

UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

East Bay Municipal Utility
District

Project No. 2916-036

ORDER AMENDING LICENSE

East Bay Municipal Utility District (EBMUD or licensee) filed an application on May 19, 1999, requesting Commission authorization to remove Mine Run Dam and Reservoir (MRDR), which is located within the boundary of the Lower Mokelumne River Project No. 2916. The project is located on the Mokelumne River, Amador, Calaveras, and San Joaquin Counties, California.

BACKGROUND

The Lower Mokelumne Project, licensed in 1981, comprises two reservoirs, each of which has hydroelectric generating facilities and substantial storage capacity. The upstream Pardee Dam impounds a reservoir with a total capacity of 209,950 acre-feet, and the downstream Camanche Dam impounds a reservoir with a total capacity of 431,000 acre-feet.¹

The Project is located east of Lodi, California, and drains the central western slope of the Sierra Nevada mountains. Located near Camanche Reservoir and partially within the project boundary is the Penn Mine. From the mid-1800's until its closure in 1952, the mine produced copper, zinc, gold, and silver. Mine tailings were piled along the river bank and in the river channel, where they were carried downstream during high flow periods. The construction of Camanche Reservoir in 1964 partially contained, precipitated, and diluted contaminants from Penn Mine. This, in combination with runoff control efforts commenced in 1979 by East Bay and the California Department of Water Resources, has reduced new introduction of toxic materials from the mine into the river and the effect of existing toxins on aquatic resources.

The MRDR, in combination with a series of smaller upstream impoundments and collection and drainage facilities, is collectively referred to as the Penn Mine Facility. The Penn Mine itself was operated intermittently between 1861 and 1956 and was historically one of California's largest copper and zinc producers.² The Penn Mine

1 14 FERC ¶ 62,237.

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facility was built in 1978 to collect and treat acid rock drainage (ARD) from the former mine.

The Penn Mine Facility, however, could not achieve total containment and some releases would be experienced during high-flow conditions when the capacity of the control structures was exceeded. In 1993, EPA directed EBMUD, under an order pursuant to Section 309 of the Clean Water act, to add an In-Line System (ILS) to treat runoff in the MRD Reservoir that could overflow into Camanche Reservoir. Other clauses of the Order directed EBMUD to develop a remediation plan for “long-term pollution control,” which resulted in requiring the removal of MRDR.

THE AMENDMENT

The remediation plan, also known as alternative 5A in the EPA order, provides long-term water quality protection at the Penn Mine Site through the excavation and removal of all waste materials and their disposal in an on-site landfill. All impoundments, including MRD, would be removed to allow runoff from Mine Run Creek and Hinkley Run Creek (natural drainage) to discharge to Camanche Reservoir. EBMUD proposes to remove the MRD in order to implement the EPA requirements. The MRD, which is an earthfill structure, will be removed and used for site restoration/contouring. This will yield about 40,000 cubic yards of clean fill (if any is not clean, it will either be landfilled or disposed off-site.) The crest elevation of the structure is currently 261 feet. This will be reduced to the original ground level elevation of 225 feet. The original streambed draining Hinkley Run and Mine Run Creeks will be restructured to restore natural draining to Camanche Reservoir through the path now blocked by the MRD.

CONSULTATION AND COMMENTS

We publicly noticed the license amendment application with July 26, 1999, as the last day to file comments, motions to intervene, or protests. The following agencies provided comments and/or motions to intervene:

Commenting or Intervening Agencies		Filing Date
Comments	U.S. Fish and Wildlife Service (FWS)	08/02/1999
		08/13/1999
	Department of the Army, US Corps of Engineer	07/28/1999
Motions to		07/23/1999

2 Peterson, J.A., 1985. Geochemical Analyses of Rock Samples Collected at the Penn Mine, Calaveras County, California, US. Geological Survey. Open File Report 85-588. 17pp.

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Intervene	The California Sportfishing Protection Alliance (CSPA) and Committee to Save the Mokelumne (CSM)	
	Mokelumne River Water and Power Authority (MRWPA)	07/26/1999

In its comments, the U.S. Fish and Wildlife Service (FWS) concluded that the removal of the MRD is not likely to adversely affect any of the listed threatened and endangered species. In its comment, the U.S. Army Corps of Engineers stated its support for the removal of MRD.

In their motion to intervene, the CSPA and CSM state that they have been actively involved with the Penn Mine Oversight Committee and are signees to a settlement agreement with the licensee concerning removal and rehabilitation of MRD site. They have an interest in ensuring that the terms and conditions of the settlement agreement are honored. In its motion to intervene, the MRWPA states that currently it has a preliminary permit application pending before the Commission that might be affected by any Commission action on the application to remove MRD. MRWPA requests that it be accorded all attendant rights and privileges of a party.

No protests were filed and no agency objected to this amendment.

DISCUSSION

As we mentioned before, the main purpose of the MRD was to control acid-mine drainage from the now abandoned Penn Mine. Part of the EPA Remediation Plan, the MRD will be removed and the site restored. Removal of the MRD will not affect the hydropower operation of the project.

In the course of the proceeding, the Commission prepared an environmental assessment report (EA) pursuant to the National Environmental Policy Act. The EA is attached to this order. In the EA we conclude that removal of the MRD would not have any adverse environmental effects. The environment will benefit from the removal of the MRD, where the site will be restored to its pre-mining conditions.

The Environmental Review

The EA analyzed the environmental benefits from the removal of the MRD. As we mentioned before, removal of MRD as part of the Remediation Plan for the Penn Mine Site will involve the excavation and removal of about 40,000 cubic yards clean fill that will be used for site restoration and regrading. MRD, which is about 300 feet long, will be reduced from its crest elevation of 261 feet down to the original ground level of 225 feet. All areas disturbed by remediation activities will be covered by a 12 to 24-inch layer of top soil and revegetated with indigenous plants. Erosion control measures will be implemented and water quality monitoring will be conducted by the licensee after completion of site remediation.

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Removal of MRD would contribute to the restoration of the Penn Mine site and its waterways to pre-mining conditions, provide water quality protection, and will facilitate the restoration of pre-mining vegetation and wildlife. Further, removal of MRD will satisfy the requirements of the Environmental Protection Agency under Section 309 of the Clean Water Act and the requirements of the California Department of Water Resources, Division of Safety of Dam.

1. Cultural Resources

By letter dated November 3, 1998, the California State Historic Preservation Officer (SHPO) concurred with the licensee's determination that the proposed undertaking would not affect any properties listed upon or eligible for listing on the National Register of Historic Places. The SHPO added that compliance with Section 106 of the National Historic Preservation Act has been fulfilled.

2. Threatened and Endangered Species

In the EA, we evaluated the effects of the removal of MRD on federally listed threatened and endangered species. Those species evaluated were the federally listed as endangered peregrine falcon and the federally listed as threatened bald eagle, California red-legged frog and the valley elderberry longhorn beetle. We concluded in the EA that removal of MRD would have no effect on these listed species.

The FWS by letter dated August 13, 1999, stated that the proposed action is not likely to adversely affect the valley elderberry longhorn beetle or any other listed species. The FWS further stated that "unless new information reveals effects of the proposed action that may affect listed species in a manner or to an extent not considered, or a new species of critical habitat is designated that may be affected by the proposed action, no further action pursuant to the Endangered Species Act of 1973, as amended, is necessary."

3. Erosion Control

The licensee states that best management practices in the control of erosion and sedimentation will be implemented during and after site remediation. The licensee discussed those practices in its Storm Water Pollution Prevention Plan (SWPPP). For this purpose, we are including in ordering paragraph (E) a requirement to file with the Commission an erosion control and environmental mitigation methods and plans for removal of the MRD.

4. Vegetation

The licensee proposes to revegetate the MRD site with indigenous plants. For this purpose, we are adding ordering paragraph (F) requiring the licensee to file with the Commission a plan for the revegetation of the MRD site. The plan should include a revegetation schedule,

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species of plants, locations of plantings, planting densities, fertilization and irrigation requirements, a monitoring program to evaluate the effectiveness of the plantings, and a schedule for maintenance and any replacement.

5. Water Quality

The licensee proposes to monitor water quality in the drainage from the Penn Mine to include a site in Comanche Reservoir near the MRD site for a period of not less than three years following dam removal. Water quality variables to be monitored, include pH, copper and zinc. For this purpose, we are adding ordering paragraph (G) requiring the licensee to provide the monitoring results to the Commission on a semi-annual basis, with the first report due June 30, 2000. Reports should be provided to the resource agencies on a semi-annual basis or upon receipt of an agency request for the data. If monitoring data show no improvement in water quality, the licensee should include with the reports proposed measures to minimize impacts.

CONCLUSION

We conclude that approving the removal of the MRD would result in no adverse impacts to the current environment. Removal of MRD would contribute to the restoration of the Penn Mine site and its waterways to pre-mining conditions, provide water quality protection, and will facilitate the restoration of pre-mining vegetation and wildlife. Therefore, issuance of an order amending the license for the Lower Mokelumne River Project approving the removal of MRD would not constitute a major federal action significantly affecting the quality of the human environment.

This order approves the amendment of license to remove the MRD. Approving this amendment of license does not change the Commission’s determination that the project is best adapted to comprehensive development of the waterway for beneficial public uses.

The Director orders:

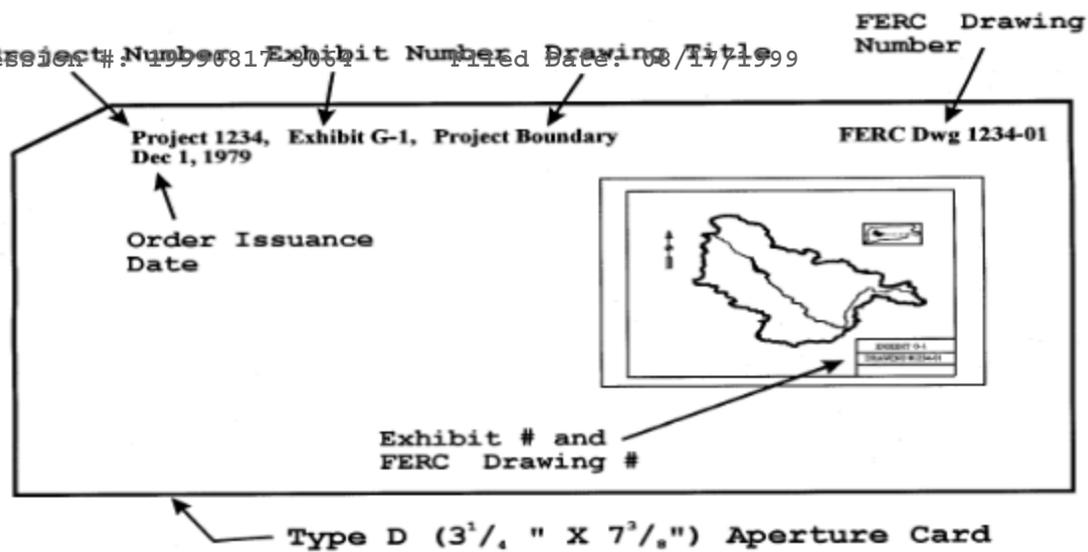
(A) The license for the Lower Mokelumne River Project No. 2916, is amended by approving the removal of Mine Run Dam, as provided for in this order.

(B) The revised exhibit G drawing, filed on May 19, 1999, is approved and made a part of the license:

Exhibit	FERC Drawing No.	Showing	Superseding
G-4	2916-52	Project Boundary	2916-45

(C) The superseded drawing is deleted from the license.

(D) Within 90 days of the date of issuance of this order, the licensee must file three original sets of aperture cards of the approved drawings. All aperture cards should be reproduced



on silver or gelatin 35 mm microfilm. All microfilm should be mounted on a Type D (3 1/4" x 7 3/8") aperture card.

Prior to microfilming, the FERC Drawing Number (2916-52) must be shown in the margin below the title block of the approved drawings. After mounting, the FERC Drawing Number should be typed in the upper right corner of each aperture card. Additionally, the Project Number, FERC exhibit (i.e., G-4), Drawing Title, and date of this order should be typed in the upper left corner of each aperture card. See Figure 1.

Two original sets of aperture cards should be filed with the Secretary of the Commission. The remaining set of aperture cards should be filed with the Commission's San Francisco Regional Office.

(E) The Licensee must, prior to the start of construction, submit one copy to the Commission's Regional Director and two copies to the Commission (one of these must be a courtesy copy to the Director, Division of Dam Safety and Inspections), of the final contract drawings and specifications for the removal of the Mine Run Dam. The plans and specifications must address the description of work to be done, and a Quality Control Inspection Program (QCIP) addressing work scheduling, name of the Construction Management Firm and qualifications of inspecting personnel. The plans and specifications must contain information describing the dam removal methods, resulting embankment side slopes for safety purposes as the excavation progresses, and estimated quantity of materials to be removed. The QCIP must contain erosion control and environmental mitigation methods and plans for removal of the dam. To the extent that the erosion control and environmental mitigation for the removal of the dam have been addressed in the Storm Water Pollution Prevention Plan (SWPPP), no duplication is necessary in the QCIP. A minimum of two inspecting personnel is required, with one of these being experienced in inspection of environmental mitigation methods. No monthly construction reports will be necessary. Inspecting personnel from FERC, San Francisco Region Office, will make periodic inspections of the ongoing work. Authorization for the commencement of construction will be granted by the Regional Director, San Francisco Regional Office as soon as the above documents have been received and reviewed by staff. The Commission may require

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changes in the plans and specifications to assure a safe and adequate project. No work on the dam removal can begin until authorized by the Regional Director.

