Table S-1 - IMPACT AND MITIGATION SUMMARY - GEYSERS EIR

Existing Conditions	Issues and Impacts	Mitigations	Responsible for Mitigation	Residual Impact
Aquatic Resources				
There are two major drainage systems within the project area, and several major creeks which drain into Big Sulphur Creek.	Construction activities would have potential to cause increased sedimentation and erosion into Squaw Creek and other drainages.	Cut and fills shall be dressed with sandbags during construction to prevent sediment transport.	- Applicant/ Developer	Reduced to insignificant
	There is a chance for potentially toxic materials to be spilled and eventually be washed into the streams.	Measures as discussed previously will reduce chances for spills. No waste shall be allowed to enter any stream, creek, or other body of water.	- Applicant/ Developer	Reduced to insignificant
Phase 3 - Full Field Development				
Vegetation				
The project region is a highly diverse mosaic of shrub, woodland, riparian, and grassland communities. Of particular importance for rare plant species is the presence of serpentine soils and rocky outcrops within the project area.	Approximately 45 to 90 hectares (100 to 200 acres) of vegetation would be cleared for each power plant site.	A revegetation and landscaping plan shall be developed which utilizes native plant species.	- Applicant/ Developer	Reduced to insignificant
	Vegetation may be injured from accidental spills or other gaseous emissions.	Measures as discussed previously will reduce chances for spills. No waste shall be allowed to enter any stream, creek or other body of water.	- Applicant/ Developer	Reduced to insignificant
	Removal of vegetation in a sensitive habitat such as serpentine grassland would be considered highly significant.	Areas of sensitive habitat shall be avoided.	- Applicant/ Developer	Reduced to insignificant
Wildlife				
The high diversity of vegetation communities present in the leasehold areas is associated with a high diversity of wildlife taxa. The areas are actually or potentially occupied by 33 species of amphibians and reptiles, 97 species of birds as residents or seasonal visitors, and 34 species of mammals.	Considerable local modification of wildlife habitat will result, especially during drilling pad and sump construction.	A survey shall be conducted by a qualified wildlife biologist to evaluate habitats and to assure no active carnivore dens are present. If an occupied den is found, wildlife biologist shall insure protection of occupant and may relocate the den if necessary.	- Applicant/ Developer	Reduced to insignificant
	Impact will be greatest in Project Area 3 where yellow pine forests would be removed. Important den sites for larger carnivores may be lost.			
	More secretive or disturbance-sensitive species such as gray foxes may be permanently displaced by development activities.			
	Fossorial mammals and reptiles will be displaced or killed.			

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Table S-1 - IMPACT AND MITIGATION SUMMARY - GEYSERS EIR

Existing Conditions	Issues and Impacts	Mitigations	Responsible for Mitigation	Residual Impact
Aquatic Resources				
There are two major drainage systems within the project area, and several major creeks which drain into Big Sulphur Creek.	Construction activities have potential to significantly increase sedimentation and erosion into Squaw Creek and other drainages.	Cut and fills shall be dammed with sandbags during construction to prevent sediment transport.	- Applicant/ Developer	Reduced to insignificant
	Potentially toxic materials may be spilled and eventually be washed into the streams and cause lethal or sublethal effects on aquatic organisms.	Measures as discussed previously will reduce chances for spills. No waste shall be allowed to enter any streams, creeks, or other body of water.	- Applicant/ Developer	Reduced to insignificant
Phase 4 - Operation and Maintenance				
Vegetation				
The project region is a highly diverse mosaic of shrub, woodland, riparian, and grassland communities. Of particular importance for rare plant species is the presence of serpentine soils and rocky outcrops within the project area.	Impacts during operation and maintenance are not expected beyond those previously discussed.			Insignificant
	Steam emissions and accidental spills are potential impacts.	Measures as discussed previously will reduce chances for spills.	- Applicant/ Developer	Reduced to insignificant
Wildlife				
The high diversity of vegetation communities present in the leasehold areas is associated with a high diversity of wildlife taxa. The areas are actually or potentially occupied by 33 species of amphibians and reptiles, 97 species of birds as residents or seasonal visitors, and 34 species of mammals.	The continued operation of the steam plant facilities will not impact additional habitat beyond that lost in development.			Insignificant
Aquatic Resources				
There are two major drainage systems within the project area, and several major creeks which drain into Big Sulphur Creek.	This phase would have less potential for major inputs of sediment since construction will have been completed; however, reconstruction and maintenance may increase erosion in the streams.	Cut and fills shall be dammed with sandbags during construction to prevent sediment transport.	- Applicant/ Developer	Reduced to insignificant
	Accidental spills and steam emissions are also a potential significant impact.	Measures as discussed previously will reduce chances for spills. No waste shall be allowed to enter any streams, creeks, or other body of water.	- Applicant/ Developer	Reduced to insignificant

