



Newberry Geothermal Exploratory Test Drilling  
Q&As  
Exploratory Drilling  
October 25, 2007

Is the project area located on the Deschutes National Forest or Newberry National Monument?  
Deschutes NF

Why is the BLM involved with this?

BLM is the lead agency responsible for management and administration of federal geothermal leases and subsurface activities.

Will you be test drilling within Newberry Crater National Monument at any time?

No

Isn't a National Monument, or the area close by, protected from this type of activity?

The Newberry National Volcanic Monument act excludes geothermal exploration within Monument boundaries but found geothermal exploration an appropriate activity outside the boundary

Why has this particular site been chosen for energy development?

This is where the geothermal leases held by NW Geothermal are located

Are there other alternative sites that could be used?

Other sites within the leases could be explored. However, the applicant has identified these sites as the most promising based on recent geophysical and other data.

How many pads/wells are proposed and how big an area does the project cover?

Up to three drilling pads are proposed, each about 5 acres in size for a total of 15 acres to be disturbed by the pads.

What does the test drilling project require for facilities and equipment?

A trailer for living quarters, outhouse, a sump pit for containment of drilling muds and a drilling rig and pipes.

How far down will the company be drilling and what exactly will they be drilling for?

The company could drill up to 10,000 feet deep and they are looking for steam.

One of the proposed drill sites has old growth forest habitat. Why has this site been chosen to host a drill pad?

One site has some trees over 21 inch dbh (diameter breast height) and is being situated to avoid a known Hawk nest and also to minimize the number of large trees cut.

How many hours a day will drilling occur and is it loud enough to disturb the recreational experience at Newberry or local residents?

Drilling will occur 24 hours a day. However, there are no noise sensitive properties, such as where people sleep or gather, in or near the project area. The proposed well pad sites are more than 4 miles from Paulina Peak and 2½ miles from Paulina Lake Campground, which would be the closest developed recreation sites. Generally, any Forest management activities would not be heard unless someone is in the immediate area. Activities that have or may occur in the area tend to be those that produce noise, such as timber harvest, firewood cutting, snowmobile use, and vehicle travel

How long is the test drilling period for?

Each well could take up to 70 days to complete. If all 9 wells are drilled, the total drilling period could take 1.5 years.

How extensive is the road system for the test drilling? What impacts will the heavy equipment have on the road beds, even if they are only being used temporarily?

No new roads are being constructed for this project. Existing roads will be upgraded and maintained in order to accommodate heavy equipment. All temporary roads will be scarified and re-vegetated.

What will be the full impacts on visuals and noise and how will you mitigate those?

Each 5-acre well pad will be located where forest vegetation previously had been, and the setting will be modified at these sites. The 5-acre opening would contrast to adjacent and surrounding areas of existing tree and shrub vegetation.

From higher points around the project and possibly within the Monument, such as from Paulina Peak, the tops of drill rigs may be seen. The drill rigs, which will be on site temporarily while wells are being drilled (approximately 50 days per well), will be up to about 150 feet in height, and could be noticed; however, it would not be a dominant feature in the landscape. The required red blinking light on top of the drill rig for visibility to aircraft may be viewed from Highway 97 or from other areas with views to Newberry.

While pad construction and road maintenance will occur only for a short duration, drilling operations, although also temporary, will occur 24 hours a day for up to approximately 50 days per well. This will produce a constant sound that can be heard within the immediate area but below the noise emission levels regulations established for the State of Oregon. Well testing equipment would be properly maintained and muffled to minimize the sounds associated with well testing and keep them within regulatory levels. Any noise will be temporary and of short duration, and not greatly different from other forest management activities, such as timber harvest or road construction which also utilize heavy equipment, except that some drilling activities will occur 24 hours a day.

During test drilling, what water source will be used?

Fresh water will be used in the drilling operations, but will either be trucked in or will come from water wells at depths expected to be approximately less than 1,000 feet deep. All water wells will be permitted according to state regulations and the company has received a permit to drill up

to 4 wells and to take up to 58 acre feet of water per year. The subsurface fresh water zones will be protected from geothermal drilling as the geothermal wells will be enclosed in casing resulting in no adverse effects to ground water resources. If it is necessary to pipe fresh water for use on the well pads, temporary above-ground pipelines would be used, similar to those used for agricultural irrigation systems.