(F) The licensee must, within 90 days from the date of issuance of this amendment order, file with the Commission, for approval, a plan to revegetate areas disturbed during the removal of Mine Run Dam. The plan must include a revegetation schedule, species of plants, locations of plantings, planting densities, fertilization and irrigation requirements, a monitoring program to evaluate the effectiveness of the plantings, and a schedule for maintenance and any replacement.

The licensee must prepare the plan after consultation with the California Department of Fish and Game and the U.S. Fish and Wildlife Service. The plan must include documentation of consultation and copies of any comments and recommendations on the plan and licensee's responses to any agency comments. The licensee must allow the agencies 30 days to comment before filing the plan with the Commission.

The Commission reserves the right to require changes to the plan.

(G) The licensee must file with the Commission semi-annual reports on water quality. The report should include measurements of pH, copper and zinc collected during its 3-year water quality monitoring program for sites on the drainage from the Penn Mine site and within Camanche Reservoir. The first report must be filed with the Commission by June 30, 2000. The licensee must provide the water quality monitoring reports to the California Department of Water Resources, California Department of Fish and Game, and the U.S. Fish and Wildlife Service semi-annually or upon receipt of a request for the data. The reports must include any measures proposed to minimize impacts to water quality based on results of the monitoring.

The Commission reserves the right to require measures to protect the water quality of Camanche Reservoir.

(H) This order constitutes final agency action. Requests for a rehearing by the Commission may be filed within 30 days of the date of issuance of this order, pursuant to 18 C.F.R. §385.713.

J. Mark Robinson
Director,
Division of Licensing and Compliance

ENVIRONMENTAL ASSESSMENT

APPLICATION FOR AMENDMENT OF LICENSE

LOWER MOKELUMNE RIVER PROJECT

FERC PROJECT NO. 2916-036

California

Federal Energy Regulatory Commission
Office of Hydropower Licensing
Division of Project Compliance and Administration
888 First Street, N.E.
Washington, DC 20426

August 1999

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ENVIRONMENTAL ASSESSMENT

FEDERAL ENERGY REGULATORY COMMISSION OFFICE OF HYDROPOWER LICENSING DIVISION OF PROJECT COMPLIANCE AND ADMINISTRATION

Project Name: Lower Mokelumne River Project

FERC No. 2916-036

I. APPLICATION

1. Application: Application of East Bay Utility District (EBMUD) to Remove Mine Run Dam and to Amend License
2. Date Filed: May 19, 1999.
3. Applicant: East Bay Municipal Utility District
4. Water Body: Mokelumne River/Camanche Reservoir
5. Nearest Town: Campo Seco, California
6. County and State: Calaveras County, California

B. PURPOSE AND NEED FOR ACTION

East Bay Municipal Utility District (EBMUD or licensee) filed an application on May 19, 1999, requesting Commission authorization to remove Mine Run Dam and Reservoir (MRDR), which is located within the boundary of the Lower Mokelumne River Project No. 2916, and to amend its license accordingly (EBMUD, 1999).

The MRDR, in combination with a series of smaller upstream impoundments and collection and drainage facilities, is collectively referred to as the Penn Mine Facility. The Penn Mine itself was operated intermittently between 1861 and 1956 and was historically one of California's largest copper and zinc producers (Peterson, 1985). The Penn Mine facility was built in 1978 to collect and treat acid rock drainage (ARD) from the former mine. The ARD has

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a very low pH and high dissolved copper and zinc content, and became the subject of litigation which resulted in the Penn Mine Site Long Term Solution Project (Remediation Plan). USEPA under Section 309 of the Clean Water Act ordered implementation of the Remediation Plan to restore the site to pre- mining conditions (EBMUD, 1996a).³

For the past several years, EBMUD has been working cooperatively with the US Environmental Protection Agency (USEPA) and other members of a project advisory committee (PAC) to develop the Remediation Plan. The PAC consists of EBMUD, USEPA, California Central Valley Regional Water Quality Control Board (CRWQB), the State Water Resources Control Board (SWRCB), and the Committee to Save the Mokelumne River (CSM). The Remediation Plan as it currently exists was preferred over several alternative strategies that were evaluated. The PAC collaborated in the evaluation of eight Remedial Alternatives for the site and after three years of study and consultation, unanimously endorsed Alternative 5A. Alternative 5A contained in EPA's Section 309 Order, requires the removal of MRDR, and will result in the restoration of the site and its waterways to pre-mining conditions, and will provide long-term water quality protection through removal of source waste materials. It would also have significant environmental benefit aside from water quality protection, facilitating the restoration of pre-mining vegetation and wildlife (EBMUD,1996b). In addition, the requirements of the California Department of Water Resources, Division of Safety of Dams requires that the removal of the MRDR be completed by October 1, 1999, necessitating an early August 1999 commencement of the decommissioning process.

Project History

The Penn Mine site is located in the Sierra foothills, in central California's Calaveras County, on the south shore of the Mokelumne River/Camanche Reservoir, approximately three miles downstream from Pardee Dam. Acid Rock Drainage has been an historical problem throughout the mine's nearly 100-year life, resulting in severe water quality deterioration due to very low pH and high metals (copper, zinc) content. The original mine owners, New Penn Mines, Inc, despite repeated attempts by the Regional Water Quality Control Board (RWQCB) to compel them to correct the pollution problem, refused to comply with RWQCB- issued Cease and Desist Orders. In April of 1978, the RWQCB adopted Resolution No. 78-55 which proposed remedial actions at the mine and requested EBMUD, the County, and other agencies to contribute to the abatement of ARD from the inactive mine.

Several remedial steps were taken with the anticipation that New Penn Mines would ultimately provide financial restitution and assume continuing responsibility for the remediation of their site. In 1977, EBMUD removed silts from Camanche Reservoir that had accumulated as a result of discharges from the mine site. Subsequently, pursuant to an order issued under Water

³ In the Matter of East Bay Municipal Utility District Mine Run Dam Reservoir Calaveras County, California, Proceeding under Sections 208(a) and 309(a) of the Clean Water Act, [33U.S.C. § 1318 (a) and W139 (a)], USEPA, Region IX, Order No. IX 309-FY97-2- (May 15, 1997)("Section 309 Order").

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Code Section 13305, and a Memorandum of Agreement (MOA) among the RWQCB, EBMUD, and the California Department of Fish and Game (CDF&G), the RWQCB and EBMUD constructed the Mine Run Dam (MRD) and a series of additional temporary containment and diversion structures to both divert drainage away from the waste rock and to allow collection and evaporation of as much surface water as possible. It was recognized that these structures could not achieve total containment and that some releases would be experienced during high-flow conditions when the capacity of the control structures was exceeded. In 1993, EPA under an order pursuant to Section 309 of the Clean Water act, directed EBMUD to add an In-Line System (ILS) to treat runoff in the MRD Reservoir that could overflow into Camanche Reservoir. Other clauses of the Order directed EBMUD to develop a plan for "long-term pollution control," which became the Penn Mine Site Long-term Solution Project.

C. PROPOSED PROJECT AND ALTERNATIVES

1. Proposed Action

Alternative 5A provides long-term water quality protection at the Penn Mine Site through the excavation and removal of all waste materials and their disposal in an on-site landfill. All impoundments, including MRD, would be removed to allow runoff from Mine Run Creek and Hinkley Run Creek (natural drainages) to discharge to Camanche Reservoir. With the natural drainage restored and rehabilitation and revegetation of the site, the longer term potential for the reconstitution of original, pre-mine habitat and natural resources exists. Specific components of Alternative 5A, all of which are included in the EPA Order IX 309-FY97-20 (May 16,1997) and most of which have been completed, include:

Landfill Construction - A 9-acre clay/HDPE-lined landfill has been constructed north of Hinkley Run Creek. It is outfitted with a Leachate Collection and Removal System (LCRS for off-site disposal), and when completed will have a composite clay and HDPE geomembrane cover topped with two feet of soil and herbaceous vegetation (EBMUD, 1997a).

Waste Removal - Approximately 320,000 cubic yards of waste materials have been excavated from Mine Run Creek, Mine Run Dam, and a Shoreline Waste Pile. (This does not include approximately 40,000 cubic yards of "clean" fill yet to be excavated for the removal of the Mine Run Dam itself. This material will be used for site regrading). The project includes the removal of all mine waste, mill tailings, sludges, mixed fills, and soils beneath the impoundments.

Revegetation - A 12- to 24-inch layer of top soil will be placed over areas disturbed by the remediation, throughout the site. Indigenous plant species will be planted in some areas and encouraged through contouring and structural restoration in others.

Erosion Control - Erosion control and sediment management will be achieved

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through the use of best management practices during and following construction (EBMUD,1997a).

Streambed and Channel Restoration - Mine Run and Hinkley Run Creek channels have been reconstructed along the lowest centerline of their original beds up to the elevation of the Mine Run Dam. Final recontouring will be completed following removal of the dam. Banks will be graded and covered to restore habitat and rock rip-rap may be used where slopes require protection.

Diversions - The constructed diversion channels will be removed or covered to allow surface water to resume its original drainage paths down the Mine Run and Hinkley Run Creeks and through the channel currently blocked by Mine Run Dam.

Mine Run Dam Removal - Contaminated material within the Mine Run Dam impoundment and from the upstream face of the dam itself has already been removed to a landfill and the dam regraded for interim safety reasons. The remainder of the earthfill structure will be removed and used for site restoration/contouring. This will yield about 40,000 cubic yards of clean fill. The crest elevation of the structure is currently 261 feet. This will be reduced to the original ground level elevation of 225 feet. The original streambed draining Hinkley Run and Mine Run Creeks will be restructured to restore natural draining to Camanche Reservoir through the path blocked by the dam.

Groundwater Control/Shaft Plug - To limit potential discharges of water from the mine shaft to the ground surface, a shaft plug was constructed in Shaft 4 during last construction year. No other groundwater controls will be needed.

Water Treatment - The existing ILS will be operated as necessary during construction. No additional treatment is proposed.

Demobilization - Following the removal of the MRD and completion of the stream rehabilitation and site revegetation, all construction equipment will be removed from the site.

Monitoring - In accordance with the Mitigation Monitoring Plan developed for the Long-Term Solution, water quality monitoring stations installed downstream from the landfill and near the inflow to Camanche Reservoir will continue to be monitored for pH and metals content on a quarterly basis for at least three post-construction years to ascertain continuing sources should they appear, or to confirm site rehabilitation.

2. Reasonable Alternatives

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As described in preceding sections, a lengthy comparison of alternative Long- Term Solutions was undertaken as part of the preparation of the Environmental Impact Report (EIR). Volume II of that report, issued September 1996, gives a detailed comparative evaluation of the options and resulted in the adoption of Alternative 5A, because it was the only option which unequivocally met the Project objectives to:

- develop a long-term solution that provides water quality protection of the Mokelumne River and Camanche Reservoir;
- develop a solution that is consistent with applicable laws and regulations, including the Clean Water Act, the California Code of Regulations, Title 23, Chapter 15, the Toxic Pits Cleanup Act, and others; and
- develop a solution that is economically feasible to install, operate, and maintain.

3. No-Action Alternative

Under the no action scenario, the MRDR would remain in place. The Hinkley Run and Mine Run Creeks would continue to be channelized and diverted from their natural drainage paths. As water accumulated behind the MRD, it would require collection, treatment (necessitating the continued operation of the ILS), and disposal of treated water. The dam would require considerable structural attention to ensure its safety over the long term, including a continuing maintenance program. The landfill could still be capped and revegetated and the remaining site, contoured, but no riparian opportunities would be available.

The site as a whole would require long-term monitoring, and maintenance would remain land dedicated to ex-mine service. There would be no opportunity for reinstatement of the pre-mine habitat of the area.

D. CONSULTATION AND COMMENTS

On June 16, 1999, the Commission provided public notice (errata notice issued June 23, 1999) of the application for amendment of license with a comment date of July 26, 1999. A motion to intervene was filed on July 23, 1999, by the California Sportfishing Protection Alliance and Committee to Save the Mokelumne who have been actively involved as parties to the Penn Mine Oversight Committee and a signatory to the settlement agreement between EBMUD, CSPA and CSM. They have interest in ensuring the terms and conditions of the settlement agreement are honored. On July 26, 1999, a motion to intervene was filed by the Mokelumne River Water and Power Authority in which they requested participation in this proceeding because of a preliminary permit application they have currently pending before the Commission that could be affected by any Commission action on this application to remove Mine Run Dam. In a letter filed July 28, 1999, the U.S. Army, Corps of Engineers, stated its support for the removal of Mine Run Dam.

E. AFFECTED ENVIRONMENT

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Physical Setting

The MRDR site is located in the foothills of the western Sierra Nevada Mountains in Calaveras County, California, about 35 miles southeast of Sacramento. The site occupies approximately 24 acres of land adjacent to Camanche Reservoir and is located partially within the boundary of the FERC licensed Lower Mokelumne River Hydroelectric Project.

Slopes in the area are generally steep and rocky, with thin overlying soils. Elevations at the project site range from about 200 to 400 feet above mean sea level (MSL). Summers are typically hot and dry, and winters are cool and wet. Precipitation totals about 24-25 inches per year.

Geology and Soils

The bedrock geology in the project area consists primarily of Gopher Ridge volcanics, with thin sills of igneous intrusives (EBMUD, 1996a). Most of the ore bodies are spatially associated with these intrusives. The ore bodies occur as massive sulfide deposits in alteration zones of sericitized and silicified schist, and are not currently observed at the surface. The ore is typically a fine-grained mixture of pyrite, chalcopyrite, and sphalerite.

