

**SACRAMENTO MUNICIPAL UTILITY DISTRICT'S
UPPER AMERICAN RIVER PROJECT
(FERC NO. 2101)**

**SUPPLEMENTAL
PRELIMINARY DRAFT
ENVIRONMENTAL ASSESSMENT**

SECTION 5.3.9 – AESTHETICS

Sacramento Municipal Utility District
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5.3.9 Aesthetics

This section evaluates the environmental effects of the Agency Alternative’s measures pertaining to aesthetic resources:

- “Reservoir Levels” (Agency Alternative App. A, Section 26)
- “Visual Resource Protection” (Agency Alternative App. A, Section 30)
- “Compliance with Visual Quality Standards” (Agency Alternative App. C, Section 7)

This section evaluates the effects of the Agency Alternative upon aesthetic resources at the Project within the FERC Project Boundary. The Agency Alternative measures have the potential to affect both aesthetic and recreational resources, among other resources. However, these measures are addressed in this section because the Agency Alternative Rationale relies most heavily upon aesthetic aspects in its justifications for specified reservoir levels. This section compares the Agency Alternative to both baseline conditions and the Proposed Action. Because both the Proposed Action and the Agency Alternative will not result in any significant changes to existing project features, there will be no effect on the aesthetic resources of the landscape surrounding the existing project features. Similarly, because both the Proposed Action and the Agency Alternative will not result in substantial changes to reservoir elevations, the aesthetic value of the reservoirs will not be affected. However, many of the Agency Alternative reservoir level restrictions will have significant impacts to the developmental values of the UARP, which are discussed in the Developmental Resources and the Conclusions sections.

Relative to the proposed Iowa Hill Development, the Agency Alternative includes a measure requiring SMUD to develop an alternative to the upper reservoir berm that meets the visual quality standards of the Forest Plan. The measure, as worded, implies “consistency with standards” as the only solution, yet no explanation is given in the rationale concerning how or why the views of the upper reservoir berm do not meet the standards or from where the views occur. SMUD’s proposed Visual Resources Protection Plan – a collaboration between SMUD, the ENF, and others to minimize aesthetic effects of the Iowa Hill Development (including providing to the ENF for review specifications and simulated views of the upper reservoir berm)- will ensure adequate protection of visual resources.

5.3.9.1 Agency Alternative Measure – Reservoir Levels

Storage Reservoir Levels

The Agency Alternative requires the three storage reservoirs (Loon Lake, Union Valley, and Ice House) to maintain monthly average water surface elevations in the months of July, August, and September for five water year types (CD, Dry, BN, AN, and Wet). This measure may allow

deviations during a “Super Dry” water year following agency consultation (Agency Alternative, p. 87-88).¹

Although the Agency Alternative Rationale states several general aspects were considered in developing the required monthly elevation levels – including recreational use, boat access, aesthetic quality, and hydroelectric generation needs – the rationale does not explain why the specific monthly elevation levels were selected (Agency Alternative Rationale, p. 146-152). In fact, the Agency Alternative required monthly reservoir levels appear arbitrary given many of the levels were reduced from the levels the Agency Alternative originally deemed necessary (Agency Alternative, p.15-16).

As part of historical baseline conditions (and in compliance with the terms of its current license), SMUD maintains water surface elevations as high as possible during the summer recreation season. Reservoir elevations during the spring and summer typically follow a bell-shaped curve: rising in the spring and early summer and descending in mid- and late summer. Figures 5.3.1-11 through 5.3.1-25 of the PDEA depict CHEOPS-simulated reservoir elevations under the Proposed Action for the three reservoirs under five water year types (License Application, PDEA, p. 5-80 through 5-87). In general, these reservoir elevations are similar to baseline conditions. Figures 5.3.1-2 through 5.3.1-15 of the SPDEA depict the corresponding storage reservoir elevations that will occur if the Agency Alternative is implemented. These two sets of figures can be compared to assess the differences between the Proposed Action and the Agency Alternative.

Under the Proposed Action, SMUD will maintain water surface elevations at Ice House, Loon Lake, and Union Valley reservoirs as high as possible, consistent with power generation needs, from June 1 through Labor Day weekend and assure reservoir levels are at an elevation that provides at least one usable boat launch per reservoir during the same time period, except under extraordinary circumstances (License Application, Appendix H, p. H13). Ensuring one usable boat launch will enhance aesthetics of the three reservoirs during the recreation season by ***increasing the frequency or duration*** of reservoir elevations within ranges acceptable to visitors while preserving the flexibility needed to meet summer generation loads, particularly those associated with heat storms.

