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HEINRICHS GEOEXPLORATION COMPANY
MINERAL ENGINEERING CONSULTANTS AND CONTRACTORS
GEOPHYSICAL, GEOLOGICAL AND ECONOMIC APPRAISALS
TUCSON, ARIZONA

October 4, 1961

PHONE: MAIN 2-4202
806-808 WEST GRANT ROAD
MAIL: P. O. BOX 5671

WALTER E. HEINRICHS, JR.
E. GROVER HEINRICHS

Mr. Sam Sneller
20 N. Scott
Tucson, Arizona

Re: Water Consultation, Soldier, Molino and
Aqua Caliente Canyons Area. Sections 16, 17,
18, T13S, R16E, Pima County, Arizona

Dear Mr. Sneller:

Appropos conference with you, your associates and Mr. E. Grover Heinrichs in our office on September 22, 1961, we checked the official well records in a six (6) square mile zone surrounding the property in the above described area. Reference was made to records of both the U.S.G.S. Ground-water Branch and the U. of A. Agricultural Dept. offices in Tucson.

Results revealed a maximum recorded estimated production from a single known well of approximately 10 gallons per minute in this area. Quite a few wells were estimated at two gallons per minute. Depths varied from shallow hand dug wells to 90 ft. depth and machine dug wells to a maximum of 240 ft. deep. Apparently none of these holes penetrated the Pantano or Rillito beds into the presumably underlying Catalina Gneiss exposed on the north part of the area.

Generally speaking, the Pantano formation has not been a highly productive aquifer in the Tucson vicinity--especially from wells down to about 500 ft. which are greatly in the majority. Ten gallons per minute is an average maximum for this situation. The better Tucson area wells (100 to 1,000 gpm) generally produce from the younger valley sands and gravels which overly the Pantano beds. Unfortunately, there is very little of this material on your property.

An optimistic estimate for maximum potential production which could come from a single well in your area is approximately 100 gal. per minute. Amounts of 1,000 gpm, of course are a bare technical possibility, but are extremely remote and unlikely. The best chances are apt to be at or near the Pantano-Catalina Gneiss contact near one of the three or four main canyons, ~~where~~

Mr. Sam Sneller

- 2 -

October 4, 1961

which doubtless are, at least partly, related to important structural features in the gneiss. Another, less known geologic fault or contact feature is suspected along the base of the Catalina front which could lie within your property. Any one or any combination of all these factors doubtless have paramount control on the water distribution and concentration in the area.

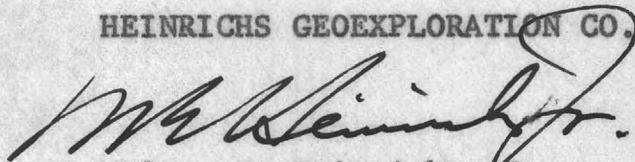
An absolute or even relative evaluation of the potential of any of these possibilities would require at least a field geologic study and about two (2) profile miles of resistivity geophysics at an approximate cost of \$750.00 to \$1,000.00.

Depth to the gneiss on wells immediately south of the property is indicated to be at least 300 ft., but we would guess, from experience to the west, not more than 700 ft. Average depth on your property should be somewhat less than this.

Our statement is attached.

Very truly yours,

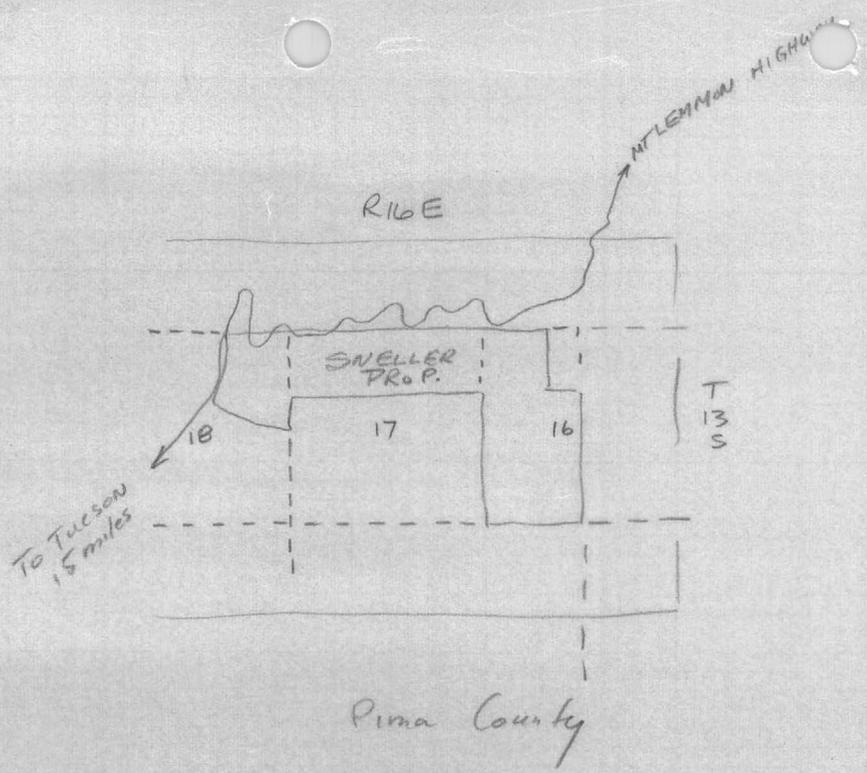
HEINRICHS GEOEXPLORATION CO.