The bedrock is overlain by Tertiary conglomerates and surficial mine waste materials. Almost all of the NRDR site was affected by mining activity, to some degree (EBMUD, 1996a). Prior to the start of site remediation activities, surficial materials included mill tailings, slag, mine waste, and mixed contaminated soils, in addition to native soils. Native soils include silty sand and silt loam, likely of the Auburn-Exchequer Soil Association found in the nearby foothills (EBMUD, 1996b).

Vegetation and Wildlife

Vegetation in the project area is characteristic of the Sierra Nevada foothills. Three primary habitat types, blue oak-foothills pine, chaparral, and California annual grassland, are represented (EBMUD, 1996a).

Blue oak-foothills pine habitat supports a variety of wildlife species. Common birds include black-capped chickadee, California quail, and scrub jay, and raptors such as red-shouldered hawk, Cooper's hawk, and sharp-shinned hawk. Mule deer and gray fox are also typically present (EBMUD, 1996a).

The chaparral habitat type is dominated by whiteleaf manzanita, mountain mahogany, and wedge-leaved ceanothus. Chaparral provides habitat for birds such as California thrasher, mourning dove, spotted towhee, and dusky flycatcher. Small mammals (e.g., brush rabbits and

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deer mice) are common. Western rattlesnake and western fence lizard are also typically associated with chaparral (EBMUD,1996a).

The California annual grassland habitat type is dominated by wild oats, bluegrass, rip-gut brome, hairgrass, and foxtail. Bird species closely associated with this habitat type include meadowlarks, barn swallows, and mockingbirds. Small mammals such as California vole, deer mouse, and black-tailed jackrabbit are also typically found in grassland settings, and bats often forage over them (EBMUD,1996a).

Vegetation is sparse in portions of the site that were occupied by waste piles and mine tailings, and although wildlife would be likely to move across these areas, the disturbed areas do not support nesting, denning, or foraging by any species. Abandoned mine shafts and adits are blocked by soil, and thus do not provide roost, nest, or nursery opportunities for bats or other species (EBMUD,1996a).

Threatened and Endangered Species

At the time the Draft Environmental Impact Report (DEIR) was developed, only two terrestrial species listed as threatened or endangered under the federal Endangered Species Act were thought possibly to occur in the project area. These included the peregrine falcon and bald eagle. More recent information indicates that habitat for the valley elderberry longhorn beetle is present on the site, and the beetle is also likely present (Belt Engineering & Scientific 1997).

Information provided by the U.S. Fish and Wildlife Service (FWS) indicates that the California red-legged frog has been listed as threatened since the Draft EIR (DEIR) was developed, and that the Aleutian Canada goose and giant garter snake (both also listed as threatened) might also occur in the project area (FWS 1998).

The Aleutian Canada goose breeds in the Aleutian Islands and winters in the Sacramento and San Joaquin valleys, where it may rest and forage on lakes and reservoirs (FERC, 1999). The MRDR site does not provide resting or foraging habitat, and most remediation and revegetation activities are planned during times of the year when no geese would be present in the state.

The giant garter snake occurs in valley bottom wetlands, and is primarily associated with rice production zones (FERC 1999). This species is not likely to occur in the dry foothills habitats that characterize the MRDR site.

A review of the July 1999 California Natural Diversity Data Base indicates that no additional terrestrial species whose range extends into the project area have been listed since the original project evaluation and follow-up studies were conducted (CDFG 1999).

The FWS (1998) provided a list under section 7(c) of the Endangered Species Act of 1973 as amended, of aquatic species listed as threatened or endangered, which may occur or be

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affected by the Penn Mine Remediation Project. Four species of fish were listed: winterrun chinook salmon, *Orcorrynchus tshawystche* (E), delta smelt, *Hypornesus transpacificus* (T), Central Valley steelhead, *Oncorhynchus mykiss* (T) and Sacramento Splittail, *Pogonichthys macrolepidotus* (PT).^{4 5} The animal species list is indexed to the two project US Geological Survey (USGS) quad sheets including Valley Springs and Wallace and is therefore presented in a regional rather than site-specific context.

Since the MRDR has already been drawn down and the drainage ways on the site are channelized or buried, it is unlikely that any fish, including these threatened and/or endangered ones, would be resident onsite. If they are present in the Comanche Reservoir, they have not been identified as such.

Water Resources

The information in this section of the EA has been obtained primarily from the DEIR (EBMUD,1996a) and the Mitigation Monitoring Plan (EBMUD,1997a). Information from other sources is specifically referenced in the text below. Unreferenced information can be assumed to originate from the above two referenced documents.

The Penn Mine site is divided into two watersheds, Hinkley Run (383 acres) and Mine Run (81 acres). A total of 29 acres in the Hinkley Run watershed was classified as disturbed, while 25 acres of the Mine Run watershed was classified as disturbed. Storage in reservoirs and ponds for surface water collections totaled 67 acre-feet. Drainage in the watershed has been extensively rerouted due to both mining activity and modifications to drainage to route upstream flow around mine waste. Under highwater conditions, Camanche Reservoir may be as close as 500 feet to the site.

Water Quality

The Mokelumne River, Penn Mine Site, and downstream is listed under section 304(l)(B) of the Clean Water Act (CWA) as an impaired water body due to copper and zinc contamination. On March 15, 1993, USEPA issued a Finding of Violation and Order for Compliance to EBMUD pursuant to Sections 308 and 309 of the CWA for the discharge of Acid Rock Drainage from Mine Run Dam and Reservoir. Modifications to the order were issued on December 17, 1993, June 6, 1994, October 10, 1995, and May 16, 1997. Specific aspects of the order are described in chapter 3 of the DEIR, except for the May 16, 1997 order. That order directs EBMUD to design, schedule, and implement the Penn Mine Long-Term Solution Project (Alternative 5A) and convene a PAC to review progress in implementing the project in achieving water quality objectives.

4 E indicates endangered species, T indicates threatenend species, P indicates proposed.

5 The Sacramento splittail was listed as a Federally Threatened species on march 10, 1999. (California Department of Fish and Game)

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The Porter Cologne Water Quality Control Act (Porter Cologne Act) establishes the statutory basis for water quality in California by defining the roles and responsibilities of the State Water Resources Control Board (SWRCB) and regional water quality boards which implement the statewide water quality program. The Central Valley Regional Water Quality Control Board (CVRWQCB) for the Sacramento River Basin and the San Joaquin River Basin has authority over the waters of the Mokelumne, including the watersheds associated with Hinkley and Mine Run Creeks. Specifics associated with the program for these waters are detailed in the Sacramento River and San Joaquin River Basin Plan (CREQCB, SWRCB, 1995 as amended). The beneficial uses of water associated with the Mokelumne River and its tributaries in the project vicinity are summarized as follows:

- Municipal domestic supply;
- Agricultural supply for irrigation and stock watering;
- Water contact recreation;
- Nonwater contact recreation;
- Warm freshwater habitat;
- Cold freshwater habitat;
- Fish spawning;
- Warm water species (striped bass, sturgeon, and shad);
- Cold water species (salmon and steelhead); and
- Wildlife habitat.

Aquatic Environment and Fisheries

The Penn Mine site drains into the Pardee-Camanche reach of the Mokelumne River, and ARD from the site affected that reach, the Camanche Reservoir, and the Mokelumne River downstream of Camanche Dam. Camanche Reservoir has an area of 7,700 acres and a volume of 477,400 acre-feet. The reservoir is described as a warm and eutrophic reservoir that is operated by EBMUD for recreation, in-reservoir fisheries, domestic water supply, flood control, and irrigation.

The portion of the reach where the site discharges is riverine under low Camanche Reservoir elevations and inundated under high reservoir conditions. The aquatic habitat fluctuates and as such is subject to the stress of water level change unrelated to Penn Mine discharges.

Historically, fish losses due to heavy metals have occurred at the Mokelumne River Fish Facility (MRFF), located downstream of Camanche Dam. Such losses occurred in 1967, 1973, and 1977. Major kills attributed to metals from Penn Mines occurred in 1937, 1943-33 and 1958-59. More recent losses have been attributed to drought conditions and nutrient loads in the Mokelumne River.

The Mokelumne River supports healthy, diverse populations of fish which are supported

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by ample food supplies of both invertebrates and vertebrates. Healthy plankton and benthos communities are also supported. Studies have concluded that acid rock drainage from Penn Mine does not significantly affect benthic invertebrates in Camanche Reservoir at the present time.

EBMUD manages the fisheries resource by stocking and supporting fish enhancement programs. More than 26 species of fish were listed in the DEIR. Major stocking efforts have included trout, channel catfish, and largemouth bass. No evidence of stress was found due to contemporary ambient metal concentrations. When spawning in the spring and summer in the shallow areas around the location of the Penn Mine runoff point of discharge, black bass and sunfish are particularly vulnerable to Penn Mine ARD. Riverine species such as rainbow trout, sculpins, minnows, and suckers are also particularly vulnerable to ARD, since they occur in shallow waters such as those adjacent to the Penn Mine.

Air Quality and Noise

There are no air quality monitoring stations in Calaveras County. Based on monitoring reports from stations in adjacent counties, it is likely that state standards for ozone and suspended particulate matter are exceeded on the site from time to time. Most of the ozone in Calaveras County would likely derive from precursors (hydrocarbon compounds and nitrogen oxides) in the San Joaquin Valley and metropolitan areas of Sacramento and San Francisco (EBMUD, 1996a). Existing emissions sources on the site itself would include wind erosion of exposed soils and intermittent use of diesel-powered equipment. Waste piles and mine tailings were removed during the first construction season in 1998. At this time, exposed soils are expected to be free of mine-related contaminants, and the health hazards associated with blowing dust would be limited to suspended particulate matter.

Residential areas, schools, hospitals, and convalescent centers are considered sensitive to air pollution. The closest residence to the project site is approximately 3,400 feet from the Mine Run Dam. The unincorporated town of Campo Seco lies about a mile and a half from the site. Access roads pass through very low-density rural/residential areas (also considered sensitive, because residents tend to be at home for extended periods of time). Visitors to Camanche Reservoir and adjacent recreation facilities would not be considered sensitive, because they are present only intermittently and for short periods of time (EBMUD, 1996a).

Existing ambient noise levels are relatively low through most of the project area (EBMUD, 1996a) of noise include railway and highway traffic, motorized watercraft on Camanche Reservoir, and occasional noise from recreational target practice on the site. Water treatment facilities at the site also generate intermittent noise.

Recreation and Aesthetics

Calaveras County has become a major recreation region, based largely on the recreational opportunities available at the county's major reservoirs (Camanche Reservoir, Pardee Reservoir, New Hogan Reservoir, Lake Tulloch, and New Melones Reservoir), the Mokelumne and Stanislaus Rivers, and the county's notable limestone caves. At the Camanche Reservoir,

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EBMUD owns 6,885 acres of watershed land, and provides two developed recreation areas (Camanche North and Camanche South) which include a full range of recreational facilities. These facilities include full service marinas with boat rentals, trailer and boat storage, bait and tackle shops, swimming and fishing lagoons, hiking trails, playgrounds and playfields, service stations, and stores and restaurants.

In the 1995 calendar year, the reservoir had over 420,000 visitors with use concentrated in the areas around the two developed recreation areas and on the main body of the reservoir. The easternmost arm of the reservoir on which the Penn Mine site is located is more lightly used. Water skiing, jet skis, and personal watercraft are not permitted in this area. Approximately one mile east of the Penn Mine site, boating is banned altogether. According to EBMUD Natural Resources staff, on a busy summer weekend, out of the total of about 300 boats on the reservoir as a whole, only 10 to 20 boats would be likely to enter the reservoir's easternmost arm. On a summer weekday out of the 50 or so boats on the reservoir, only one or two would be likely to enter this area. Under EBMUD's recreational management policies for the reservoir, public use of the shoreline is restricted to developed recreational areas. Because of these policies, although boaters can pull up close to the shoreline near the Penn Mine site, they do not have the right to debark and use the land along the shore.

Because the site is fenced and gated restricting public access, most of the site is out of view of the general public. The only public views into the site are those from the reservoir's eastern arm and from the Lancha Plana Bridge on East Camanche Parkway/Buena Vista Road. Traffic levels on the bridge are in the range of 600 to 800 vehicles per day, but because there are no parking areas on the bridge and the speed limit is 55 mph, views toward the Penn Mine site last just a few seconds. The views toward the site experienced by boaters are more important because they are longer in duration and because boaters have the option of pulling up close to shore where close-range views can be obtained. As detailed in the review of recreation conditions, the level of boating activity in this arm of the reservoir is relatively light, with an average of 10 to 20 boats entering this area on busy summer weekend days and one or two boats entering on summer weekdays. The landscape in the areas around the Penn Mine site is characterized by stands of oak, digger pine, manzanita, and various species of groundcover.

In contrast, the Penn Mine site is noticeably disturbed and has less vegetation. In the recent past, before remediation activities began, when seen from the reservoir, the mine site appeared as a series of terraces on which runoff impoundments were flanked by excavations and waste piles of rock and earth material. With remediation, the waste piles have been removed, and the disturbed areas covered with topsoil and hydroseeded. As a consequence, the appearance of the site has been significantly improved. At present, the most visible developed feature on the site is Mine Run Dam.

