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UNSUBDIVIDED

-	n 683.03	608.02' HEL	MET 608.02' PE	N 89°35'39"W	5180.57' 672.12'	RD. 627.12'	627.12'	702.11 '8	T-17-S, R-13-E
75	4:90° 582.94'  ***********************************	608.07'	608.07	583./3' 39" 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	602.05' -45' 256'21. -25' 25' 21.	6 27./2'	627.12	602./7' 39' 75'	FOUND 11/2" LEAL CAPPED PIPE.
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IDA	<u> </u>	20' UTILITY EASEMENT	- N89°24'39"W-	DA			- N89°24'39"W	33-A Well site 40 4 4 Ac. 4 Ac	>
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A.				N 89° 18' 04"W	5195.40'		·		T-17-S, R-13-E

UNSUBDIVIDED



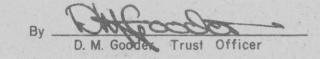
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31	32	33	34	35	36
31			R-13-		36

LOCATION PLAN scale: 3" = 6 miles

# DEDICATION

We the undersigned owners of the land shown on this plat hereby consent to the subdivision of said land in the manner shown hereon and hereby dedicate to the use of the public forever all streets and easements so designated.

ARIZONA LAND TITLE AND TRUST COMPANY an Arizona corporation, as Trustee under Trust Agreement No. 5355-T.



STATE OF ARIZONA S.S.

This instrument was acknowledged before me this 2nd day of October, 1958 by D. M. Gooder as Trust.

Officer of the Arizona Land Title and Trust Company, as Trustee.

Bandruster
Notary Public

My commission expires (1-25-6).

# RECORD DATA

STATE OF ARIZONA S.S.

No. 60083 Fee 8 5.00

Filed for record at the request of Jerry Courtney Investments on the 2 day of October 1958 at 2:25 m. in Book 13 of Maps and Plats on Page 33 thereof.

Anna Sullinger
County Recorder

By Beetta Stephens
Deputy

# GENERAL NOTES

- Set 3/4" lead capped pipe at all street intersections and at all interior lot corners.
- 2. Set 3/4" lead capped reference pipe in center line of street at lot line extension.
- 3. Indicates corners of subdivision, monuments as indicated.
- 4. Bearings established from east line of Section 18 assumed N. 0°32'42"E.
- 5. Acreage figures shown are commercial acres.

I hereby certify that this represents a survey made under my direction and that all monuments do exist as shown hereon.



Registered Land Surveyor

# CURLY HORN RANCHES

BEING A SUBDIVION OF SECTION 18, T-17-S, R-13-E, G. & S.R.B. & M. PIMA COUNTY, ARIZONA.

MADDOCK & ASSOCIATES

SCALE: 1"= 400"

SHEET | OF |

SEPTEMBER, 1958

# UNSUBDIVIDED

*	OUNO 11/2" LEAD C		620 001 50	589° 35' 48" E	5278.87' 647.86'	629.86' RD	629, 86'	704.86 in
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	705.78	630.79'	630.81	605.77	605.85	630.81'	630.81	605.80
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1+	2.1.30 606.15	N 89°40' 18" W CAMINO	631.24	606.29	COG. 19	DEL 631.24 PALO	OMA 631.24'	606.26
-	706.24'	-0	631.25'	0 676.25'	676.25'	631.25'	631.25'	606.24
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t	606.58	631.69'	631.69	606.76 . 22.3. 20.	P 21: 2: 39 606.62	63/.69'	631.69	606.72' 3-
	706.71	63/.72 CAMINO	631.72'	676.71	676.71'	DEL 631.72' TO	)RO 631.72'	706.71' %

UNSUBDIVIDED

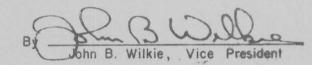


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30	29	28	27	26	25
31	32	33	34	35	36

# DEDICATION

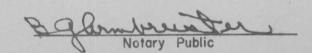
We the undersigned owners of the land shown on this plat hereby consent to the subdivision of the said land in the manner shown hereon and hereby dedicate to the use of the public forever all streets and easements so designated.

ARIZONA LAND TITLE AND TRUST COMPANY an Arizona corporation, as Trustee under Trust Agreement No. 5355-T.



STATE OF ARIZONA S.S.

This instrument was acknowledged before me this 2320 day of December 1958 by John B. Wilkie as Vice President of the Arizona Land Title and Trust Company as



My commission expires 11-25-61.