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Table S-1 - IMPACT AND MITIGATION SUMMARY - GEYSERS EIR

Existing Conditions	Issues and Impacts	Mitigations	Responsible for Mitigation	Residual Impact
Phase 5 - Abandonment				
Vegetation				
The project region is a highly diverse mosaic of shrub, woodland, riparian, and grassland communities. Of particular importance for rare plant species is the presence of serpentine soils and rocky outcrops within the project area.	Impacts include contamination and mortality of the surrounding vegetation due to migration of toxic fluids.	Measures as discussed previously will reduce chances for spills and seepage of toxic materials.	- Applicant/ Developer	Reduced to insignificant
Wildlife				
The high diversity of vegetation communities present in the leasehold areas is associated with a high diversity of wildlife taxa. The areas are actually or potentially occupied by 33 species of amphibians and reptiles, 97 species of birds as residents or seasonal visitors, and 34 species of mammals.	Re-establishment of wildlife in the area of an abandoned well will depend partly on the patterns of revegetation.	A revegetation plan shall be developed which utilizes native plant species and encourages wildlife uses.	- Applicant/ Developer	Reduced to insignificant
Aquatic Resources				
There are two major drainage systems within the project area, and several major creeks which drain into Big Sulphur Creek.	Activities associated with well abandonment has the potential to accelerate sedimentation into streams. Toxic fluids left in the area could wash into the streams.	Cut and fills shall be damned with sandbags during abandonment to prevent sediment transport. Measures as discussed previously will reduce chances for spills and seepage of toxic materials.	- Applicant/ Developer	Reduced to insignificant
Cumulative Impacts and Mitigations - Vegetation and Wildlife				
	Removal of additional acreages of habitat within The Geysers area would be a significant cumulative impact on plant communities and wildlife habitat in general. Cumulative impacts would occur on sensitive species particularly serpentine chaparral, old-growth yellow pine woodland, and riparian communities. Development would result in a potentially significant cumulative loss of foraging habitat for raptors.	Siting consideration for cumulative projects should take into account biological habitats. Implementation of above listed mitigation measures would reduce significant adverse impacts to levels considered acceptable and therefore insignificant.	- Applicant/ Developer	Reduced to insignificant
Cumulative Impacts - Aquatic Resources				
	The cumulative effects of siltation, input of toxic chemicals either from operation or from accident, and from lowering of water levels in the streams and interruption of creek flow.	Strict adherence to the site-specific mitigation measures proposed to control siltation, accidents, and inputs of toxic chemicals will help to insure that cumulative impact in the Geysers area on aquatic resources are insignificant.	- Applicant/ Developer	Reduced to insignificant

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Table S-1 - IMPACT AND MITIGATION SUMMARY - GEYSERS EIR

Existing Conditions	Issues and Impacts	Mitigations	Responsible for Mitigation	Residual Impact
CULTURAL RESOURCES AND PREHISTORY				
Cultural Resources				
Phase 1 - Non-Drilling Exploration Activities				
Substantial and important cultural and paleontologic resources exist in The Geysers area as demonstrated by previous projects.	Some off-road and foot disturbance is probable.	No mitigation measures are suggested.		Insignificant
	Potential damage to cultural resources is possible during the placement of instruments used in anomalous surface heat flow studies and resistivity surveys.	No mitigation measures are suggested.		Insignificant
Phase 2 - Exploratory Drilling				
Substantial and important cultural and paleontologic resources exist the Geysers area as demonstrated by previous projects.	Road widening and cutting/filling activities will further disturb known sites which have already been impacted by existing roads and trails.	Sites of possible cultural interest will be avoided through redesign of facilities.	- Applicant/ Developer	Reduced to insignificant
	Drill pad and sump construction will disturb relatively large amounts of land making significant cultural resources impacts highly probable.	Construction activities shall be monitored by qualified individuals. Buried resources discovered will cause suspension of grading or construction activities until a determination of importance is made by monitor.	- Applicant/ Developer	Reduced to insignificant
		It is recommended that further survey occur on a site-specific basis.	- Applicant/ Developer	Reduced to insignificant
Phase 3 - Full Field Development				
Substantial and important cultural and paleontologic resources exist the Geysers area as demonstrated by previous projects.	If development utilizes existing pads and access, anticipated impacts are similar but on a much smaller scale than for that of exploration.	Sites of possible cultural interest will be avoided through redesign of facilities.	- Applicant/ Developer	Reduced to insignificant
	As most prehistoric sites are small, flexibility in the placement of pipeline systems and power transmission towers should allow site avoidance.	Construction activities shall be monitored by qualified individuals. Buried resources discovered will cause suspension of grading or construction activities until a determination of importance is made by monitor.	- Applicant/ Developer	Reduced to insignificant
		It is recommended that further survey occur on a site-specific basis.	- Applicant/ Developer	Reduced to insignificant