Land Use

The 24-acre Penn Mine site is a fenced and gated area that contains the remains of the now-inactive Penn Mine. Over the past few years, under the Penn Mine Site Long- Term

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Solution Project, the piles of mine waste and mill tailings that once occupied large areas of the site have been removed and buried in a 9-acre landfill located on the site. At present, the major feature on the site is Mine Run Dam. The site's current land use is, in effect, management of residual acid rock drainage through collection of the site's runoff behind the dam and its treatment by means of an in-line water treatment facility. Land uses in the vicinity of the Penn Mine site include EBMUD watershed, other mines, ranching, and rural residential. A Bureau of Land Management (BLM) parcel immediately adjacent to the Penn Mine site contains an active mine claim. Under the Calaveras County General Plan (December 1, 1986), the Penn Mine area is designated for single family residential use. At present, there are no plans for any developed use on the Penn Mine site.

Cultural Resources

Comprehensive cultural resource studies conducted in the 1960's documented 129 prehistoric archeological sites in the area of the Camanche Reservoir. The majority were thought to date from the Sacramento-San Joaquin Delta Late Horizon (EBMUD, 1996a). Some historic structures (e.g., stone walls, stone roads, and cultural deposits) remain on the MDRD site, but most of the mining operation equipment dating from the late 1800's was removed many years ago. During archeological surveys conducted at the MDRD site more recently, 11 individual cultural sites and 39 discrete features were inventoried, recorded, and evaluated.

F. ENVIRONMENTAL IMPACTS

1. Proposed Action

Geology and Soils

Surficial soils are fine-grained and loose, and would present a risk of erosion until vegetative cover is well-established. Eroding soils could block culverts, impair water quality in Hinkley Run and Mine Run creeks, and delay the establishment of riparian habitat along the creeks. To minimize the risk of erosion, the applicant would continue to employ best management practices for erosion control and sediment management during a scheduled maintenance program. Culverts and drainage ways would be cleaned out and site access roads would be properly graded. To mitigate the potential for damage from seismic ground shaking the Mine Run Dam would be dismantled in compliance with Division of Safety of Dams requirements (EBMUD, 1997a).

Vegetation and Wildlife

Construction activities and associated traffic would disturb wildlife commonly found in the area. Impacts would vary from species to species, depending on the type of activity and species sensitivity. For example, traffic could interrupt the migratory patterns of deer, while construction noise could interfere with raptor nesting success. Increased traffic would increase the risk of road kills. These adverse impacts would be short-term and temporary. Measures intended to control fugitive dust and erosion, and traffic noise disturbance would help to mitigate

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for adverse impacts (EBMUD,1997a).

Long-term impacts of the proposed action are expected to be beneficial. Site remediation would reduce the exposure of both plants and animals to environmental toxins. Revegetation of currently barren soils would increase the area of usable wildlife habitat. The revegetation design includes indigenous plant species, which would improve the quality of native plant communities.

Less than one acre of jurisdictional wetlands would be affected by the proposed action. This impact is not considered significant; the U.S. Army Corps of Engineers (USCOE) has authorized the proposed action under Nationwide Permit 38 (COE 1998).

Threatened and Endangered Species

Potential impacts of the proposed action on peregrine falcon, bald eagle, California red-legged frog, and valley elderberry longhorn beetle were evaluated in the EIR (EBMUD,1996a). Peregrines are currently listed as endangered, but were proposed for de-listing on August 28, 1998, because recovery targets have been met (CFR 1998). Peregrine falcons could forage near the Penn Mine Site, but the site itself provides no suitable prey base and no nesting opportunities. For this reason, the proposed action would not affect peregrines.

Bald eagles are currently listed as threatened, but de-listing has been proposed for this species, also, due to achievement of recovery goals (CFS 1999). Bald eagles are common around Camanche Reservoir (FERC 1999), but because of their strong association with water for foraging and with large-diameter live trees and snags for perching, roosting, and nesting, they would not be likely to use the MDRD site. The proposed action would not affect bald eagles.

The California red-legged frog was listed as threatened on May 20, 1996 (CFR 1996). Red-legged frogs are typically associated with dense shrub or emergent vegetation near deep (at least 2.3 feet), still, or slow-moving water (FERC 1999). Because these habitat types would not be affected by the proposed action, no effects would be expected to result from removal of Mine Run Dam. No red-legged frogs were observed at any of 16 sites surveyed by PG&E in 1997 near the Mokelumne River Hydroelectric Project upstream of the project site, and the species may be extirpated from the watershed (FERC 1999).

The valley elderberry longhorn beetle is listed as a threatened species. The beetle is completely dependent upon elderberry shrub, its host plant. In 1997, blue elderberry shrubs were observed growing in several locations at the Penn Mine Site (Belt Engineering & Scientific 1997). Descriptions and photographs of the shrubs (OHM Remediation Service, Corp., 1998) indicate that those closest to the proposed work areas are located in the Hinkley Run Creek drainage, approximately 1,200 feet from the Mine Run Dam and approximately 400 feet from the landfill. Since they were first observed, EBMUD has protected the shrubs from disturbance with fencing and signage (OHM Remediation Service Corp.,1998). With these measures in place, the

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proposed removal of Mine Run Dam would have no effect on the elderberry shrubs, or valley elderberry longhorn beetles, should they be present.

The FWS in a letter dated August 13, 1999, stated that the proposed action is not likely to adversely affect the valley elderberry longhorn beetle or any other listed species. The FWS added that unless new information becomes available that indicates that the proposed action may affect listed species in a manner or to an extent not considered, or a new species or critical habitat is designated that may be affected by the proposed action, no further action pursuant to the Endangered Species Act of 1973, as amended, is necessary.

Water Resources

A total loss of 1.58 surface acres of water is anticipated in conjunction with mine restoration. The loss results from elimination of manmade acid drainage impoundments and concrete-lined diversion ditches. An overall net benefit will result, because natural drainage courses will be restored in the reclaimed area of the site. A single wetland with an area of 0.25 acres is disturbed by landfill construction and operation and will be restored upon landfill closure (OHM Remediation Service Corp., 1998).

Water Quality

Moderate increases in the discharge of both copper and zinc are expected in groundwater and surface water. The following water quality impacts are anticipated after dam removal and restoration of flow through the mine site (EBMUD, 1997a):

- elevated concentration of metals owing to dissolution and flushing of metal salts deposited in shallow bedrock underneath the waste pile locations; and
- the rate of flushing of metals in the restored site will temporarily increase but ultimately decrease the concentration of metals, since the restored water flowing on-site will have lower concentration of metals to begin with.

Measures already taken by the applicant to ensure low levels of contamination during dam removal include:

- removal and landfilling of all waste materials present in the project area;
- filling, regrading, and restoration of stream channels and slopes; and
- monitoring for a full wet season to verify that unrecognized sources of contaminants are not present.

Ultimately, concentrations of metals are expected to drop and return to levels associated with other ephemeral streams in the region (EBMUD, 1997a). EBMUD and CVRWQCB plan to

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regularly monitor water quality (specifically metals) at a site in Camanche Reservoir near the site of MRD for a period of not less than three years following implementation. Should monitoring indicate increases in the concentration of metals, contaminant sources will be identified and additional mitigation measures will be considered (EBMUD,1997a).

Erosion control and sediment management will mitigate impacts on water quality during construction, which will implement best management practices. Additional protection will be provided by limiting construction activities associated with dam removal to a period corresponding to low streamflow and relatively dry weather. Streamflow would be diverted around the work area during construction operations. Wetland areas would be fenced and protected for the duration of construction activity.

The water quality monitoring program includes:

- surface water sampling points upstream and downstream from the confluence of Hinkley and Mine Run drainage, both in the main channels, and at the confluence with Camanche Reservoir;
- shallow bedrock groundwater in at least two wells from the network established by the USGS during their investigations; and
- monitoring of the landfill constructed on-site, in general compliance with the requirements for monitoring of closed landfills contained in Chapter 15 of Title 22 of the California Code of Regulations.

Another long-term benefit of dam removal is the dispersion of the groundwater plume, since it appears to be driven by the head in MRD Reservoir. A related mitigation measure is that “groundwater extraction will be considered if monitoring of groundwater during construction of the long-term plan indicates that groundwater presents a risk to the receiving waters”.

Small volumes of water with elevated metal concentrations will likely occur early on after the completion of the project, but should diminish with time (EBMUD,1997b). Removal of the dam will proceed only if monitoring shows that significant unrecognized sources of contaminants are not present.

Should problems arise after construction, treatment of contaminated waters with a passive anoxic, limestone, or other comparable method would be implemented to meet standards or best management practices.

Aquatic Environment and Fisheries

Releases of metals and other constituents to Camanche Reservoir could affect fish and other aquatic species. Since several mitigation measures are planned, these impacts are expected

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to be mitigable. Elevated tissue levels are not expected to occur in fish in Camanche Reservoir owing to the measures included in the preferred alternative (EBMUD,1997a). The effect of elevated levels of suspended sediments on species which may occur during construction should be largely mitigated by the erosion and sediment control plan. Another temporary measure includes treatment during construction to minimize the impacts of metal discharges.

A long-term, positive impact on aquatic biology is expected, because habitat restoration is a secondary objective of the Penn Mine Site Long-Term Solution Project. Because water quality will be monitored, a biological monitoring program is not currently planned (EBMUD,1997a).

Air Quality and Noise

Short-term adverse impacts in air quality would occur during site grading and construction as a result of vehicle and heavy equipment emissions and fugitive dust. The amount of ozone precursor compounds would not exceed significance levels established by the Calaveras county Air Pollution Control District, but without mitigation, the levels of suspended particulate matter would be likely to violate the state ambient standard (EBMUD,1996a). Approximately 95 percent of the particulate matter would be generated by truck travel over unpaved roads. For this reason, the applicant has developed a dust control plan and would continue to implement the specified control measures through the end of the construction period (EBMUD,1997a).

Over the long-term, the proposed action would improve air quality. Hazardous mine wastes have been removed and levels of wind-blown dust would be reduced as a result of soil stabilization and revegetation of the site.

Noise resulting from the proposed action would include heavy equipment operation on-site and traffic related noise on local roads. To mitigate this short-term adverse impact, the applicant proposes to avoid routing truck traffic through Campo Seco, or if that is impossible, to limit truck travel to the hours between 7:00 a.m. and 7:00 p.m. This measure would minimize disturbance to wildlife as well as local residents. The level of such traffic during this final construction phase, is however, expected to be low as materials removed from the dam are slated for re-use on site.

The long-term impact of the proposed action would be beneficial. Noise levels on-site would be slightly reduced by the removal of the water treatment facilities.

Recreation and Aesthetics

Public access to the Penn Mine site and the adjacent Camanche Reservoir shoreline will continue to be restricted after remediation of the mine spoils and removal of the Mine Run Dam. Because no new recreational activities would take place on these lands, the project will not have a direct impact on recreation. However, the proposed action would have indirect but generally positive long-term effects on recreation through the improvement it would bring about in the visual quality of the views into the Penn Mine site experienced by boaters

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using the easternmost arm of the reservoir. Views toward the dam would be replaced by views up into the canyons of Mine Run and Hinkley Run Creeks, which will have been restored to natural-appearing conditions. Short-term adverse indirect effects on recreation could occur during the dam removal period when heavy construction equipment and excavation activities would be visible from the reservoir and could be perceived by boaters as creating unattractive conditions. Because dam removal would be completed in just a few months, a relatively small number of boaters would be affected, lessening the potential significance of these indirect adverse impacts.

Land Use

Recent remediation activities have removed most of the sources of acid rock drainage on the Penn Mine site and have eliminated the need for impoundment and treatment of the site's runoff. The proposed action would change the site's land use by eliminating the dam and in-line water treatment facilities. The site's land use would be converted to natural-appearing open space. Because there are no plans for development of the site, and because there are substantial legal restrictions and financial and liability obligations that would limit the site's future development, it can be anticipated that the open space use of the site would continue into the future. Public access to the site will continue to be restricted.

Cultural Resources

Recent cultural resource surveys conducted at the site were used to identify, evaluate, and map archeological and historic resources. The survey report fulfills compliance with Section 106 of the National Historic Preservation Act for the proposed action (SHPO 1998). Measures to protect historic resources (e.g., construction of support structures to prevent vibration damage that could be caused by truck traffic) were implemented during the first construction season, and would be maintained in place through the end of construction.

2. Cumulative Impacts

Additional potential sources of metals exist in the Penn Mine region, both upstream and downstream. There are no other projects planned in the Camanche Reservoir water that would combine with the Penn Mine Project to produce cumulative impacts. There are other sources of naturally occurring and human induced releases of metals elsewhere in the Camanche Reservoir basin.

The combination of activities required for the removal of the MRDR are expected to produce short term impacts to the noise and general activity level around the site but over the long term will benefit terrestrial and aquatic natural resources and the opportunities available to local residents with respect to recreation, aesthetic experience and economic burden.

3. No Action

The No-Action option would fail to meet the requirements of EPA Order No. IX-309-FY97-20 and would likewise conflict with the directions of the California Department of

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Water Resources, Division of Safety of Dams. This option would also fail to meet the terms of the settlement agreement made among EBMUD, CSPA and CSM.

No-Action would prevent the restoration of natural drainage to Camanche Reservoir and the potential for a return to natural land use. This option would require continued economic input to support monitoring, treatment and maintenance functions.

G. RECOMMENDATIONS AND CONCLUSIONS

The recommended alternative is the proposed action - the completion of the Long-Term Remediation Plan. The removal of the MRD will satisfy both the substance and intent of the EPA Order under Section 309 of the Clean Water Act and timely implementation will satisfy the specifications of the State of California Department of Water Resources, Division of Safety of Dams. We conclude, therefore, that approval of the proposed amendment of license would not constitute a major federal action significantly the quality of the human environment.

