

**FINDING OF NO SIGNIFICANT IMPACT  
AND DECISION RECORD  
FOR  
ORMAT CARSON LAKE GEOTHERMAL EXPLORATION PROJECT  
IN CHURCHILL COUNTY, NEVADA**

**Environmental Assessment  
EA-NV-030-07-006**

**INTRODUCTION**

Ormat proposes to conduct the Carson Lake Geothermal Exploration Project on lands located on the Naval Air Station (NAS) Fallon, under the management of the U.S. Navy, and lands managed by the U.S. Department of Interior Bureau of Reclamation Lahontan Basin Area Office (BOR). The project area is located in Churchill County, Nevada, within the boundary of the BLM Carson City Field Office (CCFO) management area and on federally issued geothermal leases. The Navy and the BLM are both lead agencies under NEPA. The BOR is acting as a cooperating agency for preparation of the EA. This EA was prepared by the BLM Carson City Field Office in accordance with the requirements of NEPA and the BLM NEPA Handbook H-1790-1.

The proposed action includes constructing up to 11 well pads and associated access roads, and drilling and testing up to 3 geothermal exploration wells at each pad. Ormat and the Navy entered into a contract to explore, develop, and utilize the geothermal resources at NAS Fallon. The Navy would have oversight of development of geothermal resources on the land it administers. The geothermal resources lying under lands managed by the BOR are administered by the BLM. The BLM has issued leases for the geothermal resources to Ormat on BOR managed lands east of, and adjacent to NAS Fallon. The Ormat leases are NVN-79104 and NVN-79105. This decision only pertains to lands managed by BOR.

This EA, EA-NV-030-07-006, evaluates the impacts on the natural and human environment that could result from implementation of this exploration project. The issuance of leases for geothermal resources is a federal action, a commitment to resource development, and confers on the lessee the right to future exploration and development within the lease area. There are four stages of geothermal resource development within a lease, including exploration, development, production, and closeout. Each of the four stages requires separate site-specific environmental analysis and BLM authorization when ground-disturbing activities are proposed.

The impact analysis in the EA characterizes the potential for impacts for each resource in the exploration project area. The determination of environmental risk is resource-specific and is based on a number of factors, including the presence and extent of resources within the proposed lease section, the extent of resources in the surrounding area, and the quality of existing data.

**PLAN CONFORMANCE AND CONSISTENCY**

The Proposed Action has been reviewed for conformance with the Carson City Field Office Consolidated Resource Management Plan (2001) and is found to be consistent with current BLM

policies, plans and programs. The Navy and BOR were involved in the preparation of the environmental analysis for this project and concur with the mitigation and conditions of approval for this project.

Three of the proposed well sites are located on the NAS Fallon and therefore are within the area addressed in the Bureau of Land Management and Navy Resource Management Plan for Certain Federal Lands in Churchill County, Nevada (BLM and Navy 2001). The plan does not restrict use of mineral resources for geothermal development on the NAS Fallon.

### **FINDING OF NO SIGNIFICANT IMPACT DETERMINATION**

Based on the analysis of the *Carson Lake Geothermal Exploration Project Environmental Assessment*, environmental assessment (EA) EA-NV-030-07-006, I have determined that the action will not have a significant effect on the human environment and an environmental impact statement (EIS) will not be prepared. This finding is based on the context and intensity of the project as described:

#### **Context:**

The proposed action is to construct up to 11 well pads and associated access roads, and to drill and test up to 3 geothermal exploration wells at each pad as discussed in the Plan of Exploration. The proposed 11 drill sites together cover an area of approximately 25 acres. The project area encompass Navy managed lands and BOR managed lands that are open to fluid mineral leasing and these agencies had involvement in the preparation of the environmental analysis. The BOR concurs with the conditions of approval for this drilling project.

#### **Intensity:**

The Council on Environmental Quality (CEQ) regulations includes the following ten considerations for evaluating intensity:

1) *Impacts that may be both beneficial and adverse.*

None of the environmental effects discussed in detail in the EA are considered significant, nor do the effects exceed any known threshold of significance, either beneficial or adverse. The Proposed Action is geothermal resource exploration consisting of construction of 11 well pads, access roads, and other associated activity as described in the EA, as well as reclamation of these disturbances when exploration and testing is completed.