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Table S-1 - IMPACT AND MITIGATION SUMMARY - GEYSERS EIR

Existing Conditions	Issues and Impacts	Mitigations	Responsible for Mitigation	Residual Impact
Phase 4 - Operation and Maintenance				
Substantial and important cultural and paleontologic resources exist in The Geysers area as demonstrated by previous projects.	Significant adverse impacts to cultural resources could occur with any new construction during this phase.	Sites of possible cultural interest will be avoided through redesign of facilities.	- Applicant/ Developer	Reduced to insignificant
	Landform modification associated with geothermal development may cause an increase in slope instability and erosion resulting in potential impact to cultural resources.	Construction activities shall be monitored by qualified individuals. Buried resources discovered will cause redirection of grading or construction activities until a determination of importance is made by monitor.	- Applicant/ Developer	Reduced to insignificant
		It is recommended that further survey occur on a site-specific basis.	- Applicant/ Developer	Reduced to insignificant
Phase 5 - Abandonment				
Substantial and important cultural and paleontologic resources exist in The Geysers area as demonstrated by previous projects.		Abandonment activity should be restricted to the originally disturbed area to avoid potential impacts to cultural resources.	- Applicant/ Developer	Reduced to insignificant
Paleontologic Resources				
Substantial and important cultural and paleontologic resources exist in The Geysers area as demonstrated by previous projects.	Any ground disturbance could result in significant impact to fossil resources.	A qualified paleontologist shall be retained to monitor and assess sensitive fossil resources.	- Applicant/ Developer	Reduced to insignificant
Cumulative Impacts and Mitigation				
Substantial and important cultural and paleontologic resources exist in The Geysers area as demonstrated by previous projects.	Undoubtedly, areas to be developed under the cumulative scenario will contain cultural resources which may be inadvertently, adversely affected.	Field studies of potential project sites and monitoring exploration and grading shall minimize impacts.	- Applicant/ Developer	Reduced to insignificant
TRANSPORTATION				
Phase 1 - Non-Drilling Exploration Activities				
Traffic circulates through the study area on a network of state, county, and privately-owned roads. Most of these are built and maintained to carry relatively small amounts of traffic consistent with the area's rural character.	No significant impacts on transportation will occur since traffic generation during this phase of development is minimal.	Measures to assist in safety include use of warning vehicles, trips scheduled around peak hours, and the encouragement of car pooling.	- Applicant/ Developer	Insignificant

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Table S-1 - IMPACT AND MITIGATION SUMMARY - GEYSERS EIR

Existing Conditions	Issues and Impacts	Mitigation	Responsible for Mitigation	Residual Impact
Phase 2 - Exploratory Drilling				
Traffic circulates through the study area on a network of state, county, and privately-owned roads. Most of these are built and maintained to carry relatively small amounts of traffic consistent with the area's rural character.	Heavy vehicle and employee traffic (50 to 60 trips per day) occurs during the 6 to 12 month exploratory drilling phase. Though the traffic generation is not necessarily significant, the heavy trucks and equipment will cause significant damage to County roadways not designated to handle such loads.	Road construction and improvement should occur prior to the start of exploratory drilling.	- Applicant/ Developer	Reduced to insignificant
		Other measures to assist in safety include use of warning vehicles, trips scheduled around peak hours, and the encouragement of car pooling.	- Applicant/ Developer	Reduced to insignificant
Phase 3 - Full Field Development				
Traffic circulates through the study area on a network of state, county, and privately-owned roads. Most of these are built and maintained to carry relatively small amounts of traffic consistent with the area's rural character.	The greatest increases in traffic will occur during the initial development phase although these additional levels will be temporary in nature. From 80 to 100 trips per day are generated over the 24 to 36 month typical well field development period for a power plant.	Road construction and improvement should occur prior to the start of exploratory drilling.	- Applicant/ Developer	Reduced to insignificant
		Other measures to assist in safety include use of warning vehicles, trips scheduled around peak hours, and the encouragement of car pooling.	- Applicant/ Developer	Reduced to insignificant
		A transportation permit from Caltrans is required for all loads on state highways which exceed established limits as to width, height, and weight.	- Applicant/ Developer	

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Table S-1 - IMPACT AND MITIGATION SUMMARY - GEYSERS EIR

