

EPA FIS #

RECORD OF DECISION  
FOR  
PLES I GEOTHERMAL PROJECT PLAN OF DEVELOPMENT,  
INJECTION, AND UTILIZATION  
ON  
GEOTHERMAL LEASE NUMBER CA 11667

DECISION

It is my decision to approve Pacific Energy's Plans of Operation for Development, Injection, and Utilization (CA-017-P006-60) for the PLES I Geothermal Project as amended, as described in the Proposed Action Alternative of the Final Environmental Impact Statement/Supplemental Environmental Impact Report (EIS/SEIR). This approval will be subject to the stipulations identified in Attachment 1 of this Record of Decision. The associated Utilization Permit, Geothermal Drilling Permits, and Sundry Notices may also be approved, when consistent with all federal laws, regulations, the approved Plan of Operations, and this approved Record of Decision with attached stipulations.

RATIONALE

I have reviewed the Plans of Operations for Development, Injection and Utilization (CA-017-P006-60), as amended, and the Draft and Final EIS/SEIR prepared under the direction of the Bureau of Land Management (BLM) for the PLES I Geothermal Development Project.

I have reviewed the public and agency comments received during the NEPA process as well as comments received by the Great Basin Unified Air Pollution Control District during their California Environmental Quality Act analysis of the same project. Public involvement was solicited through scoping meetings, a public hearing, contacts with concerned agencies, special interest groups and key individuals. The Draft and Final EIS/SEIR were widely distributed to obtain public and agency input. All public meetings were advertised through letters to interested parties, in local papers and over local radio and television stations (See pages 1-2 and 5-4 of the Final EIS/SEIR for a complete listing of chronological events in the environmental review process of this project).

Alternatives Considered:

- A. Proposed Action Alternative - Construct and operate a 10 MWe (net) binary power plant and geothermal wellfield development project located on public land administered by the Inyo National Forest. The plant site would be located approximately 400 feet north of the intersection of Hot Springs Road and the extension of State Route 203 in Mono County, California. The production and injection wellfields are within 2000 feet radius of the plant site.

- B. **Alternate Location Alternative - Construct and operate a 10 MWe (net) binary power plant and geothermal wellfield development project. The power plant and production and injection wellfields would be located on public lands administered by the Inyo National Forest. Geothermal fluid transmission pipelines would cross private lands between the wellfields and power plant. The plant site would be located approximately 3200 feet northwest of the intersection of Hot Spring Road and the extension of State Route 203 in Mono County, California.**
- C. **Smaller Power Plant Alternative - Construct and operate a 7 MWe (net) binary power plant and geothermal wellfield development project. The power plant and wellfields would be in the same location as the proposed action alternative.**
- D. **No Action Alternative - No Project.**

The No Action Alternative is the environmentally preferred alternative because it would create no additional environmental impacts. However, I have decided to approve the Proposed Action Alternative (BLM's preferred alternative) because it allows the proponent to exercise the rights previously granted under the geothermal lease while mitigating the environmental impacts to an acceptable level. In addition, by approving the Proposed Action Alternative, I will foster the use of a clean, domestic renewable alternative energy resource which will not impact the earth's ozone layer and will reduce this nation's energy dependence on foreign sources. The EIS/SEIR documents that the Alternate Location Alternative would have greater impacts than the Proposed Action Alternative and documents that the Smaller Power Plant Alternative did not substantially reduce the impacts of the Proposed Action Alternative. Therefore, neither of these alternatives were selected over the Proposed Action Alternative.

Management Considerations:

This decision is consistent with:

- A. **The Geothermal Steam Act of 1970, as amended, the Act's implementing regulations (found at 43 CFR 3200) and associated operational orders, and Federal geothermal lease CA 11667. No impacts were identified in the subject EIS/SEIR which would justify denial of the lessee's rights to develop the geothermal resources granted under the geothermal lease;**
- B. **The findings of the Final Environmental Impact Statement for the Geothermal Leasing Program (Volume II, Chapter V, Mono - Long Valley KGRA, USDI, 1973) the Supplemented Environmental Assessment for Geothermal Leasing in Long Valley, First Sale Block (USDA, 1981) and its Revised Decision Notice, and the subject EIS/SEIR;**
- C. **The Bureau of Land Management's Mineral Resources Policy of 1984, the Mining and Mineral Policy Act of 1970, the Federal Land Policy and Management Act of 1976, and the National Materials and Minerals Policy, Research and Development Act of 1980;**

the stipulations which I have required as contained in Attachment 1, no significant impacts to recreational resources would result.

The EIS/SEIR analyzed the potential for impacts to mule deer which pass through or summer in the project area. Following nearly two years of field studies, the EIS/SEIR concluded that the proposed project would have a minor impact on mule deer. Attachment 1 contains mitigation measures to ensure that these impacts are reduced to a level of insignificance. I also find that approval of this project does not conflict with the management unit goals, programs, objectives and prescriptions contained in the Buttermilk, Sherwin Grade, and Casa Diablo Deer Herd Management Plans.