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J. LIST OF ACRONYMNS

ARD	Acid mine drainage
BLM	Bureau of Land Management
CDF&G	California Department of Fish & Game
CFR	Code of Federal Register
CSM	The Committee to Save the Mokelumne River
CSPA	California Sportsfishing Protection Alliance
CWA	Clean Water Act
DEIR	Draft Environmental Impact Report
EBMUD	East Bay Municipal Utility District
EIR	Environmental Impact Report
FERC	Federal Energy Regulatory Commission
FWS	US Fish and Wildlife Service
HDP	High Density Polyethylene
ILS	In-Line (Treatment) System
LCRS	Leachate Collection and Remediation System
MOA	Memorandum of Agreement
MRDR	Mine Run Dam and Reservoir
MRFF	Mokelumne River Fish Facility
MSL	Mean Sea Level
NGO	Non-Government Organization
PAC	Project Advisory Committee
RWQCB	Regional Water Control Board
SHPO	State Historic Preservation Officer
SWQCB	State Water Quality Control Board
USEPA	US Environmental Protection Agency
USFWS	US Fish and Wildlife Service
USGS	US Geological Survey

UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

East Bay Municipal Utility

Project
No. 2916-
036

District

ORDER AMENDING LICENSE

East Bay Municipal Utility District (EBMUD or licensee) filed an application on May 19, 1999, requesting Commission authorization to remove Mine Run Dam and Reservoir (MRDR), which is located within the boundary of the Lower Mokelumne River Project No. 2916. The project is located on the Mokelumne River, Amador, Calaveras, and San Joaquin Counties, California.

BACKGROUND

The Lower Mokelumne Project, licensed in 1981, comprises two reservoirs, each of which has hydroelectric generating facilities and substantial storage capacity. The upstream Pardee Dam impounds a reservoir with a total capacity of 209,950 acre-feet, and the downstream Camanche Dam impounds a reservoir with a total
1
capacity of 431,000 acre-feet.

The Project is located east of Lodi, California, and drains the central western slope of the Sierra Nevada mountains. Located near Camanche Reservoir and partially within the project boundary is the Penn Mine. From the mid-1800's until its closure in 1952, the mine produced copper, zinc, gold, and silver. Mine tailings were piled along the river bank and in the river channel, where they were carried downstream during high flow periods. The construction of Camanche Reservoir in 1964 partially contained, precipitated, and diluted contaminants from Penn Mine. This, in combination with runoff control efforts commenced in 1979 by East Bay and the California Department of Water Resources, has reduced new introduction of toxic materials from the mine into the river and the effect of existing toxins on aquatic resources.

The MRDR, in combination with a series of smaller upstream impoundments and collection and drainage facilities, is collectively referred to as the Penn Mine Facility. The Penn Mine itself was operated intermittently between 1861 and 1956 and was historically one of California's largest copper and zinc

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producers. The Penn Mine facility was built in 1978 to collect and treat acid rock drainage (ARD) from the former mine.

The Penn Mine Facility, however, could not achieve total containment and some releases would be experienced during high-flow conditions when the capacity of the control structures was exceeded. In 1993, EPA directed EBMUD, under an order pursuant to Section 309 of the Clean Water Act, to add an In-Line System (ILS) to treat runoff in the MRD Reservoir that could overflow into Camanche Reservoir. Other clauses of the Order directed EBMUD to develop a remediation plan for long-term pollution control, which resulted in requiring the removal of MRDR.

THE AMENDMENT

The remediation plan, also known as alternative 5A in the EPA order, provides long-term water quality protection at the Penn Mine Site through the excavation and removal of all waste materials and their disposal in an on-site landfill. All impoundments, including MRD, would be removed to allow runoff from Mine Run Creek and Hinkley Run Creek (natural drainage) to discharge to Camanche Reservoir. EBMUD proposes to remove the MRD in order to implement the EPA requirements. The MRD, which is an earthfill structure, will be removed and used for site restoration/contouring. This will yield about 40,000 cubic yards of clean fill (if any is not clean, it will either be landfilled or disposed off-site.) The crest elevation of the structure is currently 261 feet. This will be reduced to the original ground level elevation of 225 feet. The original streambed draining Hinkley Run and Mine Run Creeks will be restructured to restore natural draining to Camanche Reservoir through the path now blocked by the MRD.

CONSULTATION AND COMMENTS

We publicly noticed the license amendment application with July 26, 1999, as the last day to file comments, motions to intervene, or protests. The following agencies provided comments and/or motions to intervene:

Commenting or Intervening Agencies	Filing Date
Comments U.S. Fish and Wildlife Service (FWS)	08/02/1999
	08/13/1999
Department of the Army, US Corps of Engineer	07/28/1999

2

Peterson, J.A., 1985. Geochemical Analyses of Rock Samples Collected at the Penn Mine, Calaveras County, California, US. Geological Survey. Open File Report 85-588. 17pp.

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Motions The California Sportfishing Protection 07/23/1999
to Alliance (CSPA) and Committee to Save the
Interven Mokelumne (CSM)
e Mokelumne River Water and Power Authority 07/26/1999
(MRWPA)

In its comments, the U.S. Fish and Wildlife Service (FWS) concluded that the removal of the MRD is not likely to adversely affect any of the listed threatened and endangered species. In its comment, the U.S. Army Corps of Engineers stated its support for the removal of MRD.

In their motion to intervene, the CSPA and CSM state that they have been actively involved with the Penn Mine Oversight Committee and are signees to a settlement agreement with the licensee concerning removal and rehabilitation of MRD site. They have an interest in ensuring that the terms and conditions of the settlement agreement are honored. In its motion to intervene, the MRWPA states that currently it has a preliminary permit application pending before the Commission that might be affected by any Commission action on the application to remove MRD. MRWPA requests that it be accorded all attendant rights and privileges of a party.

No protests were filed and no agency objected to this amendment.

DISCUSSION

As we mentioned before, the main purpose of the MRD was to control acid-mine drainage from the now abandoned Penn Mine. Part of the EPA Remediation Plan, the MRD will be removed and the site restored. Removal of the MRD will not affect the hydropower operation of the project.

In the course of the proceeding, the Commission prepared an environmental assessment report (EA) pursuant to the National Environmental Policy Act. The EA is attached to this order. In the EA we conclude that removal of the MRD would not have any adverse environmental effects. The environment will benefit from the removal of the MRD, where the site will be restored to its pre-mining conditions.

The Environmental Review

The EA analyzed the environmental benefits from the removal of the MRD.

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As we mentioned before, removal of MRD as part of the Remediation Plan for the Penn Mine Site will involve the excavation and removal of about 40,000 cubic yards clean fill that will be used for site restoration and regrading. MRD, which is about 300 feet long, will be reduced from its crest elevation of 261 feet down to the original ground level of 225 feet. All areas disturbed by remediation activities will be covered by a 12 to 24-inch layer of top soil and revegetated with indigenous plants. Erosion control measures will be implemented and water quality monitoring will be conducted by the licensee after completion of site remediation.

Removal of MRD would contribute to the restoration of the Penn Mine site and its waterways to pre-mining conditions, provide water quality protection, and will facilitate the restoration of pre-mining vegetation and wildlife. Further, removal of MRD will satisfy the requirements of the Environmental Protection Agency under Section 309 of the Clean Water Act and the requirements of the California Department of Water Resources, Division of Safety of Dam.

1. Cultural Resources

By letter dated November 3, 1998, the California State Historic Preservation Officer (SHPO) concurred with the licensee's determination that the proposed undertaking would not affect any properties listed upon or eligible for listing on the National Register of Historic Places. The SHPO added that compliance with Section 106 of the National Historic Preservation Act has been fulfilled.

2. Threatened and Endangered Species

In the EA, we evaluated the effects of the removal of MRD on federally listed threatened and endangered species. Those species evaluated were the federally listed as endangered peregrine falcon and the federally listed as threatened bald eagle, California red-legged frog and the valley elderberry longhorn beetle. We concluded in the EA that removal of MRD would have no effect on these listed species.

The FWS by letter dated August 13, 1999, stated that the proposed action is not likely to adversely affect the valley elderberry longhorn beetle or any other listed species. The FWS further stated that "unless new information reveals effects of the proposed action that may affect listed species in a manner or to an extent not considered, or a new species of critical habitat is designated that may be affected by the proposed action, no further action pursuant to the Endangered Species Act of 1973, as amended, is necessary."

3. Erosion Control

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The licensee states that best management practices in the control of erosion and sedimentation will be implemented during and after site remediation. The licensee discussed those practices in its Storm Water Pollution Prevention Plan (SWPPP). For this purpose, we are including in ordering paragraph (E) a requirement to file with the Commission an erosion control and environmental mitigation methods and plans for removal of the MRD.

4. Vegetation

The licensee proposes to revegetate the MRD site with indigenous plants. For this purpose, we are adding ordering paragraph (F) requiring the licensee to file with the Commission a plan for the revegetation of the MRD site. The plan should include a revegetation schedule, species of plants, locations of plantings, planting densities, fertilization and irrigation requirements, a monitoring program to evaluate the effectiveness of the plantings, and a schedule for maintenance and any replacement.

5. Water Quality

The licensee proposes to monitor water quality in the drainage from the Penn Mine to include a site in Comanche Reservoir near the MRD site for a period of not less than three years following dam removal. Water quality variables to be monitored, include pH, copper and zinc. For this purpose, we are adding ordering paragraph (G) requiring the licensee to provide the monitoring results to the Commission on a semi-annual basis, with the first report due June 30, 2000. Reports should be provided to the resource agencies on a semi-annual basis or upon receipt of an agency request for the data. If monitoring data show no improvement in water quality, the licensee should include with the reports proposed measures to minimize impacts.

CONCLUSION

We conclude that approving the removal of the MRD would result in no adverse impacts to the current environment. Removal of MRD would contribute to the restoration of the Penn Mine site and its waterways to pre-mining conditions, provide water quality protection, and will facilitate the restoration of pre-mining vegetation and wildlife. Therefore, issuance of an order amending the license for the Lower Mokelumne River Project approving the removal of MRD would not constitute a major federal action significantly affecting the quality of the human environment.

This order approves the amendment of license to remove the MRD. Approving this amendment of license does not change the

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Commission's determination that the project is best adapted to comprehensive development of the waterway for beneficial public uses.

The Director orders:

- (A) The license for the Lower Mokelumne River Project No. 2916, is amended by approving the removal of Mine Run Dam, as provided for in this order.
- (B) The revised exhibit G drawing, filed on May 19, 1999, is approved and made a part of the license:

Exhibit	FERC Drawing No.	Showing	Superseding
G-4	2916-52	Project Boundary	2916-45

- (C) The superseded drawing is deleted from the license.
- (D) Within 90 days of the date of issuance of this order, the licensee must file three original sets of aperture cards of the approved drawings. All aperture cards should be reproduced on silver or gelatin 35 mm microfilm. All microfilm should be mounted on a Type D (3 1/4" x 7 3/8") aperture card.

Prior to microfilming, the FERC Drawing Number (2916-52) must be shown in the margin below the title block of the approved drawings. After mounting, the FERC Drawing Number should be typed in the upper right corner of each aperture card. Additionally, the Project Number, FERC exhibit (i.e., G-4), Drawing Title, and date of this order should be typed in the upper left corner of each aperture card. See Figure 1.

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Figure 1. Sample Aperture Card Format

Two original sets of aperture cards should be filed with the Secretary of the Commission. The remaining set of aperture cards should be filed with the Commission's San Francisco Regional Office.

- (E) The Licensee must, prior to the start of construction, submit one copy to the Commission's Regional Director and two copies to the Commission (one of these must be a courtesy copy to the Director, Division of Dam Safety and Inspections), of the final contract drawings and specifications for the removal of the Mine Run Dam. The plans and specifications must address the description of work to be done, and a Quality Control Inspection Program (QCIP) addressing work scheduling, name of the Construction Management Firm and qualifications of inspecting personnel. The plans and specifications must contain information describing the dam removal methods, resulting embankment side slopes for safety purposes as the excavation progresses, and estimated quantity of materials to be removed. The QCIP must contain erosion control and environmental mitigation methods and plans for removal of the dam. To the extent that the erosion control and environmental mitigation for the removal of the dam have been addressed in the Storm Water Pollution Prevention Plan (SWPPP), no duplication is necessary in the QCIP. A minimum of two inspecting personnel is required, with one of these being experienced in inspection of environmental mitigation methods. No monthly construction reports will be necessary. Inspecting personnel from FERC, San Francisco Region Office,

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will make periodic inspections of the ongoing work. Authorization for the commencement of construction will be granted by the Regional Director, San Francisco Regional Office as soon as the above documents have been received and reviewed by staff. The Commission may require changes in the plans and specifications to assure a safe and adequate project. No work on the dam removal can begin until authorized by the Regional Director.

- (F) The licensee must, within 90 days from the date of issuance of this amendment order, file with the Commission, for approval, a plan to revegetate areas disturbed during the removal of Mine Run Dam. The plan must include a revegetation schedule, species of plants, locations of plantings, planting densities, fertilization and irrigation requirements, a monitoring program to evaluate the effectiveness of the plantings, and a schedule for maintenance and any replacement.

The licensee must prepare the plan after consultation with the California Department of Fish and Game and the U.S. Fish and Wildlife Service. The plan must include documentation of consultation and copies of any comments and recommendations on the plan and licensee's responses to any agency comments. The licensee must allow the agencies 30 days to comment before filing the plan with the Commission.

The Commission reserves the right to require changes to the plan.