Existing Conditions	Issues and Impacts	Mitigations	Responsible for Mitigation	Residual Impact
Phase 4 - Operations and Maintenance				
Traffic circulates through the study area on a network of state, county, and privately-owned roads. Most of these are built and maintained to carry relatively small amounts of traffic consistent with the area's rural character.	Work trips can be expected to diminish from the peak construction phases. Typically there are 30 to 50 trips per day over the life of any one geothermal power plant and well field development project.	Road construction and improvement should occur prior to the start of exploratory drilling.	- Applicant/ Developer	Reduced to insignificant
		Employee car pools or a commuter bus system shall be established.	- Applicant/ Developer	
Impacts of Roadways		A traffic safety plan shall be developed by the Applicant.	- Applicant/ Developer	
Traffic circulates through the study area on a network of state, county, and privately-owned roads. Most of these are built and maintained to carry relatively small amounts of traffic consistent with the area's rural character	Roadway deterioration will incrementally increase as a result of the transport of heavy trucks and equipment.	Road construction and improvement should occur prior to the start of exploratory drilling.	- Applicant/ Developer	Reduced to insignificant
	Significant traffic increases are not anticipated to occur along the principal state highways in the region, although slow-moving trucks may constitute a traffic hazard.	Other measures to assist in safety include use of warning vehicles, trips scheduled around peak hours, and the encouragement of car pooling.	Applicant/ Developer	
	Specifically, geothermal activity in Project Areas 1 and 2 will create a potential nuisance and driving hazard on Cloverdale-Geyser Road.			
Impact of Transport of Hazardous Wastes				
Traffic circulates through the study area on a network of state, county, and privately-owned roads. Most of these are built and maintained to carry relatively small amounts of traffic consistent with the area's rural character.	As a percentage of total traffic volume, these are expected to remain about the same as existing levels through the end of the century. Since the total amount of traffic will increase, the percentage of the traffic transporting hazardous material is expected to decline.	Measures to assist in safety include use of warning vehicles, trips scheduled around peak hours, and the encouragement of car pooling.	- Applicant/ Developer	Reduced to insignificant
Phase 5 - Abandonment				
Traffic circulates through the study area on a network of state, county, and privately-owned roads. Most of these are built and maintained to carry relatively small amounts of traffic consistent with the area's rural character.	It is expected that trip generation would be about 30 trips per day over a 3 month abandonment procedure. Impacts would be less than exploratory drilling impacts.	Roads may be retained for other beneficial uses provided that effective erosion control measures have been implemented.	- Applicant/ Developer	Beneficial

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Table S-1 - IMPACT AND MITIGATION SUMMARY - GEYSERS EIR

Existing Conditions	Issues and Impacts	Mitigations	Responsible for Mitigation	Residual Impact
Cumulative Impacts and Mitigations				
Traffic circulates through the study area on a network of state, county, and privately-owned roads. Most of these are built and maintained to carry relatively small amounts of traffic consistent with the area's rural character.	Cumulative development will generate additional heavy truck traffic in the study area, with the associated significant impact on roadway maintenance and highway safety. The occurrence of large, slow moving trucks on winding, mountain roads represents a significant safety hazard to other motorists.	Implementation of above listed mitigation measures would reduce significant adverse impacts to levels considered acceptable and therefore insignificant.	- Applicant/ Developer	Reduced to insignificant
AIR QUALITY				
Phase 1 - Non-Drilling Exploration Activities				
The air quality of an area depends on the temporal and spacial distribution of local emissions, the volume of air into which these emissions are emitted, the transport of pollutants and the nature of the chemical, and physical transformation from emitted species The meteorology of the proposed lease sites is characterized by significant diversity.	Emissions associated with this phase include minor or incidental use of diesel powered equipment and vehicles and dust generation. The incidental and sporadic activities will not create significant air emissions. An additional concern is the possibility of disturbance of serpentine soils which may contain unhealthful levels of asbestos.	Compliance with local APCD rules and regulations, reductive equipment operation and dust control will ensure impacts remain insignificant. This includes consideration for asbestos hazard from disturbance of serpentine soils.	- Applicant/ Developer - County Air Pollution Control	Reduced to insignificant
Phase 2 - Exploratory Drilling				
The air quality of an area depends on the temporal and spacial distribution of local emissions, the volume of air into which these emissions are emitted, the transport of pollutants and the nature of the chemical, and physical transformation from emitted species. The meteorology of the proposed lease sites is characterized by significant diversity.	Air pollutants will result from the diesel powered drilling equipment and from truck and passenger vehicles commuting to the drill site. Small numbers of vehicles dispersed throughout the area do not pose any threat to healthful levels of air quality.	Compliance with local APCD rules and regulations, reductive equipment operation and dust control will ensure impacts remain insignificant. This includes consideration for asbestos hazard from disturbance of serpentine soils.	- Applicant/ Developer - County Air Pollution Control	Reduced to insignificant
	Fugitive dust causes transitory and localized impacts. Regional particulate load levels will not be significantly affected. Local impacts may retard plant growth and dust plumes along the ridgeline may create objectionable visible impacts.	Fugitive dust generation should be minimized by enforcing reasonable driving speeds on dirt roads, by using water or oil spray to control dusty area, and by performing major grading activities in spring when natural soil moisture is high.	- Applicant/ Developer	Reduced to insignificant
	Well blowds, another source of emissions, can create a significant air quality impact if a large number emit H_2S which is then carried downwind to receptors.	The best available control technologies and/or state of the art technology shall be implemented to insure H_2S emissions are below air pollution control standards.	- Applicant/ Developer	Accidents, release of a large amount of H_2S is not mitigable.
	An additional concern is the release of radon-222 which may cause adverse health effects.	Continuous monitoring of radon-222 if off-gas noncondensible treatment stream shall be instituted.	- Applicant/ Developer	Reduced to insignificant

