

FINAL ENVIRONMENTAL ASSESSMENT

Ormat Technologies, Inc. Steamboat Geothermal Well(s) 16-32 Project

Decision Record

DOI-BLM-NV-C010-2014-0019-EA

U.S. Department of the Interior
Bureau of Land Management
Carson City District
Stillwater Field Office
5665 Morgan Mill Road
Carson City, NV 89701
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September 2014



It is the mission of the Bureau of Land Management to sustain the health, diversity, and productivity of the public lands for the use and enjoyment of present and future generations.

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**DECISION RECORD
ORMAT TECHNOLOGIES, INC.
STEAMBOAT GEOTHERMAL WELL(S) 16-32 PROJECT
WASHOE COUNTY, NEVADA**

**Environmental Assessment
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INTRODUCTION

Ormat Nevada Inc. (Ormat) is proposing to construct, operate, and maintain the Steamboat Geothermal Well 16-32 Project within the existing Steamboat Geothermal Unit in Washoe County, Nevada (herein called the Proposed Action or the project). Specifically, the Proposed Action includes:

- Improving and maintaining an existing access road (on lease);
- Constructing one 350 X 350 feet (2.8 acres) exploration well drill pad;
- Drilling and completing up to three exploration wells to a depth of up to 3,500 feet from the one constructed drill pad;
- Flow-testing each exploration well to obtain samples of geothermal fluids and to collect aquifer information from the geothermal reservoir; and
- If necessary, installing aboveground pipeline to connect to an existing pipeline and power plant.

If drilling and testing results are successful, one or more of these wells may be used for production by constructing a pipeline to connect them to existing pipelines and power plants. The wells would include one or more of the following: temperature gradient well, observation/slim well, and full-size production/injection well, for a maximum of three wells drilled from one well pad.

The total estimated area of surface disturbance required for improving the existing access road, assuming a 15-foot-wide drivable road bed (20-foot total width of surface disturbance), would be less than 1 acre.

The purpose of the Proposed Action is to provide Ormat with the opportunity to explore for potential resources of geothermal fluids on federal lands managed by the U.S. Forest Service (Forest Service) and the Bureau of Land Management (BLM) that are leased to Ormat, within Washoe County, Nevada.

BACKGROUND

The Project is located in Washoe County, Nevada within federal geothermal lease N-12085, administered by the Bureau of Land Management (BLM) in Section 32, Township 18 North, Range 20 East, Mount Diablo Baseline and Meridian. The surface management of the project area is provided by the Carson Ranger District of the U.S. Forest Service (Forest Service). Memorandum of Understanding WO300-2006-08 between the BLM and Forest Service defines the BLM as the lead agency for permit review and National Environmental Policy Act (NEPA) compliance, and the Forest Service as a cooperating agency.

On January 7, 2013, Ormat submitted a proposal to conduct geothermal resource exploration operations to the Forest Service Carson Ranger District, along with a Geothermal Drilling Permit application in accordance with 43 CFR 3200, to the BLM Carson City District Office, Stillwater Field Office. The Forest Service submitted a letter of concurrence to the BLM for Ormat to commence operations as described in the proposal, and the BLM made the determination that an Environmental Assessment (EA) would be required.

The Forest Service identified two resource issues: habitat potential for Threatened or Endangered or sensitive plant species, and consultation with the Washoe Tribe. Upon completion of cultural resources surveys, the Forest Service determined that cultural resources would not be affected. The Forest Service also determined that the project area contained suitable habitat for the Steamboat monkeyflower (*Mimulus ovatus*), which is considered a Nevada Natural Heritage Watchlist species, and for Steamboat buckwheat (*Eriogonum ovalifolium* var. *williamsiae*), which is listed as a federally endangered species. Because of the minimal scope of the project, a combined Operations/Utilization Plan incorporating both exploration and utilization scenarios was submitted to the BLM as discussed during a meeting between Ormat and the BLM in December 2013. The combined Operations/Utilization Plan meets the requirements as defined in both 43 CFR Subpart 3262 – Conducting Drilling Operations and in 43 CFR Subpart 3272 – Utilization Plans.

The EA was scoped internally by BLM and Forest Service resource specialists in March 23, 2013. Resources specialists identified the supplemental authorities and other resources and uses to be addressed in the EA. The following specific issues related to the Proposed Action were identified as present/potentially affected by the Proposed Action: Air Quality, Vegetation, U.S. Forest Service Sensitive Plant Species, Threatened or Endangered Plant Species, Invasive, Nonnative Species, General Wildlife, Migratory Birds, Water Quality, Land Use Authorizations, Socioeconomics, Soils and Visual Resources.

