

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
VALE DISTRICT
MALHEUR FIELD OFFICE

Decision Record

US Geothermal, Inc. Neal Hot Springs Right-of-Way OR-66537
Environmental Assessment No. DOI-BLM-OR-V040-2011-008-EA

As Field Manager of the Malheur Resource Area, my decision is to provide the opportunity for US Geothermal (USG) to explore for geothermal resources on the private mineral estate by authorizing the Right-of-Way (ROW) as proposed by USG and analyzed as the Proposed Action in EA DOI-BLM-OR-V040-2011-008 (EA). As detailed in the accompanying Finding of No Significant Impact (FONSI), the Proposed Action will not have a significant effect on the human environment.¹ The public was provided a pre-scoping comment period of 30 days closing on March 1, 2011 and a second opportunity for comment which ended on May 23, 2011 (EA Section 8.2, pg. 33). After considering public comments and all other information before me, the federal actions I have chosen to authorize are as follows:

- Grant the ROW to USG for nine (9) acres to allow construction of three (3) geothermal exploration wells. Surface disturbance as identified in the Plan of Development at each site will consist of cleared, leveled site for drill rig placement; an excavated pit capable of containing drill cuttings and drilling fluids; and access road for equipment ingress and egress; temporary piping for discharge testing; and well head equipment such as control valves and connection piping.
- The duration of the ROW will be for thirty (30) years. This duration will allow access for personnel, vehicles and equipment for the operation and maintenance of the wells in the event that economic quantities of geothermal resources are discovered. As stated in the EA, Section 5.3 (pg. 29), if USG finds that one or more of the exploration wells prove to be commercially viable, utilization of this ROW for the purpose of operating a commercial geothermal production site at Neal Hot Springs would require further analysis of environmental effects in a future NEPA document before permitting would occur.
- This exploration project will be completed incorporating the protection and mitigation measures within EA DOI-BLM-OR-V040-2011-008. These measures detailed in the Adopted Environmental Protection Measures as listed in Section 2.2 (pg. 9), the mitigation measures detailed in Section 6 (pgs. 30-32), and the monitoring requirements of Section 7 will remain applicable for the duration of the ROW.

The authorized actions will meet the EA purpose and need because they will allow USG to continue evaluation of the private geothermal mineral estate underlying Federal surface land. The actions are also consistent with the intent and direction of the Energy Policy Act of 2005 (PL. 109-58), Section 211. In

¹ The proposed actions I am authorizing include specific design features and mitigating measures that BLM developed and/or refined through the EA analysis.

addition, the authorized actions meet the relevant SEORMP FEIS (USDI-BLM 2001, pg. 187) management objective because the actions will provide opportunities for exploration and development of leasable energy and mineral resources while protecting other sensitive resources. By adhering strictly to the BMPs listed in Appendix O of the SEORMP FEIS (pgs.337-345), the ROW and project design features will have limited potential for adversely affecting surface water quality.

The legal and policy rationale for my decision is as follows:

FLPMA Rights-Of-Way and NEPA - Under the Federal Land Policy and Management Act (FLPMA, Title V) and its implementing regulations, BLM is authorized to grant, issue, or renew rights-of-way over public land so long as the action does not violate existing ROWs, laws, or regulations, and protects the public interests. The application for this project was submitted as a ROW because an exploration well cannot be processed under the geothermal regulations without a Federal fluid minerals lease. The BLM is also required to comply with the National Environmental Policy Act (NEPA) and the Council of Environmental Quality (CEQ) regulations.

Energy and Mineral Resources - The “Mineral Leasing Act” of 1920, as amended; the “Geothermal Steam Act” of 1970, as amended; and the “Mining and Mineral Policy Act” of 1970, declare that it is the continuing policy of the Federal government to foster and encourage private enterprise in the development of domestic mineral resources. Section 102 of FLPMA directs that the public land will be managed in a manner which recognizes the Nation’s need for domestic sources of minerals and other resources. BLM mineral policy (1984) states that public land shall remain open and available for mineral exploration and development unless withdrawal or other administrative action is clearly justified in the national interest.

Private Mineral Estate and Public Surface Estate – The Neal Hot Springs area is a combination of public lands and privately owned mineral estate, leased to USG for the development of geothermal resources. BLM manages the surface estate in this specific exploration area. The proposed action is to drill three vertical exploration wells to test the volume and temperature of the geothermal resource. This technique is the industry standard when there is a reasonable probability of success in intercepting the resource. The target geothermal resource is estimated to trend from the private land to the northwest beneath BLM surface. The drilling has been proposed to test the extension of the resource because previously collected geophysical data indicates a potential for extension along a northwest-trending fault.