Table S-1 - IMPACT AND MITIGATION SUMMARY - GEYSERS EIR

Existing Conditions	Issues and Impacts	Mitigations	Responsible for Mitigation	Residual Impact
Phase 3 - Full Field Development				
Approximately 80 percent of the steam entering the power plant is ultimately lost to the atmosphere through evaporation in the cooling towers	Impacts for full field development will be the same as those listed under Exploratory Drilling. Impacts will incrementally increase depending on the number of wells developed.	Mitigations include those listed under Exploratory Drilling above.	- Applicant/ Developer	Reduced to insignificant
Phase 4 - Operation and Maintenance				
The air quality of an area depends on the temporal and spatial distribution of local emissions, the volume of air into which these emissions are emitted, the transport of pollutants and the nature of the chemical, and physical transformation from emitted species. The meteorology of the proposed lease sites is characterized by significant diversity	Redrilling and drilling of new make-up wells would be similar to the emissions discussed above. The major air quality concern is the release of combined stream flow from a number of wells at the power plant. Plant location and prevailing air flows have a dominant effect on dispersion patterns.	Mitigation measures include those listed under Exploratory Drilling above. Facilities shall be monitored and maintained throughout operation. An $NaOH/H_2O_2$ abatement system should be installed and ready for operation prior to initiating drilling with compressed air. Any new facility shall not contribute H_2S concentrations such that the sum plus the background concentration exceeds the hourly standard.	- Applicant/ Developer - Applicant/ Developer - Applicant/ Developer	Reduced to insignificant Accidental release of a large amount of H_2S is not mitigable.
Phase 5 - Abandonment				
The meteorology of the proposed lease sites is characterized by significant diversity.	Combustion emissions and fugitive dust are the primary effects associated with abandonment but effects will be insignificant.	A plan of abandonment shall be prepared prior to removal of any equipment from geothermal sites. Fugitive dust generation should be minimized by enforcing reasonable driving speeds on dirt roads, by using water or oil spray to control dusty area, and by performing major grading activities in spring when natural soil moisture is high.	- Applicant/ Developer - Applicant/ Developer	Reduced to insignificant
Cumulative Impacts and Mitigations				
	Increased emissions from various vehicular and geothermal sources will occur. Of most concern is the increase in emission of hydrogen sulfide. On a cumulative basis, the impact from all existing facilities in addition to those which could conceivably be built is considered significant.	Implementation of above listed mitigation measures would reduce significant adverse impacts to levels considered acceptable and therefore insignificant except for the effect on population from the unlikely event of accidental release of a large amount of H_2S emissions.	- Applicant/ Developer	Reduced to insignificant except for the unlikely event of the release of large amounts of H_2S