The Owens tui chub, a federally listed endangered fish species, is known to exist in the Hot Creek headspring about 3 miles east of the project. A biological assessment was prepared and a Section 7 consultation was completed with the U.S. Fish and Wildlife Service (USFWS) on February 10, 1988. I have concluded that with enforcement of mitigation number 1 on Attachment 1, this project would not affect the Owens tui chub.

Mitigation/Monitoring:

This approval of the Proposed Action Alternative has been made subject to those stipulations contained in Attachment 1, which will also be incorporated into the appropriate permits and approval documents prior to authorization of any construction or future operation. These stipulations, in combination with those measures incorporated by Pacific Energy in the proposed project description (as presented in Chapter 2 of the EIS/SEIR), provide all practical means to avoid or reduce environmental harm. The stipulations in Attachment 1, 43 CFR 3200 regulations and Geothermal Resource Operational Orders contain requirements for effective reporting, monitoring and enforcement of the mitigation measures. Not all mitigation measures identified in Chapter 4 of the EIS/SEIR have been adopted. Attachment 2 lists all the applicable mitigation measures from Chapter 4 of the EIS/SEIR, and Attachment 3 lists which mitigation measures identified in the EIS/SEIR were not adopted with a brief explanation why.

Approved:

Concurred with:

Ed Hastey  
Ed Hastey  
State Director  
BLM California State Office

6-9-89  
Date

Dennis Martin  
for Dennis Martin  
Forest Supervisor  
Inyo National Forest

6-7-89  
Date

Within 30 days of receipt of this decision, you have the right of appeal to the Board of Land Appeals, Office of the Secretary, in accordance with the Regulations at 43 CFR 4.400. If an appeal is taken, you must follow the procedures outlined in the enclosed Form 1842-1,

Information on Taking Appeals to the Board of Land Appeals. The appellant has the burden of showing that the decision appealed from is in error.

**Attachments**

As stated

cc: Regional Forester, USFS Pacific Southwest Region  
Ellen Hardebeck, GBUAPCD  
Dean McAllister, USFS Mammoth Ranger District  
Robert Rheiner, Jr. BLM Bakersfield District Office  
Mike Ferguson, BLM Bishop Resource Area Office  
Pacific Energy  
Interested Parties

## **ATTACHMENT I**

The following stipulations will be attached to the approval of Pacific Energy's Plans of Operation for Development, Injection and Utilization (CA-017-P006-60), as amended:

1. The operator will implement the following monitoring and remedial action program, designed to prevent, or mitigate, potential hydrothermal impacts to the Owens tui chub critical habitat, Hot Creek Hatchery and Hot Creek Gorge springs:
  - a) The operator shall be responsible for reporting to the authorized officer the monitoring measurements required to be collected by the Plan for Baseline Data Collection ("PBDC") approved for the project, or any other monitoring data which may be required by the authorized officer. The approved PBDC will incorporate the monitoring program recommended for the project by the Long Valley Hydrologic Advisory Committee ("LVHAC") dated October 1987, as corrected, including the existing monitoring well SF 65-32, and shall require monitoring information be collected and reported for the C-D Hot Creek headsprings comparable to that recommended by the LVHAC for the A-B Hot Creek headsprings which is critical habitat for the endangered Owens tui chub.
  - b) Prior to commencing commercial geothermal operations, the operator shall prepare, and have approved by the authorized officer, a detailed program for the timely implementation of hydrologic monitoring or remedial action measures which may be required through approval of these Plans of Operation. At a minimum, the program must include basic engineering designs, preliminary equipment fabrication and construction schedules, and permit or rights-of-way acquisition plans and schedules. The operator shall review and update the program annually, or as required by the authorized officer.
  - c) The operator shall establish a funding mechanism to ensure that the mitigation actions described in this stipulation will be implemented in a timely manner. Such funding shall be provided either directly through the provision of materials and services needed to satisfy the monitoring and remedial action requirements described in this stipulation, or indirectly, through insurance, performance bond, dedication of project revenues to a special escrow account or other mechanism acceptable to the authorized officer. The funding mechanism shall be developed by the operator in consultation with the authorized officer, and agreed to by the authorized officer in cooperation with the U.S. Fish and Wildlife Service and California Department of Fish and Game, prior to the commencement of geothermal production by the operator.
  - d) The authorized officer, in cooperation with the U.S. Fish and Wildlife Service regarding the Owens tui chub, and in cooperation with the California Department of Fish and Game regarding the Hot Creek Hatchery and Mammoth Creek/Hot Creek, will, at a minimum, annually evaluate the monitoring data and consult with the U.S. Geological Survey, the California Division of Oil and Gas, the County of Mono, the U.S. Fish and Wildlife Service, and California Department of Fish and Game (the "consulting agencies"), if appropriate, regarding the analysis of the data and the implementation of mitigating measures as indicated appropriate by the conclusions of the analysis of the data.