Walter E. Heinrichs, Jr.
President & General Manager

WEH: jh

cc: Extra enclosed.



WATER WELL

INFORMATION

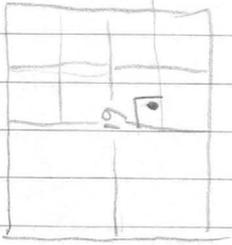
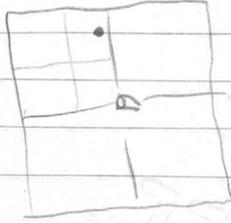
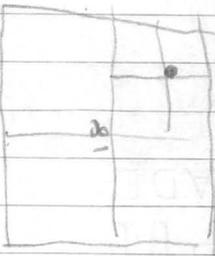
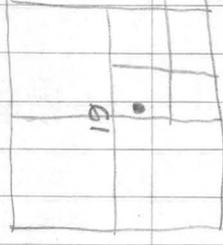
SECTIONS 16, 17, 18, 19, 20 & 21

T13S - R16E

AGRICULTURE DEPT

U.S.G.S - Ground
Water

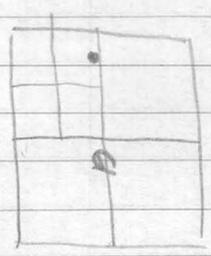
SP

Well Location	Owner	Driller & Date drilled	Depth & diam (ft)	Water level (ft) & date	Remarks
Sec 19J SE NW SE 	Cordell Stevens Buzzauro (1959)	Buzzauro ? Buzzauro (1959)	240	Mar 1960 15.77 Mar 61 49.82	TC GS+1 don't use slow recovery TWS BXJ1 Pg 19 BM Elev. BM. 2666.51 T Core v
Sec 19H NE SE 	Unknown M of Witzberger Highland	AA Mc Daniel P58 ?	240	Mar 59 32.91 " 60 19.65 " 61 34.55	Log all red Elev. BM. 2700.8 TBM1 TWS BX25 Pg 5R
Sec 18 P - NW Cor SE 	Unknown	—	240	Mar 1961 25.32	Elev BM 2766.89 = T6onc 2766.77 = T Metal Dwg
Sec 19J NW SE 	Cordell Stevens Buzzauro 1959 UNUSED	—	240	Mar 60 19.39 61 32.95	TC GS+3' TWS BX27 Pg 65 BM4 Elev B.M. 2690.22 TC

Ag. Dept.



A. A. M. Daniel Sept 15, 58



SW SE SE NE
Sec 19

Log of well drilled for Owen White
Soldier Trail

70' Sandy soil, Gravel
75' Red Clay
105' Red joint Clay, Red
125' Red ss, fine
140' Red ss, coarse
205' Red sticky clay
214' Red ss, fine
240' Red ss, coarse

Formation, from 0'
30'
35'
105'
125'
180'
205'
214'

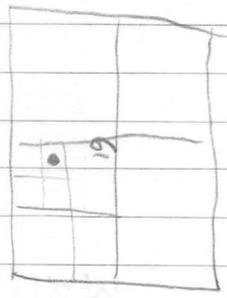
Casing: 241' of 6" ID pipe, welded
Perforated from 25' - 237'
Static H₂O level 25'

Tests: Bailed 1400 gal in 1 hr. to dry well
waited 1 hr. and bailed 100 gal
Est. cap. of well 1 1/2 - 2 gal/min

gr. Dept.

A.A. Mc. David

Sept 6, 58



Casing: 2 3/4" of 8" 10 stringer well
 Perforated 50' - 225'
 Section 1/2 0 level 27'

Tests: bailed 1500 gal in 1 hr. 5.5 day hole
 recovered 260 gal in 30 min, out
 5/8" 8 to 10 gal/min

Formations

0'	8'	Sandy soil
8'	32'	Tight gravel gravel
32'	50'	red sandy sh
50'	135'	red sandy sh + 1/2 0
135'	180'	red gravelly sh + 1/2 0
180'	195'	red sh, sandstone + 1/2 0
195'	240'	Tight sticky clay - red

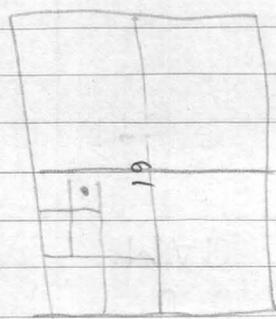
Log of well drilled for
 Amette Highland - 4017 E. Mont. Vista

Well: Soldier Tank #2 - west north
 of Witzky

Dept.
 Agr.

