Categorical Exclusion Documentation

A. Background

BLM Office: Prineville District Office

NEPA Log #: DOI - BLM - OR - P000 - 2012 - 0043 - CX

Project/Lease/Serial/Case File #: OR-44036, OR-44946, OR-44029, OR-44032, OR-46342

Proposed Action Title: Twilight Geothermal Exploration Project

Location: The project area is located in the Bend-Fort Rock Ranger District on the Deschutes National Forest approximately 23 miles south of Bend, Oregon (see Figure 1). The project area is adjacent to the Newberry National Volcanic Monument (Monument), on Federal geothermal leases administered by the Bureau of Land Management (BLM) which allow surface occupancy for geothermal exploration or development. The legal description of the proposed project area is: T20S R12E Sec 35, T20S R13E Sec 31, T21S R12E Sec 01, and T21S R13E Sec 04 & 06.

Description of the Proposed Action: The BLM Prineville District is responding to an application from Ormat, Inc. (Applicant) to conduct geothermal resource exploration operations by drilling up to six (6) temperature gradient (core) wells within the area described above. This project will collect temperature and geologic data from the wells to determine the feasibility of further geothermal resource exploration. In accordance with the Geothermal Steam Act of 1970 and the Interagency Agreement for Mineral Leasing between the U.S. Forest Service (USFS) and BLM, the agency’s need for action comes from the mandate to administer geothermal exploration activities on lands leased by the Federal government consistent with the following pertinent laws, policies, and regulations:

- Bureau of Land Management Manual 1203
- Deschutes National Forest Land and Resource Management Plan
- Executive Order 13212 – Actions to Expedite Energy-Related Projects (May 2001)
- Forest Service Manual 2700; and Forest Service Handbook 2709.11
All drilling sites would be adjacent to and accessed by existing system roads (Figure 2). No temporary or new road construction is proposed. The proposed well sites are approximately 100x100 feet in size located on previously disturbed areas. No new well pads will be constructed. The sites do not require any grading or conditioning to perform drilling operations although some removal of vegetation using hand equipment would need to occur to accommodate the drill rig and associated pieces of equipment. This disturbance would be limited to clearing and piling small trees (generally lodgepole pine regrowth), shrubs and slash.

The Applicant proposes to use a truck-mounted or a track rotary drilling rig to drill up to six wells to a depth of approximately 3,000 feet. The drilling program involves drilling a 10 3/4” hole to approximately 13 feet below ground level and cementing a 7” conductor in place. The rig will then drill a 6 1/8” hole to approximately 300 feet. Casing would be cemented in place and blowout prevention equipment installed. After testing, a 3.85 inch hole will be cored to 2500 feet. The final step will be to drill a 3” hole to the remaining distance of 3000 feet.

Each well would be cased and cemented to below the groundwater zone to prevent interzonal mixing of cold groundwater and the deeper geothermal reservoir. A casing plan will be prepared by the Applicant and approved by the BLM and State of Oregon prior to commencing drilling activities. Only non-toxic, non-hazardous drilling mud constituents will be utilized during drilling operations. Waste drilling mud, drill cuttings and any runoff from the drill site will be discharged into containment tanks. A solid waste disposal permit will be obtained from the Oregon Department of Environmental Quality prior to disposal at an approved facility.

It is anticipated that the drilling of each well will take approximately 4-5 weeks to complete, and will remain in testing phase for 12 months. The Applicant proposes a one year drilling program where a crew of three to six (3-6) workers would perform operations 24-hours per day, seven days per week during the summer and fall months. In the event that the Applicant does not drill all six wells within one year, it will submit another application for USFS/BLM review and approval in order to perform the remaining exploratory activities. It is anticipated that drilling will occur one well site at a time, but it is possible that up to two sites will be drilled at once. After the target data is collected at a given site, the well will be capped and the site rehabilitated to conditions similar to what existed prior to disturbance.

**B. Land Use Plan Conformance**

**Land Use Plan Name:** Deschutes National Forest Land & Resource Managed Plan (LRMP)

**Date approved:** August 1990, amended January 20, 2012.

**Conformance:** The proposed action is in conformance with the LRMP. The Project lies outside
of all Management Areas except Scenic Views (MA-9), and complies with leasing notices and stipulations as described in the LRMP's standards and guidelines for geothermal leasing (EN-4).

