclaimed water, of which, in the latest estimates, 35,000 af/yr will be used for groundwater recharge and 15,000 af/yr for landscape irrigation and industrial customers.

L11. Several Misleading or Outdated Assumptions from LADWP's Urban Water Management Plan Were Used to Develop the Water Supply Simulation Model

Summary of Comments

One commenter stated that the water supply simulation model relied on misleading information and unsupportable assumptions from LADWP's UWMP. Specific statements included:

- the draft EIR did not adequately demonstrate that MWD could supply up to 300,000 af/yr to LADWP,
- an analysis performed by MWD shows that there is a 25% likelihood that LA Aqueduct supplies could be as low as 125,000 af,
- the draft EIR confuses LADWP's preferential rights to MWD water with the amount of water available,
- the draft EIR assumes that MWD water will replace LA Aqueduct water in dry years and implies that MWD would not be limited by the same drought conditions as those that exist in the Mono Basin watershed, and
- LADWP's preferential rights were confused with the amount of water available.

Response

MWD's UWMP was used in conjunction with LADWP's UWMP to estimate LADWP's potential demand for MWD water. Page 4-19 of LADWP's UWMP shows that, under drought conditions, LADWP would demand between 280,000 and 300,000 af/yr of water from MWD between 1995 and 2010. These drought condition assumptions were used as the basis for the water supply analysis. Page 4-23 of LADWP's UWMP also shows that, under drought conditions, MWD's total water supply would range from 3.32 million af in 1995 to 3.27 million af in 2010 and the Colorado River aqueduct would supply 620,000 af of MWD's total supply. These numbers are consistent with Table III-6 (page 60) of MWD's UWMP.

LADWP's assumed demand of up to 300,000 af/yr of MWD's total supply of 3.27 million af/yr of water amounts to less than 10% of MWD's total supply. This assumed demand is much less than LADWP's preferential right to MWD water, which ranges between 24% and 26% of MWD's total supplies during the 1995-2010 period, based on information from LADWP's UWMP. MWD provided 385,000 af of water to LADWP in 1990 during the middle of the most recent drought. Consequently, the assumption that MWD could supply up to 300,000 af/yr of water appears reasonable.

Although the MWD study referred to by one commenter estimates a 25% probability that LA Aqueduct supplies could be as low as 125,000 af, the point-of-reference conditions in the water supply analysis show deliveries of 283,000 af of water in the worst-case year over the 50-year hydrological period and deliveries as low as 205,000 af of water under the No-Diversion Alternative. Based on this information, the historical record used in the water supply analysis does not substantiate a 25% likelihood of deliveries as low as 125,000 af.

MWD's water supplies from the northern Sierra Nevada are correlated with LADWP water supplies through the Mono Basin watershed. However, as described in the response to Comment L3, the draft EIR analysis assumed that LADWP could obtain additional water from MWD even during most drought years because of LADWP's preferential rights. If water is unavailable from MWD or other sources, rationing could be necessary.

The water supply analysis in the draft EIR recognized the essential distinction between LADWP's preferential rights and the amount of water actually available. Preferential rights are rights to the amount of MWD water available. The draft EIR's estimate of the maximum amount of MWD water available to LADWP was based on a consideration of LADWP's preferential rights, LADWP's expected future demand for MWD water under drought scenario, and MWD's supply estimates under the drought scenario.

The scenario presenting LA Aqueduct water deliveries under the point-of-reference scenario is based on 50 years of historical record, not on a particular drought scenario.

L12. The Water Supply Simulation Model Is Incapable of Addressing Temporal Variations in Supply and Should Reflect Marginal Costs

Summary of Comments

Several commenters suggested modifications to the water supply cost model, including adding more flexibility to take advantage of available groundwater and less expensive MWD water, and using marginal instead of average costs to estimate water supply costs.

Response

The model used to estimate the water supply impacts is an annual model that does not account for variances in water supply within an individual year. Although the model can carry over surplus groundwater from one year to the next, it is not capable of allowing for storage of inexpensive surplus water from MWD within a year for use in subsequent periods.

The suggested modifications to the model would provide improved capabilities to evaluate the water supply impacts and costs. Some of these modifications were considered in developing the model but were not incorporated because of time, budget, and data constraints. The water supply cost model used in the draft EIR estimates the incremental costs of water supply impacts relative to the point-of-reference conditions and provides a reasonably accurate estimate of these costs. Modifying the model as suggested would tend to lower the incremental costs associated with all the alternatives would not substantially affect relative costs between alternatives.

