

APR 27 2017

STATE OF NEVADA
COMMISSION ON MINERAL RESOURCES
DIVISION OF MINERALS
400 W. King Street, Suite 106
Carson City, Nevada 89703
(775) 684-7040 | Fax (775) 684-7052
http://minerals.nv.gov

DIVISION OF MINERALS

Date Received	
API Number	27-001-90536
County	Churchill
Permit Number	1430
FOR DIVISION USE ONLY	

GEOHERMAL RESOURCE DEVELOPMENT PERMIT APPLICATION

Name or Corporate/Business Name
Ormat Nevada Inc.

Street Address 6225 Neil Road
City Reno State NV Zip Code 89511

hereby makes application for a geothermal development permit, State of Nevada, Division of Minerals.

(If applicant is a corporation, show state and date of incorporation; if a partnership, list names of partners.)

[Empty box for incorporation/partnership details]

This application is for a Domestic well Commercial well Industrial well
Other, specify: Observation well Thermal Gradient well Re-entry

Note: Re-entry includes workover, deepening, or plugging back operations.

Applicant is: Land Owner Lease Holder
Well Name: 48(38)-11
Lease Name/No: Currently unleased Split Estate? Yes No
Land Type: Federal (BLM, USFS, etc.) Private State

Location of Well:

Domestic: Street: _____
City: _____ County: _____

Commercial and Industrial:

SE _____ ¼ of, SW _____ ¼ in Section 11
Township 23N _____, Range 35E _____

UTM Northing 4413912 N; UTM Easting 413376 E (NAD83 Datum)

County Churchill County

(If applicable, give street address below.)

Street: Dixie Valley Road
City: _____
State: _____ Zip: _____

Operator's Name: Ormat Nevada Inc.
Address: 6225 Neil Road
City, St Zip: Reno, NV 89511

Drilling Contractor's Name: Geo-Drill
Address: 6225 Neil Road
City, St Zip: Reno, NV 89511

Rotary Rig Description: Core Hole Rig

Hole Size: 6.5 in Casing Size: 4.5 in Weight/Gauge: K-55 or J-55

Estimated Well Head Temperature: 300 F

Size of BOP: 2000 psi 3000 psi 5000 psi

Planned Use of Geothermal Resource:

Geothermal power production

Planned Disposal of Spent Geothermal Fluid:

Sumplless drilling, off site disposal.

Type and Amount of Bond: BLM Statewide bond at \$50.000 NDOM Bond \$75.000
(Exempt for Domestic Class)

Bond Issued by: Bank of America (NDOM) 09XXXXXXXX 2448 Serial No. BLM 284


The Source of the Proposed Geothermal Resource is:

Temperature gradient core holes, no production.

(List name of hot spring, geologic formation(s) or other source.)

Total Depth to be Drilled: 2000 ft

Drilling will Commence On or Before: After 5/1/2017

Signature of Applicant/Agent: 
Date: 4/27/2017

Please attach a detailed drilling program including the following information:

1. Well design schematic; casing and mud programs; potential water supply; drilling rig to be used and pad layout; blow out prevention equipment diagram and testing program; directional drilling information if applicable; map of location and access roads. Additional information may be required upon review.
2. The required fee per NAC 534A 210 or 534A.212.

CONDITIONS OF PERMIT

1. All permittees must comply with appropriate sections of the Geothermal Rules and Regulations of the Division of Minerals and with applicable rules and regulations of other local, state, and federal agencies.
2. During the drilling of domestic geothermal wells, all water strata above the geothermal horizon being used must be sealed or separated in order to prevent their contents from passing into other strata.
3. All fresh water and water of value or possible value for other beneficial uses must be confined to their respective strata and be adequately protected by methods approved by the Division. Precautions must be taken in drilling and abandoning wells to guard against any loss of fresh water from the strata in which it occurs, and the contamination of any fresh water by objectionable water.
4. The operator of any well must shut off and exclude all water from any geothermal resource-bearing stratum to the satisfaction of the Division.
5. See attached Conditions of Approval.
6. Please send daily drilling reports to : Lowell Price.....lprice@minerals.nv.gov
and
Linda Wells.....lwells@minerals.nv.gov
7. Additional Conditions/Comments

A.	<i>Under Project Area Permit 1425.</i>
B.	
C.	

This permit does not extend the permittee the right of ingress and egress on public, private or corporate lands.

The issuance of this permit does not waive the requirements that the permit holder obtain other permits from State, Federal, and local agencies.

