

roadless area of 5,000 acres or more require the preparation of an Environmental Impact Statement (EIS). As an example of such a proposal, Section 20.6.3(a) of the Handbook identifies the construction of roads and harvesting timber that would affect approximately 5% (3,000 of 56,000 acres) of a roadless area in only one part of the roadless area. The well pads and road that would be constructed in the Mount Hoffman RRA as part of the proposed action would occupy a percentage of the roadless area (0.1%) that is well below the 5% threshold identified in the USFS Handbook.

4.9.4. Recreation

Well pads and access roads have been sited either in or adjacent to areas that have received previous disturbance from logging or other activities. Although exploration activities at the well pads may be observed by recreational users in the area, proposed activities would not significantly affect the recreational experience of these users (see Section 4.8, Visual Resources).

Activities at the well pads would not conflict with developed recreation uses located at Medicine Lake (see Section 4.6, Air Quality, Section 4.7, Noise, and Section 4.8, Visual Resources). The proposed action would not affect lake levels or water quality at Medicine Lake (see Section 4.4, Hydrology), and would therefore not affect water-related recreational uses at the lake.

Dispersed recreation uses could be affected by implementation of the proposed action. Drilling and testing activities at the well pads could alter the use patterns of big game animal species in the vicinity, which could affect hunting opportunities. Camping, hiking, and other recreational activities in dispersed recreation use areas could be affected due to the implementation of proposed geothermal exploration activities in these areas. The potential for effects to dispersed recreation use would be greatest at well pads 46-32 and 18-32 since these sites lie on the periphery of the currently defined geothermal exploration area and would include well testing that could last for several years. However, given the limited area that would be affected by geothermal exploration and the many areas available for dispersed recreation use in the Modoc and Shasta Trinity National Forests, the proposed action would not significantly affect dispersed recreation use.

The summer season is the period of greatest recreational use in the vicinity of the proposed action, particularly at Medicine Lake. Road 43N48 (located along the northern shore of Medicine Lake) provides the main access route to the campground areas at the lake. If vehicles associated with the proposed action (particularly water and other trucks accessing well pads 15-15TCH and 63-20TCH) use Road 43N48, there is the potential that these trucks could conflict with recreational uses at the campgrounds and with recreational motorists accessing these areas.

4.9.5. Transportation Systems

The proposed action would not be expected to significantly increase vehicle movements in the vicinity of the proposed action. Drilling activities at each TCH well would be expected to generate a maximum of six to eight round trips per day, which includes two to four

water truck deliveries. Monitoring at each TCH well would generate about three or four round trips per day. At the exploration wells, each well site would generate approximately 20 round trips per day during drilling and about four round trips per day during testing. Given the current capacities and low use of roads in the vicinity, the additional trips generated by the proposed action would not be expected to adversely affect the transportation network in the vicinity of the proposed action.

During the winter months, the project area receives a significant amount of snowfall that prohibits use of area roads. These roads are generally not cleared of snow until late spring (usually in May), and the area is only accessible through the use of vehicles such as snowmobiles during the winter. Access to the well pads for drilling activities during winter months is therefore not proposed under the POO (unlike utilization or development, geothermal exploration does not require winter access to project sites). If winter conditions persist in the area (i.e., if a large snowfall or cold conditions extend the period that snow remains on the ground), there is the potential that CEGC would request road clearance in order to access the well pads. CEGC would coordinate any requested road clearance with the USFS. Since CEGC access would not be required before late spring, the proposed action would not require significant snow removal and would not open up access to the Medicine Lake area significantly earlier than currently occurs.

CEGC has proposed to construct a new access road to well pad 56-18 from PFR 97, which is maintained by Modoc County. There is the potential that traffic entering or exiting the new access road to well pad 56-18 could create a safety hazard since the access road would intersect PFR 97 on a curved section of the roadway.

The USFS is concerned that heavy truck loads associated with the proposed action could break up and destroy the thin surface pavement along Road 43N48, which runs along the northern shore of Medicine Lake (Sharp 1994). This could make the road unusable for recreational users attempting to access the recreational areas near Medicine Lake.

MITIGATION MEASURES

Mitigation Measure 4.9.1.

All heavy vehicles associated with the proposed project (particularly water and other trucks accessing well pads 15-15TCH and 63-20TCH) will avoid using Road 43N48 in order to avoid potential damage to this road and to minimize the potential for conflicts between vehicles associated with the proposed action and recreational uses and motorists associated with the Medicine Lake campgrounds. Water for activities at these well sites will either be obtained from existing sources west of the well sites or trucked from the Arnica Sink wells on roads to the north of Road 43N48.

Mitigation Measure 4.9.2.

CEGC will submit design plans to Modoc County and the USFS for the intersection of the access road for pad 56-18 and PFR 97 to ensure that traffic at the intersection will not create a public safety hazard.

EFFECTS OF ALTERNATIVES B, C, AND D

Alternative B

The overall effects to land use, recreation, and transportation systems of Alternative B, elimination of pads 42-13TCH and 15-15TCH, would be similar to those of the proposed action (Alternative A). Construction, traffic, drilling, and testing would still occur at the other eight sites under Alternative B. Although the two TCH well pads would be eliminated, activities at the other eight well pads would be the same as under the proposed action. Since well pad 63-20TCH would be drilled under Alternative B, potential effects from truck travel on Road 43N48 would still occur. However, by eliminating two well pads, less surface disturbance would occur, and there would be less of a potential to affect dispersed recreation uses in the area.

Alternative C

The overall effects to land use, recreation, and transportation systems of Alternative C, elimination of exploration well pads 46-32 and 18-32, would be similar to those of the proposed action (Alternative A). Construction, traffic, drilling, and testing would still occur under Alternative C. Although the two exploration well pads would be eliminated, activities at the other eight well pads would be the same as under the proposed action, and potential effects from truck travel on Road 43N48 would still occur. However, by eliminating well pads 46-32 and 18-32, less surface disturbance would occur.

Well pads 46-32 and 18-32 are located in a relatively more remote portion of the Forest than the other well pads. Eliminating these well pads under Alternative C would result in less potential to affect dispersed recreation uses in the area.

Alternative D

There would be no effects to land use, recreation, or transportation systems from implementation of Alternative D.

4.10 Socioeconomics

SIGNIFICANCE CRITERIA

The proposed action could have an adverse effect if it would:

- Induce substantial growth or concentration of population, employment, or demand for housing
- Substantially decrease property values in the vicinity

EFFECTS OF ALTERNATIVE A

4.10.1. Population

The proposed action would occur over approximately three to four years. Over the three to four year period, the increase in population resulting from the proposed action would depend on the number of exploration wells or TCH wells drilled simultaneously. At a

maximum, two exploration wells and one TCH well would be drilled simultaneously. The increase in population is expected to be due to the influx of temporary workers. During maximum activities, the proposed action would create a demand for approximately 66 temporary workers.

Approximately 10% to 50% of the drill crews, suppliers, and subcontractors and all of the employees for road and well pad construction would be drawn from the local labor pool. CEGC would supply all supervisory and technical personnel. A worst-case population increase would occur if only 10% of the drill crews, suppliers, and subcontractors were drawn from the local labor pool. The resulting temporary population increase would be about 43 persons; this number could vary depending on the amount of local labor utilized.

The addition of 43 persons to the populations of Modoc and Siskiyou Counties would represent short-term population increases of 0.42% and 0.1% respectively, which would not have an adverse effect on population levels.

4.10.2. Employment

Drilling and testing of the TCH and exploration wells would generate employment opportunities. Employees needed for these activities are identified in Table 4.10-1. The administrative staff, geologist, and mud engineer would be utilized during all of the simultaneous drilling and testing activities and are listed separately in Table 4.10-1. As

Table 4.10-1: Well Drilling and Testing Employment¹

Position	TCH Well (per day)	Exploration Well (per day)	Exploration Well Testing (per day)	Well Drilling and Testing ²
Supervisor	1	1		
Drilling Contractor	1	1		
Drilling Crew	9	10		
Technical Staff		4	1	
Subcontractors	1	6		
Administrative Staff ²				2
Geologist ²				1
Mud Engineer ²				1
Equipment Maintenance	1	1	2	
Total Employees	13	23	3	4

Notes:

¹For each type of geothermal activity.

²These employees would provide on-call services for well drilling and testing.

³Includes personnel associated with water trucks, cement trucks, and pump trucks.

SOURCE: CEGC 1994

indicated in this table, each TCH would require 13 employees per day, each exploration well would require 23 employees per day, and well testing would require approximately three employees per day. There would be four employees that would serve as on-call employees for TCH drilling, exploration well drilling, and well testing. At a maximum, two exploration wells and one TCH well would be drilled simultaneously. The proposed action would employ approximately 66 persons during the maximum drilling and testing activities.

CEGC would utilize local contractors for road and well pad construction, road maintenance and for general labor such as setting up well testing equipment and water lines. During road and well pad construction, it is estimated that approximately 5 to 10 local contractors would be used. Approximately 10% to 50% of the drill crews, suppliers, and subcontractors would be expected to be drawn from the local labor pool. CEGC would supply all supervisory and technical personnel.

It is estimated that the proposed action would generate approximately \$1,125,000 to \$1,752,500 in salaries for employees (McClain 1994). Overall, the proposed action would provide positive economic and employment effects to the area.

4.10.3. Housing/Accommodations

Although all of the well pads are located within Siskiyou County, it is possible that temporary employees required for the proposed action could seek accommodations in both Modoc and Siskiyou Counties. Approximately 43 employees would require some form of temporary housing. The remaining employees are expected to be drawn from the local labor pool.

