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# SACRAMENTO MUNICIPAL UTILITY DISTRICT

# FACTS, FINDINGS, AND STATEMENT OF OVERRIDING CONSIDERATIONS REGARDING THE ENVIRONMENTAL EFFECTS OF THE UPPER AMERICAN RIVER PROJECT RELICENSING

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## 1.0 INTRODUCTION

The California Environmental Quality Act (CEQA) is embodied in the California Public Resources Code (PRC), Sections 21000 through 21177. The mandate and principles governed by PRC Section 21002 are to be implemented, in part, following the requirement that agencies must adopt findings before approving projects for which EIRs are required. For each significant effect identified for a project, the approving agency must issue a written finding that reaches one or more of three permissible conclusions.

- The first such finding is that "[c]hanges or alterations have been required in, or incorporated into, the project which avoid or substantially lessen the significant environmental effects as identified in the final EIR" (State CEQA Guidelines, Section 15091[a][1]).
- The second permissible finding is that "[s]uch changes or alterations are within the responsibility or jurisdiction of another public agency and not the agency making the finding. Such changes have been adopted by such other agency or can and should be adopted by such other agency" (State CEQA Guidelines, Section 15091[a][2]).
- The third potential finding is that "[s]pecific economic, legal, social, technological, or other consideration, including provision of employment opportunities for highly trained workers, make infeasible the mitigation measures or project alternatives identified in the final EIR" (State CEQA Guidelines, Section 15091[a][3]).

With respect to a project for which significant impacts are not avoided or substantially lessened, after adopting proper findings, a public agency nevertheless may approve the project if the agency first adopts a statement of overriding considerations, setting forth the specific reasons why the agency finds that the project's "benefits" render "acceptable" its "unavoidable adverse environmental effects" (State CEQA Guidelines, Section 15093, 15043, subd. [b]; see also PRC, Section 21081, subd. [b]).

The Sacramento Municipal Utility District (SMUD) is the lead agency under CEQA for the relicensing of the Upper American River Project (UARP), a hydroelectric project in the Sierra Nevada Mountains east of Sacramento, California. Thus, SMUD is the approving agency with respect to CEQA findings. The relicensing process also requires a discretionary action by the Federal Energy Regulatory Commission (FERC) in issuing a new license that allows SMUD to continue to own and operate the UARP. FERC and the U.S. Forest Service jointly prepared a final Environmental Impact Statement (FEIS) for the UARP relicensing, subject to the requirements of the National Environmental Policy Act (NEPA).

When a project requires compliance with both CEQA and NEPA, as is the case with the proposed project, PRC Section 21083.7 requires the lead agency to use an EIS rather than prepare an EIR whenever possible, if the EIS is prepared before the EIR is required and complies with the State CEQA Guidelines. The FEIS was completed for

the proposed UARP relicensing project before the need for CEQA compliance. Thus, SMUD relied on the FEIS as the final environmental impact report (FEIR) under CEQA, and prepared a CEQA supplemental analysis to the FEIS (CEQA supplement) to address issues required under CEQA that were not discussed in the FEIS. Together, these documents fully evaluate the environmental effects of SMUD's acceptance and implementation of a new FERC license that will require, among other things, a reoperation of the UARP under the terms of a comprehensive settlement agreement reached between SMUD and state and federal resource agencies, NGOs, and members of the public.

The findings disclosed in this document set forth the evidentiary and policy basis for SMUD's decision to approve the modified operations and maintenance of the existing UARP, with the addition of the construction and operation of the Iowa Hill Pumped-storage Development (Iowa Hill Development), pursuant to the mandates of a new FERC license in a manner consistent with the requirements of CEQA. In other words, these findings are not merely informational but rather constitute a binding set of obligations that come into effect with SMUD's approval of the proposed project.

As lead agency, SMUD has subjected both the FEIS and CEQA Supplemental Analysis for the UARP relicensing project to SMUD's own review and analysis, in order to ensure their adequacy and objectivity. Having reviewed and considered the FEIS and Supplemental Analysis, as well as all other information in the relicensing record of proceedings, the following Findings are adopted by SMUD for the discretionary action to accept and implement the new FERC license.

The following sections of this findings document contain a summary of the project, an overview of the extensive environmental review and public participation process, specific environmental findings relative to the proposed project, findings of an evaluation of alternatives to the project, and statements of project benefits and overriding considerations.

# 2.0 PROJECT SUMMARY

## 2.1 Project Objectives

The following goals and objectives are embedded in the proposed CEQA project for UARP relicensing:

- Maintain the UARP as a valuable and cost-effective source of energy, grid management, and ancillary benefits in providing for the electric needs of SMUD's customer-owners.

- Increase the generating capacity from the UARP to meet increases in electricity demand projected for the upcoming decades.

- Create an energy storage component to the UARP that will support the integration of increasing development of intermittent renewable energy sources like wind and solar power.

- Enhance recreational facilities and opportunities at the existing UARP reservoirs and riverine reaches.

- Update and enhance the environmental protection measures associated with the historical operation and maintenance of the UARP.

## 2.2 Project Description

From a facilities perspective, the existing UARP, in its current configuration, constitutes the major component of the CEQA project. The UARP is located in the Silver Creek, Rubicon River, and South Fork American River basins, on the west slope of the Sierra Nevada Mountain Range, in El Dorado and Sacramento counties. With a maximum generating capacity of 688 megawatts, the existing facilities comprise seven developments, (Loon Lake, Robbs Peak, Jones Fork, Union Valley, Jaybird, Camino, and Slab Creek/White Rock) constructed by SMUD between 1959 and 1985 under the original FERC license. The UARP also includes over 50 recreation facilities, including campgrounds, day-use areas, boat ramps, bike trails, and a ski chalet. Under the CEQA project, SMUD will upgrade all such facilities and add new ones.

Under the project, SMUD will operate the existing UARP facilities in a manner similar to historic operations. As such, Loon Lake, Union Valley Reservoir, and Ice House Reservoir will continue to be used for snowmelt runoff storage, while the other eight reservoirs will continue to serve as diversion reservoirs or re-regulating afterbays/ forebays. In general, water will be released for generation in high-demand periods and held in storage in low-demand periods. Typically, on a hot summer day when demand for electricity is high, SMUD will continue to release water from storage to generate electricity, particularly during peak hours of the day such as the late afternoon and early evening. Alternatively, when demand for power is low or when regional power supply is

abundant, SMUD will continue to hold water in the storage reservoirs and the UARP will continue to generate at reduced capacity. However, a number of operational modifications will be implemented in response to the new FERC license, including:

- New minimum streamflow releases from all 11 UARP reservoirs that vary by month and water year type.

- Pulse flow releases from Rubicon Reservoir, Loon Lake, and Ice House Reservoir that vary by water year type.

- Whitewater boating releases from Ice House and Slab Creek reservoirs that vary by water year type.

- Minimum water surface elevations in Loon Lake, Union Valley Reservoir, and Ice House Reservoir that vary by month (July-September) and water year type.

- Block of water releases from Junction and Camino reservoirs in wet water years to maintain cool water temperatures in downstream reaches of Silver Creek.

In addition to the operational modifications, SMUD will prepare and implement a number of resource management plans in and around UARP facilities. These include recreational management plans at major UARP reservoirs and at riverine reaches where whitewater boating releases will be implemented. Resource plans will also be developed for fire protection and response, vegetation and invasive weed management, visual resource management, transportation and trail system management, wildlife protection, stream channel stabilization, heritage resource protection, and large woody debris management.

One new development – the Iowa Hill Pumped-storage Development – will be constructed under the CEQA project. The Iowa Hill Pumped-storage Development will be composed of the following features: (1) Iowa Hill Berm – A new off-stream, rock-filled earthen berm of varying height depending on natural terrain and 5,900 feet in circumference with a geotextile liner on the reservoir floor and inside surface of the berm. The berm will form Iowa Hill Reservoir; (2) Iowa Hill Tunnel – A new underground water conduit extending from Iowa Hill Reservoir and connecting to Slab Creek Reservoir, comprises a 1,120-foot-long, 19.02-foot-diameter, concrete-lined vertical shaft; a 1,110-foot-long, 19.02-foot-diameter, concrete-lined high pressure tunnel; a 250-foot-long, 15.74-foot-diameter, steel-lined high pressure tunnel; a 150-foot-long, 12.45-foot-diameter, steel manifold; three 180-foot-long, 7.87-foot-diameter, steel penstocks; three 450-foot-long, 12.46-foot-diameter draft tube extensions; a 150-foot-long, 17.22-foot-diameter steel manifold; and a 1,230-foot-long, 20-93-foot-diameter, concrete-lined low pressure tunnel; (3) Iowa Hill Powerhouse – A new underground powerhouse along the Iowa Hill Tunnel that will include three variable speed turbines, each with a nominal rating of 133 MW, and three generators, each rated at 170 MW as a pump motor. The powerhouse will have a maximum capability of 400 MW; (4) Iowa

Hill Switchyard - A new switchyard that will connect to a new transmission line; and (5) Transmission Line – A new 230 kV transmission line that will connect the Iowa Hill Switchyard to the existing Camino-White Rock Transmission Line.

The planned operation of the proposed Iowa Hill Development will meet the same general needs described above relative to high- and low-demand periods. During low-demand periods (off-peak), such as nighttime hours, SMUD will use the Iowa Hill Development to pump water from Slab Creek Reservoir to the new reservoir atop Iowa Hill. In the near term, the probable sources of energy will be SMUD's existing mix of SMUD-produced and purchased power, including wind, solar, hydro, and fossil fuel plants. Over time, it is expected that wind will constitute a greater portion of the energy supply for Iowa Hill pumping. This is based on SMUD's goal of developing a long-term sustainable power supply that reduces SMUD's net long-term greenhouse gas (GHG) emissions in the year 2050 to 350,000 tonnes or 10% of SMUD's 1990 carbon dioxide emission levels. SMUD will simultaneously increase the amount of energy generated by wind resources. During periods of high demand (on-peak), SMUD will release the water from the upper reservoir to generate electricity to meet peak demands.

## 3.0 ENVIRONMENTAL REVIEW AND PUBLIC PARTICIPATION

Throughout the course of UARP relicensing, beginning in 2001, SMUD performed an extensive environmental review process that included an inclusive public involvement program. The environmental review began with the June 2001 formal initiation of FERC's Alternative Licensing Process (ALP), a process designed to maximize stakeholder and public involvement. In July 2005, SMUD submitted an application to FERC for renewal of the UARP license, which triggered FERC's environmental review process under the National Environmental Policy Act (NEPA), and culminated in a Final Environmental Impact Statement (FEIS) issued by FERC in March 2008. SMUD relied on the FEIS as the EIR for the relicensing of the UARP. To ensure the FEIS satisfies the requirements of CEQA, in September 2008, SMUD prepared a CEQA Supplement to the FEIS for the FERC relicensing of the UARP (Supplemental Analysis). The following sections summarize the environmental review and public participation activities in each of these major steps in the relicensing process.

### 3.1 Alternative Licensing Process

The pre-filing ALP implemented by SMUD provided an opportunity to conduct early scoping during the pre-filing consultation and submit a preliminary draft Environmental Assessment to FERC prior to commencing its formal NEPA process. Between 2001 and 2005, SMUD – with active participation by resource agencies, Indian tribes, citizens groups, businesses, other organizations and members of the public – developed goals, identified issues, designed and conducted scientific studies, issued technical reports, and made a good-faith effort to develop a consensus on appropriate measures to protect, mitigate, and enhance resources affected by the UARP and the proposed Iowa Hill Pumped-storage Development.

In pursuit of these objectives, SMUD formed a Plenary Group and six Technical Working Groups in the areas of: (1) Aquatics/Water Quality/Geomorphology/Hydrology; (2) Recreation/Aesthetics; (3) Terrestrial; (4) Land Use; (5) Cultural; and (6) Socioeconomics. The Plenary Group operated as a public forum open to any participant. In all, a total of 42 stakeholders participated in the Plenary Group, representing state and federal resource agencies, non-governmental organizations, business interests, local governmental agencies, and other interested parties (e.g., boating, fishing, camping interests). This group made decisions regarding the schedule and structure of the ALP, formulated issue questions and formed the Technical Working Groups, and reviewed and approved study plans as well as resource measures generated by technical working groups.

The Record of Consultation produced during the ALP documented the more than 60 Plenary Group, 254 Technical Working Group (TWG) or other public meetings, and contained copies of more than 320 written communications and other relevant information. More than 70 technical studies were performed to address issues raised by ALP participants. SMUD maintained a Relicensing Website throughout the ALP to

facilitate information dissemination. This website contained all communications, correspondence, and consultation regarding the relicensing process, and reached a peak usage rate of approximately 22,000 visits per month.

In May 2004, the Plenary Group formed the Settlement Negotiations Group (SNG), whose purpose was to reach consensus among parties on all issues regarding the protection, mitigation, and enhancement measures associated with the continued operation of the UARP and construction and operation of the Iowa Hill Pumped-storage Development. Participation in the SNG was open to all parties, and the following entities executed the Settlement Negotiations Protocols**:**

- American River Recreation Association & Camp Lotus
- American Whitewater
- Apple Hill Growers Association
- California Department of Fish and Game
- California Outdoors
- California State Parks and Recreation
- California State Water Resources Control Board
- Camino Community Action Committee
- City of Sacramento, Department of Utilities
- Mr. John Fonseca
- Mr. Paul Helman
- Mr. Dennis Rogers
- Ms. Hilde Schweitzer
- Mr. Chris Shackleton
- Mr. Chris Shutes
- El Dorado County Board of Supervisors
- El Dorado County Citizens for Water
- El Dorado County Water Agency
- El Dorado County Water & Power Authority
- El Dorado Irrigation District
- Friends of El Dorado County
- Friends of the River
- Georgetown Divide Public Utility District
- Georgetown Fire District
- Iowa Hill Action Committee
- Pacific Gas and Electric Company
- Rainwater and Associates, LLC
- Sacramento Municipal Utility District
- Taxpayers Association of El Dorado County
- The Center for Sierra Nevada Conservation
- Teichert and Son, Inc.
- U.S.D.A. Forest Service

- U.S.D.I. Bureau of Land Management
- U.S.D.I. Fish and Wildlife Service
- U.S.D.I. National Park Service

The stated goals of the SNG were to: (1) reach a comprehensive written Settlement Agreement, including a preferred package of recommended protection, mitigation, and enhancement measures accepted by all parties; and (2) submit the measures to FERC as proposed terms and conditions of the new UARP license to be included in FERC's NEPA environmental review process. These goals were achieved in February 2007 when a signed Settlement Agreement was transmitted to FERC. The Settlement Agreement consisted of a proposed plan in the form of proposed license articles dealing with reoperation of the UARP, implementation of numerous resource protection plans, and mitigation measures associated with the construction of the Iowa Hill Development.

## 3.2 NEPA and CEQA Environmental Review

A principal goal of the ALP described in Section 2.1 was to develop a single, efficient environmental review process that met the requirements of separate state and federal statutory provisions. As part of the ALP, SMUD conducted the NEPA review process in coordination with the CEQA process. In accordance with the procedures established under NEPA and CEQA, SMUD issued *Scoping Document 1 and Notice of Preparation for the Relicensing of the UARP* (SD1) on August 14, 2003. FERC noticed the availability of SD1 in the Federal Register on August 18, 2003. SD1 provided an overview of the relicensing process; explained the existing project facilities and operations; described the proposed Iowa Hill Pumped-storage Development; identified major issues raised in the ALP; and provided preliminary alternatives.

The purpose of the NEPA/CEQA scoping process was to invite the public to aid SMUD in: (1) identifying social and environmental issues associated with the proposed action; (2) identifying reasonable alternatives; (3) determining the depth of analysis needed; and (4) identifying how the project would or would not contribute to cumulative effects. In addition to issuing SD1, SMUD hosted three public meetings in September 2003, two in Sacramento and one in Placerville, CA. All three meetings were advertised in the *Sacramento Bee* and the *Mountain Democrat* newspapers two weeks in advance of the scoping meetings.

SMUD revised SD1 to reflect the written and oral comments and issued *Scoping Document 2 for the Relicensing of the UARP* (SD2) on May 24, 2004. The SD2 included a list of the entities that provided comments, and a summary table of issues raised and SMUD's response. SD2 presented the issues unique to the UARP relicensing considered in this PDEA. As the lead agency under CEQA, SMUD used the public scoping and study results to prepare a draft and final environmental impact report in a manner consistent with CEQA.

Following the NEPA scoping process, and in receipt of the comprehensive Settlement Agreement, FERC and the U.S. Forest Service completed the federal environmental review process in March 2008 with the issuance of the FEIS.

Relying on the FEIS as the EIR for the relicensing of the UARP, SMUD prepared a draft and final CEQA Supplemental Analysis. The Supplemental Analysis was prepared by SMUD to accomplish three goals under CEQA: (1) to complete the discussion of mitigation measures relative to the Iowa Hill Pumped-storage Development (Iowa Hill Development) with a focus on the UARP Settlement Agreement; (2) to address the growth-inducing impacts of the project; and (3) to provide the public and interested public agencies with additional information about the potential environmental effects of the proposed action/project due to the completion of additional water quality investigations at Slab Creek Reservoir that were performed at the request of the State Water Resources Control Board (SWRCB).

On May 2, 2008 SMUD issued the Draft Supplemental Analysis (SMUD 2008) to local, state, and federal agencies and to interested organizations and individuals for review and comment. The Draft Supplemental Analysis was also made available to the public on May 2, 2008 at the El Dorado County Library and the Sacramento Central Library as well as from SMUD's Relicensing website. SMUD filed the Draft Supplemental Analysis with the State Clearinghouse on May 2, 2008, marking the beginning of a 45-day public review period. SMUD also held a public meeting on June 2, 2008 at the Apple Mountain Golf Resort in Camino, California to receive written and verbal comments on the Draft Supplemental Analysis.

SMUD prepared the Draft Supplemental Analysis in conformance with CEQA and the CEQA Guidelines. It referenced or contained a description of the proposed action/project, a description of the environmental setting, an identification of the environmental impacts associated with project implementation, and mitigation measures for impacts found to be significant. The mitigation measures were clearly identified to facilitate developing a mitigation monitoring and reporting program. A draft Mitigation Monitoring Program was included in Appendix B. Mitigation measures to be adopted by the SMUD Board of Directors as conditions for acceptance of the new license were included in the project Mitigation Monitoring Program to verify compliance.

A public notice of the availability of the Draft Supplemental Analysis was published on May 2, 2008 in both the *Sacramento Bee* and the *Mountain Democrat*. The public notice identified: (1) the project SMUD is proposing; (2) where to obtain a copy of the Draft Supplemental Analysis; (3) the date, time, and place of the public meeting; and (4) the deadline for submitting comments on the Draft Supplemental Analysis. Public notices were also posted by the El Dorado County Clerk and the Sacramento County Clerk on May 2, 2008, and SMUD placed a public notice on bulletin boards at the Camino Post Office and at businesses located in central Camino on May 2, 2008.