C. Compliance with NEPA

The Proposed Action is categorically excluded from further documentation under the National Environmental Policy Act (NEPA) in accordance with 516 DM 11.9, B.6 - “Approval of Notices of Intent to conduct geophysical exploration of oil, gas or geothermal, pursuant to 43 CFR 3150 or 3250, when no temporary or new road construction is proposed.” The proposed geothermal exploration does not involve any temporary or new road construction and no new well pads are proposed.

This categorical exclusion is appropriate in this situation because there are no extraordinary circumstances potentially having effects that may significantly affect the environment. The proposed action has been reviewed, and none of the extraordinary circumstances described in 516 DM 2 apply. A Categorical Exclusion Extraordinary Circumstances Documentation evaluation form has been prepared and is included below.

D. Decision Rationale and Signature

I have decided to approve the proposed action. I considered the following in making my decision:

Best Management Practices

1. All waste will be collected in transportable refuse containers and disposed of at the proper off-site facilities.
2. All drilling locations will be located in areas previously disturbed and cleared of large vegetation and containing grasses, brush, and small diameter lodgepole pine regrowth generally less than 2” in diameter.
3. All drilling locations will be sited adjacent to existing system roads. No temporary or new road construction will be required.
4. No sump pits are proposed as part of the project. Instead, temporary above-ground tanks will be used to circulate the drilling fluid. The tanks will be removed from the site once the wells are completed and their contents disposed of at an approved facility.

Project Design and Mitigation Measures

1. For all site occupancy activities, incorporate general notification, road use, fire prevention, and industrial permit requirements utilized in other thermal gradient well authorizations in the Newberry area.
2. Existing site vegetative conditions will be photographically established prior to commencement of equipment move-in, hauling or drilling activities, and restored to a condition that will support a productive forest upon completion of geothermal testing activities.

3. All waste, including drilling lubricant, will be collected in temporary tanks and disposed of at the proper off-site facilities.

4. Where possible, maintain down wood on-site rather than to clear from the site. Where down wood must be removed to allow for drilling or vehicle occupancy and use, the down wood will be stockpiled and redistributed over the site after completion of drilling activities.

5. Reclamation will include scattering down wood at levels commensurate with pre-drilling conditions (Reference pre-drilling photos). Pre and post-activity assessments of soil conditions will be required to ensure that soil conditions meet applicable standards following reclamation. Forest Service and/or BLM shall approve final reclamation activities.

6. To prevent transport of invasive plants, drill rigs, tanker trucks, trailers and any other heavy equipment would be pressure washed prior to their first entrance into National Forest lands and prior to any subsequent entrance after leaving the project area.

7. To prevent inadvertent establishment of invasive plants, the proponent is responsible for conducting annual June weed monitoring visits to ensure that weeds do not become established on the drilling sites. If weeds are found, the proponent will hand-pull them and bag them if flowers or seeds are present. The proponent will provide the District Botanist and Special Uses Coordinator for the FS a brief annual report that shows compliance with this condition of approval. The proponent will be responsible for monitoring the area for two growing seasons after the work is done. For example, if the work is completed in the winter of 2013/2014, the proponent will monitor in the summers of 2014 and 2015. Weed monitoring would begin the first June growing season after the project has been completed; it is strongly encouraged that the monitoring occurs at this time by July 30 rather than later in the summer because the weeds would still be small and not flowering or producing seed, while still being able to find those species that tend to emerge later, such as Russian thistle. The annual weed monitoring report, due no later than September 30, would include descriptions of when they monitored, what weed species, if any, were found, and that they were treated. The report would be submitted to BLM and FS. Hand-pulling would be the
only treatment allowed. Herbicide application will not be an option for this area, as herbicides have not been approved for use at this site.

8. Install interpretive and/or information signs\(^1\) at the beginning, end point and interim road access points to road 9710 prior to beginning any activities along road 9710 per the Forest Service road use permit

9. There are no known active raptor nests within or adjacent to the proposed sites. To avoid disturbance to nesting raptors that might move into the area within ¼ mile of the activities prior to beginning drilling activities; the following seasonal use restrictions will be automatically established on those sites:
   a. Redtail hawk and Northern goshawk – March 1 – August 31
   b. Cooper’s and Sharp-shinned hawks – April 1 – August 31

10. To ensure that the primitive elements of certain sections of road 9710 are maintained during and after drilling activities, existing road conditions along sections\(^2\) of road 9710 with a primitive road management objective will be photographically documented by proponent. Important primitive road conditions (such as narrow road width, sharp curves, and rough road bed) will be monitored during initial equipment haul operations, and periodically during drilling operations to insure that the integrity of the road bed and the desired primitive road conditions are not materially changed in the course of water or equipment haul for the project. Activities found to be damaging to the road bed will require suspension of operations and rehabilitation.