There are 962 available housing units (including mobile homes) in Modoc County and 2,737 in Siskiyou County (California Department of Finance 1992). Siskiyou County has approximately 20 RV Parks (Breedon 1994), and Modoc County has approximately 10 RV Parks (Heiser 1994). There are also several motels in the area that could be used for accommodations.

The 43 temporary accommodations that would be needed to house employees not drawn from the local labor pool could be supplied by existing housing units, RV parks, and motels. Implementation of the proposed action would therefore not adversely affect housing or other accommodations in the region.

4.10.4. Property Values

There are about 100 homes in the vicinity of the proposed action, all located near Medicine Lake. These homes are used as recreational or second homes and are not occupied year round. The closest well pads to the homes are 42-13TCH, 11-24TCH, and 15-15TCH. These well pads are located from one to two miles from the summer homes at Medicine Lake. Property values of these homes range from about \$30,000 to \$125,000 and depend on the condition of the home, type of improvements, and the date of the last property appraisal (Sharp 1994).

The proposed action would not adversely affect property values of the homes at Medicine Lake. Activities at the well pads would not result in adverse noise or air quality effects at these homes, and would not be visible from these homes (see Section 4.6, Air Quality, Section 4.7, Noise, and Section 4.8, Visual Resources). Since the proposed action would not significantly affect recreational uses in the area (see Section 4.9, Land Use, Recreation, and Transportation Systems), the desirability of the vicinity of the proposed action as a recreational area and summer retreat would not be affected. Property values would therefore be unaffected by implementation of the proposed action.

EFFECTS OF ALTERNATIVES B, C, AND D

Alternative B

By eliminating development of two well pads (42-13TCH and 15-15TCH), Alternative B would result in fewer employment opportunities in the region than the proposed action (Alternative A). Alternative B would also generate less of an increase in temporary population and demand for temporary housing and accommodations than the proposed action. Alternative B would have the same potential to affect property values as the proposed action.

Alternative C

Alternative C (elimination of well pads 46-32 and 18-32) would result in fewer employment opportunities in the region than the proposed action (Alternative A). Alternative C would also generate less of an increase in temporary population and demand for temporary housing and accommodations than the proposed action. Alternative C would have the same potential to affect property values as the proposed action.

Alternative D

There would be no socioeconomic effects from implementation of Alternative D.

4.11 Unavoidable Adverse Impacts

Based upon the analysis conducted for this document, a number of unavoidable adverse effects were identified. Those impacts that cannot be avoided include:

- Surface disturbance of 29.6 acres, changes in topography, and increased erosion
- Exposure of workers to the potential for natural seismic and volcanic hazards during well construction, drilling, and testing
- Removal of scattered old growth trees and loss of potential habitat for sensitive wildlife species
- Release of air emissions during well construction, drilling, and testing
- Increase in noise during well construction, drilling, and testing
- Views of the proposed action from long-range and short-range viewpoints
- Reduction in the quality of recreation experience in the vicinity of the proposed action during well construction, drilling, and testing

- Temporary increase in traffic from construction-related and operational activities
- Temporary increase in population and employment in the vicinity of the proposed action

Each of these effects is discussed in detail in Sections 4.2 through 4.10. None of these effects is considered to be significant. These unavoidable effects would occur under Alternatives A, B, and C.

4.12 Cumulative Impacts

Both NEPA and CEQA require the consideration of cumulative impacts. Cumulative impacts are defined as two or more individual effects which, when considered together, are considerable, or which compound or increase other environmental effects.

This cumulative impact analysis considers impacts of the proposed action and other projects that have been proposed, or are reasonably foreseeable to take place in the vicinity of the proposed action. The primary activities considered in the following analysis of cumulative impacts are other geothermal projects and other forest activities that may occur at the same time as the proposed action.

GEOTHERMAL PROJECTS

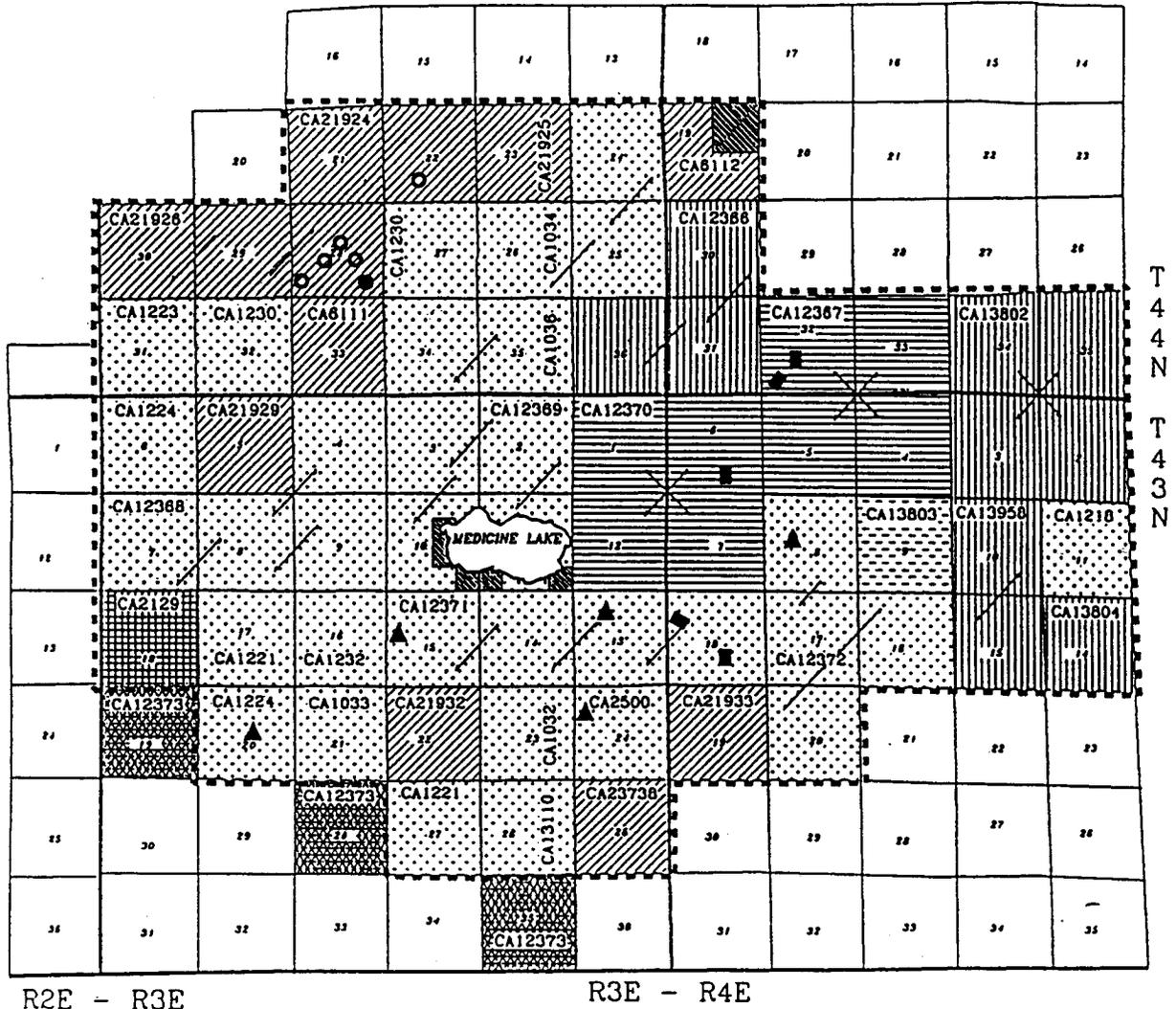
Calpine Fourmile Hill Exploration Program

Calpine Corporation has proposed a geothermal exploration program within the KGRA. Calpine Corporation, as the designated agent of Freeport-McMoRan Resource Partners (FMRP), proposed to drill two temperature gradient holes (TGH), 18-28 and 88-28, on Federal geothermal leases CA-21926 and CA-21924 in the Goosenest Ranger District, Klamath National Forest, Siskiyou County, California. These leases are located within the unit boundary of the KGRA, but are not committed to the geothermal unit. The project is referred to as the Calpine Fourmile Hill Exploration Program.

As the first phase of the project, Calpine completed drilling of TGH 88-28 in the fall of 1994. The TGH well pad measures approximately 75 feet by 100 feet. As the second phase of the exploration program, Calpine presented a proposal in the fall of 1994 to deepen TGH 88-28, and to conduct a deep exploration drilling program if the successful completion of TGH 88-28 confirms the presence of a heat source. Deepening of TGH 88-28 would take about 30 to 40 days, and would not require new surface disturbance.

The purpose of the proposed deep exploration program is to confirm the presence and extent of a commercial resource on the leases. In December of 1994, Calpine informed the BLM of its plans to submit a Plan of Operations for Exploration (POO) for the proposed exploration program, which would begin in June 1995. Although a formal POO has not been submitted, preliminary plans call for two deep exploration wells that could be drilled at any of six proposed locations proposed by Calpine. Figure 4.12-1 shows the six possible drilling locations. The deep test well program would require construction of two 2.5- to

Figure 4.12-1: Proposed Geothermal Projects in the Area



	CEGC 100%
	CEGC 50% FMRP 50%
	CEGC 25% FMRP 75%
	CEGC 62.5% FMRP 37.5%
	FMRP 100%
	CLJV
	Quadra Geo et al
	Fee—Unleased
	Unit Boundary
CA 1221	Lease Numbers

- ▲ CEGC Proposed Core Holes
- CEGC Proposed Exploration Wells
- Calpine Proposed Drill Sites
- Calpine Existing Temperature Gradient Well

CEGC: California Energy General Corporation
 FMRP: Freeport-McMoRan Resource Partners
 CLJV: China Lake Joint Venture



0 1 2 3 4 MILES

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SOURCE: CEGC 1994

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3.0-acre, single-well pads (although at least one of the pads would probably be an expanded TGH site). Drilling each of the two deep test wells would require about 45 days and would be followed by up to 30 days of testing. A new single-lane access road with turn-outs would be required to reach each pad site.

