

Tim 110
Peter
Ray JLS

MONITOR WELL PRE-SPUD PROPOSAL

1) WELL NAME/NUMBER: BLM-21

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

(attach map Site Area BLM Land)

(b) Sect 33 Twnshp 20S Rng 3E SW ¼ NE ¼ SE ¼ SE ¼

3) WELL PARAMETERS:

(a) Est. total depth 400* (ft) (b) Est. ground elevation 4650 ft

(c) Anticipated stratigraphy:

Alluvium (Santa Fe Group) from 0 to 300 ' (depth)

Tuff from 300 ' to TD ' (depth)

(d) Anticipated water bearing horizon(s):

Tuff at 350 ' (depth)

_____ at _____ ' (depth)

(e) Anticipated static water level 315 ' (depth)

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

To assess ground water quality, determine the existence of saturated alluvium, if any, and determine aquifer lithology in this area.

5) PROPOSED DRILLING PARAMETERS:

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

Mud Rotary from 0 ' to 100 ' (max)

Air-Foam Rotary from 100 ' 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.

* or 250' into the bedrock (≈550')

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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 | _____ | <u>10"</u> | <u>0</u> | <u>100' max</u> | |
| | Screen (10') | <u>Stainless ++</u> | <u>4"</u> | <u>To be determined</u> | <u>from Geophysical</u> | <u>0.02"</u> |
| | | | | <u>logs</u> | | |
| | Completion Pipe | <u>stainless +</u> | <u>4"</u> | <u>0</u> | <u>TD</u> | <u>*</u> |
| | | <u>PVC-sch 40**</u> | <u>4"</u> | <u>0</u> | <u>20' above W.L.</u> | |

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)