During the June 2, 2008 public meeting, in response to a request to extend the deadline for submitting comments on the Draft Supplemental Analysis, SMUD extended the comment period two weeks, from June 16 to June 30, 2008. SMUD informed the State Clearinghouse of this extension in a letter dated June 6, 2008. SMUD also informed the public of this extension by: (1) mailing a postcard on June 6 to all entities on the mailing list; (2) filing a public notice with the El Dorado County Clerk and the Sacramento County Clerk on June 6; and (3) publishing a public notice in the *Sacramento Bee* and *Mountain Democrat* newspapers on June 11, 2008. Table 1.6-1 lists the entities that provided comments on the Draft Supplemental Analysis during the review period.

Subsequent to the agency consultation leading to the Final EIS, SMUD conducted further consultation with the SWRCB and U.S. Geological Survey on water quality issues associated with the Iowa Hill Pumped-storage Development. In April 2007, SMUD agreed to perform additional investigations requested by the SWRCB in preparation for the 401 Water Quality process for the UARP relicensing. Four investigations were performed at Slab Creek during 2007 and 2008 in the areas of bathymetry, turbidity, mercury bioaccumulation in fish tissue, and mercury concentrations in sediment deposits.

## 3.3 Iowa Hill Joint Advisory Committee

In late 2005, SMUD and governmental entities within El Dorado County (El Dorado Parties[1]) reached settlement on all issues related to the UARP relicensing, including the Iowa Hill Pumped-storage Development. The El Dorado – SMUD Cooperation Agreement included a provision for the establishment of an Iowa Hill Joint Advisory Committee (Advisory Committee). As outlined in the Cooperation Agreement, the basic charge of the Advisory Committee was to receive public input and to develop reasonable and feasible measures to substantially mitigate the impacts of activities related to the construction of the Iowa Hill Pumped-storage Development on the surrounding communities and existing infrastructure.

SMUD and the El Dorado Parties agreed that it would be beneficial to initiate the Advisory Committee early in the licensing process, before construction plans are finalized, to engage the local community and address its concerns regarding the Iowa Hill Pumped-storage Development. To that end, the Advisory Committee was convened in the spring of 2006, and continues to meet as frequently as necessary throughout the duration of construction of the Iowa Hill Pumped-storage Development. The committee is led by two co-chairs, one from El Dorado County and one from SMUD, and comprises seven members: two from El Dorado County, two from SMUD, and one each from the following organizations: Apple Hill Growers' Association, Camino Advisory Committee, and the Iowa Hill Action Committee.

[1] The El Dorado Parties consist of: the County of El Dorado; El Dorado County Water Agency; Georgetown Divide Public Utility District; El Dorado Irrigation District; and El Dorado Water and Power Authority.

The first task undertaken by the Advisory Committee was to develop a set of issues and recommended mitigation measures for SMUD to study as part of the CEQA process. Based upon input from the local community, the Advisory Committee identified five major areas of concern: Visual, Noise, Transportation, Fire Protection, and Socioeconomics. The Advisory Committee then formed subcommittees to address the local citizens' concerns related to each of those issues. From June 2006 through August 2007, a total of 13 Advisory Committee meetings and 15 ad-hoc committee meetings were held. All Advisory Committee meetings during this period were noticed and open to the public. The Advisory Committee's 246 recommendations were submitted to SMUD in August 2007. Of the 197 recommendations that related to physical changes to the environment, and therefore subject to CEQA analysis, 83 percent were adopted in the CEQA Supplement.

# 4.0 ENVIRONMENTAL IMPACTS

## 4.1 Environmental Findings

The environmental effects, or findings, associated with the UARP relicensing process are summarized in the following sections. SMUD is adopting these findings for the entirety of the actions described in them and in the Final Environmental Impact Statement (FEIS), the Final CEQA Supplemental Analysis to the FEIS (CEQA Supplement), and all appendices to these documents. Although the findings discussed below identify specific pages in the FEIS and CEQA Supplement that support the various conclusions reached, SMUD incorporates by reference, and adopts as its own, the reasoning set forth in both environmental documents, and thus relies on that reasoning in reaching the conclusions set forth below, except where additional evidence is specifically noted.

To demonstrate that the combination of NEPA and CEQA documents adequately addressed all CEQA requirements, this portion of the findings document is based on the checklist in Appendix G of the State CEQA Guidelines. In summarizing the findings, naming conventions used by the CEQA and NEPA documents are preserved. In the case of the CEQA Supplement, impacts are labeled using an alphanumeric code. For example, "Impact AES-1a" is used to describe *aesthetic* impact 1a, which is described as "Dust Generated by Construction Activities". In contrast, the FEIS does not use naming conventions in identifying environmental impacts, and thus reference is made in the findings to pages in the NEPA document.

This findings document also references proposed FERC License Articles contained in the UARP relicensing Settlement Agreement. These serve as the primary basis for mitigation measures evaluated in the FEIS. For example, the FEIS and findings document reference "Article 1-27," a proposed article dealing with Visual Resource Protection.

Other differences between the two environmental review documents center on the issue of baseline. The FEIS sets forth a different standard of analysis of significant impacts than required under CEQA or under NEPA per *American Rivers v. FERC,* 201 F.3d 1186 (9th Cir. 2000), because it addresses numerous impacts of the UARP that have occurred since its inception and that will not be altered by the proposed action (the reoperation of the UARP under the Settlement Agreement). For many resource categories (e.g., impacts to water temperature), the EIS identifies the level of historical impact and then identifies the extent to which mitigation measures or project reoperation will avoid or lessen those impacts. Under CEQA, however, environmental impacts of a proposed action are normally measured against the conditions as "they exist at the time the notice of preparation is published…" (CEQA Guidelines § 15125, subd. (a); *see also Communities for a Better Environment v. South Coast Air Quality Mgt. Dist.,* 48, Cal.4th, 310, 320-321 (2010).) As is the case for most projects, it is most appropriate to use the environmental setting or baseline as it existed at the time of the notice of preparation's

publication. This is also the same baseline as required under NEPA as noted above. Therefore, to the extent practicable in light of the FEIS, the impacts of the proposed project are described in this findings document in accordance with the normal environmental setting as consistent with the CEQA Guidelines.

The following Sections 4.2 through 4.19 cover each of the primary resource categories of the checklist in Appendix G of the CEQA Guidelines. The findings are further categorized by two or more secondary resource areas. For example, under Section 4.2 covering the primary resource of Aesthetics, findings are made with respect to the secondary resources of Scenic Vistas in Section 4.2.1 and Scenic Resources in Section 4.2.2. Often findings are further divided at the secondary resource level into separate discussions related to "Reoperation of the UARP Pursuant to Settlement Agreement", focusing on operational and structural changes to existing UARP facilities, and "Iowa Hill," focusing construction-related and operational impacts of the Iowa Hill Pumped-storage Development.

## 4.2 Aesthetics

Impacts on aesthetic resources were evaluated in Section 3.3.8 of the FEIS (beginning on p.3-298) and Section 3.3.3.2 of the CEQA Supplement (beginning on p.32). In addition, any changes or mitigating features of the proposed project identified in the FEIS or the CEQA Supplement were memorialized in the draft mitigation monitoring and reporting program (MMRP, CEQA Supplement, Appendix B). The following topics are based on the State CEQA Guidelines (Appendix G checklist), to facilitate the compilation of data from the three documents identified above (i.e., the FEIS, the CEQA Supplement, and the MMRP) as they relate to significance thresholds for aesthetic resources.

### 4.2.1 Scenic Vistas

During construction and/or operations, no features of the proposed project will be visible from any scenic vistas or areas of unique or outstanding visual character (CEQA Supplement, p.33). *Therefore, no impact will occur. Pursuant to the State CEQA Guidelines, Section 15091, no further finding is required*.

### 4.2.2 Scenic Resources

During construction and/or operations, the proposed project will not damage any scenic resources, and no features of the proposed project will be visible from any state scenic highway (CEQA Supplement, p.33). *Therefore, no impact will occur. Pursuant to the State CEQA Guidelines, Section 15091, no further finding is required*.

### 4.2.3 Visual Character or Quality of the Site and Its Surroundings

#### 4.2.3.1 Reoperation of UARP Pursuant to Settlement Agreement

As discussed in Impact AES-1a, "Dust Generated by Construction Activities," Impact AES-1b, "Presence of Construction Equipment and Activities," and Impact AES-1c, "Presence of the Facilities" (CEQA Supplement, pp.34–35), the proposed project will alter the existing visual character of the project site and its surroundings. To reduce impacts on the visual character of the project area, SMUD will prepare and implement a visual resource protection plan (Visual Plan), pursuant to Articles 1-27 and 1-44 of the Settlement Agreement (FEIS, pp.2-27 and 2-30, respectively). The Visual Plan will include dust control measures and requirements for re-vegetation (CEQA Supplement, p.34), measures to reduce visibility of construction activities (CEQA Supplement, p.34), and measures to reduce the visual contrast of new facilities (CEQA Supplement, p.35). Implementation of the Visual Plan and the above provisions will ensure that construction and operational impacts on existing visual character and quality will be less than significant.

> *Finding*: Pursuant to the State CEQA Guidelines, Section 15091(a)(1), SMUD finds that changes or alterations required in, or incorporated into, the proposed project avoid or substantially lessen the significant environmental effects identified in the FEIS and/or CEQA Supplement.

The visual character of the project area may be affected by fluctuating reservoir levels (FEIS, pp.3-312–3-313). Reservoir levels under the proposed project will be similar to current operations. To avoid potential environmental effects on visual quality affected by reservoir levels, SMUD will implement Article 1-23 of the Settlement Agreement (FEIS, p.2-26). Article 1-23 requires SMUD to meet or exceed set reservoir elevations, maintain surface water height, follow procedures for super dry water years, and measure compliance at reservoir elevation gages as published by the U.S. Geological Survey. Implementation of Article 1-23 will ensure that reservoir levels are maintained consistent with current conditions, and thus ensure that visual quality is not substantially affected by potential changes to reservoir levels during operation of the proposed project.

> *Finding*: Pursuant to the State CEQA Guidelines, Section 15091(a)(1), SMUD finds that changes or alterations required in, or incorporated into, the proposed project avoid or substantially lessen the significant environmental effects identified in the FEIS and/or CEQA Supplement.

The principal features of the UARP were constructed between 1957 and 1985. The continued operation of the UARP pursuant to the terms of the Settlement Agreement has no potential to increase the visual presence of these facilities. In fact, to ensure that the existing UARP facilities better blend into the surrounding landscape, SMUD will implement Article 1-27 of the Settlement Agreement (FEIS, p.2-27), which requires SMUD to prepare and implement the Visual Plan for the protection and rehabilitation of National Forest System visual resources impacted by the proposed project. Measures to be part of the Visual Plan will include, but will not be limited to, surface treatments,

native vegetation plantings, and locating facilities to minimize visual impacts (FEIS, p.3-310). Prior to any new construction or maintenance of facilities with the potential to affect visual resources of National Forest System lands, SMUD will prepare a plan to assure compliance with visual resource standards and guidelines in the Eldorado National Forest Land and Resource Management Plan. *Therefore, no impact will occur. Pursuant to the State CEQA Guidelines, Section 15091, no further finding is required*.

4.2.3.2 Iowa Hill

The Iowa Hill Development will potentially impact views in the project area unless project facilities are designed to minimize visual impacts (FEIS, pp.3-310–3-312). To minimize visual impacts associated with the development, SMUD has elected to construct the majority of the water conveyance and power generation facilities underground. An alternative shaft-style powerhouse that was considered involved the placement of the powerhouse in an above-ground vertical shaft on the margin of Slab Creek Reservoir. This alternative would also include an above-ground penstock running down the side of Iowa Hill. SMUD chose the more expensive underground facilities to minimize visual impacts to the surrounding area. SMUD also considered four alternative transmission line configurations for the proposed transmission line that runs underground from the powerhouse to a switchyard atop of Iowa Hill. The four alternatives consisted of above-ground configurations starting at the shoreline of Slab Creek Reservoir and connecting to the switchyard by way of a series of transmission line towers. These alternatives would have the transmission lines crossing over Slab Creek Reservoir or traversed up the steep slope from the reservoir to the top of Iowa Hill. All aboveground options were eliminated primarily because of impacts to visual resources.

To further minimize and avoid visual impacts associated with the design of the Iowa Hill Development, SMUD will implement Article 1-44 of the Settlement Agreement (FEIS, p.2-30). Article 1-44 requires compliance with the visual quality objectives (VQOs) and standards set forth in the Eldorado National Forest Land and Resource Management Plan. In addition, pursuant to Article 1-27, SMUD will include in the Visual Plan a number of Iowa Hill Development construction-related measures designed to minimize visual impacts. The upper reservoir berm will borrow textures and colors from the surrounding landscape; the transmission line towers connecting the switchyard to the UARP transmission line system will consist of COR-TEN steel monopoles, designed to rust into nature coloration; and provisions for erosion control and re-vegetation of disturbed areas will be implemented (CEQA Supplement, pp. 38-41). Implementation of the Visual Plan, in accordance with the Article Eldorado National Forest VQOs will ensure that the proposed project will reduce potential impacts to a less-than-significant level requiring no mitigation. This was evaluated in the CEQA Supplement with the aid of a game-engine technology, visual simulation of Iowa Hill that allowed the user to assess the visual qualities and visibility of the Iowa Hill upper reservoir berm and transmission system (the only above-ground facilities) from any vantage point within the surrounding area. The simulation, which was built on GIS topography and photorealism

modeled from aerial photography, also allowed the evaluation of alternative mitigation measures such as different color schemes for the berm and transmission line towers.

> *Finding*: Pursuant to the State CEQA Guidelines, Section 15091(a)(1), SMUD finds that changes or alterations required in, or incorporated into, the proposed project avoid or substantially lessen the significant environmental effects identified in the FEIS and/or CEQA Supplement.

### 4.2.4 Light and Glare

#### 4.2.4.1 Reoperation of UARP Pursuant to Settlement Agreement

The continued operation of the UARP pursuant to the terms of the Settlement Agreement will have no potential to increase the visual presence of the existing UARP facilities from the perspective of light and glare. Moreover, under Article 27-1, SMUD will be required to implement a number of measures to improve how well UARP facilities blend in with the surrounding landscape. The measures include painting metal components of existing facilities with non-reflective black paint or a camouflage design, and replacing galvanized chain link fencing with black vinyl fencing with black posts. Construction of new UARP facilities will be required to include use of non-specular conductors for transmission lines, use of native plants species to screen facilities from view, and reshaping and re-vegetating disturbed areas to blend in with the landscape. *Therefore, no impact will occur. Pursuant to the State CEQA Guidelines, Section 15091, no further finding is required*.

#### 4.2.4.2 Iowa Hill

As discussed in Impact AES-2a, “Project Night Lighting,” construction of the proposed project may introduce nighttime lighting in the project area (CEQA Supplement, pp.35–36). To minimize proposed project nighttime lighting impacts, SMUD will prepare and implement the Visual Plan, pursuant to Articles 1-27 and 1-44 of the Settlement Agreement (FEIS, pp.2-27 and 2-30, respectively). The Visual Plan will include measures for minimizing nighttime light pollution (CEQA Supplement, p.36). Specific requirements may include restricting lighting to areas required for safety, security, and active maintenance/operations; use of designated bulbs and fixtures; and use of switched lighting circuits (CEQA Supplement, p.36). Implementation of the Visual Plan and the above provisions will ensure that impacts from proposed project nighttime lighting will be less than significant.

> *Finding*: Pursuant to the State CEQA Guidelines, Section 15091(a)(1), SMUD finds that changes or alterations required in, or incorporated into, the proposed project avoid or substantially lessen the significant environmental effects identified in the FEIS and/or CEQA Supplement.

As discussed in Impact AES-2b, “Project Glare,” new facilities of the proposed project may introduce glare to the project area after construction (CEQA Supplement, p.36). However, visibility of the proposed project is expected to be minimal, and the level of

glare from the new facilities is expected to be low to non-existent (see also Appendix C of the CEQA Supplement). *Therefore, no impact will occur. Pursuant to the State CEQA Guidelines, Section 15091, no further finding is required*.

## 4.3 Agriculture and Forestry Resources

Impacts on land uses, including timber harvesting, were evaluated in Section 3.3.7 of the FEIS (beginning on p.3-284). Specific impacts on agriculture uses were not discussed because the project site is not located within any farmland areas, as shown on the El Dorado County Farmland Map (California Department of Conservation 2011). In addition, any changes or mitigating features of the proposed project identified in the FEIS or the CEQA Supplement were memorialized in the MMRP (CEQA Supplement, Appendix B). The following topics are based on the State CEQA Guidelines (Appendix G checklist), to facilitate the compilation of data from the three documents identified above (i.e., the FEIS, the CEQA Supplement, and the MMRP) as they relate to significance thresholds for agriculture and forestry resources.

### 4.3.1 Important Farmland

No part of the proposed project will be located on land identified as prime farmland, unique farmland, or farmland of statewide or local importance (California Department of Conservation 2011). *Therefore, no impact will occur. Pursuant to the State CEQA Guidelines, Section 15091, no further finding is required*.

### 4.3.2 Williamson Act Contracts

No part of the proposed project will be on land subject to a Williamson Act contract (California Department of Conservation 2008). *Therefore, no impact will occur. Pursuant to the State CEQA Guidelines, Section 15091, no further finding is required*.

### 4.3.3 Forest Land or Timberland Zoning

Although construction of the Iowa Hill Development will involve land zoned as a Timberland Preserve Zone, this conversion from timberland to industrial use will have minimal effects (FEIS, p.3-297). *Therefore, no impact will occur. Pursuant to the State CEQA Guidelines, Section 15091, no further finding is required*.

### 4.3.4 Loss of Forest Land

Although some existing land with the potential to be used for timber production will be converted to industrial use resulting from construction of the Iowa Hill Development, this conversion will have minimal effects (FEIS, p.3-297). *Therefore, no impact will occur. Pursuant to the State CEQA Guidelines, Section 15091, no further finding is required*.

#### 4.3.5 Conversion of Farmland or Forest Land

As discussed above, no part of the proposed project will be located on land identified as prime farmland, unique farmland, or farmland of statewide or local importance (California Department of Conservation 2011). Although some existing land used for timber production will be converted to industrial use resulting from construction of the Iowa Hill Development, this conversion will have minimal effects (FEIS, p.3-297). *Therefore, no impact will occur. Pursuant to the State CEQA Guidelines, Section 15091, no further finding is required*.