# RECORD DATA

STATE OF ARIZONA S.S.

UNSUBDIVIDED

No. 8 1089 Fee \$500

on the 29th day of December 1958 at 3:36 P. m. in Book 13 of Maps and Plats on Page 50 thereof.

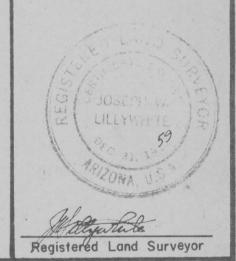
Anna Sullinger County Recorder By Ida mae Annyts Deputy

# GENERAL NOTES

- Set 3/4" lead capped pipe at all street intersections and at all interior lot corners.
- Set 3/4" lead capped reference pipe in center line of street at lot line extension.
- Ranches, Book 13, Page 33.

  5. Acreage figures shown are commercial acres.

I hereby certify that this represents a survey made under my direction and that all monuments do exist as shown hereon.



# CURLY HORN RANCHES NO. 2

BEING A SUBDIVISION OF SECTION 17 T-17-S, R-13-E, G. & S. R. B. & M., PIMA COUNTY, ARIZONA.

MADDOCK & ASSOCIATES

SCALE: 1" = 400"

SHEET I OF I

DECEMBER, 1958

Job No. T580719

# A MAGNETIC APPLICATION IN GROUND WATER STUDIES

General problem here was to determine overall water potential in Sections 17 & 18 and particularly, the relative favorability of lot 5 versus lot 18 in Section 17. Production data in the immediate area was meagre and limited to very small producers. However, quite a few holes were available for measurement of static water level and excellent producers emisted a mile or two to the north and east nearer the bottom of the Santa Gruz river valley. This area is on the west side of the valley and is completely alluvial covered but is immediately east of the alluvial outcrop boundary as noted on the accompanying map.

Static water level gradient is presented by deshed line contours and is essentially easterly with some variation effected by the andesite dike. Though not shown, considerable northerly gradient, north of the area is expected since the river flows in that direction and is further evidenced by the good producers in that direction.

The major andesite dike or sill was known from exposure on Twin Buttes Road. As shown, it was a simple objective to magnetically trace this feature across the property. This was done in a few hours by using the continuous recording mobile magnetomater. Results confirming the existence of the dike across the property were most important as this indicated that the possibility of a thick section of alluvium below the water table is mil, and therefore the probability of a large shellow producer from the alluvium is very poor. Of course, a large deep producer is possible, especially south of the dike in the Helmot fauglomerate at an order of magnitude depth of about 700° or 800° or deeper. Porosity and permeability of the andesite is suggested to be less than the fauglomerate, therefore let 18 is to be preferred over lot 5 for small shallower producers.

Supplemental resistivity work was not done but should aid considerably in further dileneating the possibilities in the area in more detail.

WEH: Ih

August 28, 1961

HEINRICHS,

HEINRICHS GEOEXPLORATION COMPANY

Walter E. Heinrichs, Jr.

Records of wells in T. 17 S., R. 12 E., sections 1, 12, 13, 24, 25 and 36

Sources: Files of Ground Water Branch, U. S. G. S., Tucson and Agricultural Engineering Department, University of Arizona

		University of Arizona.	I Arizona.		
Well Location	Owner	Driller and date drilled	Depth and diam, (ft; in)	Water level (ft) and date	Remarks
(D-17-12)1 baa	Pima Mining Co.	; 8/54	570;13 to 5	230;8/54	Exploration hole. Log; 0-185, alluvium; 185-200, residual conglomerate; 200-570, Quartzite (metamorate; 200-570, Flevation land sur-
					face 3317'. Analysis on file at U.S. G.S., either this location or 1 bab.
(D-17-12)1 bab	Pima Mining Co.	; 1952	1	i i	Group of churn drill holes. Log, sketch and notes attached.
(D-17-12)1 bab	Pima Mining Co.	; 4/54	500;	290,	Log; 0-180, alluvium, 180-200, residual conglomerate; 200-500, bedrock (gray quartzite) Hit water at 2901.
(D-17-12)12 bcd	Turner	O.C. Robin- son; 1954	1,300;6	135, 16, 9/54	Rep't. 15 gpm with 22' drawdown. Hit seep at 135'. Hit water at 900', which rose to 120'. From "sort of sandstone." Elevation land surface 3450 <sup>‡</sup> .
(D-17-12)13 db	1 1	1	1	47.26, 3/47	1
(D-17-12)13 dd (D-17-12)24	M. Baird No records available	1	100;	85, 11/41	Windmill.
(D-17-12)25 ac	1	1	90;	76, 11/41	I
(D-17-12)36 c	98 99	1	45;	39, 11/41	Dug well. Domestic use. Hand pump.