- e) The operator will fund an independent expert, acceptable to the authorized officer, to conduct annual technical analyses and evaluations of the hydrological monitoring data and will provide all results of these analyses and evaluations to the authorized officer in a timely manner.
- f) If the authorized officer, in cooperation with the U.S. Fish and Wildlife Service regarding the Owens tui chub, and in cooperation with the California Department of Fish and Game regarding the Hot Creek Hatchery and Mammoth Creek/Hot Creek, determines that the available monitoring information indicates the need for further information with respect to a threat posed by plant operations to the beneficial uses of the thermal water, or to the continued existence of the Owens tui chub, the operator shall drill a second monitoring well to be maintained and monitored in conformance with the requirements of Stipulation 1.a) above. The well shall be sited at a location to be determined by the authorized officer and the appropriate governmental agencies with land use jurisdiction, in consultation with U.S. Geological Survey.
- g) If the authorized officer, in cooperation with the U.S. Fish and Wildlife Service regarding the Owens tui chub, and in cooperation with the California Department of Fish and Game regarding the Hot Creek Hatchery and Mammoth Creek/Hot Creek, determines that monitoring information from the existing monitoring well SF 65-32 and all other monitoring information indicate that:
  - (1) Pressure, temperature, and/or chemical changes or trends are occurring within the production or injection fields in excess of the anticipated variations, based on production experience;
  - (2) Pressure, temperature, and/or chemical changes or trends are occurring within the monitoring well(s) in excess of the anticipated range of variations; or
  - (3) Plant operations may threaten an unacceptable impact to other current beneficial uses of thermal water, or threaten a change in the temperature of the A-B or C-D Hot Creek headsprings, then

The operator shall, if required by the authorized officer, immediately implement one or more of the following mitigation actions:

- (1) Temporarily modify the production and/or injection of geothermal fluids within the field and monitor the reservoir response. Modification could include one or more of the following:
  - (i) Change fluid volumes or pressures in one (1) or more production or injection well(s);
  - (ii) Discontinue use of one (1) or more production or injection well(s);
  - (iii) Change the depth of injection;
  - (iv) Relocate one (1) or more production or injection well(s); or
  - (v) Any other measure as directed by the authorized officer, or

(2) Permanently modify the production and/or injection program.

In reaching a decision regarding the implementation of mitigation measures, the authorized officer shall consider, among other factors, the recommendations of the consulting agencies.

- h) If the authorized officer, in cooperation with the U.S. Fish and Wildlife Service regarding the Owens tui chub, and in cooperation with the California Department of Fish and Game regarding the Hot Creek Hatchery and Mammoth Creek/Hot Creek, determines the monitoring information from the second monitoring well and all other monitoring information indicate a need for further information with respect to a threat posed by plant operations to the beneficial uses of thermal water, or to the continued existence of the Owens tui chub, the operator shall drill a third monitoring well to be maintained, and monitored, in conformance with the requirements of this stipulation. The well shall generally be located in the area between Colton Springs and the Hot Creek headsprings, with the specific location to be determined by the authorized officer and the appropriate governmental agencies with land use jurisdiction, in consultation with the U.S. Geological Survey.
  - i) If the authorized officer, in cooperation with the U.S. Fish and Wildlife Service regarding the Owens tui chub, and in cooperation with the California Department of Fish and Game regarding the Hot Creek Hatchery and Mammoth Creek/Hot Creek, determines that monitoring information from the second monitoring well and all other monitoring information indicate that plant operations may threaten an unacceptable impact to other current beneficial uses of thermal water, or threaten a change in the temperature of the A-B or C-D Hot Creek headsprings, one or more mitigation actions, including but not limited to those listed in Stipulation 1.g) above, shall be required. In reaching a decision, the authorized officer shall consider, among other factors, the recommendations of the consulting agencies.
  - j) After monitoring the third monitoring well (located in the area between Colton Springs and the Hot Creek headsprings), should the authorized officer determine that plant operations threaten an unacceptable impact or are resulting in an unacceptable impact to beneficial uses of thermal water, or threaten a change or are resulting in a change in the temperature of the A-B or C-D Hot Creek headsprings, one or more mitigation actions, including, but not limited to, those listed in subparagraphs (1) through (5) below shall be required. In reaching a decision, the authorized officer shall consider, among other factors, the recommendations of the consulting agencies.
- (1) Temporarily modify the production or injection of geothermal fluids within the field and monitor the reservoir response. Modification could include one or more of the following:
- (i) Change fluid volumes or pressures in one (1) or more injection or production well(s);
  - (ii) Discontinue use of one (1) or more production or injection well(s);
  - (iii) Change the depth of injection; or

