PMC-EF2a

(2.06.02)

U.S. DEPARTMENT OF ENERGY
EERE PROJECT MANAGEMENT CENTER
NEPA DETERMINATION

RECIPIENT: Magma Energy (U.S.) Corp. **STATE:** NV

PROJECT TITLE : Recovery Act: A 3D-3C Reflection Seismic Survey and Data Integration to Identify the Seismic Response of Fractures and Permeable Zones over a Known Geothermal Resource: Soda Lake, Churchill Co., NV

Funding Opportunity Announcement Number	Procurement Instrument Number	NEPA Control Number	CID Number
0000109	DE-EE0002832	GFO-0002832-003	0

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:

A9 Information gathering (including, but not limited to, literature surveys, inventories, audits), data analysis (including computer modeling), document preparation (such as conceptual design or feasibility studies, analytical energy supply and demand studies), and dissemination (including, but not limited to, document mailings, publication, and distribution; and classroom training and informational programs), but not including site characterization or environmental monitoring.

B3.1 Onsite and offsite site characterization and environmental monitoring, including siting, construction (or modification), operation, and dismantlement or closing (abandonment) of characterization and monitoring devices and siting, construction, and associated operation of a small-scale laboratory building or renovation of a room in an existing building for sample analysis. Activities covered include, but are not limited to, site characterization and environmental monitoring under CERCLA and RCRA. Specific activities include, but are not limited to:

B3.7 Siting, construction, and operation of new infill exploratory and experimental (test) oil, gas, and geothermal wells, which are to be drilled in a geological formation that has existing operating wells.

Rational for determination:

Magma Energy Corporation (Magma) would demonstrate the potential geothermal resource at the Soda Lake geothermal area in Churchill County, Nevada. Magma proposes to use DOE ($5,000,000; DE-EE0002832) and cost share ($9,336,380) funding (total $14,336,380). In Phase I (exploration geophysics); (DOE $500,000; Magma share $1,853, 954; total: $2,353,954), Magma collected and interpreted resistivity data from both Magnetotelluric (MT) and Controlled-Source Audio-Magnetotelluric (CSAMT) electrical surveys, and conduct detailed geologic mapping authorized by GFO-10-203 on 3/29/2010. Once collected, data would be integrated into MEC's geographic information system (GIS). This data would be used by Magma to target the thermal gradient and production wells to be drilled in Phase II followed with marketing of the results (Phase III). Phase II (DOE $4,370,897; Magma share $7,259,151; total: $11,630,048) and III (DOE $129,103; Magma share $223,275; total: $352,378) were approved on 9/29/2010 by GFO-10-203-001, however a revised Statement of Project Objectives (SOPO) was submitted after 9/29/2010. This analysis is for the revised SOPO's Phase II and III only. The project is divided into Phase I, II, and III with multiple tasks:

Phase I—Resource Evaluation
Task 1.0: Seismic Acquisition
Subtask 1.1 Finalize 3D-3C Reflection Seismic Survey Parameters:
Subtask 1.2 Line and Archeology Survey and Reporting
Subtask 1.3 Acquire Vertical Seismic Profile (VSP) and processing
Subtask 1.4 Acquire 3D-3C Reflection Seismic Survey
Subtask 1.5 Acquire Magnetotelluric (MT) Survey

Task 2.0 Seismic Data Processing and Analysis
Subtask 2.1 Conventional P-Wave, Converted-Wave and Shear-Wave Processing
Subtask 2.2 Data Integration/Analysis
Subtask 2.3 Specialized Data Processing
Subtask 2.4 Data Integration

Task 3.0 Thermal Gradient Well Drilling and Observation Slim Well Site Selection
Subtask 3.1 Review meeting
Go/No Go Decision Point:
A go/no-go decision will be made prior to Phase II activities

Phase II and III were analyzed in the BLM Soda Lake Geothermal Exploration Project Environmental Assessment (DOI-BLM-NV-C010-2010-0008-EA) on file in the PMC.