The potential environmental impacts from the Proposed Action and No Action Alternatives were evaluated in EA# DOI-BLM-NV-C010-2014-0019-EA. Based on the analysis of potential environmental impacts detailed in the EA, it was determined that the impacts associated with the Proposed Action are not considered significant and therefore an environmental impact statement (EIS) will not be prepared. This is documented in the attached Finding of No Significant Impact (FONSI).

PUBLIC INVOLVEMENT

The EA was scoped internally by BLM resource specialists on March 23, 2014 and externally scoped to the public in July 2014. The Carson Ranger District Consulted directly with the Washoe Tribe of Nevada and California in face-to-face tribal consultation meetings with the Tribal Chair (Wanda Bachelor) on March 13, 2014. The Tribal Chair had no concerns with the project and did not identify any traditional cultural properties or sacred sites within the project area.

The EA was made available for a 30-day public review and comment period on July 10, 2014 until August 11, 2014. A press release was issued on July 10, 2014 to local media outlets and sent electronically to the Nevada State Clearinghouse. The EA was also made available by hard

copy at the Carson City District Office and on the District webpage at: http://www.blm.gov/nv/st/en/fo/carson_city_field/blm_information/nepa.html. During the comment period, one comment was received from the Nevada Division of State Lands through the Nevada Clearinghouse. All comments received were reviewed, considered and responded to by the BLM Stillwater Field Office, Carson City District. These comments were not substantive in nature and no changes were made to the analysis in the EA.

DECISION

Based on the analysis in the *Ormat Technologies, Inc. Steamboat Geothermal Well(s) 16-32 Project* EA# DOI-BLM-NV-C010-2014-0019-EA, it is my decision to implement the Proposed Action as described in the EA with identified Best Management Practices (BMPs) as identified in Chapter 2 of the EA document. This decision is contingent on meeting all stipulations and conditions outlined in the geothermal leases and drilling permits. The BMPs are included in Chapter 2 of the EA and reiterated below in this Decision Record.

1. Approve the combined Operations/Utilization Plan submitted by Ormat on January 7, 2013 including the Best Management Practices proposed by Ormat, as listed below and all Special Lease Stipulations attached to lease N-12085.

This management decision for the Project is issued pursuant to 43 CFR 3200. This Decision is effective immediately and will remain in effect while appeals are pending before the Office of Hearings and Appeals (OHA) unless OHA grants a stay under §4.2 I (b) of this title. The combined Operations/Utilization Plan for the Project is hereby approved subject to the conditions of approval required to implement the Project. Ormat must conduct operations as described in the Operations/Utilization Plan (as described in Chapter 2 of the EA under the Proposed Action) and in accordance with the special lease stipulations that are attached to lease N-12085, BMPs contained in this Decision, and the attached Conditions of Approval (COA).

The rationale for the attached FONSI supports this decision. The Proposed Action coupled with the lease stipulations and BMPs built into the Proposed Action, as detailed in Chapter 2 of the EA and listed in this document, have led to my decision that all practicable means to avoid or minimize environmental harm have been adopted and significant impacts will not result from implementation of the Proposed Action as identified in the EA and Lease N-12085. This decision is consistent with the 2001 Carson City Field Office Consolidated Resource Management (CRMP) and the Toiyabe National Forest Land and Resource Management Plan of 1986.

2. Best Management Practices built into the Proposed Action

Ormat would comply with all special lease stipulations attached to lease N-12085 which is applicable to project operations. In addition Ormat will also institute the following BMPs as part of the Proposed Action to reduce or eliminate impacts to resources:

- Water would be applied to the ground during the construction and utilization of the drill pad and access road as necessary to control dust.

