

Pine Creek Mine Hydroelectric Project

Initial Study/Negative Declaration

Public Review Draft

Lead Agency and Preparer:
State Water Resources Control Board
Division of Water Rights
Water Quality Certification Program
1001 I Street
Sacramento, CA 95814

Project Applicant:
Pine Creek Mine, LLC
9050 Pine Creek Road
Bishop, CA 93514

Prepared in Support with:
HELIX Environmental Planning, Inc.
11 Natoma Street, Suite 155
Folsom, CA 95630

June 2020

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ABBREVIATIONS AND ACRONYMS

amsl	above mean sea level
APE	Area of Potential Effect
BCL	BC Laboratories
BTU	British Thermal Unit
Caltrans	California Department of Transportation
CAL FIRE	California Department of Forestry and Fire Protection
CARB	California Air Resources Board
CCAA	California Clean Air Act
CDFW	California Department of Fish and Wildlife
cfs	Cubic Feet Per Second
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
COHP	California Office of Historic Preservation
CO _{2e}	Carbon Dioxide Equivalents
CREST	California Renewable Energy Small Tariff
CRHR	California Register of Historic Resources
EA	Environmental Assessment
EIR	Environmental Impact Report
EPA	U.S. Environmental Protection Agency
FEMA	Federal Emergency Management Agency
FERC	Federal Energy Regulatory Commission
GBUAPCD	Great Basin Unified Air Pollution Control District
GHG	Greenhouse Gases
GIS	Geographic Information Systems
GLA	Glenn Lukos Associates, Inc.
GPS	Global Positioning Systems
GWP	Global Warming Potential
INF	Inyo National Forest
IS/ND	Initial Study/Negative Declaration
kV	Kilovolts
kW	Kilowatts
Ldn	Day Night Average Sound Level
MCL	Maximum Contaminant Level
MRZ	Mineral Resource Zones
MT	Metric Ton
MW	Megawatts
MWh	Megawatt-hours

NAAQS	National Ambient Air Quality Standards
NAHC	Native American Heritage Commission
NEPA	National Environmental Policy Act
NOX	Nitrogen oxide
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
PCM	Pine Creek Mine
PCM, LLC	Pine Creek Mine, LLC
PQL	Practical Quantitation Limit
REGPA	Renewable Energy General Plan Amendment
ROG	Reactive Organic Gases
RPS	Renewables Portfolio Standard
RWQCB	Regional Water Quality Control Board
SCAQMD	South Coast Air Quality Management District
SCE	Southern California Edison
SIP	State Implementation Plan
SNBS	Sierra Nevada Bighorn Sheep
SWAMP	Surface Water Ambient Monitoring Program
SWRCB	State Water Resources Control Board
TDS	Total Dissolved Solids
USACE	U.S. Army Corps of Engineers
USFS	U.S. Forest Service
USFWS	U.S. Fish and Wildlife Service
VMT	Vehicle Miles Traveled

1.0 INTRODUCTION

Pursuant to the California Environmental Quality Act (CEQA) (Pub. Resources Code, § 21000) and the CEQA Guidelines (Cal. Code Regs., tit. 14, § 15000 et seq.), the State Water Resources Control Board (State Water Board or SWRCB) has prepared this Initial Study to address the proposed Pine Creek Mine (PCM) Hydroelectric Project (proposed project) and its effects on the environment. This Initial Study focuses on: effects on the environment specific to the proposed project which were not analyzed as potentially significant effects in the certified Inyo County General Plan Update Final Environmental Impact Report (EIR) or the certified Inyo County Renewable Energy General Plan Amendment (REGPA) Final Program EIR, as well as substantial new information that shows identified effects would be more significant than described in the previous EIR's. For additional information regarding the relationship between the proposed project and the previous EIR's, see Section 4 of this Initial Study.

The Initial Study is also intended to assess whether any environmental effects of the proposed project are susceptible to substantial reduction or avoidance by the choice of introducing specific revisions to the proposed project, by imposing conditions, or by other means, i.e. section 15152, subdivision (b)(2) of the CEQA Guidelines. If such revisions, conditions, or other means are identified, they will be identified as mitigation measures.

This Initial Study relies on CEQA Guidelines section 15064 in its determination of the significance of environmental effects. According to section 15064, the finding as to whether a project may have one or more significant effects shall be based on substantial evidence in the record, and that controversy alone, without substantial evidence of a significant effect, does not trigger the need for an EIR.

2.0 PROJECT DESCRIPTION

2.1 Project Location

The proposed project, proposed by the applicant Pine Creek Mine, LLC (PCM, LLC), is situated along the Pine and Morgan creek canyons in northwestern Inyo County, northwest of Bishop, California. The proposed project site is upstream of the confluence of Morgan and Pine Creeks and accessed via Pine Creek Road. The project site consists of approximately 36.12 acres on three accessors parcel numbers (APN's) owned by Bishop Tungsten Development, LLC and reportedly assigned to PCM, LLC: 009-300-04; 009-300-02; and 009-300-05. The proposed project site would also consist of approximately 60 acres of subsurface mine adits and associated infrastructure below lands owned by U.S. Forest Service (USFS). The proposed project site is in a portion of Section 08, Township 07 South, Range 30 East Mount Diablo Baseline and Meridian, Inyo County, CA. Mount Tom USGS 7.5-minute Quadrangle. Refer to **Figures 1-3**; all figures are included in **Appendix A**.

2.2 Project Setting and History

The proposed project site is identified as including the APN's described above, a private inholding, as well as subsurface portions of the surrounding Inyo National Forest (INF), which is owned and managed by the USFS. PCM mine facilities and mining operations are presently inactive. The mine was previously utilized for tungsten extraction; tungsten deposits at the mine were mined continuously from 1916 to 1990. The mine produced the majority of U.S. domestic tungsten, which is a strategic metal important to the U.S. Department of Defense. The mine was officially shut down in 1990 due to economic and market conditions. Remnant structures from the mine and mill still exist on-site.

2.3 Project Characteristics

The proposed project would involve the generation of renewable electricity in the form of hydropower yielding approximately 1.5 megawatts (MW) per hour of operation, for an estimated annual average of 5,600 megawatt-hours (MWh). The power generated would be sold to a local utility or wholesale grid to redistribute to electricity customers.

Easy-Go Adit

The components which would be installed for the proposed project would be located in the Easy-Go Adit, a feature of the PCM opened in the 1960's (**Figure 4**). The proposed project would use surface lands owned by Bishop Tungsten Development, LLC and underground below federally-owned lands with claimed subsurface property rights (mining claims).

The proposed project would install a hydroelectric turbine within the adit, about 2,480 linear feet underground from the Easy-Go Service Utility Portal. The adit, portals, electrical wiring, and access routes are all existing features at the PCM.

Water Source for Turbine

The water source for the proposed project is groundwater draining from the underground mine workings. When the Easy-Go Adit was opened in the 1960's, miners encountered a significant amount of groundwater. The water percolates through fissures, fractures, and boreholes formed during the mining activities. The quantity of groundwater draining into the adit varies seasonally, ranging from about 7-14 cubic feet per second (cfs) seasonally as an indirect function of snowmelt. Average inflow is estimated to be about 10 cfs (FERC 2018). Based on an average inflow of 10 cfs, the volume of the 200-acre-foot reservoir would be replaced every 10 days.

The proposed project would utilize an existing concrete plug in the mine to store up to 200 acre-feet of groundwater, creating a gross head of up to 1,320 feet for power generation. The 12-foot-wide, 12-foot-high, and 30-foot-thick concrete plug is located inside the mine 2,500 feet from the Easy-Go portal at an elevation of approximately 8,080 feet above mean sea level. Existing piping facilities at the plug include a manhole with cover, a water distribution pipe and valve currently in use, and a water bypass pipe and valve. The proposed project would construct an 18-inch-diameter, 30-foot-long steel

penstock to connect the existing piping and plug features to the proposed generator. Water exiting the turbine would discharge into a V-shaped granite channel within the adit and flow down-gradient to the intake for the existing exempt hydroelectric facility, Pine Creek Mine Water Discharge System Sites 1 and 2 Project (FERC Project No. 13163) (Discharge System Project), located below the adit. The water would then be routed through that existing facility's existing penstock and turbine and discharged into the existing pond (Pond 6), from which it would flow over that pond's concrete spillway and into Morgan Creek, shortly above its confluence with Pine Creek (FERC 2018) (Figure 5). Aquifer and groundwater sources draining through the mine adit system generate a total sustainable discharge averaging approximately 10 cfs. As a part of the proposed project, the existing plug would be frequently inspected to check for leaks and damage.

During proposed project operation, water would be released through the existing concrete plug and penstock and the proposed turbine at a rate approximating inflow to the reservoir. A water pressure oriented monitoring system would be installed to estimate the water height. Once a base storage is slowly established in the mine, the power draft of the unit would be set to maintain the pressure and balance the inflow and outflow of waters into the mine. A pressure transducer would be installed on the supply line to the turbine or static bypass line connected to the pressurized section of the tunnel. The pressure transducer would have a direct readout as well as a data logger and/or controller for the unit. It is proposed that the generating unit would be a Pelton-type impulse turbine with jet deflectors that would intercept the flow of water in the event of a generator trip. It is also proposed that the position of the turbine nozzle(s) would be set manually. With the use of deflectors, in the event of a unit trip, the amount of water would continue to flow as previously set.

PCM, LLC proposes to operate the proposed project in "run-of-mine," in which flow releases from the proposed project would approximate groundwater inflows to the mine. Flows from the mine into the Discharge System Project currently range from 7 to 14 cfs and average 10 cfs. PCM, LLC proposes to ensure run-of-mine operation using a pressure sensor on the supply line to the turbine or a static bypass line connected to the pressurized section of the adit.

Equipment and Utility Connection

To construct the proposed project, PCM, LLC would install an 18-inch -diameter, 30-foot-long steel penstock, from a valve in the existing concrete plug to a 1.5-MW Pelton turbine generator to be located about 2,480 feet inside the adit. The proposed project would connect to an existing 2,500-foot transmission line from the generator inside the mine to the service portal to the existing private substation. All new equipment would be located entirely within the existing mine adit.

The PCM operation substation has existing connections to the local utility. The existing substation facility at the site is sized for several times the expected output of the proposed development. The connecting substation is connected to a substation and

transmission line operating at approximately 12.0 kilovolts (kV) owned by Southern California Edison (SCE).

Existing Small Conduit Hydroelectric Facility: Pine Creek Mine Water Discharge System Sites 1 and 2 Project (FERC Project No. 13163) (Discharge System Project)

On March 2, 2011 the Federal Energy Regulatory Commission (FERC) issued an exemption for Bishop Tungsten Development, LLC to install a Small Conduit Hydroelectric Facility to its existing mine water discharge system. On September 30, 2015 FERC issued an amendment to the exemption. The exemption, as amended, allows for the operation of a small hydroelectric facility, which includes a rock trench that conveys water through the Easy-Go Adit to a penstock that leads to a 250 kilowatt (kW) turbine. The turbine is limited to current flow and head conditions of the project, which yield less than 150 kW of energy per hour. The energy generated by the turbine connects to the mine's substation which connects to SCE transmission lines.

Current conditions allow for water exiting the adit through a rock channel to flow down-gradient underground through a 24-inch pipe to the intake for the existing Discharge System Project. This water is then routed downhill through the existing penstock and the exempt turbine, and discharged into a pond. Water then flows over that pond's concrete spillway and into Morgan Creek, above its confluence with Pine Creek. Although the proposed project would also continue these flows to the Discharge System Project, the Discharge System Project is existing and is not a part of the proposed project. The Discharge System Project will continue operation with or without the proposed project (**Figure 6**).

Project Footprint

The proposed project includes the installation of a turbine and generator. New buildings, or any other facilities aside from the turbine and generator are not included as part of the proposed project. Furthermore, the proposed project does not include modifications to existing buildings. All new generating facilities would be pre-assembled off-site and would be trucked to the proposed project location for installation. A portable crane would lift and position the wheeled generating equipment onto an on-site locomotive in order to transport proposed project components via a system of existing railroad tracks. Planned haul routes for all new equipment are existing Inyo County (County) roads, USFS roads, and mine access roads on private land, designed for heavy equipment. Grading, widening or other improvement of any road will not be necessary. Minimal areas of ground disturbing activities are included as part of the proposed project's upgrades to the existing substation.

Routine operations and maintenance of the hydroelectric facilities in its entirety would be the primary activities that occur at the proposed project site. After installation of the proposed project components, these activities would include operating and maintaining the proposed project powerhouse and associated facilities, inside the adit.

Mine Administration

PCM is presently operated in a dormant state by individuals (PCM personnel), some of whom reside at the mine with their families. These same existing PCM personnel would be involved with the installation, operation, and maintenance of the proposed project. As such, the proposed project would not increase staffing or human presence on-site.

Project Measures/Conditions

Several public resource agencies requested that the proposed project adhere to numerous conditions during the FERC EA process. FERC's EA did consider preliminary water quality certification conditions submitted by State Water Board staff. **Table 1** lists the public resource agency-requested conditions that are part of the proposed project. Requested conditions as filed on the FERC docket are included in **Appendix B**.

Table 1: Conditions Analyzed in 2018 Environmental Assessment (EA)

Entity	Condition #	Condition
U.S. Forest Service	1	Consultation
U.S. Forest Service	2	Approval of Changes
U.S. Forest Service	3	Maintenance of Improvements on or Affecting National Forest System Lands
U.S. Forest Service	4	Existing Claims
U.S. Forest Service	5	Compliance with Regulations
U.S. Forest Service	6	Surrender of License or Transfer of Ownership
U.S. Forest Service	7	Protection of United States Property
U.S. Forest Service	8	Indemnification
U.S. Forest Service	9	Damage to Land, Property, and Interests of the United States
U.S. Forest Service	10	Risks and Hazards on National Forest System Lands
U.S. Forest Service	11	Protection of Forest Service Special Status Species
U.S. Forest Service	12	Access
U.S. Forest Service	13	Crossings
U.S. Forest Service	14	Surveys, Land Corners
U.S. Forest Service	15	Pesticide

Entity	Condition #	Condition
U.S. Forest Service	16	Modifications of 4(e) Conditions after Biological Opinion or Water Quality Certification
U.S. Forest Service	17	Signs
U.S. Forest Service	18	Ground Disturbing Activities
U.S. Forest Service	19	Plug Safety
U.S. Forest Service	20	Minimum Streamflow and Gaging
U.S. Forest Service	21	Water Quality & Temperature Monitoring
U.S. Forest Service	22	Groundwater Study, Including Contaminant Testing
U.S. Forest Service	23	Terrestrial Biological Management and Monitoring Plan
U.S. Forest Service	24	Aquatic Biological Management and Monitoring
U.S. Forest Service	25	Hazardous Substance Management
U.S. Forest Service	26	Road and Transportation Facility Management Plan
U.S. Forest Service	27	Fire and Fuels Management Plan
U.S. Forest Service	28	Heritage Resources Management and Monitoring
FERC	-	Develop an avian collision and electrocution hazards plan that includes provisions for monitoring, documenting, and reporting bird fatalities and injuries along the project's transmission line
FERC	-	Define a project-specific schedule, in consultation with California DFW and FWS, to avoid construction during the Sierra Nevada bighorn sheep lambing period that on average, occurs from mid-April through July.

Source: FERC 2018.

In addition to the conditions listed in **Table 1**, PCM, LLC proposes to implement conditions listed in **Table 2**.

Table 2: Conditions Proposed by PCM, LLC

Condition #	Condition
1	Concrete Plug Inspection (To be performed annually)
2	Run of Mine
3	Water Quality Protection Plan
4	Monitor select water quality parameters
5	Consultation with California SHPO [State Historic Preservation Officer], Forest Service, and involved Native American tribes
6	Initial Fill Plan
7	Hazard Substance Management Plan
8	Fire and Fuels Management Plan

Source: FERC 2018.

2.4 General Plan Land Use Designation and Zoning

The Inyo County Board of Supervisors adopted the Inyo County General Plan Update on December 11, 2001. The General Plan is a long-term planning document that guides growth and land development in the County. It provides the foundation for establishing community goals and supporting policies, and directs appropriate land uses for all land parcels within the County. Under the current General Plan, the proposed project site is designated as Rural Protection in the Inyo County General Plan, and the current zoning for the proposed project site is Open Space 40 acre minimum.

Zoning Ordinance

Developed land uses in Inyo County are regulated specifically by the County's Zoning Code (Inyo County Code, Title 18), in addition to the other adopted regulations and programs that apply to all proposed development within the County. In more detail than the General Plan, the Zoning Code regulates land uses on a parcel-by-parcel basis throughout the County. In order to achieve this regulation, the County assigns each parcel within the City to a zoning district. Regulations for each district apply equally to all properties within the district.

Chapter 18.12 of the Zoning Code outlines use standards for Open Space zones. The intent of the Open Space zoning is to establish standards for land uses that will protect and preserve the environmental resources, scenic, natural features, and open space character of the County, while also providing for agricultural development and protection of existing agricultural area from urban development or residential subdivision.

Chapter 18.12 also outlines development standards for Open Space Zoning Districts which establishes a building height limitation of 30 feet or two and one-half stories with a height limitation of 25 feet or two stories on accessory buildings. A minimum parcel size of forty acres, except when a greater minimum area is established pursuant to

Section 18.78.055 and a minimum parcel width of five hundred feet are also enforced. Additional development standards include a minimum 50-foot setback from all property lines, a ten-foot distance between buildings on the same parcel, and a requirement of two parking spaces per dwelling unit.

2.5 Future Mining Analysis

The proposed project would produce an estimated average of 5,600 kWh per year of hydroelectric power. PCM, LLC's Final License Application stated the Project would "serve as part of the infrastructure to ensure that increasing demand for renewable power in California is met." (PCM, LLC 2016a, p. E-12.) PCM, LLC stated that the proposed project "will use the mine's existing electric substation connections to transmit power to the wholesale electric grid." (*Id.*, p. E-7.) In June 2016, PCM, LLC filed an Amended Final License Application that newly suggested the proposed project would primarily power intended renewed tungsten mining on the project site, after nearly thirty years of mining inactivity at PCM:

The Project would use the mine's existing private substation connections to *generate that power needed to resume tungsten mining operations and would distribute excess capacity to a local utility or the grid. A license is sought to sell excess capacity power.*

(PCM, LLC 2016b, p. A-12, italics added; see also *id.*, p. IS-2 ["A license is sought to sell excess capacity power only"] & p. E-2.) Describing the "need for power" from the proposed project, PCM, LLC claimed that tungsten mining and production in the United States of America "is again economically viable" and that the proposed project "will generate enough electricity to support mining operations at full capacity" at the project site. (*Id.*, p. E-6.) PCM, LLC emphasized that it and its agent, Gold Rush Mining, LLC, "have an agreement for the immediate resumption of mining operations" and that such operations "will have substantial power requirements that are to be met entirely by the [proposed project]." (*Id.*, p. E-126.)

Mining has reportedly not occurred at the PCM site for approximately three decades. Thus, mining activities at the site may not reasonably be considered part of the baseline against which to compare environmental impacts of the proposed project. Were renewed tungsten mining as central to the proposed project—and the proposed project as central to renewed tungsten mining at the site—as PCM, LLC has asserted in its Amended Final License Application and other more recent correspondences, both the National Environmental Policy Act (NEPA) and CEQA would require analysis of the reasonably foreseeable actions and related impacts to the environment not only of hydroelectric construction, operation, and maintenance, but also of resumed tungsten mining activities at the site. NEPA requires a federal agency such as FERC to consider, and use all practicable means to avoid or minimize, potential direct and indirect effects, or impacts, of the action, including effects that "are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable," including "induced changes in the pattern of land use . . . and related effects on air and water and other natural systems . . ." (40 C.F.R. §§ 1500.2 & 1508.8; see also 18 C.F.R. § 380.1

et seq.) Similarly, CEQA requires that the lead agency such as the State Water Board consider both the “direct physical changes in the environment” and the “reasonably foreseeable indirect physical changes in the environment which may be caused by the project.” (CEQA Guidelines, § 15064, subd. (d).) Under CEQA, an indirect physical change in the environment must be considered even if it “is not immediately related to the project, but . . . is caused indirectly by the project,” but it does not include a change that is “speculative or unlikely to occur.” (*Id.*)

Despite PCM, LLC’s statements that the proposed project has primarily a mining-related purpose, neither PCM, LLC in its application nor FERC in its EA provided information or analysis of the environmental impacts resulting from direct or indirect resumption of tungsten mining at the project site. The record before the State Water Board does not support the conclusion that resumed mining at PCM is a reasonably foreseeable result of the proposed project. For purposes of analysis of the proposed project under CEQA, the State Water Board concludes that the mining activities stated by PCM, LLC are merely speculative and that the proposed project may not actually result in feasible mining activities at the site. As discussed in the following section, the proposed project’s stated purpose and objectives do not rely on or assume renewed mining at PCM. Were renewed mining activities at PCM a part of, or reasonably foreseeable result of, the proposed project, it would not be possible at this time to confirm that the proposed project would actually meet all of its stated objectives. Potential future mining activities at or related to PCM are not subject to this FERC licensing proceeding. Nor would they be subject to related federal preemption under the Federal Power Act or the Clean Water Act. Mining activities at PCM that may be proposed in the future would require separate environmental review and permitting under state and federal law.

3.0 PROJECT OBJECTIVES

The purpose of the proposed project is to produce approximately 1.5 MW of renewable energy per hour of operation through hydropower. The five specific objectives related to this purpose, to be accomplished through the proposed project, are as follows:

1. Meet California Renewables Portfolio Standards

In 2002, the State of California chaptered Senate Bill 1078, the California Renewables Portfolio Standard (RPS) (Stats. 2002, ch. 516). The RPS, as subsequently amended, now requires investor-owned utilities, electric service providers, and community choice aggregators to procure 40% of electricity from eligible renewable energy resources by 2024, 52% by 2027, 60% by 2030, and 100% by 2045. The proposed project would contribute to California meeting their RPS by producing 1.5 MW of renewable hydropower per hour of operation, to be sold to a local utility for redistribution.

2. Limit project footprint

The proposed project would not construct or modify buildings or other aboveground facilities, and would not significantly modify underground facilities. Manufacturing of all new generating facilities and pre-assembly would occur off site and would be trucked to

the proposed project location. A portable crane would lift and position the wheeled generating equipment onto an existing railcar track within the existing adit for delivery to the existing plug.

3. Utilize existing site features to maximize the use of the proposed project site.

The proposed project would utilize existing features on-site to implement the proposed project. The proposed project would require minimal development to maximize the use of the site. The generator would be located within an existing adit and would utilize water which currently flows through that adit. Other associated features required to implement the proposed project, including electrical wiring, substations, and transportation access routes are all existing features. The only improvements involved with the proposed project would be the installation of the turbine generator and construction of an 18-inch diameter, 30-foot-long penstock, from a valve in the existing concrete plug to the proposed generator.

4. Meet all applicable water quality standards

With the development and implementation of a Water Quality Protection and Monitoring Plan to ensure water quality standards are preserved, as well the State Water Board's other water quality certification conditions, the proposed project would comply with all federal and state water quality standards, including the Lahontan Regional Water Quality Control Board's (Lahontan RWQCB) Water Quality Control Plan for the Lahontan Region (Basin Plan) and other appropriate requirements of state law.

5. Provide economic opportunities for the Pine Creek Mine Owner

The proposed project would generate approximately 1.5 MW per hour of operation, for an estimated 5,600 MWh per year. This energy would be sold to a local utility or wholesale grid to redistribute to electricity customers. Given the economic and regulatory incentives and demands for electricity from renewable sources, implementation of the proposed project would provide economic opportunities and returns for the operators and/or owners of the PCM.

4.0 PREVIOUS ENVIRONMENTAL ANALYSIS

4.1 Project Background

FERC prepared an Environmental Assessment (EA) per the National Environmental Policy Act (NEPA) (42 U.S.C. § 4321 et seq.) for the proposed project in February 2018. The purpose of the proposed project is to generate a source of hydroelectric power for sale to a local utility or wholesale grid. Therefore, under the provisions of the Federal Power Act, FERC will determine whether to issue a license to PCM, LLC to operate the proposed project and what conditions shall be placed as part of any license issued. A series of technical reports, surveys and assessments were prepared to aid in the preparation of the EA. **Table 3** lists the specific technical reports, quantified analysis and surveys that were used in preparation of the EA. The FERC EA and subsequent

reports listed below were utilized in this Initial Study to analyze and determine the potential significance of the environmental effects caused by this project and are incorporated by reference herein.