## 4.4 Air Quality

Impacts on air quality were evaluated in Section 3.3.11 of the FEIS (beginning on p.3-344). An air conformity analysis was prepared as a supplement to the FEIS (FEIS, Appendix B). In addition, any changes or mitigating features of the proposed project identified in the FEIS or the CEQA Supplement were memorialized in the MMRP (CEQA Supplement, Appendix B). The following topics are based on the State CEQA Guidelines (Appendix G checklist), to facilitate the compilation of data from the three documents identified above (i.e., the FEIS, the CEQA Supplement, and the MMRP) as they relate to significance thresholds for air quality.

#### 4.4.1 Air Quality Plans

##### 4.4.1.1 Reoperation of UARP Pursuant to Settlement Agreement

The proposed project is located within a non-attainment area for two criteria pollutants, ozone and particulate matter (FEIS, p.3-346). Ozone is principally formed through chemical reactions of oxides of nitrogen ($NO_X$) and volatile organic compounds (VOC), so reduction of $NO_X$ and VOC will reduce potential increases in ozone (FEIS, Appendix B, p.B-3). Particulate matter is predominantly caused by fugitive dust, so reduction of fugitive dust will reduce the potential for particulate matter emissions (FEIS, p.3-349). Under the federal Clean Air Act (CAA), federal agencies are required to conform to the applicable State Implementation Plan for non-attainment areas (FEIS, p.3-347). The FEIS included a CAA conformity analysis (FEIS, Appendix B). The conformity analysis modeled worst-case scenario construction emissions and determined that emissions levels will not exceed *de minimis* emissions levels (FEIS, p.3-349). Also, the FEIS determined that operational emissions will not exceed *de minimis* levels (FEIS, p.3-352). *Therefore, no impact will occur. Pursuant to the State CEQA Guidelines, Section 15091, no further finding is required*.

Despite documentation that construction emissions will not exceed *de minimis* levels, SMUD will implement measures designed to decrease fugitive dust and $NO_X$. Measures that will reduce fugitive dust include application of water or a chemical dust suppressant, sweeping or flushing of paved surfaces, and vegetation plantings (FEIS, p.3-349). Measures that will reduce $NO_X$ emissions include adherence to emissions

standards established by the California Air Resources Board (CARB), limitations on vehicle idling, and preventive maintenance (FEIS, p.3-349).

4.4.1.2 Iowa Hill

The air quality analysis indicates construction of the Iowa Hill development will release NOx, CO, and PM10. These effects would be limited to worst-case conditions during a short-term construction period. The onsite control measures identified above will ensure that the air emissions would not exceed the *de minimis* levels (FEIS, p.3-353).

> *Finding*: Pursuant to the State CEQA Guidelines, Section 15091(a)(1), SMUD finds that changes or alterations required in, or incorporated into, the proposed project avoid or substantially lessen the significant environmental effects identified in the FEIS and/or CEQA Supplement.

4.4.2 Air Quality Standards, Criteria Pollutants in a Non-Attainment Area, and Sensitive Receptors

4.4.2.1 Reoperation of UARP Pursuant to Settlement Agreement

As discussed directly above, emissions during construction and operations of the UARP pursuant to the Settlement Agreement will not exceed *de minimis* levels (FEIS, pp.3-349 and 3-352). *Therefore, no impact will occur. Pursuant to the State CEQA Guidelines, Section 15091, no further finding is required*.

4.4.2.2 Iowa Hill

Again, implementation of emissions-decreasing measures will ensure that contribution of air pollutant levels of NOx, CO, and PM10 during construction of Iowa Hill will reduce potential impacts to a less-than-significant level (FEIS, p.3-353).

> *Finding*: Pursuant to the State CEQA Guidelines, Section 15091(a)(1), SMUD finds that changes or alterations required in, or incorporated into, the proposed project avoid or substantially lessen the significant environmental effects identified in the FEIS and/or CEQA Supplement.

4.4.3 Odors

The proposed project will not involve use of materials, or creation or construction of facilities, that will generate objectionable odors or create new sources of odor in the short or long term that will affect a substantial number of people. *Therefore, no impact will occur. Pursuant to the State CEQA Guidelines, Section 15091, no further finding is required*.

## 4.5 Biological Resources

Impacts on biological resources were evaluated in Section 3.3.3, "Aquatic Resources" (FEIS, beginning on p.3-116), Section 3.3.4, "Terrestrial Resources" (beginning on p.3-171), and Section 3.3.5, "Threatened and Endangered" (beginning on p.3-234). In addition, any changes or mitigating features of the proposed project identified in the FEIS or the CEQA Supplement were memorialized in the MMRP (CEQA Supplement, Appendix B). The following topics are based on the State CEQA Guidelines (Appendix G checklist), to facilitate the compilation of data from the three documents identified above (i.e., the FEIS, the CEQA Supplement, and the MMRP) as they relate to significance thresholds for biological resources.

### 4.5.1 Special-status Plants

#### 4.5.1.1 Reoperation of UARP Pursuant to Settlement Agreement

Fifteen special-status plant species are found in the project area (FEIS, p.3-173). Of that number, three are federally listed species (FEIS, p.3-173). Two of those (Pine Hill ceanothus and Pine Hill flannelbrush) are endangered, and one (Layne's butterweed) is threatened (FEIS, p.3-234).

Since it became operational, the UARP has affected special-status species from time to time as the area around UARP facilities has been maintained to ensure continued access for maintenance. One example is the periodic clearing of vegetation beneath the power transmission lines that convey power from the UARP powerhouses to SMUD's transmission grid.[2] This regimen of periodic maintenance and operational activities will not change appreciably under the proposed reoperation and, therefore, would not result in significant impact to special status species. *Therefore, no impact will occur. Pursuant to the State CEQA Guidelines, Section 15091, no further finding is required*.

Moreover, to provide an affirmative benefit to special-status plant species over historical (or baseline) conditions, Article 1-13 of the Settlement Agreement (FEIS, p.3-234 to 3-235) requires SMUD to develop and implement plans for invasive weed management and vegetation management. It is expected that the reoperation of the UARP pursuant to these plans will result in a marginal increase in the population of special-status plant species.

#### 4.5.1.2 Iowa Hill

No sensitive plant species are known or expected to occur within the Iowa Hill Development area (EIS, p.3-176.) *Therefore, no impact will occur. Pursuant to the State CEQA Guidelines, Section 15091, no further finding is required*.

[2] SMUD voluntarily complies with the requirements of the California Public Utility Commission's General Order 95 *Rules for Overhead Line Construction* regarding construction and maintenance of overhead lines.

## 4.5.2 Special-status Animals

### 4.5.2.1 Reoperation of UARP Pursuant to Settlement Agreement

Eighty-eight special-status wildlife species are found in the project area (FEIS, p.3-184). Of that number, two are federally listed species (FEIS, p.3-184). Again, the UARP's historical impact to these species will not change as a result of reoperation to meet the terms of the Settlement Agreement. The two federally listed species identified as being potentially in the project area are valley elderberry longhorn beetle and California red-legged frog, both listed as threatened (FEIS, p.3-234). Being a pond species, the red-legged frog does not exist in the project area and of the two sites that could possibly be considered as potential habitat, neither could be evaluated due to lack of access (FEIS, pp. 3-236 to 3-237). The host species for the valley elderberry longhorn beetle is the elderberry, which exists in the project area only along the existing transmission lines (FEIS, p.3-242). No new transmission lines are contemplated under the Settlement Agreement. *Therefore, no impact will occur. Pursuant to the State CEQA Guidelines, Section 15091, no further finding is required*.

Moreover, under the reoperation, SMUD will minimize the ongoing historical impacts on valley elderberry longhorn beetle and other special-status wildlife species by implementing Article 1-12 of the Settlement Agreement (FEIS, pp.2-23 through 24). Article 1-12 requires preparing a biological evaluation before beginning any activities that may affect a species proposed for listing or its critical habitat (FEIS, p.3-242). Additionally, SMUD will comply with the *Conservation Guidelines for Valley Elderberry Longhorn Beetle* (U.S. Department of the Interior 1999) (as part of the plans required under Article 1-13 discussed above), which include protocol-level surveys, protective measures, and compensation (FEIS, p.3-242). Assessment and implementation of the invasive weed and vegetation management plans required by Article 1-13 will also minimize possible effects.[3]

The Eldorado National Forest has identified all species of trout as management indicator species. One or more species (rainbow, brown, or brook) of trout inhabit all project reservoirs and bypass reaches. Settlement Agreement Article 1-1 requires SMUD to increase the minimum streamflows below all UARP dams. This will benefit downstream trout populations in a variety of ways, including increasing usable habitat for spawning, juvenile and adult life stages, as well as lowering water temperatures,

[3] The FEIS found that the UARP's operation, even with implementation of Settlement Agreement sections 1-12 to 1-13, may have an adverse effect on valley elderberry longhorn beetle habitat (FEIS, p.3-243), even though the U.S. Fish and Wildlife Service's biological opinion states the proposed project is not likely to jeopardize the continued existence of the valley elderberry longhorn beetle (USFWS 2009). But as described in the introduction to this document, CEQA does not require a significance finding for ongoing impacts that do not increase in severity. Under CEQA, the environmental setting or baseline is "normally" the "physical environmental conditions in the vicinity of the project, as they exist at the time the notice of preparation is published…" (14 Cal. Code Regs. § 15125, subd. (a); *see also* *Communities for a Better Environment v. South Coast Air Quality Mgt. Dist.* 48, Cal.4th, 310, 320-321 (2010).) Because the physical conditions will actually improve for valley elderberry longhorn beetle under the reoperation, the project will not, under CEQA, have a significant impact on the valley elderberry longhorn beetle.

which is beneficial for these cold-water species (FEIS, pp. 3-136 to 3-163). Article 1-2 requires SMUD to release short-duration, high-volume pulse flows below three UARP reservoirs for channel maintenance purposes. These flows will clean gravels, scour pools, and reduce vegetative encroachment, all of which will benefit resident trout populations (FEIS, p. 3-165). Potential impacts to trout of sudden releases of pulse flows will be minimized by Article 1-3, which requires SMUD to implement ramping rates when releasing pulse flows. Article 1-9 requires SMUD to transport large woody debris that accumulates in four of the eleven UARP reservoirs to a point downstream of each respective dam. This will enhance trout habitat downstream of the four reservoirs (FEIS, p. 3-168). In addition, Article 1-5(1) requires SMUD to monitor trout populations in all UARP bypass reaches. Collectively, the measures required of SMUD will result in a less-than-significant project impact on trout species.

> *Finding*: Pursuant to the State CEQA Guidelines, Section 15091(a)(1), SMUD finds that changes or alterations required in, or incorporated into, the proposed project avoid or substantially lessen the significant environmental effects identified in the FEIS and/or CEQA Supplement.

#### 4.5.2.2 Iowa Hill

Implementation of the Iowa Hill Development will directly affect special-status species wildlife through the elimination of up to 141 acres of habitat (FEIS, p.3-203). Species that potentially use this area as habitat include the California spotted owl, northern goshawks, sensitive bat species, and Pacific fisher (FEIS, pp.3-203 to 3-204). To minimize impacts on special-status species wildlife, SMUD will implement Article 1-12 (FEIS, pp.2-23–2-24) and Article 1-41 (FEIS, p.2-30) of the Settlement Agreement. Article 1-12 requires SMUD to complete a biological evaluation before beginning any project construction activities. Article 1-41 requires SMUD to purchase land (or a conservation easement) of equivalent habitat value to mitigate for the loss of wildlife habitat associated with the Iowa Hill Development (FEIS, p.3-204). Although implementation of Article 1-12 and 1-41 will minimize impacts related to the loss of habitat for special-status species, it is not possible to reasonably guarantee complete mitigation without knowing what land may be purchased, what habitat types it contains, or which wildlife management goals will be applied to the property (FEIS, pp.3-204–3-205). Until further aspects of the Iowa Hill Development are defined, such information is not available. No further mitigation is available, and this impact will be significant and unavoidable.

> *Finding*: Pursuant to the State CEQA Guidelines, Section 15091(a)(1), SMUD finds that changes or alterations required in, or incorporated into, the proposed project avoid or substantially lessen the significant environmental effects identified in the FEIS and/or CEQA Supplement.

Portions of the Iowa Hill Pumped-storage Development will be constructed in Slab Creek Reservoir, which is inhabited by hardhead, a U.S. Forest Service Sensitive Fish Species and California Species of Special Concern. Operation of the project is not expected to alter the thermal regime of the reservoir in a way that would impact

hardhead (FEIS p. 1-170). Nevertheless, Article 1-40(2) requires SMUD to monitor water temperatures along the margins of reservoir to confirm that operation of Iowa Hill Development does not adversely affect hardhead by causing them to relocate to less desirable areas of the reservoir (FEIS p. 3-108). To minimize entrainment of hardhead during Iowa Hill Development operations SMUD has elected to construct a multi-port intake/outlet structure in the middle of Slab Creek Reservoir, 35 feet below the water surface. The deeply submerged structure, while more expensive than a shoreline alternative, will minimize hardhead entrainment, especially for juveniles that are more plentiful along the shoreline and most vulnerable to entrainment. Entrainment of rainbow trout during operation of the Iowa Hill Development will be minimal, since most of the trout reside in shallow depths and/or near the reservoir margins (FEIS, p. 3-170). In addition, Article 1-40(5) requires SMUD to monitor hardhead using a method approve the resource agencies to determine whether entrainment is occurring and develop appropriate mitigation measures. Collectively, the measures required of SMUD will result in a less-than-significant project impact on hardhead.

> *Finding*: Pursuant to the State CEQA Guidelines, Section 15091(a)(1), SMUD finds that changes or alterations required in, or incorporated into, the proposed project avoid or substantially lessen the significant environmental effects identified in the FEIS and/or CEQA Supplement.

### 4.5.3 Riparian Habitat or Sensitive Natural Communities

#### 4.5.3.1 Reoperation of UARP Pursuant to Settlement Agreement

The UARP boundary encompasses approximately 360 acres of riparian vegetation, mostly in the form of a narrow fringe on the edge of the stream channel (FEIS, p.3-178). Flow alterations and large water level fluctuations may impact riparian vegetation (FEIS, p.3-196). To reduce potential impacts on riparian vegetation, SMUD will implement Article 1-1 (FEIS, p.2-16), Article 1-2 (FEIS, pp.2-16–2-18), Article 1-23 (FEIS, p.2-26), Article 1-5 (FEIS, pp.2-18–2-22), and Article 1-6 (FEIS, p.2-22) of the Settlement Agreement. Article 1-1 requires SMUD to provide minimum streamflows in project reaches. Article 1-2 requires SMUD to provide pulse flows in three reaches. Article 1-23 requires SMUD to maintain reservoir levels. Minimum flows, pulse flows, and reservoir levels will be beneficial to riparian vegetation by returning the area to a more natural hydrograph (FEIS, p.3-198). Article 1-5 requires SMUD to develop and implement a riparian vegetation monitoring program. If monitoring identifies any adverse effects on riparian vegetation, the adaptive management program required under Article 1-6 will provide for needed changes or restoration (FEIS, p.3-198). Implementation of the article above will minimize impacts on riparian vegetation to a less-than-significant level.

> *Finding*: Pursuant to the State CEQA Guidelines, Section 15091(a)(1), SMUD finds that changes or alterations required in, or incorporated into, the proposed project avoid or substantially lessen the significant environmental effects identified in the FEIS and/or CEQA Supplement.

4.5.3.2 Iowa Hill

Construction of the Iowa Hill Development will not affect any riparian vegetation (FEIS, pp.3-231–3-232). *Therefore, impacts to riparian vegetation will be less than significant. Pursuant to the State CEQA Guidelines, Section 15091, no further finding is required*.

## 4.6 Wetlands

Wetlands are found at six reservoirs—Rubicon, Buck Island, Loon Lake, Gerle Creek, Ice House, and Union Valley (FEIS, pp.3-180–3-181). Wetlands at all reservoirs are affected by project operations (FEIS, p.3-198). However, the degree to which the UARP affects wetlands will not appreciably change under reoperation pursuant to the Settlement Agreement. *Therefore, no impact will occur. Pursuant to the State CEQA Guidelines, Section 15091, no further finding is required*.

Moreover, to reduce the level of ongoing impacts to wetlands, SMUD will implement Article 1-23 of the Settlement Agreement (FEIS, p.2-26). Article 1-23 requires SMUD to maintain reservoir levels. The increased inundation time may result in increased species diversity, benefitting wetland health (FEIS, p.3-199).

Construction of the Iowa Hill Development will not affect any wetlands (FEIS, pp.3-231–3-232). *Therefore, no impact will occur. Pursuant to the State CEQA Guidelines, Section 15091, no further finding is required*.

4.6.1 Migratory Corridors or Nursery Sites

4.6.1.1 Reoperation of UARP Pursuant to Settlement Agreement

UARP operations under the proposed project have the potential to affect foothill yellow-legged frog, a U.S. Forest Service Sensitive Species and California Species of Special Concern that uses select UARP bypass reaches for migratory and breeding purposes. The minimum streamflows required of SMUD under Article 1-1 will create a more natural hydrograph that will be beneficial to frog breeding and rearing (FEIS, p. 215). Other operational changes of the UARP have the potential to impact foothill yellow-legged frogs. These include pulse flow releases (Article 1-2) and whitewater boating releases (Article 1-24), both of which will occur in spring months when immobile egg masses and weak-swimming developing tadpoles are inhabiting the project bypass reaches (FEIS, p. 3-218). To minimize impacts to these life stages, SMUD will be required to adhere to an adaptive management program that will cancel pulse and whitewater boating releases in certain reaches if foothill yellow-legged frog breeding has commenced, thereby minimizing the likelihood of impacts (FEIS, p. 3-225). SMUD will also be required to release boating and pulse flows under a controlled ramping rate that eliminates sudden increases or decreases in the flow regime (FEIS, p. 3-219). Article 1-5(3) requires SMUD to monitor foothill yellow-legged frogs in the UARP stream reaches where they are currently known to exist. Collectively, the measures required of SMUD will result in a less-than-significant project impact on foothill yellow-legged frogs.

*Finding*: Pursuant to the State CEQA Guidelines, Section 15091(a)(1), SMUD finds that changes or alterations required in, or incorporated into, the proposed project avoid or substantially lessen the significant environmental effects identified in the FEIS and/or CEQA Supplement.

#### 4.6.1.2 Iowa Hill

The construction and operation of the Iowa Hill Development may affect individual frogs downstream of Slab Creek Reservoir in the South Fork American River, but is not likely to result in a trend toward federal listing or loss of viability for the species (FEIS, p. 3-216). *Therefore, no impact will occur. Pursuant to the State CEQA Guidelines, Section 15091, no further finding is required*.

### 4.6.2 Local Policies and Ordinances

Pursuant to well-settled law, the Federal Power Act establishes a comprehensive federal scheme for regulating hydroelectric power projects on navigable waters which occupy the field and preempts state and local laws, including land use permitting authority (CEQA Supplement, Appendix H-2, p.7).[4]

### 4.6.3 Habitat Conservation Plans

There are no adopted habitat conservation plans, natural community conservation plans, or other approved local, regional, or state habitat conservations plans within the project boundary. *Therefore, no impact will occur. Pursuant to the State CEQA Guidelines, Section 15091, no further finding is required*.