- (G) The licensee must file with the Commission semi-annual reports on water quality. The report should include measurements of pH, copper and zinc collected during its 3-year water quality monitoring program for sites on the drainage from the Penn Mine site and within Camanche Reservoir. The first report must be filed with the Commission by June 30, 2000. The licensee must provide the water quality monitoring reports to the California Department of Water Resources, California Department of Fish and Game, and the U.S. Fish and Wildlife Service semi-annually or upon receipt of a request for the data. The reports must include any measures proposed to minimize impacts to water quality based on results of the monitoring.

The Commission reserves the right to require measures to protect the water quality of Camanche Reservoir.

- (H) This order constitutes final agency action. Requests for a rehearing by the Commission may be filed within 30 days of the date of issuance of this order, pursuant to 18 C.F.R. •385.713.

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Compliance

J. Mark Robinson
Director,
Division of Licensing and

ENVIRONMENTAL ASSESSMENT

APPLICATION FOR AMENDMENT OF LICENSE

LOWER MOKELUMNE RIVER PROJECT

FERC PROJECT NO. 2916-036

California

Federal Energy Regulatory Commission
Office of Hydropower Licensing
Division of Project Compliance and
Administration
888 First Street, N.E.
Washington, DC 20426
August 1999

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ENVIRONMENTAL ASSESSMENT

FEDERAL ENERGY REGULATORY COMMISSION
OFFICE OF HYDROPOWER LICENSING
DIVISION OF PROJECT COMPLIANCE AND ADMINISTRATION

Project Name: Lower Mokelumne River Project

FERC No. 2916-036

I. APPLICATION

1. Application: Application of East Bay Utility District (EBMUD) to Remove Mine Run Dam and to Amend License
2. Date Filed: May 19, 1999.
3. Applicant: East Bay Municipal Utility District
4. Water Body: Mokelumne River/Camanche Reservoir
5. Nearest Town: Campo Seco, California
6. County and State: Calaveras County, California

B. PURPOSE AND NEED FOR ACTION

East Bay Municipal Utility District (EBMUD or licensee) filed an application on May 19, 1999, requesting Commission authorization to remove Mine Run Dam and Reservoir (MRDR), which is located within the boundary of the Lower Mokelumne River Project No. 2916, and to amend its license accordingly (EBMUD, 1999).

The MRDR, in combination with a series of smaller upstream impoundments and collection and drainage facilities, is collectively referred to as the Penn Mine Facility. The Penn Mine itself was operated intermittently between 1861 and 1956 and was historically one of California's largest copper and zinc producers (Peterson, 1985). The Penn Mine facility was built in 1978 to collect and treat acid rock drainage (ARD) from the

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former mine. The ARD has a very low pH and high dissolved copper and zinc content, and became the subject of litigation which resulted in the Penn Mine Site Long Term Solution Project (Remediation Plan). USEPA under Section 309 of the Clean Water Act ordered implementation of the Remediation Plan to restore the site to pre-mining conditions (EBMUD, 1996a).³

For the past several years, EBMUD has been working cooperatively with the US Environmental Protection Agency (USEPA) and other members of a project advisory committee (PAC) to develop the Remediation Plan. The PAC consists of EBMUD, USEPA, California Central Valley Regional Water Quality Control Board (CRWQB), the State Water Resources Control Board (SWRCB), and the Committee to Save the Mokelumne River (CSM). The Remediation Plan as it currently exists was preferred over several alternative strategies that were evaluated. The PAC collaborated in the evaluation of eight Remedial Alternatives for the site and after three years of study and consultation, unanimously endorsed Alternative 5A. Alternative 5A contained in EPA's Section 309 Order, requires the removal of MRDR, and will result in the restoration of the site and its waterways to pre-mining conditions, and will provide long-term water quality protection through removal of source waste materials. It would also have significant environmental benefit aside from water quality protection, facilitating the restoration of pre-mining vegetation and wildlife (EBMUD,1996b). In addition, the requirements of the California Department of Water Resources, Division of Safety of Dams requires that the removal of the MRDR be completed by October 1, 1999, necessitating an early August 1999 commencement of the decommissioning process.

Project History

The Penn Mine site is located in the Sierra foothills, in central California's Calaveras County, on the south shore of the Mokelumne River/Camanche Reservoir, approximately three miles downstream from Pardee Dam. Acid Rock Drainage has been an historical problem throughout the mine's nearly 100-year life, resulting in severe water quality deterioration due to very low pH and high metals (copper, zinc) content. The original mine owners, New Penn Mines, Inc, despite repeated attempts by the Regional Water Quality Control Board (RWQCB) to compel them to correct the pollution problem, refused to comply with RWQCB-issued Cease and Desist Orders. In April of 1978, the RWQCB adopted Resolution No. 78-55 which proposed remedial actions at

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In the Matter of East Bay Municipal Utility District Mine Run Dam Reservoir Calaveras County, California, Proceeding under Sections 208(a) and 309(a) of the Clean Water Act, [33U.S.C. • 1318 (a) and W139 (a)], USEPA, Region IX, Order No. IX 309-FY97-2- (May 15, 1997) (Section 309 Order).

the mine and requested EBMUD, the County, and other agencies to contribute to the abatement of ARD from the inactive mine.

Several remedial steps were taken with the anticipation that New Penn Mines would ultimately provide financial restitution and assume continuing responsibility for the remediation of their site. In 1977, EBMUD removed silts from Camanche Reservoir that had accumulated as a result of discharges from the mine site. Subsequently, pursuant to an order issued under Water Code Section 13305, and a Memorandum of Agreement (MOA) among the RWQCB, EBMUD, and the California Department of Fish and Game (CDF&G), the RWQCB and EBMUD constructed the Mine Run Dam (MRD) and a series of additional temporary containment and diversion structures to both divert drainage away from the waste rock and to allow collection and evaporation of as much surface water as possible. It was recognized that these structures could not achieve total containment and that some releases would be experienced during high-flow conditions when the capacity of the control structures was exceeded. In 1993, EPA under an order pursuant to Section 309 of the Clean Water act, directed EBMUD to add an In-Line System (ILS) to treat runoff in the MRD Reservoir that could overflow into Camanche Reservoir. Other clauses of the Order directed EBMUD to develop a plan for long-term pollution control, which became the Penn Mine Site Long-term Solution Project.

C. PROPOSED PROJECT AND ALTERNATIVES

1. Proposed Action

Alternative 5A provides long-term water quality protection at the Penn Mine Site through the excavation and removal of all waste materials and their disposal in an on-site landfill. All impoundments, including MRD, would be removed to allow runoff from Mine Run Creek and Hinkley Run Creek (natural drainages) to discharge to Camanche Reservoir. With the natural drainage restored and rehabilitation and revegetation of the site, the longer term potential for the reconstitution of original, pre-mine habitat and natural resources exists. Specific components of Alternative 5A, all of which are included in the EPA Order IX 309-FY97-20 (May 16, 1997) and most of which have been completed, include:

Landfill Construction - A 9-acre clay/HDPE-lined landfill has been constructed north of Hinkley Run Creek. It is outfitted with a Leachate Collection and Removal System (LCRS for off-site disposal), and when completed will have a composite clay and HDPE geomembrane cover topped with two feet of soil and herbaceous vegetation (EBMUD, 1997a).

Waste Removal - Approximately 320,000 cubic yards of waste materials have been excavated from Mine Run Creek, Mine Run Dam, and a Shoreline Waste Pile. (This does not include approximately 40,000 cubic yards of clean fill yet to be excavated for the removal of the Mine Run Dam itself. This material will be used for site regrading). The project includes the removal of all mine waste, mill tailings, sludges, mixed fills, and soils beneath the impoundments.

Revegetation - A 12- to 24-inch layer of top soil will be placed over areas disturbed by the remediation, throughout the site. Indigenous plant species will be planted in some areas and encouraged through contouring and structural restoration in others.

Erosion Control - Erosion control and sediment management will be achieved through the use of best management practices during and following construction (EBMUD, 1997a).

Streambed and Channel Restoration - Mine Run and Hinkley Run Creek channels have been reconstructed along the lowest centerline of their original beds up to the elevation of the Mine Run Dam. Final recontouring will be completed following removal of the dam. Banks will be graded and covered to restore habitat and rock rip-rap may be used where slopes require protection.

Diversions - The constructed diversion channels will be removed or covered to allow surface water to resume its original drainage paths down the Mine Run and Hinkley Run Creeks and through the channel currently blocked by Mine Run Dam.

Mine Run Dam Removal - Contaminated material within the Mine Run Dam impoundment and from the upstream face of the dam itself has already been removed to a landfill and the dam regraded for interim safety reasons. The remainder of the earthfill structure will be removed and used for site restoration/contouring. This will yield about 40,000 cubic yards of clean fill. The crest elevation of the structure is currently 261 feet. This will be reduced to the original ground level elevation of 225 feet. The original streambed draining Hinkley Run and Mine Run Creeks will be restructured to restore natural draining to Camanche Reservoir through the path blocked by the dam.

Groundwater Control/Shaft Plug - To limit potential discharges of water from the mine shaft to the ground

surface, a shaft plug was constructed in Shaft 4 during last construction year. No other groundwater controls will be needed.

Water Treatment - The existing ILS will be operated as necessary during construction. No additional treatment is proposed.

Demobilization - Following the removal of the MRD and completion of the stream rehabilitation and site revegetation, all construction equipment will be removed from the site.

Monitoring - In accordance with the Mitigation Monitoring Plan developed for the Long-Term Solution, water quality monitoring stations installed downstream from the landfill and near the inflow to Camanche Reservoir will continue to be monitored for pH and metals content on a quarterly basis for at least three post-construction years to ascertain continuing sources should they appear, or to confirm site rehabilitation.

2. Reasonable Alternatives

As described in preceding sections, a lengthy comparison of alternative Long-Term Solutions was undertaken as part of the preparation of the Environmental Impact Report (EIR). Volume II of that report, issued September 1996, gives a detailed comparative evaluation of the options and resulted in the adoption of Alternative 5A, because it was the only option which unequivocally met the Project objectives to:

develop a long-term solution that provides water quality protection of the Mokelumne River and Camanche Reservoir;

develop a solution that is consistent with applicable laws and regulations, including the Clean Water Act, the California Code of Regulations, Title 23, Chapter 15, the Toxic Pits Cleanup Act, and others; and

develop a solution that is economically feasible to install, operate, and maintain.

3. No-Action Alternative

Under the no action scenario, the MRDR would remain in place. The Hinkley Run and Mine Run Creeks would continue to be channelized and diverted from their natural drainage paths. As water accumulated behind the MRD, it would require collection, treatment (necessitating the continued operation of the ILS), and disposal of treated water. The dam would require considerable structural attention to ensure its safety over the long term,

including a continuing maintenance program. The landfill could still be capped and revegetated and the remaining site, contoured, but no riparian opportunities would be available.

The site as a whole would require long-term monitoring, and maintenance would remain land dedicated to ex-mine service. There would be no opportunity for reinstatement of the pre-mine habitat of the area.

D. CONSULTATION AND COMMENTS

On June 16, 1999, the Commission provided public notice (errata notice issued June 23, 1999) of the application for amendment of license with a comment date of July 26, 1999. A motion to intervene was filed on July 23, 1999, by the California Sportfishing Protection Alliance and Committee to Save the Mokelumne who have been actively involved as parties to the Penn Mine Oversight Committee and a signatory to the settlement agreement between EBMUD, CSPA and CSM. They have interest in ensuring the terms and conditions of the settlement agreement are honored. On July 26, 1999, a motion to intervene was filed by the Mokelumne River Water and Power Authority in which they requested participation in this proceeding because of a preliminary permit application they have currently pending before the Commission that could be affected by any Commission action on this application to remove Mine Run Dam. In a letter filed July 28, 1999, the U.S. Army, Corps of Engineers, stated its support for the removal of Mine Run Dam.

E. AFFECTED ENVIRONMENT

Physical Setting

The MRDR site is located in the foothills of the western Sierra Nevada Mountains in Calaveras County, California, about 35 miles southeast of Sacramento. The site occupies approximately 24 acres of land adjacent to Camanche Reservoir and is located partially within the boundary of the FERC licensed Lower Mokelumne River Hydroelectric Project.

Slopes in the area are generally steep and rocky, with thin overlying soils. Elevations at the project site range from about 200 to 400 feet above mean sea level (MSL). Summers are typically hot and dry, and winters are cool and wet. Precipitation totals about 24-25 inches per year.

Geology and Soils

The bedrock geology in the project area consists primarily of Gopher Ridge volcanics, with thin sills of igneous intrusives

(EBMUD, 1996a). Most of the ore bodies are spatially associated with these intrusives. The ore bodies occur as massive sulfide deposits in alteration zones of sericitized and silicified schist, and are not currently observed at the surface. The ore is typically a fine-grained mixture of pyrite, chalcopyrite, and sphalerite.

The bedrock is overlain by Tertiary conglomerates and surficial mine waste materials. Almost all of the NRDR site was affected by mining activity, to some degree (EBMUD,1996a). Prior to the start of site remediation activities, surficial materials included mill tailings, slag, mine waste, and mixed contaminated soils, in addition to native soils. Native soils include silty sand and silt loam, likely of the Auburn-Exchequer Soil Association found in the nearby foothills (EBMUD,1996b).

Vegetation and Wildlife

Vegetation in the project area is characteristic of the Sierra Nevada foothills. Three primary habitat types, blue oak-foothills pine, chaparral, and California annual grassland, are represented (EBMUD, 1996a).

Blue oak-foothills pine habitat supports a variety of wildlife species. Common birds include black-capped chickadee, California quail, and scrub jay, and raptors such as red-shouldered hawk, Cooper s hawk, and sharp-shinned hawk. Mule deer and gray fox are also typically present (EBMUD,1996a).