- (iv) Relocate one (1) or more production or injection well(s).
  - (2) Permanently modify the production and/or injection program.
  - (3) Provide an alternate source of thermal energy or water to the affected Hot Creek headspring(s). Such thermal energy or water shall be conveyed to the Hot Creek headspring(s) in a manner that does not facilitate the introduction of other fishes into the headsprings.
  - (4) Inject geothermal water into the geothermal reservoir upgradient of Hot Creek Gorge to offset reservoir pressure declines reducing spring flows.
  - (5) Reduce or discontinue power production.
- k) If monitoring activities of the three monitoring wells described above indicate a progressive temperature or pressure decline is occurring that threatens a change of temperature at the A-B or C-D Hot Creek headsprings, or threatens the continued existence of the Owens tui chub, the operator shall, at a minimum, implement the mitigation action described in Stipulation 1.j) (3) above.
- l) The Operator shall be responsible for maintaining the thermal energy or water conveyance facilities described in Stipulation 1.j) (3) above for as long as an alternate source of thermal energy or water is needed to maintain water temperatures in the affected Hot Creek headsprings at levels existing prior to the onset of impacts from plant operations.
2. Clearly mark the boundaries of the areas to be used or disturbed during construction. Equipment and vehicle travel outside of the marked boundaries will be prohibited. Methods of marking the boundaries will be approved by the authorized officer.
  3. Design the power plant foundation and subbase to accommodate shallow groundwater and passively drain the subbase. Should pumping of the shallow groundwater be necessary the authorized officer may require the installation of piezometers and subsequent monitoring to protect surface vegetation.
  4. Maintain the spill containment sluice gates in an open position at all times, except when required to contain spills of geothermal or hazardous materials.
  5. A cultural resources education/awareness program will be implemented by the operator to alert project personnel of the sensitivity of cultural resources in the Casa Diablo area. The program will be designed under the guidance of the Inyo National Forest supervisor's office.
  6. The operator will be responsible for repairing, or for the cost of repairing, damage to Mono County or Forest Service roads. Responsibility for damage will be limited to that resulting from the operator's operations which is over and above normal wear and tear.
  7. Hazardous Materials Handling:



- A. Keep hazardous liquid materials in sealed containers designed for the containment of the material being stored.
  - B. Keep hazardous dry materials in their original manufacturer's packaging until used. After opening, protect from precipitation and moisture using the appropriate container.
  - C. The drill rig and all hazardous materials shall be located within a bermed area which is tributary to the lined sump. The berm must be built and maintained to a one (1) foot minimum height.
  - D. Soils which are contaminated by spills of hazardous materials must immediately be placed in a lined sump or otherwise contained to prevent further environmental contamination. Final disposal must be approved by the authorized officer and Lahonton Regional Water Quality Control Board.
  - E. Remove all unused hazardous materials from the project area as soon as they are not needed for the operation.
8. The following will be incorporated into the final project reclamation plan to be submitted within two (2) years of project approval:
- A. Erosion control measures.
  - B. Measures to monitor revegetation success. The ultimate goals of revegetation will be:
    - 1) establish habitat values equivalent to the scrub and forest vegetation now in the area;
    - 2) return the site to a condition which visually blends with the surrounding area; and
    - 3) erosion control.
  - C. Apply the same dust and noise control measures required during construction activities.
  - D. Measures which comply with all applicable county, state and federal regulations dealing with removal and disposal of hazardous materials and wastes.
9. No more than two wells shall be tested to the atmosphere at one time unless it can be demonstrated that the state ambient air quality standard for H<sub>2</sub>S will not be exceeded.
10. Preconstruction sediment control measures will be in place prior to commencing surface disturbing activities. Types of control measures will be determined on a case by case basis in coordination with the Forest Service and the authorized officer.
11. Train on site personnel in first aid and cardiopulmonary resuscitation.
12. Should the authorized officer detect unacceptable impacts due to the pumping of shallow groundwater, the operator will be required to either reduce water consumption at the PLES-I plant site or find an alternate source of water.

13. The operator will allow Native Americans continued access to hot springs and to collect soils and plants for their traditional uses.
14. Should the authorized officer determine that construction traffic is causing congestion at the Highway 395/203 interchange, construction traffic will be temporarily routed on to the Hot Spring road.
15. To the extent possible, all equipment, construction vehicles and supplies will be stored in an area that is visually screened from Highway 395.