2) *The degree to which the selected alternative will affect public health or safety:*

The Proposed Action is to drill for geothermal resources in the project area analyzed in the EA. It is reasonable to expect further resource exploration and development which could affect public health or safety but those types of activities would be subject to further environmental analysis when considered. These types of issues could be addressed through conditions of approval for further exploration and development actions.

3) *Unique characteristics of the geographic area such as proximity to historic or cultural resources, park lands, prime farm lands, wetlands, wilderness, wild and scenic rivers, or ecologically critical areas.*

There are no park lands, prime farm lands, wild and scenic rivers, or ecologically critical areas in or near the sites proposed.

BLM has considered the Area of Potential Effect (APE) relative to cultural resources and historic properties, providing oversight for a full inventory of the areas that include construction of 11 well pads, access roads, and other associated activity. Based on the inventory, BLM determines that no known historic properties are present in the APE. BLM conducted reasonable and good faith government-to-government consultation with the Fallon Paiute-Shoshone Tribe. Through this process, BLM determined that impacts would be negligible for the proposed exploration drilling project relative to cultural resources in proximity to the APE. The Nevada State Historic Preservation Officer (SHPO) has concurred with these determinations and procedures.

*4) The degree to which the effects on the quality of the human environment are likely to be highly controversial.*

The effects of the Proposed Action on the human or natural environment were determined to be negligible. Drilling for geothermal resources and its potential effects on the land in this general area has been analyzed in this EA and other EAs. Public comment has been minimal.

*5) The degree to which the possible effects on the human environment are highly uncertain or involve unique or unknown risks.*

The Proposed Action is not unique or unusual. The action described in the EA is exploration drilling for geothermal resources. There are no predicted effects on the human environment that are considered highly uncertain or involve unique or unknown risks.

*6) The degree to which the action may establish a precedent for future actions with significant effects or presents a decision in principle about a future consideration.*

The Energy Policy Act of 2005 (Act) supplemented and amended the Geothermal Steam Act of 1970 and new regulations for the implementation of the new Act are approved. The issuance of a lease does not confer on the lessee the right to explore for or develop geothermal resources beyond the level of casual use. As exploration activity or eventual development of energy generation facilities is proposed on a geothermal lease, an environmental analysis is performed to assess impacts resulting from these types of projects. The progression of the project from leasing to exploration to development is customary and expected.

*7) Whether the action is related to other actions with individually insignificant but cumulatively significant impacts.*

All resource values were evaluated for cumulative impacts and determined that cumulative impacts would be negligible for the proposed exploration drilling project. Subsequent actions for geothermal resource exploration and/or development would be evaluated for cumulative impacts in associated environmental analysis and would be addressed through mitigation of the proposed future action and conditions of approval.

*8) The degree to which the action may adversely affect districts, sites, highways, structures, or other objects listed in or eligible for listing in the National Register of Historic Places or may cause loss or destruction of significant scientific, cultural, or historical resources.*

As described in the EA, the project will not adversely affect districts, sites, highways, structures, or other objects listed in or eligible for listing in the National Register of Historic Places, nor will it cause loss or destruction of significant scientific, cultural, or historical resources.

In order to protect nearby known historic properties and resources that are unknown but unanticipated, this EA provides for: 1) a pre-construction meeting and training for Ormat employees on cultural resources laws and avoidance of all historic properties and significant cultural resources; 2) construction monitoring by a permitted archaeologist; and 3) procedures for any unanticipated discoveries of human remains or items of cultural significance. The Nevada SHPO and the Fallon Paiute-Shoshone Tribe have concurred with these procedures.

9) *The degree to which the action may adversely affect an endangered or threatened species or its habitat that has been determined to be critical under ESA of 1973.*

As described in the EA, no known threatened or endangered species or critical habitat has been identified in the lease parcel sites considered in the EA. Any future exploration and development actions would be evaluated in a future environmental analysis for the future project.