Table 3: Technical Reports, Surveys, and Assessments Prepared for Proposed Project

Study/Report/Assessment	Author/Date	Summary of Report and Recommendations
Biological Resources Report	Glenn Lukos Associates, Inc. (2013)	Biologists with Glenn Lukos Associates, Inc. (GLA) conducted general and focused biological surveys for the proposed project. This report provides a description of the proposed project, results of the general and focused biological surveys, an analysis of impacts to target species, and relevant mitigation/avoidance measures. See Appendix D .
Baseline Aquatic Habitat Monitoring Survey	ECORP Consulting, Inc. (2013)	ECORP conducted a baseline aquatic habitat survey using Surface Water Ambient Monitoring Program (SWAMP) sampling protocols, including a benthic macroinvertebrate bioassessment assessment. The purpose of the survey was to analyze the aquatic habitat on-site and to compare the proposed project site habitat to a control site. See Appendix E .
Cultural Resource Investigation	JRP Historical Consulting and Davis-King & Associates (2014)	A Cultural Resource Investigation was prepared by JRP and Davis-King. The report was prepared to provide a basis for considering PCM's potential eligibility for listing in the National Register of Historic Places (NRHP), but does not render a final eligibility analysis for the mine. See Appendix F .
Cultural Resources Inventory and Evaluation Report	JRP Historical Consulting and Davis-King & Associates (2015)	A Cultural Inventory and Evaluation was prepared by JRP and Davis-King. The report was prepared to provide an archaeological and historic context for considering PCM's eligibility for listing in the NRHP. The report concludes with a recommendation that one building on-site is recommended as

Study/Report/Assessment	Author/Date	Summary of Report and Recommendations
		individually eligible for any register. See Appendix G.
Finding of Effect (Historic Resources)	JRP Historical Consulting (2015)	JRP prepared a Finding of Effect report to determine if the proposed project would have an adverse effect on the historically eligible building for listing in the NRHP that was identified in the Historic Evaluation Report. The Finding of Effect report concludes that the proposed project would not have an adverse effect. See Appendix H.
Seismic and Geotechnical Study	Sierra Geotechnical Services Inc. (2011)	The Seismic and Geotechnical Study was prepared to analyze and determine the present condition of the plug and the suitability of the plug for service as part of the water reservoir. The study was prepared in response to a letter issued by the U.S. Forest Service (USFS) which expresses concern for the suitability of the plug. See Appendix I.
Investigation of the Quantity and Source of Mine-Water Discharge Through Time	Hydrologic Consultants, Inc. (1990)	An investigation of the surface-and ground-water systems of the Pine Creek and Rock Creek drainages was conducted, with the general goals of estimating the quantity of water discharged from PCM into the Pine Creek hydrologic system, evaluating the source of water currently discharged from the mine, and assessing the effects of this volume of water on the hydrology of the Pine Creek and Rock Creek sub-basins. See Appendix K.
Water Testing	BC Laboratories, Inc. (2004)	BC Laboratories (BCL) conducted sampling of water at PCM to determine the general chemistry and metals composition of the water on-site. The sampling was submitted to FERC. After submittal of the testing, FERC

Study/Report/Assessment	Author/Date	Summary of Report and Recommendations
		determined that further studies were not necessary. See Appendix J
Water Testing	BC Laboratories, Inc. (2015)	BC Laboratories conducted another series of sampling of water at PCM to determine the general chemistry and metals composition of the water on-site in 2015. See Appendix J
Environmental Assessment: PCM Hydroelectric Project—FERC Project No. 12532-006	FERC (2018)	An EA was prepared for the proposed project to evaluate the effects associated with constructing and operating the proposed project and alternatives to the proposed project, and to make recommendations on whether to issue an original license and, if so, under what terms and conditions. The EA recommends the proposed project, “with certain Forest Service 4(e) conditions, Water Board WQC conditions, and certain staff-recommended modifications as the preferred alternative.” See Section 2.3 and Appendix B .

Source: FERC 2018.

4.2 Inyo County General Plan

The updated Inyo County General Plan (2001), as subsequently amended, including by approval of the REGPA (2015), provide relevant policy guidance for this Initial Study. Inyo County is currently in the process of updating its General Plan.

4.3 Incorporation of the Inyo County General Plan EIR by Reference

The certified Final EIR for the Inyo County General Plan Update is a comprehensive document. Due to various references to the Inyo County General Plan EIR in this proposed project, and to its importance relative to understanding the environmental analysis that has occurred to date with respect to development in Inyo County, the document is hereby incorporated by reference pursuant to CEQA Guidelines section 15150.

Renewable Energy General Plan Amendment

The REGPA and associated Final Program EIR were adopted by Inyo County on March 24, 2015. The REGPA is intended to help achieve coordinated solar renewable energy development in the County by creating a vision for landholders and for renewable energy developers and investors in the County while considering regional policies and

plans, as well as the development goals and policies of the County. The REGPA Final Program EIR is hereby incorporated by reference pursuant to CEQA Guidelines section 15150

5.0 ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

The environmental factors checked below would be potentially affected by this project, involving at least one impact that may require mitigation to reduce the impact from “Potential Impact” to “Less than Significant” as indicated by the checklist on the following pages.

An Initial Study is conducted by a Lead Agency to determine if a project may have a potentially significant effect on the environment (CEQA Guidelines, § 15063). An EIR must be prepared if an Initial Study indicates that further analysis is needed to determine whether a significant impact will occur or if there is substantial evidence in the record that a project may have a significant effect on the environment (CEQA Guidelines, § 15064, subd. (f)).

<input type="checkbox"/> Aesthetics	<input type="checkbox"/> Agriculture/Forestry Resources	<input type="checkbox"/> Air Quality
<input type="checkbox"/> Biological Resources	<input type="checkbox"/> Cultural Resources	<input type="checkbox"/> Energy
<input type="checkbox"/> Geology/Soils	<input type="checkbox"/> Greenhouse Gas Emissions	<input type="checkbox"/> Hazards/Hazardous Materials
<input type="checkbox"/> Hydrology/Water Quality	<input type="checkbox"/> Land Use/Planning	<input type="checkbox"/> Mineral Resources
<input type="checkbox"/> Noise	<input type="checkbox"/> Population/Housing	<input type="checkbox"/> Public Services
<input type="checkbox"/> Recreation	<input type="checkbox"/> Transportation	<input type="checkbox"/> Tribal Cultural Resources
<input type="checkbox"/> Utilities/Service Systems	<input type="checkbox"/> Wildfire	<input type="checkbox"/> Mandatory Findings of Significance

6.0 DETERMINATION (TO BE COMPLETED BY THE LEAD AGENCY)

On the basis of this initial evaluation:

<input checked="" type="checkbox"/>	I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.
<input type="checkbox"/>	I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.
<input type="checkbox"/>	I find that the proposed project MAY have a significant effect on the environment, and an environmental impact report is required.
<input type="checkbox"/>	I find that the proposed project MAY have a “potential impact” or “potentially significant unless mitigated” impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.
<input type="checkbox"/>	I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

Draft for Public Comment

Signature

Date

Printed Name

Title

7.0 ENVIRONMENTAL INITIAL STUDY CHECKLIST

Responses to the following questions and related discussion indicate if the proposed project will have or will potentially have a significant adverse impact on the environment, either individually or cumulatively with other projects. All phases of project planning, implementation, and operation are considered. Mandatory Findings of Significance are located in Section 8.19 below.

- A. "Potentially Significant Impact" is appropriate if there is substantial evidence that an effect may be significant. If there are one or more "Potentially Significant Impact" entries when the determination is made, an EIR is required.
- B. "Less Than Significant with Mitigation" applies where the incorporation of mitigation measures has reduced an effect from "Potentially Significant Impact" to a "Less Than Significant Impact." The lead agency must describe the mitigation measures and briefly explain how they reduce the effect to a less than significant level (mitigation measures from earlier analyses may be cross-referenced).
- C. "Less Than Significant Impact" applies where the project creates no significant impacts, only less than significant impacts.
- D. "No Impact" applies where a project does not create an impact in that category. "No Impact" answers do not require an explanation if they are adequately supported by the information sources cited by the lead agency which show that the impact simply does not apply to projects like the one involved (e.g., the project falls outside a fault rupture zone). A "No Impact" answer should be explained where it is based on project-specific factors as well as general standards (e.g., the project would not expose sensitive receptors to pollutants, based on a project specific screening analysis).

7.1 Environment Resources

I. AESTHETICS

AESTHETICS. Except as provided in Public Resources Code Section 21099, would the project:	Potential Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Have a substantial adverse effect on a scenic vista?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public View are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Environmental Setting

The proposed project is located on a site that was previously utilized as a Tungsten Mine. The site still contains remnant structures that were utilized for the mine. The site is located within a private inholding surrounded by the INF. Additionally, the John Muir Wilderness is located to the west of the site. Morgan Creek and Pine Creek flow through the site to the north and south respectively.

Evaluation of Aesthetics

Question a): No Impact. A scenic vista is defined as a viewpoint that provides expansive views of a highly valued landscape for the benefit of the general public. The

proposed project is surrounded by land that could be considered a scenic vista. However, the proposed project site was previously developed, and the proposed project would not introduce any new buildings, structures, or equipment outside of the existing mine adits. Therefore, construction of the proposed development would not interfere with or degrade a scenic vista. **No impacts** would occur, and no mitigation would be necessary.

Question b): No Impact. The closest state designated scenic highway to the proposed project, is Highway 168, which is 10 miles south of the proposed project site. Implementation of the proposed project would not adversely affect scenic resources within a designated scenic highway. **No impact** would occur, and no mitigation would be necessary.

Question c): No Impact. The proposed project site was previously developed as a mine. No new building or other structures are proposed, no modifications to existing buildings are proposed. Manufacturing of all new generating facilities and pre-assembly would occur off site and would be trucked to the proposed project location. The proposed project would not result in a change in visual character on site, **no impact** to visual character would occur, and no mitigation would be necessary.

Question d): No Impact. The proposed project would not introduce any exterior lighting. Therefore, the proposed project would have **no impact**, and no mitigation would be necessary.

II. AGRICULTURE AND FORESTRY RESOURCES

AGRICULTURE AND FORESTRY RESOURCES. In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state’s inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board.

AGRICULTURAL AND FORESTRY RESOURCES. Would the project:	Potential Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Result in the loss of forest land or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

AGRICULTURAL AND FORESTRY RESOURCES. Would the project:	Potential Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Environmental Setting

Neither agricultural activities nor timber management activities occur on the project site. The project site is zoned Open Space, 40-acre minimum, which allows for agricultural use, but does not confine a property to agricultural use. The California Important Farmland Map prepared by the California Natural Resources Agency’s Department of Conservation does not identify important farmland at the site or within Inyo County generally (California Department of Conservation 2016).

The Natural Resources Conservation Service (NRCS) soil survey report generated for the project site indicates that Prime or Unique Farmland or Farmland of Statewide Importance does not occur on the project site (NRCS 2018).

Evaluation of Agriculture and Forestry Resources

Questions a) and b): No Impact. The project site is not considered Prime Farmland, Unique Farmland, or Farmland of Statewide importance (Farmland), pursuant to the Farmland Mapping and Monitoring Program of the California Natural Resources Agency. The project sites zoning allows for agricultural use, but agriculture is not the zonings principle use. The site is not enacted into a Williamson Act contract, **no impact** would occur, and no mitigation would be necessary.

Questions c) and d): No Impact. The project site is surrounded by the INF. However, the project site has historically been utilized as a mine, and the proposed project would not include new buildings, structures or modifications to existing buildings or structures. Haul routes for new equipment would occur on existing County roads and mine access roads on private lands. No grading, widening or other improvement of any road is necessary or proposed. No portion of the proposed project would conflict with existing zoning for forest land, timberland, or property zoned Timberland Production; **no impact** would occur; and no mitigation would be necessary.

Question e): No Impact. The nearest agricultural lands to the project site are located approximately six miles east in the town of Rovana. The project site is located in an inholding surrounded by the INF. The proposed project would involve the installation of

an 18-inch-diameter, 30-foot-long steel penstock and the placement of a 1.5 MW turbine generator located within an existing mine adit. The project proposes to connect to an existing substation which has an existing connection to a SCE-owned substation and transmission line. The proposed project would have little disturbance on the project site, and any small disturbance would take place on previously disturbed land. The proposed project would not involve changes in the existing environment which could result in conversion of farmland to non-agricultural use or conversion of forest land to non-forest use. Therefore, the proposed project would have **no impact**, and no mitigation would be necessary.

III. AIR QUALITY

AIR QUALITY. Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:	Potential Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Conflict with or obstruct implementation of the applicable air quality plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Expose sensitive receptors to substantial pollutant concentrations?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Result in substantial emissions (such as those leading to odors or dust) adversely affecting a substantial number of people?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Data Source/Methodology

The following analysis of Air Quality is based on emissions modeling prepared by HELIX in 2019 (HELIX 2019). Emissions from the proposed project were estimated using the latest California Emissions Estimator Model (CalEEMod 2016.3.2). The emissions modeling can be found in **Appendix C**.

Environmental Setting

Inyo County has a variable climate due to its diverse terrain and geographic location. The climate of the region is greatly influenced by the Sierra Nevada Mountain range, due to orographic effect of the range a rain shadow is cast east of the crest, resulting in an arid to semi-arid environment in the Owens Valley. Other climate characteristics of the region include abundant sunshine, frequent winds and moderate to low humidity (Danskin 1998). The proposed project is located at approximately 8,000 feet above mean sea level (amsl). The high elevation results in winter snowfall with occasional storms that produce high runoff from the peaks.

Inyo County is regulated by the Great Basin Unified Air Pollution Control District (District). The District covers the Great Basin valleys and is comprised of Inyo, Alpine, and Mono County pursuant to a joint powers agreement. The purpose of the District is to enforce federal, state, and local air quality regulations and to ensure that the federal and state air quality standards are met in the District (District 2018).

The District is responsible for implementing emissions standards and other requirements of federal and state laws in the proposed project area. As required by the California Clean Air Act (Health and Safety Code, § 39000 et seq.), the District has published various air quality planning documents in order to meet compliance with the federal and state ambient air quality standards. The Air Quality Attainment Plans are incorporated into the State Implementation Plan and submitted to the U.S. Environmental Protection Agency (EPA), the federal agency that administrates the Federal Clean Air Act of 1970, as amended in 1990 (42 U.S.C. § 7401 et seq.).

Ambient air quality compliance is defined in accordance with state and national standards, and levels of air pollutant concentrations considered safe to protect the public health and welfare. These standards are designed to protect people most sensitive to respiratory distress, such as asthmatics, the elderly, very young children, people already weakened by other disease or illness, and people engaged in strenuous work or exercise. The EPA has established national ambient air quality standards (NAAQS) for seven air pollution constituents. As permitted by the Federal Clean Air Act, California has adopted more stringent air emissions standards and expanded the number of regulated air constituents.

The California Air Resources Board (CARB) is required to designate areas of the state as attainment, nonattainment, or unclassified for any state standard. An “attainment” designation for an area signifies that pollutant concentrations do not violate the standard for that pollutant in that area. A “nonattainment” designation indicates that a pollutant concentration violated the standard at least once. The air quality attainment status of the District, including Inyo County, is shown in **Table 4**.

Table 4: Great Basin Unified Air Pollution Control District – Attainment Status

POLLUTANT	STATE OF CALIFORNIA ATTAINMENT STATUS	FEDERAL ATTAINMENT STATUS
Ozone (1-hour standard)	Unclassified	No Standard
Ozone (8-hour standard)	Nonattainment	Unclassified or Attainment Unknown
PM10 (24-hour standard)	Nonattainment	Unclassified
PM10 (annual standard)	N/A	No standard
PM2.5 (24-hour standard)	Attainment	Unclassified or Attainment Unknown
PM2.5 (annual standard)	N/A	No Standard

POLLUTANT	STATE OF CALIFORNIA ATTAINMENT STATUS	FEDERAL ATTAINMENT STATUS
Carbon Monoxide	Attainment	Unclassified or Attainment Unknown
Nitrogen Dioxide (NOX)	Attainment	Unclassified or Attainment Unknown
Lead	Attainment	Unclassified or Attainment Unknown
Sulfur Dioxide	Attainment	Unclassified
Sulfates	Attainment	No Federal Standard
Hydrogen Sulfide	Attainment	No Federal Standard
Visibility Reducing Particles	Unclassified	No Federal Standard

Sources: CARB 2017; EPA 2018.

Inyo County is currently in nonattainment for state ozone and PM₁₀ standards. Concentrations of all other pollutants meet state and federal standards.

Ozone is not emitted directly into the environment, but is generated from complex chemical reactions between reactive organic gases (ROG), or non-methane hydrocarbons, and NO_x that occur in the presence of sunlight. ROG and NO_x generators in Inyo County include motor vehicles, recreational boats, other transportation sources, and industrial processes. PM₁₀ arise from a variety of sources, including road dust, diesel exhaust, fuel combustion, tire and brake wear, construction operations and windblown dust. Although Inyo County is categorized as nonattainment for the state ozone standard, there is no ozone implementation plan for attainment in Inyo County, nor is one required under California law (CARB 2016).

Owens Lake

Owens Lake is the largest single source of PM₁₀ (particulate matter with an average maximum size of 10 microns) in the Owens Valley. The dusty conditions are a result of a combination of topographic features and the historic diversion of the Owens River into the Los Angeles Aqueduct. The Aqueduct commenced operation in 1913, and eliminated the primary inflow to Owens Lake. By 1927, the 110 square mile lake surface had shrunk to a 35 square mile brine pool, leaving more than 70 square miles of dry lakebed composed of fine-grained sediment, salt and sand. Wind speeds at Owens Lake are augmented by the eastern sierra walls that reach elevations of 11,000 feet above the lakebed surface. The conditions create a narrow valley that is exposed to high wind velocity of winds moving north and south (CARB 2016).

Air Quality Attainment Planning

In order to work towards attainment for PM₁₀, the EPA Office of Air Quality Planning and Standards requires that each state containing nonattainment areas develop a written plan for cleaning the air in those areas. The plans developed are called State

Implementation Plans (SIP). Through these plans, states outline efforts they will make to try to correct the levels of air pollution and bring their areas back into attainment. The most recent SIP prepared for the District was released April 29, 2016. The SIP demonstrates that the controls that have been constructed and maintained on lakebed areas to decrease PM₁₀ quantities have resulted in a reduced annual lakebed PM₁₀ emissions by 97 percent between 2001 and 2015. The 2016 plan builds upon the foundation of a continuous program of monitoring, testing, and implementation of controls implemented throughout the past 30 years. After evaluation of the 2016 plan, CARB staff has determined that the 2016 SIP satisfies the requirements of state law (CARB 2016).

GBUAPCD Standards

GBUAPCD has not developed air quality significance thresholds for construction projects or for explicit use in CEQA analyses. Similar to the GBUAPCD, the South Coast Air Basin is in state nonattainment for ozone and PM₁₀ as well as federal nonattainment for PM₁₀. The South Coast Air Basin includes all of Orange County and the non-desert regions of Los Angeles County, Riverside County, and San Bernardino County. The South Coast Air Quality Management District (SCAQMD) significance thresholds are prepared to achieve the state and federal standards. Although the sources of pollution and the geographic features influencing air quality are different, the thresholds for SCAQMD were used for this analysis. Use of these thresholds is appropriate due to the similarity in types of air pollutants in nonattainment between the two air basins and the scientific basis researched by SCAQMD for selection of several of the thresholds. Parts of the South Coast Air Basin face worse air quality than in the project area, therefore, the thresholds are likely conservative.

Emissions from proposed project construction were estimated using the latest California Emissions Estimator Model (CalEEMod 2016.3.2). Construction would occur over approximately 6 weeks. Estimated maximum daily emissions generated during construction are listed in **Table 5**. As shown therein, emissions of all criteria pollutants related to proposed project construction would be below the SCAQMD's significance thresholds.

Table 5: Maximum Daily Construction Emissions

Construction Activity	ROG (lbs/day)	NO_x (lbs/day)	CO (lb/day)	SO_x (lbs/day)	PM₁₀ (lbs/day)	PM_{2.5} (lbs/day)
Generator Installation	0.48	4.25	3.39	0.01	0.27	0.19

Construction Activity	ROG (lbs/day)	NO_x (lbs/day)	CO (lb/day)	SO_x (lbs/day)	PM₁₀ (lbs/day)	PM_{2.5} (lbs/day)
<i>SCAQMD Regional Thresholds</i>	75	100	550	150	150	55
Significant Impact?	No	No	No	No	No	No

Source: HELIX 2019 (Appendix C).

Evaluation of Air Quality

Question a): Less than Significant Impact. The proposed project would not conflict with or obstruct the implementation of the District air quality plan. The District addresses the need to reduce PM₁₀ quantities that are mainly associated with dust pollutants. The main source of dust pollutants in Inyo County results from the Owens Lake, which is located approximately 70 miles south of the project site. The only source of dust pollutants associated with the proposed project would occur during project construction. Emissions from proposed project construction were estimated using the latest California Emissions Estimator Model (CalEEMOD 2016.3.2). Construction would occur over approximately 6 weeks. Estimated maximum daily emissions generated during construction are listed above in **Table 5**. As shown therein, emissions of all criteria pollutants related to the proposed project construction would be below the SCAQMD’s significance thresholds. Therefore, the proposed project would not conflict with or obstruct implementation of the applicable air quality plan. The proposed project’s impact **would be less than significant**, and no mitigation would be necessary.

Question b): Less than Significant Impact. The Great Basin region is in non-attainment for ozone (NO_x and ROG) and particulate matter (PM₁₀). The District has policies concerning construction related dust. District Rules 400 and 401 apply to dust control. Rule 400 prohibits discharge into the atmosphere of any air contaminant for a period of more than 3 minutes in any 1 hour that is (1) dark or darker in shade as that designated as No. 1 on the Ringelmann Chart, or (2) of such as to obscure an observer’s view to a degree equal to or greater than does smoke. Rule 401 requires that a person take reasonable precaution to prevent visible particulate matter from being airborne, under normal wind conditions, beyond the property from which the emissions originate.

District rules apply to all projects at the time of construction, and compliance with regulatory requirements would minimize fugitive dust as a result of construction activities. As shown in **Table 6**, the proposed project would produce less than significant pollutant emission. A **less than significant impact** would result, and no mitigation would be necessary.

Questions c) and d): Less than Significant Impact. Sensitive receptors in the vicinity of the proposed project include the PCM personnel and their families who reside on-site and the recreational users of the surrounding INF lands. Rovana is the closest community to the site, approximately six miles to the east. No other air emissions or odors would be released during operation of the proposed project. Normal activities associated with operation of the proposed project would not result in the release of any odors or toxic substances into the air. As shown in **Table 5**, the proposed project would result in less than significant pollutant emissions. Thus, overall air emissions would not expose sensitive receptors to substantial air pollutant concentrations or create objectionable odors. This would be a **less than significant impact**, and no mitigation would be necessary.

IV. BIOLOGICAL RESOURCES

BIOLOGICAL RESOURCES. Would the project:	Potential Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Wildlife or US Fish and Wildlife Service?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

BIOLOGICAL RESOURCES. Would the project:	Potential Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Data Source/Methodology

The following analysis of biological resources is based on a Biological Resources Report prepared by GLA in 2013 (GLA 2013) and the Pine Creek Baseline Aquatic Habitat Monitoring Survey prepared by ECORP Consulting, INC. in 2013 (ECORP 2013). The Biological Resources Report contains the results from biological surveys including the Bat Survey conducted in 2011-2012 by Brown-Berry Biological Consulting. The Biological Resources Report can be found in **Appendix D** and the Pine Creek Baseline Aquatic Habitat Monitoring Survey in **Appendix E**.

Environmental Setting

PCM is bounded on three sides by John Muir Wilderness area within the INF. The mine is located near the confluence of Morgan and Pine Creeks. Morgan Creek is an ephemeral creek that flows for a total of 2.7 linear miles from its headwaters at 9,200 feet elevation to its terminus at 7,800 feet elevation, where it joins Pine Creek. Pine Creek is a total of 9.9 linear miles in length from its origination at an elevation of 11,120 feet, at Pine Creek Pass, to the Pleasant Valley Reservoir (GLA 2013).

Regulatory Framework Related to Biological Resources

Inyo County regulates development through standard construction conditions and through mitigation, building, and construction requirements set forth in the Inyo County Code. Required of all projects constructed throughout the County, compliance with the requirements of the County’s standard conditions and the provisions of the Zoning Code avoids or reduces many potential environmental effects. No Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan has been approved for the project study area.

Special status species are protected by federal and state laws.

Federal Species Listing and Protection

The Federal Endangered Species Act of 1973 (FESA; 16 U.S.C. § 1531 *et seq.*) protects federally threatened or endangered species (50 C.F.R. §§ 17.11 and 17.12; listed species) from take. FESA is administered by the United States Fish and Wildlife Service and the National Oceanic and Atmospheric Administration's National Marine Fisheries Service. Take of a federally protected species may be allowed through consultation with and issuance of a permit by the agency with jurisdiction over the protected species (FESA; 16 U.S.C. § 1539 *et seq.* and 50 C.F.R. § 17.12).

California Species Listing and Protection

The California Endangered Species Act (CESA; Fish and Game Code, §§ 2050-2097) protects species listed as threatened and endangered under CESA from harm or harassment. A state candidate species is one that the Fish and Game Commission has formally noticed as being under review by the California Department of Fish and Wildlife (CDFW) for potential inclusion on the state list pursuant to sections 2074.2 and 2075.5 of the Fish and Game Code. CDFW also designates Species of Special Concern that are not currently listed or candidate species.

Legal protection is also provided for wildlife species in California that are identified as "fully protected animals." These species are protected under sections 3511 (birds), 4700 (mammals), 5050 (reptiles and amphibians), and 5515 (fishes) of the Fish and Game Code. These statutes prohibit take or possession of fully protected species at any time. The CDFW is unable to authorize incidental take of fully protected species when activities are proposed in areas inhabited by these species. The CDFW has informed non-federal agencies and private parties that they must avoid take of any fully protected species. However, Senate Bill 618 (Stats. 2011, ch. 596) allows the CDFW to issue permits authorizing the incidental take of fully protected species under the CESA, so long as any such take authorization is issued in conjunction with the approval of a Natural Community Conservation Plan that covers the fully protected species (Fish and Game Code, § 2835).

California Native Plant Protection Act

The California Native Plant Protection Act of 1977 (Fish and Game Code, §§ 1900-1913) requires all state agencies to use their authority to implement programs to conserve endangered and otherwise rare species of native plants. Provisions of the act prohibit the taking of listed plants from the wild and require notification of CDFW at least 10 days in advance of any change in land use other than changing from one agricultural use to another, which allows CDFW to salvage listed plants that would otherwise be destroyed.

Nesting and Migratory Birds

Nesting birds are protected by state and federal laws. Fish and Game Code sections 3503, 3503.5, and 3800 prohibit the possession, incidental take, or needless destruction of any bird nests or eggs; Fish and Game Code section 3511 designates certain bird species "fully protected" (including all raptors), making it unlawful to take, possess, or

destroy these species except under issuance of a specific permit. Under the Migratory Bird Treaty Act (MBTA) of 1918 (16 U.S.C. §§ 703-711), migratory bird species and their nests and eggs that are on the federal list (50 C.F.R. §10.13) are protected from injury or death, and project-related disturbance must be reduced or eliminated during the nesting cycle.

Jurisdictional Waters

Any person, firm, or agency planning to alter or work in “waters of the United States,” including the discharge of dredged or fill material, must first obtain authorization from the U.S. Army Corps of Engineers (USACE) under section 404 of the Clean Water Act (CWA) (33 U.S.C. § 1344; see also 33 U.S.C. § 1362). Section 401 of the CWA (33 U.S.C. § 1341) requires an applicant for a federal license or permit that allows activities that would result in a discharge to waters of the United States must obtain a state water certification that the discharge complies with provisions of the CWA and with appropriate requirements of state law.