## ATTACHMENT II

The following environmental mitigation measures are identified in the FEIS/SEIR:

### A. Proposed Project Mitigations

- (1) Post and enforce speed limits of 15 mph on unpaved access roads to reduce fugitive dust emissions from vehicular traffic.
- (2) Install piezometers to depth of 20 feet in order to monitor groundwater levels. Pump groundwater to lower the water table locally if, after construction, it rises to levels sufficiently shallow to damage foundations or otherwise compromise the integrity of the facility.
- (3) Design foundation and subbase to accommodate shallow groundwater and passively drain the subbase.
- (4) Maintain the sluice gates in an open position when the intermittent stream is flowing, except during emergency conditions.
- (5) Carpooling or busing of workers shall be encouraged.
- (6) Replace item 23 in Section 2.1.1 with the following:

The following monitoring and remedial action program is designed to prevent, or mitigate, potential hydrothermal impacts to the Owens tui chub critical habitat, Hot Creek Hatchery and Hot Creek Gorge springs:

- a) The operator shall be responsible for reporting to the authorized officer the monitoring measurements required to be collected by the Plan for Baseline Data Collection ("PBDC") approved for the project, or any other monitoring data which may be required by the authorized officer. The approved PBDC will incorporate the monitoring program recommended for the project by the Long Valley Hydrologic Advisory Committee ("LVHAC") dated October 1987, as corrected, and shall require monitoring information be collected and reported for the C-D Hot Creek headsprings comparable to that recommended by the LVHAC for the A-B Hot Creek headsprings which is critical habitat for the endangered Owens tui chub.
- b) The operator will fund an independent expert, acceptable to the authorized officer, to conduct annual technical analyses and evaluations of the hydrological monitoring data and will provide all results of these analyses and evaluations to the authorized officer in a timely manner.
- c) If the authorized officer, in cooperation with the U.S. Fish and Wildlife Service regarding the Owens tui chub, and in cooperation with the California Department of Fish and Game regarding the Hot Creek Hatchery and Mammoth Creek/Hot Creek, determines a need to supplement monitoring information developed from existing monitoring well SF 65-32, the operator shall drill a second monitoring well to be maintained and monitored in conformance with the requirements of Stipulation (a) above. The well shall be sited at a location to be determined by the authorized officer and the appropriate governmental agencies with land use jurisdiction, in consultation with U.S. Geological Survey.

- d) The authorized officer, in cooperation with the U.S. Fish and Wildlife Service regarding the Owens tui chub, and in cooperation with the California Department of Fish and Game regarding the Hot Creek Hatchery and Mammoth Creek/Hot Creek, will, at a minimum, annually evaluate the monitoring data and consult with the U.S. Geological Survey, the California Division of Oil and Gas, the County of Mono, the U.S. Fish and Wildlife Service, and California Department of Fish and Game (the "consulting agencies"), if appropriate, regarding the analysis of the data and the implementation of mitigating measures as indicated appropriate by the conclusions of the analysis of the data.
- e) If the authorized officer, in cooperation with the U.S. Fish and Wildlife Service regarding the Owens tui chub, and in cooperation with the California Department of Fish and Game regarding the Hot Creek Hatchery and Mammoth Creek/Hot Creek, determines that monitoring information from the existing monitoring well SF 65-32 and all other monitoring information indicate that:
- (1) Pressure, temperature, and/or chemical changes or trends are occurring within the production or injection fields in excess of the anticipated variations, based on production experience;
  - (2) Pressure, temperature, and/or chemical changes or trends are occurring within the monitoring well(s) in excess of the anticipated range of variations; or
  - (3) Plant operations may threaten an unacceptable impact to other current beneficial uses of thermal water, or threaten a change in the temperature of the A-B or C-D Hot Creek headsprings, then

The operator shall, as required by the authorized officer, immediately implement one or more of the following mitigation actions:

- (1) Temporarily modify the production and/or injection of geothermal fluids within the field and monitor the reservoir response. Modification could include one or more of the following:
  - (i) Change fluid volumes or pressures in one (1) or more production or injection well(s);
  - (ii) Discontinue use of one (1) or more production or injection well(s);
  - (iii) Change the depth of injection;
  - (iv) Relocate one (1) or more production or injection well(s);  
or
  - (v) Any other measure as directed by the authorized officer,  
or
- (2) Permanently modify the production and/or injection program.

In reaching a decision regarding the implementation of mitigation measures, the authorized officer shall consider, among other factors, the recommendations of the consulting agencies.