As discussed in the Aesthetics chapter (License Application, PDEA, p. 5-369–370), as part of the relicensing studies, SMUD conducted surveys to evaluate visitors’ aesthetic expectations for, and satisfaction with, water surface elevations at the three storage reservoirs (Loon Lake, Union Valley, and Ice House). For Loon Lake Reservoir, most respondents (92 percent) were neutral, satisfied, or very satisfied with reservoir elevations at or above 6,399 feet (11 feet below full pool). At 6,390 feet (20 feet below full pool), approximately half of the respondents indicated they were dissatisfied or very dissatisfied with the appearance of the reservoir level. For Union Valley Reservoir, over three-fourths (78 percent) were neutral, satisfied, or very satisfied with

¹ The Agency Alternative defines a “Super Dry year” as any CD year that is immediately preceded by a dry or CD year, or any dry year that is immediately preceded by any combination of two dry or CD years (Agency Alternative, p. 88).

reservoir elevations at or above 4,852 feet (17 feet below full pool). At 4,816 feet (54 feet below full pool), 70 percent of the respondents indicated they were dissatisfied or very dissatisfied with the appearance of the reservoir level. For Ice House Reservoir, most respondents (88 percent) were not dissatisfied with reservoir elevations at and above 5,438 feet (12 feet below full pool). At 5,425 feet (25 feet below full pool), 55 percent of the respondents indicated they were dissatisfied or very dissatisfied with the appearance of the reservoir level.

The results of these surveys indicate a substantial change in reservoir levels (e.g., greater than 20-foot change) is required to significantly impact visitors' aesthetic experience. However, the surveys also demonstrate that even though the reservoirs are less aesthetically appealing at the lower levels, the majority of visitors will not make changes in their recreation plans – 81 percent at Loon Lake, 56 percent at Union Valley, and 75 percent at Ice House Reservoir. (See the Visual Assessment of Upper American River Project Operations Technical Report (DTA and Goodavish, 2004b) for the full survey results.)

In review of all CHEOPS simulations, neither the Proposed Action nor the Agency Alternative will result in substantial changes to storage reservoir levels from baseline conditions. Because the aesthetic value of the reservoirs are not significantly affected until a 20-foot difference in water level occurs, the aesthetic value of the reservoirs will be similar under the Proposed Action and the Agency Alternative. Relicensing survey results indicate most visitors will find the storage reservoir levels to be aesthetically acceptable in Wet, AN, BN, and the first half of the summer in Dry years; during the later half of the summer in Dry years and throughout the summer in CD years, most visitors will find the reservoirs to be aesthetically unacceptable. However, survey results also indicate the reservoir levels of Dry and CD years will not cause most visitors to change their recreation plans (License Application, PDEA, p. 5-371–5-372).

In most water years during most of the summer, there will be very little difference between the Proposed Action and the Agency Alternative storage reservoir levels, resulting in no discernible difference aesthetically. There are a few instances where: 1) the Proposed Action results in a slightly higher reservoir level than the Agency Alternative, and 2) the Agency Alternative results in a slightly higher reservoir level than the Proposed Action. However, in all such instances, the aesthetic impacts of these differences in elevation will be either unnoticeable or not substantially different.

Loon Lake Reservoir

Survey results indicate nearly all visitors to Loon Lake Reservoir will find both the Proposed Action and Agency Alternative elevations aesthetically acceptable (DTA and Goodavish, 2004b, p. 8-13).

During the months of July, August, and September, on average, the Agency Alternative will result in reservoir elevations about five to seven feet lower than under the Proposed Action for nearly all water year types except Super Dry water years. However, this difference will be indiscernible to most visitors given the naturally rocky terrain of Loon Lake Reservoir. As

shown in Figure 5.3.1-5, during one in nine Wet water years, insufficient water will exist under the Agency Alternative to achieve both summer reservoir level requirements and other downstream water requirements, e.g., whitewater boating flows in the SFAR. (See discussion “Water Stored in UARP Reservoirs” in the Water Resources section.) However, as noted above, the aesthetic effect will be negligible.

In a Super Dry water year, e.g., 1977, 1988, and 1992, the Agency Alternative allows deviation from the monthly average reservoir levels upon consultation and approval. Under the Proposed Action, SMUD ensures at least one boat launch is usable through Labor Day weekend. Thus, the ultimate summer reservoir level under both the Proposed Action and the Agency Alternative during a Super Dry water year will likely be similar.

In conclusion, neither the Proposed Action nor the Agency Alternative will result in substantial changes to Loon Lake Reservoir elevations; therefore, the aesthetic value of the reservoir will be unaffected.

Union Valley Reservoir

Survey results indicate visitors to Union Valley Reservoir will find both the Proposed Action and the Agency Alternative elevations to be aesthetically acceptable in Wet, AN, and BN water years, as well as during the first half of the summer in Dry water years. During the later half of the summer in Dry years and throughout the summer in CD years, most visitors will find the reservoir levels of both the Proposed Action and the Agency Alternative to be aesthetically unpleasing. However, survey results also indicate the reservoir levels in Dry and CD years will not cause most visitors to change their recreation plans (DTA and Goodavish, 2004b, p. 13-18).

CD and Dry Water Years

Aesthetically, there will be no difference between the Proposed Action and the Agency Alternative during CD and Dry water years because reservoir levels under the Proposed Action will be near or above the Agency Alternative monthly average levels except in Super Dry water years.

