

WELL SUMMARY

page 1 of 2Location ID: BW-3-180 Field Representative(s): J. KirbyNorthing: 226092.45 Easting: 413634.63Date Started: 12 August 1988 Date Completed: 24 August 1988Drilling Method: Mud/Air-foam rotary Drilling Contractor: LarjonDriller: T. Crawford, J. GowerTotal Depth Borehole: 232' Total Depth Well Casing: 205.2'Total Depth Surface Casing: 71'Diameter Well Casing: 4" Diameter Surface Casing: 8"Length of Bottom Blank: 5.32'Type of Screen: regular strength 0.02 slotScreen Interval: 179.6' to 200.3'Water First Detected: not noticeable Water Level Open Borehole: 185'Water Level Cased Borehole: 169.5'(inner casing)

Quik-Foam Use: 5 gallons

Estimated Water Use: 1800 gallons

1700* gallons used while drilling, incl. formation water
100 gallons introduced subsurface

(* mudpit dimensions = 1' x 27' x 8.5')

Well Casing:

4in x 3ft SCD 40 PVC:	stock SS centralizers:
4in x 5ft SCD 40 PVC:	custom SS centralizers: 1
4in x 10ft SCD 40 PVC:	4"x2' SS locking riser: 1
4in x 20ft SCD 40 PVC: 8	4" SS locking cap: 1
Total SCD 40 PVC pipe: 160 ft	4" SS female cap: 1
4in x 3ft SCD 5 SS pipe:	
4in x 5ft SCD 5 SS pipe: 1	4in x 5ft SCD 10 SS pipe:
4in x 10ft SCD 5 SS pipe: 2	4in x 10ft SCD 10 SS pipe:
4in x 20ft SCD 5 SS pipe:	4in x 20ft SCD 10 SS pipe:
Total SCD 5 SS pipe: 25 ft	Total SCD 10 SS pipe: ft

- (b) Lithology sampling - collect sample every:
5' intervals Method Grab from 0' to TD (depth)
 Core type 6" Dennison from 145' to 150' (depth)*
2" Christiansen from _____' to _____' (depth)
2" Christiansen from _____' to _____' (depth)

*If saturated alluvium is found.

- (c) Drilling rig type: Franks rotary rig for surface casing,
Chicago Pneumatic rotary rig
- (d) Anticipated drilling additive(s): None
 Water source NASA Quality checked by GC (method)
- (e) Decontamination/Quality Assurance:
 Clean equipment by steam (method) prior to every well
 Clean tools by steam (method) prior to every well
 Other QA procedures Air filtering/monitoring, periodic steam
cleaning of tools/sampling equipment when necessary
- (f) Drilling company: Larjon Drilling
 address: P.O. Box 925, Las Cruces, New Mexico 88047
 Company representative: Larry Johnson Phone 505-526-8672

6) PROPOSED BOREHOLE GEOPHYSICS

- (a) Survey type: GR - Neutron from 0' to TD (depth)
 Survey type: GR-Den-Res-Cal from 0' to TD (depth)
 Survey type: 16"-40" E-Log from W.L.' to TD (depth)
- (b) Geophysical company: Southwest Survey
 address: 4200 Skyline Drive, Farmington, NM 87401
 Company representative: Don Pearson Phone 505-325-8531

7) PROPOSED WELL COMPLETION DESIGN/MATERIALS

(a) Casing:	Material	Diameter	From	To	Comments
Temporary					
Surface	<u>steel</u>	<u>8"</u>	<u>0</u>	<u>100' max</u>	<u>~80'</u>
Blank (riser)	<u>stainless +</u>	<u>4"</u>	<u>0</u>	<u>+3'</u>	
Screen(10' or 20')	<u>stainless ++</u>	<u>4"</u>	<u>145'</u>	<u>155' or 165'</u>	<u>0.02"</u> (see purpose)
Completion Pipe	<u>stainless +</u> <u>PVC-Sch 40**</u>	<u>4"</u>	<u>130</u> <u>0'</u>	<u>145'</u> <u>130'</u>	<u>*</u>
Silt trap	<u>stainless +</u>	<u>4"</u>	<u>to 5' below screen</u>		
Protective Cap	<u>stainless +</u>	<u>4"</u>	<u>on top with lock</u>		

NA 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 used below 400 feet

Regular strength screen extra strength screen used below 450'

- (b) Filter pack:
- | | <u>Primary</u> | <u>Secondary</u> |
|---------------------|-----------------------|------------------------------------|
| Material type | <u>Prewashed sand</u> | <u>Prewashed sand</u> |
| Grain Size | <u>8/20 grade</u> | <u>16/40 grade</u> |
| Est. length (thick) | <u>20 - 30 feet</u> | <u>2-3' above & below 8/20</u> |
- (c) Seal - Upper: Bentonite Thickness 5 feet above upper 16/40 sand
Lower: Bentonite Thickness 5 feet below lower 16/40 sand
- (d) Grout - Material 5% Bentonite cement from above completion zone to the surface

8) PROPOSED WELL DEVELOPMENT

- (a) Development method Surge and pump
Equipment Pulling unit with bailer & submersible pump
- (b) Anticipated flow rate 5-15 gpm Duration until adequately devel.
- (c) Company providing service Larjon

9) WELL AUTHORIZATION

- (a) Proposed by Geoscience Consultants, Ltd.
- (b) Authorized Robert Mitchell NASA
(name) (representing) (signature)