The State Water Board is designated as the state water pollution control agency for all purposes stated in the CWA, including the issuance of any federally-required certificate “that there is reasonable assurance that an activity . . . will not reduce water quality below applicable standards.” (Water Code, § 13160.) The State Water Board administers the water quality certification program for hydroelectric facilities in the State of California that require a FERC license, amendment of a FERC license, or another related federal permit or license. Under the Porter-Cologne Water Quality Control Act (Water Code, § 13000 et seq.), the State Water Board and the nine Regional Water Quality Control Boards have primary responsibility for coordination and control of the quality of “waters of the state,” which include not only “waters of the United States” but “any surface water or groundwater, including saline waters, within the boundaries of the state.” (Water Code, §§ 13001 & 13050.)

Methods

Information used in preparation of this Initial Study comes from the Biological Resources Report (Appendix D). The Biological Resources Report contains data from numerous biological surveys that focuses on an approved list of target wildlife species that include the Sierra Nevada bighorn sheep (*Ovis canadensis sierra*; SNBS), special-status bats, special- status salamanders, and the Yosemite toad (*Bufo canorus*). In addition to surveys for these target species, GLA biologists evaluated the effect of the proposed project on vegetation communities and special-status plants. **Table 6** provides a summary list of survey dates and survey types incorporated into the Biological Resource Report.

Table 6: Summary of Biological Resource Report

Survey Type	Survey Dates (2012)
Habitat Assessment General Biological Survey	6/1, 6/2

Survey Type	Survey Dates (2012)
Plant Surveys & Vegetation Mapping	7/10, 7/11, 8/7, 9/24, 9/25
Amphibian Surveys	6/1, 7/11, 8/7, 9/24, 9/25
Bat Surveys	8/21(2011), 1/2, 2/16, 6/1

Source: GLA 2013.

Botanical Resources

Vegetation Mapping/Special Status Surveys

GLA reviewed pertinent literature on the flora of the region prior to conducting fieldwork. A thorough archival review was conducted using available literature and other historical records. These resources included, but were not limited to, the following:

- California Native Plant Society *Online Inventory of Rare and Endangered Plants of California* (Eighth Edition) [CNPS 2010]; and,
- California Natural Diversity Data Base (CNDDDB) for the USGS Mount Tom 7.5-minute quadrangle map (CNDDDB 2013).

GLA reviewed the project study area to identify areas with the potential to support special-status plants, including habitats and other physical features that may support special-status plants. If noxious weeds were encountered, they would be mapped using GPS. **Table 7** provides a list of special-status plants evaluated for the proposed project.

Table 7: Special Status Plants Evaluated for the Proposed Project

Species	Status	Habitat
<i>Astragalus monoensis</i> Mono milk-vetch	Federal: None State: None CNPS: List 1B.2	Pumice (gravelly or sandy) in Great Basin scrub and upper montane coniferous forest.
<i>Astragalus ravenii</i> Raven's milk-vetch	Federal: None State: None CNPS: List 1B.3	Gravelly soils in alpine boulder and rock fields, and upper montane coniferous forest.
<i>Carex scirpoidea</i> ssp. <i>Pseudiscirpodea</i> Western single-spiked sedge	Federal: None State: None CNPS: List 2.2	Mesic (often carbonate) soils in alpine boulder and rock fields, meadows and seeps, and subalpine coniferous forest (rocky).

Species	Status	Habitat
<i>Draba sierrae</i> Sierra draba	Federal: None State: None CNPS: List 1B.3	Granitic or carbonate soils in alpine boulder and rock fields.
<i>Lupinus padre-crowley</i> Father Crowley's lupine	Federal: None State: None CNPS: List 1B.2	Decomposed granitic soils in Great Basin scrub, riparian forest, riparian scrub, and upper montane coniferous forest.

Source: GLA 2013.

Plant surveys and vegetation mapping were conducted on five separate dates by GLA biologists. No special status plants were detected during these surveys within the project study area. (GLA 2013). GLA biologists identified six distinct vegetation community/land use types within the project study area (**Figure 7**). **Table 8** provides a summary of vegetation acreages for the site.

Table 8: Summary of Vegetation Communities

Vegetation Community	Community Type	Project Study Area (acres)
Scrub Communities	Great Basin Sage Scrub	46.29
Woodland/Forest Communities	Mixed Conifer Forest	37.32
Woodland/Forest Communities	Aspen Woodland	0.7
Riparian Communities	Water Birch Riparian Woodland	36.34
Riparian Communities	Emergent Wetland	0.23

Disturbed	Disturbed/Developed	25.83
	Total	149.71

Source: GLA 2013.

Noxious Weeds

During the vegetation mapping and focused survey for special-status plants, GLA noted all incidental observations of noxious weeds within the project study area. In general, noxious weeds are not abundant within the proposed project study area and are primarily found along the access road to the north. One noxious weed, woolly mullein (*Verbascum thapsus*) was observed in three locations along the northern access road. This species is listed as an invasive plant by the California Invasive Plant Council (Cal-IPC) Inventory with a “Limited” inventory rating. Species with a “Limited” inventory rating are invasive but have ecological impacts that are minor on a statewide level or those where not enough information was available to justify a higher score. Their reproductive biology and other attributes result in low to moderate rates of invasiveness. Ecological amplitude and distribution are generally limited, but this species may be locally persistent and problematic. According to Cal-IPC, woolly mullein is a biennial or annual forb (family Scrophulariaceae) that occurs throughout California but is particularly abundant in dry valleys on the eastern side of the Sierra Nevada. High population densities have been observed in moist meadows and creek drainages near Mono Lake and Owens Valley.

Wildlife

Sierra Nevada Bighorn Sheep

The proposed project is located within U.S. Fish and Wildlife Service (USFWS)-designated Critical Habitat for the Sierra Nevada bighorn sheep (SNBS), and SNBS has been detected within the proposed project. The SNBS is one of three distinct subspecies of bighorn sheep and has the most restricted range and the lowest population of the three. SNBS occur only in the Sierra Nevada mountain range.

According to the USFWS, the three primary constituent elements that are essential to the conservation of the SNBS include: (1) Non-forested habitats or forest openings within the Sierra Nevada from 1,219 meters (4,000 feet) to 4,420 meters (14,500 feet) in elevation with steep (greater than or equal to 60 percent slope), rocky slopes that provide for foraging, mating, lambing, predator avoidance, and bedding and that allow for seasonal elevational movements between these areas; (2) Presence of a variety of forage plants as indicated by the presence of grasses (e.g., *Achnanthera* spp.; *Elymus* spp.) and browse (e.g., *Ribes* spp.; *Artemisia* spp., *Purshia* spp.) in winter, and grasses, browse, sedges (e.g., *Carex* spp.) and forbs (e.g., *Eriogonum* spp.) in summer; and, (3) Presence of granite outcroppings containing minerals such as sodium, calcium, iron, and phosphorus that could be used as mineral licks in order to meet nutritional needs (GLA 2013).

Critical habitat for the SNBS was designated by the USFWS on August 5, 2008, and the proposed project is located within the Wheeler Ridge Unit, which is part of the Central Recovery Unit. Between 1999 and 2011, the SNBS population of this unit has increased from just over 100 animals to approximately 400 (GLA 2013).

GLA did not conduct focused field surveys for the SNBS. Instead, GLA conducted a thorough literature review of the Wheeler Ridge Unit from a variety of sources which included, but was not limited to: (1) California Natural Diversity Database; (2) Final Rule Listing the SNBS as Endangered; (3) Designation of Critical Habitat for the SNBS; (4) SNBS Final Recovery Plan; (5) quarterly and semi-annual population monitoring and other relevant reports from the CDFW Sierra Nevada Bighorn Sheep Recovery Program Literature portal; (6) communication with CDFW Wildlife Biologist, Alexandra Few, and CDFW Geographic Information Systems (GIS) Specialist, Kathleen Knox, from the CDFW Bishop Field Office; and (7) communication with PCM on-site property manager, Mr. Tom Haenni.

GLA obtained all available data from CDFW, including very high frequency electromagnetic waves, Global Positioning Systems (GPS), and ground observation data for the SNBS Wheeler Ridge Unit obtained from 2001 through July 2012. Depending on the model of GPS collar used, some collars are programmed to record detections (i.e., locations) from one to three or more times a day. It should also be noted that a detection point does not identify the number of sheep accompanying the collared individual (GLA 2013).

Because SNBS are gregarious, it can be inferred that a detection point generally indicates the location of more than one animal. GLA incorporated all SNBS location information obtained from CDFW for GIS analysis. CDFW also provided GLA with the most current information on SNBS lambing locations, and population and demography structure for the Wheeler Ridge Herd Unit.

In addition to the literature review, GLA conducted seven site visits (June 1 and 2, July 10 and 11, August 7, and September 24 and 25, 2012). GLA noted and mapped SNBS detected during the site visits.

Historically, SNBS have always occupied the Sierra Nevada mountain range, including the area encompassing the Wheeler Ridge Unit. However, SNBS were not detected within the Wheeler Ridge Unit prior to the first reintroduction of nine SNBS in 1979. Subsequent SNBS translocations into the Wheeler Ridge Unit included 10 sheep in 1980, four sheep in 1982, and four sheep in 1986. Since the last reintroduction of SNBS in 1986, the Wheeler Ridge Herd included 13 ewes in 1991. Since 2001, the Wheeler Ridge Unit is currently one of four units intended to serve as source population for reintroductions into other SNBS units.

Critical habitat for the SNBS was designated by the USFWS on August 5, 2008 and the proposed project is located within the Wheeler Ridge Unit, which is part of the Central Recovery Unit (**Figure 8**). Between 1999 and 2011, the SNBS population of this unit

has increased from just over 100 animals to approximately 400. Of the 12 Herd Units required for recovery (USFWS 2007), four units remain vacant as of 2011.

As of winter 2010-2011, the Wheeler Ridge and Mount Langley herd units combined account for approximately half of the total SNBS population of approximately 400 animals. The Wheeler Ridge herd unit reached peak size in 2007 and as of the winter of 2010-2011, its population is reported to have been experiencing a clear decrease over time. Multiple attempts to survey the Wheeler Ridge Unit were made by CDFW in the winter of 2011-12. As of April 14, 2012, CDFW estimated that the Wheeler Ridge population consists of a total of 81 animals, including 31 adult females, four yearling females, 15 lambs, 31 adult males, and five yearling males (GLA 2013).

The majority of detections within study area occurred in the spring (March, April, and May), and late fall (November). No detections occurred within the study during the summer months (June through September) (**Figure 9**).

Bats

Various bat species have been documented within the Sierra and Inyo-White Mountain ranges and have some potential to occur on site, including the Mexican free-tailed bat (*Tadarida brasiliensis*), pallid bat (*Antrozous pallidus*), Townsends's big-eared bat (*Corynorhinus townsendii*), spotted bat (*Euderma maculatum*), silver-haired bat (*Lasionycteris noctivagans*), hoary bat (*Lasiurus cinereus*), western pipistrelle (*Parastrellus hesperus*), big brown bat (*Eptesicus fuscus*), California myotis (*Myotis californica*), western small-footed myotis (*Myotis ciliolabrum*), long-eared myotis (*Myotis evotis*), little brown bat (*Myotis lucifugus*), long-legged myotis (*Myotis volans*), and Yuma myotis (*Myotis yumanensis*) (GLA 2013). None of these species are Federally or State listed, although several are designated as California Species of Special Concern. Others are given a medium to high priority by the Western Bat Working Group, but are not recognized by CDFW as sensitive. In general, bat habitats in the region include rock outcrops, crevices in cliff faces, caves, mines, trees, buildings, adits, bridges, etc.

Portions of the project study area contain suitable habitat for various bat species, particularly rocky outcrops and crevices in cliff faces adjacent to the site, as well as the two primary mine portals (the Main Portal and the Easy-Go Adit). Dr. Patricia Brown (Brown-Berry Biological Consulting) conducted four focused bat surveys within the two mine portals. Dr. Brown conducted both summer out-flight and winter bat surveys. Summer surveys were conducted on August 21, 2011 and June 1, 2012. Winter bat surveys were conducted on January 2, 2012 and February 16, 2012. All surveys were conducted by walking slowly from the entrances of the Main Portal and Easy-Go Adit to the existing concrete plug (approximately 2,500 feet into the mine). Bright lights were used to visually scan all areas determined to be suitable for hibernating bats, as well as the floor of the mine for bat signs such as guano. For the summer out-flight surveys, Anabat II acoustic ultrasound detectors were also used to identify bats. During both surveys, night vision (augmented by infrared lighting) was employed to detect bats entering and exiting the two portal entrances for 60 minutes after dusk. Bats were counted using finger tallies as they entered and exited from the portals (GLA 2013)

During the August 21, 2011 and June 1, 2012 summer out-flight surveys were conducted for the proposed project, echolocation signals of several bat species were recorded at the main portal and Easy-Go Adit, including those of big brown bat, Yuma myotis or California myotis, and little brown bat or long-legged myotis. Echolocation signals of spotted bat were also recorded in the yard adjacent to the portals. During the August 21, 2011 survey, four bats were observed exiting the mine and two were observed entering the mine. During the June 1, 2012 survey, a single bat was observed exiting the mine. It is likely that these resident bats are male bats roosting in a side drift of the mine, where ambient temperatures are higher than that of the major portals. The low number of resident bats detected suggests a very low potential for a maternity colony to occur within the mine.

During the January 2, 2012 and February 16, 2012 winter surveys at the proposed project, no bats were detected within the mine. It was also noted during 2012 winter surveys that temperatures within the mine were not cool enough to support hibernating bats. During the June 2, July 11, August 7, and September 24, 2012 surveys conducted within the mine, no bats or bat sign were observed. Dr. Brown's memoranda documenting the focused surveys are included within **Appendix D**.

Amphibians

Portions of the project study area contains potentially suitable habitat for special-status amphibians, including the Yosemite toad (*Bufo canorus*), Sierra Nevada yellow-legged frog (*Rana sierrae*), and the Mount Lyell salamander (*Hydromantes platycephalus*). GLA biologists conducted focused amphibian surveys during all site visits (June 1 and 2, July 10 and 11, August 7, and September 24 and 25, 2012).

I. Yosemite Toad

The Yosemite toad is designated as a Federal Candidate for listing as Endangered, and as a California Species of Special Concern. The Yosemite toad is endemic to California and occurs in the Sierra Nevada from the Blue Lakes region north of Ebbetts Pass (Alpine County) south to approximately 3.5 miles south of Kaiser Pass in the Evolution Lake/Darwin Canyon area (Fresno County). Its known elevational range extends from 6,400 feet (Aspen Valley, Tuolumne County) to 11,300 feet above mean sea level (AMSL) (Mount Dana, Tuolumne County).

The Yosemite toad is a high elevation endemic that generally occurs in high montane and subalpine associations in open montane meadows, although forest cover around meadows has also been reported. Suitable breeding sites generally occur along the found edges of meadows or slow, flowing runoff streams. Short emergent rushes (*Juncus* spp.) or sedges (*Carex* spp.) usually dominate such sites. Yosemite toads are generally never far from a permanent source of water, even though they spend most of their time on land. Yosemite toads overwinter in rodent burrows. Generally Yosemite toads prefer the burrows of Belding's ground squirrels (*Spermophilus beldingi*) and yellow-bellied marmots (*Marmota flaviventris*) most likely because their greater burrow depths most likely make such overwintering sites less susceptible to freezing. These

burrows are also probably used as temporary refuge sites during the summer season (GLA 2013).

II. Sierra Nevada Yellow-Legged Frog

The Sierra Nevada yellow-legged frog was designated by CDFW as a State Candidate for listing as Endangered or Threatened on September 21, 2010. Until recently, *R. sierrae* and the mountain yellow-legged frog (*R. muscosa*) were considered the same species. Historically, *R. sierrae* ranged from the Diamond Mountains northeast of the Sierra Nevada in Plumas County, California, south through the Sierra Nevada to the type locality, the southern-most locality (Inyo County). In the extreme northwest region of the Sierra Nevada, several populations occur just north of the Feather River, and to the east, there was a population on Mt Rose, northeast of Lake Tahoe in Washoe County, Nevada, but it is now extinct. West of the Sierra Nevada crest, the southern part of the *R. sierrae* range is bordered by ridges that divide the Middle and South Fork of the Kings River, ranging from Mather Pass to the Monarch Divide. East of the Sierra Nevada crest, *R. sierrae* occurs in the Glass Mountains just south of Mono Lake (Mono County) and along the east slope of the Sierra Nevada south to the type locality at Matlock Lake (Inyo County).

R. sierra inhabits lakes, ponds, meadow streams, isolated pools, and sunny riverbanks in the Sierra Nevada Mountains. Open stream and lake edges with a gentle slope up to a depth of 2-3 inches seem to be preferred. Waters that do not freeze to the bottom and which do not dry up are required. If a body of water used for breeding dries up for just one season, 3-4 generations of tadpoles would be destroyed (GLA 2013).

III. Mount Lyell Salamander

The Mount Lyell salamander is designated as a California Species of Special Concern (and is one of three recognized species in the genus *Hydromantes* from California). Mount Lyell salamanders are endemic to California and their range extends from the Smith Lake area (El Dorado County) to the Franklin Pass area (Tulare County) in the Sierra Nevada Mountains. An isolated population is present on the Sierra Buttes, Sierra County. Its known elevational range extends from approximately 4,100-11,900 feet AMSL.

Mount Lyell salamanders are largely restricted to alpine or subalpine vegetation associations, although scattered records of this species exist from somewhat lower elevations. Extensive outcrops of rock and scattered boulders are characteristic of the habitat of this species. Free surface water, such as a permanent stream, waterfall, seepage, or runoff from melting snow, is almost always present within a few meters, and usually within a few centimeters, of the sites where this species is present. This high elevation endemic is most frequently found beneath rocks on a moist-to-wet substrate of rock and soil on north and east slopes. Woody vegetation is typically sparse or absent altogether; but grasses, sedges, mosses, or lichens may be present (GLA 2013).

Amphibians Analysis

A review conducted by GLA staff of the CNDDDB, CDFW HML data, and other sources revealed no records of the Yosemite toad and Sierra Nevada yellow-legged frog within and immediately adjacent to the proposed project. A review of the CNDDDB and Fichtel (2004) show that the Mount Lyell salamander had been detected under rocks with damp soil along a tributary to Pine Creek, south of the proposed project within Pine Creek Canyon in 2002 and 2004. No amphibian species, including the Yosemite toad, Sierra Nevada yellow-legged frog, Mount Lyell salamander or any auran or salamander species were detected during the field investigations. GLA biologists also did not detect any egg masses or tadpoles.

The portions of Morgan Creek and Pine Creek within the project study area are not considered suitable habitat to support breeding amphibians. Both creeks have steep gradients, and the force of water flowing through the creeks generally does not provide for ponds and areas of slow-moving water to support breeding, including a stable environment to sustain egg masses. In addition, aquatic predation (including non-native fish) further inhibits the establishment of breeding populations. The perennially flowing portion of Morgan Creek occurs from the discharge point from the mine to the confluence with Pine Creek. The force of water in this portion of the creek does not support amphibian activity.

The area immediately above the confluence of Morgan Creek and Pine Creek does exhibit slower moving water during low precipitation months and drought periods and is vegetated with patches of wet meadow and emergent vegetation. This area would represent the best opportunity for amphibians, though no amphibians were detected within this area during focused surveys. Furthermore, the proposed project would not affect the area above the confluence of the creeks.

The man-made ponds located within the footprint of the mine property do not support vegetation to allow for the attachment of egg masses. Furthermore, no egg masses, tadpoles, or adult amphibians were detected in or around the ponds during the biological surveys (GLA 2013).

Aquatic

No fish or aquatic habitat exists within the mine where the proposed project would be located, or the existing water delivery system for the Discharge System Project. Morgan Creek flows intermittently upstream of the point where flows enter from the Discharge System Project; whereas, Pine Creek is a permanent stream in the project vicinity. Both creeks at the proposed project site consist of steep slopes and strong currents (GLA 2013)

Evaluation of Biological Resources

Question a): Less than Significant Impact.

Special Status Plants

Plant surveys and vegetation mapping were conducted on five separate dates by GLA biologists. No special status plants were detected during these surveys within the project study area. The proposed project is not expected to have any direct or indirect impact on native vegetation. Access to the site would occur via existing roads and other disturbed access points. Installation of the equipment would require a truck to haul the equipment on existing roads for the equipment to be placed on an existing railroad track. Daily modification of discharge rates is not expected to deprive water to downstream wetland/riparian resources. Therefore, the proposed project would have a **less than significant impact** on special status plant species.

Sierra Nevada Bighorn Sheep

The SNBS is considered an endangered species under the California Endangered Species Act. The proposed project is not expected to have a substantial adverse impact directly or indirectly on the SNBS. All construction would occur within the mine itself, which is not utilized by SNBS. A temporary increase in vehicle trips may occur to transport materials to the site, however, this increase would be minimal and is not expected to adversely affect SNBS. Several PCM personnel currently live on-site with their families. Some of the personnel would be involved with the installation of the proposed facilities and would be responsible for the long-term operation and maintenance of the new facilities. As such, an increase in human presence is not anticipated that would adversely impact SNBS. The proposed project would not introduce any new lighting. An increase in noise levels may occur during the installation of new facilities; however, this is not expected to significantly raise noise levels that would adversely affect SNBS. Due to the proximity of SNBS, construction activity has the potential to impact breeding. A FERC staff-recommended measure would require the proposed project to consult with CDFW and FWS to define a specific schedule for proposed construction to reduce impacts to SNBS:

To protect federally endangered Sierra Nevada bighorn sheep during the sensitive lambing period. In consultation with the California Department of Fish and Wildlife and the U.S. Fish and Wildlife Service, the licensee must select a mutually agreed upon time period when no construction would occur during the lambing period for Sierra Nevada bighorn sheep (on average, mid-April through July).

Construction may only occur during the time period upon mutual agreement among the licensee, the California Department of Fish and Wildlife, and the U.S. Fish and Wildlife Service. The licensee must provide the Commission documentation of mutual agreement with these agencies prior to commencing any construction during the selected time period.

(FERC 2018). With the implementation of the FERC staff-recommended measure, which is presumed to be a part of the proposed project, the proposed project would have a **less than significant impact** on the Sierra Nevada Bighorn Sheep.

Bats

The proposed project would not have any adverse direct or indirect impact on bats, including special-status bat species. Though a small number of bats were detected outside of the mine, or entering/exiting the mine, the low number of resident bats detected suggests a very low potential for a maternity colony to occur within the mine. Therefore, the proposed project would have a **less than significant impact** on special status bats.

Amphibians

The proposed project is not anticipated to have any adverse direct, indirect, or cumulative impacts on amphibians, including special-status species. Conditions observed within Pine Creek and Morgan Creek indicate a very low potential for amphibians to breed within the project study area. Furthermore, the proposed modification of discharge rates is not expected to adversely affect the hydrologic regime of Morgan Creek and Pine Creek. Mount Lyell salamander have been detected under rocks with damp soil along a tributary of Pine Creek in the past. As included in the project description, PCM, LLC would develop and implement an Initial Fill Plan that would document procedures to be followed during initial filling of the reservoir. The Initial Fill Plan would ensure a minimum outflow during the Easy-Go adit fill and consultation activities with relative agencies. If not properly mitigated, the proposed project could potentially impact the Mount Lyell salamander. With the development and implementation of the Initial Fill Plan, the proposed project would have a **less than significant impact** on special status amphibians.

Question b): Less than Significant Impact. PCM, LLC proposes to use a pressure sensor to ensure outflow from the proposed project approximates inflow to the reservoir, which would therefore approximate seasonal inflows into Morgan Creek. This component of operation is not expected to affect discharge rates into Morgan Creek in a manner that would deprive water to downstream riparian and wetland vegetation.

The initial filling of the subsurface reservoir would temporarily result in reduced outflows to Morgan Creek. The temporary reduction in flow releases from the proposed project for the filling of the reservoir would reduce available flows and associated generation at the Discharge System Project as well as downstream flows in Morgan and Pine Creeks. Conversely, should the proposed project need to drain the reservoir for maintenance purposes during the term of any license, flow releases from the proposed project would need to be increased, which would result in higher downstream flows in Morgan and Pine Creeks. The rates and magnitudes of these flow reductions and increases have the potential to impact downstream aquatic organisms. However, with the development and implementation of the Initial Fill Plan discussed above, the proposed project would have a **less than significant impact**.

Question c): Less than Significant Impact. As discussed above, the proposed project would not alter the timing and quality of the water discharged from the mine. However, the initial filling of the subsurface reservoir would temporarily result in reduced outflows to Morgan Creek. The preparation and implementation of the Initial Fill Plan discussed

above would reduce the potential temporary impact to federally protected wetlands to a **less than significant impact**.

Question d): Less Than Significant Impact. All construction would occur within the mine. A temporary increase in vehicle trips may occur to transport materials to the site, however, this increase would be minimal and is not expected to adversely impact the movement of native residents or wildlife species. Several PCM personnel currently live on-site. Some of the personnel would be involved with the installation of the proposed facilities and would be responsible for the long-term operation and maintenance of the new facilities. As such, an increase in human presence is not anticipated. Several structures exist on-site, which are connected to electricity and produce minimal amounts of light, the proposed project would not introduce any new lighting. An increase in noise levels may occur during the installation of new facilities; however, this is not expected to significantly raise noise levels that would adversely affect the movement of native residents, migratory fish or wildlife species. The proposed project is not anticipated to alter the flow or quality of the water discharged from the mine but would temporarily result in the reduced outflow of water to Morgan Creek during initial filling. The proposed project includes the development and implementation, in consultation with relevant agencies, of a water quality monitoring and protection plan. With the development and implementation of the water quality monitoring and protection plan, the proposed project would result in **less than significant impacts** to the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors.