POWER GENERATION (M)

M1. Key Assumptions of the Effects on Rated Capacity and Energy from the LA Aqueduct Units and the Availability of Replacement Capacity and Energy Are Missing

Summary of Comments

LADWP stated that the assumptions used to estimate replacement capacity and energy should have been specified in the draft EIR. LADWP also stated that the analysis does not appear to consider the capacity lost from the LA Aqueduct units and typical operation of the LA Aqueduct units. LADWP estimates that up to 27 megawatts (MW) of capacity would be lost during an average year and this amount of capacity would have to be replaced.

Response

The draft EIR preparers made a considerable effort to coordinate with LADWP in estimating changes in the rated capacity of the LA Aqueduct units and energy from them as a result of changes in water availability.

During summer 1991, the draft EIR preparers requested data from LADWP that would have been used to quantify the impacts on capacity due to reduced water availability. The attachment to a LADWP letter dated July 26, 1991, states that "In our conference call on July 11, 1991 . . . LADWP also stated that the rated capacity of the Aqueduct plants does not change significantly due to seasonal variations in water deliveries. . . ."

In July 1992, the draft EIR preparers sent a draft report entitled "Effects of Los Angeles Aqueduct Diversions on Fuel Use, Production Costs, and Emissions" to LADWP for review and comment. Appendix B of that report contained a detailed discussion of the relationships between water availability and capacity availability and Appendix C contained a listing of the ELFIN input data for the LA Aqueduct facilities for the point-of-reference conditions. Appendix C also described the monthly variation in peaking and run-of-the-river capacity and energy for point-of-reference conditions. For example, Appendix C showed that the assumed capacity available from the LA Aqueduct units under point-of-reference conditions varied in 1992 from 197 MW to 203 MW on a monthly basis whereas it varied from 197 MW to 208 MW in 2008.

In October 1993, the draft EIR preparers provided additional information to LADWP on the ELFIN simulations for the point-of-reference conditions and for the No-Diversion and No-Restriction Alternatives. This information showed, for example, that assumed capacity available under the No-Restriction Alternative varied from 197 MW to 205 MW on a monthly basis.

The draft EIR reflects changes in capacity due to changes in water availability. LADWP never expressed concern with the methods used to estimate the change in the capacity of the LA Aqueduct plants. With respect to LADWP's preliminary estimate of 27 MW of lost capacity, the draft EIR preparers have not reviewed the assumptions for this estimate and therefore cannot respond to its validity.

LADWP apparently misinterpreted statements in the draft EIR regarding the availability of replacement capacity from outside sources. The draft EIR states that the total amount of capacity (both inside and outside California) available to LADWP from existing and planned resources is projected to be greater than LADWP's capacity requirements under all water diversion alternatives. Consequently, additional capacity resources are not expected to be required under any of the water diversion scenarios.

Table 3M-1 in the draft EIR shows that LADWP's capacity resources in 1990 were 7,141 MW (including 200 MW from the LA Aqueduct) and peak demand in 1990 was 5,312 MW, resulting in reserves of 1,829 MW (about 34% of peak demand). LADWP's total capacity resources (including 199 MW from the LA Aqueduct) are projected to be 8,865 MW in 2009 (Table 3M-11) and LADWP's

peak demand is projected to be 7,421 MW in 2009 (Table 3M-10), resulting in reserves of 1,444 MW (about 19.5% of peak demand). A decrease in LA Aqueduct capacity of 27 MW (as estimated by LADWP) would decrease projected capacity resources by approximately 0.3% (to 8,838 MW) in 2009 and projected capacity reserves to 1,417 MW (about 19.1% of peak demand).

The annual average amount of generation available from the LA Aqueduct facilities under point-of-reference conditions is estimated at 1,038,000 megawatt hours (MWh) (Table 3M-14). The draft EIR identifies the change in the amount of energy assumed available on an average annual basis for each alternative. For example, the draft EIR indicates that approximately 34,000 MWh of additional energy would be generated under the No-Restriction Alternative.

M2. Potential Air Quality Effects Resulting from Changes in Energy Production from the LA Aqueduct Units Are Minimized in the Analysis

Summary of Comments

LADWP stated that the draft EIR only touches on air emissions and considers increases in emissions as less than significant, does not address societal costs associated with potential increases in air quality emissions, and does not adequately address future air quality regulations.