Table S-1 - IMPACT AND MITIGATION SUMMARY - GEYSERS EIR

Existing Conditions	Issues and Impacts	Mitigations	Responsible for Mitigation	Residual Impact
A. SOCIAL ENVIRONMENT				
Phase 1 - Non-Drilling Exploration Activities				
Ambient noise levels range from 30 to 45 dBA, but may rise by more than 10 dBA above these levels due to natural phenomena such as wind and rain. Sporadic manmade noises also occur within or adjacent to the leases.	Of surveys conducted during this phase, only a seismic survey may cause noise impacts but these impacts will not be significant.	Seismic surveys shall not be located closer than 365 meters (1,200 feet) from existing residences or other sensitive receptors.	- Applicant/ Developer - Noise Control Officer	Reduced to insignificant
Phase 2 - Exploratory Drilling				
Ambient noise levels range from 30 to 45 dBA, but may rise by more than 10 dBA above these levels due to natural phenomena such as wind and rain. Sporadic manmade noises also occur within or adjacent to the leases	Acoustical impacts occur during well pad installation, materials delivery, drilling and well installation, and access road installation. Of these, well and pad installation are likely to have the most impacts.	Noise standards shall be met between the hours of 7:00 A.M. and 10:00 P.M. Noise levels from drilling operations shall be muffled. Distance restrictions shall be in effect around sensitive receptors.	- Applicant/ Developer - Noise Control Officer	Reduced to insignificant
Phase 3 - Full Field Development				
Ambient noise levels range from 30 to 45 dBA, but may rise by more than 10 dBA above these levels due to natural phenomena such as wind and rain. Sporadic manmade noises also occur within or adjacent to the leases.	Noise sources during development include large diesel powered equipment for construction. These activities will occur mostly during the day.	Noise standards shall be met between the hours of 7:00 A.M. and 10:00 P.M. Noise levels from drilling operations shall be muffled. Distance restrictions shall be in effect around sensitive receptors. Wells and power plants shall be placed where produced noise will be atmospherically attenuated. Transline construction should also consider proper location, sizing, and design to limit excessive pressure drops and resonant harmonic effects.	- Applicant/ Developer - Noise Control Officer	Reduced to insignificant
Phase 4 - Operations and Maintenance				
Ambient noise levels range from 30 to 45 dBA, but may rise by more than 10 dBA above these levels due to natural phenomena such as wind and rain. Sporadic manmade noises also occur within or adjacent to the leases.	Plant operations are expected to generate a noise level of approximately 76 to 77 dBA at 15 meters (50 feet). Additional noise will come from employees commuting to work.	Noise standards shall be met between the hours of 7:00 A.M. and 10:00 P.M. Noise levels from drilling operations shall be muffled. Distance restrictions shall be in effect around sensitive receptors. Wells and power plants shall be placed where produced noise will be atmospherically attenuated. Car pooling programs shall be encouraged.	- Applicant/ Developer - Noise Control Officer	Reduced to insignificant

Table S-1 - IMPACT AND MITIGATION SUMMARY - GEYSERS EIR

Existing Conditions	Issues and Impacts	Mitigations	Responsible for Mitigation	Residual Impact
Phase 5 - Abandonment				
Ambient noise levels range from 30 to 45 dBA, but may rise by more than 10 dBA above these levels due to natural phenomena such as wind and rain. Sporadic manmade noises also occur within or adjacent to the leases.	Impacts during this phase are not continuous, typically performed during the day and are considered insignificant.	No mitigation measures are required.		Insignificant
Cumulative Impacts and Mitigations				
Ambient noise levels range from 30 to 45 dBA, but may rise by more than 10 dBA above these levels due to natural phenomena such as wind and rain. Sporadic manmade noises also occur within or adjacent to the leases.	The cumulative effect in the region would be an increase in ambient noise levels. The magnitude of the increase is dependent upon site-specific conditions; however, such noise levels would be substantially above that of similar, non-industrial areas in the region.	The monitoring and implementation of the above listed mitigations will reduce any significant adverse impacts to acceptable levels therefore insignificant.	- Applicant/ Developer - Noise Control Officer	Reduced to insignificant
SOCIOECONOMIC AND PUBLIC SERVICES				
Demographics and Housing				
All counties in the study have experienced substantial growth in the past 10 to 15 years. Some county plans contain expectations of continued growth from geothermal development; however, with a decline in steam reservoir temperatures, the level of geothermal development may have already peaked. The housing stock in Lake County, mainly single-family units, has risen in the last 10 years.	Activities are expected to be supported by the indigenous geothermal workers in the area. Development is not expected to create a significant adverse impact. Cumulative impacts include short-term demands for construction workers and housing and a small number of permanent geothermal workers. It is expected this level of growth could be accommodated without significant socioeconomic effect.	No significant impacts on population and housing were identified, therefore, no mitigation measures are provided.		Insignificant
Employment				
Lake County economy is based primarily on retail sales and services and government employment. Sonoma County is in transition form an economy heavily dependent on agriculture, construction, and resources, to more urban center employment. The economy of Mendocino County is based primarily on agriculture, government, services, manufacturing, and tourism.	Employment generated by all phases of development is not anticipated to have significant impacts on the total labor supply in the county.	No significant impact on employment were identified, therefore, no mitigation measures are provided.		Insignificant

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Table S-1 - IMPACT AND MITIGATION SUMMARY - GEYSERS EIR