Well No. (D-17-12)1 bab Owner: Pima Mining Co.

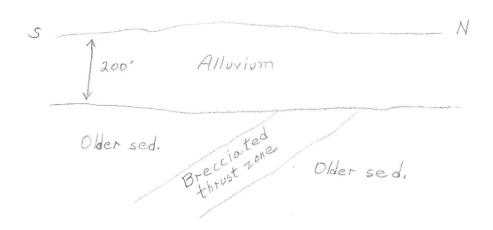
This is a group of mining churn drill holes, all within 1/4 mi. Gen. log as follows:

0-200 Alluvium of granitic, older sediment, and metamorphosed rocks.

A little perched water at base, on top of bedrock.

200-600- Tilted, faulted, and fractured older sediment and volcanic rocks. of Permiam and Cretaceous age: ls., arkose, rhyolite, and altered flows. A south-dipping E N E striking thrust, highly mineralized with magnetite and chalcopyrite, was found.

Below top of bedrock, there was a drier zone, then water increasing progressively. At 400 ft, pumpage was 200-250 gpm; at 600 ft, 600 gpm. Now stabilized at 350  $\pm$  gpm. In thrust zone, water concentrated along footwall.



Service of the

Records of wells in T. 17 S., R. 13 E., G. and S. R. B. and M.

Sources: Files of Ground Water Branch, U.S.G.S., Tucson, and Agricultural Engineering Department, University of Arizona.

	The control of the co	and the second s			
Wall I costion		Driller and	Depth and	5	
	1.3		CTCC (+ C) +11/		INCILIGI WA
(D-17-13)1 aba	L. R. Masek	McDaniel; 3/51	255;20	71.0,	Partial log; 0-255, clay and gravel. Rep't. 600 gpm.
(D-17-13)1 cab	G. Altfillisch	McDaniel;11/52	306;16	121.81,2/59	Partial log; 0-306, Sand, clay and gravel. Rep't. 757 gpm with 88'
(D-17-13)1 cdc	G. Altfillisch	McDaniel;12/52	311;16	128.84, 2/58	Partial log; 0-267, Sand, clay and gravel; 267-311, Conglomerate.  Rep't. 937 gpm with 49' of drawdown.
(D-17-13)6 aaa	Pima Wining Co	Pigtor: 4/59	87	1	Water levels attached.
	0				24-87, Clay, some sand and gravel.  Did not hit ground water.
(D-17-13)6 cbd	Herrick	i	1	1	Elev. 3245 <sup>‡</sup> . Rep't. dry.
(D-17-13)8 near center	E. C. Tuthill	Forsyth; 5/32?	263;	1	Log; 0-210, overburden; 210-263, red clay. Dry hole.
(D-17-13)8 near center	E. C. Tuthill	Forsyth; 5/32?	143;	1	Log; 0-140, overburden; 140-143, red clay. Dry hole.
(D-17-13)8 ac	E. C. Tuthill	1	280;	230, 11/41	Rep't. to be a windmill.
(D-17-13)10 db	Lewisohn	!	1150;8	309.10,2/59	Mineral prospect. Log; 0-430, valley fill; 430-900, conglomerate; 900-1150, hardrock. 8" casing to 450".
(D-17-13)11 dc	Sahuarita School	Pistor; 10/57	445; 12	167.56,10/57	Partial log; 0-445, sand, red clay and gravel. Rep't. 350 gpm with 42' of drawdown. Water levels attached.
(D-17-13)12 db	Joe Lopez	Pistor; 5/58	210; 8	115, 5/58	Partial log; 0-210, sand, gravel and red clay.
(D-17-13)12 dbc	J. E. Tyra	McDaniel; 6/58	200; 8	107, 6/58	Partial log; 0-193, sand, clay and gravel: 193-200, hard conglomerate
(D-17-13)13 ba	;	1	j. 6	80,70,3/49	Water levels attached.

