R. W. DIRKS PETROLEUM ENGINEER, INC.
OIL FIELD DRILLING & PRODUCTION SUPERVISION
PHONE 375-2194   P. O. DRAWER 200
TULETA, TEXAS 78162

BID INVITATION LETTER

TO: Various Drilling Contractors

FROM: R. W. Dirks Petroleum Engineer, Inc.

DATE: May 25, 1983

SUBJECT: Drilling Bid Invitation

The United States Air Force (or appropriate operator) is soliciting drilling bids for the Lackland AFB Geothermal Resource project. The proposed well, hereafter referred to as the Lackland AFB #1, will be drilled to a total depth of 4200', or mutually agreed upon depth, to test the Hosston Formation for fresh water production. The bids solicited will be based on a footage rate with daywork charge at total depth, or where appropriate, based on the following parameters found on the attached drilling orders.

Rates will be charged as follows:

The drilling contractor will move in and rig up on an all-weather location built to accommodate the specific rig awarded the contract.

The drilling contractor will charge footage rates from the kelly busing to $2000'^{\pm}$, adhering to the hole size and

mud program attached. Daywork rates will commence when the first electric log reaches total depth. Daywork rates will continue during the log evaluation and continue to be in effect until the casing crew rigs up on the drilling floor.

The daywork rate will cease when the 10-3/4" casing shoe clears the rotary table. The drilling contractor will provide the rig time necessary to run, cement, and nipple up the surface casing.

The drilling contractor will then charge footage rates to 3850'$\pm$, or the top of the Hosston Formation. Daywork rates will then commence at the time the first electric log reaches total depth. Daywork rates will remain in effect until the total depth of 4200'$\pm$, or sufficient depth to test the Hosston Formation, is reached and logging, coring, testing, underreaming, and hanging wire-wrapped screen and gravel packing has been completed.

The operator will provide egress, location, water, mud and chemicals, cement and cementing services, casing crews and casing handling tools, and all tubular goods other than drill pipe and drill collars. All rental tools other than those commonly associated with typical rig equipment will be furnished by the operator.

The drilling contractor will provide rig, crews, and associated equipment necessary for the complete drilling

operation, including BOP stack, bits and fuel.

The drilling contractor awarded the contract will provide a certificate of insurance to the operator.

Please submit the drilling bid as follows:

Footage rate_____.

Daywork rate_____.

If there are any questions concerning this bid invitation, please call our office and talk to R. W. Dirks or J. R. Fischer.

Sincerely,

JR Fischer

J. R. Fischer
R. W. DIRKS PETROLEUM ENGINEER, INC.

R. W. DIRKS PETROLEUM ENGINEER, INC.

DRILLING ORDERS

Well Name: Lackland AFB #1　　　　Total Depth: 4200　　　Date: 5-22-83

Prospect: _____ AFE No.: _____

State: Texas　　　　County: Bexar　　　　Sec_____ T _____ R _____

Location: To be determined

_____ Elevation: _____

Drilling

Hole Size	Depth			Max. Angle
20"	0	to	50	°
13-1/2"	0	to	2000	2°, 1°/200' °
9-7/8"	2000	to	3850	5°, 2°/500' °
6-1/2"	3850	to	4200	5°, 2°/500' °

Casing

Size	Description	Setting Depth	Cement Amount
16"	Conductor	50'	
10-3/4"	J-55　40.5 lbs./ft.	2000'	See Remarks
7-5/8"	J-55　26.4 lbs./ft.	3850'	See Remarks
4-1/2"	Wire-wrapped screen	4200'	None

Remarks: Cement amount to be determined based on open hole caliper logs.

_____

_____

Permit No. _____ Serial No. _____

(1)

Objective Sands: ___Hosston Formation_____

Start Samples: _____ Large _____ Small _____

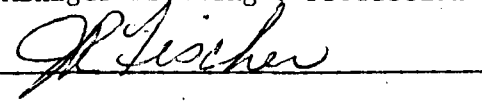Start Mud Logger: _____ Mud Logger Co. _____

Send Samples to: _____

_____

Remarks: _____

_____

Logging Depths: 1) __2000'__ 2) __3850'__ 3) __4200'__ 4) _____

Electric Logging Services:

Type	Log Run No.
DI SPL CDL - CNL, SWC, RFT	1
DI SPL CDL - CNL, SWC, RFT	2
DI SPL CDL - CNL, SWC, RFT	3

Required Mud Properties

Depth	Weight	Vis.	W.L.	Remarks
0 - 500	8.5-8.8	40	NC	Native Mud
500-2000	8.5-8.8	40	6-8	Lignosulfonate
2000-3850	8.5-8.8	40	10-12	Lignosulfonate
3850-4200	8.5-8.8	40	6-8	Biodegradable Polymer

Approvals:

Manager Drilling & Production

JH Fischer

Exploration Department

_____

CASING MAKE UP

10-3/4" Surface Casing:

    1, 10-3/4" float shoe on bottom joint.

    1, 10-3/4" float collar on top of bottom joint.

    10-3/4" x 13-1/2" double bow turbolizers spaced 1 per

        joint through the Edwards Formation

    1, 10-3/4" x 13-1/2: cement basket at the top of the

        Edwards Formation.

    1, 10-3/4" x 13-1/2" cement basket at the base of the

        conductor pipe.

    Float shoe and float collar must be thread locked

        in place.

7-5/8" Production Casing:

    1, 7-5/8" float shoe on bottom joint

    1, 7-5/8" float collar on top of bottom joint.

    7-5/8" x 9-7/8" double bow turbolizers spaced 1 per

        joint for the bottom 500'.

    1, 7-5/8" x 9-7/8" cement basket at the base of the

        surface casing.

    Float shoe and float collar must be thread locked

        in place.

CASING DESIGN SKETCH

16" Conductor

50' ±

10 3/4" Surface Csg.

2000' ±

7 5/8" Liner

4 1/2" X 7 5/8" Liner Hanger

3850' ±

4 1/2" Wire-Wrapped Screen

4200' ±