In a Super Dry water year, e.g., 1977, 1988, and 1992, the Agency Alternative allows deviation from the monthly average reservoir levels upon consultation and approval. Under the Proposed Action, SMUD will ensure at least one boat launch is usable through Labor Day weekend. Thus, the ultimate summer reservoir level in a Super Dry water year will likely be similar under both the Proposed Action and the Agency Alternative.

BN Water Years

In most months of BN water years, there will be no difference aesthetically between the Proposed Action and the Agency Alternative since reservoir elevations under the Proposed Action will be near or above the Agency Alternative monthly average levels. In about half of the July months, the Agency Alternative will require SMUD to maintain a reservoir elevation about

ten feet higher than under the Proposed Action. This will result in a noticeable change, particularly in shallow coves, but is not considered to be a substantial aesthetic difference from baseline conditions or the Proposed Action based on survey results.

AN Water Years

In three out of four AN water years, there will be no difference aesthetically between the Proposed Action and the Agency Alternative for July through mid-August since reservoir elevations under the Proposed Action will be at or above the Agency Alternative monthly average levels. In one out of four AN water years, both the Proposed Action and the Agency Alternative will result in reservoir elevations about ten feet lower than the elevation restrictions contained in the Agency Alternative. This demonstrates the water level restrictions of the Agency Alternative are not achievable in all years of a given water year type. Reasons why the Agency Alternative restrictions are not always achievable are provided in Section 5.3.1 (Water Resources). From mid-August through September in most AN water years, the Agency Alternative will require SMUD to maintain a higher reservoir level than under the Proposed Action, culminating in a difference of about 15 feet by the end of September. This will result in a noticeable change, particularly in shallow coves, but is not considered to be a substantial aesthetic difference from baseline conditions or the Proposed Action based on survey results. The effect on recreation of this difference will be reduced after Labor Day weekend, when use levels drop substantially.

Wet Water Years

In about half of the Wet water years, there will be no discernable difference in reservoir aesthetics between the Proposed Action and the Agency Alternative since reservoir elevations under the Proposed Action will be near or above the Agency Alternative monthly average levels. During these years, the Agency Alternative will result in reservoir levels five to ten feet higher during the second half of September. This will not result in a noticeable change and is not considered to be a substantial aesthetic difference from baseline conditions or the Proposed Action based on survey results.

During the remaining half of the Wet water years, insufficient water will exist under the Agency Alternative to achieve both summer reservoir level requirements and other downstream water requirements, e.g., whitewater boating flows in the SFAR. (See discussion “Water Stored in UARP Reservoirs” in the Water Resources section.) During these years, the reservoir elevation under the Agency Alternative will be about 10 to 15 feet lower than under the Proposed Action. This will result in a noticeable change, particularly in shallow coves, but is not considered to be a substantial aesthetic difference from baseline conditions or the Proposed Action based on survey results.

In conclusion, neither the Proposed Action nor the Agency Alternative will result in substantial changes to Union Valley Reservoir elevations, therefore, the aesthetic value of the reservoir will be unaffected.

Ice House Reservoir

Survey results indicate visitors to Ice House Reservoir will find both the Proposed Action and the Agency Alternative elevations to be aesthetically acceptable in Wet, AN, and BN water years, as well as in some Dry and CD water years; during some Dry and CD years, most visitors will find the reservoir to be aesthetically unpleasing.² However, survey results also indicate the reservoir levels of Dry and CD years will not cause most visitors to change their recreation plans (DTA and Goodavish, 2004b, p. 18-23).

CD and Dry Water Years

In two out of three CD water years and in all Dry water years, excluding Super Dry years, there will be no difference aesthetically between the Proposed Action and the Agency Alternative since reservoir elevations under the Proposed Action will be near or above the Agency Alternative monthly average levels. In one out of three CD water years, the Agency Alternative will result in a reservoir elevation five to ten feet higher than under the Proposed Action. This will result in a noticeable change, but is not considered to be a substantial aesthetic difference from baseline conditions or the Proposed Action based on survey results.

In a Super Dry water year, e.g., 1977, 1988, and 1992, the Agency Alternative allows deviation from the monthly average reservoir levels upon consultation and approval. Under the Proposed Action, SMUD ensures at least one boat launch is usable through Labor Day weekend. Thus, the ultimate summer reservoir level under both the Proposed Action and the Agency Alternative during a Super Dry water year will likely be similar.

BN Water Years

In half of the BN water years, there will be no difference aesthetically between the Proposed Action and the Agency Alternative since reservoir elevations under the Proposed Action will be near or above the Agency Alternative monthly average levels. During the remaining half of the BN water years, both the Proposed Action and the Agency Alternative will result in reservoir elevations about five to ten feet lower than the elevation restrictions specified in the Agency Alternative. Although the Agency Alternative will result in reservoir levels about three feet higher during the second half of September, this difference is unlikely to result in a noticeable enhancement to reservoir aesthetics and is not considered to be a substantial aesthetic difference from baseline conditions or the Proposed Action based on survey results.

