Pat PM
Ray [illegible]
Peter [illegible]

# MONITOR WELL PRE-SPUD PROPOSAL

1) WELL NAME/NUMBER: BLM-17-Deep

2) PROPOSED LOCATION: (a) General (on or off-site) Off-site

(attach map Site Area BLM Land

(b) Sect 4 Twnshp 21S Rng 3E NW ¼ NW ¼ NW ¼ NW ¼

3) WELL PARAMETERS:

(a) Est. total depth 560 (ft) (b) Est. ground elevation 4538 ft

(c) Anticipated stratigraphy:

Alluvium (Santa Fe Group) from 0 ' to 550 ' (depth)

Andesite from 550 ' to TD ' (depth)

(d) Anticipated water bearing horizon(s):

Santa Fe Group at 465 ' (depth)

_____ at _____ ' (depth)

(e) Anticipated static water level 465 ' (depth)

4) WELL PURPOSE/JUSTIFICATION (attach maps and table if needed):

Monitor well adjacent to BLM-17-493 to determine contaminant levels at base of alluvial aquifer.

5) PROPOSED DRILLING PARAMETERS:

(a) Drilling method(s): (air/foam/mud rotary/auger/etc.)

Mud Rotary from 0 ' to 80 ' (depth)

Air Foam Rotary from 80 ' to TD ' (depth)

Air-foam method: "Quik-Foam" surfactant/water mixture used in conjunction with filtered compress air.

Mud-rotary method: Bentonite mud/water mixture.

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(b) Lithology sampling - collect sample every:

5' intervals Method Grab from 0 ' to TD ' (depth)
Core type 6" Dennison from ' to ' (depth)
2" Christiansen from ' to ' (depth)

(c) Anticipated drilling additive(s): E-Z mud

7) PROPOSED WELL COMPLETION DESIGN/MATERIALS

(a)

| Casing: | Material | Diameter | From | To | Comments |
|---|---|---|---|---|---|
| Temporary | | | | | |
| Surface | | 10" | 0 | 100' max | |
| Screen (10') | Stainless ++ | 4" | To be determined from Geophysical logs | | 0.02" |
| Completion Pipe | stainless + | 4" | 0 | TD | * |

Standard material: Blank riser, silt trap, locking cap

N/A Data not available at this time
* for deep completions (450 feet or more)
** for shallow completions
\+ Type 304, Schedule 5 stainless steel
Type 304, Schedule 10 stainless steel
++ Regular strength screen, extra strength screen used below 450 feet

(b) Filter pack: Standard 8/20 and 16/40 sand and bentonite plug(s), grout to surface.

8) PROPOSED WELL DEVELOPMENT

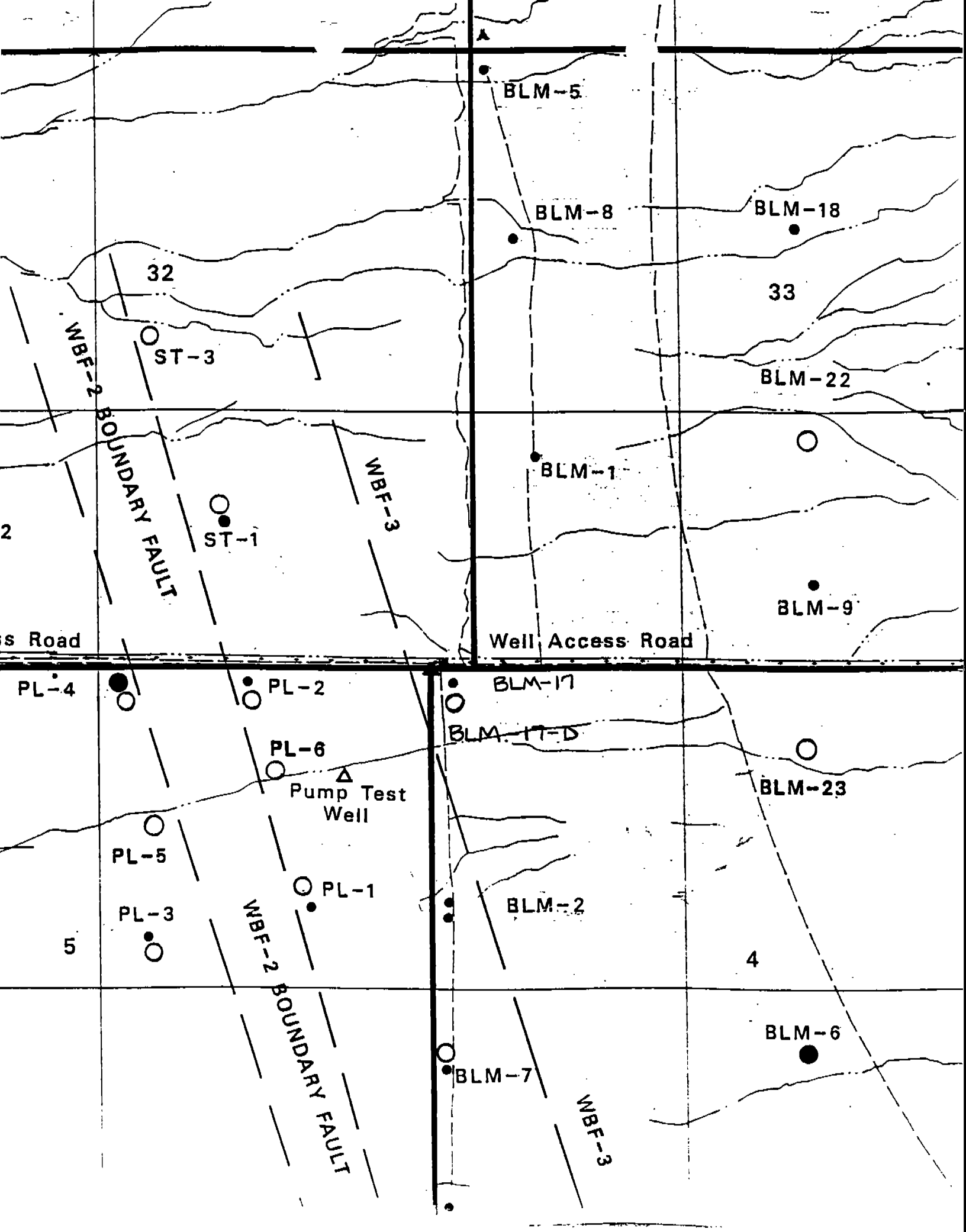
(a) Surge and bail with surge block and bailer.

(b) Pump with submersible pump until parameters stabilize.

9) WELL AUTHORIZATION

(a) Proposed by Geoscience Consultants, Ltd.

(b) Authorized Robert Mitchell NASA
(name) (representing) (signature)


BLM-5
BLM-8
BLM-18
32
33
ST-3
WBF-2
BOUNDARY FAULT
BLM-22
BLM-1
WBF-3
ST-1
BLM-9
Well Access Road
PL-4
PL-2
BLM-17
BLM-17-D
PL-6
Pump Test Well
BLM-23
PL-5
PL-1
BLM-2
PL-3
5
4
WBF-2
BOUNDARY FAULT
BLM-6
BLM-7
WBF-3