Question e): No Impact. The proposed project would not conflict with any local policies or ordinances protecting biological resources. Therefore, the proposed project would have **no impact**, and no mitigation would be necessary.

Question f): No Impact. No Habitat Conservation Plan, Natural Community Conservation Plan, or other local, regional, or state habitat conservation plan has been approved for the project site or surrounding area. Therefore, **no impacts** to an existing adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan would occur, and no mitigation would be necessary.

V. CULTURAL RESOURCES

CULTURAL RESOURCES. Would the project:	Potential Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Disturb any human remains, including those interred outside of formal cemeteries?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Data Source/Methodology

The following analysis of Cultural Resources is based on a Cultural Resources Investigation prepared by JRP Historical Consulting and Davis-King Associates in 2014 (JRP and Davis-King 2014) which is included as **Appendix F**, Cultural Resources Inventory and Evaluation Report (JRP and Davis-King 2015) which is included as **Appendix G**, and Finding of Effect (No Adverse Effect) (JRP 2015) which is included as **Appendix H**.

Environmental Setting

The proposed project is situated along the Pine and Morgan creek canyons in northwestern Inyo County, northwest of Bishop, California. Three sides of the proposed project site border the John Muir Wilderness within the INF.

The proposed project is located in the Easy-Go adit. The proposed project would use surface lands owned by Bishop Tungsten Development, LLC and underground below federally owned lands with claimed subsurface property rights (mining claims). The proposed project would install a hydroelectric turbine within the adit, about 2,480 linear feet underground from the Easy-Go Service Utility Portal.

Groundwater discharge from within the mine currently flows within the adit and out of the mine through the adit portal and then into Morgan Creek. As proposed, the adit, 2,500 feet inside the mine, would be plugged in order to store water which would then be routed through the turbine for the generation of electricity. Electricity would be generated when the hydraulic head created behind the plug is released and directed to a new turbine to be installed at the plug, converting potential energy into mechanical

work. Aquifer and groundwater sources draining through the mine adit system generate a total sustainable discharge averaging approximately 10 cfs (JRP and Davis-King 2015).

In the event of accidental disturbance or discovery of previously unidentified cultural resources during construction, operation, or maintenance of the proposed project, PCM, LLC committed in its application that it “shall stop all land-disturbing activities in the vicinity of the resource”; shall consult with the California SHPO, USFS, and Native American tribes; and, if the cultural resource is determined to be eligible for listing on the National Register of Historic Places (NRHP), shall develop and file an appropriate historic properties management plan (HPMP) (PCM, LLC 2016b; FERC 2018).

Regulatory Framework Related to Cultural Resources

State and federal legislation requires the protection of historical and cultural resources. In 1971, President’s Executive Order No. 11593 required that all federal agencies initiate procedures to preserve and maintain cultural resources by nomination and inclusion on the NRHP. In 1980, the Governor’s Executive Order No. B-64-80 required that state agencies inventory all “significant historic and cultural sites, structures, and objects under their jurisdiction which are over 50 years of age and which may qualify for listing on the National Register of Historic Places.” Section 15064.5, subdivision (b)(1) of the CEQA Guidelines specifies that projects that cause “...physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of a historic resource would be materially impaired” shall be found to have a significant impact on the environment. When a project could impact a resource, it must be determined whether the resource is a historical resource, which is defined in section 15064.5, subdivision (a) of the CEQA Guidelines as including:

(1) A resource listed in, or determined to be eligible by the State Historical Resources Commission, for listing in the California Register of Historical Resources (Pub. Res. Code §5024.1, Title 14 CCR, Section 4850 et seq.).

(2) A resource included in a local register of historical resources, as defined in section 5020.1(k) of the Public Resources Code or identified as significant in an historical resource survey meeting the requirements section 5024.1(g) of the Public Resources Code, shall be presumed to be historically or culturally significant. Public agencies must treat any such resource as significant unless the preponderance of evidence demonstrates that it is not historically or culturally significant.

(3) Any object, building, structure, site, area, place, record, or manuscript which a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California may be considered to be an historical resource, provided the lead agency's determination is supported by substantial evidence in light of the whole record. Generally, a resource shall be considered by the lead agency to be “historically significant” if the resource

meets the criteria for listing on the California Register of Historical Resources (Pub. Res. Code, § 5024.1, Title 14 CCR, Section 4852) including the following:

(A) Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;

(B) Is associated with the lives of persons important in our past;

(C) Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or

(D) Has yielded, or may be likely to yield, information important in prehistory or history.

Cultural Background

This section is not intended to be a comprehensive review of the current resources available. Further details can be found in the Cultural Resources Investigation.

Northern Paiute

Northern Paiute people are a geographically large and culturally distinct group tied by language to other Paiute and other Numic speaking groups. The Northern Paiute occupied a territory that extended from the John Day River in the north, through eastern Oregon, western Nevada, and into east-central California, sharing the project area with the Owens Valley Paiute.

The project area is the location of at least two creation stories. During the consultation for this project, inquiries were made as to whether the Northern Paiute knew of these stories and where significant features to these stories might be located. Further, they were questioned as to whether they thought the proposed project might have any effect on significant features from the stories or the significance of any associated place, and those who responded said they did not believe the proposed project would affect anything related to the creation story (JRP and Davis-King 2014).

George Brown

George Brown, born about 1898, was a well-known Paiute in the project area. Native to Round Valley, he was very familiar with the Pine and Morgan creek areas and gained a reputation as a muleskinner hauling up the steep canyon. Before the roads were built up to the mines, it was the mules, because of their sure-footedness, that were used to transport mining supplies (including timber), food, camp supplies, and more. And it was Paiute George Brown who led those supply-packed mules up the steep canyon. In the early 1930s, George Brown started the Pine Creek Pack Outfit and guided people, supplies, and equipment up into Pine Creek and over Pine Pass into the high country. In 1937, Brown was contracted to haul equipment and supplies to build the Tungsten mine's power lines, among other arrangements with mining companies to haul.

His pack operations even included mail delivery in the winter. Other companies, including competing tungsten mines, the California Interstate Telephone Company, and the California Electric Power Company also depended upon George Brown for hauling. Brown established his Pine Creek Pack Outfit, familiarly known as Brown's Camp, located "at the end of Pine Creek road" that is in roughly the same location as is the Pine Creek Pack Station today. The Pine Creek Road (then perhaps called the Morgan Creek Road) was completed in the early 1940s, and George sold the pack station to Spray and Ernest Kinney in 1943 (JRP and Davis-King 2014).

Historic Background

The following discussion addresses the history of PCM in Inyo County, California from its founding to its closure, and places Pine Creek within the historic context of tungsten mining in the United States. The mine underwent several stages of development under different ownership. The existing structures of the mine including the Easy-Go Adit were primarily developed during and after World War II and are located at an elevation of 8,000 feet AMSL. The history of adits begins primarily in 1918 at the 11,300 foot AMSL (JRP and Davis-King 2014).

Early History of Tungsten and the Pine Creek Mine (1750s–1914)

Tungsten was not commercially useful until early in the 20th century. Tungsten has the highest melting point of any metal at 3,400 degrees Celsius and is resistant to corrosion by acids. It is part of the wolframite and scheelite mineral groups, which were twice independently discovered in 1758 and 1781, respectively. At that time, no practical uses were known. Commercial use of tungsten began in 1905, and it was primarily used in fireproofing cloth used as curtains or drapery, as a mordant in dyeing, and in silk manufacture to add weight to the fabric. By 1908 it was used more extensively, as industries developed complicated technical and scientific methods of working the metal. This led to production of ductile tungsten wire and use of tungsten in production of steel alloys to increase their hardness.

The Pine Creek deposits, located in the Sierra Nevada at an elevation of 11,400 feet AMSL, were first discovered by mineral surveyor M.B. Sherwin as a silver-lead deposit. However, the claim lapsed when the assay results were obtained.

World War I and Aftermath (1914-1923)

World War I generated a high demand for resources including tungsten. The price of tungsten climbed to unprecedented heights. At this time, the mines of Inyo County were becoming large producers of tungsten.

With high prices and demand for tungsten in 1916, Standard Tungsten Company and Tungsten Mines Company developed claims in the Tungsten Hills west of Bishop. These two companies erected several mills with daily capacities of 30, 50 and 300 tons each, built roads, brought power in from Bishop Creek, and established a permanent camp later called Brown's Camp. This development encouraged continued prospecting around Bishop. On April 22nd 1916, Billie Vaughn and Arch Beauregard relocated the claims at Pine Creek.

The mine operated at an elevation of 11,300 feet AMSL and was the highest operating mine in California. With the end of World War I and the import of cheaper Chinese concentrates, prices for US-produced tungsten fell, causing the market to collapse. Eventually all tungsten mines in the United States stopped production and shut down. The Pine Creek Tungsten Company went bankrupt in 1919 after processing only 4,371 tons of ore (JRP and Davis-King 2014).

The Great Depression (1924-1939)

Tungsten mines in China dominated the world market between 1919 and 1926. The Japanese invasion of China in 1937 led to fears that export of Chinese tungsten would end, which caused market prices to skyrocket and supplies to be scarce. In California the largest producer was Atolia Mining Company in San Bernardino County, which shipped 329 short tons of the 511 tons of tungsten concentrates from scheelite produced in the state. Nevada was the largest producer of any state at this time.

Tungsten Production During and After World War II (1939-1950)

The principal use of tungsten in 1940 was in manufacture of metal-cutting tools. Small quantities were needed for use in electric light and radio tube filaments, but the largest use, was for military purposes. Tungsten was used as a core in armor, bullets and other military equipment that relied on a strong exterior durability. Increased industrial activity caused by the beginning of World War II in Europe created a heavy demand for tungsten. Additionally, exports from China were diminished. The United States government began to stockpile tungsten concentrates. Federal law fixed the price and sale of tungsten during World War II, and the Bishop Tungsten area became as active as available manpower permitted.

The federal government cancelled contracts to purchase tungsten concentrates at the end of World War II, and the price of tungsten declined. In 1945, PCM did not produce any ore, but the Bureau of Mines noted that the chemical plant was operated part of January and from late July through December; therefore, production of concentrates was only half that in 1944 (JRP and Davis-King 2014).

Korean War and Government Stockpile Program (1950–1958)

The hostilities in Korea, as with previous wars, substantially increased demand for tungsten. Pine Creek increased operations by 70 percent in 1949 producing and processing ore from its own mine and handling materials from other mines or sources. In 1950, PCM was the top producer of tungsten in the United States. The 1,000-ton mill and chemical plant, built in 1942, produced copper concentrates, molybdenum concentrate, a second molybdenum product, and a tungsten product using floatation and chemical treatments (JRP and Davis-King 2014).

By May of 1951, efforts at Pine Creek to increase production included enlarging adits, mining upper workings, and expanding the mill and chemical plant capacities. A separate crushing, conveying, and sampling plant were constructed at the Pine Creek mill site to process ores purchased from other mines. U.S. Vanadium expanded its

hiring to support increased production activities. Some of the employees were members of the Paiute and Shoshone tribes that lived in the local area.

The recruitment program doubled the number of employees and created a housing shortage. The company built more houses at Rovana and Scheelite villages to accommodate new employees. Rovana Village was located near the mouth of Pine Creek at 5,000 feet AMSL; Scheelite Village was located near the mill. An avalanche in March of 1952 destroyed several houses in the Morgan Creek area, tore out a power substation and terminal for the aerial tramway, and crashed into the mill. Operations at the mine stopped for only a month while everything was repaired.

The best production year for tungsten in the U.S. was 1955, but in June of 1956, the federal government reached its stockpile goals and ended its buying program in December of that year. PCM was the only mine operating in the Bishop area at the end of 1957.

Vietnam War (1958–1975)

Tungsten production and demand continued to fall through 1959, and only two mines produced tungsten in the United States in 1958 and 1959 - PCM in California and Climax Molybdenum Mine in Colorado. The tungsten market began to recover in 1960, largely because of the United States involvement in the Vietnam War. Asian imports declined and production in the United States accounted for 70 percent of domestic consumption (JRP and Davis-King 2014).

The Decline and Closure of the Mine (1975–1990)

With a new process for creating marketable tungsten products out of low-grade concentrates and completion of the Easy-Go adit, the decade of the 1970s started on a golden note. However, by 1975, the future did not look so promising. The company tried to locate additional ore bodies in 1977 and 1983 but was unsuccessful.

In the 1980s, China returned to producing tungsten and flooded the market with ore. Additionally, demand for carbide bits went down, because exploration subsided in the oil and mining businesses. These factors led to the collapse of the tungsten market. Decreases in ore grades coupled with an increase in operational costs and the market collapse eventually caused the closure of Pine Creek. Union Carbide closed the mine in 1982 and sold its mining assets in 1986 to several former executives. The new owners formed Strategic Minerals Corporation (Stratcor). Stratcor later became U.S. Tungsten Corporation, and reopened PCM for a final time in 1988. However, mining operations ceased in 1990 because of a depressed market. The mill continued to process stockpiled ore until it closed in 1994 (JRP and Davis-King 2014).

Area of Potential Effects

JRP established the architectural Area of Potential Effect (APE) for the proposed project. The APE includes the surface indications of the mining property that may be potentially affected by direct or indirect elements of the proposed project. The APE

encompasses the original mine site located at an elevation of 11,300 feet AMSL; the mining village and original mill site near Morgan Lake; the switch back road and remains of the aerial tramway; Zero Portal, Easy-Go Adit; Mill Site; and tailing piles east of the main entrance. The State Historic Preservation Officer concurred with the APE.

Record Searches and Survey Results

This section describes the background research conducted for the proposed project. The results are based on a record search conducted at the Eastern Information Center on October 31, 2013 and pedestrian field surveys conducted on October 19, 2013 and July of 2014. This section assesses potential impacts related to historic resources, archaeological resources, and human remains.

Eastern Information Center Record Search

To determine the presence of cultural and historical resources within the project area and a 0.25-mile radius, a record search was conducted at the Eastern Information Center on October 13, 2013. The record search included a review of Historic Property Data File (California Office of Historic Preservation [COHP] 1990); COHP Historic Properties Data File computer list, no date provided; the Archaeological Determinations of Eligibility list (again no date provided); and the NRHP (NRHP; OHP 1990 and updates). No cultural or historic properties were listed in any of these documents in the project area.

The record search indicated that four cultural resources studies have been previously conducted within the project search radius. One of the surveys, by Werner (1986), covered the entire mine area including the road that lead to the upper levels of the mine in Morgan Creek canyon. Werner's findings presented no cultural resources found within the project search radius. Three other surveys also indicated that cultural resources were not found in cultural resources investigations related to the Pine Creek Trail maintenance project for a borrow pit, and for a small water project at the PCM Pack Station. Additionally, for Pine Creek Development LLC, Manske and Larson (2009) recorded the former Tungsten Mill, prior to its demolition by an avalanche.

Historic maps provided by the Eastern Information Center record search were reviewed. The United States Geological Survey (USGS) Mt. Goddard 30-minute map, published in 1945, does not note any development of the mining operations in the project area at all, but the road along Pine Creek to its confluence with Gable Creek is depicted.

In addition to the EIC search, the California Register of Historical Resources (CRHR), the California Inventory of Historical Resources (1976), the California Historical Landmarks (1996), and the California Points of Historical Interest (1992) listings were reviewed, with negative results for the project area.

Review of Forest heritage files would normally be conducted, but due to "government shutdown" in October 2013, review of files was not possible. The Forest database was subsequently checked by Forest Heritage Program Manager Beidl. Additional records

beyond those discussed in this record search summary were not found (JRP and Davis-King 2014).

Archaeological Survey and Results

On October 19, 2013, archaeologists conducted a pedestrian survey of the two substations and Easy-Go Adit Service Utility Portal area. A second archaeological survey was conducted in July of 2014 of an even larger area encompassing approximately 22 acres, which included all mining building, structures and constructed ponds to address concerns raised by USFS that the project might affect a larger area.

The PCM substation has a gravel base, fully covering the ground surface, while more than 95 percent of the SCE substation sits on a concrete foundation. Both substations are fully contained within chain-link fencing. Access to the SCE substation was not possible, but due to the concrete foundation, was not necessary. The areas around each substation were investigated for artifacts and/or cultural deposits, but in neither case were any observed. Similarly, the Easy-Go Adit area was devoid of artifacts or archaeological deposits. The project survey areas have been part of tungsten mining operations since the 1930s and have been repeatedly altered by mining activities. Original ground surface has been bladed and bulldozed and old mill tailings have been used as road base, for platform construction, and so forth. For the most part, all archaeology has been compromised by the mechanical mining activities and perhaps by the avalanche that destroyed the mill. No native terrain was observed, and no archaeological deposits are evident. Other areas of the PCM were more informally examined when various tours and site visits occurred, and again, no artifacts or archaeological deposits were observed (JRP and Davis-King 2015).

National Register of Historic Places and California Register of Historic Resources

A Finding of Effect report was completed by JRP in 2015 (Appendix H), which was based off of the Cultural Resources Inventory and Evaluation Report for PCM Hydroelectric Project, Inyo County, California (Appendix G) (JRP and Davis-King & Associates 2015). The report concludes that PCM had the potential to be considered significant under NRHP Criteria A and B, and CRHR Criteria 1 and 2, however, the complex lacked sufficient integrity to portray its significance under these criteria. Additionally, Building No. 12, the Metals Lab, is the only remaining building importantly associated with the mine's significance. This building is individually eligible for listing in the NRHP under Criteria A and B and the CRHR under Criteria 1 and 2 and retains sufficient integrity to its period of significance. JRP, in consultation with PCM, developed the architectural APE for this proposed project based on the boundaries of that previous work. This document applies the Criteria of Effect and Adverse Effect (36 C.F.R. § 800.5 et seq.) to the historic resources potentially affected by the project and finds that the proposed project would not result in direct or indirect adverse effects to the historic resource (JRP 2015).

Evaluation of Cultural Resources

Question a): Less than Significant. The proposed project site has been utilized for mining since 1916, and remnant buildings and structures utilized for previous mining activities still exist. The proposed project would not introduce new buildings or other facilities and modifications to existing buildings are not proposed. Manufacturing of all new generating facilities and pre-assembly would occur off site and would be trucked to the project location. As discussed above, the APE of the proposed project contains one building that is individually eligible for listing in the NRHP under Criteria A and B and the CRHP under Criteria 1 and 2. The identified building is outside the proposed project APE and FERC boundary. A Finding of Effect report prepared by JRP found that the proposed project would not result in direct or indirect adverse effects to the historic resource (JRP 2015). The impact would be **less than significant**.

Question b): Less than Significant Impact. Based on an archaeological survey conducted on-site and a records search, no archaeological deposits are evident on site. The impact would be **less than significant**.

Question c): Less than Significant. No human remains are known to exist within the project area nor were there any indications of human remains found during the field survey. If human remains are discovered as part of the proposed project, state law requires and specifies appropriate response and notification. The impact would be **less than significant**.

VI. ENERGY

Energy. Would the project:	Potential Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy, or wasteful use of energy resources, during project construction or operation	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Data Source/Methodology

The following analysis of Energy is based on emissions modeling prepared by HELIX in 2019 (HELIX 2019). Emissions from the proposed project were estimated using the latest California Emissions Estimator Model (CalEEMod 2016.3.2). The emissions modeling can be found in **Appendix C**.

Environmental Setting

This section provides an evaluation of existing energy production/consumption conditions, as well as potential energy use and related impacts from the proposed project. The following discussion is consistent with and fulfills the intent of section 15126.2 and Appendix F (Energy Conservation), from the CEQA Guidelines.

The unit of energy used in this section are the British thermal units (BTU), kilowatt hours (kWh), and megawatt hours (MWh). A BTU is the quantity of heat required to raise the temperature of one pound of water one-degree Fahrenheit (°F) at sea level. Because the other units of energy can all be converted into equivalent BTU, the BTU is used as the basis for comparing energy consumption associated with different resources. A kWh is a unit of electrical energy, and one kWh is equivalent to approximately 3,413 BTU, considering initial conversion losses (i.e., from one type of energy, such as chemical, to another type of energy, such as mechanical) and transmission losses. 1,000 kWh are equivalent to one MWh. Natural gas consumption is described typically in terms of cubic feet or therms; one cubic foot of natural gas is equivalent to approximately 1,050 BTU, and one therm represents 100,000 BTU.

California Energy Overview

Electricity

California's electricity needs are satisfied by a variety of entities, including investor-owned utilities, publicly owned utilities, electric service providers and community choice aggregators. In 2017, the California power mix totaled 292,039 gigawatt hours. In-state generation accounted for 206,336 gigawatt hours, or 71 percent, of the state's power mix. The remaining electricity came from out-of-state imports (CEC 2018). **Table 9** provides a summary of California's electricity sources as of 2017.

Table 9: California Electricity Sources 2017

Fuel Type	Percent of California Power (%)
Coal	4.13
Large Hydro	14.72
Natural Gas	33.67
Nuclear	9.08
Oil	0.01
Other (Petroleum Coke/Waste Heat)	0.14
Renewables	29

Source: CEC 2018.

Natural Gas

Natural gas provides the largest portion of the total in-state capacity and electricity generation in California, with nearly 50 percent of the natural gas burned in California used for electricity generation in 2017. Much of the remainder was consumed in the residential, industrial, and commercial sectors for uses such as cooking, space heating, and as an alternative transportation fuel. In 2012, total natural gas demand in California for industrial, residential, commercial, and electric power generation was 2,313 billion cubic feet per year, up from 2,196 billion cubic feet per year in 2010 (CEC 2017a).

Transportation Fuels

Transportation accounts for a major portion of California's energy budget. Automobiles and trucks consume gasoline and diesel fuel, which are nonrenewable energy products derived from crude oil. Gasoline is the most used transportation fuel in California, with 97 percent of all gasoline being consumed by light-duty cars, pickup trucks, and sport utility vehicles. In 2015, 15.1 billion gallons of gasoline were sold in California (CEC 2017b). Diesel fuel is the second most consumed fuel in California, used by heavy-duty trucks, delivery vehicles, buses, trains, ships, boats, and farm and construction equipment. In 2015, 4.2 billion gallons of diesel were sold in California (CEC 2017c).

Regulatory Framework

Federal Regulations

Energy Independence and Security Act of 2007

House of Representatives Bill 6, the federal Energy Independence and Security Act of 2007, established new standards for a few equipment types not already subjected to a standard, and updated some existing standards. Perhaps the most substantial new standard that HR 6 established is for general service lighting that is being deployed in two phases. First, phased in between 2012 through 2014, common light bulbs were required to use about 20 to 30 percent less energy than previous incandescent bulbs. Second, by 2020, light bulbs must consume 60 percent less energy than today's bulbs; this requirement will effectively phase out the incandescent light bulb.

Energy Improvement and Extension Act of 2007

The formerly entitled "Renewable Energy and Job Creation Act of 2008," or Division B of House of Representatives 1424, was signed into law by President Bush in October 2008. The signed bill contains \$18 billion in incentives for clean and renewable energy technologies, as well as for energy efficiency improvements.

American Recovery and Reinvestment Act of 2009

In February of 2009, President Obama signed Public Law 111-5 (123 Stat. 115), the American Recovery and Reinvestment Act of 2009, an economic stimulus package totaling over \$800 billion in response to the Great Recession. According to the Department of Energy, more than \$31 billion appropriated under the Act were invested "to support a wide range of clean energy projects across the nation -- from investing in the smart grid and developing alternative fuel vehicles to helping homeowners and businesses reduce their energy costs with energy efficiency upgrades and deploying carbon capture and storage technologies."

State Regulations

California Renewables Portfolio Standard

California's Renewables Portfolio Standard (RPS) requires any retail seller of electricity in the state to provide 33% of its electricity from renewable resources by 2020, 40% by 2024, 52% by 2027, and 60% by 2030. California has established a state policy for both itself and all electricity retail sellers to procure 100% from renewable energy or zero-carbon resources by 2045.

Senate Bill 1078 (Stats. 2002, ch. 516), enacted in 2002, established California's RPS program. This program requires that a retail seller of electricity, including electrical corporations, community choice aggregators, and electric service providers, purchase a specified minimum percentage of electricity generated by "eligible renewable energy resources," in any given year as a specified percentage of total kilowatt hours sold to

retail end-use customers. Senate Bill 1078 required that the amount of electricity generated per year from eligible renewable energy resources be 20 percent of the total electricity generated per year by December 31, 2017.

Senate Bill 107 (Stats. 2006, ch. 464), accelerated the RPS timeline and instead required that the amount of electricity generated per year from eligible renewable energy resources be at least 20 percent of the total electricity sold by December 31, 2010.

In 2011 Senate Bill 2 (Stats. 2011, 1st Ex. Sess. 2011, ch. 1) amended the statutes governing the RPS program and requires that each retail seller of electricity procure 33 percent of retail sales from eligible renewable energy resources by December 31, 2020, and procure not less than 33 percent of retail sales in all subsequent years.

Senate Bill 350 (Stats. 2015, ch. 547) required retail sellers and publicly owned utilities to procure 50 percent of their electricity from eligible renewable resources by December 31, 2030. In order to ensure that the state meets these ambitious goals, the law also requires large utilities to develop and submit Integrated Resource Plans (IRPs) that outline how they will meet GHG emissions targets and RPS requirements. Other provisions in the law provide for transforming the California Independent System Operator to support a regional energy market that extends beyond California, authorizing utilities to implement transportation, electrification, and undertaking assessments of the barriers to low-income communities in adopting distributed generation technologies, energy efficiency and weatherization investments, and zero emission transportation options.

Senate Bill 100 (Stats. 2018, ch. 312) has again amended the RPS program to require procurement of at least 60 percent of retail sales from eligible renewable energy resources by December 31, 2030. Senate Bill 100 also established the state policy that 100 percent of all electricity retail sales and state electricity procurement be from renewable energy or zero-carbon resources by December 31, 2045.

Under the RPS certification standards established by the California Energy Commission, a small or conduit hydroelectric facility with a capacity of less than 30 MW is an eligible renewable energy resource (CEC 2017d). An applicant for RPS certification for a small or conduit hydroelectric facility commencing on or after January 1, 2006, must provide certain water use data and documentation to the Energy Commission, and must demonstrate to the Energy Commission that the facility does not and will not cause an adverse impact on instream beneficial uses or a change the timing or volume of streamflow. (*Id.* Pub. Util. Code, § 399.12, subd. (e)(1).)