## 4.7 Cultural Resources

Impacts on cultural resources were evaluated in Section 3.3.9 of the FEIS (beginning on p.3-313). In addition, any changes or mitigating features of the proposed project identified in the FEIS or the CEQA Supplement were memorialized in the MMRP (CEQA Supplement, Appendix B). The following topics are based on the State CEQA Guidelines (Appendix G checklist), to facilitate the compilation of data from the three documents identified above (i.e., the FEIS, the CEQA Supplement, and the MMRP) as they relate to significance thresholds for cultural resources.

[4] *See, e.g., California v. FERC*, (495 U.S. 490, 496 (1990); *First Iowa Hydro-Elec. Coop. v. Fed. Power Comm'n*, 328 U.S. 152, 181 (1946); *Sayles Hydro Ass'n v. Maughan*, 985 F.2d 451, 456 (9th Cir. 1993); *Town of Springfield v. State of Vt. Envtl. Bd.*, 521 F. Supp. 243, 249-250 (D. Vt. 1981); *Weyerhaeuser Co.*, 55 F.E.R.C. ¶ 61,079, 61,248 (1991).

## 4.7.1 Historical, Archaeological, and Paleontological Resources and Human Remains

### 4.7.1.1 Reoperation of UARP Pursuant to Settlement Agreement

Construction and operation of the proposed project, including re-construction of existing facilities such as campgrounds and trails, may affect historical, archaeological, and paleontological resources (FEIS, pp.3-318–3-320). The archaeological resources inventory report prepared for SMUD documented 87 sites in the UARP (FEIS, p.3-317). To minimize impacts on cultural resources, SMUD will implement Articles 1-28 (FEIS, p.2-28), 1-29 (FEIS, p.2-28), and 1-45 (FEIS, p.2-30).

Article 1-28 requires SMUD to develop and implement a historic properties management plan (HPMP) subject to approval by the U.S. Forest Service (FEIS, p.3-318). The HPMP will discuss proposed project effects on prehistoric and historic resources, Native American traditional cultural values, direct and indirect effects to heritage resources, ethnographic studies, historic archaeological studies, and impacts on archaeological properties. The HPMP also will include measures to mitigate effects, a monitoring program, and management protocols.

Under Article 1-29, if before or during ground disturbance or as a result of project operations, items of potential cultural value are reported or discovered, work in the area of the resource will immediately cease and the U.S. Forest Service will be notified (FEIS, p.3-318). Work will not resume until SMUD receives written approval. SMUD may be required to perform recovery, excavation, and preservation of the site and its artifacts, under provisions of an Archaeological Resources Protection Act permit.

The FEIS concluded that implementation of Articles 1-28, and 1-29, will ensure that impacts on cultural resources will be avoided or satisfactorily resolved (FEIS, p.3-319). Under the State CEQA Guidelines, Section 15064.5(b), "[a] project with an effect that may cause a substantial adverse change in the significance of an historical resource is a project that may have a significant effect on the environment." The significance of a historical resource can be changed through demolition, relocation, or alteration of the resource or its immediate surroundings (State CEQA Guidelines, Section 15064.5[b][1]). Although Articles 1-28 and 1-29, require investigation and protection for known resources and specify actions to be taken if previously unknown resources are discovered, the potential remains for unknown resources or their immediate surroundings to be inadvertently demolished, relocated or altered. Because all feasible mitigation has been included and no additional measures are available to SMUD to ensure that previously undiscovered cultural resources will not be demolished, relocated, or altered, impacts on historical, archaeological, and paleontological resources are significant and unavoidable.

> *Finding*: Pursuant to the State CEQA Guidelines, Section 15091(a)(1), SMUD finds that changes or alterations required in, or incorporated into, the proposed

project avoid or substantially lessen the significant environmental effects identified in the FEIS and/or CEQA Supplement.

4.7.1.2 Iowa Hill

The same considerations for construction and operation of the proposed project also apply to Iowa Hill. In addition, Article 1-45 applies specifically to the Iowa Hill Development (FEIS, p.3-319). Under Article 1-45, SMUD is required to comply with the requirements of National Historic Preservation Act (NHPA) Section 106 and its implementing regulations found at 36 Code of Federal Regulations (CFR) 800 before beginning work on national Forest System lands (FEIS, p.2-30). Additionally, if potential cultural resources are reported or discovered before or during site disturbance or during operations, SMUD will be required to immediately cease work and notify the U.S. Forest Service (FEIS, p.3-319). Work in the area will be allowed to resume on written approval from the U.S. Forest Service. Ground disturbing activities will be primarily associated with Iowa Hill. During the construction of Iowa Hill, SMUD will remove the soil and organic layer within approximately 141 acres of land as construction activities clear the area down to bedrock for the purposes of building the upper reservoir berm. The FEIS concluded that implementation of Articles 1-28, 1-29, and 1-45 will ensure that impacts on cultural resources will be avoided or satisfactorily resolved (FEIS, p.3-319).

*Finding*: Pursuant to the State CEQA Guidelines, Section 15091(a)(1), SMUD finds that changes or alterations required in, or incorporated into, the proposed project avoid or substantially lessen the significant environmental effects identified in the FEIS and/or CEQA Supplement.

## 4.8 Geology and Soils

Impacts on geology and soils were evaluated in Section 3.3.1 of the FEIS (beginning on p.3-3). In particular, some concerns regarding geology and soils were addressed in the responses to Comments 18 and 19 (pp.A-9–A-10), included in Appendix A of the FEIS. In addition, any changes or mitigating features of the proposed project identified in the FEIS or the CEQA Supplement were memorialized in the MMRP (CEQA Supplement, Appendix B). The following topics are based on the State CEQA Guidelines (Appendix G checklist), to facilitate the compilation of data from the three documents identified above (i.e., the FEIS, the CEQA Supplement, and the MMRP) as they relate to significance thresholds for geology and soils.

4.8.1 Faults, Ground Shaking, Seismic-related Ground Failure, and Landslides

4.8.1.1 Reoperation of UARP Pursuant to Settlement Agreement and Iowa Hill

On a general basis, the entire UARP area and Sierra Nevada is susceptible to earth movement because of the prevalence of seismic activity in California. Five faults or fault systems within a 62-mile radius of the Iowa Hill area are active. However, no faults or fault systems are considered active enough or near enough to the project site so as to create any greater risk than that associated with the structures that already impound

UARP waters (FEIS, p.3-19). In fact, construction of a reservoir with earthen berms and an impermeable layer is likely to withstand an earthquake with less damage than concrete-arch dams like Slab Creek Dam because there is no possibility of the earthen berms overturning. SMUD's dam safety Best Management Practices applied to all UARP dams also lower the risk for seismic-related impacts. Whenever an earthquake in the vicinity of the UARP is detected, SMUD dispatches reservoir operators to all project dams to perform visual inspections of damage. Also, SMUD engages in annual dam safety investigations. SMUD will continue to work with FERC and the California Department of Water Resources, Division of Safety of Dams to annually inspect and evaluate the integrity and stability of all UARP dams. This will include the new berm constructed to hold waters of the upper reservoir for the Iowa Hill Project. SMUD will also continue to periodically update the UARP dam seismicity assessments when new information on fault systems and fault activity becomes available. The last such update occurred in 2006. *Therefore, less than significant impact will occur. Pursuant to the State CEQA Guidelines, Section 15091, no further finding is required*.

4.8.2 Soil Erosion

4.8.2.1 Reoperation of UARP Pursuant to Settlement Agreement and Iowa Hill

Erosion of upland soils in the UARP watersheds during construction projects or use of unpaved roads for project maintenance purposes was evaluated in Section 3.3.1.2 (beginning on p.3-15). To address existing erosion, SMUD will implement Article 1-30 of the Settlement Agreement (FEIS, p.2-28). Article 1-30 requires SMUD to develop a transportation management plan which will address measures to control project-related erosion, including dust and soil movement induced by project activities (FEIS, p.3-15). Development of this plan will ensure that erosion control protocols are followed that will minimize erosion and sediment disturbance (FEIS, p.3-15). Implementation of measures designed to minimize erosion will ensure that the proposed project will reduce potential impacts to a less-than-significant level.

> *Finding*: Pursuant to the State CEQA Guidelines, Section 15091(a)(1), SMUD finds that changes or alterations required in, or incorporated into, the proposed project avoid or substantially lessen the significant environmental effects identified in the FEIS and/or CEQA Supplement.

4.8.3 Soil Stability and Expansive Soils

4.8.3.1 Iowa Hill

Because most of the proposed project involves the continued operation of existing facilities, much of the impact analysis is focused on the Iowa Hill Development. Records and geotechnical studies confirm the presence of stable geology in the area (FEIS, p.A-10). *Therefore, no impact will occur. Pursuant to the State CEQA Guidelines, Section 15091, no further finding is required*.

### 4.8.4 Septic Tanks

There are few existing septic waste water disposal systems associated with UARP facilities such as campgrounds and powerhouses. Additional systems will likely be constructed under Article 1-19 of the Settlement Agreement, which requires the installation of flush toilets and shower facilities at three locations. General soil conditions and percolation rates are adequate at the three new locations to support the use of wastewater disposal systems. *Therefore, no impact will occur. Pursuant to the State CEQA Guidelines, Section 15091, no further finding is required*.

## 4.9 Greenhouse Gas Emissions

Impacts related to greenhouse gas emissions were evaluated in the CEQA Supplement Addendum, which replaces the response to Comment 29 included in Appendix H-2 of the CEQA Supplement. Although the UARP is designed to generate energy without the combustion of fossil fuels, the analysis addressed the potential generation of greenhouse gas emissions during construction of facilities, as well as the effects of changes to the natural landscape as a result of project implementation. Any changes or mitigating features of the proposed project identified in the FEIS or the CEQA Supplement were memorialized in the MMRP (CEQA Supplement, Appendix B). The following topics are based on the State CEQA Guidelines (Appendix G checklist), to facilitate the compilation of data from the three documents identified above (i.e., the FEIS, the CEQA Supplement, and the MMRP) as they relate to significant thresholds for greenhouse gas emissions.

### 4.9.1 Generation of Greenhouse Gas Emissions

#### 4.9.1.1 Iowa Hill

Construction of the Iowa Hill Development will potentially generate GHG emissions (CEQA Supplement Addendum, pp. 4). To minimize any short-term construction-related GHG emissions, SMUD will implement the Iowa Hill Transportation Management Plan (CEQA Supplement, p.42). During construction, the plan will reduce GHG emissions by including the use of vanpools from staging areas to the construction sites. Additionally, SMUD will implement mitigation measures designed to reduce air pollutant emissions, including adherence to exhaust emissions standards for construction equipment established by the CARB, limits on diesel engine idling, and preventative maintenance on construction equipment engines (FEIS, p.3-349). Further measures to minimize fugitive dust emissions during construction will include application of water or chemical dust suppressant on unpaved surfaces, vacuum sweeping and water flushing of paved surfaces, and replanting vegetation in disturbed areas as quickly as possible. With these mitigation measures in place, Iowa Hill GHG emissions were computed to be 14,134 metric tonnes/year of $CO_2e$ (a measure of $CO_2$ equivalency).

To determine the total net GHG emissions for Iowa Hill, the long-term operation of the Iowa Hill Development post-construction was also evaluated as part of a comparative

analysis of GHG emissions under the UARP-only alternative (without Iowa Hill) and UARP with Iowa Hill alternative. As described in Section 2.2 above, Iowa Hill, as a pumped-storage project, will operate by using energy to pump water up to the Iowa Hill Reservoir during periods of non-peak demand. Then, during peak demand, water will be released from the reservoir into the Iowa Hill powerhouse for energy production. The net GHG emissions from the UARP-only and UARP plus Iowa Hill alternatives is calculated as the difference in GHG emissions released each year when operating the UARP with and without Iowa Hill to meet SMUD customers' total net energy requirements. Specifically, the analysis calculated the amount of $CO_2e$ released annually by the UARP as re-operated pursuant to the new license with and without Iowa Hill. Since SMUD does not have complete control over which of its several energy sources will be used to supply Iowa Hill, it is reasonable to assume that the power will be in proportion to the sources in SMUD's current mix of produced and purchased energy. Under this assumption, the UARP-only alternative is computed to result in an annual $CO_2e$ release of 460,641. This value, then, represents the GHG emissions associated with replacing the predicted UARP generation loss that results from project reoperation. In comparison, with Iowa Hill added to the UARP the annual $CO_2e$ release is calculated to be 294,922. The 165,719 metric tonnes/year reduction in GHG emissions associated with Iowa Hill is due to two primary factors: (1) the energy used to pump water up to Iowa Hill Reservoir will be produced during off-peak hours when the SMUD energy mix contains a higher contribution from relatively low GHG-emitting combined cycle turbine gas-fired plants; and (2) Iowa Hill will produce GHG-free energy during peak hours when the SMUD energy mix otherwise would rely more heavily on relatively high GHG-emitting simple cycle gas-fired turbine plants. Thus, the benefit of Iowa Hill is that it shifts the peak generation mix from simple cycle turbines to hydro, thereby reducing GHG emissions.

The analysis also demonstrates the fact that the first year of operating Iowa Hill alone will more than make up for the estimated short-term GHG emissions from constructing it. In addition, SMUD has plans to gradually increase the portion of its energy that derives from renewable sources, which will in turn reduce the GHG emissions associated with the long-term operation of Iowa Hill.

### 4.9.2 Conflict with Plans Intended to Reduce Greenhouse Gas Emissions

The UARP will produce energy without the combustion of fossil fuels. In fact, the Iowa Hill Development will create a new source of peak energy production that will eliminate the need for 400 MW of less efficient fossil-fuel-driven peaking power plants in the Sacramento region. Thus, the proposed project will have a positive effect on regional greenhouse gas (GHG) emissions (CEQA Supplement, Appendix H-2, p.10). Because of this positive effect, the proposed project will not conflict with any plans, policies, or regulations designed to reduce GHG emissions. *Therefore, no impact will occur. Pursuant to the State CEQA Guidelines, Section 15091, no further finding is required*.

## 4.10 Hazards and Hazardous Materials

Impacts related to hazards and hazardous materials were evaluated in Section 3.3.1, "Geology and Soils" (FEIS, beginning on p.3-15), Section 3.3.2, "Water Resources" (beginning on p.3-53), Section 3.3.3.1 of the CEQA Supplement (beginning on p.25), and Section 3.3.3.5 of the CEQA Supplement (beginning on p.62). In addition, any changes or mitigating features of the proposed project identified in the FEIS or the CEQA Supplement were memorialized in the MMRP (CEQA Supplement, Appendix B). The following topics are based on the State CEQA Guidelines (Appendix G checklist), to facilitate the compilation of data from the three documents identified above (i.e., the FEIS, the CEQA Supplement, and the MMRP) as they relate to significance thresholds for hydrology and water quality.

### 4.10.1 Hazardous Materials

Construction activities may include the use of hazardous materials such as fuels, hydraulic fluids, lubricants, compressed gases, and for Iowa Hill, blasting materials. Project construction contractors will be required to use, store, and transport hazardous materials in compliance with federal, state, and local regulations. *Therefore, no impact will occur. Pursuant to the State CEQA Guidelines, Section 15091, no further finding is required*.

### 4.10.2 Proximity to Schools

The project site is not located within one-quarter mile of any existing or proposed school. *Therefore, no impact will occur. Pursuant to the State CEQA Guidelines, Section 15091, no further finding is required*.

### 4.10.3 Hazardous Materials Site

The project site does not include any properties listed pursuant to Government Code Section 65962.5. *Therefore, no impact will occur. Pursuant to the State CEQA Guidelines, Section 15091, no further finding is required*.

### 4.10.4 Public Airports

The proposed project will not be located in an airport safety zone (Figure LU-1: Land Use Diagram from the County General Plan). The closest public airport to the project site is the Placerville Airport, located approximately three miles southwest of the White Rock Powerhouse. *Therefore, no impact will occur. Pursuant to the State CEQA Guidelines, Section 15091, no further finding is required*.

### 4.10.5 Private Airstrips

The closest private airstrip is the Swansboro Country Airport, located approximately 2.3 miles northwest of the Slab Creek Reservoir. Because of the distance and the

infrequent use of the airstrip, *no impact will occur. Pursuant to the State CEQA Guidelines, Section 15091, no further finding is required*.

4.10.6 Emergency Plans

4.10.6.1 Iowa Hill

As discussed in Impact PHS-2, "Roadway Conditions Affecting Emergency Access," construction and operation activities will potentially affect emergency access to the project site (CEQA Supplement, pp.70–72). Primary access roads have been identified and any required improvements to those roads will be incorporated into the Transportation Plan for the Iowa Hill Development construction (CEQA Supplement, p.71). Furthermore, the Fire Management and Response Plan required by Article 1-34 of the Settlement Agreement (FEIS, p.2-29) will include provisions for further evaluation of all access roads to ensure suitability for passage by emergency response vehicles (CEQA Supplement, p.71). Any roads built specifically for construction access will be maintained during operation, providing the same level of emergency access as during construction (CEQA Supplement, p.71). Implementation of the Transportation Plan and the above provisions will ensure that project impacts on emergency plans in the project area will be less than significant.

> *Finding*: Pursuant to the State CEQA Guidelines, Section 15091(a)(1), SMUD finds that changes or alterations required in, or incorporated into, the proposed project avoid or substantially lessen the significant environmental effects identified in the FEIS and/or CEQA Supplement.

As discussed in Impact PHS-3, "Construction Traffic Affecting Emergency Evacuation," additional construction-related traffic at the Iowa Hill Development will potentially impact emergency evacuation operations in the construction site area (CEQA Supplement, p.72). As part of the Transportation Plan and the Fire Protection Plan for the Iowa Hill Development, SMUD will evaluate additional routes and alternative access points, and require carpools and/or vanpools. During project operations, no interference with evacuation plans will occur. Implementation of the Transportation Plan and the Fire Protection Plan will ensure that project impacts on emergency evacuations in the project area will be less than significant.

> *Finding*: Pursuant to the State CEQA Guidelines, Section 15091(a)(1), SMUD finds that changes or alterations required in, or incorporated into, the proposed project avoid or substantially lessen the significant environmental effects identified in the FEIS and/or CEQA Supplement.

4.10.7 Wildland Fire

4.10.7.1 Reoperation of UARP Pursuant to Settlement Agreement

UARP operations and recreational use has historically posed, and will continue to pose, some level of wildfire threat. However, that level of threat will not measurably change under reoperation pursuant to the Settlement Agreement. *Therefore, no impact will*

*occur. Pursuant to the State CEQA Guidelines, Section 15091, no further finding is required*.