An environmental review of the Calpine proposal would be required prior to initiation of pad construction for deep drilling operations. Prior to drilling the initial well at TGH 88-28, Calpine contractors conducted archaeological and biological surveys of the areas proposed for surface disturbance in July 1994. The surveys covered surface areas of 4.5 acres at each of the six potential pad sites; this amount of area is well in excess of the expected deep test drilling pad size of three acres.

The successful completion and testing of the two deep test exploration wells is expected to yield the data necessary to confirm the production capabilities of the lease and allow the development of a geothermal power generation project of 30 megawatt (MW) capacity. Although the development of the 30 MW power plant is considered speculative at this time because a resource has yet to be defined on Leases CA-21926 and CA-21924, Calpine has conducted negotiations to sell power from the geothermal leases (for which Calpine is the designated agent) to the Bonneville Power Administration (BPA). The BLM would be required to prepare an Environmental Impact Statement (EIS) to analyze the environmental effects of any power development project, and the BPA would use the EIS to prepare a Record of Decision authorizing the contract to purchase the power from a new geothermal power plant at the Glass Mountain KGRA.

The above information on the Calpine project was provided by Calpine Corporation (Merrihew 1994).

OTHER PROJECTS

Tuscarora Gas Pipeline

This proposed gas pipeline is expected to begin construction in 1995 and be completed by 1996. This project would generate employment and job opportunities, similar to the proposed POO.

CUMULATIVE IMPACTS

Geology and Soils

The identified projects would add to the continuing alteration in the landscape due to construction of well pads and roads. These projects could slightly increase erosion in the Forests. The drilling and testing would add significantly to the information about the nature, extent, and character of the geothermal resource at the Glass Mountain KGRA. The identified projects would not result in significant cumulative effects to geology or soils.

Hydrology

The identified projects would result in cumulative water withdrawals from the groundwater system in the region. The water required for the proposed projects would be

withdrawn from more than one source, and would occur over a period of up to 4 years. The identified projects are not expected to result in cumulative impacts to surface or groundwater quality. The impact of the identified projects would not represent a significant cumulative effect on the hydrology of the area.

Cultural Resources

The proposed action would not affect cultural resources. None of the other cumulative projects have identified potential for effects to cultural resources; therefore there would be no cumulative effect to cultural resources in the region.

Native American groups have expressed concern about development in the Forests, including the proposed action. The proposed projects are dispersed and no cumulatively significant direct effects on Native American use of the Forests is expected.

Biology

The proposed action would result in the surface disturbance or grading of up to 29.6 acres, much of which has been previously disturbed by logging operations. Other proposed geothermal operations would also result in up to 7 acres of surface disturbance. This area serves as habitat for several wildlife species. This cumulative loss of habitat is not considered to represent a significant loss of habitat because of the abundance of similar habitat in the region. The cumulative loss of old growth trees from these projects would not be considered significant as very limited numbers of isolated old growth trees would be affected. The identified projects would not represent a significant cumulative effect on vegetation or wildlife.

Air Quality

Air emissions from identified projects would be short-term and temporary and would not be expected to represent a cumulative impact on air quality in the region. If the proposed action occurred at the same time as the Calpine Fourmile Hill exploration project, cumulative adverse air quality impacts would not be expected given the four-mile distance between the two projects and the ruggedness of the intervening topography.

Noise

The identified projects would intermittently add to the noise levels in the forests. The proposed project noise levels would be well below the standards identified in the GROs and would not cause significant cumulative impacts given the distance between the projects and the noise attenuation properties of the trees and intervening topography.

Visual Resources

The identified projects would add incrementally to visual disturbance of the tree line in the forest. The areas of disturbance for the proposed action are several miles from long-range view points and would be difficult to distinguish from the viewpoints. The contribution of the proposed action is considered minor because nine of the ten proposed well sites have been at least partially cleared of vegetation during previous logging

operations. The identified projects would add intermittent visual disturbance to long-range views during the time the drill rigs would be visible above the tree line and during testing period when a steam plume could be potentially visible above the tree line. These impacts would not be considered significant cumulative effects because of the limited and short-term nature of the visual intrusion, and the distance between the identified projects.

Land Use, Recreation, and Transportation Systems

Land Use: The proposed project is consistent with BLM and Forest plans and would not contribute to cumulative land use impacts in the region. Construction of facilities in the periphery of the Mount Hoffman Roadless Release Area (RRA) would not result in a significant cumulative effect as only 0.1% of the RRA would be affected.

Recreation: The identified projects would have only minor impacts on recreation in the area and would not result in significant cumulative impacts to recreation.

Transportation Systems: The proposed project would add 2,600 feet of new roads in the project vicinity to access pads 46-32 and 42-13TCH. New access roads would also be required for the two pads proposed in the Calpine project. These new roads would not be considered to represent a significant cumulative effect, given the extensive road network that exists in the forests to support timber harvest and recreation.

Socioeconomics

If the proposed Calpine Fourmile Hill geothermal exploration project occurred concurrent with the proposed action, the socioeconomic impacts would effectively double in 1995, as the two projects are similar and would have similar effects on employment and housing. Doubling of identified impacts combined with employment generated by the Tuscarora pipeline project would not be expected to result in significant cumulative effects.

4.13 Summary of Mitigation Measures

GEOLOGY AND SOILS

Mitigation Measure 4.2.1.

In order to protect the obsidian flow near pad 58-6, no facilities will be located within 200 feet of the toe of the obsidian flow. No surface disturbance or activity will occur between the edge of the pad and the toe of the obsidian flow.

Mitigation Measure 4.2.2.

Erosion controls (such as vegetated buffers and grass stabilization) will be used as prescribed by the USFS to protect surrounding undisturbed vegetation and down-slope areas. Erosion controls will stay in effect and be maintained until construction at the well pad site is completed or all of the cleared land at the well pad site is stabilized with new ground cover.

HYDROLOGY

Mitigation Measure 4.3.1

In order to verify that no effects are occurring at Paynes Springs from implementation of wells at well pads 56-18 and 13-18, CEGC will collect water samples from the springs before drilling, during initial drilling, after drilling to 500 feet (the equivalent elevation to the springs), and after completion of these wells. If effects are identified after analysis of the samples, drilling at these wells will be halted until the hydrologic connection to the springs is better understood. BLM and the USFS will compare the samples after they are analyzed.

CULTURAL RESOURCES

Mitigation Measure 4.4.1.

If archaeological resources are discovered during excavation for the proposed action, all work in the immediate vicinity will be suspended pending site investigation by the USFS and a qualified archaeologist to assess the materials and determine their significance. If the qualified professional determines that the resource will yield new information or important verification of previous findings, construction in the immediate area will not resume until the USFS and SHPO have been consulted and the resources appropriately evaluated and treated.

Mitigation Measure 4.4.2.

If prehistoric archaeological deposits that include human remains are discovered by the project sponsor or any construction contractors during excavation for the proposed action, the County Coroner will be immediately notified. If the remains are found to be Native American, local Native American groups and the Native American Heritage Commission (NAHC) will be notified within 24 hours. The most likely descendants of the deceased Native American will be notified and given the chance to make recommendations for the remains. If no recommendations are made within 24 hours, remains may be reinterred elsewhere on the property. If recommendations are made and not accepted, the NAHC will mediate the problem.

Mitigation Measure 4.4.3.

If archaeological resources are discovered during excavation for the proposed action and avoidance of these resources is not feasible, evaluation of the resources will be required. An evaluation plan will be prepared that provides for the methodical excavation of resources that would be adversely affected. Only a qualified archaeologist or cultural resources consultant will be allowed to collect any discovered prehistoric resources. The work will be accomplished within the context of a detailed research design and in accordance with current professional standards. The plan will result in the extraction of sufficient volumes of non-redundant archaeological data so as to address important regional research consideration, and detailed technical reports will be prepared to document the findings.

BIOLOGY

Mitigation Measure 4.5.1.

Conifers over 14 inches dbh will be avoided where feasible during pad construction. In addition, implementation of Mitigation Measure 4.2.2 will ensure that there would be no erosion effects to vegetation.

Mitigation Measure 4.5.2.

For the northern spotted owl, seasonal restrictions will be imposed by the USFS for all proposed well pad and access road locations. Under these restrictions, no construction or drilling may take place at the well pads between February 1 and August 15. For all well pads except for pad sites 63-20TCH and 15-15TCH, seasonal restrictions will be imposed until completion of protocol requirements (i.e., the second-year surveys). The second-year surveys will consist of site visits during the appropriate survey period. Upon completion of the surveys, one of two actions will be taken depending on the results of the surveys. If there are no owl responses, it will be determined that the proposed action would not have an effect on the owl, and the USFS will release the well pads from seasonal restrictions for owls. If there are owl responses, the USFS will require the seasonal restrictions as mitigation, and these restrictions will remain in place for those well pads that are in the vicinity of the responses.

The seasonal restrictions for pad sites 63-20TCH and 15-15TCH will remain in place for the life of the proposed action or until northern spotted owl protocol requirements are completed for these pads.