² Due to inadvertent error, Figures 5.3.1-21 through 5.3.1-23 of the PDEA incorrectly depict three weekend recreation releases from Ice House Dam after Labor Day during CD, Dry and BN water years; SMUD does not propose releases during the dryer water years. However, the end-of-month reservoir elevations for September under the Proposed Action during the dryer water years approximate the elevations depicted in these figures.

AN and Wet Water Years

In all but one AN water year and in one Wet water year, there will be no discernable difference in reservoir aesthetics between the Proposed Action and the Agency Alternative since reservoir elevations under the Proposed Action will be near or above the Agency Alternative monthly average levels. During these years, reservoir levels under the Agency Alternative will be about three to five feet higher during the second half of September, but this difference is unlikely to result in a noticeable enhancement to reservoir aesthetics and is not considered to be a substantial aesthetic difference from baseline conditions or the Proposed Action based on survey results.

During one AN and one Wet water year, insufficient water will exist under the Agency Alternative to achieve summer reservoir level requirements, spring pulse and whitewater boating releases at Ice House Dam, and/or other downstream water requirements, e.g., whitewater boating flows in the SFAR. (See discussion “Water Stored in UARP Reservoirs” in the Water Resources section.) During these years, the reservoir elevation under the Agency Alternative will be about five to ten feet lower than under the Proposed Action. This will result in a noticeable change, but is not considered to be a substantial aesthetic difference from baseline conditions or the Proposed Action based on survey results.

Neither the Proposed Action nor the Agency Alternative will result in substantial changes to Ice House Reservoir elevations; therefore, the aesthetic value of the reservoir will be unaffected.

Gerle Creek Reservoir

The 60-surface-acre Gerle Creek Reservoir serves as an afterbay to the 82 MW Loon Lake Powerhouse. Historically, the reservoir operates within a narrow cycle range during the primary recreation season (May 1 through September 10), generally between 5,230 and 5,225, a five-foot range of fluctuation (DTA and LBG, 2004c, p. C4). The maximum normal water surface elevation is 5,231 feet. One campground and two day-use facilities exist at the reservoir. Fishing and non-motorized boating are popular activities on the reservoir.

The Agency Alternative includes a two-part measure relative to water surface elevations for recreation at Gerle Creek Reservoir (Agency Alternative, p. 88), which is unsupported by survey results or information contained in the Agency Alternative Rationale.

The first part of this measure states:

The licensee shall make every reasonable effort to maintain the water surface in Gerle Reservoir at as high an elevation as practicable, and with a minimum of fluctuation, from May 1 to September 10 of each year in order to provide maximum recreational benefits.

This wording is similar to the wording of Article 33 of the existing license; however, the current recognition of power generation needs is excised.³

The measure also states, in pertinent part: “If the licensee anticipates the reservoir will be drawn down in excess of two feet below full pool, the licensee shall consult with.... The minimum reservoir levels specified may also be temporarily modified for short periods in non-emergency situations five days after Notice to FERC, and upon approval of the FS, CDFG, and SWRCB (Agency Alternative, p-88-89).” This language creates a *de facto* minimum elevation requirement of 5,229 feet, two feet below the maximum surface elevation of 5,231, with allowance for deviation due to equipment malfunction or unforeseen operating emergencies. Moreover, the timeframe is unspecified. From a compliance perspective, it could be misinterpreted to be applicable year round. The Agency Alternative Rationale provides no explanation regarding the derivation of this elevation or why it is needed (Agency Alternative Rationale, p. 152).

The general recreation surveys conducted in 2002 at Gerle Creek Reservoir indicate a high level of visitor satisfaction with current reservoir levels (DTA and LBG, 2005f, p. 70-71). No specific aesthetic surveys of visitors were conducted at Gerle Creek Reservoir regarding reservoir elevations during the pre-filing phase because no aesthetic issues were raised during the relicensing process for Gerle Creek Reservoir levels.⁴

Water flowing into Gerle Creek Reservoir comes from the Loon Lake Powerhouse tailrace and inflow of Gerle Creek. The volume of inflow from Gerle Creek is dependent on releases from Loon Lake Reservoir and accretion from numerous tributaries along the 8.5-mile Project reach. The Loon Lake Powerhouse is used for power regulating and peaking capabilities. Operation of the powerhouse is coordinated with the operation of the Robbs Peak Powerhouse. Water is managed in this hydrologically-linked pair of powerhouses to maintain high water surface elevation in Gerle Creek Reservoir and convey water through the 1.9-mile Gerle Canal. To a large degree, the management of water in this two-powerhouse system is dependent on and constrained by the hydraulics of Gerle Canal. Requiring SMUD to maintain Gerle Creek Reservoir within a 2-foot range will add another constraint on the use of the two powerhouses. To maintain the reservoir between 5,229 and 5,231 feet will primarily constrain the operation of Loon Lake Powerhouse. To maintain a tight band of water level in the reservoir, SMUD will have to carefully ramp the volume of water passing through Loon Lake Powerhouse up and down to more closely mimic the hydraulic movement of water through the canal. This careful

³ Article 33 of the present license states: “The licensee shall make every reasonable effort to maintain the water surface in the project reservoirs at as high an elevation as practicable, and with a minimum of fluctuation, from May 1 to September 10 of each year, as is consistent with the generation of power, in order to secure the maximum recreational benefits. Priority shall be given to retention of storage in Rubicon Diversion and Buck Island Reservoirs.” (18 F.P.C. 228, 235 (1957)).