Moreover, Section 3.3.7.2 of the FEIS (beginning on p.3-291) and Section 3.3.3.5.3 of the CEQA Supplement (beginning on p.68) specifically address impacts related to wildland fire. To minimize the threat of wildfire associated with continued UARP operation, SMUD will develop and implement a UARP Fire Management and Response Plan as required by Article 1-34 of the Settlement Agreement (FEIS, pp. 2-29). While UARP operations and recreational use continue to contribute to a wildfire threat, implementation of the UARP Fire Management and Response Plan will improve coordination of fire preparedness and reduce the occurrence and suppression of wildfires that might be project-induced (FEIS, p. 3-298).

4.10.7.2 Iowa Hill

Impact PHS-1, "Fire Start Risk," (CEQA Supplement, pp.69–70) discussed the potential for fire risk increase during construction of the Iowa Hill Development. To minimize fire risk during construction, SMUD will develop and implement a Fire Protection Plan. Specifically, the Fire Protection Plan will include a provision requiring all construction activities to comply with the Forest Practice Rules, the California Public Resources Code, and Special Use Permit Requirements from the USFS (CEQA Supplement, p.69). Accordingly, the plan will include, but not be limited to ensuring an onsite water supply, a Fire Patrol Person, smoking restrictions, strict storage procedures for flammable materials, vegetative clearing and burning restrictions, and worker fire safety awareness training. Operation of the Iowa Hill Development may increase the risk of fire starts at the switchyard and transmission line (CEQA Supplement, p.69). To minimize this operational risk, SMUD will fold the Iowa Hill Development into the provisions of the UARP Fire Management and Response Plan (CEQA Supplement, p.69). In summary, implementation of the Iowa Hill Development Fire Protection Plan and the overarching UARP Fire Management and Response Plan will collectively ensure that the proposed project will reduce potential construction and operational impacts to a less-than-significant level (CEQA Supplement, p.69).

> *Finding*: Pursuant to the State CEQA Guidelines, Section 15091(a)(1), SMUD finds that changes or alterations required in, or incorporated into, the proposed project avoid or substantially lessen the significant environmental effects identified in the FEIS and/or CEQA Supplement.

## 4.11 Hydrology and Water Quality

Impacts on hydrology and water quality were evaluated in Section 3.3.1, "Geology and Soils" (FEIS, beginning on p.3-15), Section 3.3.2, "Water Resources" (beginning on p.3-53), and Section 3.3.3.1 of the CEQA Supplement (beginning on p.25). In addition, any changes or mitigating features of the proposed project identified in the FEIS or the CEQA Supplement were memorialized in the MMRP (CEQA Supplement, Appendix B). The following topics are based on the State CEQA Guidelines (Appendix G checklist), to facilitate the compilation of data from the three documents identified above (i.e., the

FEIS, the CEQA Supplement, and the MMRP) as they relate to significance thresholds for hydrology and water quality.

### 4.11.1 Water Quality Standards

#### 4.11.1.1 Reoperation of UARP Pursuant to Settlement Agreement

The Settlement Agreement, Articles 1-18 and 1-19, requires upgrades to campgrounds and trails, including additional day use opportunities at Union Valley Reservoir. Recreational uses of project reservoirs may introduce human pathogens to surface water in the project area (FEIS, p.3-103). Fecal coliform bacteria sampling at the UARP reservoirs revealed concentrations in excess of allowable limits (FEIS, pp.3-69 and 3-103). The upgrades and additional day use opportunities have some potential to incrementally increase historical levels of fecal coliform bacteria associated with operation of the UARP by increasing recreational use of project reservoirs. Article 1-5(10) of the Settlement Agreement (FEIS, p.2-20) requires SMUD to develop a water quality monitoring plan for recreational developments. Article 1-21 of the Settlement Agreement (FEIS, p.2-26) requires SMUD to pay the Forest Service to operate, maintain, and administer recreational sites. This arrangement will include sanitation (FEIS, p.3-103). Implementation of Articles 1-5(10) and 1-21 will reduce the risk of exceeding fecal coliform bacteria concentration limits by requiring a monitoring plan and providing for a responsible party to address sanitation in recreational facilities. This impact will be reduced to a less-than-significant level.

> *Finding*: Pursuant to the State CEQA Guidelines, Section 15091(a)(1), SMUD finds that changes or alterations required in, or incorporated into, the proposed project avoid or substantially lessen the significant environmental effects identified in the FEIS and/or CEQA Supplement.

#### 4.11.1.2 Iowa Hill

Impact WQ-1a, “Turbidity and Pollutant Concentration Increase during Construction” (CEQA Supplement, p.26) discussed the possibility that construction activities may cause water quality criteria to be exceeded for constituents such as turbidity, nutrient concentrations, and water pollutants. To ensure that construction activities will not exceed water quality criteria, SMUD will implement Article 1-42 of the Settlement Agreement (FEIS, p.2-30). Article 1-42 requires SMUD to develop a plan to protect water quality and obtain all necessary permits. Implementation of Article 1-42 will ensure that the proposed project will reduce potential impacts to a less-than-significant level.

> *Finding*: Pursuant to the State CEQA Guidelines, Section 15091(a)(1), SMUD finds that changes or alterations required in, or incorporated into, the proposed project avoid or substantially lessen the significant environmental effects identified in the FEIS and/or CEQA Supplement.

Impact WQ-1b, “Turbidity and Mercury Concentration Increase during Operation” (CEQA Supplement, pp.26–30) discussed the potential for increased concentrations of sediment-bound mercury, particularly in Slab Creek Reservoir associated with the operation of the Iowa Hill Development (CEQA Supplement, p.27). *Therefore, no impact will occur. Pursuant to the State CEQA Guidelines, Section 15091, no further finding is required*.

4.11.2 Groundwater

4.11.2.1 Iowa Hill

The proposed Iowa Hill Development may affect groundwater by creating seepage paths that may lead to pollution of the water table (FEIS, p.3-20). To protect groundwater during construction and operation of the proposed development, SMUD will implement Article 1-43 of the Settlement Agreement (FEIS, p.2-30). Article 1-43 requires SMUD to develop and implement a plan for managing groundwater, including surveys, monitoring, and mitigation of any and all impacts. Implementation of Article 1-43 will mitigate impacts on groundwater to a less-than significant level.

> *Finding*: Pursuant to the State CEQA Guidelines, Section 15091(a)(1), SMUD finds that changes or alterations required in, or incorporated into, the proposed project avoid or substantially lessen the significant environmental effects identified in the FEIS and/or CEQA Supplement.

4.11.3 Erosion or Siltation

4.11.3.1 Reoperation of UARP Pursuant to Settlement Agreement and Iowa Hill

Erosion of upland soils in the UARP watersheds during construction projects or use of unpaved roads for project maintenance purposes is addressed in Section 3.3.1.2 (beginning on p.3-15). To address the potential for erosion effects from transportation sources, SMUD will implement Article 1-30 of the Settlement Agreement (FEIS, p.2-28). Article 1-30 requires SMUD to develop a transportation system management plan which will include measures to control project-related erosion, including dust and soil movement induced by project construction activities (FEIS, p.3-15). Development of this plan will ensure that erosion control protocols are followed that will minimize erosion and sediment disturbance induced by project roads and maintenance activities (FEIS, p.3-15). Implementation of measures designed to minimize erosion will ensure that the proposed project will reduce potential impacts to a less-than-significant level.

> *Finding*: Pursuant to the State CEQA Guidelines, Section 15091(a)(1), SMUD finds that changes or alterations required in, or incorporated into, the proposed project avoid or substantially lessen the significant environmental effects identified in the FEIS and/or CEQA Supplement.

Based on geomorphology studies, some project stream reaches will benefit from periodic pulse flows that move sediments downstream (FEIS, p.3-18). However, under the reoperation these conditions will not measurably change. *Therefore, no impact will*

*occur. Pursuant to the State CEQA Guidelines, Section 15091, no further finding is required*. Moreover, Article 1-2 of the Settlement Agreement (FEIS, pp.2-16 through 2-18), SMUD will provide pulse flows to three reaches in the UARP. This movement of sediments may cause siltation and related changes in geomorphology (FEIS, p.3-15). Under Article 1-5 of the Settlement Agreement (FEIS, pp.2-18–2-20), SMUD will monitor channels and reservoirs to determine if sediment should be placed in channels or dredged from reservoirs. Articles 1-2 and 1-5 will ensure that sedimentation in channels and reservoirs is maintained at optimal levels, reducing siltation impacts to a less-than-significant level.

The Gerle Creek channel area has fine sediment deposits that may affect biological and recreational resources if the conditions continue to degrade (FEIS, p.3-16). However, under the reoperation these conditions will not measurably change. *Therefore, no impact will occur. Pursuant to the State CEQA Guidelines, Section 15091, no further finding is required*. Moreover, under Article 1-7 of the Settlement Agreement (FEIS, p.2-22), SMUD will develop and implement a plan to stabilize the Gerle Creek channel. Article 1-7 will include measures to prevent future degradation caused by erosion, instability, and sedimentation (FEIS, p.3-16). Implementation of Article will ensure that sedimentation in Gerle Creek does not adversely impact biological and recreational resources, reducing potential erosion and siltation/sedimentation impacts to a less-than-significant level.

#### 4.11.3.2 Iowa Hill

Construction and operation of the Iowa Hill Development may impact soil erosion and result in sedimentation in the Slab Creek Reservoir (FEIS, p.3-18). To prevent erosion during construction of the Iowa Hill Development, SMUD will implement Article 1-42 of the Settlement Agreement (FEIS, p.2-30). Article 1-42 requires SMUD to develop a plan to protect water quality and obtain all necessary water quality permits. To reduce impacts from discharging spoils on National Forest System lands, SMUD will implement Article 1-47 of the Settlement Agreement (FEIS, p.2-30). Article 1-47 requires SMUD to obtain U.S. Forest Service approval before any discharge of spoils on National Forest System lands. Implementation of Articles 1-42 and 1-47 will ensure that the proposed project will reduce potential impacts to a less-than-significant level.

> *Finding*: Pursuant to the State CEQA Guidelines, Section 15091(a)(1), SMUD finds that changes or alterations required in, or incorporated into, the proposed project avoid or substantially lessen the significant environmental effects identified in the FEIS and/or CEQA Supplement.

### 4.11.4 Flooding

The proposed Project will not affect flood control facilities or contribute to existing flood conditions in the South Fork American River basin. *Therefore, no impact will occur. Pursuant to the State CEQA Guidelines, Section 15091, no further finding is required*.

### 4.11.5 Runoff

As described throughout the FEIS, the reoperation of the UARP under the Settlement Agreement will not alter the historical regimen of SMUD's diversion, collection and storage of water for beneficial use in generating electricity (see also Section 11.3.2 regarding Iowa Hill). *Therefore, no impact will occur. Pursuant to the State CEQA Guidelines, Section 15091, no further finding is required*.

### 4.11.6 Degrade Water Quality

#### 4.11.6.1 Reoperation of UARP Pursuant to Settlement Agreement

Existing UARP operations influence water quality primarily by affecting water temperature (FEIS, p.3-88). This relationship between UARP operations and water temperature will continue under the proposed project. The main effect of UARP reoperation will be a reduction in water temperatures in UARP bypass reaches, primarily during spring and summer (FEIS, p.3-88). In general, cooler water temperatures create cold freshwater fish habitat (FEIS, p.3-59), an objective identified in the Settlement Agreement (FEIS, pp.3-91 to 3-95, 3-97, and 3 -99). To provide cold freshwater habitat, SMUD will implement Article 1-1 of the Settlement Agreement (FEIS, p.2-16), which requires SMUD to adhere to monthly minimum streamflow releases at all UARP dams in each of five different water year types (FEIS, pp.3-91–3-95, and 3-97–3-99). The monthly minimum streamflow releases required in Article 1-1 represent increases over existing license requirements. Increased streamflow releases will lower water temperatures in the project bypass reaches (FEIS, pp.3-91–3-95, and 3-97–3-99). Article 1-1 also requires SMUD to reserve an "adaptive management block of water" for temperature control in two project reaches that have the potential to warm to levels not conducive to cold freshwater habitat. When temperatures in the two river reaches warm above 20°C, SMUD will release additional water from the reserved block to cool the river. Implementation of minimum streamflow measures and use of the block of water will lower temperatures in UARP project reaches, thereby ensuring the proposed project will reduce potential cold freshwater habitat impacts caused by water temperature to a less-than-significant level.

Moreover, to monitor ongoing effects of UARP operations on water temperature, SMUD will implement Article 1-5(3) and Article 1-5(9) of the Settlement Agreement (FEIS, pp.2-19 and 2-22, respectively). Article 1-5(3) requires SMUD to develop and implement a water temperature monitoring plan to monitor water temperatures in critical stream margin habitats associated with known or suitable foothill yellow-legged frog breeding sites (FEIS, p.3-106). Article 1-5(9) requires SMUD to develop and implement a UARP-wide water temperature monitoring plan to confirm that summer cold freshwater habitat and spring amphibian breeding conditions are supported (FEIS, pp.2-20 through 2-21).

> *Finding*: Pursuant to the State CEQA Guidelines, Section 15091(a)(1), SMUD finds that changes or alterations required in, or incorporated into, the proposed

project avoid or substantially lessen the significant environmental effects identified in the FEIS and/or CEQA Supplement.

The historical operation of the UARP has influenced algae growth within project reaches and will continue to do so under the reoperation pursuant to the Settlement Agreement without any appreciable change (FEIS, p.3-88). *Therefore, no impact will occur. Pursuant to the State CEQA Guidelines, Section 15091, no further finding is required*. In addition, to monitor potential ongoing effects of project operations on algae, SMUD will implement Article 1-5(6) and Article 1-6(7) of the Settlement Agreement (FEIS, pp.2-19 and 2-22, respectively). Article 1-5(6) requires SMUD to develop and implement a plan to identify and monitor algae species (FEIS, p.3-113). Article 1-6(7) requires SMUD to manage algae based on monitoring results (FEIS, p.3-113). Management of algae may include reduction or elimination as permitted by an adaptive management plan required by Article 1-6(7).

4.11.6.2 Iowa Hill

Operational impacts on water temperature from Iowa Hill Development operation were investigated using a mathematical model that produced results showing water temperatures in Slab Creek Reservoir will be slightly cooler than under existing conditions (FEIS, p.3-108). However, to confirm that operation of the Iowa Hill Development does not create adverse impacts on water temperature and, by extension, on water quality, SMUD will implement Article 1-40(2) of the Settlement Agreement (FEIS, p.2-29). Article 1-40(2) requires SMUD to monitor water temperatures in Slab Creek Reservoir between May and September. Monitoring water temperature will reduce potential water quality impacts to a less-than-significant level. *Therefore, impacts will be less than significant. Pursuant to the State CEQA Guidelines, Section 15091, no further finding is required*.

Impact WQ-2, “Mercury Bioaccumulation” (CEQA Supplement, p.30) discussed the possibility that construction or operation of the UARP may cause increased bioaccumulation of metals in reservoir fish through increased exposure as a result of sediment re-suspension. Construction best management practices (BMPs) and Article 1-42, discussed in Impact WQ-1a, “Turbidity and Pollutant Concentration Increase during Construction” (CEQA Supplement, p.26), require protection of water quality, making increased bioaccumulation of mercury unlikely. To monitor bioaccumulation, SMUD will implement Article 1-5(10) of the Settlement Agreement (FEIS, p.2-20). Article 1-5(10) requires SMUD to develop and implement a water quality monitoring plan. Under Article 1-6(8) of the Settlement Agreement (FEIS, p.2-22), agencies may request that SMUD conduct additional metals bioaccumulation studies anywhere in the UARP, including at the Iowa Hill Development, if adverse health effects to aquatic species are suspected (FEIS, p.3-11). Implementation of construction BMPs, Article 1-42, Article 1-5(10), and Article 1-6(8) will ensure that the proposed project will reduce potential bioaccumulation impacts to a less-than-significant level.

*Finding*: Pursuant to the State CEQA Guidelines, Section 15091(a)(1), SMUD finds that changes or alterations required in, or incorporated into, the proposed

project avoid or substantially lessen the significant environmental effects identified in the FEIS and/or CEQA Supplement.

### 4.11.7 100-Year Flood Hazard Area

Some facilities of the UARP lie within the floodplain, which will not be changed by the proposed project. *Therefore, impacts will be less than significant. Pursuant to the State CEQA Guidelines, Section 15091, no further finding is required*.

### 4.11.8 Flooding From Failure of Dam or Levee

No activities contemplated by the proposed project will affect the integrity of the project dams. SMUD will continue to work with FERC and the California Department of Water Resources, Division of Safety of Dams to annual inspect and evaluate the integrity and stability of all UARP dams. This will include the new berm constructed to hold waters of the upper reservoir for the Iowa Hill Project. *Therefore, impacts will be less than significant. Pursuant to the State CEQA Guidelines, Section 15091, no further finding is required*.

### 4.11.9 Inundation by Seiche, Tsunami, or Mudflow

No activities contemplated by the proposed project will affect the potential for impact by seiche, tsunami, or mudflow. *Therefore, impacts will be less than significant. Pursuant to the State CEQA Guidelines, Section 15091, no further finding is required*.

## 4.12 Land Use and Planning

Impacts on land use were evaluated in Section 3.3.7 (FEIS, beginning on p.3-284). In addition, any changes or mitigating features of the proposed project identified in the FEIS or the CEQA Supplement were memorialized in the MMRP (CEQA Supplement, Appendix B). The following topics are based on the State CEQA Guidelines (Appendix G checklist), to facilitate the compilation of data from the three documents identified above (i.e., the FEIS, the CEQA Supplement, and the MMRP) as they relate to significance thresholds for land use.

### 4.12.1 Divide an Established Community

The land included in the proposed project is primarily owned by the U.S. Forest Service (64%) and SMUD (34%), and only 2% of the land is under private ownership (FEIS, p.3-284). The only new construction that will occur under the proposed project will be the Iowa Hill Development (FEIS, p.3-284). The location of the Iowa Hill Development currently is undeveloped and is not considered an established community. *Therefore, no impact will occur. Pursuant to the State CEQA Guidelines, Section 15091, no further finding is required*.

### 4.12.2 Local Plans or Policies

#### 4.12.2.1 Reoperation of UARP Pursuant to Settlement Agreement and Iowa Hill

The existing UARP facilities will not be modified in a way that would affect their compliance with local plans except to avoid potential conflicts with National Forest System lands. *Therefore, no impact will occur. Pursuant to the State CEQA Guidelines, Section 15091, no further finding is required*. Moreover, SMUD will implement Article 1-30 of the Settlement Agreement (FEIS, p.2-28), which requires SMUD to develop and implement a plan for roads on or affecting National Forest System lands addressing SMUD's responsibility for roads and maintenance. Because Article 1-30 will make the existing facilities more in line with existing plans, the proposed project will be a net improvement to consistency with local plans or policies.