Owner         Driller and date drilled diam. (ft;in) (ft) and date drilled diam., (ft;in) (ft) and date         Water level diam., (ft;in) (ft) and date           Eagle Pitcher Mill         Pistor;8/52         130; 6         95, 8/52         L           F.H. Appleton         Pistor;1/58         190; 8         105, 1/58         P           Rancho Oro Verde        ; 7/14         175; 16         35,         P           Inc.         Inc.         Pistor;1932?         353; 8         200, 4/32         L           Pistor; H.M. Spanagel         Forsyth;1932?         353; 8         200, 4/32         L           Mrs. Kreutzberg         Forsyth;         350;         213.35,1947         E           Curlyhorn Ranch          220;         16841, 3/47         W           L. Emmons         Pistor;1952?         610;         Dry         L           L. Emmons         Pistor; 3/37         456;6 5/8          N           Mrs. Emmons         Wetmore;         465; 6 or 8         422.68, 2/47         A           Mrs. Williams         Wetmore; 1932? 508;         450*, 2/47         F	then must rest 1 hr. Rep't. dry at 485' 3/55. Elevation of M. P. 3167.69' Analysis available. TSS=382 ppm. Log attached.					
Owner       Driller and date drilled date drilled date drilled date drilled date.       Depth and date.       Water level date drilled diam. (ft;in) (ft) and date.         Eagle Pitcher Mill       Pistor; 8/52       130; 6       95, 8/52         F. H. Appleton       Pistor; 1/58       190; 8       105, 1/58         Rancho Oro Verde      ; 7/14       175; 16       35,         Inc.       Inc.       175; 16       35,         Mrs. H. M. Spanagel       Forsyth; 1932?       353; 8       200, 4/32         Mrs. Kreutzberg       Forsyth; 1932?       350;       213.35, 1947         Curlyhorn Ranch        350;       325, 1941         Mrs. Kreutzberg       Pistor; 1952?       610;       Dry         L. Emmons       Pistor; 3/37       456; 65/8          Mrs. Emmons       Pistor; 3/37       456; 65/8          Mrs. Emmons       Wetmore;       465; 6or 8       422.68, 2/47	Shaw measured total depth of 452.5' 1-17-50. Water levels attached. First water at 500'. Driller thinks it	460 <sup>±</sup> , 2/47	508;	Wetmore; 1932?		(D-17-13)21 cc
Owner       Driller and date drilled       Depth and date. (ft;in)       Water level date date. (ft;in)         Eagle Pitcher Mill       Pistor;8/52       130; 6       95, 8/52         F.H. Appleton       Pistor;1/58       190;8       105, 1/58         Rancho Oro Verde      ; 7/14       175; 16       35,         Inc.       Inc.       175; 16       35,         Mrs. H.M. Spanagel       Forsyth;1932?       353; 8       200, 4/32         Mrs. Kreutzberg       Forsyth;       350;       213.35,1947         Curlyhorn Ranch        350;       325, 1941         Mrs. Kreutzberg       Pistor;1952?       610;       Dry         L. Emmons       Pistor; 3/37       456;6 5/8	the location. Possibly in sec. 20.  Log attached.  Analysis available TSS=513 ppm.  Elevation of M. P. 3146.58'. Dick	422.68,2/47	465; 6 or 8			√(D-17-13)21 bd
Owner         Driller and date drilled         Depth and diam. (ft;in)         Water level diam. (ft;in)           Eagle Pitcher Mill         Pistor;8/52         130; 6         95, 8/52           F.H. Appleton         Pistor;1/58         190;8         105, 1/58           Rancho Oro Verde        ; 7/14         175; 16         35,           Inc.         Inc.         200, 4/32           Mrs. H.M. Spanagel         Forsyth;1932?         353; 8         200, 4/32           Mrs. Kreutzberg         Forsyth;         350;         213.35, 1947           Curlyhorn Ranch          350;         325, 1941           Mrs. Kreutzberg         Pistor;1952?         610;         Dry           L. Emmons         Forsyth;11/37         290;         Dry	erate; 273-290, nard yellow clay.  No water level data. U of A questions	i 1		Pistor; 3/37		(D-17-13)21 bd
Owner       Driller and date drilled       Depth and date (ft;in)       Water level (ft) and date date date date date date)         Eagle Pitcher Mill       Pistor;8/52       130; 6       95, 8/52         F.H. Appleton       Pistor;1/58       190;8       105, 1/58         Rancho Oro Verde Inc.      ; 7/14       175; 16       35,         Mrs. H. M. Spanagel       Forsyth;1932?       353; 8       200, 4/32         Mrs. Kreutzberg       Forsyth;       350;       213.35,1947         Curlyhorn Ranch        350;       325, 1941         Mrs. Kreutzberg        220;       168#1, 3/47	Log attached.  Log; 0-3, clay; 3-273, sandy conglom-	Dry	I I	Pistor;1952? Forsyth;11/37	Emmons L. Emmons	(D-17-13)20 (D-17-13)20
Owner         Driller and date drilled         Depth and diam, (ft; in)         Water level date drilled           Eagle Pitcher Mill         Pistor; 8/52         130; 6         95, 8/52           F.H. Appleton         Pistor; 1/58         190; 8         105, 1/58           Rancho Oro Verde Inc.        ; 7/14         175; 16         35,           Mrs. H. M. Spanagel         Forsyth; 1932?         353; 8         200, 4/32           Mrs. Kreutzberg         Forsyth;         350;         213.35, 1947           Curlyhorn Ranch          350;         325, 1941	Windmill.	168+1, 3/47		1	Mrs. Kreutzberg	(D-17-13)18 da
Owner         Driller and Owner         Depth and date drilled diam. (ft; in)         Water level diam. (ft; in)         (ft) and date drilled diam. (ft; in)         Water level diam. (ft; in)         (ft) and date drilled diam. (ft) and dat	than 1 gpd. This is possibly a duplication of 17 caa or 17 near center. The depth to	325, 1941		1	Curlyhorn Ranch	√(D-17-13)17 bd
Owner       Driller and date drilled       Depth and diam. (ft; in)       Water level date drilled         Eagle Pitcher Mill       Pistor; 8/52       130; 6       95, 8/52         F.H. Appleton       Pistor; 1/58       190; 8       105, 1/58         Rancho Oro Verde Inc.      ; 7/14       175; 16       35,         Mrs.H.M. Spanagel       Forsyth; 1932?       353; 8       200, 4/32	water found below 200. Rep't dry or plugged May 1947 by Dick Shaw. Estimated elev. 3225'. Makes less	213.35,1947		Forsyth;	Mrs. Kreutzberg	/(D-17-13)17 caa
Owner         Driller and date drilled         Depth and diam. (ft; in)         Water level diam. (ft; in)           Eagle Pitcher Mill         Pistor; 8/52         130; 6         95, 8/52           F.H. Appleton         Pistor; 1/58         190; 8         105, 1/58           Rancho Oro Verde Inc.        ; 7/14         175; 16         35,           Wrs. H. M. Spanagel         Forsyth; 1932?         353; 8         200, 4/32	rock; 220-353, hard cemented out- wash material. Water at 200 only a seep. 70 gpd more or less. No					center
Owner date drilled diam. (ft; in) (ft) and date  Eagle Pitcher Mill Pistor; 8/52 130; 6 95, 8/52  F.H. Appleton Pistor; 1/58 190; 8 105, 1/58  Rancho Oro Verde; 7/14 175; 16 35, Inc.	41 and 1030 gpm 4-9-52. Log; 0-200, no record; 200-220, hard-	200, 4/32	00	Forsyth; 1932?	Mrs.H.M. Spanagel	√(D-17-13)17 near
Owner Driller and Depth and Water level Cowner date drilled diam. (ft; in) (ft) and date Remarks  Eagle Pitcher Mill Pistor; 8/52 130; 6 95, 8/52 Log: 0-75, pit; 75-85, 85-130, loose sand.  F.H. Appleton Pistor; 1/58 190; 8 105, 1/58 Partial log; 0-190, san	gravel.  Partial log; 0-175, sand, clay, gravel and boulders. Rep't. 798 gpm 6-20-	3 5 1		; 7/14	Rancho Oro Verde Inc.	$\sqrt{(D-17-13)13}$ ddd
Owner date drilled diam. (ft; in) (ft) and date Remarks  Eagle Pitcher Mill Pistor; 8/52 130; 6 95, 8/52 Log: 0-75, pit; 75-85,	Partial log; 0-190, sand, clay and	105, 1/58		Pistor;1/58		(D-17-13)13 bad
Owner Driller and Depth and Water level date drilled diam. (ft; in) (ft) and date		95, 8/52	o	Pistor; 8/52	Eagle Pitcher Mill	(D-17-13)13 bd
	Remarks	Water level (ft) and date	Depth and diam. (ft; in)	Driller and date drilled	Owner	Well Location