The chaparral habitat type is dominated by whiteleaf manzanita, mountain mahogany, and wedge-leaved ceanothus. Chaparral provides habitat for birds such as California thrasher, mourning dove, spotted towhee, and dusky flycatcher. Small mammals (e.g., brush rabbits and deer mice) are common. Western rattlesnake and western fence lizard are also typically associated with chaparral (EBMUD,1996a).

The California annual grassland habitat type is dominated by wild oats, bluegrass, rip-gut brome, hairgrass, and foxtail. Bird species closely associated with this habitat type include meadowlarks, barn swallows, and mockingbirds. Small mammals such as California vole, deer mouse, and black-tailed jackrabbit are also typically found in grassland settings, and bats often forage over them (EBMUD,1996a).

Vegetation is sparse in portions of the site that were occupied by waste piles and mine tailings, and although wildlife would be likely to move across these areas, the disturbed areas do not support nesting, denning, or foraging by any species. Abandoned mine shafts and adits are blocked by soil, and thus do not provide roost, nest, or nursery opportunities for bats or other species (EBMUD,1996a).

Threatened and Endangered Species

At the time the Draft Environmental Impact Report (DEIR) was developed, only two terrestrial species listed as threatened or endangered under the federal Endangered Species Act were thought possibly to occur in the project area. These included the peregrine falcon and bald eagle. More recent information indicates that habitat for the valley elderberry longhorn beetle is present on the site, and the beetle is also likely present (Belt Engineering & Scientific 1997).

Information provided by the U.S. Fish and Wildlife Service (FWS) indicates that the California red-legged frog has been listed as threatened since the Draft EIR (DEIR) was developed, and that the Aleutian Canada goose and giant garter snake (both also listed as threatened) might also occur in the project area (FWS 1998).

The Aleutian Canada goose breeds in the Aleutian Islands and winters in the Sacramento and San Joaquin valleys, where it may rest and forage on lakes and reservoirs (FERC, 1999). The MRDR site does not provide resting or foraging habitat, and most remediation and revegetation activities are planned during times of the year when no geese would be present in the state.

The giant garter snake occurs in valley bottom wetlands, and is primarily associated with rice production zones (FERC 1999). This species is not likely to occur in the dry foothills habitats that characterize the MRDR site.

A review of the July 1999 California Natural Diversity Data Base indicates that no additional terrestrial species whose range extends into the project area have been listed since the original project evaluation and follow-up studies were conducted (CDFG 1999).

The FWS (1998) provided a list under section 7(c) of the Endangered Species Act of 1973 as amended, of aquatic species listed as threatened or endangered, which may occur or be affected by the Penn Mine Remediation Project. Four species of fish were listed: winterrun chinook salmon, *Oncorhynchus tshawytsche* (E), delta smelt, *Hypomesus transpacificus* (T), Central Valley steelhead, *Oncorhynchus mykiss* (T) and Sacramento

^{4 5}
Splittail, *Pogonichthys macrolepidotus* (PT). The animal

⁴
E indicates endangered species, T indicates threatened species, P indicates proposed.

⁵
The Sacramento splittail was listed as a Federally Threatened species on March 10, 1999. (California Department of (continued...))

species list is indexed to the two project US Geological Survey (USGS) quad sheets including Valley Springs and Wallace and is therefore presented in a regional rather than site-specific context.

Since the MRDR has already been drawn down and the drainage ways on the site are channelized or buried, it is unlikely that any fish, including these threatened and/or endangered ones, would be resident onsite. If they are present in the Comanche Reservoir, they have not been identified as such.

Water Resources

The information in this section of the EA has been obtained primarily from the DEIR (EBMUD,1996a) and the Mitigation Monitoring Plan (EBMUD,1997a). Information from other sources is specifically referenced in the text below. Unreferenced information can be assumed to originate from the above two referenced documents.

The Penn Mine site is divided into two watersheds, Hinkley Run (383 acres) and Mine Run (81 acres). A total of 29 acres in the Hinkley Run watershed was classified as disturbed, while 25 acres of the Mine Run watershed was classified as disturbed. Storage in reservoirs and ponds for surface water collections totaled 67 acre-feet. Drainage in the watershed has been extensively rerouted due to both mining activity and modifications to drainage to route upstream flow around mine waste. Under highwater conditions, Camanche Reservoir may be as close as 500 feet to the site.

Water Quality

The Mokelumne River, Penn Mine Site, and downstream is listed under section 304(1)(B) of the Clean Water Act (CWA) as an impaired water body due to copper and zinc contamination. On March 15, 1993, USEPA issued a Finding of Violation and Order for Compliance to EBMUD pursuant to Sections 308 and 309 of the CWA for the discharge of Acid Rock Drainage from Mine Run Dam and Reservoir. Modifications to the order were issued on December 17, 1993, June 6, 1994, October 10, 1995, and May 16, 1997. Specific aspects of the order are described in chapter 3 of the DEIR, except for the May 16, 1997 order. That order directs EBMUD to design, schedule, and implement the Penn Mine Long-Term Solution Project (Alternative 5A) and convene a PAC to review progress in implementing the project in achieving water quality objectives.

The Porter Cologne Water Quality Control Act (Porter Cologne Act) establishes the statutory basis for water quality in California by defining the roles and responsibilities of the State Water Resources Control Board (SWRCB) and regional water quality boards which implement the statewide water quality program. The Central Valley Regional Water Quality Control Board (CVRWQCB) for the Sacramento River Basin and the San Joaquin River Basin has authority over the waters of the Mokelumne, including the watersheds associated with Hinkley and Mine Run Creeks. Specifics associated with the program for these waters are detailed in the Sacramento River and San Joaquin River Basin Plan (CREQCB, SWRCB, 1995 as amended). The beneficial uses of water associated with the Mokelumne River and its tributaries in the project vicinity are summarized as follows:

- Municipal domestic supply;
- Agricultural supply for irrigation and stock watering;
- Water contact recreation;
- Nonwater contact recreation;
- Warm freshwater habitat;
- Cold freshwater habitat;
- Fish spawning;
- Warm water species (striped bass, sturgeon, and shad);
- Cold water species (salmon and steelhead); and
- Wildlife habitat.

Aquatic Environment and Fisheries

The Penn Mine site drains into the Pardee-Camanche reach of the Mokelumne River, and ARD from the site affected that reach, the Camanche Reservoir, and the Mokelumne River downstream of Camanche Dam. Camanche Reservoir has an area of 7,700 acres and a volume of 477,400 acre-feet. The reservoir is described as a warm and eutrophic reservoir that is operated by EBMUD for recreation, in-reservoir fisheries, domestic water supply, flood control, and irrigation.

The portion of the reach where the site discharges is riverine under low Camanche Reservoir elevations and inundated under high reservoir conditions. The aquatic habitat fluctuates and as such is subject to the stress of water level change unrelated to Penn Mine discharges.

Historically, fish losses due to heavy metals have occurred at the Mokelumne River Fish Facility (MRFF), located downstream of Camanche Dam. Such losses occurred in 1967, 1973, and 1977. Major kills attributed to metals from Penn Mines occurred in 1937, 1943-33 and 1958-59. More recent losses have been attributed to drought conditions and nutrient loads in the Mokelumne River.

The Mokelumne River supports healthy, diverse populations of fish which are supported by ample food supplies of both invertebrates and vertebrates. Healthy plankton and benthos communities are also supported. Studies have concluded that acid rock drainage from Penn Mine does not significantly affect benthic invertebrates in Camanche Reservoir at the present time.

EBMUD manages the fisheries resource by stocking and supporting fish enhancement programs. More than 26 species of fish were listed in the DEIR. Major stocking efforts have included trout, channel catfish, and largemouth bass. No evidence of stress was found due to contemporary ambient metal concentrations. When spawning in the spring and summer in the shallow areas around the location of the Penn Mine runoff point of discharge, black bass and sunfish are particularly vulnerable to Penn Mine ARD. Riverine species such as rainbow trout, sculpins, minnows, and suckers are also particularly vulnerable to ARD, since they occur in shallow waters such as those adjacent to the Penn Mine.

Air Quality and Noise

There are no air quality monitoring stations in Calaveras County. Based on monitoring reports from stations in adjacent counties, it is likely that state standards for ozone and suspended particulate matter are exceeded on the site from time to time. Most of the ozone in Calaveras County would likely derive from precursors (hydrocarbon compounds and nitrogen oxides) in the San Joaquin Valley and metropolitan areas of Sacramento and San Francisco (EBMUD,1996a). Existing emissions sources on the site itself would include wind erosion of exposed soils and intermittent use of diesel-powered equipment. Waste piles and mine tailings were removed during the first construction season in 1998. At this time, exposed soils are expected to be free of mine-related contaminants, and the health hazards associated with blowing dust would be limited to suspended particulate matter.

Residential areas, schools, hospitals, and convalescent centers are considered sensitive to air pollution. The closest residence to the project site is approximately 3,400 feet from the Mine Run Dam. The unincorporated town of Campo Seco lies about a mile and a half from the site. Access roads pass through very low-density rural/residential areas (also considered sensitive, because residents tend to be at home for extended periods of time). Visitors to Camanche Reservoir and adjacent recreation facilities would not be considered sensitive, because they are present only intermittently and for short periods of time (EBMUD,1996a).

Existing ambient noise levels are relatively low through most of the project area (EBMUD,1996a)of noise include railway

and highway traffic, motorized watercraft on Camanche Reservoir, and occasional noise from recreational target practice on the site. Water treatment facilities at the site also generate intermittent noise.

Recreation and Aesthetics

Calaveras County has become a major recreation region, based largely on the recreational opportunities available at the county's major reservoirs (Camanche Reservoir, Pardee Reservoir, New Hogan Reservoir, Lake Tulloch, and New Melones Reservoir), the Mokelumne and Stanislaus Rivers, and the county's notable limestone caves. At the Camanche Reservoir, EBMUD owns 6,885 acres of watershed land, and provides two developed recreation areas (Camanche North and Camanche South) which include a full range of recreational facilities. These facilities include full service marinas with boat rentals, trailer and boat storage, bait and tackle shops, swimming and fishing lagoons, hiking trails, playgrounds and playfields, service stations, and stores and restaurants.

In the 1995 calendar year, the reservoir had over 420,000 visitors with use concentrated in the areas around the two developed recreation areas and on the main body of the reservoir. The easternmost arm of the reservoir on which the Penn Mine site is located is more lightly used. Water skiing, jet skis, and personal watercraft are not permitted in this area. Approximately one mile east of the Penn Mine site, boating is banned altogether. According to EBMUD Natural Resources staff, on a busy summer weekend, out of the total of about 300 boats on the reservoir as a whole, only 10 to 20 boats would be likely to enter the reservoir's easternmost arm. On a summer weekday out of the 50 or so boats on the reservoir, only one or two would be likely to enter this area. Under EBMUD's recreational management policies for the reservoir, public use of the shoreline is restricted to developed recreational areas. Because of these policies, although boaters can pull up close to the shoreline near the Penn Mine site, they do not have the right to debark and use the land along the shore.

Because the site is fenced and gated restricting public access, most of the site is out of view of the general public. The only public views into the site are those from the reservoir's eastern arm and from the Lancha Plana Bridge on East Camanche Parkway/Buena Vista Road. Traffic levels on the bridge are in the range of 600 to 800 vehicles per day, but because there are no parking areas on the bridge and the speed limit is 55 mph, views toward the Penn Mine site last just a few seconds. The views toward the site experienced by boaters are more important because they are longer in duration and because boaters have the option of pulling up close to shore where close-range views can be obtained. As detailed in the review of recreation

conditions, the level of boating activity in this arm of the reservoir is relatively light, with an average of 10 to 20 boats entering this area on busy summer weekend days and one or two boats entering on summer weekdays. The landscape in the areas around the Penn Mine site is characterized by stands of oak, digger pine, manzanita, and various species of groundcover.

In contrast, the Penn Mine site is noticeably disturbed and has less vegetation. In the recent past, before remediation activities began, when seen from the reservoir, the mine site appeared as a series of terraces on which runoff impoundments were flanked by excavations and waste piles of rock and earth material. With remediation, the waste piles have been removed, and the disturbed areas covered with topsoil and hydroseeded. As a consequence, the appearance of the site has been significantly improved. At present, the most visible developed feature on the site is Mine Run Dam.

Land Use

The 24-acre Penn Mine site is a fenced and gated area that contains the remains of the now-inactive Penn Mine. Over the past few years, under the Penn Mine Site Long-Term Solution Project, the piles of mine waste and mill tailings that once occupied large areas of the site have been removed and buried in a 9-acre landfill located on the site. At present, the major feature on the site is Mine Run Dam. The site's current land use is, in effect, management of residual acid rock drainage through collection of the site's runoff behind the dam and its treatment by means of an in-line water treatment facility. Land uses in the vicinity of the Penn Mine site include EBMUD watershed, other mines, ranching, and rural residential. A Bureau of Land Management (BLM) parcel immediately adjacent to the Penn Mine site contains an active mine claim. Under the Calaveras County General Plan (December 1, 1986), the Penn Mine area is designated for single family residential use. At present, there are no plans for any developed use on the Penn Mine site.

Cultural Resources

Comprehensive cultural resource studies conducted in the 1960's documented 129 prehistoric archeological sites in the area of the Camanche Reservoir. The majority were thought to date from the Sacramento-San Joaquin Delta Late Horizon (EBMUD, 1996a). Some historic structures (e.g., stone walls, stone roads, and cultural deposits) remain on the MDRD site, but most of the mining operation equipment dating from the late 1800's was removed many years ago. During archeological surveys conducted at the MDRD site more recently, 11 individual cultural sites and 39 discrete features were inventoried, recorded, and evaluated.