- f) If the authorized officer, in cooperation with the U.S. Fish and Wildlife Service regarding the Owens tui chub, and in cooperation with the California Department of Fish and Game regarding the Hot Creek Hatchery and Mammoth Creek/Hot Creek, determines the monitoring information from the second monitoring well and all other monitoring information indicate a need for further information with respect to a threat posed by plant operations to the beneficial uses of thermal water, or to the continued existence of the Owens tui chub, the operator shall drill a third monitoring well to be maintained, and monitored, in conformance with the requirements of this stipulation. The well shall generally be located in the area between Colton Springs and the Hot Creek headsprings, with the specific location to be determined by the authorized officer and the appropriate governmental agencies with land use jurisdiction, in consultation with the U.S. Geological Survey.
- g) If the authorized officer, in cooperation with the U.S. Fish and Wildlife Service regarding the Owens tui chub, and in cooperation with the California Department of Fish and Game regarding the Hot Creek Hatchery and Mammoth Creek/Hot Creek, determines that monitoring information from the second monitoring well and all other monitoring information indicate that plant operations may threaten an unacceptable impact to other current beneficial uses of thermal water, or threaten a change in the temperature of the A-B or C-D Hot Creek headsprings, one or more mitigation actions, including but not limited to those listed in paragraph e) above, shall be required. In reaching a decision, the authorized officer shall consider, among other factors, the recommendations of the consulting agencies.
- h) After monitoring the third monitoring well (located in the area between Colton Springs and the Hot Creek headsprings), should the authorized officer determine that plant operations threaten an unacceptable impact or are resulting in an unacceptable impact to beneficial uses of thermal water, or threaten a change or are resulting in a change in the temperature of the A-B or C-D Hot Creek headsprings, one or more mitigation actions, including, but not limited to, those listed in subparagraphs (1) through (4) below shall be required. In reaching a decision, the authorized officer shall consider, among other factors, the recommendations of the consulting agencies.
  - (1) Temporarily modify the production or injection of geothermal fluids within the field and monitor the reservoir response. Modification could include one or more of the following:
    - (i) Change fluid volumes or pressures in one (1) or more injection or production well(s);
    - (ii) Discontinue use of one (1) or more production or injection well(s);

- (iii) Change the depth of injection; or
  - (iv) Relocate one (1) or more production or injection well(s).
- (2) Permanently modify the production and/or injection program.
- (3) Provide an alternate source of thermal energy or water to the affected Hot Creek headspring(s). Such thermal energy or water shall be conveyed to the Hot Creek headspring(s) in a manner that does not facilitate the introduction of other fishes into the headsprings.
- (4) Reduce or discontinue power production.
  - i) If monitoring activities of the three monitoring wells described above indicate a progressive temperature or pressure change is occurring that threatens a change of temperature at the A-B or C-D Hot Creek headsprings, or threatens the continued existence of the Owens tui chub, the operator shall, at a minimum, implement the mitigation action described in Stipulation h) (3) above.
  - j) The Operator shall be responsible for maintaining the thermal energy or water conveyance facilities described in Stipulation h) (3) above for as long as an alternate source of thermal energy or water is needed to maintain water temperatures in the affected Hot Creek headsprings at levels existing prior to the onset of impacts from plant operations.
  - k) The operator shall establish a funding mechanism to ensure that the mitigation actions described in this stipulation will be implemented in a timely manner. Such funding shall be provided either directly through the provision of materials and services needed to satisfy the monitoring and remedial action requirements described in this stipulation, or indirectly, through insurance, performance bond, dedicatin of project revenues to a special escrow account or other mechanism acceptable to the authorized officer. The funding mechanism shall be developed by the operator in consultation with the authoried officer, and agreed to by the authorized officer in cooperation with the U.S. Fish and Wildlife Service and California Department of Fish and Game, prior to the commencement of geothermal production by the operator.
- (7) Prior to commencing commercial geothermal operations, the operator shall prepare, and have approved by the authorized officer, a detailed program for timely implementing hydrologic monitoring or remedial action measures which may be required through approval of these Plans of Operation. At a minimum, the program must include basic engineering designs, preliminary equipment fabrication and construction schedules, and permit or rights-of-way acquisition plans and schedules. The operator shall review and update the program annually, or as required by the authorized officer.
- (8) Inject geothermal water into the geothermal reservoir upgradient of Hot Creek Gorge to offset reservoir pressure declines reducing spring flows.

- (9) Clearly mark limits of construction activity to avoid equipment vehicle travel outside construction area. Fencing may be required near sensitive areas.
- (10) Implement and maintain the emergency spill containment plan.
- (11) A focused program of educating project personnel to develop an awareness of the surrounding cultural environment and the need to leave any cultural remains as they are found in the environment should be implemented to mitigate indirect impacts on cultural resources.
- (12) Designate the pipeline route with stakes and flagging before the installation of the pipeline begins.
- (13) Time construction activity to avoid having the peak construction housing needs coincide with the peak winter tourist housing demand.
- (14) Revise the county and Inyo National Forest emergency response plans to incorporate emergencies which might arise from geothermal exploration and development activities.
- (15) Train on-site personnel in first-aid and Cardio-Pulmonary Resuscitation (CPR).
- (16) Develop and maintain communication and evacuation procedures for potential severe burn accidents.
- (17) Transfer the cost of repairing damage to county and Forest Service roads, caused by project activities, to the project proponent. This could be done by posting of performance bonds. Alternatively, a user fee based on weight of vehicle and frequency of use could be imposed.
- (18) Employ the following measures:
  - Keep hazardous liquid materials used during drilling operations in sealed containers designed for containment of the hazardous material.
  - Keep hazardous dry materials protected from precipitation and unopened within their original manufacturer's packaging until used.
  - Store all hazardous materials in an area of the well site surrounded by a berm to contain small spills and designed to drain spilled substances into the lined drilling mud pit.
  - Remove unused hazardous materials from the well site immediately after drilling operations have been completed.
  - Keep drilling fluids in either a tank(s) or a lined reserved pit during drilling operations.
  - Sample and characterize waste drilling mud prior to on-site burial, or off-site disposal, to confirm the water is being disposed of consistent with the requirements of the California Regional Water Quality Control Board, Lahontan Basin Region.