(D-17-13)25 bd	(D-17-13)25 abb		(D-17-13)24 acc	(D-17-13)23 ?	(D-17-13)22 dac	(D-17-13)22 da		(D-17-13)22 bc					(D-11-13)44 Da	15 15 15 15 15		(D-11-13) 44 NG	(D 17 19)99 ha			(D-17-13)22 aa	Well Location	
Ranches Inc. Kane	Sahuarita	Products Co.	Agricultural	Wrs. E. Hazen	Mrs. F. Emmons	Mrs. Emmons		G. Ainslie					IVITS. ELIZ. Dazen	יייי ייייי ייייייייייייייייייייייייייי		Jas. Hazen	To C Library			J. G. Beard, Jr.	Owner	
Pistor; 2/49	Pistor;12/51		Pistor; 8/48 ?	Kinsley;1/57	McDaniel; 6/58	1		Pistor;11/31					Aukilis, 1940	1016		1				B. Lord; 12/57	date drilled	Driller and
230; 16	320;20		254;20	325; 6	402; 8	370; 6		410;7 5/8						206. 0			כ. ת כ נ			320; 5	diam. (ft; in)	Depth and
54, 2/49	47.78, 1/52		71, 8/48	235, 1/57	281.14,2/59	227.37,1/47		310, 11/31					12/1	207 1/17		201, 10, 1/11	987 10 1/47			255?12/57	(ft) and date	Water level
gravel.  Partial log; 0-230, sand, clay and gravel. Rep't. 1200 gpm.	levels attached. Partial log; 0-320, sand, clay and	clay. Analysis available TSS=304 ppm Rep't. 1287 gpm. 6-20-41. Water	levels attached. Log attached. Partial log; 0-254, sand, gravel and	attached. Elevation of M. P. 2897, 591. Water	attached. Water levels attached. Water level 287. 28, 2/60. Log	levels attached. Log attached. Elevation of M. P. 2932.05'. Log	Elevation of M. P. 3046, 47. Water	Analysis available. TSS=288 ppm.	Possibly same well as the first	at 355. Water level estimated at 312.	limestone. Crevice from 330-335, and	deepened in 1957 to 355'. Stayed in	supposedly in crevices. Kinsley	levels attached.	available. TSS=388 ppm. Water	Floration of M D 2002 ADI Analyzaia	gravel. Water rose 15' during drilling.	270-320, water bearing sand and	dry sand; 170-270, sand and clay,	Log; 0-160, sand and clay; 160-170,	Remarks	