The proposed project potentially will affect trails in the project area by, among other things, requiring trail rehabilitation (FEIS, pp.3-295 to 3-296). To ensure that the proposed project does not adversely affect trails, SMUD will implement Article 1-31 of the Settlement Agreement (FEIS, p.2-28). Article 1-31 requires SMUD to prepare and implement a trail system management plan for the construction and maintenance of trails that will be adversely affected by the proposed project. Implementation of Article 1-31 will ensure that trails in the project area are constructed, maintained, or improved during the proposed project, in a manner that is consistent with the Eldorado National Forest Land and Resource Management Plan. *Therefore*, *no impact will occur. Pursuant to the State CEQA Guidelines, Section 15091, no further finding is required*.

Moreover, to ensure that project facilities will present minimal conflicts with National Forest System or BLM lands, SMUD will implement Article 1-32 of the Settlement Agreement (FEIS, p.2-28). Article 1-32 requires SMUD to prepare a map showing all project facilities, describe the use and condition of the facilities, and disclose any planned maintenance or removal. Article 1-31 requires that a facility management plan be prepared every 5 years.

> *Finding*: Pursuant to the State CEQA Guidelines, Section 15091(a)(1), SMUD finds that changes or alterations required in, or incorporated into, the proposed project avoid or substantially lessen the significant environmental effects identified in the FEIS and/or CEQA Supplement.

Project operations may impact fire management and response in the project area (FEIS, p.3-298). To minimize conflicts between project operations and fire management and response plans, SMUD will implement Article 1-34 of the Settlement Agreement (FEIS, p.2-29). Article 1-34 requires SMUD to develop and implement a fire prevention and response plan that details SMUD's responsibility for the prevention, reporting, control, and extinguishing of fires in the vicinity of the proposed project resulting from project operations. Implementation of Article 1-34 will ensure that the project operations will reduce potential impacts on fire management and response plans to a less-than-significant level.

*Finding*: Pursuant to the State CEQA Guidelines, Section 15091(a)(1), SMUD finds that changes or alterations required in, or incorporated into, the proposed project avoid or substantially lessen the significant environmental effects identified in the FEIS and/or CEQA Supplement.

4.12.2.2 Iowa Hill

Project boundary changes will change land use in the project area (FEIS, pp.3-296–3-297). Under the proposed project, existing timber production and recreational use will be converted to industrial use (FEIS, p.3-297). To accommodate the Iowa Hill Development, the existing project boundaries will require revisions. However, because the existing land uses are limited to timber production and dispersed recreation, the environmental impacts of the proposed boundary changes will be minor (FEIR, p.3-297). To ensure that project boundaries are revised to include all project facilities, SMUD will implement Article 1-18 of the Settlement Agreement (FEIS, p.2-25). Article 1-18 requires SMUD to meet with the U.S. Forest Service every 6 months to agree on maintenance, rehabilitation, construction, and reconstruction work. Implementation of Article 1-18 will ensure that the revisions to project boundaries will reduce potential impacts from project facilities to a less-than-significant level.

*Finding*: Pursuant to the State CEQA Guidelines, Section 15091(a)(1), SMUD finds that changes or alterations required in, or incorporated into, the proposed project avoid or substantially lessen the significant environmental effects identified in the FEIS and/or CEQA Supplement.

4.12.3 Habitat Conservation Plans

No adopted habitat conservation plans, natural community conservation plans, or other approved local, regional, or state habitat conservations plans exist within the UARP boundary. *Therefore, no impact will occur. Pursuant to the State CEQA Guidelines, Section 15091, no further finding is required*.

## 4.13 Mineral Resources

4.13.1 Mineral Resources Valuable to the Region/State or of Local Importance

The California Geological Survey maps were reviewed and the UARP project area does not contain MRZ-2 classified lands, "areas of identified mineral resource significance." *Therefore, no impact will occur. Pursuant to the State CEQA Guidelines, Section 15091, no further finding is required*.

## 4.14 Noise

Impacts related to noise were evaluated in Section 3.3.12 (FEIS, beginning on p.3-353) and Section 3.3.3.4 of the CEQA Supplement (beginning on p.55). In addition, any changes or mitigating features of the proposed project identified in the FEIS or the CEQA Supplement were memorialized in the MMRP (CEQA Supplement, Appendix B).

The following topics are based on the State CEQA Guidelines (Appendix G checklist), to facilitate the compilation of data from the three documents identified above (i.e., the FEIS, the CEQA Supplement, and the MMRP) as they relate to significance thresholds for noise.

### 4.14.1 Exceed Local Standards

#### 4.14.1.1 Iowa Hill

As discussed in Impact NOI-1, "Construction Noise Exceeding County Standards," some of the residences close to the Iowa Hill Development area may be exposed to high noise levels during project construction (CEQA Supplement, p.55). To minimize noise impacts during construction, SMUD will implement Article 1-48 of the Settlement Agreement (FEIS, p.2-31). Article 1-48 requires SMUD to develop and implement a noise plan to address construction noise. Specifically, a noise plan is required to address vehicle idling, advance notice to residents of certain activities, a noise hotline, monitoring of compliance with the plan, and actions to correct violations. Implementation of Article 1-48 and the above provisions will minimize, but may not eliminate, potential noise impacts during construction. Despite efforts to minimize impacts, construction noise may temporarily and intermittently exceed the El Dorado County noise standard, particularly due to blasting activities as described in the next subsection of this document. (CEQA Supplement, p.55). Because of the specifications for the required equipment and activities necessary to construct the Iowa Hill Development, no additional mitigation measures are available to further reduce construction noise impacts.

> *Finding*: Pursuant to the State CEQA Guidelines, Section 15091(a)(1), SMUD finds that changes or alterations required in, or incorporated into, the proposed project avoid or substantially lessen the significant environmental effects identified in the FEIS and/or CEQA Supplement.

### 4.14.2 Ground-borne Vibration

As discussed in Impact NOI-2, "Construction-related Blasting," blasting will occur on the project site during construction of the Iowa Hill Development (CEQA Supplement, pp.55-56). Blasting activities will be conducted by a qualified firm and in accordance with criteria intended to minimize blasting damage established by the U.S. Bureau of Mines (USBM[5]) 1983 report, *Report of Investigations 8507: Structure Response and Damage Produced by Ground Vibrations from Surface Mine Blasting*. In addition, blasting activities will adhere to federal requirements for blasting activities (30 CFR Part 816, Sections 816.61, 816.62, 816.64, 816.66, 816.67, and 816.68). Although these requirements apply to surface mining, they nevertheless serve as a guide or industry best practices.

[5] The USBM has been disbanded, but the Department of the Interior's Office of Surface Mining still endorses this report and its guidelines.

To minimize impacts from construction noise, SMUD will implement Article 1-48 of the Settlement Agreement (FEIS, p.2-31). Article 1-48 requires SMUD to develop and implement a noise plan to address construction noise. Specifically related to ground-borne vibration, a noise plan must include monitoring of seismic vibrations during blasting activities (CEQA Supplement, p.57).

Adherence to federal requirements, which are a guide for similar blasting activities, and implementation of Article 1-48 will ensure that impacts related to ground-borne vibration will be reduced to a less-than-significant level.

> *Finding*: Pursuant to the State CEQA Guidelines, Section 15091(a)(1), SMUD finds that changes or alterations required in, or incorporated into, the proposed project avoid or substantially lessen the significant environmental effects identified in the FEIS and/or CEQA Supplement.

4.14.3 Permanent Noise Increase

4.14.3.1 Iowa Hill

As discussed in Impact NOI-3, "Project Operation Noise," stationary noise sources at the Iowa Hill Development site during operations will be placed in an underground powerhouse and will not affect noise levels on the surface (CEQA Supplement, p.57). Traffic noise generated by Iowa Hill Development operations will be minor. Transmission lines will be designed to ensure that corona noise does not exceed 50 A-weighted decibels at the edge of the right-of-way. *Therefore, no impact will occur. Pursuant to the State CEQA Guidelines, Section 15091, no further finding is required*.

4.14.4 Temporary Noise Increase

4.14.4.1 Iowa Hill

As discussed above under "Exceeds Local Standards," implementation of Article 1-48 will minimize but not eliminate the potential for significant noise impacts during construction. Despite efforts to minimize impacts, construction noise may temporarily and intermittently exceed the El Dorado County noise standard (CEQA Supplement, p.55). Because of the specifications for the required equipment and activities necessary to construct the Iowa Hill Development, no additional measures are available to further reduce construction noise impacts.

> *Finding*: Pursuant to the State CEQA Guidelines, Section 15091(a)(1), SMUD finds that changes or alterations required in, or incorporated into, the proposed project avoid or substantially lessen the significant environmental effects identified in the FEIS and/or CEQA Supplement.

4.14.5 Public Airports

The closest public airport is the Placerville Airport, located approximately 3 miles southwest of the White Rock Powerhouse. Because of the distance from the airstrip,

people residing or working in the project vicinity will not be exposed to excessive noise levels from the airstrip. *Therefore, no impact will occur. Pursuant to the State CEQA Guidelines, Section 15091, no further finding is required*.

### 4.14.6 Private Airstrips

The closest private airstrip is the Swansboro Country Airport located approximately 2.3 miles northwest of the Slab Creek Reservoir. Because of the distance and the infrequent use of the airstrip, people residing or working in the project vicinity will not be exposed to excessive noise levels from the airstrip. *Therefore, no impact will occur. Pursuant to the State CEQA Guidelines, Section 15091, no further finding is required*.

## 4.15 Population and Housing

Impacts on population and housing were evaluated in Section 3.3.10, "Socioeconomic Resources" (FEIS, beginning on p.3-320). In addition, any changes or mitigating features of the proposed project identified in the FEIS or the CEQA Supplement were memorialized in the MMRP (CEQA Supplement, Appendix B). The following topics are based on the State CEQA Guidelines (Appendix G checklist), to facilitate the compilation of data from the three documents identified above (i.e., the FEIS, the CEQA Supplement, and the MMRP) as they relate to significance thresholds for population and housing.

### 4.15.1 Population Growth

The proposed project will not include construction of any homes or businesses. The proposed project will include some improvements to infrastructure and will generate electricity to meet current and future SMUD electric needs (FEIS, pp.1-3 through 1-5). Although there will be short-term, positive economic benefits due to construction of Iowa Hill, as discussed in the FEIS, the proposed project will not yield permanent employment or income effects that will be substantial either locally or regionally (FEIS, p.3-328). The CEQA Supplement analyzed the potential for growth-inducing impacts from the proposed project, and determined that the proposed project will have a less-than-significant impact (CEQA Supplement, pp.82-83). *Therefore, no impact will occur. Pursuant to the State CEQA Guidelines, Section 15091, no further finding is required*.

### 4.15.2 Housing

The proposed project does not involve displacement or construction of any housing. *Therefore, no impact will occur. Pursuant to the State CEQA Guidelines, Section 15091, no further finding is required*.

## 4.16 Public Services

Impacts related to public services were evaluated in Section 3.3.7 (FEIS, beginning on p.3-284) and Section 3.3.3.5 of the CEQA Supplement (beginning on p.62). In addition,

any changes or mitigating features of the proposed project identified in the FEIS or the CEQA Supplement were memorialized in the MMRP (CEQA Supplement, Appendix B). The following topics are based on the State CEQA Guidelines (Appendix G checklist), to facilitate the compilation of data from the three documents identified above (i.e., the FEIS, the CEQA Supplement, and the MMRP) as they relate to significance thresholds for public services.

## 4.16.1 Fire and Police Protection

### 4.16.1.1 Reoperation of UARP Pursuant to Settlement Agreement

The proposed project will not add any residents or increase population in the project area. Without the addition of new residents in the area, no additional fire or police protection facilities will be required. *Therefore, no impact will occur. Pursuant to the State CEQA Guidelines, Section 15091, no further finding is required*.

### 4.16.1.2 Iowa Hill

As discussed in Impact PHS-1, "Fire Start Risk" (CEQA Supplement, pp.69–70), a potential for fire risk increase will exist during construction of the Iowa Hill Development. To minimize fire risk during construction, SMUD will develop and implement the Iowa Hill Development Fire Protection Plan. Specifically, the Fire Protection Plan will include a provision requiring all construction activities to comply with the Forest Practice Rules, the California Public Resources Code, and Special Use Permit Requirements from the U.S. Forest Service (CEQA Supplement, p.69). Operation of the proposed project may increase the risk of fire starts from operation of the switchyard and transmission lines (CEQA Supplement, p.69). To minimize this operational risk, SMUD will implement the provisions of the UARP Fire Management and Response Plan (CEQA Supplement, p.69). Implementation of Article 1-34 and the UARP Fire Management and Response Plan will ensure that the proposed project will reduce potential construction and operational impacts to a less-than-significant level (CEQA Supplement, p.69).

> *Finding*: Pursuant to the State CEQA Guidelines, Section 15091(a)(1), SMUD finds that changes or alterations required in, or incorporated into, the proposed project avoid or substantially lessen the significant environmental effects identified in the FEIS and/or CEQA Supplement.

As discussed in Impact PHS-2, "Roadway Conditions Affecting Emergency Access," construction and operation activities will potentially impact emergency access to the project site (CEQA Supplement, pp.70 through 72). Primary access roads have been identified and any required improvements to those roads will be incorporated into the Transportation Plan (CEQA Supplement, p.71). Furthermore, the Fire Protection Plan required by Article 1-34 will include provisions for further evaluation of all access roads to ensure suitability for passage by emergency response vehicles (CEQA Supplement, p.71). Any roads built specifically for construction access will be maintained during operations, providing the same level of emergency access as during construction (CEQA Supplement, p.71). Implementation of the Transportation Plan and the above

provisions will ensure that project impacts on emergency plans in the project area will be less than significant.

> *Finding*: Pursuant to the State CEQA Guidelines, Section 15091(a)(1), SMUD finds that changes or alterations required in, or incorporated into, the proposed project avoid or substantially lessen the significant environmental effects identified in the FEIS and/or CEQA Supplement.

As discussed in Impact PHS-3, "Construction Traffic Affecting Emergency Evacuation," additional construction-related traffic potentially will affect emergency evacuation operations in the project area (CEQA Supplement, p.72). As part of the Transportation Plan and the Fire Protection Plan, SMUD will evaluate additional routes and alternative access points, and require carpools and/or vanpools. During project operations, no interference with evacuation plans will occur. Implementation of the Transportation Plan and the Fire Protection Plan will ensure that project impacts on emergency evacuations in the project area will be less than significant.

> *Finding*: Pursuant to the State CEQA Guidelines, Section 15091(a)(1), SMUD finds that changes or alterations required in, or incorporated into, the proposed project avoid or substantially lessen the significant environmental effects identified in the FEIS and/or CEQA Supplement.

### 4.16.2 Schools

The proposed project will not add any residents to the project area, so no additional school-age children will be in the area as a result of the proposed project. Moreover, the Iowa Hill Transportation Plan requires construction traffic to largely avoid school bus schedules. *Therefore, no impact will occur. Pursuant to the State CEQA Guidelines, Section 15091, no further finding is required*.

### 4.16.3 Parks and Other Public Facilities

The proposed project will not add any residents to the project area, so no parks or other public facilities will be needed. *Therefore, no impact will occur. Pursuant to the State CEQA Guidelines, Section 15091, no further finding is required*.

## 4.17 Recreation

Impacts related to recreational resources were evaluated in Section 3.3.6 (FEIS, beginning on p.3-246). In addition, any changes or mitigating features of the proposed project identified in the FEIS or the CEQA Supplement were memorialized in the MMRP (CEQA Supplement, Appendix B). The following topics are based on the State CEQA Guidelines (Appendix G checklist), to facilitate the compilation of data from the three documents identified above (i.e., the FEIS, the CEQA Supplement, and the MMRP) as they relate to significance thresholds for recreation.

### 4.17.1 Physical Condition of Recreation Facilities

The UARP includes reservoirs, trails, and campgrounds that attract a substantial amount of local recreation. This condition will not change appreciably as a result of the reoperation of the UARP under the Settlement Agreement. *Therefore, no impact will occur. Pursuant to the State CEQA Guidelines, Section 15091, no further finding is required*.

Moreover, the UARP's recreational facilities will be improved under the Settlement Agreement. Existing recreational facilities in the project vicinity are generally in good condition, although some sites show deterioration as a result of insufficient capital investment, increased use, and deferred maintenance (FEIS, p.3-257). To address these issues, SMUD will implement Article 1-15 through Article 1-22 of the Settlement Agreement (FEIS, pp.2-24 – 2-26). In accordance with these articles, SMUD will initially develop and implement a recreation implementation plan, including a schedule for specific measures to be applied to all recreation facility associated with the UARP over the first 20 years of the new FERC license. Every six years, SMUD will conduct a recreational survey that considers levels of use, facility carrying capacity, and need for facility maintenance. SMUD will also provide annual funding to the USFS for operation, maintenance, and administration of UARP facilities.

### 4.17.2 Recreational Access and Opportunities

The proposed project includes development and improvements to recreational facilities in the project area that will substantially improve public access (FEIS, p.3-266). Other recreation measures included as part of the proposed project will provide substantial benefits to recreational visitors. Article 1-23, will ensure adequate reservoir water levels supporting recreational purposes; Article 1-24 will provide regular whitewater boating releases below three UARP reservoirs where no boating releases have been provided historically; Article 1-25 will create a public information service to facilitate recreation at the project; Article 1-26 will enhance fish stocking in UARP reservoirs; and Article 1-27 will improve visual resources in the project area, thereby enhancing recreational use. *Therefore, no impact will occur. Pursuant to the State CEQA Guidelines, Section 15091, no further finding is required*.

## 4.18 Transportation

Impacts related to transportation and traffic were evaluated in Section 3.3.3.3 of the CEQA Supplement (beginning on p.42). In addition, any changes or mitigating features of the proposed project identified in the FEIS or the CEQA Supplement were memorialized in the MMRP (CEQA Supplement, Appendix B). The following topics are based on the State CEQA Guidelines (Appendix G checklist), to facilitate the compilation of data from the three documents identified above (i.e., the FEIS, the CEQA Supplement, and the MMRP) as they relate to significance thresholds for transportation and traffic.

4.18.1 Interference with Circulation Plans

4.18.1.2 Iowa Hill

As discussed in Impact TRANS-1, "Construction Traffic Increase," traffic generated by construction of the Iowa Hill Development potentially will affect roads in the vicinity of the proposed project (CEQA Supplement, pp.43 through 44). To reduce traffic impacts, SMUD will prepare and implement a transportation management plan (CEQA Supplement, p.42). The Transportation Plan will require the use of carpools and/or vanpools, off-site queuing, traffic scheduling to avoid conflicts with school buses and peak road use hours, and use of multiple routes (CEQA Supplement, p.44). Implementation of the Transportation Plan and the above provisions will ensure that construction impacts on circulation plans in the project area will be less than significant.