- Portable chemical sanitary facilities would be available and used by all personnel during periods of well drilling and/or flow testing, and construction. These facilities would be maintained by a local contractor.
- To prevent the spread of invasive, nonnative species, all vehicles, heavy earthmoving construction equipment, mobile trailers, and RV campers brought to and used on the project site would go through high-pressure washing of the entire vehicle/unit at a commercial wash station prior to arriving and/or being used on the project site.
- Certified noxious weed-free hay and straw bales would be purchased and used at all times on the project site.
- Seed mixes for the rehabilitation and/or revegetation of all disturbed areas related to this project would be certified as weed-free, per BLM standards. Seed mixes would be approved by Forest Service personnel.
- All construction and operating equipment would be equipped with applicable exhaust spark arresters. Fire extinguishers would be available on the active sites. Water that is used for construction and dust control would be available for firefighting. Personnel would be allowed to smoke only in designated areas.
- Following project construction, areas of disturbed land no longer required for operations would be reclaimed to promote the reestablishment of native plant and wildlife habitat.
- The wellheads would each be painted a color to blend with the area and minimize visibility.
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FIRE PREVENTION AND CONTROL

- Any small fires which occur around the well pad during drilling and/or testing operations should be able to be controlled by rig personnel utilizing on-site firefighting equipment.
- The BLM Carson City District Office (775.885.6000) would be notified of any wildland fire, even if the available personnel can handle the situation or the fire poses no threat to the surrounding area. Additionally, the Sierra Front Interagency Dispatch would be notified (775.883.5995).
- A roster of emergency telephone numbers would be available on-site so that the appropriate firefighting agency can be contacted in case of a fire.
- All vehicles shall carry at a minimum a shovel and 5 gallons of water (preferably in a backpack pump), in addition to a conventional fire extinguisher.
- Adequate firefighting equipment (a shovel, a pulaski, standard fire extinguisher(s), and at least a 100-gallon water tank with pump) shall be kept readily available at each active drill site.
- Vehicle catalytic converters (on vehicles that would enter and leave the drill site on a regular basis) shall be inspected often and cleaned of all flammable debris.
- All cutting/welding torch use, electric-arc welding, and grinding operations shall be conducted in an area free, or mostly free, from vegetation. At least a 100-gallon water tank with pump and shovel shall be on hand to extinguish

any fires created from sparks. A welding tent would be used, as appropriate. At least one person in addition to the cutter/welder/grinder shall be at the work site to promptly detect fires created by sparks.

- Personnel would be responsible for being aware of and complying with the requirements of any fire restrictions or closures issued by the BLM Carson City District Office, as publicized in the local media or posted at various sites throughout the field office district.

SURFACE WATER AND GROUNDWATER PROTECTION

- Exclusive of short- and long-term flow testing wherein fluids would be discharged to the reserve pit, geothermal fluids would not be discharged to the ground under normal operating conditions. Further, geothermal wells are cased to prevent co-mingling of the geothermal fluids with underground aquifers.

WILDLIFE PROTECTION

- Erosion-control measures after construction would include revegetation and periodic maintenance. Disturbed areas that will not be used after construction would be revegetated with the proper seed mixture and planting procedures prescribed by the BLM. Any topsoil enriched in organic material may be stockpiled on previously disturbed areas and applied to enhance areas to be reclaimed by revegetation.
- To prevent undue degradation and removal of habitat, cover, and food, only existing roads within the Steamboat geothermal complex would be used. The posted speed limits of 15 miles per hour (mph) would be observed on all roads in the project area in order to minimize dust and avoid collision and incidental death of local wildlife.
- The majority of activities would occur during the later summer and fall months to avoid impacts to nesting migratory birds and avoid disturbing deer during winter months.

CULTURAL RESOURCES PROTECTION

- Ormat employees, contractors, and suppliers would be reminded that all cultural resources are protected and if any unidentified resources were to be uncovered, the resource shall be left in place, work would cease, and notification would be made to the Ormat representative and the appropriate BLM authorized office, by telephone, with written confirmation to follow, immediately upon such discovery.
- Pursuant to 43 CFR 10.4(G), the proponent must notify the authorized officer, by telephone, with written confirmation, immediately upon discovery of human remains, funerary items, sacred objects, or objects of cultural patrimony. Pursuant to 43 CFR 10.4 (C) and (D), the proponent must stop activities in the immediate vicinity of the discovery and protect it from the proponent's activities for 30 days or until notified to proceed by the authorized officer. The BLM Carson City District Office Archaeologist can be

reached at 775.885.6000. The Forest Service Carson Ranger District Archaeologist can be reached at 775.882.2766.

