

**U.S. DEPARTMENT OF ENERGY**  
**OFFICE OF ENERGY EFFICIENCY AND RENEWABLE ENERGY**  
**NEPA DETERMINATION**



**RECIPIENT:** Welltec Inc.

**STATE:** TX

**PROJECT TITLE :** All Metal Zonal Isolation for Geothermal Reservoirs

<b>Funding Opportunity Announcement Number</b>	<b>Procurement Instrument Number</b>	<b>NEPA Control Number</b>	<b>CID Number</b>
DE-FOA-00001945	DE-EE0008484	GFO-0008484-002	

Based on my review of the information concerning the proposed action, as NEPA Compliance Officer (authorized under DOE Policy 451.1), I have made the following determination:

**CX, EA, EIS APPENDIX AND NUMBER:**

Description:

<b>A9 Information gathering, analysis, and dissemination</b>	Information gathering (including, but not limited to, literature surveys, inventories, site visits, and audits), data analysis (including, but not limited to, computer modeling), document preparation (including, but not limited to, conceptual design, feasibility studies, and analytical energy supply and demand studies), and information dissemination (including, but not limited to, document publication and distribution, and classroom training and informational programs), but not including site characterization or environmental monitoring. (See also B3.1 of appendix B to this subpart.)
<b>B5.12 Workover of existing wells</b>	Workover (operations to restore production, such as deepening, plugging back, pulling and resetting lines, and squeeze cementing) of existing wells (including, but not limited to, activities associated with brine, carbon dioxide, coalbed methane, gas hydrate, geothermal, natural gas, and oil) to restore functionality, provided that workover operations are restricted to the existing wellpad and do not involve any new site preparation or earthwork that would have the potential to cause significant impacts on nearby habitat; that site characterization has verified a low potential for seismicity, subsidence, and contamination of freshwater aquifers; and the actions are otherwise consistent with best practices and DOE protocols, including those that protect against uncontrolled releases of harmful materials.
<b>B5.15 Small- scale renewable energy research and development and pilot projects</b>	Small-scale renewable energy research and development projects and small-scale pilot projects, provided that the projects are located within a previously disturbed or developed area. Covered actions would be in accordance with applicable requirements (such as local land use and zoning requirements) in the proposed project area and would incorporate appropriate control technologies and best management practices.

Rationale for determination:

The U.S. Department of Energy (DOE) is proposing to provide federal funding to Welltec, Inc. to design, develop, manufacture, and test metal annular barriers for zonal isolation. An existing annular barrier, the Welltec Annular Barrier (WAB), would be modified with a metal seal design to enable its use in geothermal application temperatures. The proposed project was selected under Funding Opportunity Announcement (FOA) DE-FOA-0001945 to support early-stage development of EGS zonal isolation tools and technologies. Projects selected from this FOA are structured into multiple Budget Periods (BP) separated by a Go/No-Go decision aimed at readying the proposed technology for potential field testing.

The project is comprised of three BPs. A previous NEPA Determination (GFO-0008484-001; CXs A9, B3.6; completed on 11/23/2018) reviewed all activities associated with BP1, BP2, and BP3 Task 5. BP1 activities included the design and manufacturing of high temperature seals, materials evaluation, performance testing on seals, and computer modeling (e.g., Finite Element Analysis). BP2 activities included the manufacturing of a prototype annular barrier system and qualification test equipment, installation of the prototype into a test pipe for factory acceptance testing, and prototype qualification test. BP3 Task 5 activities consisted of a market assessment of targeted geothermal markets for field testing, engagement with potential geothermal operators, the manufacture of pilot series systems for field testing, and operational planning for field testing. BP3 Task 6 was conditioned upon further NEPA review because a geothermal operator and well site for field testing of the prototype system had not yet been selected. The project is currently within BP3 and has identified Well Site 55-29 at the AltaRock Energy (ARE) Newberry Geothermal Exploration Project (SE 1/4 of Sec. 29, T21S, R12E, Deschutes County, OR) for the proposed field test. This NEPA Determination is therefore to review activities associated with BP3 Task 6.

During BP3 Task 6, the developed tool (a high temperature all-metal seal for zonal isolation) would be field trialed at

ARE's site in the existing well 55-29, which is located on the western flank of Newberry Caldera. The packer is manufactured on a 7-inch (") base pipe and would be deployed and set inside an 8.5" open hole, after which a high-pressure stimulation would be performed. The tool is designed to hold the stimulation fluids in place, preventing them from flowing back through the annulus, by creating a seal against the rock face. The deployment would be evaluated by analyzing the data acquired when performing the stimulation.

The zonal isolation devices have already been manufactured as part of previous tasks under this award. The deployment of the packer would not involve physical modifications to the well site. Site infrastructure, equipment, and vehicles required during stimulation would be temporary located on the ground surface adjacent to the well and removed at the conclusion of the proposed project. There would be no disturbance of any land outside of the existing drill pad.

The proposed project would not involve the use of any toxic chemicals. A proprietary water-based fluid with minimal additives would be used during the stimulation of the well. There is a small chance that the project would produce water associated with stimulation; however, any water produced from the well after stimulation would likely be small in volume and come from the upper part of the wellbore, having had no interaction with the reservoir. If sufficient volumes are produced, so that produced water is known to have interacted with the reservoir, it could possibly contain heavy metals. AltaRock would follow industry best practices on the management of produced water during stimulation. All produced waters would be stored in a lined sump on site, tested for heavy metals, and treated if necessary.