Existing Conditions	Issues and Impacts	Mitigations	Responsible for Mitigation	Residual Impact
Fiscal Effects				
Geothermal development has had a substantial fiscal impact on Lake and Sonoma County and other local government entities. It is expected that geothermal revenues will continue to fluctuate due to oil price cycles and resource decline	Cumulative projects will generate direct revenues to the counties within which such operations are developed. A generally positive effect on the fiscal resources of the involved county agencies is expected	Fees shall be paid to appropriate State and county agencies.	- Applicant/ Developer	Beneficial
Fire and Police Protection and Medical Services				
Fire A vulnerable wildland fire hazard area, The Geysers is served by both state and local fire fighting services with emergency service provided by the city's fire departments and in the unincorporated areas by contract agreement with the California Department of Forestry (CDF)	A potential need for emergency services from fire and police protection and medical agencies may be generated by the increased human activity and operation of vehicles, but significant adverse impacts are not anticipated.	Fire Fire safety guidelines shall be provided by the CDF. Additional personnel will be provided as necessary. Emergency response and evacuation plans shall be developed.	- Applicant/ Developer - CDF	Reduced to insignificant
Police Sonoma, Lake, and Mendocino County each maintain their own Sheriff's Department to provide protective services to the unincorporated portions of their respective counties. The CHP provides policing of traffic to unincorporated areas of Lake and Sonoma Counties.		Police The use of private security forces shall be considered. A unified emergency notification plan shall be developed.	- Applicant/ Developer - CHP	Reduced to insignificant
Medical Emergency medical services in The Geysers area are provided by private and county hospitals located in the larger urban areas.				
Water				
The principal source of water for urban and agricultural purposes in the region is groundwater. Surface water sources provide limited supplies of useable potable water.	Due to limited water resources, additional water demand from geothermal operations can result in adverse impacts to the current water resources. If adequate volumes of water are not present on-site, water demand will result in a significant adverse impact. There is also potential to over-use surface waters.	Assurance for the provision of adequate water and sewer service is required prior to development. Applicant shall obtain by right or purchase all water used. Permits shall be obtained for withdrawal and diversion of water from surface streams. Areas with insufficient water resources should consider importing water from local suppliers.	- Applicant/ Developer - Applicant/ Developer - Applicant/ Developer - Applicant/ Developer	Upon securing a reliable water source, impacts will be reduced to insignificant

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Table S-1 - IMPACT AND MITIGATION SUMMARY - GEYSERS EIR

Existing Conditions	Issues and Impacts	Mitigations	Responsible for Mitigation	Residual Impact
Wastewater				
Within the project area, central wastewater collection and treatment systems have been developed only in the larger communities. The balance of the area, including geothermal development, relies on individual septic systems to dispose of domestic and commercial sewage. Currently there are no known major impacts on area water quality due to reliance of on-site wastewater disposal practices. However, there is concern for the long-term maintenance of local water quality in the planning area.	Additional wastewater generated by the development and operation of geothermal facilities is considered an adverse, but not significant impact. Current wastewater disposal practices including collection and treatment systems and on-site systems will be sufficient to handle the additional wastewater.	Sanitary and hand washing facilities should be provided at each drill site. Assurance for the provision of adequate water and sewer service is required prior to development.	- Applicant/ Developer - Applicant/ Developer	Reduced to insignificant
Solid Waste				
No solid waste is being produced from the project areas currently, but substantial volumes of waste will be are generated during all phases of geothermal resources development.	Volumes of solid waste generated during drilling, field development, and operation will be an adverse impact. Landfills and hazardous waste management units will be incrementally impacted.	Applicant shall implement County Solid Waste Management Plans which include programs to reduce the quantities of non-hazardous solid waste being sent to landfills.	- Applicant/ Developer	Reduced to insignificant
Energy Utilities				
The planning area's energy needs are met by electricity provided by PG&E, and by bottled propane gas and fuel oil supplied by several local distributors. Natural gas is not available.	Construction operations will expend substantial amounts of energy and is considered a short-term adverse impact. Energy consumption itself represents a loss of nonrenewable resources but increased demand will be serviced by local companies and is not a significant impact to current service levels.	Facilities will be designed for optimum energy efficiency in accordance with the California Energy Commission standards.	- Applicant/ Developer - CEC	Reduced to insignificant
Schools				
Schools districts within Lake County near the project area include Kelseyville Unified School District, Konocti Unified School District and Middletown Unified School District. Each district serves kindergarten through high school.	The increase in students and the need for additional classroom space will result in a significant adverse impact to school services since the majority of schools are already operating over capacity.	Developers shall pay required state impact fees to mitigate school impacts resulting from geothermal-related development.	- Applicant/ Developer	Reduced to insignificant
Cumulative Impacts and Mitigations				
	The increase in demand for public services associated with geothermal development is likely to be insignificant. Each project must be assessed for its individual effect.	Implementation of above mitigation measures as well as additional mitigations prescribed on a site-specific basis shall reduce any significant impacts to an acceptable level.	- Applicant/ Developer	Reduced to insignificant

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Table S-1 - IMPACT AND MITIGATION SUMMARY - GEYSERS EIR