MINIMIZATION OF AIR POLLUTION

- Ormat would comply with any air quality requirements prescribed by the Nevada Division of Environmental Protection, Bureau of Air Pollution Control (NDEP-BAPC). Water would be applied to the ground during the construction and utilization of the drill pad and access road as necessary to control fugitive dust.
- Ormat would obtain a Surface Area Disturbance permit with the NDEP-BAPC, and implement the required actions to minimize fugitive dust emissions, during the well drilling and construction phase of the Proposed Action.

MINIMIZATION OF NOISE POLLUTION

- To abate noise pollution, mufflers would be used on the drilling rig engine. The well pad may have one rock muffler. Rock mufflers are approximately 30 feet tall with a diameter of about 10 feet and are used to attenuate steam venting noise during well testing. Noise suppression devices would be utilized on all compressors as well. Construction and drilling noise would be minimized through operational practices (best available control technology), which would avoid or minimize practices that typically generate high noise levels or distinctive noise impacts.

MINIMIZATION OF HAZARDS TO PUBLIC HEALTH AND SAFETY

- Construction and operation activities would be conducted in a manner to avoid creating any hazards to public health and safety. The project is remotely located and would not likely cause hazards to public health and safety. Injury contingency, spill or discharge contingency, and hydrogen sulfide contingency plans have been prepared as part of the Steamboat Geothermal Well(s) 16-32 Project Operations/Utilization Plan (Ormat 2013).
- Drilling operators are required by law to safety-train workers and to have first aid equipment on site. Ormat supervises the drilling operations to ensure that all safety procedures and best safety practices are in place and adhered to throughout the drilling program. Ormat's contract with the drilling company specifies that safety regulations are implemented and adhered to by the drilling contractor, and that the operation is in compliance with all existing laws pertaining to safety and environmental protection. Safety meetings are held prior to any major operation, such as running casing, cementing, or unloading the well. Drilling contractors would typically have daily safety meeting with crews and review any issues that could come up during the 12 hours that each crew is at work.
- In the event injuries occur in connection with an Ormat operation, specific and immediate attention would be given to proper transportation to a medical facility.

- Although there is very little chance that drilling in these moderate-temperature geothermal reservoirs would encounter substantial hydrogen sulfide, continuous hydrogen sulfide monitors would be on the rig floor and at the mud tanks and shaker to alert workers should elevated hydrogen sulfide levels be detected. Self-contained air packs would be on site for use by workers in an emergency. Signs would be posted to inform workers and visitors of any potential issues.
- Drilling parameters would be continuously monitored, and any changes in gas concentrations, formation pressures, or potential for flow are provided to the driller and supervisor. Blowout Prevention Equipment would be in place to shut off any unexpected gas flows. In the event that any evidence of high gas concentrations is detected in the drilling fluids, the drilling fluids consultant would obtain materials and design a program to safely circulate out the gas bubble and to treat and remove any hydrogen sulfide using caustic soda, caustic soda and peroxide, or other technology as appropriate.

RATIONALE

Upon analyzing the impacts of the Proposed Action and following issuance of the EA for public review, I have determined that implementing the Proposed Action as described in Chapter 2 of the EA with the special lease stipulations attached to lease N-12085, the BMPs described above, and the attached COA will not have a significant impact to the human environment and that an EIS is not required. Refer to the attached FONSI.

AUTHORITY

The Proposed Action is in conformance with the FLPMA of 1976, the CRMP adopted in 2001, the Toiyabe National Forest Land and Resource Management Plan of 1986, the regulations at 43 CFR §3200, and with current BLM policies, plans and programs. The Proposed Action is consistent in relationship to statutes, regulations and policies of neighboring local, County, State, Tribal governments and other Federal agencies.

The Plan in combination with the preceding Best Management Practices, lease stipulations, attached COA and the attached FONSI show that all practicable means to avoid or minimize environmental harm have been adopted and that unnecessary or undue degradation of the public lands will not occur as a result of the proposed tactical vehicle off-highway operations.

Mineral exploration in the proposed project area conforms to the Toiyabe National Forest Land and Resource Management Plan of 1986, particularly the following Standards and Guidelines for Minerals:

- 1: Encourage exploration and development of mineral resources and minimizing possible adverse impacts to surface resources.
- 4: Require operating plans which minimize impacts to surface and cultural resources and provide for reclamation of disturbed areas (page IV-57).

23: Reasonable access for mineral exploration, development, and production is guaranteed under the mining laws. The type of access approved will be consistent with the logical development of mineral properties (page IV-59).