Phase II – Drilling, Testing, and Assessment

Task 4.0 Observation Slim Well Drilling
Subtask 4.1 Integration of Observation Results Into a Geothermal Model
Go/No Go Decision Point
Task 5.0 (Option 1): Repeat Task 4.0 if additional observation holes are determined to be necessary at either or both anomalies.
Task 5.0 (Option 2): Drill a large diameter (at least 13 3/8" production casing) well at one or both anomalies.
Task 6.0 Well Testing and Assessment, Production Capable Reservoir Test Wells

Phase III -Technology Transfer and Project Management
Task 7.0 Phase I through III Technology Transfer Plan
Task 8.0: Project Management and Reporting
The following cultural resource protection measures would be implemented by Magma:
•Magma would avoid known eligible and potentially eligible cultural resource sites through design, construction, and operation of the project;
•An approximately 30-meter buffer zone would be established and identified by placing flagging around eligible and potentially eligible cultural resource sites to help provide protection to the sites. Project equipment and facilities would not encroach into the established 30-meter buffer zone;
•The project facilities would be operated in a manner consistent with the engineered design to prevent problems associated with the run-off that could affect adjacent cultural sites. This includes the use of acceptable erosion control methods that are applicable to the site conditions;
•Magma would limit vehicle and equipment travel to previously-identified established roads and construction areas; and
•Any unplanned discovery of cultural resources, items of cultural patrimony, sacred objects or funerary items requires that all activity in the vicinity of the find ceases, and Terri Knutson, Field Manager, Stillwater Field Office, 5665 Morgan Mill Road Carson City, Nevada 89701, be notified immediately by phone (775-885-6000) with written confirmation to follow. The location of the find would not be publicly disclosed, and any human remains must be secured and preserved in the place until a Notice to Proceed is issued by the authorized officer.
Magma would implement the following measures to minimize potential impacts to wildlife in the project area:
• Trash and other waste products would be properly managed and Magma would control garbage that could attract wildlife. All trash would be removed from the sites and disposed of at an authorized landfill;
• Speed limits would be posted, and if necessary, speeds would be reduced, especially when wildlife is active near access and service roads;
• Employees and contractors are strictly prohibited from carrying firearms on the job site to discourage illegal hunting and harassment of wildlife; and
• Reclamation of the disturbed areas, as described in Section 2.4 of the EA, would be completed in order to return these areas to a productive wildlife habitat.
Tribal Consultation was done by the BLM Stillwater Field Office with the Fallon Paiute-Shoshone Tribe.
The BLM, which has jurisdiction over the proposed geothermal development, completed the Soda Lake Geothermal Exploration Project Environmental Assessment (DOI-BLM-NV-C010-2010-0008-EA) (August 2010) and the FONSI/Decision Record on August 30, 2010. As described in the EA, no known threatened or endangered species has been identified in the proposed project area; objects listed in or eligible for listing in the National Register of Historic Places or cultural, or historical resources would not be impacted.
The DOE is in agreement with BLM's FONSI, which analyzes drilling four geothermal wells with associated road and pads, reclamation, and testing of the wells in the EA. Additionally, DOE's CX B3.1, and B3.7 allows construction and operation of new infill geothermal wells, and onsite characterization.
Condition of Approval: Mitigation measures identified in the Bureau of Land Management Soda Lake Geothermal Exploration Project Environmental Assessment (DOI-BLM-NV-C010-2010-0008-EA) and associated Decision Record and FONSI are applicable to this proposal. Based on the information above, this project's impacts to the human and natural environment can be deemed less than significant and this project would qualify for Categorical Exclusions A9, B3.1 and B3.7.

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.

Insert the following language in the award:

You are required to:
Condition of Approval: Mitigation measures identified in the Bureau of Land Management Soda Lake Geothermal Exploration Project Environmental Assessment (DOI-BLM-NV-C010-2010-0008-EA) and associated Decision Record

and FONSI are applicable to this proposal.

Note to Specialist :

This EF2A was written by Christopher Carusona II

SIGNATURE OF THIS MEMORANDUM CONSTITUTES A RECORD OF THIS DECISION.

NEPA Compliance Officer Signature: _____ Date: 8/24/11

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