PMC-EF2a

(2.04.02)

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

RECIPIENT: Simbol Mining Corp. **STATE:** CA

PROJECT TITLE: Technologies for extracting valuable metals and compounds from geothermal fluids

Funding Opportunity Announcement Number	Procurement Instrument Number	NEPA Control Number	CID Number
DE-FOA-0000075	DE-EE0002790	GFO-10-311	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.

B3.6 Siting, construction (or modification), operation, and decommissioning of facilities for indoor bench-scale research projects and conventional laboratory operations (for example, preparation of chemical standards and sample analysis); small-scale research and development projects; and small-scale pilot projects (generally less than two years) conducted to verify a concept before demonstration actions. Construction (or modification) will be within or contiguous to an already developed area (where active utilities and currently used roads are readily accessible).

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:

Rational for determination:

The objectives of the two year project are to: 1) adapt, develop, and validate improved lithium extraction technologies; 2) transform the materials extracted by these technologies into saleable products; 3) develop and validate technologies for managing silica scaling during metal extraction, and 4) develop processes to cost-effectively extract additional materials from U.S. geothermal brines of varying salinity.

The project would develop and test techniques for mineral recovery and silica management in the lab at bench-scale to evaluate their effectiveness. The most promising approaches would then be tested in a lab-scale pilot and then in a small-scale, field pilot plant. The field pilot plants would be undertaken at the site of an operating geothermal plant. Pilot testing would be designed to gather sufficient engineering data for commercial operations and to produce products for market qualification. The pilot testing would quantify process economics and generate capital and operating costs to determine the economic viability of metal extraction.

Simbol Mining Corp. would conduct R&D laboratory work at two locations: (1) Simbol Mining Corporation in Pleasanton, CA, and (2) CalEnergy Operating Corp., Elmore Power Plant Control Building in Calipatria, CA. The Pleasanton facility has standard laboratory safety equipment (fume hoods, emergency eye wash/drench hose, PPE appropriate for the work) and these items would be present in the Calipatria facility when it is operational. Simbol contracts with a hazardous waste disposal company (Clean Harbors) for disposal of brine waste and for emergency response. It maintains a California EPA identification number as a hazardous waste generator for its Pleasanton facility, and would maintain another for the Calipatria facility. Toxic wastes that fall below the RCRA regulated levels are classified as non-RCRA California Hazardous Only waste. Waste is stored and labeled as directed by Title 22, California Code of Regulations. Disposal is performed by a licensed waste disposal company, Clean Harbors Environmental Services.

The field site has yet to be determined but would be at an operating geothermal power plant near Calipatria, California. The field pilot plants would be assembled on an existing concrete pad surrounded by a containment berm on the site. The geothermal operator would provide Simbol with a sidestream of geothermal brine from its injection line post-power production. Simbol would return the lithium-depleted (or other material-depleted) brine to the injection line after the brine passed through the pilot plant. At the beginning of operations, the returned brine would be sent to the geothermal operator's existing surface pond before disposal. The geothermal operator would have all permits and requirements for its operations, including a water pollutant discharge permit (California Regional Water Quality Control Board, Colorado River Basin Region) for their surface pond to which Simbol's lithium-depleted brines initially would be

directed, and would modify them as necessary to provide for Simbol's operations. All of Simbol's activities would take place on an already developed site. Regardless of the specific site location selected, there would be no additional environmental consequences resulting from Simbol's field pilot plants beyond those associated with the existing geothermal power plant

The project is comprised of: information gathering, data analysis, and document preparation; laboratory testing of methods for mineral recovery; and bench-scale pilot plant testing and small-scale field pilot plant testing to gather engineering data. Consistent with these activities, the DOE has categorized this proposal into Categorical Exclusions A9, B3.1, and B3.6.

NEPA PROVISION

DOE has made a final NEPA determination for this award

Insert the following language in the award:

Note to Specialist :

None Given.

SIGNATURE OF THIS MEMORANDUM CONSTITUTES A RECORD OF THIS DECISION.

NEPA Compliance Officer Signature: _____ Date: 4/20/10

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