The EA considered the alternative of directional drilling from private surface to intercept the geothermal resource below public land. Directional drilling involves additional specialized equipment inherently requiring more overall surface disturbance. Geothermal resources are often present due to structural weaknesses in the earth’s crust which provide conduits for the heated water to reach the near-surface or surface. These structural weaknesses typically involve faults and fractures that create difficult drilling conditions. These zones of faulted, broken, and fractured rock would likely make directional drilling unsuccessful in fully intercepting the target zone of geothermal resource. Additionally, an inclined well would not accommodate the pumping equipment normally used to extract geothermal fluids. For these reasons, BLM eliminated this alternative from further analysis, as explained in the EA.

BLM received comments from one member of the public on the EA. BLM has summarized the comments and provided responses as follows:

1) “We are concerned that this project is being developed in a haphazard fashion. BLM has issued several CEs and now this EA, and yet the public still does not have a clear picture of where this project could lead. NEPA requires that connected actions and cumulative effects be considered together in one NEPA document, but that is not happening here.”

BLM’s Response

The full scope scenario of a potential operating, binary geothermal power facility and associated infrastructure was evaluated in 2009 by the Department of Energy (DOE) in environmental assessment DOE/EA-1676 as referenced in this EA. USG has permitted five (5) geothermal wells with Oregon State and Malheur County on private land. BLM has received ROW applications for surface access in order to explore the private subsurface mineral estate beneath the federal surface estate. Exploration activities may or may not lead to the discovery of geothermal resources that are viable for commercial energy production. The DOE Geothermal Electricity Technology Evaluation Model Reference Manual (July, 2006) indicates that the success rate for geothermal exploration is at a rate of 20%. Additional geothermal production wells would not lead to an expansion of the facilities analyzed in DOE/EA-1676, but may provide operating flexibility to better manage the use of the geothermal resource. Full reclamation procedures will be implemented if USG is unsuccessful in finding additional geothermal resources or injection sites beneath the public surface.

2) “To protect the long-term public interest, BLM should include a decommissioning and reclamation plan and bond to be paid for by the geothermal developers. Even if the project gets built, it will someday outlive its useful lifespan and will need to be decommissioned.”

BLM’s Response

The BLM operating stipulations would require reclamation and re-vegetation of surface disturbance associated with the proposed ROW. A reclamation bond would be required from USG for reclamation of the surface disturbance as part of the ROW stipulations. The State of Oregon, Department of Geology and Mineral Industries (DOGAMI) requires a \$25,000 abandonment bond for each geothermal production well. If the Neal Hot Springs geothermal project is successful, the State of Oregon and Malheur County would manage the construction and decommissioning of the infrastructure for the project including well abandonment.

3) “To protect the quantity and quality of scarce water resources, BLM should include stipulations about the source of, use of, and disposal of water used for construction, dust control, drilling, cooling, heat exchange, energy production.”

BLM's Response

Water use required for construction purposes of the ROW and for drilling operations would be supplied from a 60-foot deep well on private land which is permitted with the Oregon Department of Water Resources. The analysis within DOE/EA-1676 indicates that “up to 20,000 gallons of water per day for drilling” would be required (pg. 6). All water used for drilling would be recycled or retained in the mud pits. The plan in the DOE EA describes a binary power plant using ambient air to cool the system (pg. 7). No water would be used for cooling purposes. All geothermal fluid would be returned to the deep geothermal source by way of injection wells.

4) “BLM should require a detailed soil conservation and erosion prevention plan.”

BLM's Response

The BLM has included stipulations in the ROW requiring construction and operating practices as stated within Appendix O (page 339) of the Southeastern Oregon Resource Management Plan and Record of Decision (2002). Additionally, specific design standards as set forth in Surface Operating Standards and Guidelines for Oil and Gas Exploration and Development, The Gold Book (2007) as referenced in the EA on page 24.

5) “To prevent the spread of weeds, BLM should include stipulations that require thorough cleaning of the tires and undercarriage of all vehicles, including trailers that are used for construction and operation of the project. As described in the EA, it sounds like vehicles might just need a rinsing. This is not good enough.”

BLM's Response

The BLM Vale District Weed Policy requires that all surface disturbing equipment be cleaned of all vegetation (stems, leaves, seeds and all other vegetative parts) prior to entering public lands in order to minimize the transport and spread of noxious weeds. During surface-disturbing construction and maintenance activities, the holder shall ensure that all construction equipment and vehicles are cleaned of all vegetation (stems, leaves, seeds and all other vegetative parts) prior to leaving public lands in areas that are known by the authorized officer of the BLM to be infested with noxious weeds. This is referenced in Section 6 - Mitigation, page 31 of the EA and will be a stipulation of the ROW grant.