Local Regulations

2015 Inyo County Regional Transportation Plan

The 2015 Inyo County Regional Transportation Plan was developed by the Inyo County Transportation Commission to document the transportation policy and improvement needs that will meet the short- and long-term access and mobility needs of Inyo County

residents over the next years. The plan is designed to guide the systematic development of a comprehensive multi-modal, efficient, and effective transportation system for Inyo County that will help reduce unnecessary energy consumption.

2015 Renewable Energy General Plan Amendment

The County adopted General Plan amendments specific to renewable energy solar facility development. The County encourages small-scale and community-scale photovoltaic solar facilities in particular (Policy MER-2.1) but also allows commercial-scale and utility-scale photovoltaic solar facilities, with caps on energy production capacity and acreage, within specified Solar Energy Development Areas or along the Los Angeles Aqueduct (Policies MER-2.2, -2.3, & -2.9). The County does not support solar development that does not utilize photovoltaic technologies, and the County does not support “new transmission in or through Inyo County” beyond the energy production capacity cap that the County has placed on photovoltaic solar development (Policy LU-1.20 & -1.21).

Energy Efficiency General Plan Amendment

The County “recognizes the costs associated with inefficient energy use and encourages energy efficiency as a way to save money and resources.” Specifically, the County set a goal to take cost-effective measures to reduce the energy usage of its own facilities and activities, with an initial target of 3.34% reduction per year (Goals EE 1.1 - 1.3). As part of its goal to promote energy efficiency throughout the county, the County also set the goal to consider adopting incentive programs and recognition programs for new construction, remodels, and additions (Goals EE 1.4 – 1.7).

Energy Analysis

The proposed project construction would include vehicle trips to the site to deliver equipment for the proposed facility and the operation of a portable crane to set the equipment onto an existing railroad track. Construction would occur over approximately 6 weeks and would generate approximately 9 MT CO₂e over the total duration of construction activity (HELIX 2019). PCM, LLC estimates one to two vehicle trips per week for proposed project operation and maintenance. The proposed project’s hydroelectric generator would be capable of generating up to 13,140 MWh of electricity per year if run at full capacity, with an estimated annual average generation of 5,600 MWh. This would provide the local utility or wholesale grid with additional renewable energy far exceeding the proposed project’s total life-cycle energy consumption. This new source of renewable energy could result in the maximum offset of approximately 4,202 metric tons of carbon dioxide equivalents (MT CO₂e) per year (HELIX 2019).

Evaluation of Energy

Question a): Less than Significant Impact. The proposed project would involve the development of renewable electricity in the form of hydropower to produce approximately 1.5 MW per hour of operation. The power generated would be sold to a

local utility or wholesale grid to redistribute to electricity customers. The energy that would be required to construct the proposed project would be minor and short-term. Proposed project construction would include vehicle trips to the site to deliver equipment for the proposed facility and the operation of a portable crane to set the equipment onto an existing railroad track. Energy would not be required during operation as the generator would be powered by the existing groundwater draining from the underground mine workings. Other operation and maintenance activities for the proposed project are also anticipated to be insignificant compared to existing conditions. The proposed hydroelectric generator would be capable of generating up to 13,140 MWh of electricity per year if run at full capacity. This new source of renewable energy could result in the maximum offset approximately 4,202 MT CO_{2e} per year. Even if generating only the estimated average 5,600 MWh of electricity per year, the proposed project would not result in the wasteful, inefficient, or unnecessary consumption of energy or energy resources, and would result in significant net generation of renewable energy to meet utilities' and their customers' demand. The proposed project would have **a less than significant impact**, and no mitigation would be necessary.

Question b): No Impact. The proposed project would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency. The proposed project could produce up to 13,140 MWh and offset up to 4,202 MT CO_{2e} per year. Even underestimated average annual generation, the proposed project would be consistent with all applicable state and local plans for renewable energy or energy efficiency. The proposed project would therefore have **no impact**, and no mitigation would be necessary.

VII. GEOLOGY AND SOILS

GEOLOGY AND SOILS. Would the project:	Potential Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
ii. Strong seismic ground shaking?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iii. Seismic-related ground failure, including liquefaction?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
iv. Landslides?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Result in substantial soil erosion or the loss of topsoil?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

GEOLOGY AND SOILS. Would the project:	Potential Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Data Source/Methodology

The following analysis of Geology and Soils is based on the Seismic and Geotechnical Study completed by registered professional geologists and a registered professional engineer from Sierra Geotechnical Services Inc (SGSI) in December of 2011 (SGSI 2011), SGSI’s response to FERC comments (SGSI 2015), SGSI’s Review of the Conditions at the Easy-Go Adit Plug in 2019 (SGSI 2019; **Appendix I**), and a Custom Soil Resource Report (NRCS 2018).

Environmental Setting

The proposed project would be located entirely within portions of the existing PCM. The project’s reservoir would be contained within voids created during historical mining operations. Water within the reservoir would be retained by the existing concrete plug constructed in the Easy-Go Adit, which is located below the reservoir. The 30-foot-thick plug was affixed to the diorite (granite) walls of the adit. The plug has three pipes traversing through it, one of which would be used to provide water to the project’s 30-foot penstock (SGSI 2011).

One of the reasons for the Seismic and Geotechnical Study was to analyze the existing concrete plug in the Easy-Go Adit. As proposed, the proposed project would utilize the plug to store up to 200-acre feet of groundwater, which would in effect create a gross head of up to 1,320 feet for power generation. Based on analysis and inspections performed by SGSI, the plug is sufficiently constructed for the proposed project and can withstand increased shear and wedging pressures from both static and seismically effected (dynamic) water forces (SGSI 2011). The plug was inspected again in 2019 by SGSI. SGSI determined that the tunnel plug was substantially in the same condition as when the original study was prepared, therefore, the conclusions and recommendations included in the 2013 report and letter remain applicable (SGSI 2019).

In the event of accidental disturbance or discovery of a previously unidentified cultural resources, which may include a unique paleontological resource or geological feature, during construction, operation, or maintenance of the proposed project, PCM, LLC committed in its application that it “shall stop all land-disturbing activities in the vicinity of the resource”; shall consult with the California SHPO, USFS, and Native American tribes; and, if the cultural resource is determined to be eligible for listing on the NRHP, shall develop and file an appropriate HPMP (PCM, LLC 2016b; FERC 2018).

Geology

The project site is located along the base of the Sierra Nevada eastern escarpment near the western edge of Owens Valley. The escarpment serves as the boundary between the Great Basin and Sierra Nevada geologic provinces. The Sierra Nevada province is a north-northwesterly trending, asymmetric, tilted fault-block. Predominant basement rock types of the Sierra Nevada include Cretaceous granitic with associated Paleozoic roof pendant rocks.

More specifically, the site is located at the western boundary of the Excelsior-Coaldale section of the Walker Lane Belt. The Walker Lane Belt is approximately 700 kilometers (km) long and 100 to 300 km wide and is characterized by Quaternary faults extending from the Garlock fault northward into northeastern California.

The Pine Creek Mine is located at the northwest end of the Pine Creek roof pendant in a contact zone between metamorphosed limestone and intrusive granite. The pendant is a raft of metasedimentary and metavolcanic rock intruded by Sierra granitoids. It is almost 7 miles and 1 mile wide, extending from Mt. Tom to the Wheeler Crest. The southern one-third is mostly unmineralized metavolcanic rock. The northern two-thirds is metasedimentary rock divisible into three distinct units. The oldest unit is composed of pelitic hornfels, micaceous quartzite, and vitreous quartzite. The next youngest is light gray marble, which in turn is overlain by a unit of micaceous quartzite. They are folded into a tight syncline, whose limbs are nearly vertical at the north end and shallow to the south. The rocks have been correlated with those in the Mt. Morrison pendant to the north, which have been dated by fossils as Pennsylvanian and Permian (SGSI 2011).

The pendant is in contact with three granitic intrusives. The two most important are the Tungsten Hills quartz monzonite, dated as Triassic (Bateman, 1978) and the Wheeler Crest quartz monzonite, 96 m.y. (Kistler and others, 1965). Most of the tungsten mineralization in the Bishop District is thought to be related to the Tungsten Hills quartz monzonite because of its close association to the Pine Creek ore body and numerous other tungsten deposits (Bateman, 1965). An older body of quartz diorite has little or no associated tungsten mineralization. The Pine Creek ore deposit occurs along the western margin of the pendant, at the northernmost contact between the marble unit and the Tungsten Hills quartz monzonite. It is a contact metasomatic deposit of a scheelite-bearing garnet-pyroxene rock called tactite. The scheelite usually occurs in the tactite as disseminated crystals. Tactite occurs only along the northernmost area of the contact between the quartz monzonite and the marble (SGSI 2011).

Based on research conducted by SGSI, the site is not located within any "Earthquake Fault Zones" or Alquist-Priolo Hazard Zones. Recent faulting (surface rupture less than 11,000 years ago) and historic faults (surface rupture less than 200 years ago) are located regionally near the site. Regional faults in this report are considered to be those faults within a 62-mile radius of the site. At least 14 major active fault zones are located within this radius with the Round Valley fault being the closest at approximately 4.3 miles from the site (SGSI 2011).

Soils

Soils on the project site are mapped as Rock-Outcrop-Rubble land complex and Rock outcrop-Lithic Cryothents-Nanamkin family association soils. Site elevations range from approximately 8,100 feet to 7,850 feet above mean sea level (MSL). The Rock outcrop-Rubble land complex consists of primarily rock outcroppings and rubble land with slopes between 30 to 80 percent. The Rock outcrop-Lithic Cryothents-Nanamkin family association soils consist primarily of rock outcrops, Lithic cryothents, Nanamkin family and similar soils on slopes of 15 to 60 percent (NRCS 2018).

County Regulation of Geology and Soils

Inyo County regulates the effects of soils and geological constraints on development primarily through enforcement of the California Building Code, which requires the implementation of engineering solutions for constraints to urban development posed by slopes, soils, and geology.

Evaluation of Geology and Soils

Question a)i.: No Impact. Faulting and associated ground rupture are not a concern because the project site is not located within any “Earthquake Fault Zones” or Alquist-Priolo Hazard Zones. Additionally, during the 2011 and 2019 field visit conducted by SGSI, no evidence of faulting at the plug site was found (SGSI 2011). The proposed project would not introduce any building or structure on-site or modify any existing building on-site. Due to the nature of the project and the fact that no faults underlie the project site, the proposed project would have **no impact**, and no mitigation would be necessary.

Question a)ii.: Less than Significant Impact. Strong seismic ground shaking is not a concern as the site is not located within any “Earthquake Fault Zones” or Alquist-Priolo Hazard Zones. As discussed above, SGSI visited the site in 2011 and 2019 and found no evidence of faulting that could lead to strong seismic ground shaking. The existing concrete bulkhead was designed by James Thompson Civil Engineer and Andrew Nasser Structural Engineer in 2002 to withstand a pressure force of 866 psi against sliding, which is equivalent of approximately 2,000 feet of impounded water. SGSI calculated additional pressures from sediment accumulation which show that an accumulation of sediment to 15' x 15' x 100' behind the bulkhead would impose a pressure force of roughly 35 psi or an added 4.0% of design limit. If sediment were to accumulate to roughly this assumed theoretical value while water was fully impounded to the maximum recorded level, the maximum pressure force exerted on the bulkhead would be approximately 563 psi or 65% of the design value (SGSI 2006). Therefore, the designed plug and associated bulkhead would be safely able to store up to 200 acre-feet of groundwater through strong seismic ground shaking events. The proposed project would have a **less than significant** impact, and no mitigation would be necessary.

Question a)iii.: No Impact. Liquefaction is a process by which water-saturated materials, such as soil and sediment, lose strength and fail during strong ground shaking. Liquefaction occurs when granular material is transformed from a solid state into a liquefied state as a consequence of increased water pressure. Liquefaction is most commonly induced by strong ground shaking associated with earthquakes.

Factors that contribute to liquefaction potential include soil type, the level and duration of seismic ground motions, the type and consistency of soils, and the depth to groundwater. Liquefaction can occur where unconsolidated sediments and a high-water table coincide. Loose sands and peat deposits are susceptible to liquefaction, while clayey silts, silty clays, and clays deposited in freshwater environments are generally stable under the influence of seismic ground shaking. The potential for liquefaction to occur is considered non-existent given the lack of a water table and lack of soils on-site (SGSI 2011). Therefore, the proposed project would have **no impact**, and no mitigation would be necessary.

Question a)iv.: Less than Significant Impact. An earthquake in the area could potentially generate a landslide, but a failure of the plug would not generate the same. Result of a plug failure would result in a debris flow. Further, based on its location, any landslide would have no impact on the plug. SGSI found the probability of an instantaneous and complete failure of the tunnel plug to be very low. The plug was engineered to withstand a design level earthquake event. The plug location was chosen because of the quality of the rock mass, which is monolithic, impermeable and has little to no jointing and fracturing. The plug is capable of withstanding a pressure force of 867 psi (SGSI 2015). Impound test data from 2003 showed water levels reached a maximum recorded height of approximately 1,219 feet of head (528 psi, 250 acre feet), which is approximately 281 feet below the maximum impoundment height where water can exit to daylight from the adit 1,500 feet above the bulkhead. The pressure force will not exceed the design parameters (SGSI 2015). The proposed project would not introduce any new structures or modification to structures. Several PCM personnel currently live on-site with their families. Some of the personnel would be involved with the installation of the proposed facilities and would be responsible for the long-term operation and maintenance of the new facilities. As such, an increase in human presence is not anticipated. Therefore, the proposed project would not create any new threat to landslide potential, the proposed project would have a **less than significant impact**, and no mitigation would be necessary.

Question b): No Impact. The proposed project would not involve the construction or modification of any buildings. The proposed project would not alter the flow or quantity of water discharge from the adit. Sediment and erosion would not increase as the water flow once impounded would be equal to or less than the present flow, which does not currently produce any significant sediment or erosion. The proposed project would not result in any additional soil erosion or the loss of topsoil and therefore the proposed project would have **no impact**, and no mitigation would be necessary.

Question c): Less than Significant Impact. The project is located in an area with solid rock. The mine is located at the northwest end of the Pine Creek roof pendant in a

contact zone between metamorphosed limestone and intrusive granite. The pendant is a raft of metasedimentary and metavolcanic rock intruded by Sierran granitoids. All of the workings are within a hard rock mine. Rock cover directly over the plug area is estimated at 625' (100' of decomposed/soil, and 525' of rock). The geologic log sheets indicate that the plug is anchored in quartz diorite (granite) along a solid part of the adit. The nearest zone of unstable rock is approximately 470' upstream from the plug in an area denoted as "timbered" (SGSI 2011). The equipment that the proposed project would introduce would all be located within the area described above as solid and stable rock, which would not be impacted by the addition of the proposed generator. The nearest zone of unstable rock labeled as timberland above would not be altered or impacted by the construction of the proposed project. Therefore, impacts related to unstable soils would be **less than significant**.

Question d): Less than Significant Impact. Expansive soils shrink and swell in response to changes in moisture levels. The changes in soil volumes can result in damage to structures including building foundations, and infrastructure, if the project design does not appropriately accommodate the changing soil conditions. The proposed project would not include the construction of building or structures. Additionally, the lack of a water table and soils on-site eliminate the threat of expansive soil. Therefore, impacts related to the potential hazards of construction on expansive soils would be **less than significant**, and no mitigation would be necessary.

Question e): No Impact. The proposed project would not introduce any septic tanks or alternative wastewater disposal systems. Therefore, the proposed project would have **no impact** and no mitigation would be necessary.

Question f): Less than Significant Impact. The proposed project area is not located in an area that is considered likely to have paleontological resources present. Paleontological resources (fossils) are the remains and/or traces of prehistoric life. Fossils are typically preserved in layered sedimentary rocks, and the distribution of fossils is a result of the sedimentary history of the geologic units within which they occur. The proposed project area is also not located in an area that is considered likely to have other unique geologic features, and no such features were identified during site investigation and research. In addition to adhering to applicable state and federal laws, PCM, LLC has agreed as part of the proposed project description and application to take appropriate measures in the event of accidental disturbance or discovery of a previously unidentified cultural resources, which may include a unique paleontological resource or geological features. The impact would be **less than significant**.

VIII. GREENHOUSE GAS EMISSIONS

GREENHOUSE GAS EMISSIONS. Would the project:	Potential Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Data Source/Methodology

The following analysis of greenhouse gases is based on emissions modeling prepared by HELIX in 2019 (HELIX 2019). Emissions from the proposed project were estimated using the latest California Emissions Estimator Model (CalEEMod 2016.3.2). The emissions modeling can be found in **Appendix C**.

Environmental Setting

Climate change refers to any significant change in measures of climate, such as average temperature, precipitation, or wind patterns over a period of time. Climate change may result from natural factors, natural processes, and human activities that change the composition of the atmosphere and alter the surface and features of the land. Significant changes in global climate patterns have recently been associated with global warming, which is an average increase in the temperature of the atmosphere near the Earth's surface; this is attributed to an accumulation of greenhouse gas (GHG) emissions in the atmosphere. GHGs trap heat in the atmosphere which, in turn, increases the Earth's surface temperature. Some GHGs occur naturally and are emitted to the atmosphere through natural processes, while others are created and emitted solely through human activities. The emission of GHGs through fossil fuel combustion in conjunction with other human activities appears to be closely associated with global warming.

GHGs, as defined under California's Assembly Bill 32, the California Global Warming Solutions Act of 2006 (Stats. 2006, ch. 488), include carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFC), perfluorocarbons (PFC), and sulfur hexafluoride (SF₆). General discussions on climate change often include water vapor, ozone, and aerosols in the GHG category. Water vapor and atmospheric ozone are not gases that are formed directly in the construction or operation of development

projects, nor can they be controlled in these projects. Aerosols are not gases. While these elements have a role in climate change, they are not considered by either regulatory bodies, such as CARB, or climate change groups, such as the Climate Registry, as gases to be reported or analyzed for control. Therefore, no further discussion of water vapor, ozone, or aerosols is provided.

GHGs vary widely in the power of their climatic effects; therefore, climate scientists have established a unit called global warming potential (GWP). The GWP of a gas is a measure of both potency and lifespan in the atmosphere as compared to CO₂. For example, since CH₄ and N₂O are approximately 25 and 298 times more powerful than CO₂, respectively, in their ability to trap heat in the atmosphere, they have GWPs of 25 and 298, respectively (CO₂ has a GWP of 1). Carbon dioxide equivalent (CO₂e) is a quantity that enables all GHG emissions to be considered as a group despite their varying GWP. The GWP of each GHG is multiplied by the prevalence of that gas to produce CO₂e. The atmospheric lifetime and GWP of selected GHGs are summarized in **Table 10**.

Table 10: Global Warming Potential and Atmospheric Lifetimes

Greenhouse Gas	Atmospheric Lifetime (years)	Global Warming Potential (100-year time horizon)
Carbon Dioxide (CO ₂)	50.0–200.0	1
Methane (CH ₄)	12	25
Nitrous Oxide (N ₂ O)	114	298
HFC-134a	14	1,430
PFC: Tetrafluoromethane (CF ₄)	50,000.00	7,390
PFC: Hexafluoroethane (C ₂ F ₆)	10,000.00	12,200
Sulfur Hexafluoride (SF ₆)	3,200.00	22,800

Source: IPCC 2007.

Regulatory Framework Relating to Greenhouse Gas Emissions

Assembly Bill 32 recognizes that California is a source of substantial amounts of GHG emissions. The statute states that:

Global warming poses a serious threat to the economic wellbeing, public health, natural resources, and the environment of California. The potential adverse impacts of global warming include the exacerbation of air quality problems, a reduction in the quality and supply of water to the state from the Sierra snowpack, a rise in sea levels resulting in the displacement of thousands of

coastal businesses and residences, damage to marine ecosystems and the natural environment, and an increase in the incidences of infectious diseases, asthma, and other human health-related problems.

In order to help avert these potential consequences, Assembly Bill 32 established a State goal of reducing GHG emissions to 1990 levels by the year 2020, which is a reduction of approximately 16 percent from forecasted emission levels, with further reductions to follow (CARB 2011). In addition, Assembly Bill 32 required CARB develop a Scoping Plan to help the state achieve the targeted GHG reductions. In 2015, Executive Order B-30-15 established a California GHG emission reduction target of 40 percent below 1990 levels by 2030. The Executive Order aligns California's GHG emission reduction targets with those of leading international governments, including the 28 nation European Union. California is on track to meet or exceed the target of reducing greenhouse gas emissions to 1990 levels by 2020, as established in Assembly Bill 32. As a follow-up to Assembly Bill 32 and in response to Executive Order B-30-15, Senate Bill 32 (Stats. 2016, ch. 249) was passed by the California legislature in 2016 to codify the Executive Order's California GHG emission reduction target of 40 percent below 1990 levels by 2030.

In 2008, CARB adopted the Scoping Plan (CARB 2008) as directed by Assembly Bill 32. The Scoping Plan proposes a set of actions designed to reduce overall GHG emissions in California to the levels required by Assembly Bill 32. Measures applicable to development projects include those related to energy-efficiency building and appliance standards, the use of renewable sources for electricity generation, regional transportation targets, and green building strategy. Relative to transportation, the Scoping Plan includes nine measures or recommended actions related to reducing vehicle miles traveled (VMT) and vehicle GHG emissions through fuel and efficiency measures. These measures would be implemented statewide rather than on a project by project basis. In response to Executive Order B-30-15 and Senate Bill 32, all state agencies with jurisdiction over sources of GHG emissions were directed to implement measures to achieve reductions of GHG emissions to meet the 2030 and 2050 targets.

The most recent 2017 Climate Change Scoping Plan Update, Proposed Strategy for Achieving California's 2030 Greenhouse Gas Target, was adopted in December 2017. The Scoping Plan Update establishes a proposed framework for California to meet a 40 percent reduction in GHGs by 2030 compared to 1990 levels. This is the most aggressive climate target in North America and aligns California with the rest of the world in fighting climate change. The proposed plan would continue to move California towards a sustainable future while shifting dependence away from fossil fuels. The plan would build on the Cap-and-Trade Regulation and the Low Carbon Fuel Standard program. The plan would continue to increase the use of renewable energy through cleaner cars, trucks and freight movement, and would reduce agricultural and waste methane emissions by utilizing them for energy needs. The proposed plan also addresses for the first time the GHG emissions from agriculture and forestry sectors along with other natural and working lands of California (CARB2017).

Greenhouse Gas Analysis

Emissions from proposed project construction were estimated using the latest California Emissions Estimator Model (CalEEMod 2016.3.2). Construction would occur over approximately 6 weeks. Proposed project construction is expected to generate approximately 9 MT CO₂e over the total duration of construction activity (HELIX 2019).

Conversely, the hydroelectric generator would be capable of generating up to 13,140 MWh of electricity per year if run constantly at full capacity. PCM, LLC, and FERC both estimate that average annual hydroelectric generation would be 5,600 MWh per year (PCM, LLC 2016b; FERC 2018). The proposed project could result in the maximum offset of approximately 4,202 MT CO₂e per year. The proposed project would result in a net benefit related to GHG emissions (HELIX 2019).

Evaluation of Greenhouse Gas Emissions

Question a): Less than Significant Impact. Proposed project construction would include vehicle trips to the site to deliver equipment for the proposed facility and the operation of a portable crane to set the equipment onto an existing railroad track. Construction would occur over approximately 6 weeks and would generate approximately 9 MT CO₂e over the total duration of construction activity (HELIX 2019). Conversely, the hydroelectric generator would be capable of generating up to 13,140 MWh of electricity per year if run constantly at full capacity (HELIX 2019). This new source of renewable energy could result in the maximum offset of approximately 4,202 MT CO₂e per year (HELIX 2019). Even if only generating the estimated annual average of 5,600 MWh, the proposed project would result in no net increase of CO₂e, providing a net benefit related to GHG emissions (HELIX 2019). The proposed project would have a **less than significant impact**, and no mitigation would be necessary.

Question b): Less than Significant Impact. As discussed in response to Question a) above, proposed project-generated emissions would be both temporary and minor, resulting in approximately 9 MT CO₂e (HELIX 2019). The hydroelectric generator would be capable of providing enough renewable electricity to offset up to approximately 4,202 MT CO₂e per year, providing a net benefit even under the proposed project's lower estimated average annual hydroelectric generation. Therefore, the proposed project would be consistent with Assembly Bill 32, Senate Bill 32, and the 2017 Climate Change Scoping Plan, and may contribute to the state's GHG emissions reduction goals.

The proposed project would not induce population growth in the community, nor other activities that may increase GHG emissions such as increasing vehicle miles travelled. Several PCM personnel live on-site with their families. The PCM personnel would be responsible for the long-term operation and maintenance of the new facilities. As such, the proposed project would not increase staffing.

PCM, LLC would sell the produced energy to a local utility, such as SCE, or the wholesale grid under the California Renewable Energy Small Tariff (CREST) program. Utilities in California often buy renewable energy because of the Renewables Portfolio Standard (RPS) requirements that renewable resources provide 33% of electricity sales

by all electricity utilities by 2020, 40% by 2024, 52% by 2027, 60% by 2030, and 100% by 2045. The proposed project would provide SCE or other utilities with more renewable energy, which can help the utilities meet RPS requirements and California meet its renewable energy goals. Therefore, the proposed project would not conflict with an adopted plan, policy, or regulation. The proposed project would have a **less than significant impact**, and no mitigation would be necessary.

IX. HAZARDS AND HAZARDOUS MATERIALS

HAZARDS AND HAZARDOUS MATERIALS. Would the project:	Potential Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

HAZARDS AND HAZARDOUS MATERIALS. Would the project:	Potential Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Data Source/Methodology

The following databases were reviewed for the project site and surrounding area to identify potential hazardous contamination sites: the EPA’s Envirofacts website database (EPA 2018); California Department of Toxic Substance Control’s Hazardous Waste and Substances Site List (California Department of Toxic Substances Control 2018); California Environmental Protection Agency’s (CalEPA) Cortese List website (CalEPA 2020); the State Water Board’s GeoTracker website (SWRCB 2020); and, the EPA’s Superfund National Priorities List (EPA 2018).