In addition, the Proposed Action described below is in conformance with the BLM Carson City Field Office CRMP, page MIN-1, National Policy #1 (Surface Management Policy), and page ROW-4, Administrative Action #3 (Application for Rights-of-way) (BLM 2001). The Proposed Action is consistent with the applicable land use plan because it is clearly consistent with the following land use plan decisions, objectives, terms, conditions:

RMP Desired Outcome 1: 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 (page MIN-1)

Administrative Action, Standard Operating Procedures for Leasable Minerals 5: Oil, gas, and geothermal exploration and production upon BLM land are conducted through leases with the Bureau and are subject to terms and stipulations to comply with all applicable federal and state laws pertaining to various considerations for sanitation, water quality, wildlife, safety, and reclamation. Stipulations may be site-specific and are derived from the environmental analysis process (page MIN-5).

APPROVAL

The Steamboat Geothermal Well(s) 16-32 Project DOI-BLM-NV-C010-2014-0019-EA and associated combined Operations/Utilization Plan are approved for implementation with incorporation of identified Best Management Practices, lease stipulations for lease N-12085, and the attached COA. This decision is effective upon issuance in accordance with Title 43 of the Code of Federal Regulations (CFR) at 3200.

This Decision is in conformance with the National Environmental Policy Act of 1969 (P.L. 91-190) as amended (72 USC 4321 et.seq.); the Toiyabe National Forest Land and Resource Management Plan of 1986, the Carson City Consolidated Resource Management Plan of 2001, the regulations at 43 CFR §3200, and with current BLM policies, plans and programs.


Teresa J. Knutson, Manager
Stillwater Field Office
Carson City District Office


Date

APPEAL PROCEDURES

If you wish to appeal this decision, it may be appealed to the Interior Board of Land Appeals, Office of the Secretary, in accordance with 43 CFR Part 4. If you appeal, your appeal must also be filed with the Bureau of Land Management at the following address:

Teresa J. Knutson, Stillwater Field Manager
BLM, Carson City District Office
5665 Morgan Mill Road
Carson City, NY 89701

Your appeal must be filed within thirty (30) days from receipt or issuance of this decision. The appellant has the burden of showing that the decision appealed from is in error.

If you wish to file a petition pursuant to regulation 43 CFR 4.21 (58 FR 4942, January 19, 1993) for a stay (suspension) of the decision during the time that your appeal is being reviewed by the Board, the petition for stay must accompany your notice of appeal.

Copies of the notice of appeal and petition for a stay must also be submitted to:

Board of Land Appeals
Dockets Attorney
801 N. Quincy Street, Suite 300
Arlington, VA 22203

A copy must also be sent to the appropriate office of the Solicitor at the same time the original documents are filed with the above office.

U.S. Department of the Interior
Office of the Regional Solicitor
Pacific Southwest Region
2800 Cottage Way, Room E-1712
Sacramento, CA 95825

If you request a stay, you have the burden of proof to demonstrate that a stay should be granted. A petition for a stay is required to show sufficient justification based on the following standards:

1. The relative harm to the parties if the stay is granted or denied.
2. The likelihood of the appellants' success on the merits.
3. The likelihood of immediate and irreparable harm if the stay is not granted.
4. Whether the public interest favors granting the stay.

The Office of Hearings and Appeals regulations do not provide for electronic filing of appeals, therefore they will not be accepted.

September 2014

ORMAT Technologies, Inc., Steamboat Geothermal Well(s) 16-32 Project

CONDITIONS OF APPROVAL (COAs)

Term: The term for GDP's is two (2) years from the date of approval, but may be extended by BLM. The term is intended to be commensurate with the Nevada NRS 534A.070

Please Note:

All lease and/or unit operations will be conducted in such a manner that full compliance is made with applicable laws, regulations (43 CFR parts 3200, 3260 and 3280), lease/agreement terms, Geothermal Resource Orders, Notice to Lessees (NTLs), the Approved Plan of Operation and this permit.

A complete copy of the approved application and these conditions shall be maintained on location during all construction and drilling operations. Deviation from the approved plan without prior approval is not allowed.

The operator is fully responsible for the actions of his subcontractors. Operators have the responsibility to assure that activities authorized by this permit are conducted in a manner that complies with other applicable Federal, State, and local laws and regulations.

Approval of this application does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.