6) “The EA says that drilling mud additives would be non-hazardous, but non-hazardous to whom? BLM should provide much clearer descriptions about the kinds of things that are acceptable for use in drilling muds that will be used and disposed of on BLM lands.”

BLM's Response

USG has proposed to use a natural, bentonite (smectite) clay-based drilling fluid with the addition of anionic polymer to increase viscosity. Lesser quantities of lime and/or soda ash would be added for pH control of the drilling fluid. These products are common to geothermal drilling operations and other forms of exploration drilling. Like many common use products, there are precautions that must occur to minimize dust excursions and possible spills. As per Oregon State Administrative Rule (OAR) 632-020-

0145, materials and fluids necessary for the drilling, production, or other operations by the permittee may be discharged or placed in pits and sumps only with the approval of the department [DOGAMI] and the Department of Environmental Quality. The operator must provide pits and sumps of adequate capacity and design to retain all materials. In no event shall the contents of a pit or sump be allowed to contaminate streams, artificial canals or waterways, groundwater, lakes, or rivers; or adversely affect the environment, persons, plants, fish, and wildlife and their populations. The regulation states further that drilling fluids shall not damage the aesthetic values of the property or adjacent properties and when no longer needed, pits and sumps are to be filled and covered and the premises restored to a near natural state. Drilling operations including the mud program is permitted and monitored by the Oregon Department of Geology and Mineral Industries.

7) ***“The site plans need to plan for and implement a wide margin of safety for storage of water, fuel, hazardous material, and drilling mud. BLM should plan for and ensure that the infrastructure and ecosystems are resilient to large storm events and localized flash floods.”***

BLM’s Response

All storage of materials would occur on adjacent private land within approved constructed storage sites with spill protection. The three drill sites on public land, the subject of the ROW grant analyzed in the EA, are proposed on topographically elevated sites that would not typically be subject to the effects of large precipitation events. Storm water will be managed as stated in the EA as part of the Proposed Action (Section 2.1) and the Adopted Environmental Protection Measures (Section 2.2).

8) ***“The developer should establish a mitigation fund to protect and restore sage-steppe ecosystems that will be degraded by this project.”***

BLM’s Response

Reclamation of all surface disturbances will be required to include re-contouring of surface disturbance to approximate original topography. Re-vegetation using native species for the Bully Creek area would be required upon project completion and during interim site stabilization.

I reserve the authority and flexibility to review the project as construction proceeds to ensure that all resource values are provided reasonable protection. As of this decision date, I intend to issue a ROW which would allow USG to complete the proposed action as described and to implement the proposed action with impacts equal to or less than what has been analyzed in the EA.

Appeal Rights

This decision may be appealed to the Interior Board of Land Appeals, Office of the Secretary, in accordance with the regulations contained in 43 CFR, Part 4 and Form 1842-1. If an appeal is filed, your notice must be filed in the Vale District Office, 100 Oregon Street, Vale, Oregon 97918 within 30 days of receipt. The appellant has the burden of showing that the decision appealed is in error.

If you wish to file a petition for a stay of the effectiveness of this decision during the time that your appeal is being reviewed by the Board, the petition for stay must accompany your notice of appeal, pursuant to regulation 43 CFR 4.21. A petition for stay is required to show sufficient justification based

on the standards listed below. Copies of the notice of appeal and petition for a stay must also be submitted to each party named in this decision and to the Interior Board of Land Appeals and to the appropriate Office of the Solicitor (see 43 CFR 4.413) at the same time the original documents are filed with this office. If you request a stay, you have the burden of proof to demonstrate that a stay should be granted.

Standards for Obtaining a Stay

Except as otherwise provided by law or other pertinent regulation, a petition for a stay of a decision pending appeal shall 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 appellant's success on the merits.
3. The likelihood of immediate and irreparable harm if the stay is not granted.
4. Whether or not the public interest favors granting the stay.



Pat Ryan
Field Manager
Malheur Resource Area

6/2/11
Date:

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

INFORMATION ON TAKING APPEALS TO THE INTERIOR BOARD OF LAND APPEALS

DO NOT APPEAL UNLESS

1. This decision is adverse to you,
- AND
2. You believe it is incorrect

IF YOU APPEAL, THE FOLLOWING PROCEDURES MUST BE FOLLOWED

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- 1. NOTICE OF APPEAL**..... A person who wishes to appeal to the Interior Board of Land Appeals must file in the office of the officer who made the decision (not the Interior Board of Land Appeals) a notice that he wishes to appeal. A person served with the decision being appealed must transmit the *Notice of Appeal* in time for it to be filed in the office where it is required to be filed within 30 days after the date of service. If a decision is published in the FEDERAL REGISTER, a person not served with the decision must transmit a *Notice of Appeal* in time for it to be filed within 30 days after the date of publication (43 CFR 4.411 and 4.413).
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- 2. WHERE TO FILE**..... Field Manager
Vale District BLM
100 Oregon Street
Vale, OR 97918
- NOTICE OF APPEAL.....
- WITH COPY TO SOLICITOR... Office of the Regional Solicitor
US Department of the Interior
805 SW Broadway, Suite 600
Portland, OR 97205
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- 3. STATEMENT OF REASONS** Within 30 days after filing the *Notice of Appeal*, file a complete statement of the reasons why you are appealing. This must be filed with the United States Department of the Interior, Office of Hearings and Appeals, Interior Board of Land Appeals, 801 N. Quincy Street, MS 300-QC, Arlington, Virginia 22203. If you fully stated your reasons for appealing when filing the *Notice of Appeal*, no additional statement is necessary (43 CFR 4.412 and 4.413).
- WITH COPY TO SOLICITOR..... Office of the Regional Solicitor
US Department of the Interior
805 SW Broadway, Suite 600
Portland, OR 97205
-
- 4. ADVERSE PARTIES**..... Within 15 days after each document is filed, each adverse party named in the decision and the Regional Solicitor or Field Solicitor having jurisdiction over the State in which the appeal arose must be served with a copy of: (a) the *Notice of Appeal*, (b) the Statement of Reasons, and (c) any other documents filed (43 CFR 4.413).
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- 5. PROOF OF SERVICE**..... Within 15 days after any document is served on an adverse party, file proof of that service with the United States Department of the Interior, Office of Hearings and Appeals, Interior Board of Land Appeals, 801 N. Quincy Street, MS 300-QC, Arlington, Virginia 22203. This may consist of a certified or registered mail "Return Receipt Card" signed by the adverse party (43 CFR 4.401(c)).
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- 6. REQUEST FOR STAY**..... Except where program-specific regulations place this decision in full force and effect or provide for an automatic stay, the decision becomes effective upon the expiration of the time allowed for filing an appeal unless a petition for a stay is timely filed together with a *Notice of Appeal* (43 CFR 4.21). If you wish to file a petition for a stay of the effectiveness of this decision during the time that your appeal is being reviewed by the Interior Board of Land Appeals, the petition for a stay must accompany your *Notice of Appeal* (43 CFR 4.21 or 43 CFR 2801.10 or 43 CFR 2881.10). A petition for a stay is required to show sufficient justification based on the standards listed below. Copies of the *Notice of Appeal* and Petition for a Stay must also be submitted to each party named in this decision and to the Interior Board of Land Appeals and to the appropriate Office of the Solicitor (43 CFR 4.413) at the same time the original documents are filed with this office. If you request a stay, you have the burden of proof to demonstrate that a stay should be granted.
- Standards for Obtaining a Stay.** Except as otherwise provided by law or other pertinent regulations, a petition for a stay of a decision pending appeal shall 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 appellant's success on the merits, (3) the likelihood of immediate and irreparable harm if the stay is not granted, and (4) whether the public interest favors granting the stay.

Unless these procedures are followed, your appeal will be subject to dismissal (43 CFR 4.402). Be certain that all communications are identified by serial number of the case being appealed.

NOTE: A document is not filed until it is actually received in the proper office (43 CFR 4.401(a)). See 43 CFR Part 4, Subpart B for general rules relating to procedures and practice involving appeals.

43 CFR SUBPART 1821—GENERAL INFORMATION

Sec. 1821.10 Where are BLM offices located? (a) In addition to the Headquarters Office in Washington, D.C. and seven national level support and service centers, BLM operates 12 State Offices each having several subsidiary offices called Field Offices. The addresses of the State Offices can be found in the most recent edition of 43 CFR 1821.10. The State Office geographical areas of jurisdiction are as follows:

STATE OFFICES AND AREAS OF JURISDICTION:

Alaska State Office ----- Alaska
Arizona State Office ----- Arizona
California State Office ----- California
Colorado State Office ----- Colorado
Eastern States Office ----- Arkansas, Iowa, Louisiana, Minnesota, Missouri
and, all States east of the Mississippi River
Idaho State Office ----- Idaho
Montana State Office ----- Montana, North Dakota and South Dakota
Nevada State Office ----- Nevada
New Mexico State Office ----- New Mexico, Kansas, Oklahoma and Texas
Oregon State Office ----- Oregon and Washington
Utah State Office ----- Utah
Wyoming State Office ----- Wyoming and Nebraska

(b) A list of the names, addresses, and geographical areas of jurisdiction of all Field Offices of the Bureau of Land Management can be obtained at the above addresses or any office of the Bureau of Land Management, including the Washington Office, Bureau of Land Management, 1849 C Street, NW, Washington, DC 20240.

(Form 1842-1, September 2006)