Response

The draft EIR estimated changes in air emissions based on the results of the ELFIN production model, which is a widely accepted model for estimating changes in emissions associated with changes in power production.

The cumulative NO_x emissions under the point of reference and No-Restriction, 6383.5-Ft, and No-Diversion Alternatives were estimated at 13,776 tons, 13,758 tons, 13,909 tons, and 14,010 tons, respectively. The cumulative "cost" of NO_x emissions (assuming an ER-90 per ton emission value of $14,700 in 1992 dollars) under these four scenarios is estimated to be $202.5 million, $202.2 million, $204.5 million, and $205.9 million, respectively. The largest increase in costs (with respect to point-of-reference conditions) is $3.4 million, which is approximately 1.7% higher than under point-of-reference conditions. Differences of this magnitude are considered minimally detectable, given the accuracy of the input data. If ER-92 or ER-94 values are used, the societal costs would be higher but the relative difference between the alternatives and the point-of-reference conditions would still be relatively small.

Future air quality regulations were identified in the draft EIR in reference to future events that could affect the analysis of cumulative impacts. Quantifying the effect of future regulations on energy production in the South Coast Air Basin to assess potential cumulative impacts of the project alternatives was considered beyond the scope of the draft EIR.

ECONOMICS (N)

N1. Water Shortage Costs Are Underestimated

Summary of Comments

LADWP states that the shortage costs estimated in the draft EIR are not actually shortage costs and that they underestimate the value people place on avoiding water shortages. Also, LADWP states that the draft EIR failed to measure the cost of reducing the reliability of its water supply.

Response

To measure shortage costs, the "outage" costs developed by Mayor Bradley's Blue Ribbon Committee on Water Rates were used instead of the higher estimates from the Carson and Mitchell study for two reasons. First, the Carson and Mitchell study is somewhat outdated and generic. It is based on the results of a contingent valuation survey conducted in April 1987 in which a random sample of 1,500 households in southern California and 500 households in northern California were asked to consider different cutbacks in their water supply as a result of a drought and then asked about their willingness to pay higher water costs to finance a water shortage prevention program that would safeguard against those cutbacks. At the time, the only experience that respondents had with droughts was 10 years earlier during the 1976-1977 drought. The draft EIR preparers preferred using data that incorporated people's actual experience with the recent drought and that pertained specifically to the LADWP service area rather than to urban California generally.

The second reason for using the results from the Blue Ribbon Committee relates to the use of price rationing as a response to drought, as occurred in Los Angeles in 1991 and is likely to occur in future shortages, in the opinion of the draft EIR preparers. It is presumed that price rationing induces more customers with a below-average outage cost to reduce their water use than those with an above-average outage cost. The result is what economists referred to as a selectivity bias: the users most affected by the outage costs associated with the actual reductions are not drawn evenly from the entire spectrum of water users but disproportionately more from those with lower outage costs. This effect, which was not considered in the Carson and Mitchell study, reduces the aggregate outage cost and increases the estimate. Selectivity bias was explicitly accounted for in the analysis in the draft EIR.

The Blue Ribbon Committee and its technical panel approved the use of the estimates of shortage costs associated with outages of varying degrees. The Blue Ribbon Committee accepted the recommendations that the upper block in a two-tier price structure be set equal to an estimate of the outage cost of the customer who reduced use and then commissioned an analysis by David M. Griffith and Associates. Because the analysis was based on limited data (i.e., Los Angeles experience with drought emergency surcharges during summer 1991), the estimates were to be revised when more complete information became available.

The economic value of a reliable water supply was considered in the draft EIR analysis by incorporating a resource-loading approach that added resources as needed to maintain the reliability of the system under point-of-reference conditions. Shortage costs were used to explicitly account for the costs associated with not maintaining system reliability.

N2. The Indirect Economic Costs Associated with MWD's Actions to Serve LADWP Are Not Appropriately Analyzed

Summary of Comments

The draft EIR provides no explanation for stating that indirect economic costs on the MWD are not considered sufficiently reliable and for leaving them out of Table 3N-14. LADWP rejects the approach of using reclamation to measure these costs.

Response

The draft EIR used the differential cost between MWD supplies and high-cost reclamation projects to approximate the indirect costs associated with LADWP obtaining additional MWD water to replace Mono Basin supplies. The underlying assumption for this approach was that higher demand by LADWP for MWD supplies would result in less MWD water available for other MWD member agencies and that these agencies would need to develop additional local supplies. Reclamation was the source considered most likely for water districts to develop, and an upper estimate of the cost per acre-foot of water was used for the calculation.