Mitigation Measure 4.5.3.

For the northern goshawk, seasonal restrictions will be imposed by the USFS for all proposed well pad and access road locations. Under these restrictions, no construction or drilling may take place at the well pads between February 1 and August 15. For all well pads except for pad sites 63-20TCH and 15-15TCH, seasonal restrictions will be imposed until completion of protocol requirements. The goshawk surveys will consist of nesting surveys in May 1995. Upon completion of these surveys, one of two actions will be taken depending on the results of the surveys. If no goshawks or active goshawk nests are identified, it will be determined that the proposed action would not have an effect on the goshawk, the USFS will release the well pads from seasonal restrictions for goshawk, and the protocol would be deemed complete. If there are goshawk or active goshawk nests, the USFS will require that the seasonal restrictions be left in place until completion of the post-fledgling dependency period survey in early July through late August.

The results of the second surveys (if needed) will again result in one of two actions being taken. If there is no response during the second survey, it will be determined that the proposed action would not have an effect on the goshawk, and the seasonal restrictions for goshawk will be lifted. If goshawk presence is confirmed during the second survey, the USFS will require as mitigation that the seasonal restrictions remain in place for those well pads that are in the vicinity of the responses to avoid effects to goshawk.

The seasonal restrictions for pad sites 63-20TCH and 15-15TCH will remain in place for the life of the proposed action or until northern goshawk protocol requirements are completed for these pads.

Mitigation Measure 4.5.4.

For the American marten, CEGC will provide compensation mitigation for removal of marten habitat. Compensation mitigation will consist of placing d/d material from the well pads in concentrated debris piles near but somewhat isolated from the well pads, which will create denning sites for the marten. One to two piles per acre of disturbed marten habitat will be provided. Approximate minimum dimensions of the piles will be eight feet wide by four feet tall by 10 feet deep. The extent of compensation and the locations of mitigation sites would be determined by field surveys conducted by the USFS and CEGC prior to any construction activities at well pads.

Mitigation Measure 4.5.5.

Construction materials and equipment will arrive and leave all well pad sites by way of existing roads or through existing disturbed areas. Construction materials and equipment will not be allowed to cross areas that are to remain undisturbed. Construction materials and equipment will be stored within disturbed areas either at or near the well pad sites.

Mitigation Measure 4.5.6.

Where feasible, CEGC will top existing snags in adjacent areas to make these snags more suitable for use by wildlife species.

LAND USE, RECREATION, AND TRANSPORTATION SYSTEMS

Mitigation Measure 4.9.1.

All heavy vehicles associated with the proposed project (particularly water and other trucks accessing well pads 15-15TCH and 63-20TCH) will avoid using Road 43N48 in order to avoid potential damage to this road and to minimize the potential for conflicts between vehicles associated with the proposed action and recreational uses and motorists associated with the Medicine Lake campgrounds. Water for activities at these well sites will either be obtained from existing sources west of the well sites or trucked from the Arnica Sink wells on roads to the north of Road 43N48.

Mitigation Measure 4.9.2.

CEGC will submit design plans to Modoc County and the USFS for the intersection of the access road for pad 56-18 and PFR 97 to ensure that traffic at the intersection will not create a public safety hazard.

5:
LIST OF PREPARERS
AND AGENCIES AND
PERSONS CONTACTED

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LIST OF PREPARERS AND AGENCIES AND PERSONS CONTACTED

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Principal
Consultants in Engineering Acoustics

5: LIST OF PREPARERS AND AGENCIES AND PERSONS CONTACTED

<i>Contact</i>	<i>Position/Affiliation</i>
David McClain	Project Manager California Energy General Corporation
Ed Merrihew	Environmental Manager Calpine Corporation
Gretchen Taylor	Office Manager Alturas Chamber of Commerce
Betty Ward	Assistant Director Siskiyou County Visitor's Bureau

6: REFERENCES

CALENDAR PAGE 649

MINUTE PAGE 002132

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APPENDIX A: Initial Study Checklist

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Initial Study Checklist

BACKGROUND INFORMATION

Title of Proposal: Glass Mountain Unit Geothermal Exploration Project
Agency Requiring Checklist: Siskiyou County Air Pollution Control District
525 South Foothill Drive
Yreka, California 96097
(916) 842-8029
Agency Contact: Pat Griffin, Air Pollution Control Specialist

DETERMINATION

On the basis of this initial evaluation:

- a) I find that the proposed project *could not* have a significant effect on the environment, and

A NEGATIVE DECLARATION will be prepared.

- b) 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 the *mitigation* measures described on the attached sheets have been added to the project. Therefore,

A NEGATIVE DECLARATION will be prepared.

- c) I find that the proposed project *may* have a significant effect on the environment, and

An ENVIRONMENTAL IMPACT REPORT is required.

Signature

Print Name

For

Date

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002138

Project Name: Glass Mountain Unit Geothermal Exploration Project
Project Location: Glass Mountain Known Geothermal Resource Area, Modoc and Shasta-Trinity National Forests, Siskiyou County
Description of Project: Plan of Operations for drilling of up to five geothermal temperature core holes, and drilling deep geothermal exploration wells at five well pads.

ENVIRONMENTAL IMPACTS

	YES	MAYBE	NO
1. Earth. Will the proposal result in:			
a. Unstable earth conditions or changes in geologic substructures?			X
b. Disruption, displacement, compaction, or overcovering of the soil?	X		
c. Change in topography or ground surface relief features?	X		
d. The destruction, covering, or modification of any unique geologic or physical features?			X
e. Any increase in wind or water erosion of soils, either on or off the site?	X		
f. Changes in deposition or erosion of beach sands, or changes in siltation, deposition or erosion which may modify the channel of a river or stream or the bed of the ocean of any bay, inlet or lake?			X
g. The exposure of people, structures, or property to geological hazards such as earthquakes, landslides, mudslides, ground failure, or similar hazards?		X	
2. Air. Will the proposal result in:			
a. Substantial air emissions or deterioration of ambient air quality?			X
b. The creation of objectionable odors?		X	
c. Alteration of air movement, moisture, or temperature, or any change in climate, either locally or regionally?			X
3. Water. Will the proposal result in:			
a. Changes in currents, or the course of direction of water movements, in either marine or fresh waters?			X
b. Changes in absorption rates, drainage patterns, or the rate and amount of surface runoff?	X		
c. Alteration to the course or flow of flood waters?			X
d. Changes in the amount of surface water in any water body?			X

	YES	MAYBE	NO
e. Discharge into surface waters, or in any alteration of surface water quality, including, but not limited to, temperature, dissolved oxygen, or turbidity?			X
f. Alteration of the direction or rate of flow of ground waters?		X	
g. Change in the quantity or quality of ground waters, either through direct additions or withdrawals, or through interception of an aquifer by cuts or excavation?		X	
h. Substantial reduction in the amount of water otherwise available for public water supplies?			X
i. Exposure of people or property to water-related hazards such as flooding or tidal waves?			X
4. Plant Life. Will the proposal result in:			
a. Change in the diversity of species, or in the number of any species of plants (including trees, shrubs, grass, crops, and aquatic plants)?			X
b. Reduction in the numbers of any unique, rare, or endangered species of plants?			X
c. Introduction of new species of plants into an area, or in a barrier to the normal replenishment of existing species?			X
d. Reduction in acreage of any agricultural crop?			X
5. Animal Life. Will the proposal result in:			
a. Change in the diversity of species, or in the number of any species of animals (birds, land animals including reptiles, fish and shellfish, benthic organisms or insects)?			X
b. Reduction in the numbers of any unique, rare, or endangered species of animals?			X
c. Introduction of new species of animals into an area, or in a barrier to the migration or movement of animals?			X
d. Deterioration to existing fish or wildlife habitats?		X	
6. Noise. Will the proposal result in:			
a. Increases in existing noise levels?	X		
b. Exposure of people or noise-sensitive receptors to severe noise levels?			X

	YES	MAYBE	NO
7. Light and Glare. Will the proposal result in:			
a. A new substantial source of light or glare?			X
8. Land Use. Will the proposal result in:			
a. Substantial alteration of the present or planned land use of an area?			X
9. Natural Resources. Will the proposal result in:			
a. Any increase in the rate of use of any natural resources?			X
10. Risk of Upset. Will the proposal involve:			
a. A risk of an explosion or the release of hazardous substances (including, but not limited to: oil, pesticides, chemicals, or radiation) in the event of an accident or upset conditions?		X	
b. Possible interference with an emergency response plan or an emergency evacuation plan?			X
11. Population. Will the proposal:			
a. Alter the location, distribution, density, or growth rate of the human population of an area?			X
12. Housing. Will the proposal:			
a. Affect existing housing, or create a demand for additional housing?			X
13. Transportation/Circulation. Will the proposal result in:			
a. The generation of substantial additional vehicular movement?			X
b. Effects on existing parking facilities, or demand for new parking?			X
c. A substantial impact upon existing transportation systems?			X
d. Alterations to present patterns of circulation or movement of people and/or goods?			X
e. Alteration to waterborne, rail or air traffic?			X
f. Increase in traffic hazards to motor vehicles, bicyclists, or pedestrians?			X
14. Public Services. Will the proposal have an effect upon, or result in a need for new or altered governmental services in any of the following areas:			
a. Fire protection?			X