- (19) Sample and characterize soils which are contaminated from spills or leaks of hazardous material. Remove any waste or contaminated soils characterized as hazardous to a disposal site acceptable to the BLM and approved by the Lahontan Regional Water Quality Control Board.

**B. Abandonment and Reclamation Mitigations**

- (1) Require erosion control measures to be incorporated in the reclamation plan.
- (2) The abandonment plans shall have provisions for monitoring revegetation. The revegetation shall have as its goals establishing habitat value equivalent to the scrub and forest vegetation in the area and controlling erosion.
- (3) Apply the same dust and noise control measures as would be required during construction.
- (4) Require compliance with all applicable county, state, and federal regulations dealing with removal and disposal of the hazardous materials and wastes.

**C. Cumulative Impact Mitigations**

- (1) Wet soils for dust control on roads and graded areas; surface roads with gravel; and revegetate, pave, or cover disturbed areas to limit long-term dust generation.
- (2) No more than two wells shall be tested to the atmosphere at one time, unless it can be demonstrated that the State ambient air quality standard for H<sub>2</sub>S will not be exceeded.
- (3) Adopt hydrocarbon fugitive emission control procedures for all future binary geothermal power plants projects similar to those discussed for the PLES I project (see Section 4.1.1.4.1).
- (4) Recommend that Mono County and the California Division of Oil and Gas adopt the standards contained in GRO No. 4.
- (5) Erosion control measures should be emplaced prior to surface disturbances so that increases in sediment load in the streams are minimized. Revegetation programs should be promptly executed.
- (6) Mitigation measures should be determined by responsible agencies on a project-by-project basis.
- (7) Pumping of groundwater could be limited if vegetation is impacted.
- (8) Responsible agencies should require revegetation plans for all projects.
- (9) Minimize timber harvesting for all projects.
- (10) New projects should contribute to off-site mitigation measures proportioned to their relative impacts on deer:
  - Cumulative impacts to the deer herds could be mitigated by regulating and limiting development in areas of known migration routes and/or acquisition of critical habitat in migration and winter range areas, such



as Swall Meadow. Swall Meadow, located approximately 18 miles southeast of Casa Diablo, has been identified as an extremely critical deer resource area in that both the Buttermilk and Sherwin Grade deer herds spend the winter there. Protection of this area through acquisition by the BLM, Forest Service, state, county, or a conservation organization would provide significant protection of winter range for those herds.

- Water availability on summer and winter ranges was specifically identified as a factor limiting the size of the Casa Diablo herd (T. Taylor, 1988). Construction of permanent artificial watering sources was suggested as a specific means for improving water-scarce portions of deer range and could also serve as a valuable off-site mitigation measure.
- (11) Upon the preliminary siting of future facilities, an on-site inspection, evaluation, and mitigation of any identified areas of cultural resource significance should be made mandatory prior to the commencement of construction activities.
  - (12) Require operations of geothermal projects to allow Native Americans continued access to visit hot springs and to collect special soil and plants from the areas.
  - (13) On busy winter ski weekends, route construction traffic from all geothermal plants onto Hot Springs Road at Sherwin Creek Road to avoid the busy Route 203/Highway 395 off-ramp.
  - (14) Emergency spill and fire contingency plans should be prepared for each power plant unit which include emergency communications among the power plant unit operators.

### ATTACHMENT III

- A. The following mitigation measures, which are identified in the FEIS/ SEIR, are adopted as stipulations for the proposed project:

<u>Mitigation in FEIS/SEIR</u>	<u>Stipulation</u>
A6, A7, A8	1
A9, A12	2
A2, A3	3
A4	4
A11	5
A17	6
A18 (items 1, 2, 3, 4), A19	7
B1, B2, B3, B4	8
C2	9
C5 (1st sentence)	10
A15	11
C7	12
C12	13
C13	14

- B. The following mitigation was not identified in the FEIS/SEIR but has been adopted as a stipulation for the approval of the Plans of Operation in order to be consistent with Mono County's requirements:

- 1) To the extent possible, all equipment, construction vehicles and supplies shall be stored in an area that is visually screened from Highway 395.

- C. The following mitigations will or will not be adopted due to the stated reasons:

<u>Mitigation</u>	<u>Reason</u>
A1	The FEIS/SEIR states that measures already incorporated into the Plans of Operation would reduce particulates to acceptable levels. It is Forest Service policy not to post forest roads with speed limits. All project roads are less than 1000 feet in length and dead end within the project site which reduces the potential for speeding.

