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DEC 08 2017

DIVISION OF MINERALS

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

Date Received	
API Number	27-027-90094
County	Pershing
Permit Number	1450
FOR DIVISION USE ONLY	

**GEOHERMAL RESOURCE DEVELOPMENT PERMIT APPLICATION**

Name or Corporate/Business Name  
Nevada Bureau of Mines and Geology

Street Address 1664 North Virginia Street, University of Nevada, Reno MS 178  
City Reno State NV Zip Code 89557

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: GSV 3  
Lease Name/No: N/A Split Estate?  Yes  No  
Land Type:  Federal (BLM, USFS, etc.)  Private  State

Location of Well:

Domestic: Street: \_\_\_\_\_  
City: \_\_\_\_\_ County: \_\_\_\_\_

Commercial and Industrial:

SE  $\frac{1}{4}$  of, NE  $\frac{1}{4}$  in Section 2,  
Township 27N, Range 27E

UTM Northing 4456041.6 N; UTM Easting 336899.9 E (NAD83 Datum)

County Pershing

(If applicable, give street address below.)

Street: \_\_\_\_\_  
City: \_\_\_\_\_  
State: \_\_\_\_\_ Zip: \_\_\_\_\_

Operator's Name: Nevada Bureau of Mines and Geology  
Address: University of Nevada, Reno MS 178  
City, St Zip: Reno, NV 89557

Drilling Contractor's Name: Humboldt Environmental Alternative Technologies Consulting, HEATC LLC  
Address: 1053 Idaho Street  
City, St Zip: Elko, NV 89901

Rotary Rig Description: Direct push track mounted geoprobe rig. Not a rotary rig.

Hole Size: 2.25" Casing Size: N/A Weight/Gauge: N/A

Estimated Well Head Temperature: N/A

Size of BOP:  2000 psi  3000 psi  5000 psi

Planned Use of Geothermal Resource:

Push probe holes to be drilled for collection of water sample and measurement of bottom hole temperature. Holes to be P&A before de-mob. These holes are for research only.

Planned Disposal of Spent Geothermal Fluid:

N/A

Type and Amount of Bond: Bond to be waived by BLM, N/A  
(Exempt for Domestic Class)

Bond Issued by: N/A Serial No. N/A

The Source of the Proposed Geothermal Resource is:

Silica sinter deposits on east side of Adobe Flat Playa indicate possible hydrothermal activity along a concealed fault.

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

Total Depth to be Drilled: <200 feet

Drilling will Commence On or Before: 12/20/2017

Signature of Applicant/Agent:   
Date: 12/6/2017

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](mailto:lprice@minerals.nv.gov)  
and  
Linda Wells.....[lwells@minerals.nv.gov](mailto:lwells@minerals.nv.gov)
7. Additional Conditions/Comments

A.	
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.

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**PERMIT APPROVAL**

Approved 1-22-18 with the conditions noted above.  
Date

Permit Number 1450

  
\_\_\_\_\_  
Deputy Administrator  
Division of Minerals



**BRIAN SANDOVAL**  
Governor

STATE OF NEVADA  
COMMISSION ON MINERAL RESOURCES  
**DIVISION OF MINERALS**  
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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

**GEOHERMAL  
CONDITIONS OF APPROVAL  
FOR TEMPERATURE GRADIENT WELL GSV-3 DRILLING  
PERMIT 1450**

Submit forms and correspondence to: Nevada Division of Minerals  
400 West King Street  
Suite 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.us](mailto:lprice@minerals.nv.us)  
Cell 775-721-1774  
Fax 775-684-7052

Courtney Brailo, Oil, Gas and Geothermal Program Manager  
Office 775-684-7046      Email [cbrailo@minerals.nv.us](mailto:cbrailo@minerals.nv.us)  
Cell 775-721-2726  
Fax 775-684-7052

Rich Perry, Division Administrator  
Office 775-684-7047      Email [rmperry@minerals.nv.gov](mailto: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](mailto:John_Menghini@blm.gov)  
Cell 775-223-1359  
Fax 775-861-6711

**YOUR APPLICATION TO DRILL THE GSV-3 TEMPERATURE GRADIENT WELL, PERMIT 1450, 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. 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.
3. Operator will monitor temperature of mud returns continuously. If temperature exceeds 150 degrees Fahrenheit, drilling operations must cease and the division contacted to review the drilling program. BOPE may be necessary to continue to TD.
4. 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.
5. 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.
6. 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.
7. A plugging report must be filed within 30 days of the completion of plugging operations.

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**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.