> *Finding*: Pursuant to the State CEQA Guidelines, Section 15091(a)(1), SMUD finds that changes or alterations required in, or incorporated into, the proposed project avoid or substantially lessen the significant environmental effects identified in the FEIS and/or CEQA Supplement.

4.18.2 Congestion Management Plans

4.18.2.1 Iowa Hill

As discussed in Impact TRANS-2, "Construction Traffic and LOS of Roads," the level of service (LOS) along roads to the upper and lower Iowa Hill Development sites will decline (CEQA Supplement, p.45). To reduce traffic impacts, SMUD will prepare and implement a transportation management plan (CEQA Supplement, p.44). The plan will require the use of carpools and/or vanpools, and scheduling construction workdays to begin and end outside peak traffic hours (CEQA Supplement, p.45). Project operations will not result in a significant decline in LOS because project operations only will generate up to 16 trips per day (CEQA Supplement, p.45). Implementation of the Transportation Plan and the above provisions will ensure that construction impacts on traffic plans, including congestion management plans, in the project area will be less than significant.

> *Finding*: Pursuant to the State CEQA Guidelines, Section 15091(a)(1), SMUD finds that changes or alterations required in, or incorporated into, the proposed project avoid or substantially lessen the significant environmental effects identified in the FEIS and/or CEQA Supplement.

4.18.3 Air Traffic

Construction and operation of the proposed project will not impact air traffic because no project facilities will be located near an airport (CEQA Supplement, p.45). *Therefore, no impact will occur. Pursuant to the State CEQA Guidelines, Section 15091, no further finding is required*.

### 4.18.4 Hazards from Design or Use

#### 4.18.4.1 Iowa Hill

As discussed in Impact TRANS-3a, "Roadway Design," all roads leading to the Iowa Hill Development construction site have one or more characteristics that are considered unsafe (CEQA Supplement, p.45). To reduce hazards from roadway design, SMUD will prepare and implement a transportation management plan requiring road improvements before the start of construction, multiple routes for construction vehicles, and implementation of traffic control procedures (CEQA Supplement, pp.42-46). Project operations will not increase the existing roadway safety hazard because project operations only will generate up to 16 trips per day, all of which will occur after the roads are improved (CEQA Supplement, p.46). Implementation of the Transportation Plan and the above provisions will ensure that roadway design hazards in the project area will be less than significant.

> *Finding*: Pursuant to the State CEQA Guidelines, Section 15091(a)(1), SMUD finds that changes or alterations required in, or incorporated into, the proposed project avoid or substantially lessen the significant environmental effects identified in the FEIS and/or CEQA Supplement.

As discussed in Impact TRANS-3b, "Incompatible Uses," construction uses in the area of the Iowa Hill Development are potentially incompatible with existing uses, such as school buses, delivery vehicles, personal vehicles, or children walking to or from school or bus stops (CEQA Supplement, p.46). To reduce hazards from incompatible uses, SMUD will prepare and implement a transportation management plan requiring the use of carpools and/or vanpools, off-site queuing, traffic scheduling, and use of multiple routes (CEQA Supplement, p.46). Additionally, as part of worker safety awareness training, vanpool drivers will be informed of all school bus stops and drop-off times, to minimize conflicts (CEQA Supplement, p.46). Project operations will not increase the existing roadway safety hazard because project operations only will generate up to 16 trips per day, all of which will occur after the roads are improved (CEQA Supplement, pp.46-47). Implementation of the Transportation Plan and the above provisions will ensure that hazards from incompatible uses in the project area will be less than significant.

> *Finding*: Pursuant to the State CEQA Guidelines, Section 15091(a)(1), SMUD finds that changes or alterations required in, or incorporated into, the proposed project avoid or substantially lessen the significant environmental effects identified in the FEIS and/or CEQA Supplement.

### 4.18.5 Emergency Access

#### 4.18.5.1 Iowa Hill

As discussed in Impact PHS-2, "Roadway Conditions Affecting Emergency Access," construction and operation activities will potentially impact emergency access to the

project site (CEQA Supplement, pp.70 through 72). Primary access roads have been identified and any required improvements to those roads will be incorporated into the Transportation Plan (CEQA Supplement, p.71). Furthermore, the Fire Prevention Plan will include provisions for further evaluation of all access roads to ensure suitability for passage by emergency response vehicles (CEQA Supplement, p.71). Any roads built specifically for construction access will be maintained during operations, providing the same level of emergency access as during construction (CEQA Supplement, p.71). Implementation of the Transportation Plan and the above provisions will ensure that project impacts on emergency plans in the project area will be less than significant.

> *Finding*: Pursuant to the State CEQA Guidelines, Section 15091(a)(1), SMUD finds that changes or alterations required in, or incorporated into, the proposed project avoid or substantially lessen the significant environmental effects identified in the FEIS and/or CEQA Supplement.

As discussed in Impact PHS-3, "Construction Traffic Affecting Emergency Evacuation," additional construction-related traffic will potentially impact emergency evacuation operations in the project area (CEQA Supplement, p.72). As part of the Transportation Plan and the Fire Protection Plan, SMUD will evaluate additional routes and alternative access points, and require carpools and/or vanpools. During project operations, no interference with evacuation plans will occur. Implementation of the Transportation Plan and the Fire Protection Plan will ensure that project impacts on emergency evacuations in the project area will be less than significant.

> *Finding*: Pursuant to the State CEQA Guidelines, Section 15091(a)(1), SMUD finds that changes or alterations required in, or incorporated into, the proposed project avoid or substantially lessen the significant environmental effects identified in the FEIS and/or CEQA Supplement.

4.18.6 Alternative Transportation (Public Transit, Bicycle, and Pedestrian)

4.18.6.1 Iowa Hill

Roads in the project vicinity are not considered ideal for walking or bicycling because of the winding character and narrowness of roads there (CEQA Supplement, p.47). Furthermore, because the proposed project will not result in a permanent increase in traffic, the proposed project will not conflict with existing or future policies, plans, or programs regarding alternative transportation methods. *Therefore, no impact will occur. Pursuant to the State CEQA Guidelines, Section 15091, no further finding is required*.

## 4.19 Utilities and Service Systems

4.19.1 Wastewater Treatment Requirements

The proposed project does not include any uses that will require wastewater treatment. *Therefore, no impact will occur. Pursuant to the State CEQA Guidelines, Section 15091, no further finding is required*.

### 4.19.2 New or Expanded Water or Wastewater Facilities

The proposed project does not include any uses that will require new or expanded water or wastewater facilities. *Therefore, no impact will occur. Pursuant to the State CEQA Guidelines, Section 15091, no further finding is required*.

### 4.19.3 Storm Water Drainage Facilities

The proposed project does not include any uses that will require stormwater drainage facilities. *Therefore, no impact will occur. Pursuant to the State CEQA Guidelines, Section 15091, no further finding is required*.

### 4.19.4 Water Supply

The proposed project will not appreciably increase demands on water supply. *Therefore, no impact will occur. Pursuant to the State CEQA Guidelines, Section 15091, no further finding is required*.

### 4.19.5 Wastewater Treatment Provider Capacity

The proposed project will not be connected to a wastewater treatment plant. *Therefore, no impact will occur. Pursuant to the State CEQA Guidelines, Section 15091, no further finding is required*.

### 4.19.6 Landfill Capacity

The proposed project does not include any uses that will generate the need for landfill capacity. *Therefore, no impact will occur. Pursuant to the State CEQA Guidelines, Section 15091, no further finding is required*.

### 4.19.7 Solid Waste

The proposed project will comply with all federal and state statutes and regulations related to solid waste. *Therefore, no impact will occur. Pursuant to the State CEQA Guidelines, Section 15091, no further finding is required*.

# 5.0 ALTERNATIVES TO THE PROJECT

The project alternatives considered during the environmental review process consisted of the following:

- No Project;
- Alternative Sites for the Iowa Hill Pumped-storage Development; and
- Alternative Technologies for the Iowa Hill Pumped-storage Development.

## 5.1 No Project Alternative

Under this alternative, SMUD would continue operating the UARP under the terms and conditions of the existing license without the implementation of new environmental protection, mitigation, or enhancement measures. Also, SMUD would not construct and operate the Iowa Hill Pumped-storage Development.

The No Project alternative would eliminate the environmental improvements that would result from SMUD's implementation of new protection, mitigation, and enhancement measures. Thus, ongoing impacts of the UARP in a number of areas, including aquatic resources, would be extended through the term of the new license. Similarly, improvements to recreational opportunities at UARP reservoirs would not be realized and degradation of existing recreational facilities would occur.

The No Project alternative would preclude the addition of the Iowa Hill Pumped-storage Development to the UARP. This would eliminate pumped-storage as an option in meeting SMUD's goal of reducing net greenhouse gas emissions through the utilization of energy efficiency programs and development of renewable and net carbon free resources. Specifically, the No Project alternative will eliminate a major opportunity to reliably meet the continually growing energy demands of SMUD's customer-owners in the key areas of:

- Local voltage support to manage power within SMUD's service area territory;
- Summer peaking capacity; and
- Regulation, management, and storage of energy derived from non-dispatchable renewable resources such as wind power.

Without a pumped-storage option, SMUD would be required to evaluate alternative technologies for providing the services described above. Potential alternative technologies include compressed-air storage and various battery technologies. Compressed-air storage is the only technology that promises similar capacity and benefits to pumped-storage. It requires less upfront cost, but results in the release of greenhouse gases. Compressed-air storage is also not as well-developed a technology as pumped-storage, with only two operating facilities in existence. Battery storage systems are currently much more expensive than pumped-storage technology, though

with increased attention and focus, they may become more cost-effective in the future. Battery systems also have the added benefits of distributed storage that can support customer site photovoltaic and provide other distribution level benefits.

> ***Finding:*** Based on the entire record, the SMUD Board of Directors finds the No Project alternative does not provide a satisfactory level of environmental protection to natural resources associated with the UARP. Further, elimination of pumped-storage technology from the list of available technologies to meet SMUD's future energy needs removes a significant opportunity from the decision-making process. Given the naturally occurring topography and water supply in the area, coupled with the existing hydroelectric infrastructure represented by the UARP, pumped-storage is an extremely viable option for SMUD. Pumped-storage maximizes the use of SMUD's water supply, provides all of the needed services described above, and can be licensed and constructed within SMUD's planning horizon. In addition, this technology is proven, can be easily incorporated into the existing UARP, and, therefore, presents opportunities for significant economic savings as well. It also substantially avoids effects to the public and environment (air quality) associated with siting a combustion turbine power plant, as well as the effects associated with the establishment of a 50-mile or longer new transmission line corridor. The Board finds the No Project alternative is infeasible.

## 5.2 Alternative Sites

Once SMUD determined that pumped-storage was a viable utility-scale technology to meet the three identified needs for SMUD, a number of sites for this technology were considered. Preliminarily, SMUD considered a total of 12 watersheds in Northern and Central California representing a total of 158 different sites and configurations.

Four screening factors were applied to the 158 sites in the initial analysis:

1. The project must meet a minimum capacity requirement of 12 hours of storage and 400 MW of capacity, and SMUD must be able to control the water in both the upper and lower reservoirs to allow for required flexibility. This criteria represents the amount of capacity necessary to satisfy six to seven years of anticipated growth in the service area, considering import capability, local generation, and load growth.
2. The project must be within ten miles of SMUD's 230 kV transmission lines in order to supply the required energy, voltage support, and ancillary services to the control area.
3. The project must not require a new dam or impoundment on any unimpaired stream or reach. Due to strict environmental siting requirements, any project with a new dam or impoundment on a stream was considered very high risk.
4. The project must have a favorable tunnel length to height ratio. This ratio represents the relationship of the overall tunnel length used as an estimate for

plant efficiency and construction cost. Shorter tunnels provide less resistance and therefore higher overall efficiency and also lower construction costs.

Of the initial 158 sites and configurations, four configurations at three sites were considered feasible after the four screening criteria were applied and compared from a variety of engineering and construction related issues (Table 5.2-1).

**Table 5.2-1. Comparison of Alternative Pumped-storage Sites.**

| Pumped-storage Configuration/Site | Granite/ Existing Ice House | Iowa Hill/ Existing Slab Creek | Peavine/ Existing Ice House | South/ Existing Union Valley |
|---|---|---|---|---|
| Site Number | 46 | 93 | 107 | 132 |
| Approximate Distance to existing UARP or other SMUD transmission line (miles) | 7.41 | 1.24 | 6.44 | 2.28 |
| Minimal Environmental Effects and No New Impoundments of Unimpaired Waterway (Y/N) | Y | Y | Y | Y |
| Capable of Operating at 400-MW for 12-hours without Refill of Upper Reservoir (Y/N) | Y | Y | Y | Y |
| New Transmission Less than 20 Miles to Existing UARP 230-kV Line (Y/N) | Y | Y | Y | Y |
| Cost and Performance Represented by the Ratio of Tunnel Length Divided by Height (smaller numbers represent lower cost and higher efficiency) (l/h) | 6.33 | 2.75 | 16.5 | 6.6 |

The final four sites/configurations were evaluated with respect to several operational, engineering, and site-specific environmental considerations. The evaluation of the final four sites/configurations follows:

**Proposed Location: Iowa Hill Site –** This site was selected because it would require the least amount of underground construction, the shortest transmission tie line, provide all three required services, and has the lowest length-to-height ratio, representing the most efficient plant design and lowest construction cost. The Iowa Hill Site was also the superior alternative with respect to operational and environmental considerations. The fact that Slab Creek Reservoir is maintained at near full pool at all times, unlike Union Valley and Ice House reservoirs, allows for operation of the pumped-storage facility throughout the year. Environmental effects of construction and operation of the facility at the Iowa Hill Site are incrementally smaller than the other sites. Recreational use of the Slab Creek Reservoir is very low, owing to the steep canyon walls which preclude recreational facilities and limit access. The shorter transmission line will result in incrementally smaller effects on terrestrial resources, while the network of moderate-gradient roads leading to the Iowa Hill Site provide the opportunity to minimize effects on transportation and traffic in a rural community with a measures such as alternate routes, worker/equipment staging areas, and construction vehicles keeping up with the flow of traffic.

**Ice House Site Alternative: Granite and Peavine Configurations** — Both of these configurations require construction of off-stream impoundments at alternate locations above the existing Ice House Reservoir, which would serve as the lower reservoir. These configurations were not selected due to operational, engineering, and environmental issues.

Operational Issues: The primary disadvantage of both Ice House Reservoir configurations is low availability of the pumped-storage facility throughout the year. This limitation is the result of the operational regimen of Ice House Reservoir. As one of three storage reservoirs in the UARP, Ice House Reservoir water storage fluctuates seasonally, impounding as much of the winter/spring rain and snowmelt runoff as practical, consistent with regulatory, dam safety, water rights, and FERC license requirements (SMUD 2005). This results in the water level of Ice House Reservoir dropping well below full pool during winter and early spring months, severely limiting pumped-storage benefits at the site, regardless of configuration. In contrast, the Iowa Hill Site would be available throughout the year, given that Slab Creek Reservoir is not a UARP storage reservoir and, therefore, is not drawn down during winter and early spring. Slab Creek Reservoir is operated to remain at a consistent level to ensure maximal operation of White Rock Powerhouse.

Engineering Issues: With tunnel length-to-height ratios of 6.33 and 16.4 for the two configurations, plant efficiency at the Ice House Site would be incrementally lower than the Iowa Hill Site. Each of these two configurations would also incur higher project costs associated with the need to construct longer underground tunnel and comparatively longer transmission lines in order to tie into SMUD's existing UARP 230 kV transmission line. The longer tunnel and transmission lines would impose an incrementally greater physical change to the project that would result in greater environmental impacts. In the end, the high construction costs, coupled with the limited availability of operations, render both configurations of the Ice House Site uneconomic.

Environmental Issues: The primary environmental effects of the two configurations at the Ice House Site center on recreation, terrestrial resources, and traffic. The most significant impact would be in the area of recreation. The number of visitors to Ice House Reservoir campgrounds in 2002 was estimated at 32,902, roughly 10 times the level of recreation than Slab Creek Reservoir at the Iowa Hill Site (DTA and LBG 2004). In response to the greater level of popularity for Ice House Reservoir, SMUD has constructed, and will be required under the new license to construct, 10 separate recreation facilities at the Ice House Reservoir. These include campgrounds, day-use areas, a mountain bike trail, a sanitation station for RVs, and a high-capacity boat ramp to accommodate fishing, waterskiing, and sailing vessels. In contrast, Slab Creek Reservoir has no campgrounds, day-use areas, or trails. The sole boat launch area is limited in capacity due to steep canyon walls surrounding the entire reservoir. Thus, construction of a pumped-storage facility at the Ice House Site would result in a significantly higher level of impact on recreation than the Iowa Hill Site. Similarly,

operation of a pumped-storage project at Ice House Reservoir, with daily water level fluctuations, would result in a significant higher level of recreation impact than the Iowa Hill Site. The roughly 7-mile-long transmission line routes connecting to SMUD's existing Union Valley Switchyard would result in incrementally greater impacts to terrestrial resources, such as rare plants and wildlife. Lastly, the primary means of access to Ice House Site is Ice House Road, a heavily used road by recreationists traveling to the Crystal Basin Recreation Area. From Highway 50, Ice House Road runs for approximately 12 miles up a steep grade as it climbs out of the South Fork American River canyon to Ice House Reservoir. During a 5-year construction period, use of Ice House Road by construction vehicles will impart a significantly higher impact on traffic than the Iowa Hill Site. Slow-moving construction vehicles laboring up Ice House Road would impede the traffic of hundreds of thousands of recreationists annually heading into the Crystal Basin Recreation Area during the spring/summer/fall recreational seasons.

**Union Valley Site Alternative: South Configuration** — This configuration requires construction of the upper reservoir atop Big Hill, due south of the existing Union Valley Reservoir. The configuration was not selected on the basis of the same considerations identified for the Ice House Site, as well as because of the presence of communication facilities and an important fire lookout/heliport used by a variety of agencies for emergency services and wildfire management.

Operational Issues: The primary disadvantage of the Big Hill Site is low availability of the pumped-storage facility throughout the year. This limitation is the result of the operational regimen of Union Valley Reservoir. Union Valley Reservoir is the primary storage reservoir in the UARP, exhibiting significant seasonal variability in volume of stored water (SMUD 2005). This results in the water level of Union Valley Reservoir dropping well below full pool during winter and early spring months, severely limiting pumped-storage benefits at the site. In contrast, the Iowa Hill Site would be available throughout the year, given that Slab Creek Reservoir is not a UARP storage reservoir and therefore is not drawn down during winter and early spring.