⁴ The Plenary Group-approved Aesthetics Study Plan only includes the three storage reservoirs. These three reservoirs were identified by the Recreation TWG as project reservoirs where draw down may potentially affect the aesthetic and recreation experience of visitors (Aesthetics Study Plan, contained in the *Visual Assessment of UARP Operations Technical Report*, DTA and Goodavish, 2004b, p. 4).

ramping and smoothing of the water through Loon Lake Powerhouse will reduce the regulating and peaking capacity of the powerhouse and may affect Project Dependable Capacity. In addition, during May and to a lesser extent June, with high inflow from the Gerle Creek watershed, spill events at Gerle Creek Reservoir are likely to increase if this water level range is implemented.

Under current operation, the range of water levels varies depending upon the time of year. In May and June, when substantial volumes of water enter from Gerle Creek, the range is generally within 5,223 and 5,229 feet. In July through September 10, the range is generally within 5,226 and 5,229 feet⁵. This three-foot July through September 10 range equates to a surface area change of approximately 2.5 acres, between 43 and 45.5 acres (License Application, Exhibit B, Figure B3.4.2-3). This typical range of fluctuation has not been shown to impact recreation at the reservoir. As previously noted, the 2002 recreation survey conducted at Gerle Creek Reservoir did not reveal visitor dissatisfaction with the current reservoir levels (DTA and LBG, 2005f, p. 70-71).

Given there is no evidence to suggest an ongoing recreation impact and the restrictive nature of this measure on UARP operations, this Agency Alternative measure is unnecessary. SMUD's continuing operational procedure of maintaining reservoir elevations as high as practical given water management and power generation needs will adequately protect recreational opportunities in Gerle Creek Reservoir through the next license term.

Slab Creek Reservoir

The 280-surface-acre Slab Creek Reservoir, located in the SFAR canyon, serves as an afterbay to the 150 MW Camino Powerhouse and a forebay to the 224 MW White Rock Powerhouse. Under the baseline condition, during summer months the reservoir levels fluctuate generally two to five feet per day. During winter and spring months, reservoir fluctuations are larger, with maximum daily fluctuations up to 20 feet and weekly fluctuations up to 30 feet. A representative example of reservoir fluctuations at Slab Creek Reservoir is provided in Section 5.3.1, Water Resources, of this SPDEA. The maximum normal water surface elevation is 1,850 feet; the elevation often drops well below 1,830 feet, especially during the November 1 to May 31 timeframe (DTA and LBG, 2004c, p. C9). Due to steep topography, there are no developed recreation facilities at the reservoir, and recreational use is low.⁶ Access to the reservoir is possible from two routes, a designated boat access located near the dam and an undeveloped site at the upstream end of the reservoir.

⁵ Gerle Creek Reservoir historical elevation records show 5% and 95% exceedance values in July of 5,225.5 and 5,229.7, respectively. In August historical 5% and 95% exceedance values are 5225.7 and 5229.4, respectively (see Appendix C of Recreation Supply Technical Report).

⁶ Results of the 2002 surveys and use counts conducted near the dam and at the upstream end of Slab Creek Reservoir show use to be approximately 1,200 to 5,100 visitors during the peak use period of spring, summer, and fall. For comparison, the annual use estimated for all areas at and near the UARP is between 335,000 to 380,000 visitors (DTA and LBG, 2005f, p. 100-106).

The Agency Alternative measure requires SMUD to: (1) maintain the reservoir level above 1,830 feet during daylight hours, and (2) restrict daily fluctuations to less than six feet per day during daylight hours (Agency Alternative, p. 88). The Agency Alternative Rationale provides no explanation for the selection of the 1,830-foot elevation and the 6-foot range (Agency Alternative Rationale, p. 153).

The Agency Alternative Rationale implies that a “developed” access point exists at the upstream end of Slab Creek Reservoir; this is incorrect (Agency Alternative Rationale, p. 153). Although SMUD initially developed this site as a boat launch, it washed out shortly after construction. This prompted SMUD, with FS agreement, to develop an alternative boat launch site near the dam.⁷ Thus, this upstream end site is neither a designated nor a developed boat access site. Further, it is unsuitable for development because the site becomes riverine at elevations below the maximum pool elevation of 1,850 feet due to its location at the upstream end of the reservoir and the steep canyon walls severely limit the space available (see Recreation, Section 5.3.8, for an analysis of the Agency Alternative measure “Recommended Measure – Review of Recreation Developments (Section 18)”).