F. ENVIRONMENTAL IMPACTS

1. Proposed Action

Geology and Soils

Surficial soils are fine-grained and loose, and would present a risk of erosion until vegetative cover is well-established. Eroding soils could block culverts, impair water quality in Hinkley Run and Mine Run creeks, and delay the establishment of riparian habitat along the creeks. To minimize the risk of erosion, the applicant would continue to employ best management practices for erosion control and sediment management during a scheduled maintenance program. Culverts and drainage ways would be cleaned out and site access roads would be properly graded. To mitigate the potential for damage from seismic ground shaking the Mine Run Dam would be dismantled in compliance with Division of Safety of Dams requirements (EBMUD, 1997a).

Vegetation and Wildlife

Construction activities and associated traffic would disturb wildlife commonly found in the area. Impacts would vary from species to species, depending on the type of activity and species sensitivity. For example, traffic could interrupt the migratory patterns of deer, while construction noise could interfere with raptor nesting success. Increased traffic would increase the risk of road kills. These adverse impacts would be short-term and temporary. Measures intended to control fugitive dust and erosion, and traffic noise disturbance would help to mitigate for adverse impacts (EBMUD, 1997a).

Long-term impacts of the proposed action are expected to be beneficial. Site remediation would reduce the exposure of both plants and animals to environmental toxins. Revegetation of currently barren soils would increase the area of usable wildlife habitat. The revegetation design includes indigenous plant species, which would improve the quality of native plant communities.

Less than one acre of jurisdictional wetlands would be affected by the proposed action. This impact is not considered significant; the U.S. Army Corps of Engineers (USCOE) has authorized the proposed action under Nationwide Permit 38 (COE 1998).

Threatened and Endangered Species

Potential impacts of the proposed action on peregrine falcon, bald eagle, California red-legged frog, and valley elderberry longhorn beetle were evaluated in the EIR (EBMUD, 1996a). Peregrines are currently listed as endangered,

but were proposed for de-listing on August 28, 1998, because recovery targets have been met (CFR 1998). Peregrine falcons could forage near the Penn Mine Site, but the site itself provides no suitable prey base and no nesting opportunities. For this reason, the proposed action would not affect peregrines.

Bald eagles are currently listed as threatened, but de-listing has been proposed for this species, also, due to achievement of recovery goals (CFS 1999). Bald eagles are common around Camanche Reservoir (FERC 1999), but because of their strong association with water for foraging and with large-diameter live trees and snags for perching, roosting, and nesting, they would not be likely to use the MDRD site. The proposed action would not affect bald eagles.

The California red-legged frog was listed as threatened on May 20, 1996 (CFR 1996). Red-legged frogs are typically associated with dense shrub or emergent vegetation near deep (at least 2.3 feet), still, or slow-moving water (FERC 1999). Because these habitat types would not be affected by the proposed action, no effects would be expected to result from removal of Mine Run Dam. No red-legged frogs were observed at any of 16 sites surveyed by PG&E in 1997 near the Mokelumne River Hydroelectric Project upstream of the project site, and the species may be extirpated from the watershed (FERC 1999).

The valley elderberry longhorn beetle is listed as a threatened species. The beetle is completely dependent upon elderberry shrub, its host plant. In 1997, blue elderberry shrubs were observed growing in several locations at the Penn Mine Site (Belt Engineering & Scientific 1997). Descriptions and photographs of the shrubs (OHM Remediation Service, Corp., 1998) indicate that those closest to the proposed work areas are located in the Hinkley Run Creek drainage, approximately 1,200 feet from the Mine Run Dam and approximately 400 feet from the landfill. Since they were first observed, EBMUD has protected the shrubs from disturbance with fencing and signage (OHM Remediation Service Corp., 1998). With these measures in place, the proposed removal of Mine Run Dam would have no effect on the elderberry shrubs, or valley elderberry longhorn beetles, should they be present.

The FWS in a letter dated August 13, 1999, stated that the proposed action is not likely to adversely affect the valley elderberry longhorn beetle or any other listed species. The FWS added that unless new information becomes available that indicates that the proposed action may affect listed species in a manner or to an extent not considered, or a new species or critical habitat is designated that may be affected by the proposed action, no further action pursuant to the Endangered Species Act of 1973, as amended, is necessary.

Water Resources

A total loss of 1.58 surface acres of water is anticipated in conjunction with mine restoration. The loss results from elimination of manmade acid drainage impoundments and concrete-lined diversion ditches. An overall net benefit will result, because natural drainage courses will be restored in the reclaimed area of the site. A single wetland with an area of 0.25 acres is disturbed by landfill construction and operation and will be restored upon landfill closure (OHM Remediation Service Corp., 1998).

Water Quality

Moderate increases in the discharge of both copper and zinc are expected in groundwater and surface water. The following water quality impacts are anticipated after dam removal and restoration of flow through the mine site (EBMUD, 1997a):

- elevated concentration of metals owing to dissolution and flushing of metal salts deposited in shallow bedrock underneath the waste pile locations; and

- the rate of flushing of metals in the restored site will temporarily increase but ultimately decrease the concentration of metals, since the restored water flowing on-site will have lower concentration of metals to begin with.

Measures already taken by the applicant to ensure low levels of contamination during dam removal include:

- removal and landfilling of all waste materials present in the project area;

- filling, regrading, and restoration of stream channels and slopes; and

- monitoring for a full wet season to verify that unrecognized sources of contaminants are not present.

Ultimately, concentrations of metals are expected to drop and return to levels associated with other ephemeral streams in the region (EBMUD, 1997a). EBMUD and CVRWQCB plan to regularly monitor water quality (specifically metals) at a site in Camanche Reservoir near the site of MRD for a period of not less than three years following implementation. Should monitoring indicate increases in the concentration of metals, contaminant sources will be identified and additional mitigation measures will be considered (EBMUD, 1997a).

Erosion control and sediment management will mitigate impacts on water quality during construction, which will implement best management practices. Additional protection will be provided by limiting construction activities associated with dam removal to a period corresponding to low streamflow and relatively dry weather. Streamflow would be diverted around the work area during construction operations. Wetland areas would be fenced and protected for the duration of construction activity.

The water quality monitoring program includes:

surface water sampling points upstream and downstream from the confluence of Hinkley and Mine Run drainage, both in the main channels, and at the confluence with Camanche Reservoir;

shallow bedrock groundwater in at least two wells from the network established by the USGS during their investigations; and

monitoring of the landfill constructed on-site, in general compliance with the requirements for monitoring of closed landfills contained in Chapter 15 of Title 22 of the California Code of Regulations.

Another long-term benefit of dam removal is the dispersion of the groundwater plume, since it appears to be driven by the head in MRD Reservoir. A related mitigation measure is that groundwater extraction will be considered if monitoring of groundwater during construction of the long-term plan indicates that groundwater presents a risk to the receiving waters .

Small volumes of water with elevated metal concentrations will likely occur early on after the completion of the project, but should diminish with time (EBMUD,1997b). Removal of the dam will proceed only if monitoring shows that significant unrecognized sources of contaminants are not present.

Should problems arise after construction, treatment of contaminated waters with a passive anoxic, limestone, or other comparable method would be implemented to meet standards or best management practices.

Aquatic Environment and Fisheries

Releases of metals and other constituents to Camanche Reservoir could affect fish and other aquatic species. Since several mitigation measures are planned, these impacts are expected to be mitigable. Elevated tissue levels are not expected to occur in fish in Camanche Reservoir owing to the

measures included in the preferred alternative (EBMUD,1997a). The effect of elevated levels of suspended sediments on species which may occur during construction should be largely mitigated by the erosion and sediment control plan. Another temporary measure includes treatment during construction to minimize the impacts of metal discharges.

A long-term, positive impact on aquatic biology is expected, because habitat restoration is a secondary objective of the Penn Mine Site Long-Term Solution Project. Because water quality will be monitored, a biological monitoring program is not currently planned (EBMUD,1997a).

Air Quality and Noise

Short-term adverse impacts in air quality would occur during site grading and construction as a result of vehicle and heavy equipment emissions and fugitive dust. The amount of ozone precursor compounds would not exceed significance levels established by the Calaveras county Air Pollution Control District, but without mitigation, the levels of suspended particulate matter would be likely to violate the state ambient standard (EBMUD,1996a). Approximately 95 percent of the particulate matter would be generated by truck travel over unpaved roads. For this reason, the applicant has developed a dust control plan and would continue to implement the specified control measures through the end of the construction period (EBMUD,1997a).

Over the long-term, the proposed action would improve air quality. Hazardous mine wastes have been removed and levels of wind-blown dust would be reduced as a result of soil stabilization and revegetation of the site.

Noise resulting from the proposed action would include heavy equipment operation on-site and traffic related noise on local roads. To mitigate this short-term adverse impact, the applicant proposes to avoid routing truck traffic through Campo Seco, or if that is impossible, to limit truck travel to the hours between 7:00 a.m. and 7:00 p.m. This measure would minimize disturbance to wildlife as well as local residents. The level of such traffic during this final construction phase, is however, expected to be low as materials removed from the dam are slated for re-use on site.

The long-term impact of the proposed action would be beneficial. Noise levels on-site would be slightly reduced by the removal of the water treatment facilities.

Recreation and Aesthetics

Public access to the Penn Mine site and the adjacent
Camanche Reservoir

shoreline will continue to be restricted after remediation of the mine spoils and removal of the Mine Run Dam. Because no new recreational activities would take place on these lands, the project will not have a direct impact on recreation. However, the proposed action would have indirect but generally positive long-term effects on recreation through the improvement it would bring about in the visual quality of the views into the Penn Mine site experienced by boaters using the easternmost arm of the reservoir. Views toward the dam would be replaced by views up into the canyons of Mine Run and Hinkley Run Creeks, which will have been restored to natural-appearing conditions. Short-term adverse indirect effects on recreation could occur during the dam removal period when heavy construction equipment and excavation activities would be visible from the reservoir and could be perceived by boaters as creating unattractive conditions. Because dam removal would be completed in just a few months, a relatively small number of boaters would be affected, lessening the potential significance of these indirect adverse impacts.

Land Use

Recent remediation activities have removed most of the sources of acid rock drainage on the Penn Mine site and have eliminated the need for impoundment and treatment of the site's runoff. The proposed action would change the site's land use by eliminating the dam and in-line water treatment facilities. The site's land use would be converted to natural-appearing open space. Because there are no plans for development of the site, and because there are substantial legal restrictions and financial and liability obligations that would limit the site's future development, it can be anticipated that the open space use of the site would continue into the future. Public access to the site will continue to be restricted.

Cultural Resources

Recent cultural resource surveys conducted at the site were used to identify, evaluate, and map archeological and historic resources. The survey report fulfills compliance with Section 106 of the National Historic Preservation Act for the proposed action (SHPO 1998). Measures to protect historic resources (e.g., construction of support structures to prevent vibration damage that could be caused by truck traffic) were implemented during the first construction season, and would be maintained in place through the end of construction.

2. Cumulative Impacts

Additional potential sources of metals exist in the Penn Mine region, both upstream and downstream. There are no other

projects planned in the Camanche Reservoir water that would combine with the Penn Mine Project to produce cumulative impacts. There are other sources of naturally occurring and human induced releases of metals elsewhere in the Camanche Reservoir basin.

The combination of activities required for the removal of the MRDR are expected to produce short term impacts to the noise and general activity level around the site but over the long term will benefit terrestrial and aquatic natural resources and the opportunities available to local residents with respect to recreation, aesthetic experience and economic burden.

3. No Action

The No-Action option would fail to meet the requirements of EPA Order No. IX-309-FY97-20 and would likewise conflict with the directions of the California Department of Water Resources, Division of Safety of Dams. This option would also fail to meet the terms of the settlement agreement made among EBMUD, CSPA and CSM.

No-Action would prevent the restoration of natural drainage to Camanche Reservoir and the potential for a return to natural land use. This option would require continued economic input to support monitoring, treatment and maintenance functions.

G. RECOMMENDATIONS AND CONCLUSIONS

The recommended alternative is the proposed action - the completion of the Long-Term Remediation Plan. The removal of the MRD will satisfy both the substance and intent of the EPA Order under Section 309 of the Clean Water Act and timely implementation will satisfy the specifications of the State of California Department of Water Resources, Division of Safety of Dams. We conclude, therefore, that approval of the proposed amendment of license would not constitute a major federal action significantly the quality of the human environment.

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J. LIST OF ACRONYMS

ARD	Acid mine drainage
BLM	Bureau of Land Management
CDF&G	California Department of Fish & Game
CFR	Code of Federal Register
CSM	The Committee to Save the Mokelumne River
CSPA	California Sportsfishing Protection Alliance
CWA	Clean Water Act
DEIR	Draft Environmental Impact Report
EBMUD	East Bay Municipal Utility District
EIR	Environmental Impact Report

FERC	Federal Energy Regulatory Commission
FWS	US Fish and Wildlife Service
HDP	High Density Polyethylene
ILS	In-Line (Treatment) System
LCRS	Leachate Collection and Remediation System
MOA	Memorandum of Agreement
MRDR	Mine Run Dam and Reservoir
MRFF	Mokelumne River Fish Facility
MSL	Mean Sea Level
NGO	Non-Government Organization
PAC	Project Advisory Committee
RWQCB	Regional Water Control Board
SHPO	State Historic Preservation Officer
SWQCB	State Water Quality Control Board
USEPA	US Environmental Protection Agency
USFWS	US Fish and Wildlife Service
USGS	US Geological Survey

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