	YES	MAYBE	NO
b. Police protection?			X
c. Schools?			X
d. Parks or other recreational facilities?			X
e. Maintenance of public facilities, including roads?		X	
f. Other governmental services?			X
15. Energy. Will the proposal result in:			
a. Use of substantial amounts of fuel or energy?			X
b. Substantially increased demand upon existing sources of energy, or require the development of new sources of energy?			X
16. Utilities and Service Systems. Will the proposal result in a need for new systems, or substantial alterations to the following utilities:			
a. Electrical power or natural gas?			X
b. Communications systems?			X
c. Water?			X
d. Sewer or septic tanks?			X
e. Storm water drainage?			X
f. Solid waste and disposal?			X
17. Human Health. Will the proposal result in:			
a. Creation of any health hazard or potential health hazard (excluding mental health)?		X	
b. Exposure of people to potential health hazards?		X	
18. Aesthetics. Will the proposal result in:			
a. The obstruction of any scenic vista or view open to the public?			X
b. The creation of an aesthetically offensive site open to public view?			X
19. Recreation. Will the proposal result in:			
a. An impact upon the quality or quantity of existing recreational opportunities?			X

	YES	MAYBE	NO
20. Cultural Resources. Will the proposal:			
a. Result in the alteration or destruction of a prehistoric or historic archaeological site?			X
b. Result in adverse physical or aesthetic effects to a prehistoric or historic building, structure, or object?			X
c. Have the potential to cause a physical change that would affect unique ethnic cultural values?		X	
d. Restrict existing religious or sacred uses within the potential impact area?		X	
21. Mandatory Findings of Significance.			
a. Potential to Degrade: Does the proposal have the potential to 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, 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?			X
b. Short-term: Does the proposal have the potential to achieve short-term, to the disadvantage of long-term, environmental goals? (A short-term impact on the environment is one which occurs in a relatively brief, definitive period of time, while long-term impacts will endure well into the future.)			X
c. Cumulative: Does the proposal have impacts which are individually limited, but cumulatively considerable? (A project may impact on two or more separate resources where the impact on each resource is relatively small, but where the effect of the total of those impacts on the environment is significant.)			X
d. Substantially Adverse: Does the proposal have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?			X

APPENDIX B: Public Scoping Letters

CALENDAR PAGE 661

MINUTE PAGE 002144

Medicine Lake Geothermal Activities
Glass Mountain KGRA

To ensure that the federal agencies provide the appropriate distribution of future information regarding the proposed geothermal drilling within the Glass Mtn. KGRA, please verify the following information and complete the questionnaire. The return address is printed on the other side of this form.

Name:

John Aquila
214 Shasta Ave.
Mt. Shasta, CA 96067

I will be forwarding my (our) comments to you regarding the proposed geothermal project within the Glass Mountain KGRA.

Please include my (our) name on all future mailing lists for this project or similar activities within the Glass Mountain KGRA.

I am not interested in receiving further information regarding the current proposed geothermal project or any other similar projects within the Glass Mountain KGRA.

I have the following specific comments regarding the geothermal proposal:

1. I do not want to have any major geothermal development within the Medicine Lake basin.
2. I do not feel it is necessary to clear 5 acres of land to build a well pad. I think one acre would be sufficient and $\frac{1}{2}$ acre would be even more appropriate.
3. I am very concerned that excessive drilling within the basin could lower the water level of the lake itself. One of the proposed sites, 42-13TCH, would only be $\frac{3}{4}$ mile from the lake. That is too close.

Signed: _____

John Aquila

Medicine Lake Geothermal Activities
Glass Mountain KGRA

To ensure that the federal agencies provide the appropriate distribution of future information regarding the proposed geothermal drilling within the Glass Mtn. KGRA, please verify the following information and complete the questionnaire. The return address is printed on the other side of this form.

Name:

PHILLIP BATTAGLIA

W.M. Beatty and Associates

10000 CA 95009

I will be forwarding my (our) comments to you regarding the proposed geothermal project within the Glass Mountain KGRA.

Please include my (our) name on all future mailing lists for this project or similar activities within the Glass Mountain KGRA.

I am not interested in receiving further information regarding the current proposed geothermal project or any other similar projects within the Glass Mountain KGRA.

I have the following specific comments regarding the geothermal proposal:

Signed: 

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Medicine Lake Geothermal Activities
Glass Mountain KGRA

To ensure that the federal agencies provide the appropriate distribution of future information regarding the proposed geothermal drilling within the Glass Mtn. KGRA, please verify the following information and complete the questionnaire. The return address is printed on the other side of this form.

Name:

Betty Belchar (deceased)
c/o Joan A. Belchar
14857 Bancroft Ave. #6
San Leandro, CA 94578

(SEE NAMES OF NEW
PROPERTY OWNERS BELOW)

- I will be forwarding my (our) comments to you regarding the proposed geothermal project within the Glass Mountain KGRA.
- Please include my (our) name on all future mailing lists for this project or similar activities within the Glass Mountain KGRA.
- I am not interested in receiving further information regarding the current proposed geothermal project or any other similar projects within the Glass Mountain KGRA.
- I have the following specific comments regarding the geothermal proposal:

Further communications should be addressed to the following:

Joan A. Belchar
14857 Bancroft Ave., #6; San Leandro, CA 94578

Richard J. Belchar
1843 Silverwood Dr.; Concord, CA 94521

Linda L. Lopes
18849 Sandy Rd., Castro Valley, CA 94546

Signed: _____

Joan A. Belchar

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Medicine Lake Geothermal Activities
Glass Mountain KGRA

To ensure that the federal agencies provide the appropriate distribution of future information regarding the proposed geothermal drilling within the Glass Mtn. KGRA, please verify the following information and complete the questionnaire. The return address is printed on the other side of this form.

Name:

Marian Blakenev
P.O. Box 175
Dorris, CA 96023

___ I will be forwarding my (our) comments to you regarding the proposed geothermal project within the Glass Mountain KGRA.

___ Please include my (our) name on all future mailing lists for this project or similar activities within the Glass Mountain KGRA.

___ I am not interested in receiving further information regarding the current proposed geothermal project or any other similar projects within the Glass Mountain KGRA

___ I have the following specific comments regarding the geothermal proposal:

Signed: _____

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MINUTE PAGE 002148

To ensure that the federal agencies provide the appropriate distribution of future information regarding the proposed geothermal drilling within the Glass Mtn. KGRA, please verify the following information and complete the questionnaire. The return address is printed on the other side of this form.

Name:

Ralph Bowman

Box 1556

AHUMAS CA. 96101

I will be forwarding my (our) comments to you regarding the proposed geothermal project within the Glass Mountain KGRA.

Please include my (our) name on all future mailing lists for this project or similar activities within the Glass Mountain KGRA.

I am not interested in receiving further information regarding the current proposed geothermal project or any other similar projects within the Glass Mountain KGRA.

I have the following specific comments regarding the geothermal proposal:

Signed: _____

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Medicine Lake Geothermal Activities
Glass Mountain KGRA

To ensure that the federal agencies provide the appropriate distribution of future information regarding the proposed geothermal drilling within the Glass Mtn. KGRA, please verify the following information and complete the questionnaire. The return address is printed on the other side of this form.

Name:

Paul Brewer
Box 262
Burney, CA 96013

I will be forwarding my (our) comments to you regarding the proposed geothermal project within the Glass Mountain KGRA.

Please include my (our) name on all future mailing lists for this project or similar activities within the Glass Mountain KGRA.

I am not interested in receiving further information regarding the current proposed geothermal project or any other similar projects within the Glass Mountain KGRA.

I have the following specific comments regarding the geothermal proposal:

Signed: Paul A. Brewer

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Medicine Lake Geothermal Activities
Glass Mountain KGRA

To ensure that the federal agencies provide the appropriate distribution of future information regarding the proposed geothermal drilling within the Glass Mtn. KGRA, please verify the following information and complete the questionnaire. The return address is printed on the other side of this form.

Name:

Butte Valley Chamber of Commerce
Box 541
Dorris, CA 96023

I will be forwarding my (our) comments to you regarding the proposed geothermal project within the Glass Mountain KGRA.

Please include my (our) name on all future mailing lists for this project or similar activities within the Glass Mountain KGRA.

I am not interested in receiving further information regarding the current proposed geothermal project or any other similar projects within the Glass Mountain KGRA.

I have the following specific comments regarding the geothermal proposal:

WOULD YOU PROVIDE THE CHAMBER WITH MORE INFORMATION ABOUT CE GENERAL CORP., SUCH AS, WHERE ARE THEIR HEADQUARTERS LOCATED, WHO ARE THE CORPORATIONS OFFICERS, IS IT A PUBLICLY HELD CORPORATION, ETC..

PLEASE ADD TO YOUR MAILING LIST.

1. MT. SHASTA CHAMBER OF COMMERCE
300 PINE ST.
MT. SHASTA, CA. 96097

2. BUTTE VALLEY RCD
P.O. BOX 785
DORRIS, CA. 96023

Signed: _____

J.R.G. PRESIDENT

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BUTTE VALLEY CHAMBER OF COMMERCE

BOX 541, DORRIS, CALIFORNIA 96023

October 10, 1994

U. S. Forest Service
MODOC National Forest
800 West 12th Street
Alturas, Ca. 96101-3132

Ref: Plan of Operation (POO) for geothermal exploration in the
Medicine Lake Area

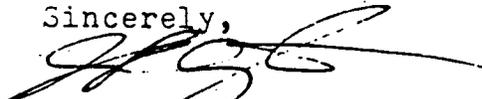
Attn: Randall Sharp

The Butte Valley Chamber of Commerce has by unanimous vote directed me to request that a formal public hearing be held regarding the subject POO.

The information packet which you provided to us raised more questions than it answered. We believe that the only way to understand this proposal in sufficient depth is an open public meeting with questions and answers.