10) *Whether the action threatens a violation of Federal, State, or local law or requirements imposed for the protection of the environment.*

As described in the EA, the Proposed Action does not violate any known Federal, State, or local law or requirement imposed for protection of the environment. Specialists from BLM CCFO and the BOR were involved in preparation of the EA and officials from the State of Nevada, Churchill County and the Fallon Paiute-Shoshone Tribe were notified of the proposal.

## **DECISION**

I approve the exploration drilling project as described in the Proposed Action of EA-NV-030-07-006. This decision is contingent on meeting all geothermal lease stipulations and monitoring requirements listed below and in EA-NV-030-07-006, as well as the Conditions of Approval that have been attached to this FONSI/Decision Record.

### **Stipulations:**

All applicable standard operating procedures (SOPs) and Conditions of Approval (COAs) have been carried forward and are attached to this FONSI/Decision Record. SOPs, BMPs, and mitigation listed in the Ormat Plan of Exploration, Geothermal Drilling Permits, and in the EA-NV-030-07-006 are included.

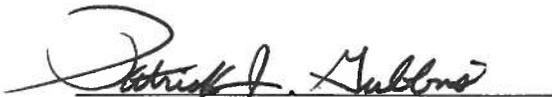
### **Monitoring:**

During the time that construction of drill pads, access roads, or associated activities cause surface disturbance, monitoring will be required. The EA identifies the process involving this monitoring by a permitted archaeologist for unanticipated discovery of human remains or items of cultural significance (see EA pages 4-14 and 4-15).

## **Rationale**

The Proposed Action, as stipulated and mitigated, meets the criteria described in the Federal

Land Policy and Management Action of 1976 to prevent undue and unnecessary degradation of public land and the 43 CFR Subparts 3200 and 3250. The Proposed Action is in conformance with the Carson City Field Office Consolidated Resource Management Plan (2001) which states that the BLM desired outcome is to encourage development of energy and mineral resources in a timely manner to meet national, regional and local needs consistent with the objectives for other public land uses. The action must comply with the conditions of permit for the Nevada Division of Minerals Geothermal Resource Development Permit Application and with applicable rules and regulations of other local, state, and federal agencies.

  
Patrick J. Gubbins  
Acting Manager,  
Carson City Field Office

7/25/08  
Date

1 attachment: Conditions of Approval

**CONDITIONS OF APPROVAL AND STANDARD OPERATING PROCEDURES  
GEOTHERMAL DRILLING PERMIT**

**ORMAT CARSON LAKE GEOTHERMAL EXPLORATION PROJECT  
CHURCHILL COUNTY, NEVADA**

GEOTHERMAL LEASE NVN-79104

Production Well 84-31 (Site I), MDBM T18N, R30E, Section 31 S  
Production Well 51-31 (Site E), MDBM T18N, R30E, Section 31 S

GEOTHERMAL LEASE NVN-79105

Production Well 88-30 (Site D), MDBM T18N, R30E, Section 31 S

**CARSON LAKE GEOTHERMAL EXPLORATION PROJECT  
ENVIRONMENTAL ASSESSMENT, EA-NV-030-07-006, July 25, 2008**

A COPY OF THESE CONDITIONS OF APPROVAL MUST BE FURNISHED  
TO YOUR FIELD REPRESENTATIVE TO INSURE COMPLIANCE

**Agency Contacts**

**BUREAU OF LAND MANAGEMENT**

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July 22, 2008

Ormat Carson Lake Geothermal Exploration Project

**CONDITIONS OF APPROVAL (COAs)**

**Pre-Construction**

Proposed surface disturbance and vehicular travel will be limited to the approved well location and access route.

Any changes in well location, access, or site expansion must be approved by the Authorized Officer (AO) in advance.