Once stimulation of well 55-29 is complete, all equipment would be hauled off-site. A container with a door would be put around the wellhead and locked to prevent wildlife or trespassers from negatively impacting the state of the wellhead. Once all equipment is removed from the drilling pad, and the wellhead is safely secured, a small crew would work to remove all trash from the site as well as restore any off-pad land impacted during operations. Thereafter, project personnel would go to the site monthly for four months to check wellhead pressure and to take water samples from boreholes proximal to the drilling pad as designated in the groundwater monitoring plan.

The proposed site is located on U.S. Forest Service (USFS) land, and all surfaces to be used by the project are currently leased from the USFS. All subsurface resources of the ARE Geothermal Unit are managed by the U.S. Bureau of Land Management (BLM). All work would be performed on the existing drilling pad containing well 55-29, which was drilled in 2008 to a depth of 10,060 feet (ft) for the purposes of testing new geothermal technologies. A previous Environmental Assessment (EA) was prepared to disclose and analyze the environmental effects of developing and testing a geothermal reservoir created by using enhanced geothermal system (EGS) technologies. The BLM, Prineville District Office was the lead federal agency and the USFS and DOE were cooperating agencies on the Environmental Assessment for the "Newberry Volcano Enhanced Geothermal Systems (EGS) Demonstration Project (DOI-BLM-OR-P000-2011-0003-EA; DOE/EA-1897)." Specifically, the Project involved the use of Well Site 55-29. Based on the information presented in the 2010 EA, DOE issued a Finding of No Significant Impact (FONSI), allowing the Project to proceed. The proposed activities associated with BP3 Task 6 of the Welltec award fall within the scope of work considered in the 2010 EA.

While requisite USFS permits are already in place, the recipient has filed a sundry notice with the BLM for proposed project activities and is preparing an updated Induced Seismicity Mitigation Plan (ISMP) in order to obtain approval. As part of the 2010 EA, a detailed ISMP and Groundwater Monitoring Plan were required to be developed for when stimulation occurs at the site. Welltec plans to use these procedures going forward for the proposed future stimulations, with updates to the ISMP based on a new monitoring network and more recent site data. The recipient is required by DOE to ensure compliance with any and all terms and conditions set forth by the BLM authorizing project activities. Prior to initiating BP3 Task 6, the recipient is required to submit copies of written authorizations obtained from the BLM to the DOE Project Officer along with a copy of the updated ISMP for further NEPA review.

## **NEPA PROVISION**

DOE has made a final NEPA determination.

Include the following condition in the financial assistance agreement:

The recipient is required to ensure compliance with any and all terms and conditions set forth by the BLM authorizing project activities. Prior to initiating BP3 Task 6, the recipient is required to submit copies of written authorizations obtained from the BLM to the DOE Project Officer along with a copy of the updated ISMP for further NEPA review.

Notes:

#### FOR CATEGORICAL EXCLUSION DETERMINATIONS

The proposed action (or the part of the proposal defined in the Rationale above) fits within a class of actions that is listed in Appendix A or B to 10 CFR Part 1021, Subpart D. To fit within the classes of actions listed in 10 CFR Part 1021, Subpart D, Appendix B, a proposal must be one that would not: (1) threaten a violation of applicable statutory, regulatory, or permit requirements for environment, safety, and health, or similar requirements of DOE or Executive Orders; (2) require siting and construction or major expansion of waste storage, disposal, recovery, or treatment facilities (including incinerators), but the proposal may include categorically excluded waste storage, disposal, recovery, or treatment actions or facilities; (3) disturb hazardous substances, pollutants, contaminants, or CERCLA-excluded petroleum and natural gas products that preexist in the environment such that there would be uncontrolled or unpermitted releases; (4) have the potential to cause significant impacts on environmentally sensitive resources, including, but not limited to, those listed in paragraph B(4) of 10 CFR Part 1021, Subpart D, Appendix B; (5) involve genetically engineered organisms, synthetic biology, governmentally designated noxious weeds, or invasive species, unless the proposed activity would be contained or confined in a manner designed and operated to prevent unauthorized release into the environment and conducted in accordance with applicable requirements, such as those listed in paragraph B(5) of 10 CFR Part 1021, Subpart D, Appendix B.

There are no extraordinary circumstances related to the proposed action that may affect the significance of the environmental effects of the proposal.

The proposed action has not been segmented to meet the definition of a categorical exclusion. This proposal is not connected to other actions with potentially significant impacts (40 CFR 1508.25(a)(1)), is not related to other actions with individually insignificant but cumulatively significant impacts (40 CFR 1508.27(b)(7)), and is not precluded by 40 CFR 1506.1 or 10 CFR 1021.211 concerning limitations on actions during preparation of an environmental impact statement.

The proposed action is categorically excluded from further NEPA review.

#### SIGNATURE OF THIS MEMORANDUM CONSTITUTES A RECORD OF THIS DECISION.

NEPA Compliance Officer Signature: \_\_\_\_\_



Electronically Signed By: Casey Strickland

NEPA Compliance Officer

Date: 9/15/2022

#### FIELD OFFICE MANAGER DETERMINATION

- ☒ Field Office Manager review not required  
☐ Field Office Manager review required

#### BASED ON MY REVIEW I CONCUR WITH THE DETERMINATION OF THE NCO :

Field Office Manager's Signature: \_\_\_\_\_

Field Office Manager

Date: \_\_\_\_\_