We would suggest that the meeting be held at a time and place in Butte Valley which would afford local residents the best opportunity to participate in a meaningful exchange of information and comments.

Sincerely,



J. K. Covington, President

cc: Jim Stout, Klamath National Forest
File

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Medicine Lake Geothermal Activities
Glass Mountain KGRA

To ensure that the federal agencies provide the appropriate distribution of future information regarding the proposed geothermal drilling within the Glass Mtn. KGRA, please verify the following information and complete the questionnaire. The return address is printed on the other side of this form.

Name:

California Depart. of Fish and Game
Attn: Tim Burton
1724 Ball Mtn. Rd
Montague, CA 96064

I will be forwarding my (our) comments to you regarding the proposed geothermal project within the Glass Mountain KGRA.

Please include my (our) name on all future mailing lists for this project or similar activities within the Glass Mountain KGRA.

I am not interested in receiving further information regarding the current proposed geothermal project or any other similar projects within the Glass Mountain KGRA.

I have the following specific comments regarding the geothermal proposal:

Signed: _____

T. Burton

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California Wilderness Coalition

2655 Portage Bay East, Suite 5 • Davis, California 95616 • (916) 758-0380

Board of Directors

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Executive Director

Jim Eaton

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Ancient Forests Defense Fund
Angeles Chapter, Sierra Club
Backcountry Horsemen of California
Backpack Section, Bay Chapter, Sierra Club
Bay Chapter, Sierra Club
Berkeley Ecology Center
Butte Environmental Council
California Alpine Club
California Mule Deer Association
California Native Plant Society
Citizens for Better Forestry
Citizens for Mojave National Park
Come Together
Committee to Save the Kings River
Conservation Call
Davis Audubon Society
Desert Protective Council
Desert Survivors
Ecology Center of Southern California
El Dorado Audubon Society
Forest Alert
Friends Aware of Wildlife Needs
Friends of Plumas Wilderness
Friends of the Inyo
Friends of the River
The Fund for Animals
Hands Off Our Wild Lands!
High Sierra Hikers Association
Kaweah Flyfishers
Keep the Seeps Wild Committee
Kern Audubon Society
Kern Kaweah Chapter, Sierra Club
Klamath Forest Alliance
League to Save Lake Tahoe
Loma Pheta Chapter, Sierra Club
Los Angeles Audubon Society
Lost Coast League
Madrone Audubon Society
Marble Mountain Audubon Society
Mann Conservation League
Mendocino Environment Center
Mendocino Forest Watch
Mono Lake Committee
Monterey Peninsula Audubon Society
Mountain Lion Foundation
Mt. Shasta Area Audubon Society
Native Species for Habitat
Natural Resources Defense Council
NCRCC Sierra Club
Nordic Voice
Northcoast Environmental Center
Northern Coast Range Biodiversity Project
Pasadena Audubon Society
Peak Adventures
People for Nipomo Dunes Nat. Seashore
Peppermint Alert
Placer County Conservation Task Force
Planning and Conservation League
Porterville Area Environmental Council
Range of Light Group, Toiyabe Ch., Sierra Club
Redwood Chapter, Sierra Club
Redwood Coast Law Center
The Red Mountain Association
The Rural Institute
Sacramento River Preservation Trust
San Diego Chapter, Sierra Club
San Fernando Valley Audubon Society
Save Our Ancient Forest Ecology
Sea and Sage Audubon Society
Sierra Club Legal Defense Fund
Sierra Treks
Soda Mountain Wilderness Council
South Fork Watershed Association
South Yuba River Citizen League
Tulare County Audubon Society
U.C. Davis Environmental Law Society
Western States Endurance Run
The Wilderness Society
Wintu Audubon Society
Yolano Group, Sierra Club
Yolo Environmental Resource Center

February 7, 1995

Randall Sharp
Modoc National Forest
800 West 12th. Street
Alturas, CA 96101

Dear Mr. Sharp:

Please place us on the mailing lists for the following projects so that we may submit scoping comments when the time comes:

- Pack Station SUP
- Geothermal Exploration Activities
- Tuscarora Gas Line EIS

Thank you for your help.

Sincerely,

Ryan Henson
Conservation Associate

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Medicine Lake Geothermal Activities
Glass Mountain KGRA

To ensure that the federal agencies provide the appropriate distribution of future information regarding the proposed geothermal drilling within the Glass Mtn. KGRA, please verify the following information and complete the questionnaire. The return address is printed on the other side of this form.

Name:

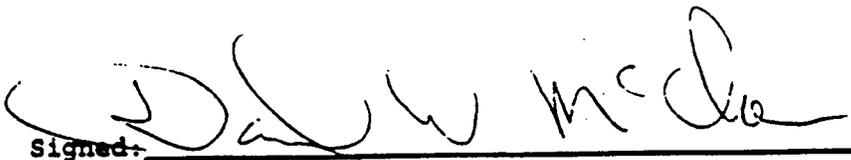
CE Exploration Company
Attn: Dave McClain
34 N.W. First Ave., Suite 302
Portland, OR 96088

I will be forwarding my (our) comments to you regarding the proposed geothermal project within the Glass Mountain KGRA.

Please include my (our) name on all future mailing lists for this project or similar activities within the Glass Mountain KGRA.

I am not interested in receiving further information regarding the current proposed geothermal project or any other similar projects within the Glass Mountain KGRA.

I have the following specific comments regarding the geothermal proposal:


Signed: _____

CALENDAR PAGE 672

MINUTE PAGE 002155

Medicine Lake Geothermal Activities
Glass Mountain

To ensure that the federal agencies provide the appropriate distribution of future information regarding the proposed geothermal drilling within the Glass Mtn. KGRA, please verify the following information and complete the questionnaire. The return address is printed on the other side of this form.

Name:

Central Valley Water Quality Board
415 Knollcrest, Suite 100
Redding, CA 96002

I will be forwarding my (our) comments to you regarding the proposed geothermal project within the Glass Mountain KGRA.

Please include my (our) name on all future mailing lists for this project or similar activities within the Glass Mountain KGRA.

I am not interested in receiving further information regarding the current proposed geothermal project or any other similar projects within the Glass Mountain KGRA.

I have the following specific comments regarding the geothermal proposal:

Signed: Mark Harvey

CALENDAR PAGE	673
MINUTE PAGE	002156

Medicine Lake Geothermal Activities
Glass Mountain KGRA

To ensure that the federal agencies provide the appropriate distribution of future information regarding the proposed geothermal drilling within the Glass Mtn. KGRA, please verify the following information and complete the questionnaire. The return address is printed on the other side of this form.

Name:

Cottonwood Enterprises
Box 456
Cottonwood, CA 96022

— I will be forwarding my (our) comments to you regarding the proposed geothermal project within the Glass Mountain KGRA.

~~XXX~~ Please include my (our) name on all future mailing lists for this project or similar activities within the Glass Mountain KGRA.

— I am not interested in receiving further information regarding the current proposed geothermal project or any other similar projects within the Glass Mountain KGRA.

~~XXX~~ I have the following specific comments regarding the geothermal proposal:

We are concerned what their heavy equipment will do to the roads and who will be responsible for the repairs.

We have had very low water level in Medicine Lake for several years. We fear their drilling is tapping in to the water supply that feeds the Lake.. Do you know if this is true?

We are concerned about the proposed sights nearest to Medicine Lake and the Private Cabin Area.

We do not like the idea of clearing off five acre parcels of land to set up these drilling rigs. We hope you have our concern in mind environmentally to keep our area as beautiful as possible. We bought here because it was a natural and lovely place for our children.

If they continue to work up in the area during the winter, will the road to Medicine Lake be maintained so we can travel through the winter?

Signed: *Warren D. Nichols*

Cottonwood Ent.

Warren D. Nichols

CALENDAR PAGE 674

MINUTE PAGE

002157

Medicine Lake Geothermal Activities
Glass Mountain KGRA

To ensure that the federal agencies provide the appropriate distribution of future information regarding the proposed geothermal drilling within the Glass Mtn. KGRA, please verify the following information and complete the questionnaire. The return address is printed on the other side of this form.

Name:

Glen Darrow
Rt 2 Box 172
Tulelake, CA 96134

I will be forwarding my (our) comments to you regarding the proposed geothermal project within the Glass Mountain KGRA.

Please include my (our) name on all future mailing lists for this project or similar activities within the Glass Mountain KGRA.

I am not interested in receiving further information regarding the current proposed geothermal project or any other similar projects within the Glass Mountain KGRA.

I have the following specific comments regarding the geothermal proposal:

I am for medicine lake Geothermal activities

Signed: Glen E. Darrow

CALENDAR PAGE 675

MINUTE PAGE 002158

Medicine Lake Geothermal Activities
Glass Mountain KGRA

To ensure that the federal agencies provide the appropriate distribution of future information regarding the proposed geothermal drilling within the Glass Mtn. KGRA, please verify the following information and complete the questionnaire. The return address is printed on the other side of this form.

Name:

Daniel Downey
220 Main St.
Montesano, WA 98563

I will be forwarding my (our) comments to you regarding the proposed geothermal project within the Glass Mountain KGRA.

Please include my (our) name on all future mailing lists for this project or similar activities within the Glass Mountain KGRA.

I am not interested in receiving further information regarding the current proposed geothermal project or any other similar projects within the Glass Mountain KGRA.