**Well Pad and Facility Construction**

1. A site diagram depicting the location of production facilities, recontoured slopes and stabilization measures shall be approved by the authorized officer prior to installation of production facilities.
2. The design of all facilities, including well pads, roads, pumps, and pipelines, shall be approved by the authorized officer prior to construction to avoid unnecessary conflicts with visual resources management objectives.
3. Drainage from disturbed areas will be confined or directed so that erosion of undisturbed areas is not increased. In addition, no runoff water (including that from roads) will be allowed to flow into intermittent or perennial waterways without first passing through a sediment-trapping mechanism. Erosion control structures may include: waterbars, berms, drainage ditches, sediment ponds, or other devices.
4. Access road construction for exploratory wells should be planned such that a permanent road can later be constructed in the event of field development.
5. As required, fill slopes surrounding culverts will be rip-rapped with a well graded mixture of rock sizes containing no material greater than two feet or smaller than three inches. The ratio of maximum to minimum dimension of any rock shall not exceed 6:1.
6. Trash will be retained in portable trash cages and hauled to an authorized disposal site for disposal. Burning will not be allowed on the well site.
7. No drilling or storage facilities will be allowed within 650 feet of any pond, reservoir, canal, spring or stream. Other protective areas near water may be required to protect riparian habitat and T&E

species.

8. To maintain esthetics values, all semi-permanent and permanent facilities will be painted to blend with the natural surroundings. The Standard Environmental Colors will be used for color selection.
9. Mud, separation pits and other containments used during the exploration or operation of the lease for the storage of oil and other hazardous materials shall be adequately fenced, posted or covered.
10. Lessee/operator shall comply with all regulatory requirements for storage and handling of hazardous materials and wastes.
11. If historic or archaeological materials are uncovered during construction, the operator is to immediately stop work that might further disturb such materials, and contact the authorized officer. Within five working days the authorized officer will inform the operator as to:
  - whether the materials appear eligible for the National Register of Historic Places;
  - the mitigation measures the operator will likely have to undertake before the site can be used (assuming in situ preservation is not necessary); and,
  - a time frame for the authorized officer to complete an expedited review under 36 CFR 800.11 or other applicable Programmatic Agreement, to confirm, through the State Historic Preservation Officer, that the findings of the authorized officer are correct and that mitigation is appropriate.
12. If the operator wishes, at any time, to relocate activities to avoid the expense of mitigation and/or the delays associated with the process described in item 11 above for inadvertent discovery of cultural resources, the authorized officer will assume responsibility for whatever recordation and stabilization of the exposed materials may be required. Otherwise, the operator will be responsible for mitigation costs. The authorized officer will provide technical and procedural guidelines for the conduct of mitigation. Upon verification from the authorized officer that the required mitigation has been completed, the operator will then be allowed to resume construction.

13. Field development construction activities within 2 miles of a sage grouse lek will require all motorized equipment to have noise abatement devices to preclude excessive noise during the sage grouse strutting period.
14. Fences shall be flagged with bright colored flagging at least every rod from visibility to wild horses. All fences should be constructed using green steel posts with white or silver tops to increase visibility. Fences should also avoid obvious horse migration routes (deep trails, stud piles) if at all possible.
15. Spring and water developments on public lands may be used only with the prior written approval of the AO or the water rights holder.
16. Fences shall not be cut without prior approval of the AO. Before cutting any fences, the operator shall firmly brace the fence on both sides of the cut; a temporary gate will be installed for use during the course of operations unless the fence is immediately repaired. Upon completion of operation, fences shall be restored to at least their original condition.
17. As directed by the AO, cattle guards will be installed whenever access roads are through pasture gates or fences. These cattle guards shall be maintained. This includes cleaning out under cattle guard bases when needed.

### **Field Operation**

1. Operations shall be done in a manner which prevents damage, interference, or disruption of water flows and improvements associated with all springs, wells, or impoundments. It is the operator's responsibility to enact the precautions necessary to prevent damage, interference, or disruptions.
2. The operator shall regularly maintain all roads used for access to the lease operation. A maintenance plan may be required. A regular maintenance program may include, but not be limited to, upgrading of existing roads, blading, ditching, culvert, drainage installation, and graveling or capping of the roadbed.
3. Management actions within riparian areas will be designed to maintain or, where possible, improve riparian habitat condition.
4. Noxious weeds which may be introduced due to soil disturbance and reclamation will be treated by methods to be approved by the

authorized officer. These methods may include biological, mechanical, or chemical. Should chemical methods be approved, the lessee must submit a Pesticide Use Proposal to the authorized officer 60 days prior to the planned application date.