Existing Conditions	Issues and Impacts	Mitigations	Responsible for Mitigation	Residual Impact
AESTHETICS				
Phase 1 - Non-Drilling Exploration Activities				
Visual elements within and adjacent to the project area are composed of natural elements of land, water, and vegetation with man-made forms including pipeline, pads, plants, and facilities interspersed within the natural setting.	No visual impacts will result from this phase.	No mitigation measures are required.		Insignificant
Phase 2 - Exploratory Drilling				
Visual elements within and adjacent to the project area are composed of natural elements of land, water, and vegetation with man-made forms including pipeline, pads, plants, and facilities interspersed within the natural setting.	Visual modifications include changes in form line and texture of the area, introduction of a visually obtrusive element (drill rig), changes of the landscape to that of partially developed, and possible changes in viewer expectations. These changes have the potential to result in a significant visual impact depending on viewer sensitivity, proximity, and relative scale from the drilling activity. (Impacts are not expected in Project Area 2 but may be experienced elsewhere for views of Areas 1 and 3.)	Pad, roads, pipelines, plants, and transmission facilities should be designed so as to present the least visual intrusion on views from popular use areas. The use of local rock types for road and pad surfacing material will help minimize color contrast between engineered and natural land forms.	- Applicant/ Developer	Reduced to insignificant
Phase 3 - Full Field Development				
Visual elements within and adjacent to the project area are composed of natural elements of land, water, and vegetation with man-made forms including pipeline, pads, plants, and facilities interspersed within the natural setting.	More activity will be visible during construction than at any other time. Impacts are the same as listed above, plus changes in lighting and potential for glaring and additional visually obtrusive elements such as road cut and power plants. These changes have the potential to result in a significant visual impact depending on viewer sensitivity, proximity, and relative scale from the drilling activity. (Impacts are not expected in Project Area 2 but may be experienced elsewhere for views of Areas 1 and 3.)	Pad, roads, pipelines, plants, and transmission facilities should be designed so as to present the least visual intrusion on views from popular use areas. The use of local rock types for road and pad surfacing material will help minimize color contrast between engineered and natural land forms. On visual edges such as ridgelines, construction of facilities should maintain a low profile design. Plants, buildings, and other structures should be constructed and colored in natural colors. Cut and fill areas shall be revegetated.	- Applicant/ Developer	Reduced to insignificant

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Table S-1 - IMPACT AND MITIGATION SUMMARY - GEYSERS EIR

Existing Conditions	Issues and Impacts	Mitigations	Responsible for Mitigation	Residual Impact
Phase 4 - Operations and Maintenance				
Visual elements within and adjacent to the project area are composed of natural elements of land, water, and vegetation with man-made forms including pipeline, pads, plants, and facilities interspersed within the natural setting.	Cooling towers emit saline drift droplets and warm vapor that condenses into large visible plumes which may cause an aesthetic impact. Night lighting for structures, well pads, access road entrances, and other areas may create pinpoints of light as well as the potential for illumination from steam and foggy conditions. (Visual elements of this phase are similar to later development excepting the construction activity. Significant visual impacts depend on viewer sensitivity, proximity, and relative scale from the drilling activity. Impacts are not expected in Project Area 2 but may be experienced elsewhere for views of Areas 1 and 3.)	On visual edges such as ridgelines, construction of facilities should maintain a low profile design. Pad, roads, pipelines, plants, and transmission facilities should be designed so as to present the least visual intrusion on views from popular use areas. The use of local rock types for road and pad surfacing material will help minimize color contrast between engineered and natural land forms. Plants, buildings, and other structures should be constructed and colored in natural colors. Cut and fill areas shall be revegetated.	- Applicant/ Developer	Reduced to insignificant
Phase 5 - Abandonment				
Visual elements within and adjacent to the project area are composed of natural elements of land, water, and vegetation with man-made forms including pipeline, pads, plants and facilities interspersed within the natural setting.	Once materials are removed, visual scars will consist of the areas used for drilling pads, plant, and ancillary facility pads and roadways. Site restoration with revegetation and recontouring will substantially reduce impacts. (The level of impact reduction depends on distance of viewer to site and the relative scale of the site within the entire viewshed.)	Revegetation plans addressing abandonment should be approved in advance of final project approvals. Cut and fill areas will be revegetated to reduce visual contrast with the surrounding area.	- Applicant/ Developer - Applicant/ Developer	Reduced to insignificant
Cumulative Impacts and Mitigations				
	If development is concentrated in areas that can be seen by large portions of the general public, a significant impact will result. Particularly pertinent viewsheds would be from Highway 175 and the communities in the area. It is unlikely the overall character will change significantly due to other constraints in land development.	Cumulative mitigation measures include the monitoring and implementation of all measures previously listed. No effective mitigation is available to completely mitigate all impact, but significant adverse impacts will be reduced to a level considered acceptable and therefore insignificant."		Reduced to insignificant