Why isn't there a range of alternatives for this project?

The Environment Assessment (EA) analyzed two alternatives, the No Action Alternative and the Proposed Action Alternative. The obligation to consider alternatives is less under an EA than it is for an Environmental Impact Statement (EIS) *see Native Ecosystems Council v. U.S. Forest Service*. The issue is not whether suitable sites for geothermal exploration exist elsewhere in Oregon but, rather, whether this particular proposal for site exploration should be denied or approved.

The 1990 Deschutes Land Resource Management Plan had previously determined that geothermal exploration and development would be an appropriate use on portions of the Bend Fort Rock Ranger District. Subsequently, a 1994 Environmental Impact Statement (EIS) analyzed the effects of geothermal exploration and development in portions of the Deschutes National Forest, including the three sites in this EA. Since the lands were identified as available for geothermal leasing in the EIS and the leases have already been issued, the purpose and need of this particular EA is to determine whether to deny or approve the proposed Plan of Exploration (POE). The No Action Alternative analyzes the effects of not approving the POE, which would result in no geothermal exploration in the area.

Modifications to the POE, such as approving only one site, may not provide the proponent with enough information to adequately assess the geothermal resources in the area. Consideration of other areas in Oregon is also not appropriate for this analysis since the proponent has submitted a POE for the areas it holds leases on. Additionally, alternatives are developed where there are "unresolved conflict concerning uses of resources" (National Environmental Policy Act Section 102(2) (D)). As determined for this analysis, there are no "unresolved conflicts" warranting analysis of alternatives that approve various combinations of the three sites. Therefore, the No Action Alternative and the Proposed Action Alternative are a reasonable range of alternatives.

Does test drilling indicate a strong likelihood that geothermal development will occur?

No, and another project close to the area (Cal Energy) did not merit an economic investment.

What happens after the test drilling occurs?

The wells will be tested to determine the size and extent of the geothermal resource. Depending on these results, a decision will be made on how to proceed.

Will any public hearings be held regarding this proposal? Doesn't Federal policy laws require the agency hold public hearings on a project of this magnitude?

No federal policy is in place that requires public hearings for this proposal. To conduct public scoping pursuant to 40 C.F.R. § 1501.7, BLM sent scoping letters to 157 individuals, organizations, agencies, and central Oregon Tribes in June, 2007, to notify potentially interested parties about the proposed action and to provide an opportunity to submit comments for BLM to consider in the environmental analysis. In addition, there have been three articles in central Oregon's Bend Bulletin newspaper which have described the project and provided a name and phone number of a BLM contact to receive comments.

Is geothermal exploration or development dangerous or does it impose risks to human health & safety? Isn't hydrogen sulfide a harmful component present when geothermal steam or brine is vented? How will the test sites be monitored for safety provisions or well failures?

Hydrogen sulfide, if present, is an extremely small part of the geothermal steam chemical component. It represents 2.0 to 3.0 ppm of the liquids discharged from steam wells. Two treatments are available to convert the hydrogen sulfide to elemental sulfur or SiO<sub>2</sub>. Hydrogen sulfide is treated well before it reaches critical levels for worker safety and to protect the drilling equipment. The operation will be closely monitored by the BLM

What type of risks does geothermal exploration or development pose to natural resources? This EA is covering exploration only and no significant impact has been determined to any natural resource.

Won't the exploration or development of geothermal negatively impact recreation, tourism activity or disturb local residents in the area?

The Proposed Action is not expected to have any substantial effect to dispersed recreation activities that may incidentally occur in the area. During hunting seasons, the applicant will post signs on roads leading to the project to let hunters know that industrial operations are taking place. Hunting opportunities within and adjacent to the well pad sites are likely to be reduced because of active operations and the presence of project personnel. During the winter season, signs may also be posted at appropriate sites to notify snowmobilers that operations are occurring. Due to drilling activity occurring during the winter snowmobile season, active snowmobile trails will be relocated for the duration of the project. This will include relocating the parts of the existing trail on Forest road 9735 (figure 4.1 in EA) to Forest road 700 and constructing an additional 2 miles of trail north of road 9735 and south of the terminus of road 750 to road 685. The relocated trail on Forest roads 700 and 750 will require additional clearing of brush and trees to create a 20-foot wide trail, 10 feet of each side of centerline of the existing road.

