

Congressional Notification Profile

DEEP TREK PROGRAM SOLICITATION

E-SPECTRUM TECHNOLOGIES, INC.

Background and Technical Information: Research entitled “EM Telemetry Tool for Deep Well Drilling Applications.”

This organization proposes to develop a communications system that allows well operators to receive vital measurements while a well is being drilled, which improves drilling, production of the wellbore and economics. The system would directly control adjustable downhole tools and make changes in drilling in real time, greatly improving a well’s future production level. E-Spectrum will build and field test a prototype of a wireless electromagnetic telemetry system for use in high-temperature (392 °F) drilling beyond 20,000 feet. The system will be composed of a surface unit receiver/transmitter, downhole data-acquisition module, downhole repeater module, and a downhole receiver/transmitter module.

Contact Information:

Selectee: E-SPECTRUM TECHNOLOGIES, INC.

Business Contact: RICHARD BURRIS

Business Office Address: 12725 SPECTRUM DR.
SAN ANTONIO, TX 78249-3400

Phone Number: (210) 696-8848

Fax Number: (210) 696-0770

E-mail: rburris@espectech.com

Congressional District: 23rd District

County: Bexar

Financial Information:

Length of Contract (months): 36 months

Government Share: \$ 683,879

Total value of contract: \$ 858,928*

*This amount is only reflective of Phase 1.

DOE Funding Breakdown:

Funds: Phase 1 \$ 683,879

Funds: Phase 2 \$ 455,000

Funds: Phase 3 \$ 210,000

Public Abstract

E-Spectrum Technologies proposes to develop a wireless, electro-magnetic (EM) telemetry system for use in deep natural gas and other high-temperature drilling beyond 20,000 feet and up to 392°F (200°C). Reliable uphole communications would allow vital measurement-while-drilling (MWD), logging-while-drilling (LWD), and seismic-while-drilling (SWD) data to be retrieved, analyzed, and used to improve the drilling process and, consequently, the wellbore quality. Unprecedented downhole communications would allow direct control of adjustable downhole tools such as kick-off subs, shock subs, and drillstring stabilizers from the rig floor. These capabilities would help to significantly reduce drilling costs, enhance wellbore productivity, and improve the safety of drilling for deep natural gas.

The proposed system would use high-sensitivity receivers and sophisticated noise-rejection algorithms to recover the EM signal and maximize the system's depth capability. The system would consist of four basic functional elements: 1) a Surface-Unit Receiver/Transmitter; 2) a Downhole Data-Acquisition Module; 3) a Downhole Repeater Module; and 4) a Downhole Receiver/Transmitter Module. The downhole elements of this system will be designed as stand-alone modules, using ruggedized mechanical packaging that will fit inside 1.25-inch O.D. pressure enclosures built within the drillstring. Modules subjected to temperatures as high as 392°F (200°C) will use high-temperature components and packaging techniques designed for continuous, unshielded operation at those temperatures.

The proposed project consists of three phases: Feasibility Assessment; Prototype Development; and Field Testing and Commercialization. The proposal describes a 3-year, cooperative effort to develop and commercialize a product which is expected to have immediate and significant market demand.