Although no specific aesthetic surveys of visitors were conducted at Slab Creek Reservoir regarding reservoir elevations during the pre-filing phase,⁸ SMUD did assess the potential visual effects of the Proposed Iowa Hill Development operations on Slab Creek Reservoir elevations (DTA and Goodavish, 2005b, p. 41-43). As part of this study, three reservoir elevations were assessed from a visual perspective, the lowest of which was 1,828 feet. At the designated boat access site near the dam, the report provides the following evaluation for the 1,828-foot reservoir elevation:

The appearance of the exposed reservoir is just beginning to detract from the reservoir aesthetics. The reservoir remains scenic, but the drawdown is becoming noticeable and detracting slightly from the reservoir aesthetics as seen from this viewpoint (DTA and Goodavish, 2005b, p. 43).

Concerning the upstream end site, at the 1,828-foot elevation, the report states:

There is a slight mark or “bath tub ring” appearance that is not seen at full pool. The mark is softened by the highly textured character of the canyon slopes and is not readily noticeable, and the view is near-natural appearing (DTA and Goodavish 2005b, p. 43).

Excluding the implications to the proposed Iowa Hill Development, these assessments, combined with low use and the unsuitable access at the upstream site, indicate little recreation or aesthetic

⁷ FERC Order revising Article 55, issued January 16, 1979, see 6 FERC ¶ 62,017.

⁸ The Plenary Group-approved Aesthetics Study Plan identifies the three storage reservoirs for inclusion in the study as those project reservoirs may be potentially susceptible to drawdown related affects on the aesthetic and recreation experience of visitors (Aesthetics Study Plan, contained in the *Visual Assessment of UARP Operations Technical Report*, DTA and Goodavish, 2004b, p. 4).

benefit will accrue from the Agency Alternative minimum elevation of 1,830 feet when compared to baseline conditions and the Proposed Action.

Relative to the proposed Iowa Hill Development, the two measures are grossly incompatible with necessary operational parameters. The use of the Iowa Hill Development will vary day-to-day depending upon a variety of factors. There will be times when the development is not in use, times when the pumping/generation cycle is heavily used, and a variety of in-between cases representing moderate levels of daily use. Under the “heavy use” scenario of operation, water elevations in Slab Creek Reservoir will exhibit an average daily increase then decrease of nine to 15 feet (maximum of 30 feet) (License Application, Exhibit B, p. B-19 to B-25). Table B.3.2.1-5 of the SMUD LA clearly shows a typical elevation change during daylight hours of about 12 feet, twice the Agency Alternative recommended minimum elevation change. As stated above, atypical elevation changes could be greater, up to 30 feet per day.

In conclusion, the two Agency Alternative measures for Slab Creek will result in little recreation and aesthetic benefit at a substantial cost to developmental values, effectively precluding operation of the Iowa Hill Development during peak demand periods.

Junction and Brush Creek Reservoirs

Both Junction and Brush Creek reservoirs are located in steep, remote areas of the ENF. There are no developed recreation facilities at these reservoirs, however, small, informal boat launch sites exist at each reservoir providing angler access. Both reservoirs are unseen from foreground or middle distance zones of sensitive viewing locations.⁹

The Agency Alternative includes the following measure relative to reservoir levels at Junction and Brush Creek reservoirs:

Maintain the seasonal reservoir levels at Junction and Brush Creek Reservoirs within the range of levels measured during the period of record between 1975 through 2000 (Agency Alternative, p. 88).

The Agency Alternative Rationale provides no explanation as to why this measure is needed (Agency Alternative Rationale, p. 153).

In a general sense, this measure will have no effect on aesthetics or recreation because reservoir levels will be no different than under existing conditions. However, the reference to “seasonal reservoir levels” is unclear from a compliance perspective. Visitation is very low at these two reservoirs; most use occurs during the primary recreation season of May 1 through September 10 (DTA and LBG, 2004c, p. 101-103).

⁹ See the Aesthetics Study Plan, contained in the *Visual Assessment of UARP Operations Technical Report*, DTA and Goodavish 2004b, p. 2.

In conclusion, the Agency Alternative measure for Junction and Brush Creek Reservoirs will result in little recreation and aesthetic benefit and will place unjustified restrictions on UARP operations.

Rubicon and Buck Island Reservoirs

Both Rubicon and Buck Island reservoirs are located in the remote high country areas of the ENF, adjacent to the Desolation Wilderness. The Agency Alternative includes the following measure relative to reservoir levels at Rubicon and Buck Island reservoirs:

The licensee shall make every reasonable effort to maintain the water surface in Rubicon and Buck Island Reservoirs at as high an elevation as practicable, and with a minimum of fluctuation, from May 1 to September 10 of each year in order to provide maximum recreational benefits (Agency Alternative, p. 88).