Considering the remoteness of the site and the distance from noise sensitive properties, it is unlikely that noise will have any effect on people or their activities. While pad construction and road maintenance will occur only for a short duration, drilling operations, although also temporary, will occur 24 hours a day for up to approximately 50 days per well. This will produce a constant sound that can be heard within the immediate area but below the noise emission levels regulations established for the State of Oregon. Well testing equipment would be properly maintained and muffled to minimize the sounds associated with well testing and keep them within regulatory levels. Any noise will be temporary and of short duration,

Isn't an Environmental Impact Statement required to move forward with a project of this magnitude?

No. This project is impacting 15 acres in 5 acre blocks and approximately 8 acres from the road widening – this is not a large magnitude project of this type.

Have other cumulative impacts in the area such as previous timber sales in the area, been considered?

Yes, the cumulative impacts of these past activities have been considered in the EA. Past actions in the immediate area have included at least two major timber sales, the Fishhook Timber Sale approved in 1994, and the earlier North Peak Salvage Sale. Forest stands in the general vicinity have suffered considerable mortality due to mountain pine beetle infestations. Extensive logging, road construction, and other smaller scale forest management activities have substantially altered the forest vegetation in and around the lease areas.

Also in the same area, but just east of the proposed well pads, is the Cal Energy geothermal project, which was addressed in detail in the 1994 Geothermal EIS. Cal Energy implemented their project in 1994 and drilled several exploration wells from 1994 to 1996. Three well pads are still located on the nearby leases, but there are no wells.

How will potential toxic spills and restoration and site compaction be addressed? What will ensure reclamation activities occur for this project?

At certain times there may be materials associated with the project that may be considered to be hazardous. These will be transported, handled, utilized, and disposed of properly and according to federal and state requirements for each particular product. This is an industrial operation, and it is typical that needed materials may be designated as “hazardous”, which helps promote awareness, safe use, and care.

Additionally, the applicant is required to post reclamation bonds with the Oregon Department of Geology and Mineral Industries (DOGAMI) as well as with the BLM for each well to cover the cost of the reclamation work

Why are you utilizing an outdated lease from 1983? Shouldn't it be updated to include more recent scientific research and ecological concerns?

In its cumulative effects analysis, the BLM considered the impact of the proposed action in light of its interaction with the effects of past, current, and reasonably foreseeable future projects. The 1983 lease (a past action), had no effect on the human environment. It is beyond the scope of the present action to reconsider the issuance of a lease issued in 1983.

Is it true that any geothermal energy developed will be sold to California? If we are drilling in Oregon, how come Oregon does not benefit?

The EA is for the exploration of geothermal resources only-not development

If energy development is pursued, what other type of facilities will be required?

A steam gathering system, power generation facility and transmission lines would be required.

How will a 60 MW development affect wildlife species or hunting opportunities?  
This will be addressed if we receive application for a geothermal power plant.

How extensive will the road system be if additional development occurs?  
This will be addressed if we receive application for a geothermal power plant.

If a dry steam production well is discovered, where will you obtain the fresh water and or water rights needed to develop the project?  
This will be addressed if we receive application for a geothermal power plant.

Will exploration or development of geothermal increase or induce seismic activity or negative impacts to underlying geologic structure in a volcanic area such as the Monument?  
No, it is not anticipated that this activity will increase or induce seismic activity.

The 1994 Geothermal EIS notes that fire incidences will likely increase due to exploration. What will be done to mitigate the increased fire risks, particularly with current climate change and overall increased fire risk?  
Fire precaution measures will be in place and in accordance with the Forest Service Industrial Fire Precaution Levels (IFPL) for operations on the Deschutes National Forest.