Engineering Issues: With a tunnel length-to-height ratio of 6.6, plant efficiency at the Union Valley Site would be incrementally lower than the Iowa Hill Site. The site would also incur higher project costs associated with the need to construct a longer underground tunnel and comparatively longer transmission lines in order to tie into SMUD's existing UARP 230 kV transmission line. The longer tunnel and transmission lines would impose an incrementally greater physical change to the project that would result in greater environmental impacts. In the end, the high construction costs, coupled with the limited availability of operations, render both configurations of the Ice House Site uneconomic.

Environmental Issues: The primary environmental effects of the Union Valley Site center on recreation, terrestrial resources, traffic, communication, and public safety. The most significant impact would be in the area of recreation. The number of visitors

to Union Reservoir in 2002 was estimated at 79,103, roughly 25 times the level of recreation than Slab Creek Reservoir at the Iowa Hill Site (DTA and LBG 2004). In response to the greater level of popularity for Union Valley, SMUD has constructed 19 separate recreation facilities at the Union Valley Reservoir. These include campgrounds, day-use areas, a paved bike trail, a sanitation station for RVs, and 3 high-capacity boat ramps to accommodate fishing, waterskiing, and sailing vessels. In contrast, Slab Creek Reservoir has no campgrounds, day-use areas, or trails. The sole boat launch area is limited in capacity due to steep canyon walls surrounding the entire reservoir. Thus, construction of a pumped-storage facility at the Union Valley Site would result in a significantly higher level of impact on recreation than the Iowa Hill Site. Similarly, operation of a pumped-storage project at Union Valley Reservoir, with daily water level fluctuations, would result in a significant higher level of recreation impact than the Iowa Hill Site. The roughly 2-mile-long transmission line routes connecting to SMUD's existing Union Valley Switchyard would result in incrementally greater impacts to terrestrial resources, such as rare plants and wildlife. Additional environmental considerations centered on the disturbance of long-standing use of Union Valley Reservoir by nesting pairs of bald eagles.

The site would also result in impact to traffic, communications, and public safety. The primary means of access to Ice House Site is Ice House Road, a heavily used road by recreationalists traveling to the Crystal Basin Recreation Area. From Highway 50, Ice House Road runs for approximately 14 miles up a steep grade as it climbs out of the South Fork American River canyon to Union Valley Reservoir. During a 5-year construction period, use of Ice House Road by construction vehicles will impart a significantly higher impact on traffic than the Iowa Hill Site. Slow-moving construction vehicles laboring up Ice House Road would impede the traffic of hundreds of thousands of recreationalists heading into the Crystal Basin Recreation Area during the spring/summer/fall recreational seasons. Several agencies, including SMUD, also maintain critical communications and meteorological facilities atop Big Hill. The site also includes the Big Hill Vista, which attracts recreational visitors who overlook the Crystal Basin and the Sierra Nevada to the east. The south configuration would require relocation of these facilities, and cause a significant deterioration in Crystal Basin communications, weather data collection capabilities, and emergency response.

> *Finding:* Based on the alternative sites analysis, the SMUD Board of Directors finds the selection of a pumped-storage site other than Iowa Hill to be infeasible. The Ice House Reservoir and Union Valley Reservoir sites, while offering the benefit of an existing reservoir as the lower reservoir, would result in incrementally more and significant levels of impact to environmental resources, traffic, communication, and public safety. Additionally, the existing water management at the alternative reservoirs would severely limit year-round operations of a pumped-storage facility, and create incrementally larger engineering costs that would ultimately render a pumped-storage facility uneconomic.

## 5.3 Alternative Facility Designs

SMUD considered alternative design features for the Iowa Hill Pumped-storage Development in the areas of intake-outlet structures, pumped-storage powerhouse configurations, and different transmission line routes.

An intake-outlet structure must be built in Slab Creek Reservoir. As an alternative to the proposed, deeply submerged intake-outlet structure, SMUD considered a structure near the surface of the reservoir, along the south bankline. The near-surface alternative, while offering less complicated engineering and construction costs, was eliminated due to fish entrainment concerns and visual impact. The deeply submerged structure, while more expensive, minimizes fish entrainment, especially juvenile fish that are most vulnerable (DTA and SS 2005). It also cannot be seen or heard.

An alternative powerhouse configuration was considered to the proposed underground powerhouse. The alternative shaft-style powerhouse would involve placing the powerhouse in a vertical shaft that would be exposed on the ground surface at the edge of Slab Creek Reservoir. This option would also include an aboveground penstock running down the side of Iowa Hill. It would have been less expensive to construct than a completely underground powerhouse, but would have increased visual and noise impacts to the surrounding area. Therefore, the shaft-style powerhouse was not selected.

Four alternative transmission line configurations were also considered to the proposed transmission line that runs underground from the powerhouse to a switchyard on top of Iowa Hill. Each of the four alternatives consisted of aboveground configurations that started at the shoreline of Slab Creek Reservoir and connected to the switchyard atop Iowa Hill by way of a series of transmission line towers. Several options would have the transmission lines crossing over Slab Creek Reservoir or traversed up the steep slope from the reservoir to the top of Iowa Hill. All aboveground options were eliminated primarily because of impacts to visual resources and use of private property that would not exist with the proposed underground transmission line.

> *Finding:* Based on an evaluation of the visual resource sensitivities in the Iowa Hill area, the SMUD Board of Directors finds the selection of aboveground transmission lines between the Iowa Hill powerhouse and switchyard atop Iowa Hill to be infeasible because of the potential for significant impacts to visual resources and private property.

# 6.0 PROJECT BENEFITS

The fundamental purpose of the UARP relicensing is to maintain the existing project capacity while adding pumped-storage capacity. The additional capacity provided by the proposed Iowa Hill Development will help meet the anticipated growth in peak electric demand, provide grid management and ancillary services, and manage the increasing use of non-dispatchable generation resources, such as wind power. SMUD uses the UARP for cost-effective electric generation purposes, but more importantly, SMUD relies on the UARP to provide management services or ancillary services and dependable capacity. SMUD is a member, and operator for, the Balancing Authority of Northern California (BANC). As a control area operator, SMUD must comply with the requirements of the Western Energy Coordinating Council (WECC) and must balance at all times the second-to-second changes in the demand and supply of electrical energy. The UARP and proposed Iowa Hill Development will provide SMUD with the critical resources necessary to continue providing these valuable services to our customer-owners throughout the term of our new license, as well as reliable, cost-effective electric service, particularly during summer peak periods.

## 6.1 Need for Power in SMUD's Service Area

SMUD generates, transmits, and distributes electric power to a 900-square-mile service area that includes Sacramento County and small portions of Placer and Yolo counties. General information concerning SMUD and its customer-owners as of December 2011 includes:

- Service area population: 1.4 million
- Service area: 900 square miles
- Total number of customers: 599,826
- Full-time employees: 2,034
- Transmission bulk substations: 10
- Transmission lines: 500 circuit miles
- Distribution lines: 9,885 circuit miles
- Peak demand: 3,299 megawatts (July 22, 2006)
- SMUD's power mix from renewable sources: 20 percent

SMUD has augmented the UARP with other generation assets to create an environmentally-preferred energy portfolio that includes hydro, natural gas-fired generation (thermal), solar, and wind resources. The lynchpin of SMUD's energy portfolio, however, is the UARP. No other energy source within SMUD provides comparable reliability, flexibility, and economic benefits. Without the continued operation of the UARP, SMUD could not provide the current level of service our customer-owners require. The proposed Iowa Hill Development will assure that SMUD can continue to provide cost-effective service to our customer-owners well into the future and supplement many of the other benefits the existing UARP provides.

The existing UARP produces an average of approximately 1,800,000 megawatt-hours (MWh) of power annually. The Iowa Hill Development is not expected to significantly change the UARP's average annual energy production, but by using off-peak energy to pump water to the storage basin and then releasing water through the powerhouse during peak periods, SMUD will significantly increase the generated energy's value and water use efficiency.

## 6.2 Electrical Reliability

Responsibility for maintaining safe, reliable, and dependable operation of the electric grid in California is divided among various “balancing authorities.” SMUD is a member of and operator for the BANC. The BANC provides reliable grid operation consistent with reliability standards developed and enforced by the FERC, the North American Electric Reliability Corporation and the WECC. A balancing authority assumes responsibility for operational and system reliability for electric customers within a specific electrical and geographic area. The UARP is, and will continue to be, a critical resource available to SMUD to meet its BANC reliability obligations and serve as a primary source of economic power generation.

The instantaneous power produced by hydroelectric facilities is essential to balancing services. Once the operator opens the gates, water flows through the turbines and immediately generates power. In contrast, thermal power plants, fired with natural gas, biomass, or geothermal fluids, can only increase the amount of generation in accordance with a specific curve that allows the equipment to gradually warm up without damage. A small combustion turbine may take up to half an hour to come up to full power depending on size and configuration, while a larger combined-cycle machine can take many hours (depending upon how long the equipment has been shut down).

In addition, balancing the load within a geographical area requires power generation sources to be placed at specific locations to maintain system reliability. For SMUD’s system, the specific locations of the current hydro generating facilities play an important part of this crucial role.

Maintaining the UARP's current capacity and adding the new pumped-storage capacity provided by the Iowa Hill Development (a 58% increase in total peak generation capacity of the UARP) are particularly critical to meet the projected increased demand for electricity in the Sacramento region.

The proposed project is also critical to ensure the reliability of regional electric supply.

## 6.3 Environmental Benefits

The proposed project represents a significant enhancement of environmental conditions and protection for natural resources in the project area. The pulse flows that will be released from three UARP reservoirs under the new license terms will enhance the geomorphic conditions, in turn improving habitat conditions for a number of aquatic

species, such as fish, amphibians, and benthic invertebrates. These same species will also benefit from the minimum release requirements at all project dams. Regular monitoring of natural resources and adaptive management decisions will further protect and enhance aquatic and terrestrial resources throughout the project area.

Continued operation of the UARP will ensure the maintenance and improvement of recreational opportunities enjoyed by hundreds of thousands of annual visitors to the Crystal Basin Recreational Area. Each of the over 50 recreation facilities currently in place at UARP reservoirs will be upgraded as part of the proposed project, accompanied by a significant increase in annual funding provided to the U.S. Forest Service by SMUD for operation, maintenance, and administration of these facilities. The proposed project will also create whitewater boating opportunities at two UARP reservoirs, based on controlled releases, which represents an enhancement over the existing condition of opportunistic whitewater boating during periods of uncontrolled spill at these reservoirs. Reoperation of the UARP under the proposed project will also make possible a set of predictable boating releases at the Pacific Gas and Electric Company's Chili Bar Dam, essentially creating a guaranteed set of conditions throughout the license term, which will significantly enhance the operations of the commercial whitewater boating industry that operates on the South Fork American River.

Maintaining and expanding the UARP is also of significant importance to air quality in the Sacramento region and the foothill communities in Placer and El Dorado counties. Hydroelectric facilities do not result in any atmospheric emission of criteria pollutants or other hazardous material that can affect air quality. Thus, the continued operation of the existing UARP facilities under the proposed project will promote clean air throughout the region. Moreover, the operational flexibility of pumped-storage will aid system operators in the management of energy produced by intermittent resources such as wind and solar power to the point where the Iowa Hill Development would potentially allow for a higher level of renewable generation than would exist without it. This opportunity to increase renewable energy development, when implemented, would allow SMUD to reduce its reliance on existing and/or future fossil-fuel generation.

> *Finding:* The SMUD Board finds the approval of the proposed project will result in continuing and enhanced benefits to SMUD customer-owners in form of an important and reliable power supply. Continued and enhanced benefits will also accrue to recreationalists and natural resources in the Crystal Basin.

# 7.0 STATEMENT OF OVERRIDING CONSIDERATIONS

This section of the findings document addresses the requirement in CEQA Guidelines Section 15093. It requires the approving agency to balance the benefits of a proposed project against its unavoidable significant impacts and to determine whether the impacts are acceptably overridden by the project benefits. As described below, unavoidable significant impact would occur in the areas of wildlife habitat, cultural resources, and noise.

## 7.1 Unavoidable Impacts to Wildlife Habitat

As described in Section 4, construction of the Iowa Hill Development will directly affect special-status species wildlife through the elimination of up to 141 acres of habitat. Mitigation measures for this impact include purchasing land (or a conservation easement) of equivalent habitat value to offset the loss of wildlife habitat. Secondarily, SMUD will complete a biological evaluation before beginning any project construction activities, which will minimize the impacts of the loss of habitat. Nevertheless it is not possible to reasonably guarantee complete mitigation without knowing what land may be purchased, what habitat types it contains, or which wildlife management goals will be applied to the property and until further aspects of the Iowa Hill Development are defined, such information is not available. No further mitigation is available, and this impact will be significant and unavoidable.

## 7.2 Cultural Resources

Under the proposed project, SMUD will engage in some ground-disturbing activities, primarily related to the upgrading of recreation facilities. Significant ground disturbing activities will take place during the construction of the Iowa Hill Development. To minimize impacts to cultural resources from ground-disturbing activities, SMUD will comply with the requirements of National Historic Preservation Act (NHPA) Section 106 and its implementing regulations found at 36 Code of Federal Regulations (CFR) 800 before beginning work on national Forest System lands. Accordingly, if potential cultural resources are reported or discovered before or during site disturbance or during operations, SMUD will immediately cease work and notify the U.S. Forest Service. Work in the area will be allowed to resume on written approval from the U.S. Forest Service. While implementation of these measures will ensure that impacts on cultural resources will be avoided or satisfactorily resolved. Nevertheless, the potential remains for unknown resources or their immediate surroundings to be inadvertently demolished, relocated, or altered. Because all feasible mitigation has been included and no additional measures are available to SMUD to ensure that previously undiscovered cultural resources will not be demolished, relocated, or altered, impacts on historical, archaeological, and paleontological resources are significant and unavoidable.

## 7.3 Noise

As discussed in Section 4, some of the residences close to the Iowa Hill Development area may be exposed to high noise levels during project construction. To minimize construction-related noise impacts during construction, SMUD will develop and implement a noise plan. The Noise Plan will address: (1) vehicle idling; (2) advance notice to residents of certain activities such as the timing of materials transport; (3) a Noise Hotline telephones system; (4) monitoring of compliance with the plan, and actions to correct violations; (5) scheduling of noisy construction activities such as surface blasting; and (6) muffler maintenance. Despite these efforts to minimize noise impacts, construction noise may temporarily and intermittently exceed the El Dorado County noise standard, particularly due to blasting activities. Because of the specifications for the required equipment and activities necessary to construct the Iowa Hill Development, no additional mitigation measures are available to further reduce construction noise impacts.

> *Finding:* The SMUD Board finds that the project benefits identified in Section 6 outweigh the unavoidable significant adverse environmental effect on wildlife habitat, cultural resources, and noise. The project benefits described in Section 6 are hereby determined to be, independent of other potential project benefits, a basis for overriding all unavoidable environmental impacts identified in the FEIS and CEQA Supplement and in these findings.

## 8.0 ADOPTION OF A MONITORING PLAN FOR MITIGATION MEASURES

Section 21081.6 of the Public Resources Code requires the approving agency to adopt a monitoring or reporting program regarding changes in the project and mitigation measures imposed to lessen or avoid significant effects on the environment. The MMRP included in the Appendix B of the CEQA Supplement is adopted because it fulfills the CEQA mitigation monitoring requirements:

a) The MMRP is designed to ensure compliance with the changes in the project and mitigation measures imposed on the project during the license term; and

b) Measures to mitigate or avoid significant effects on the environment are fully enforceable through FERC license conditions, the SWRCB 401 Water Quality Certification, and the Settlement Agreement.

Mitigation monitoring and reporting for the proposed project will be provided through the new license. Once the new license is issued by FERC and accepted by SMUD, the license will largely govern SMUD's operation of the UARP. Many of the license conditions are intended to mitigate for the potentially significant environmental effects of the proposed project, and to that end, will state intended objectives, contain specific performance criteria and schedules, and require consultations with resource agencies and other parties. Thus, under its own terms, the FERC license conditions would suffice as an MMRP. However, the CEQA Supplement proposes additional specific elements to these measures to avoid or mitigate for certain potential significant effects related to the Iowa Hill Development. These additional measures are included in the MMRP because they may not appear in the new FERC license.

The MMRP, provided in Table B-1of the CEQA Supplement, identifies each potential significant impact of relicensing the UARP, lists the project changes or mitigation measures that are proposed to avoid the impact or reduce it to below the level of significance, and describes the monitoring and reporting measures SMUD will undertake to ensure the project changes and mitigation measures are implemented as proposed. By way of creating a single document that provides a thorough record of the project's mitigation and monitoring requirements, this MMRP also includes the measures contained in the FEIS and the Settlement Agreement, and the specific elements detailed in the Supplemental Analysis.

### 8.1 Program Implementation

SMUD will retain primary responsibility for implementing the mitigation measures and monitoring the implementation process. Individual measures contain specified timelines for implementation, consultation with resource agencies, and reporting requirements to FERC and other parties. SMUD will also be responsible for implementing and reporting on mitigation measures contained in the SWRCB 401 Water Quality Certification and other permits required for construction purposes.

SMUD will designate specific personnel who will be responsible for monitoring the implementation of the mitigation measures that will occur during UARP operation, including Iowa Hill Development construction and operation. The designated personnel will be responsible for submitting all documentation and reports to SMUD in a timely manner necessary for demonstrating compliance with mitigation requirements. SMUD will ensure that the designated personnel have authority to require implementation of mitigation requirements and will be capable of terminating project activities found to be inconsistent with mitigation objectives or project approval conditions.

SMUD will be responsible for demonstrating compliance with other agency permit conditions to the appropriate regulatory agency. It will also be responsible for ensuring that project personnel understand their responsibilities for adhering to the performance requirements of the mitigation monitoring program and other contractual requirements related to the implementation of mitigation as part of all construction activities. In the case of outside contractors, implementation includes ensuring that any required actions are included in bid documents and contracts as part of the design/build process for the Iowa Hill Development and the monitoring implementation process for ongoing activities at the UARP. Design/build contractors associated with the Iowa Hill Development construction will be required by SMUD to include specified mitigation activities in plans and specification s for construction.

For each potential environmental impact and prescribed mitigation measure, the MMRP lists the corresponding mitigation implementation and monitoring requirements and the party responsible for ensuring implementation of the mitigation measure and monitoring effort.

## 8.2 Mitigation Enforcement

SMUD, and ultimately, FERC will be responsible for enforcing all mitigation measures. If alternative mitigation measures are identified that would be equally effective in mitigating the identified impacts, the implementation of these alternative measures will not occur until agreed upon by SMUD, and in certain instances, natural resource agencies, and approved by the FERC.

> *Finding*: The SMUD Board finds that the Mitigation and Monitoring Reporting Plan, will ensure the implementation of the mitigation measures evaluated in the FEIS and CEQA Supplement. The mitigation measures contained in the MMRP are fully enforceable through the FERC license, SWRCB 401 Water Quality Certification, and the binding nature of the Settlement Agreement.

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