Once again, the wording is similar to Article 33 of the existing license, but the recognition of power generation needs is excised.¹⁰ The Agency Alternative Rationale provides no explanation as to why this measure is needed (Agency Alternative Rationale, p. 153).

SMUD's Proposed Action includes a similar measure, but takes into consideration power generation needs:

Licensee shall, from June 1 through September 30, maintain water surface elevations at Rubicon and Buck Island reservoirs as high as possible consistent with power generation needs (License Application, Exhibit H, p. H13).

There is little practical difference between use of May 1 or June 1 as the starting point for this measure because the water year and spring temperatures primarily dictate the duration of the runoff; as a result, the dates SMUD personnel lower the gates at the reservoirs vary in the spring from year-to-year. Thus, the water surface will be maintained as high as practicable throughout the month of May, regardless of which date is used. The Proposed Action will also extend the high reservoir period to September 30, about three weeks longer than the Agency Alternative measure.

In terms of aesthetics and recreation values, there will be no noticeable difference among the Agency Alternative measure, the Proposed Action, and baseline conditions. However, the Agency Alternative's exclusion of the "as is consistent with the generation of power" language effectively changes the primary purpose of the reservoirs from forebays for clean, hydroelectric generation to recreation lakes where the water levels are managed solely to maximize recreational benefits. This change is out of balance and is inconsistent with the Agency Alternative's stated objectives for recommending measures for reservoir levels, which includes consideration of "Hydropower Operations." (Agency Alternative Rationale, p. 146-147). Both

¹⁰ See n. 2, *supra*.

the Agency Alternative measure and the Proposed Action will adequately protect recreation and aesthetic values. The Proposed Action for Rubicon and Buck Island reservoir levels, however, will achieve a better balance among multiple uses of the UARP by adequately protecting recreation and aesthetic values while continuing to allow the reservoirs to serve their primary roles as forebays.

5.3.9.2 Agency Alternative Measure – Visual Resource Protection

The Agency Alternative includes three specific measures relative to visual resources: (1) a review of visual resources every five years, (2) a visual resources protection plan for future projects, and (3) ten specific measures to improve visual quality of existing facilities. Similar measures are not included in the Proposed Action. However, under baseline conditions, SMUD consults with the FS concerning paint color selection and other related aspects during the planning phase of any significant, non-routine facility maintenance that has the potential to affect visual resources (e.g., painting of Camino Penstock).

Five-year Visual Resources Review

The Agency Alternative includes the following measure relative to a visual resources review every five years:

The FS and licensee shall meet every 5 years to review opportunities to improve how well the Project facilities blend in with the surrounding landscape. The type of rehabilitation/reconstruction work needed will be dependent on current policies, technologies, condition of facilities, impact to surrounding areas and other factors (Agency Alternative, p. 98-99).

The Agency Alternative Rationale provides no explanation as to why this measure is needed (Agency Alternative Rationale, p. 176-177).

This measure is unnecessary for two reasons. First, SMUD, the FS, others parties, and FERC will have assessed existing UARP features during the current relicensing (see “measures to improve visual quality of existing facilities” below). Second, under the Proposed Action, SMUD will meet with the FS on an annual basis each spring to review any non-routine maintenance work scheduled to occur that year and identify FS measures necessary to minimize or avoid adverse environmental effects (License Application, Appendix H, p. H11). This review can include measures to minimize or avoid adverse effects to visual resources. Further, for any new construction, the need to provide visual resource protection will be addressed by a specific visual resources protection plan, described below.

Visual Resources Protection Plan

The Agency Alternative requires SMUD to develop a plan to protect visual resources affected by “new construction or maintenance of facilities that have the potential to affect visual resources...” (Agency Alternative, p. 99). The plan requires both FS and FERC approval prior to beginning

construction. The Agency Alternative Rationale provides no explanation as to why this measure is needed (Agency Alternative Rationale, p. 176–177).

This measure will ensure visual resources are adequately considered in the planning phase for any new construction, and implementation will protect aesthetic resources. However, as presently worded, the scope relative to maintenance of facilities is unclear and could be construed to apply to any maintenance, including routine work or minor non-routine work. Clarification of this measure is necessary to ensure all significant, non-routine maintenance will be appropriately reviewed prior to implementation concerning visual effects and all other non-routine maintenance will be addressed during the annual review each spring.

Visual Quality Measures for Existing Facilities

The Agency Alternative includes 10 specific measures to improve the visual quality of existing Project facilities (Agency Alternative, p. 99–100). Most of the measures involve painting of visible, exterior surfaces. The Agency Alternative Rationale provides a basis for all but one of these 10 measures,¹¹ concluding although these measures will not bring the facilities into compliance with the Forest Plan, they will improve the visual quality by reducing the contrast between the facilities and the surrounding landscape. Simply put, the measures are intended to decrease conflict with FS visual management objectives while allowing the project to continue operating (Agency Alternative Rationale, p.176–178).