<u>Mitigation</u>	<u>Reason</u>
A5	Encouragement of carpooling is not enforceable. However, BLM will encourage this practice informally and in the cover letter approving the Plans of Operation.
A10	The emergency spill containment plan is part of the Plans of Operation and therefore, the proponent is required, pursuant to 43 CFR 3262, to implement and maintain the provisions of the plan until relieved of this requirement by the authorized officer.
A13	Major construction activities already have been scheduled by the operator to avoid the winter season periods of snow and adverse weather, thereby meeting the intent of this mitigation.
A14	Neither Mono County nor the Inyo National Forest believe that there is any need to revise their existing emergency response plans to incorporate response to emergencies which might arise from geothermal exploration and development activities because the existing plans adequately cover any potential concerns, as the EIS/SEIR indicates.
A16	These procedures are already described in, and are incorporated into the Injury Contingency Plan section of Appendix B of the Plans of Operation and will be required upon approval of the Plans of Operation.
A18 (items 5 & 6)	The proponent has stated in the Plans of Operation that drilling fluids will be placed in a lined pit and is thereby bound to do so by regulation (43 CFR 3262). This is also a Lahontan Regional Water Quality Control Board (Lahontan) requirement. Lahontan requires chemical characterization of all drilling fluids prior to disposal. Since BLM regulations (43 CFR 3262.6) require the proponent to comply with all state standards for the disposal of such fluids, BLM will not reiterate this requirement.
C1	These measures are incorporated in the Plans of Operation for this project and are therefore already required by regulation (43 CFR 3262). Similar requirements will be incorporated into future projects approved by the BLM and Forest Service, and the GBUAPCD requires measures for dust control under its regulations.
C2	This measure has been required by the BLM of this project, and a similar provision has been required by Mono County of the approved MP II Project at Casa Diablo. Both agencies have indicated that any future projects will be similarly restricted.

- C3 The proponent has incorporated hydrocarbon emission control procedures into the proposed project. These procedures comply with the requirements of the Great Basin Unified Air Pollution Control District (GBUAPCD). Future binary geothermal power plants will be required by the GBUAPCD to comply with GBUAPCD requirements.
- C4, C6, C8 The BLM has executed a Memorandum of Understanding with the California Division of Oil and Gas, and a Memorandum of Understanding with Mono County, Inyo National Forest, Toiyabe National Forest, the Great Basin Unified Air Pollution Control District and the Town of Mammoth Lakes which creates the Geothermal Task Force for the purpose of closely coordinating all actions concerning the exploration and development of geothermal resources on private and federal lands within Mono County. Similar coordination efforts with the appropriate agencies are maintained for other types of projects within Mono County. The BLM and Forest Service believe these are the proper forums for resolution of these issues not directly related to this project.
- C5 This measure has been required of the project operator and/or is already in the Plan. The Forest Service "Best Management Practices", and requirements of the Lahontan Regional Water Quality Control Board, must be met by each new project proposed in the Mammoth/Hot Creek watershed, which ensures the minimization of any potential increases in sediment load to streams.
- C7 This measure has been applied to the PLES I Project and the BLM, through the Geothermal Task Force, will coordinate its actions regarding shallow groundwater use with Mono County.
- C9 The Forest Service already maintains a policy of minimizing the amount of timber harvested incidental to the construction of projects.
- C10 Project-specific mitigation measures have been incorporated into, or required of, the PLES I Project sufficient to reduce the project-specific impacts to mule deer to insignificance. Implementation of the additional proposed mitigation measures depends upon the development of an activity plan and appropriate memoranda of understanding between multiple agencies, which is one of the considerations of the Geothermal Task Force. Mono County has adopted a similar requirement in their approvals of recent geothermal projects. Once the agencies have developed and begun implementation of the activity plan, the authorized officer will require federal lessees to participate in the program.

- C11 This mitigation is required by the Antiquities Act (16 USC 431-433), regulations contained in 43 CFR 3261.3, part 7 of Geothermal Resources Operational Order #4, and federal geothermal lease CA-11667 stipulation #18 and special stipulations #2 and #3, so is not repeated in the stipulations approving the PLES I Project. In addition, these requirements are implemented by the Forest Service under the Antiquities Act and other regulations, and by Mono County under the California Environmental Quality Act.
- C12 This measure has been incorporated into the approval of the PLES I Project, and the BLM and Mono County maintain policies which would ensure continued access to approved geothermal projects by Native Americans.
- C13 The BLM has incorporated this measure into the approval of the PLES I Project, and Mono County has retained the ability to require this measure of the Casa Diablo Projects under its jurisdiction if it proves necessary.
- C14 The proponent has already prepared an Emergency Spill and Fire Contingency Plan which is included within Appendix C of the Plans of Operation for the PLES I Project, and identical plans have been prepared for the Casa Diablo Geothermal Projects under Mono County's jurisdiction.