PERMIT APPROVAL

Approved 5/2/2017 with the conditions noted above.
Date

Permit Number 1430


Deputy Administrator
Division of Minerals



BRIAN SANDOVAL
Governor

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RICHARD PERRY
Administrator

Las Vegas Office: 2030 E. Flamingo Rd. #220, Las Vegas, NV 89119
Phone: (702) 486-4343; Fax: (702) 486-4345

Temperature Gradient Wells

CONDITIONS OF APPROVAL FOR DRILLING PERMIT

Submit forms and correspondence to: Nevada Division of Minerals
400 W. King Street, #106
Carson City, NV 89703

Communications with the Division shall be directed to:

Lowell Price, Oil, Gas and Geothermal Program Manager
Office 775-684-7045 Email lprice@minerals.nv.gov
Cell 775-721-1774
Fax 775-684-7052

Rich Perry, Division Administrator
Office 775-684-7047 Email rmperry@minerals.nv.gov
Cell 775-721-0282
Fax 775-684-7052

Voicemail is available on all cell phones and office phones. Please leave a message if you are unable to speak to someone and we will return your call as quickly as possible.

By provision of the current Memorandum of Understanding between NDOM and BLM, you may contact the following individuals for information or approvals. Approvals under the MOU apply to Fee and Federal lease locations.

John Menghini, Fluid Minerals Team, Petroleum Engineer, Reno
Office 775-861-6573 Email John_Menghini@blm.gov
Cell 775-223-1359
Fax 775-861-6711

YOUR APPLICATION TO DRILL IS APPROVED
SUBJECT TO THE FOLLOWING PERMIT CONDITIONS

1. **These conditions shall be posted at the well site and read by all company personnel associated with the subject wells.**
2. A water well driller licensed by the State Engineer's Office must be on site during all drilling activities.
3. The operator shall give notification at least **48 hours prior** to spudding. These notifications may be by telephone or email. Please refer to the contacts list on page one of this notice.
4. Operator will monitor temperature of mud returns continuously. If drilling fluid temperature exceeds 150 degrees Fahrenheit, the operator must send the OGG Program Manager the log of recorded flowline temperatures, the point at which a mud cooler was utilized, if utilized, and obtain approval from NDOM before continuing to drill.
5. Maintain daily drilling records and submit these to the Division with completion reports. The Completion Report shall include the name of the licensed water well driller and the driller's license number.
6. The operator in the event of a serious accident, blow out, oil spill or fire, lightning strike, break, leak, or overflow to notify the Division of Minerals immediately. In the event of a spill of hydrocarbons of 25 gallons or more, you must contact NDEP at 1-888-331-NDEP (6337). You will be advised on clean up and disposal procedures.
7. Temperature gradient wells must be plugged and abandoned in accordance with NAC 534A.480 within 2 years of the drilling completion date. Hole must be backfilled with mud, granulated bentonite, or bentonite/cement mix and 50 lineal feet of cement placed to surface. Surface must be restored as near as practicable to its original condition.
8. A plugging report must be filed within 30 days of the completion of plugging operations.

SUNDRY NOTICES
OIL, GAS AND GEOTHERMAL

Verbal approval for the following work may be given by the Division:

1. Any emergency work necessary to prevent or control blow outs or other situations with significant potential to result in injury to the crew or damage to the environment or resource.
2. Any kick-offs necessary to by pass bad hole or fish left in hole.
3. Changes in casing points due to bad hole.
4. Deepening, attempting to encounter resource.
5. Necessary well work to keep geothermal power plants operating.
6. Drilling equipment failure.
7. Squeeze or plug backs to prevent any injected geothermal or oil field waters from contaminating other water zones.

The operator is required to file a written sundry notice with the division subsequent to verbal approval.

Verbal approvals will not be given for any work that can be planned in advance, such as acidizing, changes in casing points or completion, etc., reentry of a well, remedial work, production or injection testing.

EXHIBIT B

June 2016

ORMAT Dixie Comstock Temperature Gradient Holes NVN-095236

CONDITIONS OF APPROVAL (COAs)

Term: The term for *Notice Of Intent To Conduct Geothermal Resource Exploration Operations*, NVN-095236 is until 12/01/2017 as stated on the submitted form 3200-9.

Field Operation

1. Access to the proposed sites will be via either existing roads or a combination of existing roads and overland travel. No blading or improvement of access roads will be allowed.
2. No blading or improvement of drill pads or construction of containment pits/sumps will be allowed. Drilling will be accomplished using a “sump-less” system with all drilling mud and cuttings contained in a series of portable mud tanks with no discharge to the ground surface or bodies of water.
3. The Migratory Bird Treaty Act (MBTA) (16 U.S.C. 703 et. seq.) protects migratory birds and their nests. A list of MBTA protected birds are found in 50 C.F.R. 10.13. The list of birds protected under this regulation is extensive and the project site has potential to support many of these species, including BLM sensitive species, and their nests. Typically, the breeding season is when these species are most sensitive to disturbance, which generally occurs from March 1st through August 31st in the Great Basin.