11. To prevent inadvertent adverse affects on winter recreation activities from winter road use, unless otherwise specifically approved in writing from the Forest Service, no hauling or drilling operations will occur after December 1. In the event that use past that date is needed to complete activities underway and such extended activity is approved by the Forest Service, the proponent will be responsible for either establishing alternate routes or the costs of Forest Service personnel establishing alternate routes for snowmobile or other winter recreation routes if needed.

Contact Person

\(^1\) Scenic Resources Report page 13; sign design and installation to be approved by Forest Service

\(^2\) Identified by the Forest Service
For additional information concerning this review, contact: Linda Christian, Prineville District Office, 3050 NE 3rd Street, Prineville, OR 97754, telephone: (541) 416-6890, email: lechrist@BLM.gov.

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<tr>
<th>CX EXTRAORDINARY CIRCUMSTANCES DOCUMENTATION</th>
<th>YES</th>
<th>NO</th>
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<tr>
<td>The proposed categorical exclusion action will:</td>
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<tr>
<td>2.1 Have significant impacts on public health or safety.</td>
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<td>Rationale: The project would not have any significant impacts on public health and safety. The Notice of Intent to Conduct Geothermal Resource Exploration Operations (Form 3200-009) requires the Applicant to comply with Federal and State standards for public health and safety and environmental protection. The BLM has the authority to suspend or terminate in whole or in part the permit if unforeseen conditions arise which result in the approved terms and conditions being inadequate to protect public health and safety or to protect the environment.</td>
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<td>2.2 Have significant impacts on such natural resources and unique geographic characteristics as historic or cultural resources; park, recreation or refuge lands; wilderness areas; wild or scenic rivers; national natural landmarks; sole or principal drinking water aquifers; prime farmlands; wetlands (Executive Order 11990); floodplains (Executive Order 11988); national monuments; migratory birds; and other ecologically significant or critical areas.</td>
<td>X</td>
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<td>Rationale: Surveys were conducted for Native American religious or cultural sites, archaeological sites, and historic properties of areas that may be affected by this decision. A No Effect determination was made, and no archaeological or architectural/historical properties that are eligible or potentially eligible for listing in the National Register of Historic Places were identified in the project area. A request was made by the Cultural and Heritage Department of the Klamath Tribes for the consideration of the project area as part of a larger Traditional Cultural Property assessment for the Newberry area. This request is being addressed through an on-going Government-to-Government consultation and will not affect this proposed project. The project site is not located within a wild and scenic river corridor, wilderness, critical habitat, national recreation area, or inventoried roadless area. The project area is adjacent to the Newberry National Volcanic Monument, but all aspects of the project are proposed outside of the Monument. The Project is consistent with Executive Order 11990 and Executive Order 11988. The Project will cause no adverse effects to wetlands and floodplains and is not located within or adjacent to a municipal watershed or the floodplain of the Deschutes River. A biological evaluation, including field surveys for wildlife and botany, was prepared for this project and did not identify any effects to wildlife, including migratory birds, or plants.</td>
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<td>2.3 Have highly controversial environmental effects or involve unresolved</td>
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conflicts concerning alternative uses of available resources [NEPA Section 102(2)(E)].

Rationale: BLM is not aware of any scientific disagreement regarding the effects of the proposed project. Comments received from the public did not indicate that the project was highly controversial because temperature gradient wells do not reach the geothermal fluids and basically collect data. Ground disturbance is also minimized. The proposed action is consistent with the Deschutes National Forest Land and Resource Management Plan (LRMP; 1990) as amended. The LRMP established the land use allocation and goals for the affected public land; as such, there are no unresolved conflicts regarding other uses of these resources.

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<th>2.4</th>
<th>Have highly uncertain and potentially significant environmental effects or involve unique or unknown environmental risks.</th>
<th>X</th>
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Rationale: The environmental review process for the proposed action did not identify any effects that may involve highly uncertain and potentially significant environmental effects or involve unique or unknown environmental risks unique or unknown risks. Temperature gradient wells are a usual and customary geothermal activity and have been in use for over 20 years with known and predictable effects.