Failure to comply with the provisions of this permit, including applicable regulations, stipulations, and/or approval conditions, will be considered a violation, subject to the enforcement provisions of 43 CFR Subpart 3277.

Required Notifications

- 1. The operator and contractor shall contact Dave Schroeder, at the BLM Stillwater Field Office- (775) 885-6119, at least 48 hours prior to commencement of access and site construction or reclamation activities.**
- 2. The operator shall contact the BLM PET (Lorenzo Trimble) at least 24 prior to the following operations: Spudding, Running and cementing of all casing strings, and BOP(E) tests.**
3. In any emergency situation, after hour authorization may be obtained by a field office authorized officer listed above.

Pre-Construction

1. Roads to be constructed, improved or reclaimed as part of the Projects would be reviewed by the BLM and required to conform to the requirements of BLM Manual 9113 and the “Gold Book”, as applicable to the intended Project Use.
2. Off road travel will be restricted to terrain with less than 30 percent slopes unless approved by the authorized BLM officer.
3. Proposed surface disturbance and vehicular travel will be limited to the approved well location and access route.
4. Any changes in well location, facility location, and access or site expansion must be approved by the authorized BLM officer in advance.
5. The underside of all heavy equipment will be cleaned by water before entering public lands to do work. Driving through or parking on noxious weed infestations will be avoided.

Well Pad and Facility Construction

1. A site diagram depicting the location of production facilities, recontoured slopes and stabilization measures shall be approved by an authorized BLM 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 BLM officer prior to construction to avoid unnecessary conflicts with visual resources management objectives.
3. The reserve pit shall be constructed such that no pit wall shall be steeper than 2:1 horizontal to vertical. Wildlife escape ramps that are at a slope equal to or greater than 3:1 horizontal to vertical shall be constructed at corners and/or as necessary such that there is no more than 100 feet between escape ramps.
4. The reserve pit shall be fenced in conformance with the Gold Book. Additional small diameter (<2 inches diameter) fence shall be installed around the perimeter of the reserve pit to half the height of the fence.
5. 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.

6. Access road construction for exploratory wells shall be planned such that a permanent road can later be constructed in the event of field development.
7. Construction of access roads on steep hillsides and near watercourses will be avoided where alternate routes provide adequate access.
8. Access roads requiring construction with cut and fill will be designed to minimize surface disturbance and take into account the character of the landform, natural contours, cut material, depth of cut, where the fill material will be deposited, resource concerns and visual contrast.
9. Fill material will not be cast over hilltops or into drainages. Cut slopes should normally be no steeper than 3:1 and fill slopes no steeper than 2:1.
10. 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.
11. Water turnouts needed to provide additional drainage will be constructed not to exceed two percent slope to minimize soil erosion.
12. Well site layout shall take into account the character of the topography and landform. Deep vertical cuts and steep long fill slopes shall be avoided. All cut and fill slopes should be constructed to the least percent slope practical.
13. Trash will be retained in fully enclosed portable trash cages and hauled to an authorized disposal site for disposal. Burial or burning of trash will not be allowed unless done at an authorized site.
14. 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.
15. Fences shall not be cut without prior approval of the authorized BLM officer. Before cutting through 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 operations, fences shall be restored to at least their original condition.

16. The depth of surface soil material to be removed and stockpiled will be specified by the authorized BLM officer. If topsoil is stockpiled for more than one year, the stockpile shall be seeded or otherwise protected from wind and water erosion. The stockpile shall be marked or segregated to avoid loss or mixing with other subsurface materials. Any trees removed will be separated from soils and stockpiled separately.
17. 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.
18. Lessee/operator shall comply with all regulatory requirements for storage and handling of hazardous materials and wastes.
19. 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 BLM officer. Within five working days the authorized BLM officer will inform the operator as to:
 - a. whether the materials appear eligible for the National Register of Historic Places;
 - b. the mitigation measures the operator will likely have to undertake before the site can be used (assuming in situ preservation is not necessary); and,
 - c. a time frame for the authorized BLM 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 BLM officer are correct and that mitigation is appropriate.
20. 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 20 above for inadvertent discovery of cultural resources, the authorized BLM 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 BLM officer will provide technical and procedural guidelines for the conduct of mitigation. Upon verification from the authorized BLM officer that the required mitigation has been completed, the operator will then be allowed to resume construction.