Surface disturbing activities shall not occur during the migratory bird nesting season from March 1st to August 31st, annually. If surface disturbing activities must occur during this period, pre-construction avian surveys shall be conducted in appropriate habitats by qualified, BLM-approved biologists not more than 7 days prior to surface disturbing activities commencing. The specific area to be surveyed will be based on the scope of the surface disturbing activities, as determined by the qualified biologist, in coordination with the authorized officer’s representative. If ground disturbing activities do not take place within 7 days of surveys, the areas shall be resurveyed. If nesting migratory birds are detected during surveys, appropriate buffers determined by the BLM, in coordination with other state and federal wildlife agencies, will be applied. Buffers will remain in effect until the qualified biologist determines the young have fledged or the nest has failed; this determination shall be communicated to the authorized officer’s representative for review and approval.

4. Per IM No. 2016-023, to prevent wildlife mortalities in open, uncapped hollow pipes, the BLM will implement the following management actions. This applies to fence posts, sign

posts, survey markers, outbuilding vents, and other structures to ensure that designs for new construction and/or the modification of facilities do not include open-top vertical pipes that are less than 12 inches in diameter. To prevent wildlife mortalities in open, uncapped hollow pipes or other openings would be capped/screened or otherwise covered to prevent unintentional trapping of wildlife. In addition, other openings where wildlife escape ramps are not practicable (i.e. cellar well openings), these openings would be capped or covered so they are not a trap hazard for wildlife. The BLM wildlife biologist and the Nevada Department of Wildlife will be notified within 24 hours of any wildlife injuries and/or mortalities found in the project area during construction/operation.

Drilling Operation

The following COAs for drilling operations for Temperature Gradient Wells (TGW) stem from BLM Instruction Memorandum No. 2016-071.

1. During mud drilling operations, inlet and outlet temperatures must be recorded either hourly or at 30-foot intervals, whichever occurs first. Geothermal Resource Order (GRO) 1 requires mud cooling equipment when the flow line temperature reaches 125° F to maintain mud return temperatures below 125° F.
2. The operator must submit a plan for how it intends to estimate the bottom hole temperature (BHT) from flowing mud temperatures or other means while drilling. If the circulating flow line temperature or other monitoring methods indicated that the BHT of 212° F (adjusted for bottom-hole elevation) has been reached, further drilling must stop immediately and the operator must notify the BLM. The hole will be:
 - Completed as a TGW;
 - Abandoned in accordance with 43 CFR §3252.16;
 - Drilled further, if the BLM determines that contact with the geothermal resource is not yet imminent. Monitoring from this point will include flow line temperature measurements every 15 feet until the flow line temperatures reach a BLM-determined temperature threshold, at which point the well will be completed according to 43 CFR §3252.14 as a TGW, or will be abandoned according to 43 CFR §3252.16; or
 - Shut in pending application and approval of a geothermal drilling permit (GDP) and operations plan (only applies to a lessee drilling on its Federal lease, who may shut in the well and submit a GDP application and operations plan in compliance with 43 CFR §3260 regulations if it wishes to continue drilling into the resource or complete the well as an observation well for resource evaluation and testing, or for other purposes acceptable under 43 CFR §3260 regulations).

3. When drilling without the return of drilling fluids to the surface, the operator must submit a plan for how it intends to estimate and monitor the BHT, or other designated indicators, while drilling. If the unstabilized BHT reaches 212° F; if flowing fluid is encountered that indicates a 212° F BHT; or where other approved monitoring methods indicate that contact with a geothermal resource is imminent the operator must immediately stop drilling and the hole will be:
 - Completed as a TGW;
 - Abandoned in accordance with 43 CFR §3252.16; or
 - Shut in pending application and approval of a GDP and operations plan (only applies to a lessee drilling TGWs on its own Federal lease, who may shut in the well and submit a GDP application and operations plan under 43 CFR subpart §3260 if it wishes to complete the well for resource confirmation testing as an observation well, or for other purposes acceptable under the 43 CFR §3260 regulations).
4. If the BLM determines that the TGW was inadvertently drilled into the geothermal resource:
 - In the case of exploration operations permitted on unleased lands, or on Federal lands leased to another entity where the operator has no operating rights or rights to enter (“drill for”) the geothermal resource on the leased lands, the BLM (or appropriate surface management agency) will require the operator to abandon that part of the well that penetrated the resource with a cement plug before completing the well as a TGW or otherwise abandoning the well.
 - In the case of leased land drilled by the lessee or operator of that lease, a TGW that directly penetrates the resource must be shut in and then may be approved for resource confirmation testing purposes as an observation well or for other acceptable purposes under 43 CFR subpart §3260 regulations, if the lessee submits and the BLM approves a GDP application and operations plan in compliance with 43 CFR subparts §3260-3267 and GRO 2.

Reclamation and Abandonment

1. Depending on the extent of damage to vegetation along overland travel access routes and at drill sites, BLM may require reclamation of affected areas. This may include soil de-compaction and/or reseeding to facilitate natural recovery of any disturbed area.