I have the following specific comments regarding the geothermal proposal:

Signed: _____

Daniel C. Downey

9-26-94

CALENDAR PAGE 676

MINUTE PAGE 002159

Medicine Lake Geothermal Activities
Glass Mountain KGRA

To ensure that the federal agencies provide the appropriate distribution of future information regarding the proposed geothermal drilling within the Glass Mtn. KGRA, please verify the following information and complete the questionnaire. The return address is printed on the other side of this form.

Name:

Phillip/MARINA
~~Robert~~ Facchin
1321 Mott Road
Mt. Shasta, CA 96067

I will be forwarding my (our) comments to you regarding the proposed geothermal project within the Glass Mountain KGRA.

Please include my (our) name on all future mailing lists for this project or similar activities within the Glass Mountain KGRA.

I am not interested in receiving further information regarding the current proposed geothermal project or any other similar projects within the Glass Mountain KGRA.

I have the following specific comments regarding the geothermal proposal:

Signed: _____

Phillip R Facchin

CALENDAR PAGE 677

MINUTE PAGE

002160

Medicine Lake Geothermal Activities
Glass Mountain KGRA

To ensure that the federal agencies provide the appropriate distribution of future information regarding the proposed geothermal drilling within the Glass Mtn. KGRA, please verify the following information and complete the questionnaire. The return address is printed on the other side of this form.

Name:

George Faggella
1025 Deodar Way
Redding, CA 96003

I will be forwarding my (our) comments to you regarding the proposed geothermal project within the Glass Mountain KGRA.

Please include my (our) name on all future mailing lists for this project or similar activities within the Glass Mountain KGRA.

I am not interested in receiving further information regarding the current proposed geothermal project or any other similar projects within the Glass Mountain KGRA.

I have the following specific comments regarding the geothermal proposal:

Signed: _____

George A. Faggella

CALENDAR PAGE 678

MINUTE PAGE

002161

Medicine Lake Geothermal Activities
Glass Mountain KGRA

To ensure that the federal agencies provide the appropriate distribution of future information regarding the proposed geothermal drilling within the Glass Mtn. KGRA, please verify the following information and complete the questionnaire. The return address is printed on the other side of this form.

Name:

Fruit Growers Supply Co.
Fruit Growers Road
Hilt, CA 96044

- I will be forwarding my (our) comments to you regarding the proposed geothermal project within the Glass Mountain KGRA.
- Please include my (our) name on all future mailing lists for this project or similar activities within the Glass Mountain KGRA.
- I am not interested in receiving further information regarding the current proposed geothermal project or any other similar projects within the Glass Mountain KGRA.
- I have the following specific comments regarding the geothermal proposal:

Signed:

Charles Brown

CALENDAR PAGE	680
MINUTE PAGE	002163

Medicine Lake Geothermal Activities
Glass Mountain KGRA

To ensure that the federal agencies provide the appropriate distribution of future information regarding the proposed geothermal drilling within the Glass Mtn. KGRA, please verify the following information and complete the questionnaire. The return address is printed on the other side of this form.

Name:

Glass Mountain Pumice
Star Route Box 6
Tulelake, CA 96134

- I will be forwarding my (our) comments to you regarding the proposed geothermal project within the Glass Mountain KGRA.
- Please include my (our) name on all future mailing lists for this project or similar activities within the Glass Mountain KGRA.
- I am not interested in receiving further information regarding the current proposed geothermal project or any other similar projects within the Glass Mountain KGRA.
- I have the following specific comments regarding the geothermal proposal:

*We are interested in the project and
would like to provide services/aggregate if possible,
Thank you,*

Signed: *Sidi L. Malaga*

CALENDAR PAGE 681

MINUTE PAGE 002164

Medicine Lake Geothermal Activities
Glass Mountain KGRA

To ensure that the federal agencies provide the appropriate distribution of future information regarding the proposed geothermal drilling within the Glass Mtn. KGRA, please verify the following information and complete the questionnaire. The return address is printed on the other side of this form.

Name:

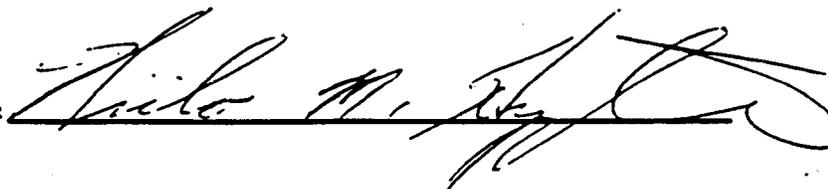
Niilo Hyytinen
13290 Hodge Drive
Reno, NV 89502

I will be forwarding my (our) comments to you regarding the proposed geothermal project within the Glass Mountain KGRA.

Please include my (our) name on all future mailing lists for this project or similar activities within the Glass Mountain KGRA.

I am not interested in receiving further information regarding the current proposed geothermal project or any other similar projects within the Glass Mountain KGRA.

I have the following specific comments regarding the geothermal proposal:

Signed: 

CALENDAR PAGE	682
MINUTE PAGE	002165

Nr. Randall Sharp
Modoc National Forest
800 W. 12th St
Alturas, Ca 96101

Nov. 1, 1994

Dear Mr. Sharp;

I am concerned about the geothermal generating facility proposed for the Medecine Lake Highlands area, and would like to make the following comments at this time.

I feel a first phase of exploration could be accomplished with fewer test borings. The large number of sites currently proposed will have a significant negative impact on the environment with no offsetting benefit should the results be discouraging to further development.

The roads required to access the test hole sites should be limited in length and number, and should be obliterated where possible.

If not sited properly, a generating facility could be a blight on this pristine area. The value of proper planning to preserve scenic and recreation resources cannot be overemphasized. The future economic growth of Modoc County depends on the ability to attract tourists, which in turn depends on our commitment to protecting the natural scenic beauty with which we are favored.

I am particularly concerned about the grid of transmission lines that would be necessary to connect wells at dispersed locations.

Geothermal energy is not an unlimited resource; in fact, the Geysers in California demonstrated how quickly it can be exhausted. The long term economic potential of preserving recreational opportunity should not be sacrificed for short-term energy extraction.

Please put me on the mailing list to receive information on this proposed project.

Thank you,

Sandy Ivey
731 Miner Rd
Orinda, Ca 94563
(510)254-7471

CALENDAR PAGE	683
MINUTE PAGE	002166

Medicine Lake Geothermal Activities
Glass Mountain KGRA

To ensure that the federal agencies provide the appropriate distribution of future information regarding the proposed geothermal drilling within the Glass Mtn. KGRA, please verify the following information and complete the questionnaire. The return address is printed on the other side of this form.

Name:

Frances Jones
1655 Manitoba Dr.
Sunnyvale, CA 94087

I will be forwarding my (our) comments to you regarding the proposed geothermal project within the Glass Mountain KGRA.

Please include my (our) name on all future mailing lists for this project or similar activities within the Glass Mountain KGRA.

I am not interested in receiving further information regarding the current proposed geothermal project or any other similar projects within the Glass Mountain KGRA.

I have the following specific comments regarding the geothermal proposal:

Signed: Frances Jones

CALENDAR PAGE 684

MINUTE PAGE 002167

Medicine Lake Geothermal Activities
Glass Mountain KGRA

To ensure that the federal agencies provide the appropriate distribution of future information regarding the proposed geothermal drilling within the Glass Mtn. KGRA, please verify the following information and complete the questionnaire. The return address is printed on the other side of this form.

Name:

Pete Lorenzen + Laurel
Day Route
Mc Arthur, CA 96056

— I will be forwarding my (our) comments to you regarding the proposed geothermal project within the Glass Mountain KGRA.

✓ Please include my (our) name on all future mailing lists for this project or similar activities within the Glass Mountain KGRA.

— I am not interested in receiving further information regarding the current proposed geothermal project or any other similar projects within the Glass Mountain KGRA.

✓ I have the following specific comments regarding the geothermal proposal:

Med. Lake level is way down & continues to pay down even after our last year in 72-73. Some people ourselves include wonder - does the drilling in our area contribute to this - It would be ok to leave our Mountain Area alone - every square inch of earth does not have to be explored & exploited - It would be ok to leave something for children - grand children ^{to} enjoy -

Signed:

Laurel Lorenzen 10-3-74

336-5843

CALENDAR PAGE 685

MINUTE PAGE 002168

Medicine Lake Geothermal Activities
Glass Mountain KGRA

To ensure that the federal agencies provide the appropriate distribution of future information regarding the proposed geothermal drilling within the Glass Mtn. KGRA, please verify the following information and complete the questionnaire. The return address is printed on the other side of this form.

Name:

James McEntee
Box 442
McCloud, CA 96057

I will be forwarding my (our) comments to you regarding the proposed geothermal project within the Glass Mountain KGRA.

Please include my (our) name on all future mailing lists for this project or similar activities within the Glass Mountain KGRA.

I am not interested in receiving further information regarding the current proposed geothermal project or any other similar projects within the Glass Mountain KGRA.

I have the following specific comments regarding the geothermal proposal:

Signed: _____



CALENDAR PAGE 686

MINUTE PAGE 002169

Medicine Lake Geothermal Activities
Glass Mountain KGRA

To ensure that the federal agencies provide the appropriate distribution of future information regarding the proposed geothermal drilling within the Glass Mtn. KGRA, please verify the following information and complete the questionnaire. The return address is printed on the other side of this form.

Name:

Robert Medley
910 Sierra Vista
Redding, CA 96001

I will be forwarding my (our) comments to you regarding the proposed geothermal project within the Glass Mountain KGRA.

Please include my (our) name on all future mailing lists for this project or similar activities within the Glass Mountain KGRA.

I am not interested in receiving further information regarding the current proposed geothermal project or any other similar projects within the Glass Mountain KGRA.