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<th>2.5</th>
<th>Establish a precedent for future action or represent a decision in principle about future actions with potentially significant environmental effects.</th>
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Rationale: The proposed action is not connected to another action that would require further environmental analysis and would not set a precedent for future actions that would normally require environmental analysis. The purpose of this project is to collect geotechnical data to weigh the feasibility of further geothermal exploration activities. In the event that the collected information merits additional exploration, an additional environmental review process would be performed for any follow-up activities that might be proposed. No permanent surface developments are being permitted by this decision other than the well casing, which will be capped once the geothermal data is collected.

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<th>2.6</th>
<th>Have a direct relationship to other actions with individually insignificant but cumulatively significant environmental effects.</th>
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Rationale: There are currently other on-going geothermal exploration projects in the Newberry Crater area. However, these projects were assessed for effects through Environmental Assessments and were permitted on the basis that they would result in no significant effects. The EGS demonstration project considered this project in their cumulative effects assessment. The Twilight project has also undergone environmental review and BLM has found that no effects that would be considered significant. Due to the temporary, short-term nature of these projects and the associated effects analyses, it has been determined that there will be no cumulatively significant environmental effects. These other geothermal projects are not within the same vicinity or watershed as this project.

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<th>2.7</th>
<th>Have significant impacts on properties listed, or eligible for listing, on the National Register of Historic Places as determined by either the bureau or office.</th>
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Rationale: Surveys were conducted for Native American religious or cultural sites, archaeological sites, and historic properties of areas that may be affected by this decision. A No Effect determination was made, and no archaeological or architectural/historical properties that are eligible or potentially eligible for listing in the National Register of Historic Places were identified in the Project area.

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<th>2.8</th>
<th>Have significant impacts on species listed, or proposed to be listed, on the</th>
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<td>List of Endangered or Threatened Species, or have significant impacts on designated Critical Habitat for these species.</td>
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<td>Rationale: Visual, Wildlife and botany surveys have been completed for the area. No adverse effects were identified due to the relatively short duration and small footprint of the project, as well as the absence of critical habitat for any endangered or threatened species within the Project area.</td>
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<td>2.9</td>
<td>Violate a Federal law, or a State, local, or tribal law or requirement imposed for the protection of the environment.</td>
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<td>Rationale: The BLM issues Notices of Intent to Conduct Geothermal Resource Exploration Operations (Form 3200-009) in accordance with the Geothermal Steam Act of 1970, 43 CFR 3250, and the Federal Land Policy and Management Act of 1976. Under these regulations the permit terms and conditions would specify that all applicable Federal, State and local laws shall be adhered to. There are no tribal laws in effect for the project area.</td>
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<td>2.10</td>
<td>Have a disproportionately high and adverse effect on low income or minority populations (Executive Order 12898).</td>
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<td>Rationale: The proposed action would not have a disproportionately high and adverse effect on low income or minority populations (Executive Order 12898). The effect would be the same as for the general population in the general area.</td>
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<td>2.11</td>
<td>Limit access to and ceremonial use of Indian sacred sites on Federal lands by Indian religious practitioners or significantly adversely affect the physical integrity of such sacred sites (Executive Order 13007).</td>
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<td>Rationale: BLM conducted a field review of the sites with a representative from the Klamath Tribe. Based on that review, the BLM determined that the proposed action would not limit access to and ceremonial use of Indian sacred sites on Federal lands by Indian religious practitioners or significantly adversely affect the physical integrity of such sacred sites. Road access would not be restricted by the proposed action.</td>
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<td></td>
<td>A request by the Cultural and Heritage Department of the Klamath Tribes for the consideration of the Newberry area as part of a Traditional Cultural Property assessment is being addressed through on-going Government-to-Government consultation.</td>
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<td>2.12</td>
<td>Contribute to the introduction, continued existence, or spread of noxious weeds or non-native invasive species known to occur in the area or actions that may promote the introduction, growth, or expansion of the range of such species (Federal Noxious Weed Control Act and Executive Order 13112).</td>
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<td>Rationale: The Project is consistent with the Federal Noxious Weed Control Act and Executive Order 13112. Additionally, pursuant to the project design features and mitigation measures, drill rigs, tanker trucks, trailers and any other heavy equipment would be pressure washed prior to their first entrance into National Forest lands and prior to any subsequent entrance after leaving the project area. The proponent will be responsible for monitoring the area for noxious weeds for two growing seasons after the work is done.</td>
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