Environmental Setting

The project site has a long history of Tungsten mining, however, is currently not used for mining activities. The schools located nearest to the project site are: Round Valley Elementary School, located approximately 7.3-miles east of the project site; Jill Kinmont Boothe School, located approximately 14.5-miles east of the project site; and Bishop Elementary School, located approximately 16-miles east of the project site.

The project site is a listed site on the EPA’s Envirofact website database because of its previous use as a Tungsten mine. The site reported the use of the following chemicals with the most recent year of reporting shown in parenthesis: Ammonia (2000), Sulfuric Acid (1996), Molybdebum Trioxide (1990), Copper (1990), Nitroglycerin (1989), Sodium Hydroxide (1988), and Sodium Sulfate (1987). The EPA report for the site shows no current or recent violations on-site.

Government Code section 65962.5 requires:

- the Department of Toxic Substances Control to compile and update a list of all hazardous waste facilities subject to corrective action. The project site is not included in that list (California Department of Toxic Substances Control 2018).
- the State Department of Health Services to compile and update a list of all public drinking water wells that contain detectable levels of organic contaminants and that are subject to water analysis pursuant to section 116395 of the Health and Safety Code. According to CalEPA, there are no public drinking water wells on that list, and the list is no longer maintained because section 116395 of the

Health and Safety Code requires analysis to have been completed by 1988 (CalEPA 2020).

- the State Water Board to compile and update a list of:
 - all underground storage tanks for which an unauthorized release report is filed pursuant to section 25295 of the Health and Safety Code. The project site is not included in that list (CalEPA 2020; SWRCB 2020).
 - all solid waste disposal facilities from which there is a migration of hazardous waste and for which a California regional water quality control board has notified the Department of Toxic Substances Control pursuant to subdivision (e) of section 13273 of the Water Code. The project site is not included in that list (CalEPA 2020).
 - all cease and desist orders issued after January 1, 1986, pursuant to Section 13301 of the Water Code, and all cleanup or abatement orders issued after January 1, 1986, pursuant to Section 13304 of the Water Code, that concern the discharge of wastes that are hazardous materials. The project site is not included in that list (CalEPA 2020).
- the Department of Resources Recycling and Recovery to compile a statewide list, based on lists provided by local enforcement agencies, of all solid waste disposal facilities from which there is a known migration of hazardous waste. According to CalEPA, this list is no longer compiled due to superseding legislation (Assembly Bill 1220 [Stats. 1993, ch. 656]), and any applicable facilities would be included in the State Water Board's list described above (CalEPA 2020).
- The Secretary for Environmental Protection to consolidate the information in the above lists and to distribute it in a timely fashion to each city and county in which sites on the lists are located, and to any other person upon request.

The proposed project would not be located on a site which is included on any list of hazardous materials sites compiled pursuant to Government Code Section 65962.5.

Federal and state laws include provisions for the safe handling of hazardous substances. The federal Occupational Safety and Health Administration (OSHA) administers requirements to ensure worker safety pursuant to the Occupational Safety and Health Act of 1970. Construction activity must also be in compliance with the laws, regulations, and standard implemented by the California Department of Industrial Relations' Division of Occupational Safety and Health (Cal/OSHA).

Evaluation of Hazards and Hazardous Materials

Questions a) & b): Less than Significant. The proposed project would result in an increase in the generation, storage, and disposal of hazardous wastes. During project construction, oil, gasoline, or diesel fuel may be used. Both federal and state laws include provisions for the safe handling of hazardous substances. The Cal/OSHA General Industry Safety Orders, section 5194 (Cal. Code Regs., tit. 8, § 5194) requires

employers to ensure that employees are provided with information and training to protect employees in the event of a spill or leak of a hazardous chemical. If hazardous materials are spilled during project construction, these substances could pose a risk to the environment and to human health, creating a significant impact. To avoid this potential impact, PCM, LLC has agreed as a part of its proposed project description and application to submit a Hazardous Substance Management Plan to FERC for approval. The Hazardous Substance Management Plan would describe all potential hazardous materials incident risks and measures that would be taken to minimize or eliminate those risks; procedures for storage, spill and cleanup of hazardous materials; and the requirement for the proposed project to maintain a cache of spill cleanup equipment suitable to contain any spill from the proposed project and reporting procedures if a spill were to take place. With the development and implementation of the Hazardous Substance Management Plan, the proposed project would have a **less than significant impact**.

Question c): Less than Significant Impact. No existing or proposed schools are within 0.25 miles of the project site, the nearest school is over 7.3 miles from the site. The routine transport, use, and disposal of hazardous materials are subject to local, state, and federal regulations. The potential risk of exposure or impacts from transport, use, and disposal of hazardous materials to schools and other nearby sensitive receptors would be minimized by implementation of the regulations. Therefore, this impact is considered to be **less than significant**, and no mitigation would be necessary.

Question d): Less than Significant Impact. The project site is not included on the lists of hazardous materials sites compiled by CalEPA pursuant to Government Code section 65962.5 or on the EPA's Superfund National Priorities List (EPA 2018). The site is included on the EPA's Envirofact website database because of its previous use as a Tungsten mine. However, the site is listed as having no code or compliance violations and has reportedly completed all remediation, operation, and maintenance activities required of the site. No significant hazard to the public or environment would result from proposed project implementation. The proposed project would have a **less than significant impact**, and no mitigation would be necessary.

Question e): No Impact. The project site is not located in an airport land use plan area, and no public or private airfields are within two miles of the project site; therefore, the proposed project would not result in a safety hazard for people residing or working in the project area. **No impact** would occur, and no mitigation would be necessary.

Question f): No Impact. In 2016, The Inyo County Board of Supervisors reviewed and approved the Inyo County 2016 Emergency Operations Plan (Inyo County 2016). The Emergency Operations Plan was created to describe and plan for how Inyo County will prepare and respond to operational area emergencies and disasters. The proposed project would not alter the existing access routes to the site and access for evacuation would be made available at all times. **No impact** to emergency access would occur, and no mitigation would be necessary.

Question g): Less than Significant Impact. The project site is surrounded by forest in the high elevations of the eastern sierra mountain range. Aside from the some PCM personnel and their families housed on-site, the nearest residences to the site are located in the community of Rovana, which is approximately 6 miles east of the site. The proposed project would not increase human presence on-site as some of the PCM personnel anticipated to construct and operate the proposed project already live on-site with their families to operate the existing Discharge System Project. While the proposed project would not involve operations that are prone to wildfires, an increase in activity in forested areas has a potential impact on the increase in wildland fires. To minimize potential wildfire impacts, PCM, LLC has agreed as a part of its proposed project description and application to develop a Fire and Fuels Management Plan in consultation with the California Department of Forestry and Fire Protection (CAL FIRE). The plan would detail PCM, LLC's responsibility for the prevention, reporting, and emergency response to fires in the vicinity of the proposed project resulting from the proposed project operations. The proposed plan would require the approval of CAL FIRE. With the development and implementation of a Fire and Fuels Management Plan, the proposed project would have a **less than significant impact**.

X. HYDROLOGY AND WATER QUALITY

HYDROLOGY AND WATER QUALITY. Would the project:	Potential Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:				
(i) result in substantial erosion or siltation on or off-site?		<input type="checkbox"/>	<input checked="" type="checkbox"/>	
(ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?		<input type="checkbox"/>	<input checked="" type="checkbox"/>	
(iii) create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or		<input type="checkbox"/>	<input checked="" type="checkbox"/>	
(iv) impede or redirect flood flows?		<input type="checkbox"/>	<input checked="" type="checkbox"/>	
d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

HYDROLOGY AND WATER QUALITY. Would the project:	Potential Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Data Source/Methodology

The following analysis of Hydrology and Water Quality is based off of testing and analysis of water quality performed by BC Laboratories, Inc. in August 2015 (BCL 2015) and September of 2004 (BCL 2004) which is included in **Appendix J** and an investigation of the quantity and source of mine discharge through time performed by Hydrologic Consultants, Inc in July of 1990 (HCI 1990) which is included in **Appendix K**. Additionally, the hydrology and water quality analysis considers comments submitted by the Lahontan RWQCB in response to the draft Mitigated Negative Declaration for the Pine Creek Development Museum Project Reclamation Plan (Lahontan RWQCB 2002).

Environmental Setting

The project site is situated along the Pine and Morgan creek canyons in northwestern Inyo County. The site is upstream of the confluence of Morgan and Pine Creeks. The water source for the proposed project is groundwater draining from the underground mine workings. Mining operations have been conducted at PCM since 1918. The Easy-Go Adit was opened in the 1960's and encountered significant quantities of underground water. The water emanates from fissures, fractures, and boreholes formed and encountered during the mining activities. The quantity of groundwater draining into the adit varies seasonally, ranging from about 7-14 cfs seasonally as an indirect function of snowmelt. Average inflow is estimated to be about 10 cfs (FERC 2018). Based on an average inflow of 10 cfs, the volume of the 200-acre-foot reservoir would be replaced every 10 days.

During project operation, water would be released through the exiting concrete plug and penstock and the proposed turbine at a rate approximating inflow to the reservoir, as determined by a pressure sensor. A water pressure-oriented monitoring system would be installed to estimate the water height. Once a base storage is slowly established in the mine, the powerdraft of the unit would be set to maintain the pressure and balance the inflow and outflow of waters into the mine. A pressure transducer would be installed on the supply line to the turbine or static bypass line connected to the pressurized section of the tunnel. The pressure transducer would have a direct readout as well as a data logger and/or controller for the unit. It is proposed that the generating unit would be Pelton-type impulse turbine with jet deflectors that would intercept the flow of water in the event of a generator trip. It is also proposed that the position of the turbine nozzle(s)

would be set manually. With the use of defectors, in the event of a unit trip, the amount of water would continue to flow as previously set. Water exiting the turbine would enter into an existing V-shape channel with the adit and flow down-gradient to the intake for the existing Discharge System Project, located just inside the adit. This water is then routed downhill through that project's penstock and turbine, and discharged into the existing pond (Pond 6), from which it flows over that pond's concrete spillway and into Morgan Creek, shortly above its confluence with Pine Creek (EA 2018).

Federal Emergency Management Agency (FEMA) flood insurance rate maps were reviewed for the proposed project's proximity to a 100-year floodplain. The proposed project is on FEMA panel 06027C0300D, effective August 16, 2011. The project site is not located within a 100-year floodplain (FEMA 2011).

Water Quality

The Water Board manages and administers water quality in California. Water quality in the project area is governed by the Lahontan RWQCB, and is outlined in the Basin Plan. The established water quality objectives (standards) for the Lahontan Basin are provided in the Basin Plan (Lahontan RWQCB 1995). The Basin Plan also defines beneficial uses for each major water body in the region. The Basin Plan identifies beneficial uses for Pine Creek as: Municipal and Domestic Supply; Agricultural Supply; Industrial Service Supply; Ground Water Recharge; Freshwater Replenishment; Hydropower Generation; Water Contact Recreation, Noncontact Water Recreation, Commercial and Sport Fishing; Cold Freshwater Habitat; Wildlife Habitat; and Spawning, Reproduction, and Development.

Mine infrastructure, including ancillary facilities and other improvements were previously removed from the site and graded flat. The Lahontan RWQCB rescinded waste discharge requirements for post-closure of mine tailing ponds in 2014 (Lahontan RWQCB 2014).

When ore was being extracted from PCM (ending in 1990 the untreated water contained suspended particulate derived mainly from granite, garnet and mica. Most of these solids were removed in the mine water treating facility, before the flow was discharged to Morgan Creek. Now that the mine is no longer in production, the water quality meets Basin Plan standards with total dissolved solids (TDS) concentrations of less than 70 parts per million.

The quality of the groundwater currently exiting the Easy-Go Adit reflects the geology of the area. The quality of the source of the groundwater (i.e., atmospheric precipitation, primarily snowmelt) is changed very little, by percolation through the thin soils and travel through the mine workings, since the rock within the mine workings is essentially insoluble. Nonetheless, the geology likely imparts some "signature" to the water as it passes from snow to mine outflow.

The quality of the water exiting the mine was evaluated in 1999-2001 and 2015. Monitoring was also performed downstream at the confluence of Morgan Creek with

Pine Creek and in Pine Creek near the town of Rovana in 1999, 2001, and 2001-2003 (FERC 2018).

Following installation of the concrete plug in the fall of 2002, the valves on the pipes traversing the plug were closed, and water filled the mine voids to establish about 1,000 feet of head. In August 2004, in response to a December 29, 2003 USFS request, the valves on the plug were opened, the mine was drained and extensive water quality testing of the drained water was conducted to address a concern that impoundment of the water within the mine would have resulted in the leaching of contaminants from the mine workings into the mine water.

The 2004 lab results concluded that the water tested on-site, exiting the mine was well below federal and state Maximum Contaminant Levels (MCL's) for drinking water (BCL 2004). Practical Quantitation Limit (PQL) is the lowest level at which a substance can be routinely quantified and reported by a laboratory. All PCB's, organochlorine pesticides, oil and grease, petroleum hydrocarbons, and volatile organic compound levels were found to be below the PQL. All metals but arsenic and zinc were below PQL. Although trace amounts of arsenic and zinc were found in the water sampling, the amounts of these dissolved metals found were far below federal and state MCL's for drinking water standards (BCL 2004). The most recent water quality testing performed in 2015 by BC Labs, shows that the water exiting the mine is well below state MCL's for drinking water (BCL 2015).

Additional water quality measurements were made in the fall of 2012, as part of a Pine Creek Baseline Aquatic Habitat Monitoring Survey (Appendix E) using Surface Water Ambient Monitoring Program (SWAMP) sampling protocols and again in 2015. The results from these tests also concluded in levels well below PQL (FERC 2018) (BCL 2015).

The Basin Plan sets specific water quality objectives for Pine Creek above the mine headquarters. **Table 11** lists the Basin Plan water quality standards along with the 2015/2004 water quality sampling results at Pine Creek Mine.

Table 11: Basin Plan Water Quality Standards and 2015/2004 PCM Water Quality Testing Results

	TDS (mg/L)	Cl (mg/L)	SO ₄ (mg/L)	NO ₃ -N (mg/L)	N (mg/L)	NH ₃ (mg/L)	P (mg/L)
Basin Plan Standards	50	3	13	0.3	0.9	0.01	0.04
2015 and 2004 Testing results	58 ¹	1.3 ¹	8.8 ¹	0.36 ¹	0.33 ²	<0.01 ²	.039 ²

Notes: 1. 2015 testing was performed from 3 different locations. The highest result is shown in this table for each substance. 2. No testing results for these substances were found in the 2015 water testing so these results are taken from the 2004 testing results. Source: Lahontan RWQCB 1995, BCL 2015.

As shown above, water testing from PCM currently exceeds TDS and NO₃ – N objective levels stated in the Basin Plan. It is not anticipated for the proposed project to change existing water quality or quantity as the project would remain as “run-of-mine,” in which flow releases from the proposed project would approximate groundwater inflows to the mine. No aspect of the proposed project would alter water quality.

Evaluation of Hydrology and Water Quality

Questions a): Less than Significant. Beneficial uses and water quality objectives are specified in the Basin Plan prepared by the Lahontan RWQCB. One beneficial use identified is for Hydropower Generation (Lahontan RWQCB 1995).

At the request of the USFS, PCM, LLC has performed various water quality tests of the water exiting the mine. When ore was being extracted from PCM, which ended in 1990, the untreated water contained suspended particulate derived mainly from granite, garnet and mica. Most of these solids were removed in the mine water treating facility, before the flow was discharged to Morgan Creek. All PCB's, organochlorine pesticides, oil and grease, petroleum hydrocarbons, and volatile organic compound levels were found to be below the PQL. All metals but arsenic and zinc were below PQL. Although trace amounts of arsenic and zinc were found in the water sampling, the amounts of these dissolved metals found were far below federal and state MCL's for drinking water standards (BCL 2004). In March of 2014 the Lahontan RWQCB staff sampled locations upstream of the mine and downstream of the mine. Analyses of these samples confirmed that the mine does not affect water quality downstream. The Lahontan RWQCB rescinded waste discharge requirements for post-closure of mine tailing ponds in 2014 (Lahontan RWQCB 2014).

Additionally, as a part of the project description PCM, LLC has agreed as part of its proposed project description and application to develop a Water Quality Protection Plan and to perform water quality monitoring. As shown in Table 1, the USFS has also include in its preliminary 4(e) conditions a water quality and temperature monitoring condition. The resulting combined Water Quality Protection and Monitoring Plan would include provisions for pollution and spill prevention and contaminant procedures for project construction, operation, and maintenance. Water quality monitoring would monitor select parameters such as stream flow, temperature, and turbidity at certain locations and frequencies during construction and operation to identify any unforeseen adverse effects. With the implementation of the Water Quality Protection and Monitoring Plan, the proposed project would have a **less than significant impact**.

Question b): Less than Significant Impact. Implementation of the proposed project would not result in an increase in the use of groundwater. Groundwater provides the water source for the proposed project by draining into the existing subterranean mine network that comprises the underground reservoir. However, the use of this water would not decrease its quantity as the proposed project would not modify inflow and discharge rates. PCM, LLC proposes to use a pressure sensor to ensure outflow from the proposed project approximates inflow to the reservoir, which would then approximate seasonal inflows into Morgan Creek. The proposed project would not increase the use

of groundwater for drinking or sanitation purposes as the proposed project would not increase human occupation on-site. The proposed project would have a **less than significant impact**, and no mitigation would be necessary.

Question c)i.: Less than Significant. Ground disturbing activities associated with upgrades to the substation could create erosion would be minimal. No new buildings or structures or modification to structures are proposed on-site. No grading, widening, or other improvement of any road is necessary or proposed. Proposed project construction would require one trip of a semi-truck and 5-10 round trips for construction staff, these additional trips on the road would have a minimal impact on the existing road's erosion over time. The equipment to be used for the project would be placed on solid rock and would have no impact on erosion or siltation. The minimal impact of the proposed project would result in a **less than significant impact** to erosion and siltation in the project area, and no mitigation would be necessary.

Question c)ii.: No Impact. As discussed above, the proposed project would not introduce any new buildings or structures. Therefore, the project would not increase surface runoff and would have **no impact**, and no mitigation would be necessary.

Question c)iii.: Less than Significant. Equipment would be laid subterranean within the manmade Easy-Go Adit. During the proposed project operation, water would be released through the existing concrete plug and penstock and the proposed turbine at a rate approximating inflow to the reservoir, as determined by a pressure sensor. Water exiting the turbine would enter into an existing V-shape channel within the adit and flow down-gradient to the intake for the Discharge System Project, located just inside the adit. This water is then routed downhill through the existing Discharge System Project penstock and turbine and discharged into the exiting pond (Pond 6), from which it flows over that pond's existing concrete spillway and into Morgan Creek, shortly above its confluence with Pine Creek. The flow and drainage from the proposed project would not be altered during normal operation.

The proposed project would include the filling of the subsurface reservoir to store up to 200 acre-feet of groundwater, creating a gross head of up to 1,320 feet for power generation. The initial filling of the subsurface reservoir would temporarily result in reduced outflows to Morgan Creek. The temporary reduction in flow releases from the proposed project for the filling of the reservoir would reduce available flows and associated generation at the existing Discharge System Project as well as downstream flows in Morgan and Pine Creeks. Conversely, should the proposed project need to drain the reservoir for maintenance purposes during the term of any license, flow releases from the proposed project would need to be increased, which would result in higher downstream flows in Morgan and Pine Creeks. The rates and magnitudes of these flow reductions and increases have the potential to impact site drainage. PCM, LLC has proposed to develop an Initial Fill Plan which would implement procedures to follow during the initial filling of the reservoir. PCM, LLC would consult with the USFS, CDFW, and USFWS while writing the plan. Initial fill of the Easy-go adit would not commence until the Initial Fill Plan is approved by the State Water Board. Additionally, PCM, LLC would develop a Water Quality Protection and Monitoring Plan to ensure that

the proposed construction activities follow appropriate procedures and that water quality on-site is maintained during the life of the proposed project. With the development and implementation of the Initial Fill Plan and the Water Quality Protection and Monitoring Plan, the proposed project would result in a **less than significant impact** to stormwater drainage systems and water quality.

Question c)iv.: Less than Significant. PCM, LLC proposes to operate the proposed project in “run-of-mine,” in which flow releases from the proposed project would approximate groundwater inflows to the mine. Flows from the mine into the Discharge System Project currently range from 7 to 14 cfs averaging 10 cfs. PCM, LLC proposes to ensure run-of-mine operation using a pressure sensor on the supply line to the turbine or a static bypass line connected to the pressurized section of the adit. The project would temporarily halt water flow as the proposed project would utilize an existing concrete plug in the mine to store up to 200 acre-feet of groundwater, creating a gross head of up to 1,320 feet for power generation. To address the potential impact of this temporary change, PCM, LLC has proposed to develop and implement an Initial Fill Plan that would document procedures to be followed during initial filling of the reservoir. The plan would ensure a minimum outflow during the Easy-Go adit fill. With the development and implementation of the Initial Fill Plan, the proposed project would not impede or redirect flood flows and would therefore have a **less than significant impact**.

Question d): Less than Significant. The project site is located approximately 185-miles from the Pacific Ocean, at an approximate elevation of 8,000 amsl. Because of this, there would be no possibility of inundation by tsunamis. Mudslides and other forms of mass wasting occur on steep slopes in areas having susceptible soils or geology, typically as a result of an earthquake or high rainfall event. The project site is located beneath steep slopes of the Sierra Nevada Mountain Range where mudslides could occur. However, the site has been occupied and mined since 1914, and no part of the proposed project would increase the risk of a mudslide or other form of mass wasting. The proposed project would not expose people or structures to a significant risk of loss, injury or death involving flooding. The project site is not located within a 100-year floodplain. The proposed project would involve the filling of a subterranean reservoir to create a gross head of up to 1,320 feet for power generation. The reservoir would be filled by plugging the existing 12-foot-wide, 12-foot-high, and 30-foot-thick concrete plug located inside the mine 2,500 feet from the Easy-Go portal. If the plug were to catastrophically fail, the resulting release of water from the proposed project could expose people and or structures to danger. The plug was engineered to withstand a design level earthquake event. Even in the event of a greater-than-design level earthquake, the likelihood of catastrophic failure is remote. The plug is anchored in quartz diorite (granite) along a solid part of the adit, with very limited fracturing. However, if somehow the plug did fail during a larger-than-designed event, it’s likely that the released stored water’s flow and velocities would be impeded or suppressed by dislodged rock from heavily fractured areas upstream and downstream of the plug; the dislodged rock would create a partial dam effect, thus limiting the amount of water flow (SGSI 2015). In this worst-case scenario, the initial runoff rate is calculated via a HecRas Model from the mine to just past the town of Rovana (approximately 38,000 ft).

The initial calculated flow rate exiting the Easy-Go Adit would be approximately 14,143 cubic feet per second (cfs) with a velocity of 89 feet per second (ft/s) (SGSI 2015). Both the rate and velocity quickly drop, however, as water empties from the mine. The total time of release is approximately 23 minutes due to the relatively low volume of impounded water, which is approximately two hundred fifty acre-feet. Downstream flow velocities would rapidly dissipate from approximately 14 to 18 fps in the vicinity of the tailings and Pack Station, to approximately 10 fps in the vicinity of Rovana (SGSI 2015). Breach water stays primarily within the relatively well incised Pine Creek drainage. The width of the flow is estimated at less than 200 feet in the drainage. Depth of the flow is partly controlled by topography and varies from approximately 12 feet at the mine area to approximately 5 feet near Rovana (SGSI 2015).

The plug was inspected by SGSI in December of 2011 and was found to be stable and unlikely to fail in any catastrophic mode as it is adequate in length; the walls are well roughened; the stress in the rock is applied uniformly; and the adit walls in the area of the plug are tapered, putting much contact area into compression. The proposed project could have a potential impact if the long-term stability of the plug is affected by seepage through the rock if the grouting was not sufficiently effective or if the grout cement eroded by acid attack. To address this potential issue PCM, LLC proposes to prepare a Plug Maintenance and Repair Plan. As a part of this plan, PCM, LLC would monitor seepage at the plug and inspect the plug following any magnitude 5.0 earthquake. With the development and implementation of the Plug Maintenance and Repair Plan, the proposed project would have a **less than significant impact**.

Question e): Less than Significant. The State Water Board and Lahontan Water Board regulate water quality in California. Water quality in the project area is governed by the Lahontan RWQCB, and is outlined in the Basin Plan. The purpose of the Basin Plan is to designate beneficial uses of water and numerical objectives that must be maintained or attained to protect those uses. It identifies general types of water quality problems, which can threaten beneficial uses in the Region. It then identifies required or recommended control measures for these problems. PCM would consult with the State Water Board and Lahontan Water Board to develop procedures to maintain water quality while incorporating water quality monitoring to be outlined in the Water Quality Protection and Monitoring Plan to ensure standards set in the Basin Plan are met. With the development and implementation of the Water Quality Protection and Monitoring Plan, the proposed project would have a **less than significant impact**.

XI. LAND USE AND PLANNING

LAND USE AND PLANNING. Would the project:	Potential Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Physically divide an established community?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	■
b) Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	■

Environmental Setting

Land use in the project area is regulated by the County through the various plans and ordinances adopted by the County. These include the Inyo County General Plan and the Inyo County Code, including the Zoning Code. The General Plan currently identifies the project site as Rural Protection. The current zoning for the project site is Open Space 40 (OS40). Above-ground project facilities would be located entirely within the boundaries of the private land owned by Bishop Tungsten Development, LLC.

The project site is zoned as Open Space, 40-acre minimum (OS-40) with a land use designation of Rural Protection (RP). The intent of the OS zoning is to protect and preserve the environmental resources, scenic, natural features, and open space character of the County, while also providing for agricultural development and protection of existing agricultural areas from urban development or residential subdivisions (Inyo County Code). The RP land use provides for the preservation of natural resources, the managed production of resources, low intensity agriculture including grazing, park and other low-intensity recreation, wildlife refuges, hunting and fishing preserves, horse stables, cemeteries, greenbelts and similar and compatible uses (Inyo County General Plan 2001).