I have the following specific comments regarding the geothermal proposal:

Signed: William M. T. T. T. T.

CALENDAR PAGE 687

MINUTE PAGE 002170

Medicine Lake Geothermal Activities
Glass Mountain KGRA

To ensure that the federal agencies provide the appropriate distribution of future information regarding the proposed geothermal drilling within the Glass Mtn. KGRA, please verify the following information and complete the questionnaire. The return address is printed on the other side of this form.

Name:

Mark Merrithew
1010 Mountain View Lane
Mt. Shasta, CA 96067

I will be forwarding my (our) comments to you regarding the proposed geothermal project within the Glass Mountain KGRA.

Please include my (our) name on all future mailing lists for this project or similar activities within the Glass Mountain KGRA.

I am not interested in receiving further information regarding the current proposed geothermal project or any other similar projects within the Glass Mountain KGRA.

I have the following specific comments regarding the geothermal proposal:

1. I've read that geothermal operations create poisonous gases?
 - A. HAS A study of the hazards been done?
 - B. What about fluctuating winds?
 - C. Why should I even be put at risk?
 2. The operation would be extremely noisy?
 - A. HAS A decibel evaluation been surveyed?
 - B. Consider noise pollution
 3. HAS an environmental impact study been taken?
 - A. Natural sites would be disturbed
 - B. Was there any surveys taken before exploratory?
 - C. Should have had a before & after report
 4. How will these wells affect the value of my property?
 5. How will this affect the Medicine Lake Camp ground?
- Signed: Mark Merrithew

CALENDAR PAGE

688

MINUTE PAGE

002171

Medicine Lake Geothermal Activities
Glass Mountain (GRA)

To ensure that the federal agencies provide the appropriate distribution of future information regarding the proposed geothermal drilling within the Glass Mtn. KGRA, please verify the following information and complete the questionnaire. The return address is printed on the other side of this form.

Name:

Paul Molder
Star Route, Box 7
Tulelake, CA 96134

I will be forwarding my (our) comments to you regarding the proposed geothermal project within the Glass Mountain KGRA.

Please include my (our) name on all future mailing lists for this project or similar activities within the Glass Mountain KGRA.

I am not interested in receiving further information regarding the current proposed geothermal project or any other similar projects within the Glass Mountain KGRA.

I have the following specific comments regarding the geothermal proposal:

Signed: _____

Paul Molder

CALENDAR PAGE 689

MINUTE PAGE 002172

Randall Sharp
Modoc National Forest
800 West 12th St.
Alturas , Ca. 96101

Dear Mr. Sharp:

As a member of the local community living at Tionesta which is approximately 17 miles to the south -east of the effected area of the proposed plan of operation I do have some concerns.

I would like to make it clear at this time that I am not totally against this plan but have some grave concerns over the final outcome of this operation. I like the idea of using the majority of the sites for the temperature gradient holes on previously disturbed areas and using existing roads . I do not like the idea of clearing five acre per site for the larger drill rigs. I watched the drilling that UNICAL did with the second largest drill rig they had at the time and I feel that five areas is a figure which may make life a little easier for CEGC, but they could operate with less then five acres of land. You have to remember after they pull out and are totally forgotten the scars on the land will be left for many decades. You mention that land will need to be cleared for these sites. I only hope that the destruction of the land be kept to a minimum and that what ever trees need to be removed are part of the firewood cutting program and not dozed into piles and burned like I have seen in the past such as at that waste of land and money radar site.

I feel ultimately this will lead to the development of one or more power plants which means the destruction of more and more land with plant sites and all of the transmission lines that go with it . I have concerns on what kind of effect it will have on the aquifer and what effects it may have on the local geology. I have read quite a few reports from USGS and have talked to a few of the geologists and know this is still a quite active volcanic area in which they still are not sure of what is going on. Other concerns are what impact will this have on the local community. I know that some of the locals think that this will bring in more jobs. I feel that the local community will be quite disappointed. Working in the utilities myself I know that the majority of the jobs will be given to people already employed with the utility. These people will be transferred in from other areas. The few jobs that will be available to the locals will for the most part be low paying menial jobs. As for the local businesses, the amount of extra income will be minimal for most utilities do all their buying through vendors which offer them better service and prices then local business can.

Finally after reviewing some data from the PG&E plant in the Napa Valley I hope that before any power plants are installed that the BLM will be very sure that this will be a power resource that will last for many decades to come. It would be a real crime to destroy such pristine beauty that can not be replaced in my life time nor my young daughters' life time and in all probability in her children's' lifetime because of a short sited plan.

CALENDAR PAGE 690

MINUTE PAGE 002173

I will keep a keen interest on what is going on and hope you will keep me informed on any future activities.

Sincerely yours



Paul J. Molder
Star Route, Box 7
Tulelake, Ca. 96134

CALENDAR PAGE	691
MINUTE PAGE	002174

Medicine Lake Geothermal Activities
Glass Mountain KGRA

To ensure that the federal agencies provide the appropriate distribution of future information regarding the proposed geothermal drilling within the Glass Mtn. KGRA, please verify the following information and complete the questionnaire. The return address is printed on the other side of this form.

Name:

Charles Moss
201 W. Lake St.
Mt. Shasta, CA 96067

I will be forwarding my (our) comments to you regarding the proposed geothermal project within the Glass Mountain KGRA.

Please include my (our) name on all future mailing lists for this project or similar activities within the Glass Mountain KGRA.

I am not interested in receiving further information regarding the current proposed geothermal project or any other similar projects within the Glass Mountain KGRA.

I have the following specific comments regarding the geothermal proposal:

*Please be careful not to alter the water
in Medicine Lake.*

Signed: _____

Charles F. Moss

CALENDAR PAGE 692

MINUTE PAGE

002175

Medicine Lake Geothermal Activities
Glass Mountain KGRA

To ensure that the federal agencies provide the appropriate distribution of future information regarding the proposed geothermal drilling within the Glass Mtn. KGRA, please verify the following information and complete the questionnaire. The return address is printed on the other side of this form.

Name:

Edward Motmans
c/o Christina F. Keefer
14045 Hill Rd.
Klamath Falls, OR 97603

I will be forwarding my (our) comments to you regarding the proposed geothermal project within the Glass Mountain KGRA.

Please include my (our) name on all future mailing lists for this project or similar activities within the Glass Mountain KGRA.

I am not interested in receiving further information regarding the current proposed geothermal project or any other similar projects within the Glass Mountain KGRA.

I have the following specific comments regarding the geothermal proposal:

Signed: Christina F. Keefer

4/94
CALENDAR PAGE 693

MINUTE PAGE 002176

Medicine Lake Geothermal Activities
Glass Mountain KGRA

To ensure that the federal agencies provide the appropriate distribution of future information regarding the proposed geothermal drilling within the Glass Mtn. KGRA, please verify the following information and complete the questionnaire. The return address is printed on the other side of this form.

Name:

Harold Neibling
~~2700 Bellflower Blvd. Suite 301~~
~~Long Beach, CA 90815.~~

350 Engine Landing
Long Beach Ca 90803

I will be forwarding my (our) comments to you regarding the proposed geothermal project within the Glass Mountain KGRA.

Please include my (our) name on all future mailing lists for this project or similar activities within the Glass Mountain KGRA.

I am not interested in receiving further information regarding the current proposed geothermal project or any other similar projects within the Glass Mountain KGRA.

I have the following specific comments regarding the geothermal proposal:

The Geothermal wells are ok if: ① They don't drain water from the Medicine Lake Table ② Roads are kept clean. ③ Drilling operation doesn't create undue smog or noise pollution in the areas.

Thanks!

DR
Signed:

H. E. Neibling

350 Engine Landing
Long Beach Ca 90803
(310) 498-2993

#1 Beach St
Medicine Lake

CALENDAR PAGE Cabin 694

MINUTE PAGE 002177

Change
Mail

Medicine Lake Geothermal Activities
Glass Mountain KGRA

To ensure that the federal agencies provide the appropriate distribution of future information regarding the proposed geothermal drilling within the Glass Mtn. KGRA, please verify the following information and complete the questionnaire. The return address is printed on the other side of this form.

Name:

I will be forwarding my (our) comments to you regarding the proposed geothermal project within the Glass Mountain KGRA.

Please include my (our) name on all future mailing lists for this project or similar activities within the Glass Mountain KGRA.

I am not interested in receiving further information regarding the current proposed geothermal project or any other similar projects within the Glass Mountain KGRA.

I have the following specific comments regarding the geothermal proposal:


Claude E. Olson
1536 N. Eldorado Ave.
Klamath Falls, OR
97601

Signed: C. E. Olson

CALENDAR PAGE 695

MINUTE PAGE

002178

Medicine Lake Geothermal Activities
Glass Mountain KGRA

To ensure that the federal agencies provide the appropriate distribution of future information regarding the proposed geothermal drilling within the Glass Mtn. KGRA, please verify the following information and complete the questionnaire. The return address is printed on the other side of this form.

Name:

Felic Face
Klamath Forest Alliance
P.O. Box 820
Etna, CA 96027

I will be forwarding my (our) comments to you regarding the proposed geothermal project within the Glass Mountain KGRA.

Please include my (our) name on all future mailing lists for this project or similar activities within the Glass Mountain KGRA.

I am not interested in receiving further information regarding the current proposed geothermal project or any other similar projects within the Glass Mountain KGRA.

I have the following specific comments regarding the geothermal proposal:

We want to review the EA.

TX
EP

Signed: _____

Felic Face

CALENDAR PAGE 696

MINUTE PAGE 002179