Implementation of these measures will result in enhancements to aesthetic resources. The scope of the measures is generally reasonable, however, the timeline for completion of the 10 specific projects is unreasonable given the costs involved, effort required to successfully complete the work, and failure to account for the useful life of improvements to the facilities now in place.

Three of the projects – painting Robbs Powerhouse, Jones Fork Penstock, and all weather stations – will cost approximately \$400,000 to \$500,000 each. In addition, one of the projects will require replacing substantial amounts of galvanized chain link fencing with black vinyl fencing around the Union Valley switchyard. Given a cost estimate of \$200 per linear foot for materials and installation, SMUD estimates the measure requiring new black fencing at Union Valley Dam switchyard will cost \$330,000.

SMUD currently paints penstocks and powerhouses as part of its regular facility maintenance regime after consulting with the FS on color and other associated aspects. The Camino penstock was painted in 2005, at a total cost of \$548,000. Under this regime, SMUD paints the exterior surfaces once the surfaces have reached the end of their useful life and need to be replaced. Requiring SMUD to repaint Jones Fork Penstock and Robbs Powerhouse within two years is

¹¹ All but one of the conclusions on consistency with the applicable Visual Quality Objective are supported by the findings presented in the Visual Assessment of UARP Features Technical Report (DTA and Goodavish, 2004a); the conclusions for SMUD-owned weather stations were not assessed in the report because they are not project features under the FERC license nor were they identified by the agencies to be included in study plan scope for the aforementioned technical report.

excessive given the high cost and remaining useful life of the existing exterior surfaces, until 2010 and 2015, respectively. There is no evidence of a functional need for painting in the near term.

Likewise, SMUD currently replaces fencing as part of its regular facility maintenance regime. Requiring new black fencing around the Union Valley Dam switchyard will result in low aesthetic benefit because the switchyard is located about 300 feet below the road over Union Valley Dam and the fence is nearly unnoticeable and visually subordinate to the dam, powerhouse, switchyard and transmission lines. Requiring this measure within two years is excessive given the low aesthetic benefit, high cost, and the remaining useful life of the existing fence – 2020. There is no evidence of a functional need for replacement in the near term.

SMUD owns 37 weather stations; 12 of which are located on NFS lands. SMUD estimates it can repaint a maximum nine weather stations in one season, at a cost of about \$110,000 in 2005 dollars. Thus, completion of this project needs to be distributed over a minimum of four-years. In conclusion, the timeline for completing the ten specific projects in this measure is unreasonable given the costs involved, effort required to successfully complete the work, and failure to account for the useful life of improvements to the facilities now in place.

5.3.9.3 Agency Alternative Measure: Iowa Hill – Compliance with Visual Quality Standards

The Agency Alternative includes the following measure:

The Iowa Hill Pumped Storage Project as proposed does not comply with the visual quality standards in the Eldorado National Forest Land and Resource Management Plan. Specifically, the views of the berm around the Iowa Hill Reservoir do not meet the visual quality standards. The Licensee shall develop an alternative that meets the visual quality standards of the Eldorado National Forest Land and Resource Management Plan to ensure adequate protection during utilization of the Forest. The licensee shall provide the FS plan specifications and simulated views of the new alternative so the FS may determine whether it meets Eldorado National Forest Land and Resource Management Plan standards. (Agency Alternative, p.140).

The Agency Alternative Rationale states: (1) the measure is needed so that the proposed Iowa Hill Development meets the visual quality standards of the Forest Plan to ensure adequate protection during use of the Forest, and (2) the new alternative specifications and simulated views are necessary so the FS can determine whether the new alternative meets the Forest Plan standards. No explanation is given in the Agency Alternative Rationale concerning how or why the views of the upper reservoir berm do not meet the standards or from where the views occur (Agency Alternative Rationale, p. 193).

Under the Proposed Action, SMUD will consult with the FS and other resource agencies and develop a Visual Resources Protection Plan that will include measures to reduce the visual

appearance of the upper reservoir berm (License Application, Appendix H, p. H19-H20). As described in the PDEA, minimizing visual impacts is an important element of the Iowa Hill Development preliminary design (License Application, PDEA, p. 5-372) and will continue to be an important element as final designs and the Visual Resources Protection Plan are developed. In developing final designs, SMUD will consider options to further minimize the visual appearance of the upper reservoir berm (License Application, PDEA, p. 5-375). For example, one possible measure is to incorporate a buffer strip of existing canyon-rim conifers, which currently stand 80 to 120 feet tall, along the northwest and west side of the berm to screen the berm as seen from the SFAR north canyon rim area.

In conclusion, the Agency Alternative provides no rationale for this required measure. The measure implies “consistency with standards” as the only solution, yet no explanation is given in the rationale concerning how or why the views of the upper reservoir berm do not meet the standards or from where the views occur. SMUD’s proposed Visual Resources Protection Plan – a collaboration between SMUD, the ENF, and others to minimize aesthetic effects of the Iowa Hill Development (including providing to the ENF for review specifications and simulated views of the upper reservoir berm), will ensure adequate protection of visual resources.