Evaluation of Land Use and Planning

Question a): No Impact. The proposed project is located in a private inholding surrounded by the INF. There is no existing residential development adjacent to the site and the proposed project would not construct any residential development. The proposed project would not physically divide an established community. Therefore, there would be **no impact**, and no mitigation would be necessary.

Question b): No Impact. The project site has a designated land use of Rural Protection in the Inyo County General Plan. The designation is applied to land or water areas that

are essentially unimproved and planned to remain open in character, providing for the preservation in character. The proposed project would not involve the construction of buildings or structures and would solely involve the installation of subterranean equipment. The proposed project would not change the rural and open space character of the site and would promote the protection of other open spaces in the County through the utilization of renewable energy. The proposed project would comply with Inyo County standards and not would not conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the proposed project; therefore, the proposed project would have **no impact**, and no mitigation would be necessary.

XII. MINERAL RESOURCES

MINERAL RESOURCES. Would the project:	Potential Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Environmental Setting

The project site is located at the historic PCM. PCM mine facilities are presently inactive. The mine was previously utilized for the extraction of tungsten-molybdenum ore. Mining stopped 1990 due to economic restraints. The mill continued to process stockpiled ore until it closed in 1994 (JRP and Davis-King 2014). The existing concrete plug that is part of the proposed project is located inside the mine 2,500 feet from the Easy-Go portal. The plug already blocked off access to portions of the PCM, including the areas that would be utilized by the proposed project.

In September of 2018, Scheelite Metals notified the USFS INF Supervisor's Office of its plans to perform exploratory pneumatic core drilling at the PCM "Zero Level" starting in October of 2018 for a duration of three years. The mine was to be accessed via the existing Easy-Go Adit, and exploratory drilling was to occur at an existing branch of the Easy-Go Adit running north (USDA 2018). The site of this exploratory drilling is to the east of the existing plug and away from the area that would store and transport water under the proposed project. Despite PCM, LLC's assertions of a "mining purpose" of the proposed project, future exploration or other additional mining-related activities at PCM are unknown and are not supported by the record currently before the State Water Board.

Regulatory Framework

Under the California State Surface Mining and Reclamation Act of 1975, Mineral Resource Zones (MRZ) are used by the State Geologist to classify land according to its level of significance as a mineral resource. MRZ's are used to help identify and protect state mineral resources from urban expansion or other irreversible land uses that might preclude mineral extraction. The State Geologist has not yet mapped and classified mineral resources in this region of Inyo County (CDC 2018). The project site is zoned as

Open Space, 40 acre minimum (OS-40) with a land use of Rural Protection (RP). The intent of the OS zoning is to protect and preserve the environmental resources, scenic, natural features, and open space character of the County, while also providing for agricultural development and protection of existing agricultural areas from urban development or residential subdivisions (Inyo County Code). The RP land use provides for the preservation of natural resources, the managed production of resources, low intensity agriculture including grazing, park and other low-intensity recreation, wildlife refuges, hunting and fishing preserves, horse stables, cemeteries, greenbelts and similar and compatible uses (Inyo County General Plan 2001).

Evaluation of Mineral Resources

Questions a) and b): Less than Significant. The proposed project is located in a zone of known mineral or aggregate resources, but, according to the Department of Conservation, the site is not classified as an MRZ. No active mining operations are currently present on or near the site. The proposed project would involve the installation of subterranean equipment to allow for the generation of renewable energy. An existing plug is located approximately 2,500 feet within the Easy-Go Adit. The proposed project would flood the adit behind the plug to create an appropriate amount of pressure to operate the proposed hydroelectrical equipment. Implementation of the proposed project would preclude any future extraction of minerals located in the flooded section of the PCM. However, the flooded section of PCM was previously mined; has been for years, and continues to be, inaccessible for mining because of the existing plug. As discussed above, Scheelite Metals notified the USFS INF Supervisor's Office in September of 2018 of its intention to perform exploratory drilling through October of 2021 in the "Zero Level" east of the site of the proposed project and running north. Exploratory pneumatic core drilling would occur/has occurred at PCM "Zero Level," accessed via an existing branch of the Easy-Go Adit located to the east of the existing plug, away from the area that would store water under the proposed project. Beyond this minor exploratory drilling, existing or feasible future mineral resource recovery at or around the project site is unknown and is not supported by the record currently before the State Water Board. PCM has reportedly not been the site of active mining for nearly 30 years. The proposed project would not foreseeably limit or interfere with future extraction of mineral resources, thus for purposes of analyzing the proposed project, a **less than significant** would occur, and no mitigation would be necessary. Future extraction of mineral resources is merely speculative at this time and would require separate future environmental review and permitting, including consideration and appropriately detailed analysis of potential conflicts between or cumulative environmental impacts of hydropower and mining operations at the site.

XIII. NOISE

NOISE. Would the project:	Potential Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Generation of excessive groundborne vibration or groundborne noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Data Source/Methodology

Background information and qualitative analysis was prepared by HELIX Environmental Planning, Inc. in 2019 (HELIX 2019a). The following analysis of noise is based off the noise generation quantification.

Environmental Setting

The proposed project is located in an inholding surrounded by the INF. Rovana, the closest community, is located approximately 6 miles east of the site. The INF encompasses over two million acres of land and extends approximately 165 miles along the eastern slope of the Sierra Nevada Mountains, near the California and Nevada border. Recreation opportunities within the INF are accessible within a 15-mile radius of the proposed project site. One half mile from the proposed project site, an existing USFS trailhead provides access to three trails which lead to high-altitude lake and meadow areas that are above the proposed project site and provide recreational opportunities including day-hiking, backpacking, fishing, and horseback riding. The Pine Creek Pack Station, which operates seasonally, is adjacent to the trailhead and leads horseback riding and pack animal excursions for visitors on the nearby Pine Creek Pass.

Noise-sensitive land uses are land uses that may be subject to stress and/or interference from excessive noise, including residences, hospitals, schools, hotels, resorts, libraries, sensitive wildlife habitat, or similar facilities where quiet is an important attribute of the environment. Noise receptors (receivers) are individual locations that may be affected by noise. Noise-sensitive land uses in the project vicinity include sensitive wildlife habitat and recreational trails.

Regulatory Framework

Noise Element

The Public Safety Element of the Inyo County General Plan identifies goals, policies and implementation measures designed to maintain a safe environment and to protect public safety and property.

Applicable policies are set forth to minimize noise impacts. These policies are included below in **Table 12**.

Table 12: Applicable County Noise Policies

Policy Number	Policy Intent
Policy NOI-1.1	<i>Acceptable Noise Limits.</i> The County shall utilize the noise levels based on standards shown in Table 14 for evaluating project compatibility related to noise.
Policy NOI-1.5	<i>Implementation of Mitigation Measures.</i> Require that proponents of new projects provide or fund the implementation of noise-reducing mitigation measures to reduce noise to required levels.
Policy NOI-1.8	<i>Coordination with Agencies.</i> The County will encourage other government agencies to implement noise-reducing measures when impacts to receptors within the County’s jurisdiction occur.
Policy NOI-2.1	<i>Rural Roadways.</i> Maintaining two-lane County roadways is encouraged where feasible. Widening and expansion of County roadway facilities is discouraged unless required to provide necessary capacity.
Policy NOI-2.3	<i>Buffers.</i> Provide buffers between sensitive noise receptors and highway facilities that currently carry, or have the potential to carry, high vehicle loads.

Source: Inyo County General Plan 2001.

New development in the County is limited to not increase ambient noise levels (measured at the property line) above established County noise standards displayed in **Table 13**.

Table 13: Maximum Recommended Ambient Noise Exposure by Land Use (County Noise Guidelines)

Land Use Type	Day Night Average Sound Level (Ldn)						
	0-55	56-60	61-65	66-70	71-75	75-80	>81
Residential							
Hotels, Motels							
Schools, Libraries, Churches, Hospitals, Extended Care Facilities							
Auditoriums, Concert Halls, Amphitheatres							
Sports Arenas, Outdoor Spectator Sports							
Playgrounds, Neighborhood Parks							
Golf Courses, Riding Stables, Water Recreation, Cemeteries							

Land Use Type	Day Night Average Sound Level (Ldn)						
	0-55	56-60	61-65	66-70	71-75	75-80	>81
Office Buildings, Business Commercial and Professional							
Mining, Industrial, Manufacturing, Utilities, Agriculture							

Notes: White= Normally Acceptable, Grey= Conditionally Acceptable,
Black=Unacceptable
Source: Inyo County General Plan 2001.

Inyo County Code

Noise standards for roads and recreational use are identified in the Inyo County Code, Chapter 12, Section 12.16.110, which states:

No person shall at any time disturb the peace and quiet by any loud or unusual noise or by hooting, calling, blowing of automobile horns or other noise-making devices, or by the use of vulgar, immoral, profane or indecent language or conduct, or by boisterous or threatening behavior. Furthermore, quiet hours at all county parks and campgrounds shall be from 10 PM to 8 AM daily, with the exception of Tecopa Hot Springs Park, which shall be 8 PM to 8 AM (Inyo County Code 2000).

Background on Turbine and AC Generator Vibration and Noise

Vibration is created by a number of known sources inside the turbine and AC generator system and the noise is a direct result of the turbine and generator vibration. These sources include:

- A) Imbalance in the rotating assemblies.
- B) Vibration of the water turbine blades by the incoming water as they pass by the inlet vents.
- C) Cavitation and other turbulence in the water flow in the turbine and sleeve valve (not discussed).

- D) Vibration of the AC generator assemblies from interaction of the rotating magnetic fields.

Some of these sources can be readily accounted for:

15 Hz. vibration: the turbine and generator shaft typically turn at 900 RPM (15 revolutions per second), so any imbalance would create a 15 Hz. signature as its dominant frequency (HELIX 2019a).

60 Hz. and multiples vibrations: the generator produces 3 phase, 60 Hz power, so noise and vibration would result from electromechanical forces within the generator with the windings passing by the fields at 900 RPM with a primary frequency of 6 armature windings with 3 field sets at 540 Hz. and multiples (HELIX 2019a).

Higher frequency vibrations: these would be generated by uneven mechanical forces such as the turbine having 12 or more blades (vanes) which pass by multiple wicket gates, flexure in the shaft, and other flow-dependent qualities in the rotating assembly. Most of these resultant frequencies are not transmitted readily through the ground, due to soil absorption at the higher frequencies, and are only audible in the turbine/generator building (HELIX 2019a).

Transmission and Damping of Groundborne Vibration

Soil demonstrates a marked tendency to absorb vibrations but more so at higher frequencies than at lower frequencies. Damping loss in dB per foot (a rate of absorption or attenuation) of soil increases from 0.084 at 5 Hz, to 0.68 at 40 Hz, a linear increase in absorption directly proportional to the increase in frequency (HELIX 2019a).

Normal vibration loss due to hemispherical spreading will reduce vibration energy levels by 50 percent for each doubling of distance (HELIX 2019a)

Table 14: Perceptible and Tolerable Vibration Levels

Human Perception/Reaction	Vibration Level	Frequency	Metric
None	0.0001 - 0.0007 inches	1-20 Hz	displacement
Typical background vibration level			
Threshold	0.002 mm	50 Hz	displacement
	0.004 in/sec	8-80 Hz	velocity
	65 VdB (re 10 ⁻⁶ in/sec)		velocity
Barely	0.0007 – 0.005 inches	20-50 Hz	velocity
	-65 to -50 dB (re 1g)	2 Hz	acceleration

Human Perception/Reaction	Vibration Level	Frequency	Metric
	-35 to -25 dB (re 1g)	125 Hz	
Noticeable	> 0.315 m/sec ²		acceleration
<1% nighttime complaints with exposure duration >100 sec.	0.005 m/sec ²		acceleration
Few people disturbed	0.001g (1.0 cm/sec ²)		acceleration
Low probability of adverse comment	0.2 - 0.4 m/sec ² (day)		acceleration
Low probability of adverse comment	0.13 m/sec ² (night)		acceleration
Maximum allowed by MTA 1 hour per day sustained	0.01 in/sec		velocity
	80 VdB (re 10 ⁻⁶ in/sec)		velocity

Source: HELIX 2019a

Turbine Vibration and Noise

Typically, the water turbine and generator (of this class) will have a barely perceptible vibration within 20 to 30 feet of the turbine and be audible at levels up to 65 dBA within 20 to 30 feet of the turbine enclosure (HELIX 2019a).

Damped Vibration and Noise

Typical water turbine and generator systems vibration are damped by normal soils to less than human perceptible at distances from 50 to 200 feet from the units. Noise from the turbine/generator is usually less than 45 dBA at distances over 250-feet from the structure (HELIX 2019a).

Failure Modes

A water turbine generator unit may start to have additional vibration and resultant noise when it has experienced damage or is near failure. The increase in vibration and noise is normally noted by maintenance; when this occurs, it is a major indication used to schedule unit repair and is not normally an ongoing problem to others because failure to do normal repair may lead to more serious damage to the unit (HELIX 2019a).

Evaluation of Noise

Questions a): Less than Significant. The proposed project is located at the existing PCM, which is located within an inholding of the INF. Several PCM personnel reside on-site with their families. Other than those personnel, the closest residences are located

approximately 6 miles east in the community of Rovana. One-half mile from the proposed project site, a USFS trailhead provides access to three trails for recreation including day-hiking, backpacking, fishing, and horseback riding.

Recreational users of the nearby trails and the PCM personnel and their families who live on-site could be exposed to noise generated by project construction. During PCM, LLC's estimated six-week construction period, the proposed project would increase noise levels and vehicular traffic within the existing mine property and along Pine Creek Road. No substantial construction activities are proposed outside of the mine adits. Pre-assembly of equipment would be performed offsite in appropriate warehouse facilities. The construction of the proposed project would be short in duration, primarily be conducted off-site or in the subterranean Easy-Go Mine Adit, and would result in a low magnitude noise disturbance, which would conform to the Inyo County General Plan and County Code.

The turbine and additional equipment needed for the proposed project would be located within the mine adit approximately 2,480 feet from the entrance of adit. As discussed above, the proposed turbine would be audible at levels up to 65 dBA within 20 to 30 feet of the turbine enclosure. Noise from the turbine and generator is usually less than 45 dBA at distances over 250 feet from the unit (HELIX 2019). The Inyo County General Plan established noise limits for the various different land uses in Inyo County. As shown in Table 14, Mining, Industrial, Manufacturing, Utilities, and Agriculture land uses have a normally acceptable noise level (Ldn) between 66-70(Ldn), as discussed above the audible noise from the turbine on adjoining properties would be barely perceptible at levels less than 45 dBA. Some PCM personnel who would be involved in proposed project construction and operation already live on-site with their families, which results in one to two vehicle trips per day. Operation of the proposed project would not increase vehicle trips or human presence, as the proposed project would not involve additional employees. The routine inspection and maintenance of facilities by current personnel should not increase noise or other disturbance resulting from human presence or vehicles from what currently exists on proposed project lands. FERC's staff-recommended measure addresses any potential noise impacts to the Sierra Nevada Bighorn Sheep. The proposed project would have a **less than significant impact**.

Question b): Less than Significant Impact. The proposed project would not produce excessive groundborne vibration or groundborne noise levels. Typically, the water turbine and generator (of this class) will have a barely perceptible vibration within 20 to 30 feet of the turbine. Typical water turbine and generator systems vibration are damped by normal soils to less than human perceptible at distances from 50 to 200 feet from the units. The proposed turbine would be located 2,480 feet within an existing adit, the only people who would potentially feel the vibration of the turbine would be the mine administrators during construction and maintenance activities (HELIX 2019a). Therefore, the proposed project would have a **less than significant impact**, and no mitigation would be necessary.

XIV. POPULATION AND HOUSING

POPULATION AND HOUSING. Would the project:	Potential Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Environmental Setting

The proposed project would involve the utilization of an existing mine adit to generate hydroelectric energy. The proposed project would not include new residential development or the displacement of existing housing.

Evaluation of Population and Housing

Question a): No Impact. The proposed project would not include residential development. Roads and other infrastructure needed to access the site were previously developed to access the Tungsten Mine. The proposed project would not induce population growth in the area. Therefore, the proposed project would have **no impact**, and no mitigation would be necessary.

Question b): No Impact. The proposed project is located on an old mine site. Some PCM personnel reside on site with their families in existing housing. The proposed project does not include demolition of any structures on-site; therefore, neither existing housing units nor people would be displaced, and no replacement housing would be required. There would be **no impact**, and no mitigation would be necessary.

XV. PUBLIC SERVICES

PUBLIC SERVICES. Would the project:	Potential Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:				
a) Fire protection?	<input type="checkbox"/>	<input type="checkbox"/>	■	<input type="checkbox"/>
b) Police protection?	<input type="checkbox"/>	<input type="checkbox"/>	■	<input type="checkbox"/>
c) Schools?	<input type="checkbox"/>	<input type="checkbox"/>	■	<input type="checkbox"/>
d) Parks?	<input type="checkbox"/>	<input type="checkbox"/>	■	<input type="checkbox"/>
e) Other public facilities?	<input type="checkbox"/>	<input type="checkbox"/>	■	<input type="checkbox"/>

Environmental Setting

The proposed project is located north of Bishop, California, at the top of Pine Creek Canyon, above the confluence of Morgan and Pine Creeks. The community of Rovana is located approximately 6 miles east of the proposed project. Public services provided by Inyo County in Rovana include fire, police, and school services. SCE currently supplies electricity to the project site.

Evaluation of Public Services

Questions a), b), c), d), and e): Less than Significant. Several PCM personnel currently live on site with their families. The proposed project would utilize existing personnel and would not expand the occupancy of the site. Because there are no unique aspects of the proposed project that would increase service demands or render the current service level to be inadequate, no new public facilities would be necessary to serve the proposed project. The impact of the proposed project would be **less than significant**, and no mitigation would be necessary.

XVI. RECREATION

RECREATION. Would the project:	Potential Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Environmental Setting

Regional recreation resources in the vicinity of the proposed project are primarily associated with the INF. The INF encompasses over two million acres of land and extends approximately 165 miles along the eastern slope of the Sierra Nevada Mountains, near the California and Nevada border. Notable features and areas within the INF include Mount Whitney, the Devil’s Postpile National Monument, Mono Lake, Mammoth Lakes, and the Ancient Bristlecone Pine Forest. The INF also includes nine federally designated wilderness areas: Hoover; Ansel Adams; Owens River Headwaters; John Muir; White Mountains; Boundary Peak; Inyo Mountains; Golden Trout; and, South Sierra.

Year-round recreation opportunities are abundant in the INF, and include sightseeing, wildlife viewing, picnicking, fishing, flatwater and whitewater boating, hiking, backpacking, mountaineering, developed and un-developed/primitive camping, mountain biking, off-highway vehicle trail riding, skiing, snowboarding, snowshoeing, cross country skiing, snowmobiling, and horseback riding. Many of these recreation opportunities are accessible within a 15-mile radius of the proposed project site. One half mile from the proposed project site, an existing USFS trailhead provides access to three trails which lead to high-altitude lake and meadow areas that are above the proposed project site and provide recreational opportunities including day-hiking, backpacking, fishing, and horseback riding. The Pine Creek Pack Station, which operates seasonally, is adjacent to the trailhead and leads horseback riding and pack animal excursions for visitors on the nearby Pine Creek Pass.

There are no existing recreational uses of the lands on which the project is proposed to be constructed. Public access to the private mine property is restricted. “No Trespassing” and “Private Property” signs are posted at a locked gate where Pine Creek Road intersects with the private mine access road, at the private property boundary (FERC 2018).

Evaluation of Recreation

Question a): No Impact. Several PCM personnel live on-site with their families. The personnel would be involved with the installation of the proposed facilities and would be responsible for the long-term operation and maintenance of the new facilities. As such, an increase in human presence is not anticipated that would increase the use of recreational facilities. The proposed project would have **no impact** on existing regional parks, INF recreational land, or other recreational facilities, and no mitigation would be necessary.

Question b): No Impact. The proposed project does not include construction of recreational facilities and would not require the expansion of existing recreational facilities. Therefore, the proposed project would have **no impact**, and no mitigation would be necessary.

XVII. TRANSPORTATION AND TRAFFIC

TRANSPORTATION. Would the project:	Potential Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Would the project conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Result in inadequate emergency access?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Environmental Setting

Pine Creek Road, a segment of which is maintained by Inyo County and another segment by USFS, is the only road to the private mine property. Pine Creek Road is approximately 10 miles in length from its intersection with U.S. Route 395 at Mesa, CA, to the PCM property. Beginning about two miles west of Rovana, Pine Creek Road enters the INF, and is bound on both sides by land managed by the USFS for approximately 5.5-miles until its intersection with the existing mine access road at the PCM property. Upon entering the private mine property, PCM, LLC would use the existing mine access road to reach the mouth of the adit where the subsurface project boundary begins. This private access road is a graded, bare-earth roadway entirely within the boundary of the PCM property and has been used historically by the previous mining companies and personnel of the property to gain access from Pine Creek Road to the mine adits and appurtenant mining facilities.

Pine Creek Road is not exclusively used for PCM purposes. The road is also used by visitors of the INF to access the nearby Pine Creek Pass trailheads and Pine Creek Pack Station, and by residents to access their properties in nearby Rovana and Round Valley.

Airports

No private or public airports are located within the proposed project vicinity. The nearest public airport is Eastern Sierra Regional Airport, located approximately 18 miles east of the project site in the City of Bishop. The Mammoth-Yosemite Airport is located approximately 19 miles north of the proposed project.

Evaluation of Transportation and Traffic

Questions a) and b): Less than Significant Impact. PCM, LLC would use the existing Pine Creek Road, and private mine access road, so that no new roads would need to be constructed to access the proposed project. The proposed project would use Pine Creek Road to complete construction, and future daily operation and maintenance activities related to the proposed project. Pine Creek Road is the only route to the Pine Creek Pack Station, the nearby USFS recreational trailhead, and the communities of Rovana and Round Valley. PCM, LLC would use Pine Creek Road for one trip of a semi-truck and 5-10 round trips during construction and estimates one to two trips per week for project operation and maintenance. This amount of use is minor relative to current use of Pine Creek Road. The proposed project would have **a less than significant impact** on applicable plans, programs, ordinances and policies establishing measures of effectiveness for the performance of the circulation system, as well as on VMT, and no mitigation would be necessary.

Question c): No Impact. As proposed, the proposed project would introduce no new design features on the existing roadway. Therefore, the proposed project would have **no impact**, and no mitigation would be necessary.

Question d): No Impact. Consistent with Inyo County's 2016 Emergency Operations Plan, the County maintains pre-designated emergency evacuation routes along major streets and thoroughfares. No aspect of the proposed project would modify these streets or preclude their continued use as an emergency evacuation route. Therefore, the proposed project would have **no impact** on emergency access, and no mitigation would be necessary.

XVIII. TRIBAL CULTURAL RESOURCES

TRIBAL CULTURAL RESOURCES. Would the project:	Potential Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:				
i. Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
ii. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Environmental Setting

The environmental setting for Tribal Cultural Resources (TCR's) is located in Section V (Cultural Resources) of this IS/ND.

Effective July 1, 2015, Assembly Bill 52 (Stats. 2014, ch. 532) requires that the CEQA lead agency provide notice to any California Native American tribe that has requested notice from the lead agency of projects subject to CEQA review within the tribe's geographic area of tribal and cultural affiliation. Assembly Bill 52 requires the lead agency to consult with any tribe that requests such consultation within 30 days of receipt of the lead agency's notice. Section 21073 of the Public Resources Code defines California Native American tribes as "a Native American tribe located in California that is on the contact list maintained by the NAHC for the purposes of Chapter 905 of the Statutes of 2004." This includes both federally and non-federally recognized tribes.

In October of 2013 the Big Pine Paiute Tribe of the Owens Valley participated in the cultural resource investigation for the proposed project. On September 22, 2016, the State Water Board deemed PCM, LLC's application for water quality certification (under section 401 of the CWA) for the proposed project complete. On July 12, 2017, the Big Pine Paiute Tribe of the Owens Valley requested Assembly Bill 52 notification from the State Water Board for all projects subject to CEQA within Inyo County, Mono County, northern San Bernardino County, and northeast Kern County.

In February of 2018, FERC published an EA for the proposed project, which determined that the proposed project would have no adverse effect.

In January 2019, following State Water Board staff inquiry, the NAHC provided information regarding its records of TCR's and California Native American tribe contacts related to the proposed project area. On March 29, 2019, the State Water Board notified the responsible agencies, trustee agencies, and California Native American tribes identified by the NAHC of the Board's intention to initiate CEQA review. The State Water Board did not receive responses from any California Native American tribe regarding this notification. The State Water Board's notification letter and responses received are located in **Appendix L**.

In the event of accidental disturbance or discovery of a previously unidentified cultural resource, including a TCR, during construction, operation, or maintenance of the proposed project, PCM, LLC committed in its application that it "shall stop all land-disturbing activities in the vicinity of the resource"; shall consult with the California SHPO, USFS, and Native American tribes; and, if the cultural resource is determined to be eligible for listing on the NRHP, shall develop and file an appropriate HPMP (PCM, LLC 2016b; FERC 2018).

Tribal Cultural Resources Under CEQA

Assembly Bill 52 established TCR's as an environmental factor that must be considered and analyzed under CEQA. The purpose of Assembly Bill 52's consultation and review provisions is to require a lead agency to identify TCR's that may be significantly impacted by the proposed project, and to avoid or mitigate significant impacts prior to project approval and implementation, while also maintaining proper respect for

California Native American tribes and the TCR's with which they are traditionally and culturally affiliated. Section 21074, subdivision (a) of the Public Resources Code defines TCR's for the purpose of CEQA as:

- (1) Sites, features, places, cultural landscapes (geographically defined in terms of the size and scope), sacred places, and objects with cultural value to a California Native American tribe that are either of the following:
 - (A) Included or determined to be eligible for inclusion in the California Register of Historical Resources.
 - (B) Included in a local register of historical resources as defined in subdivision (k) of Section 5020.1. [or]
- (2) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Section 5024.1. In applying the criteria set forth in subdivision (c) of Section 5024.1 for the purposes of this paragraph, the lead agency shall consider the significance of the resource to a California Native American tribe.