5. There will be no discharges into any Bureau of Reclamation water delivery or drainage facilities.
6. The operator shall not use Bureau of Reclamation operation and maintenance roads for lease related access without prior written approval from the Bureau of Reclamation.
7. Operations shall be done in a manner that prevents damage, interference, or disruption of water flows, and improvements associated with all springs, wells, impoundments, or Newlands Project facilities. It is the operator's responsibility to enact the precautions necessary to prevent damage, interference, or disruptions. Monitoring wells may be required at all sites where exploration or development will occur to assess long-term impacts to quantity and quality in accordance with applicable State and federal requirements.

#### **Reclamation and Abandonment**

1. The operator or contractor will contact the AO 48 hours prior to reclamation work.
2. Restoration work may not begin on the well site until the reserve pits are completely dry.
3. Disturbed areas will be recontoured to blend as nearly as possible with the natural topography prior to revegetation. This includes removing all berms and refilling all cuts. Compacted portions of the pad will be ripped to a depth of 12 inches unless in solid rock.
4. Site preparation for reclamation may include contour furrowing, terracing, reduction of steep cut and fill slopes, installation of water bars, etc.
5. All portions of the access roads not needed for other uses as determined by the authorized officer will be reclaimed.
6. The stockpiled topsoil will be spread evenly over the disturbed area.
7. The operator will be required to construct waterbars and re-open drainages on abandoned access roads and pipeline routes to

minimize erosion as required. Water bars will be spaced appropriately dependant upon topography and slope. Pipeline routes shall be water-barred perpendicular to the fall-line of the slope.

8. The area is considered to be satisfactorily reclaimed when all disturbed areas have been recontoured to blend with the natural topography, erosion stabilized and an acceptable vegetative cover has been established.
9. Rehabilitation shall be planned on the sites of both producing and abandoned wells. The entire site or portion thereof, not required for the continued operation of the well, should be restored as nearly as practical to its original condition. Final grading of back-filled and cut slopes will be done to prevent erosion and encourage establishment of vegetation.
10. Petroleum products such as gasoline, diesel fuel, helicopter fuel, crankcase oil, lubricants, and cleaning solvents used to fuel, lubricate, and clean vehicles and equipment will be containerized in approved containers.
11. Hazardous material shall be properly stored in separate containers to prevent mixing, drainage or accidents. Hazardous materials shall not be drained onto the ground or into streams or drainage areas.
12. Totally enclosed containment shall be provided for all solid construction waste including trash, garbage, petroleum products and related litter will be removed to an authorized sanitary landfill approved for the disposal of these classes of waste.
13. All construction, operation, and maintenance activities shall comply with all applicable federal, state, and local laws and regulations regarding the use of hazardous substances and the protection of air and water quality.
14. In construction areas where recontouring is not required, vegetation will be left in place wherever possible and the original contour will be maintained to avoid excessive root damage and allow for resprouting.
15. Watering facilities (e.g., tanks, developed springs, water lines, wells, etc.) will be repaired or replaced if they are damaged or destroyed by construction activities to its predisturbed condition as required by the authorized officer.

16. When sites are abandoned, they will be inventoried for the presence of noxious weeds and treated if noxious weeds are present.
17. Seed and mulch used to reclaim disturbed areas must be weed free. Mulching of the seedbed following seeding may be required under certain conditions (i.e., expected severe erosion), as determined by the authorized officer.
18. Seed will be broadcast between October 1 and March 15 using a site-specific seed mixture and depth of planting as determined by the authorized officer. Seed may be applied with a rangeland drill at half the rate of broadcast seeding. All seeding application rates will be in pounds of pure live seed per acre. Seed should be adapted varieties.