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



RECIPIENT: Universal GeoPower LLC

STATE: TX

**PROJECT TITLE :** Recovery Act: Technical Demonstration and Economic Validation of Geothermally-Produced Electricity from Coproduced Water at Existing Oil/Gas Wells in Texas

<b>Funding Opportunity Announcement Number</b>	<b>Procurement Instrument Number</b>	<b>NEPA Control Number</b>	<b>CID Number</b>
	DE-EE0002853	GFO-0002853-003	GO2853

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

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

Description:

<b>B3.7 New terrestrial infill exploratory and experimental wells</b>	Siting, construction, and operation of new terrestrial infill exploratory and experimental (test) wells, for either extraction or injection use, in a locally characterized geological formation in a field that contains existing operating wells, properly abandoned wells, or unminable coal seams containing natural gas, provided that the site characterization has verified a low potential for seismicity, subsidence, and contamination of freshwater aquifers, and the actions are otherwise consistent with applicable best practices and DOE protocols, including those that protect against uncontrolled releases of harmful materials. Such wells may include those for brine, carbon dioxide, coalbed methane, gas hydrate, geothermal, natural gas, and oil. Uses for carbon sequestration wells include, but are not limited to, the study of saline formations, enhanced oil recovery, and enhanced coalbed methane extraction.
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Rationale for determination:

Universal GeoPower LLC (UGP) would demonstrate the technical feasibility and economic viability of geothermal electricity production from oil/gas (O/G) coproduced water using binary Organic Rankine Cycle (ORC) technology to utilize a small production O/G well that is considered unproductive due to the cost of separating and re-injecting the coproduced water associated with the hydrocarbon production and has therefore been "orphaned" awaiting well plugging and well site remediation. No laboratory work is needed for the project.

This project was originally approved by GFO-10-309 on May 25, 2010. After the initial approval, the recipient changed the project location therefore another NEPA Determination (GFO-0002853-002) was completed on November 19, 2010 for the new location. As part of Task 3, existing wells were going to be reworked to be used for brine production and disposal. It has been determined that well rework for brine disposal would not be in the best interest of the project, so the project has been modified to include the drilling of a new well for brine disposal. This change necessitates a new NEPA review.

All project activities remain unchanged except for the drilling of a new well. The new well would be drilled on the existing Scott #3 well pad within a developed field utilizing the Eagle Ford Shale for production and the Wilcox Formation for injection. The project site is located at approximately Latitude 28 46' 0" N, Longitude 97 37' 14" W in Goliad County, Texas. UGP has surface, subsurface, and geothermal rights to the site. The new eight inch injection well would be drilled with a truck mounted rig with a rig height of 82 feet. No new surface disturbance is anticipated as a result of the drilling. Drilling is planned for late July or early August and would require 4 to 6 days to complete. The new injection well would be approximately 4500 feet deep to dispose of heat depleted brine, in accordance with the Texas Railroad Commission (TRRC) requirements for such a well. The well would be located on the pad according to the TRRC permit, and the brine would be injected into a TRRC approved layer in the new well. UGP has applied for a new TRRC well permit to drill the well as a 'wildcat well'. After the well is drilled, the data about the various layers encountered while drilling will be used to support an application to the TRRC to use this well to dispose of the heat depleted brine generated by the Scott #3 well that has been re-worked to produce geothermal brine for use in an electric generating power plant. The TRRC issued permit will indicate which layer(s) are approved for brine injection, and dictate the parameters of such injection. The deepest ground water aquifers in the vicinity of this project are at 1650 feet below the surface. TRRC regulated 'Plug and Abandon' procedures will be used at the end of the project lifetime. There are no wetlands or floodplains in the area and due to the existing disturbance of the well pad, no cultural resources are anticipated.

An Information, Planning, and Conservation (IPaC) system assessment was completed through the U.S. Fish and Wildlife (USFWS) website and the USFWS Corpus Christi Ecological Services Field Office was consulted (Consultation No. 02ETCC00-2014-TA-0203) regarding the proposed project. Based on this consultation there were

four species identified for project impact consideration: Attwater's Greater prairie-chicken (Tympanuchus cupido attwateri), Bald eagle (Haliaeetus leucocephalus), Whooping crane (Grus Americana), and Golden orb (Quadrula aurea). Based on review of the Attwater's prairie-chicken Recovery Plan, the species requires lots of grass and open space with the quantity of grassland and amount of open space being directly related to population levels. Woodland, brushland, fallow land, and cultivated land furnish little or nothing needed for courtship grounds and nesting cover. Habitat in the vicinity of the proposed project is not open grassland but instead would be considered mostly woodland/brushland and is therefore not conducive to the occurrence of the Attwater's Greater prairie-chicken and it is unlikely that the species would be found in the project area. The Texas Parks and Wildlife Department (TPWD) is not aware of nor have they received any reports of eagle nests in the project area. Whooping crane and other migratory birds migrate through the area and winter along the Texas coast, but project activities would not occur during the migratory or wintering timeframes for either the whooping crane or other migratory birds in the area. The golden orb has been found almost exclusively in flowing waters in moderately sized rivers but project work would not occur within riparian/riverine or wetland areas, so suitable habitat for the golden orb is not found within the project area. Based on the IPaC review, communication with the USFWS Corpus Christi Ecological Services Field Office and TPWD, the temporary and minimal nature of the project work (4 to 6 days of drilling one well on the same pad with two existing wells with existing infrastructure), project work occurring on an existing well pad with existing disturbance, the project timeframe (early August), and the unlikely occurrence of any protected species occurring in the project area, DOE has determined that the proposed project will have no effect to federally listed, candidate, or protected species or critical habitat.

Based on review of the project information, DOE has determined that the drilling of the new injection well would not have a significant individual or cumulative impact to human health and/or environment. DOE has determined that this activity is consistent with actions contained in DOE categorical exclusion B3.7 "New terrestrial infill exploratory and experimental wells," and is categorically excluded from further NEPA review.

**NEPA PROVISION**

DOE has made a final NEPA determination for this award

Insert the following language in the award:

If you intend to make changes to the scope or objective of your project you are required to contact the Project Officer identified in Block 11 of the Notice of Financial Assistance Award before proceeding. You must receive notification of approval from the DOE Contracting Officer prior to commencing with work beyond that currently approved.

Note to Specialist :

This NEPA Determination does not require a tailored NEPA provision.

Casey Strickland 07/29/2014

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

NEPA Compliance Officer Signature: Electronically Signed By: Kristin Kerwin Date: 7/31/2014  
NEPA Compliance Officer

**FIELD OFFICE MANAGER DETERMINATION**

Field Office Manager review required

**NCO REQUESTS THE FIELD OFFICE MANAGER REVIEW FOR THE FOLLOWING REASON:**

- Proposed action fits within a categorical exclusion but involves a high profile or controversial issue that warrants Field Office Manager's attention.
- Proposed action falls within an EA or EIS category and therefore requires Field Office Manager's review and determination.

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

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