

PROJECT FACT SHEET

CONTRACT TITLE: Assess and Compare Hydrocarbon-Detection Methods, and Apply One or Two of the Most Useful Technologies to Find and Access Oil

ID NUMBER: DE-FG26-00BC15192

B&R CODE: AC1005000

CONTRACTOR: Ft. Peck Assiniboine & Sioux Tribes

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PROJECT SITE

CITY: Poplar **STATE:** MT
CITY: **STATE:**
CITY: **STATE:**

CONTRACT PERFORMANCE PERIOD:

6/15/2000 to 10/14/2002
PROGRAM: Exploration & Production
RESEARCH AREA: Native American Initiative
PRODUCT LINE: RLE

CO-PARTICIPANTS:

PERFORMER:	CITY:	STATE:	CD:
PERFORMER:	CITY:	STATE:	CD:
PERFORMER:	CITY:	STATE:	CD:
PERFORMER:	CITY:	STATE:	CD:

FUNDING (1000'S)	DOE	CONTRACTOR	TOTAL
PRIOR FISCAL YRS	357	104	461
FY 2002 CURRENT OBLIGATIONS	0	0	0
FUTURE FUNDS	0	0	0
TOTAL EST'D FUNDS	357	104	461

OBJECTIVE: Test selected surface geochemical hydrocarbon detection techniques over known oil fields that have structure-related surface linear features and other geophysical anomalies associated with hydrocarbon potential

Apply the most effective of these methods to explore known 3-D seismic and remote sensing anomalies on the Fort Peck Indian Reservation in Montana for potential recoverable oil resources.

PROJECT DESCRIPTION:

Background: The Fort Peck reservation is a relatively unexplored region adjacent to known oil production, however it contains favorable structural and stratigraphic trends. The Fort Peck Tribes Mineral Resources Office and its research team will investigate the use of surface exploration methods for detecting hydrocarbons in the subsurface as a means of locating potential oil reserves. Previous work has demonstrated the existence of straight-lined or curvilinear surface features thought to be the result of structural movement over deep-seated fault blocks. This may have created structural traps for oil accumulation. Also, color anomalies on satellite images have been detected which may mark surface chemical changes in soil caused by hydrocarbon seepage.

During the first year of the project, researchers will evaluate five or more geochemical exploration methods over selected small producing fields, 3-D seismic anomalies, and photo-mapped surface lineament features that intersect aeromagnetic anomalies. In the second year, one or two of the most efficient exploration techniques will be applied to as many 3-D seismic and "remote sensing" anomalies as possible across the northern portion of the Fort Peck Reservation. Those areas that look promising will be candidates for more intensive exploration.

Work to be Performed: Phase I

Research Exploration Methods		4/3/2000 - 4/7/2000
Select methods to test		4/10/2000 - 5/15/2000
Solicit Geochemical Sub-Contractor bids		5/15/2000 - 6/15/2000
Select specific test sites		
Select Sub-Contractors		6/15/2000 - 6/30/2000
Hire Field Assistant - Global Positional System Training		
Method 1 Field Work	Training	7/10/2000 - 7/14/2000
	Data Collection	7/17/2000 - 7/28/2000
Method 2 Field Work	Training	7/31/2000 - 8/4/2000
	Data Collection	8/7/2000 - 8/25/2000
Method 3 Field Work	Training	8/28/2000 - 9/1/2000
	Data Collection	9/5/2000 - 9/15/2000
Method 4 Field Work	Training	9/18/2000 - 9/22/2000
	Data Collection	9/25/2000 - 10/6/2000
Method 5 Field Work	Training	10/9/2000 - 10/13/2000
	Data Collection	10/16/2000 - 10/27/2000
Review Field Data		10/30/2000 - 11/10/2000
Additional Data Collection if necessary		11/13/2000 - 11/30/2000
Comparative Interpretation of Data		11/01/2000 - 12/14/2000
	Select method(s) for Phase II	12/15/2000 - 12/31/2000
	Prepare Interim Report:	1/01/2001 - 3/31/2001

Phase II

Solicit Geochemical Sub-Contractor bids	1/01/2001 - 2/28/2001
Select Geochemical Sub-Contractors	3/01/2001 - 3/31/2001
Award Sub-Contractor bids	4/01/2001 - 4/30/2001
Plan field work: Select sites	
Field Work - 3D Seismic Anomalies	5/01/2001 - 6/30/2001
Field Work - TM Anomalies	7/01/2001 - 9/30/2001
Field Work - Other oil fields	10/01/2001 - 10/30/2001
Interpret data	11/01/2001 - 12/31/2001
Prepare Final Report	1/01/2002 - 3/31/2002

PROJECT STATUS:

Current Work: Mapping and interpretation of data from two Phase I areas.

Scheduled Milestones:

Select geochemical methods	01/00
Select geochemical sub-contractors for field work	04/00
Hire Field Assistant	04/00
Choose sites or methods to resample	10/00
Select Phase II methods	12/00
Select Phase II Geochemical sub-contract	05/01

Accomplishments: 1. 5/1/2000 – Selected following surface exploration methods for comparison:

- Soil gas survey for c1-methane, c2-ethane, c3-propane, c4-isobutane, and c5-nbutane.
- Microbial survey.

- c. Iodine survey.
- d. Head gas survey of soil samples for c1-c6 gases. Thermal desorption for c1-c9.
- e. Ultraviolet fluorescence of soil samples.
- f. Magnetic susceptibility of soil samples.
- g. Micro-magnetic survey. Postponed until Phase II, Summer 2001.
- h. Resistivity survey. Not conducted. Method too expensive.

- 2. 6/15/2000 – Hired Field Assistant.
- 3. 6/30/2000 – Solicited bids from selected contractors for various methods.
- 4. 7/21/2000 – Completed GPS training and initial soil gas survey for Area 7.
- 5. 7/31/2000 – Selected contractors for all lab analyses.
- 6. 8/30/2000 – Redefined Phase I sampling program to have Tribal personnel collect all samples by area instead of hiring contractors to sample each area by method.
- 7. 9/15/2000 – Completed sample collection for 27 sites of test case, Area 7, Palomino Oil Field.
- 8. 9/30/2000 – Completed contracts for all sub-contractor analysis labs.
- 9. 11/5/2000 – Completed soil sampling for 211 sites in Area 6. All samples sent to appropriate lab.
- 10. 12/15/2000 – Received all soil analysis results for both Areas 6 and 7. Began mapping and analysis.
- 11. 2/28/2001 – Completed mapping of all Phase I data.
- 13. 4/31/2001 – Completed initial statistical analysis and comparison of all Phase I data.
- 14. 5/31/2001 – Prepared posters and Powerpoint presentation of Phase I results for AAPG Annual Convention.

TECHNOLOGY TRANSFER:

Technology/Information Transfer: 1. 3/6/2001 – Presented Phase I maps and data interpretation to IMDA Partner, Gulf Canada.

2. 6/3-6/2001 – Displayed Phase I posters and Powerpoint presentation at AAPG Annual Convention.

3. 6/27/2001 – Speaker at Intertribal GIS Annual Conference in Billings, MT.

Public Relations: 1. Abby Ogle, Economic Development Office, Fort Peck Tribes, P.O. Box 1027, Poplar, MT 59255. (406-768-5155)

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Updated By: **Lawrence M. Monson**

Date: **6/15/2001**