Although the estimate in the draft EIR is considered reasonable for approximating indirect costs, it is not considered very reliable because the specific member agencies that would be affected are not known and the accuracy of the cost estimate to represent affected agencies' costs for replacing MWD water supplies is uncertain. The cost to replace lost MWD water supplies could vary substantially between affected agencies and could be either higher or lower than the estimated cost, depending on specific supply and cost conditions. Because of this uncertainty, the estimate was considered only an approximation and was not included in Table N-14. As indicated in the footnote to Table 3N-14, including indirect costs

would potentially change the conclusion regarding the net economic benefits of the 6,377-Ft Alternative; however, conclusions regarding other alternatives would not be affected.

N3. The Draft EIR Does Not Present Any Evidence of Economic Robustness for Its Conclusions

Summary of Comments

LADWP states that the draft EIR does not present any evidence to support the statement regarding the economic robustness of its conclusions and that the conclusions change if suggested assumptions regarding the timing of reclamation projects and deliveries from the LA Aqueduct are incorporated. LADWP also states that the effect of data uncertainty on the results should be considered.

Response

The draft EIR refers to robustness as it pertains to the conclusion that net economic benefits are maximized under the 6,390-Ft Alternative. This conclusion is based on marginal benefits exceeding marginal costs by several times. The draft EIR preparers believe that this result is consistent with the concept of robustness.

The draft EIR preparers do not consider the purported effect of delaying reclamation projects and adjusting LA Aqueduct deliveries on the results to be valid. As explained in the preceding response to Comment L1, delaying reclamation projects would have only a slight impact on the costs of a particular alternative because the cost for the point-of-reference conditions also would increase. As explained in the response to Comment L2, the suggested adjustment to deliveries from the LA Aqueduct do not appear warranted and would only slightly affect the results of the analysis.

The draft EIR explicitly recognizes the uncertainty associated with projected future costs and benefits. The robustness of the conclusion regarding net economic benefits of the 6,390-Ft Alternative is addressed for this reason. The draft EIR preparers do not believe that a more detailed sensitivity analysis would change the conclusions regarding which alternatives have positive net economic benefits and which alternative is optimal from the perspective of net economic benefits.

N4. Conditions Described in the Household Survey Are Not Consistent with the EIR Alternatives

Summary of Comments

LADWP states that the scenarios described in the household survey are not consistent with resource conditions described for the alternatives in the draft EIR. LADWP also states that the environmental impacts described in the draft EIR are generally less severe than conditions described in the survey. Impacts on tufa at South Tufa are cited as an example of this inconsistency. LADWP suggests that estimates for the three programs described in the survey be ascribed to the alternative having impacts most similar to effects described in the survey, not necessarily to the alternative having lake levels closest to those of the programs stated in the survey.

Response

Information on resource conditions described in the household survey was necessarily preliminary. Predicted resource impacts described in the draft EIR, however, differed only slightly from the descriptions in the household survey. After review in response to LADWP's comment, the draft EIR preparers still believe that estimates of preservation values were ascribed to the most appropriate EIR alternative.

Relative effects on tufa described in the three program levels and the No-Action Level for the various lake levels in the survey instruments are consistent with the impacts of the corresponding alternatives described in the draft EIR. Effects on tufa towers described for the No-Action Level, Program A, and Program C correspond exactly to conclusions of the draft EIR for the corresponding lake-level alternatives. Only the description used for Program B (6,390 feet) was found to be somewhat inaccurate in its details, but it did correctly characterize the tufa effects as intermediate between those of the next highest and next lowest lake-level programs and alternatives. Thus, it is unlikely that "errors" in the exact percentage of small towers covered with water or toppled at South Tufa Grove in the household survey would have a material effect on respondees' program preferences.

N5. The Sampling Design Used in the Household Survey Resulted in Sample Selection Bias

Summary of Comments

LADWP states that the sampling method used in the household survey resulted in a fairly low response rate and potential sample selection bias. The sources of sample selection bias include under representation of Hispanic and black households and of persons who spend time away from home.

Persons that place little or no value on preserving Mono Lake are also under represented because they would be less likely to agree to participate in the survey.

Response

The draft EIR preparers recognize that the sampling methods used could result in sample selection bias and thus developed procedures to adjust the results to correct for certain sources of potential bias. Zero values were assigned to all non-English speaking households (10.8% of the sample) that were contacted but refused to participate in the survey.