Drilling Operation

Drilling Plan - The drilling plan of the Geothermal Drilling Permit will be supplemented as follows:

1. If Hydrogen Sulfide is encountered well must be shut-in until measured amounts are determined and these must be reported to the BLM.
2. The operator shall obtain and maintain all necessary State of Nevada and local permits applicable to the drilling of this well.
3. For Air/Aerated drilling operations, the following equipment shall be utilized: banjo box (or equivalent); a staked down blooie line directed to a blooie pit a minimum of 100 ft. downwind of the wellhead .
4. Daily drilling and completion progress reports shall be submitted to the Nevada State Office Petroleum Engineer (PE) on a weekly basis, and shall include both daily mud reports and directional survey data.

Casing Pressure Control:

- 1. All BOPE will be tested to 1000 psi and held for 30 minute without a 10% drop in Pressure. Please submit the test chart to the regulatory agencies.**
2. The results of the BOPE test shall be reported to the Nevada State Office Petroleum Engineer PE or PET.
3. All tests are required to be recorded on a calibrated test chart/graph and submitted to the Nevada State Office Petroleum Engineer PE or PET.

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. Unauthorized use or failure to lock gates during specified time frames by the lessee or its subcontractors would be considered a violation of the terms of the GPD or associated grants.
3. The operator shall regularly maintain all roads used for access to and within the lease units. A Maintenance and Dust Management Plan may be required. A regular maintenance program may include, but not be limited to: BLM authorized upgrading of existing roads, blading, ditching, culvert,

drainage installation, and graveling or capping of the roadbed.

4. Management actions within riparian areas will be designed to maintain or, where possible, improve riparian habitat condition.
5. Noxious weeds which may be introduced due to soil disturbance and reclamation will be treated by methods to be approved by the authorized BLM 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 BLM officer 60 days prior to the planned application date.
6. Ormat will collect standard aquifer test data during and after well testing from completed cased geothermal explorations wells. Data collection will include but not be limited to static water levels, well drawdown, and other data that characterizes the aquifer(s) and that can be used to predict future scenarios as well as determine boundary affects. The data collection applies to both unconfined and confined aquifers.
7. All drill rig and well test facility lights will be limited to those required to safely conduct the operations, and will be shielded and/or directed in a manner which focuses direct light to the immediate work area.
8. If previously unrecorded cultural resources are encountered during grading or other surface-disturbing activities, all grading or other surface-disturbing activities at the location of the discovery will cease within 100 meters/330 feet of the discovery, and the BLM would be notified. No surface disturbing activities will be allowed until the BLM Authorized Officer issues a Notice to Proceed (NTP) based upon the evaluation, mitigation, as necessary, and the acceptance of a summary description of the fieldwork performed for the discovery situation.
9. The locations of the historic properties will be provided to Ormat and flagged for avoidance. If avoidance of currently documented historic properties is not possible a resolution of adverse effects will be followed as defined in 36 CFR 800.6.
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. Containment structures sufficiently impervious to prevent a discharge to waters of the Unites States, such as containment dikes, containment wall, drip pans, or equivalent protection actions are to be constructed and maintained around all qualifying bulk oil and liquid hydrocarbon tanks.

The containment structure must have sufficient volume to contain, at a minimum, the content of the largest storage tank containing liquid hydrocarbons within the facility and sufficient freeboard to contain precipitation, unless more stringent protective requirements are deemed necessary by the authorized officer. Drip pans should be routinely checked and cleaned of petroleum or chemical discharges and designed to prevent access by wildlife and livestock. Containment dikes are NOT to be constructed with topsoil or coarse, insufficiently impervious spoil material. Chemicals should be placed within secondary containment and stored so that the containers are not in contact with soil or standing water and product and hazards labels are not exposed to weathering.

12. 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.
13. 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.
14. 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.
15. 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.
16. 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 pre-disturbed condition as required by the authorized BLM officer.

Well Completion

1. A Sundry Notice with the procedure to complete the well shall be submitted and approved prior to commencing completion work if not included in the GDP.

Reclamation and Abandonment

1. The operator or contractor will contact the authorized BLM officer 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 with a BLM approved seed mix. 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, and 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 BLM 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. When sites are abandoned, they will be inventoried for the presence of noxious weeds and treated if noxious weeds are present.
11. Seed and mulch used to reclaim disturbed areas must be weed free. Mulching of the seedbed following seeding will be required under certain conditions (i.e., expected severe erosion), as determined by the authorized BLM officer.
12. 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 BLM 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.