Because the criteria in subdivisions (a)(1)(A) and (a)(1)(B) also meet the definition of a Historical Resource under CEQA, a TCR may also require additional consideration as a Historical Resource. TCR's may or may not exhibit archaeological, cultural, or physical indicators and can only be identified by a culturally affiliated tribe, which has been determined under state law to be the subject matter expert for TCR's.

Evaluation of Tribal Cultural Resources

Questions a)i. and a)ii.: No Impact. There are no known TCR's located on or immediately adjacent to the project site. There would be **no impact**, and no mitigation would be necessary.

XIX. UTILITIES AND SERVICE SYSTEMS

UTILITIES AND SERVICE SYSTEMS. Would the project:	Potential Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Generate solid waste in excess of state or local standards or in excess of the capacity of local infrastructure?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Environmental Setting

The project site is serviced by SCE for electricity, a private septic and wastewater system, and private water. The proposed project would connect the hydroelectric equipment to an existing PCM substation. The substation has existing connections to an SCE-owned substation and transmission lines operating at 12.0kV. The proposed

project would not require, and PCM, LLC does not propose, expansion of existing wastewater treatment facilities.

Evaluation of Utilities and Service Systems

Questions a) and c): No Impact. The proposed project does not involve high-intensity use that would generate substantial quantities of wastewater. The proposed project would involve the installation of hydroelectrical equipment to produce renewable energy. Wastewater produced by the individuals living and/or working on-site would not increase from present levels as an increase in residence or staffing is not proposed or anticipated. The proposed project would maintain compliance with regulatory permitting which would ensure that stormwater runoff is controlled. The proposed project would not include the construction or relocation of new water or wastewater treatment facilities. Appropriate facilities exist on-site from the site's previous use as a mine. The proposed project would have **no impact**, and no mitigation would be necessary.

Question b): No Impact. The project site privately sources its domestic water from the snowmelt of the Sierra Nevada Mountain range. Several PCM personnel reside on-site with their families. These personnel would be involved in the installation and operation of the proposed project. The proposed project would not include an increase in staffing or housing and therefore would not require an increase in its water source for domestic use.

Groundwater in the mine currently flows through the Easy-Go Adit. PCM, LLC proposes to operate the proposed project in "run-of-mine," in which flow releases from the proposed project would approximate groundwater inflows to the mine. After generating power at the Discharge System Project, water is released into an existing discharge pond which then flows over a concrete spillway into Morgan Creek. The operation of the facility would not reduce water supply on-site or require expanded water entitlements. Therefore, the proposed project would have **no impact**, and no mitigation would be necessary.

Questions d) and e): Less than Significant. The proposed project would not require changes to the current solid waste capacity to accommodate it. Solid waste needs for the proposed project would be minimal. All project-related debris, building materials, excess material, waste, and trash would be disposed of at an authorized landfill or other disposal site with the capacity to accommodate the proposed project's solid waste disposal, in compliance with state and local laws, ordinances, and regulations. The proposed project would not impair the attainment of solid waste reduction goals. Therefore, the proposed project would have a **less than significant impact**, and no mitigation would be necessary.

XX. WILDFIRE

WILDFIRE. If located in or near state responsibility areas or land classified as very high fire hazard severity zones, would the project:	Potential Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Substantially impair an adopted emergency response plan or evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability or drainage changes?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Environmental Setting

The proposed project is located within an inholding in the INF. According to the CAL FIRE State Responsibility Area Viewer and Fire Hazard Severity Zone Map the project site is located within a state responsibility area in an area with moderate fire risk (CAL FIRE 2012) (CAL FIRE 2007).

Local Regulations

Inyo County Emergency Operations Plan

In 2016, The Inyo County Board of Supervisors reviewed and approved the Inyo County Emergency Operations Plan. The Emergency Operations Plan was created to describe and plan for how Inyo County will prepare and respond to operational area emergencies

and disasters. The Emergency Operations Plan includes a section addressing fire, which identifies fire risks in the County, the potential fire scenarios, and resources to help address those risks.

Evaluation of Wildfire

Question a): No Impact. The project site would be accessed by the existing Pine Creek Road, which is maintained by the County and USFS. The proposed project would not increase human presence on site as the project would be maintained by personnel who currently work, and some of whom currently live with their families, on-site. No aspect of the proposed project would impair an adopted emergency response plan or emergency evacuation plan. Therefore, the proposed project would have **no impact**, and no mitigation would be necessary.

Question b): Less than Significant. The proposed project is located on a site that is currently in use and that was historically utilized as a mine. The site is within the Sierra Nevada Mountain Range and is surrounded by mountains with drastic slopes. The proposed project would install a hydroelectric turbine within the mine adit, about 2,480 linear feet underground from the Easy-Go Service Utility Portal. The turbine would connect to existing utility lines within the mine which would connect to an existing private substation. The minor improvements to the site would have a **less than significant impact**, and no mitigation would be necessary.

Question c): No Impact. The proposed project would not require the installation or maintenance of associated infrastructure. The proposed project would utilize the existing pine Creek Road. Construction of the proposed project would require several truck trips on the road to install the turbine and associated equipment while operation would only require occasional truck trips to the site for inspection of the equipment, therefore additional maintenance of the road would not be necessary. The proposed project would connect to existing utilities which would connect to an existing substation that would transfer power to existing SCE utility lines. The proposed project would not require the installation or maintenance of infrastructure that may exacerbate fire risk or result in related temporary or ongoing impacts. The proposed project would have **no impact**, and no mitigation would be necessary.

Question d): No Impact. The proposed project would install a turbine and associated equipment into an existing mine adit with an existing concrete plug represented by registered professional geologists and engineers to be structurally sound and appropriate for the storage and transportation of water for hydroelectric generation under the proposed project. The proposed project would not change current conditions—neither the existing people and structures on-site nor the risks to them. Therefore, the proposed project would have **no impact**, and no mitigation would be necessary.

XXI. MANDATORY FINDINGS OF SIGNIFICANCE

MANDATORY FINDINGS OF SIGNIFICANCE. Would the project:	Potential Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
<p>The lead agency shall find that a project may have a significant effect on the environment and thereby require an EIR to be prepared for the project where there is substantial evidence, in light of the whole record, that any of the following conditions may occur. Where prior to commencement of the environmental analysis a project proponent agrees to MMs or project modifications that would avoid any significant effect on the environment or would mitigate the significant environmental effect, a lead agency need not prepare an EIR solely because without mitigation the environmental effects would have been significant (per Section 15065 of the State CEQA Guidelines):</p>				
<p>a) Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?</p>	□	□	■	□

MANDATORY FINDINGS OF SIGNIFICANCE. Would the project:	Potential Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
b) Does the project have impacts that are individually limited, but cumulatively considerable? (“Cumulatively considerable” means that the incremental effects of a project are significant when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of past, present and probable future projects)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Evaluation of Mandatory Findings of Significance

Question a): Less than Significant Impact. The preceding analysis indicates that the proposed project has less than significant impact on biological and cultural resources. See Section IV of this Initial Study for discussion of the proposed project’s effect on biological resources. With implementation of the FERC staff-recommended measure, PCM, LLC would consult with CDFW and FWS to define a construction schedule for the proposed project to reduce any potential for impact on SNBS during sensitive lambing periods (on average, mid-April through July). As a part of the project description, PCM, LLC has also agreed to implement an Initial Fill plan to strategically plan the initial filling of the reservoir. The plan would reduce any potential impact to riparian habitat and or species. See Section V of this Initial Study for discussion of the proposed project’s potential effect on Cultural Resources, Section XVIII of this Initial Study for discussion of the proposed project’s potential effect on Tribal Cultural Resources, and Section VII for discussion of the proposed project’s potential effect on Paleontological. With implementation of the measures included in the proposed project, and compliance with federal, state, and County programs and requirements identified in this report, impacts of the proposed project would be **less than significant**.

Question b): Less than Significant Impact. While the proposed project could indirectly contribute to cumulative impacts associated with increased development in the County and region, these impacts have previously been evaluated by the County and considered in development of the County’s General Plan as set forth in this Initial Study. Key areas of concern are discussed in detail below.

Evaluation of cumulative air quality impacts: Air Quality is discussed in Section III of this Initial Study. Inyo County is currently in nonattainment for state ozone and PM₁₀ standards. Concentrations of all other pollutants meet state and federal standards. The main source of dust pollutants in Inyo County results from the Owens Lake, which is located approximately 70-miles south of the project site. The only source of dust pollutants associated with the project would occur during project construction. Construction would occur over approximately 6 weeks. Estimated maximum daily emissions generated during construction are listed in **Table 5**. As shown therein, emissions of all criteria pollutants related to proposed project construction would be below the SCAQMD's significance thresholds.

The proposed project would have a **less than significant** cumulative impact on air quality in the region and no mitigation would be necessary.

Evaluation of cumulative biological resources impacts: A Biological Resources Report and a Baseline Aquatic Habitat Monitoring Survey were prepared for the proposed project. Numerous biological surveys were conducted for the proposed project which can be found in **Table 3** of this Initial Study. Sensitive species and habitat were noted in Section IV (Biological Resources) of this Initial Study. Cumulative impacts to the Sierra Nevada Bighorn Sheep and aquatic habitat may result in an overall impact on the viability of certain species. With implementation of the FERC staff-recommended measure, the impacts would be reduced to a **less than significant** level, and potentially cumulative effects would be avoided.

Evaluation of cumulative cultural resources, tribal cultural resources, or unique paleontological/geologic resources impacts: A Cultural Resources Investigation, Cultural Resources Inventory and Evaluation Report and a Finding of Effect were prepared for the project site. Additionally, a pedestrian survey was undertaken of the project site by a senior archaeologist. One building was listed of historic importance on the project site. This building would not be removed, modified, or harmed in any way as a result of the proposed project. Although no evidence of other cultural resources of significance were noted on project site, the PCM, LLC recognizes that sensitive and/or protected resources could be unintentionally discovered during project construction. In addition to being subject to existing generally-applicable state and federal laws, the proposed project includes a provision for work stoppage and necessary consultation with state, federal, and tribal officials in the unlikely event of unintentional discovery. The potential impacts would be **less than significant**, and potentially significant cumulative impacts to cultural, tribal cultural, and unique paleontological or geologic resources would be avoided.

Evaluation of cumulative transportation impacts: Cumulative transportation impacts were evaluated in Section XVII of this Initial Study. The proposed project would use the existing Pine Creek Road, and private mine access road, so that no new roads would need to be constructed. Pine Creek Road is currently used for access to the mine, the community of Rovana and recreational trails in the INF. PCM, LLC would use Pine Creek Road for one trip of a semi-truck and 5-10 round trips during construction, and estimates one to two trips per week for project operation and maintenance, this amount

of use minor relative to current use of Pine Creek Road by the public and would have a **less than significant cumulative impact** on the circulation of that road.

Question c): Less than Significant Impact. The proposed project would have a less than significant impact on the potential to cause substantial adverse effects on human beings. Key areas of concern are discussed in detail below.

Evaluation of Hazards and Hazardous Materials:

Hazards and Hazardous Materials are discussed in Section VIII of this Initial Study. The proposed project would result in an increase in the generation, storage, and disposal of hazardous wastes. If hazardous materials are spilled during project construction, these substances could pose a risk to the environment and to human health, creating a significant impact. PCM, LLC would develop a Hazardous Substances Management Plan as a part of the project description. The proposed project would have a **less than significant impact**.

The project site is surrounded by forest in the high elevations of the eastern sierra mountain range. While the project would not involve operations that are prone to wildfires, an increase in activity in forested areas has a potential impact on the increase in wildland fires and to create a substantial threat to human beings. To reduce and plan for potential wildland fires, PCM, LLC would develop a Fire and Fuels Management Plan as a part of the project description. The proposed project would have a **less than significant impact**.

Evaluation of Hydrology and Water Quality:

Section X of this Initial Study discusses Hydrology and Water Quality. Due to past mining activities on-site, there is concern regarding the quality of the water emanating from the Easy-Go Adit. PCM, LLC has performed various water quality tests of the water exiting the mine. When ore was being extracted from PCM, which ended in 1990, the untreated water contained suspended particulate derived mainly from granite, garnet and mica. Most of these solids were removed in the mine water treating facility, before the flow was discharged to Morgan Creek. Now that the mine is no longer in production, the water quality of the mine discharge is very high, with TDS concentrations of less than 70 parts per million. The most recent water quality testing performed in 2015 by BC Labs, shows that the water tested, exiting the mine has been well below state water quality objectives (BCL 2015). However, due to the past mine use on-site, the project has the potential to have an impact on water quality which could impact human beings. As part of the proposed project, PCM, LLC would prepare and implement a Water Quality Protection and Monitoring Plan to ensure discharges and other activities of the proposed project will continue to comply with applicable federal and state water quality standards. Additionally, under section 401, the proposed project should be required to comply with the State Water Board's water quality certification conditions which will further ensure the proposed project will comply with federal and state water quality standards, protect beneficial uses of water, and meet other appropriate requirements of state law. With the implementation of these project

measures, the proposed project would have a **less than significant impact** on the well-being of humans.

The proposed project would involve the filling of a subterranean reservoir to create a gross head of up to 1,320 feet for power generation. The reservoir would be filled by plugging the existing 12-foot-wide, 12-foot-high, and 30-foot-thick concrete plug located inside the mine approximately 2,500 feet from the Easy-Go portal. If the plug were to give way, the proposed project could expose people and or structures to danger. The plug was inspected by SGSI in 2011 and again in 2019. The plug was found to be stable and unlikely to fail in any catastrophic mode. The proposed project could have a potential impact if the long-term stability of the plug is affected by seepage through the rock if the grouting was not sufficiently effective or if the grout cement eroded by acid attack. PCM, LLC proposes to prepare a Plug Maintenance and Inspection Plan, which would ensure that the plug remain in stable condition.

8.0 INITIAL STUDY PREPARERS

State Water Resources Control Board

Jeff Wetzel, Senior Water Resource Control Engineer

Philip Meyer, Environmental Scientist

Steven Westhoff, Attorney III

HELIX Environmental Planning, Inc.

Robert Edgerton, AICP CEP, Project Manager

Daniel Van Essen, Environmental Planner/GIS Specialist

Lesley Owning, Environmental Planner

Victor Ortiz, Air Quality/Greenhouse Gas Emissions Specialist

Charles Terry, Noise Specialist

9.0 REFERENCES

- BC Laboratories, Inc. (BCL). 2015. Pine Creek Mine Water Quality Testing and Analysis. Samples received 7/28/2015.
- _____. 2004. Pine Creek Mine Water Quality Testing and Analysis. Samples received September 2004.
- Brown, Frances. 1991. [George Brown: A Man of the People](http://www.owensvalleyhistory.com/george_brown/page67.html). Accessed on October 29, 2018 at http://www.owensvalleyhistory.com/george_brown/page67.html.
- California Air Resources Board (CARB). 2017. [State Area Designations and Maps](http://www.arb.ca.gov/desig/changes.htm#reports). Accessed on November 9, 2018 at <http://www.arb.ca.gov/desig/changes.htm#reports>.
- _____. 2018. [Air Quality Data and Statistics](https://www.arb.ca.gov/adam/index.html). Accessed on November 9, 2018 and available at <https://www.arb.ca.gov/adam/index.html>.
- _____. 2017. [California's 2017 Climate Change Scoping Plan](https://www.arb.ca.gov/cc/scopingplan/scoping_plan_2017.pdf). Accessed on November 9, 2018 and available at https://www.arb.ca.gov/cc/scopingplan/scoping_plan_2017.pdf.
- _____. 2016 ARB Review of PM10 State Implementation Plan for Owens Valley.
- _____. 2008. Climate Change Scoping Plan-A Framework for Change.
- California Department of Conservation. 2016. [California Important Farmland Finder](https://maps.conservation.ca.gov/dlrp/ciff/). Accessed November 5, 2018 at <https://maps.conservation.ca.gov/dlrp/ciff/>.
- _____. 2018. [Earthquake fault zones](http://www.conservation.ca.gov/cgs/Documents/CGS_SP42_2018.pdf). Accessed on November 6, 2018 at http://www.conservation.ca.gov/cgs/Documents/CGS_SP42_2018.pdf.
- California Department of Forestry and Fire Protection (CAL FIRE). 2007. Inyo County Fire Hazard Severity Map.
- _____. 2012. State Responsibility Viewer.
- California Department of Toxic Control. 2018. [Hazardous Waste and Substance List](https://www.envirostor.dtsc.ca.gov/public/search.asp?cmd=search&reporttype=ORTESE&site_type=CSITES,OPEN,FUDES,CLOSE&status=ACT,BKLG,COM&reporttitle=HAZARDOUS+WASTE+AND+SUBSTANCES+SITE+LIST). Accessed on May 28, 2020 at https://www.envirostor.dtsc.ca.gov/public/search.asp?cmd=search&reporttype=ORTESE&site_type=CSITES,OPEN,FUDES,CLOSE&status=ACT,BKLG,COM&reporttitle=HAZARDOUS+WASTE+AND+SUBSTANCES+SITE+LIST.
- California Department of Transportation (Caltrans). 2011. Map of Officially Designated Scenic Highways in Sacramento County.

California Energy Commission (CEC). 2018. [Energy Almanac: Total System Electric Generation](https://www.energy.ca.gov/almanac/electricity_data/total_system_power.html). Accessed January 14, 2019 at https://www.energy.ca.gov/almanac/electricity_data/total_system_power.html.

_____. 2017a. Energy Almanac: Supply: Supply and Demand of Natural Gas in California.

_____. 2017b. [Energy Almanac: California Gasoline Data, Facts and Statistics](http://www.energy.ca.gov/almanac/transportation_data/gasoline/). Accessed on January 14, 2019 at http://www.energy.ca.gov/almanac/transportation_data/gasoline/.

_____. 2017c. [Energy Almanac: Diesel Fuel Data, Facts and Statistics](https://www.energy.ca.gov/almanac/transportation_data/diesel.html). Accessed on January 14, 2019 at https://www.energy.ca.gov/almanac/transportation_data/diesel.html.

_____. 2017d. [RPS Eligibility Guidebook, Ninth Edition Revised](https://www.energy.ca.gov/programs-and-topics/programs/renewables-portfolio-standard/renewables-portfolio-standard-0). CEC-300-2016-006-ED9-CMF-REV. Accessed on June 22, 2020 at <https://www.energy.ca.gov/programs-and-topics/programs/renewables-portfolio-standard/renewables-portfolio-standard-0>.

California Environmental Protection Agency (CalEPA). 2020. [Cortese List Data Resources](https://calepa.ca.gov/sitecleanup/corteselist/). Accessed on June 16, 2020 at <https://calepa.ca.gov/sitecleanup/corteselist/>.

California Legislative Information. 2012. [Fish and Game Code \[2000-2948\]](http://leginfo.legislature.ca.gov/faces/codes_displaySection.xhtml?lawCode=FGC§ionNum=2835). Accessed on November 8, 2018 at http://leginfo.legislature.ca.gov/faces/codes_displaySection.xhtml?lawCode=FGC§ionNum=2835.

California State Water Resources Control Board (SWRCB). 2015. Comments on Preliminary License Proposal For Pine Creek Mine Hydroelectric Project; Federal Energy Regulatory Commission Project No. 12532; Inyo County.

_____. 2020. [GeoTracker](https://geotracker.waterboards.ca.gov/search?CMD=search&case_number=&business_name=&main_street_name=&city=&zip=&county=&SITE_TYPE=LUFT&ilfield=&STATUS=&BRANCH=&MASTER_BASE=&Search=Search). Accessed on June 17, 2020 at https://geotracker.waterboards.ca.gov/search?CMD=search&case_number=&business_name=&main_street_name=&city=&zip=&county=&SITE_TYPE=LUFT&ilfield=&STATUS=&BRANCH=&MASTER_BASE=&Search=Search.

Danskin, Wesley. 1998. [Evaluation of the Hydrologic System and Selected Water-Management Alternatives in the Owens Valley, California](https://ca.water.usgs.gov/archive/reports/wsp2370/). Accessed November 9, 2018 at <https://ca.water.usgs.gov/archive/reports/wsp2370/>.

ECORP Consulting, Inc. 2013. Pine Creek Baseline Aquatic Habitat Monitoring Survey.

Engineering and Mining Journal. 1907-1968. McGraw Hill Publishing Company, New York.

- Federal Emergency Management Agency (FEMA). 2011. [FEMA Flood Map Service Center](#). Accessed November 19, 2018 and available at <https://msc.fema.gov/portal>.
- Federal Energy Regulatory Commission (FERC). 2018. Environmental Assessment, Pine Creek Mine Hydroelectric Project-FERC Project No. 12532-006 (PCM).
- HELIX Environmental Planning, Inc. (HELIX). 2019. Emissions Modeling for Pine Creek Mine.
- _____. 2019a. Background Noise Information and Qualitative Analysis.
- Inyo County. 2001. General Plan Update. Accessed on November 5, 2018.
- _____. 1973. Inyo County Code. Adopted 1973.
- _____. 2016. [Inyo County 2016 Emergency Operations Plan](#). Adopted May 3, 2016 and available at: <https://www.inyocounty.us/sites/default/files/2019-07/INYO%20COUNTY%202016%20EOP-FINAL.pdf>.
- _____. 2014. [Inyo County Energy Efficiency General Plan Amendment](#). Adopted 2014 and available at: <https://www.inyocounty.us/sites/default/files/2020-04/EnergyEfficiencyChapter8.10.pdf>.
- Glenn Lukos Associates, LLC (GLA). 2013. Biological Resources Report, Pine Creek Mine Hydroelectric Project (FERC Project No. 12532-002).
- Great Basin Unified Air Pollution Control District (District). 2018. [Great Basin Unified Air Pollution Control District Website](#). Accessed on November 20, 2018. Available at <https://www.gbuapcd.org/>.
- Hydrologic Consultants, INC. (HCI). 1990. An Investigation of the Quantity and Source of Mine-Water Discharge Through Time, Pine Creek Facility, U.S. Tungsten Corporation, Pine Creek Valley, California.
- Intergovernmental Panel on Climate Change (IPCC). 2007. *Climate Change 2007: The Physical Science Basis. Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change*. Intergovernmental Panel on Climate Change, Cambridge, United Kingdom and New York, NY, USA: Cambridge University Press, 2007, 996.
- JRP Historical Consulting, LLC and Davis-King & Associates (JRP and Davis-King). 2014. Cultural Resources Investigations for the Pine Creek Mine Hydroelectrical Project (FERC Project No. 12532).

_____. 2015. Cultural Resources Inventory and Evaluation Report for Pine Creek Mine Hydroelectric Project (FERC Project No. 12532).

JRP Historical Consulting, LLC (JRP). 2015. Pine Creek Mine Hydroelectric Project Finding of Effect (*No Adverse Effect*).

Natural Resources Conservation Service, United States Department of Agriculture (NRCS). 2018. [Pine Creek Mine in Inyo County, California](http://websoilsurvey.nrcs.usda.gov). Accessed November 2, 2018 at <http://websoilsurvey.nrcs.usda.gov>.

Pine Creek Mine, LLC (PCM, LLC). 2016a. [Final Application for Original License: Pine Creek Mine Tunnel Hydroelectric Project; FERC Project No. 12532](https://elibrary.ferc.gov/). FERC eLibrary no. 20160212-5280. Available at <https://elibrary.ferc.gov/>.

_____. 2016b. [Revised Final Application for Original License: Pine Creek Mine Tunnel Hydroelectric Project; FERC Project No. 12532](https://elibrary.ferc.gov/). FERC eLibrary no. 20160708-5031. Available at <https://elibrary.ferc.gov/>.

Sierra Geotechnical Services Inc (SGSI). 2011. Seismic and Geotechnical Study Easy Go Adit Tunnel Plug, Pine Creek Mine, Inyo County, California.

_____.2006. Sediment Accumulation Behind Concrete Bulkhead.

_____.2015. Response to FERC Comments. May 18, 2015.

_____.2019. Review of Conditions- Easy-Go Adit Tunnel Plug.

State of California, Regional Water Quality Control Board, Lahontan Region Water Quality Control Board (RWQCB). 1995. [Water Quality Control Plan for the Lahontan Region, North and South Basins](https://www.waterboards.ca.gov/lahontan/water_issues/programs/basin_plan/docs/ch1_intro.pdf). Accessed February 12, 2019 at https://www.waterboards.ca.gov/lahontan/water_issues/programs/basin_plan/docs/ch1_intro.pdf.

_____. 2014. Board Order No. R6V-0061, WDID No. 6B142000001. Rescission of Waste Discharge Requirements Board Order No. 6-00-93 for Avocet Tungsten, Inc. Pine Creek Operations-Mining Waste Disposal Facilities, Inyo County.

_____. 2002. Comments on the Draft Mitigated Negative Declaration for the Pine Creek Development Museum Project Reclamation Plan, Pine Creek, Inyo County.

Transportation Research Board. 2016. [Highway Capacity Manual—6th Edition](http://www.trb.org/Main/Blurbs/175169.aspx). Accessed on November 5, 2018 at <http://www.trb.org/Main/Blurbs/175169.aspx>.

U.S. Department of Agriculture (USDA). 2018. Notice of Intent to Perform Exploratory Drilling.

U.S. Environmental Protection Agency (EPA). 2018. [Nonattainment areas for criteria pollutants](https://www.epa.gov/green-book). Accessed on November 14, 2018 at <https://www.epa.gov/green-book>.

_____. 2018. [Envirofacts: Hazardous Waste and Substance List](https://www3.epa.gov/enviro/). Accessed on November 14, 2018 at <https://www3.epa.gov/enviro/>.

_____. 2018. [Superfund National Priority List](https://www3.epa.gov/enviro/) Accessed on November 14, 2018 at <https://www3.epa.gov/enviro/>.

U.S. Department of the Interior, National Park Service (USDI, NPS). 1997. National Register Bulletin No. 42: Guidelines for Identifying Evaluating and Registering Historic Mining properties. National Park Service Press, Washington D.C.