Correction factors were not developed for other sources of nonresponse bias because the EIR preparers were less certain about the effect of this bias on the results. The draft EIR preparers considered it prudent not to correct for potential sources of bias in which the effect was uncertain.

The sampling plan, which was developed by the EIR preparers with assistance from the technical review team, including LADWP representatives, was limited by budget constraints. The sampling methods called for by the plan were considered acceptable for providing the level of precision needed for the analysis.

N6. The Draft EIR Does Not Provide Any Statistical Confidence Intervals for the Estimates of Preservation Values from the Household Survey

Summary of Comments

LADWP states that the draft EIR provides no statistical confidence intervals for the estimates of preservation values or for the difference in preservation values between programs. LADWP also states that the data are consistent with an extremely small preservation value associated with moving from Program A (lake level of 6,375 feet) to Program B (lake level of 6,390 feet).

Response

Because of budget and time constraints, confidence intervals were not calculated for the estimates of preservation values or for the difference in preservation values between programs.

The confidence interval presented by LADWP for the difference in preservation values between programs does not indicate that the data are consistent with a small preservation value associated with moving from Program A to Program B. This interpretation was made, but the wide confidence interval

could also have been interpreted to indicate a large preservation value. The only interpretation that can be made with certainty is that the preservation value estimate for Program B is statistically larger than the value for Program A.

N7. The Draft EIR Fails to Discount Household Willingness to Pay Estimates for Future Years

Summary of Comments

LADWP states that the estimates of preservation values for future years should be discounted because survey respondents do not pay attention to the number of years for which payment is being requested, and therefore the value reported in the draft EIR does not represent an annual willingness-to-pay amount for the entire period.

Response

The contingent valuation survey was framed in terms of willingness to pay an annual increase in state taxes over the next 20 years. The draft EIR pointed out some concerns associated with projecting annual payments over such an extended period; however, the estimates were not adjusted for several reasons.

First, there is no consensus in the literature about when and how an adjustment should be made. LADWP offers an opinion based on analysis of data collected in connection with the State of Alaska's damage assessment for the Exxon Valdez oil spill; preparers of the draft EIR collaborated on that research and do not share the opinion expressed by LADWP.

The second reason is that if an adjustment was made to the preservation values, adjusting other economic values, such as the water supply costs, should also be considered. For example, attitudes toward conservation could change over the 20-year planning horizon, thereby shifting the demand for municipal and industrial use. Adjusting all costs and benefits to reflect potential changes in future preference was not considered practical or necessary to identify the economically optimal alternative.

The third reason is more philosophical and relates to the somewhat subjective nature in addressing the uncertainties associated with future costs and benefits of preserving Mono Lake. The draft EIR preparers believe that the discounting of future costs and benefits is a public policy issue that should be decided by public trust agencies, not by consultants.

N8. Linearly Extrapolating between Different Water Levels Is Not Appropriate to Estimate Preservation Values

Summary of Comments

LADWP states that the conclusion in the draft EIR that preservation benefits and net economic benefits are maximized under the 6,390-Ft Alternative is completely determined by modeling assumptions that bear no relationship to the actual data collected. LADWP also states that the linear extrapolation is not the best fit to the data.

Response

Because budget constraints limited the information that could be obtained in the surveys, the draft EIR preparers, with agreement by the technical review team, including LADWP representatives, collected data on selected alternatives that covered the range of alternatives and then estimated values for intermediate alternatives by interpolation.

Analysis of the survey data indicated that public values were highest for Program B (a lake level of 6,390 feet), next highest for Program A (a lake level of 6,375 feet), and lowest for Program C (a lake level of 6,410 feet). Because the draft EIR preparers did not have estimates for other alternatives, a linear extrapolation was made between the 6,375-Ft Alterative and the 6,390-Ft Alternative to estimate preservation values associated with the 6383.5-Ft Alternative.

LADWP proposes an alternative extrapolation based on a nonlinear curve. The key difference between the two extrapolations is the location of the implied downturn in the valuation function. Because Program C is valued less than Programs A and B, the function must turn down at some lake level below Program C. The draft EIR preparers assumed that the function increases monotonically between Programs A and B and turns down at some lake level between Programs B and C. LADWP assumed that the function reaches its peak at some lake level between A and B and that values are decreasing at Program B.

The point at which the function turns down cannot be determined with certainty based on the available data. Both interpretations are possible. The draft EIR preparers believe that the assumed shape of the valuation function is appropriate.

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