A. A. Mc Daniel

Sept 8, 1958



Casing 8" ID King's Well Formation

Casing set 9' 6"

Hydratium: 35'-88'

static H₂O level: 29'

Test: bailed 500 gal in 30 min. to dry hole
recovered 25 gal in 20 min.

Log of well built for
Little Highland

Well: Sabin Trail (Dry Hole)

Just north of Witzinger

West of S well 100' - 100'

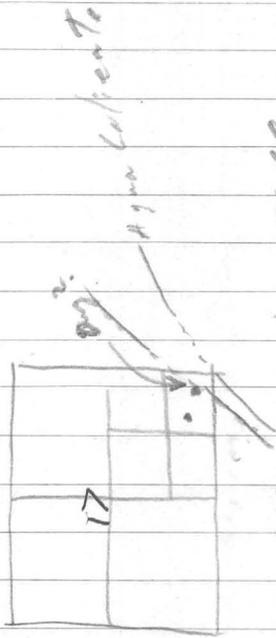
W's well ?

0'	9'	soil
9'	35'	clay
35'	46'	sandy clay some H ₂ O
46'	110'	tight red clay

Mrs. Ana Sherman Date: 7-22-52

Location SE-SE sec 17

two wells on dry, one drilled



1. 30' deep dry well in draw - not a permanent supply - almost dry
60' deep drilled well - fairly good

A. H. Hays

7-16-37

Ln. SE Sec 18



Subirrigation

Dug well

- 0' - 8'
- 8' - 20'
- 20' - 25'
- 25' - 31'

log

surface soil

gray-white silt clay with green. blue. very light (used garden)

grayish-white sand (very when dug but soft)

dark grayish clay & sand - this material crumbles or shreds on contact with air.

There are other wells in area but no infiltration - all in red beds -

Ag. Dept.

App 5

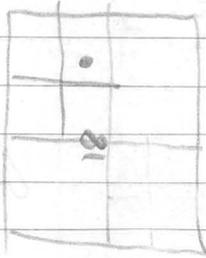
Loc.



Aug 19, '51

Sec 17

Aug - 60' deep - concrete - granite encased

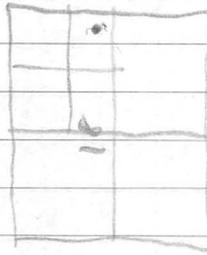


Aug 19, '51

Sec 18

Aug - 60' deep

- concrete



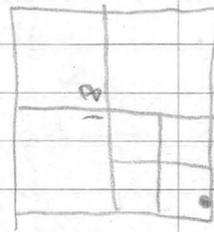
Aug 19 - '51

Sec. 18 - Old Prison Camp

labeled

Pump Top C

Pump kind W - concrete



Aug 14, '51

Sec 18

165' deep

0 - ?

? - 165'

alluvial fan deposits
red clay

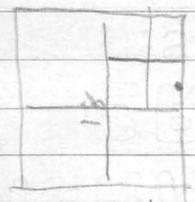
U. S. G. S.

loc.



May 14, 51

Sec 18 Dry - 80' deep - 4" deep

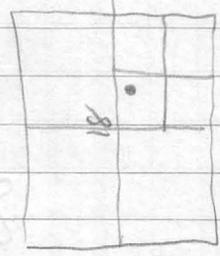


May 14, 51

Sec 18 drilled - 100' - test well

0-? alluvial sand
? - 100' red clay
H₂O at 90'

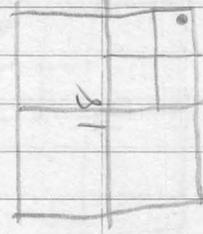
May 14, 51



Sec. 18 Dry - 30' deep

- 0-8 top soil
- 8-20 clay - white congl. - in boulders
- 20-25 clay - white sand
- 25-31 and purple clay

1942



Sec 18 Over E.L. Lyerly
dry - 55' deep W. Land - 50' reported diameter

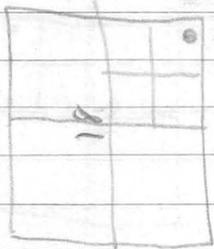
5/5

Aug 17-51

sec. 18

Dug - 90' deep

Dry



0-15' Fungus
with bones
15-90' red ash

U.S.G.S.