	(D-17-13)35 ac	(D-17-13)35 ab	(D-17-13)31 bb	(D-17-13)29 ?	(D-17-13)29 ?	(D-17-13)27 a	(D-17-13)28 bb	(D-17-13)27 bc	(D-17-13)26 cca?		(D-17-13)26 bd	(D-17-13)25 cc	(D-17-13)25 ca	Well Location
	Itzweire	Siminoff	Fay	J. Blake	J. Blake	J. Blake	M. Baird	M. Baird	Los Quintas Serenas Water Co.		W. Baird	Ranches Inc. Co-op Gin	Sahuarita	Owner
,	;1953	; 1956	1	Forsyth;8/34	Forsyth;8/34	1	Forsyth; 6/42	Forsyth; 4/50	Robinson; 9/57		Forsyth; 3/50	Pistor;3/55	Pistor;11/51	Driller and date drilled
	12	1 1	140;	263;	320;	255	467; 6	462; 6	320; 8		230;6 5/8	202; 8	320; 16	Depth and diam, (ft; in)
,	140.05, 2/54	142.85,2/58	125, 11/41	Dry	Dry	1	420, 6/42	325, 5/50	196.06, 2/58		125.99,1/47	90, 3/55	73, 11/51	Water level ) (ft) and date
levels attached.	level 147, 66' 2/59 and 150, 36' 2/60. Elevation of M. P. 2837, 85'. Water	domestic water supply. Elevation of M. P. 2840, 731. Water	lime rock. Rep't, as being a mine shaft used for	lime rock.  Log; 0-5, sandy soil; 5-237, loose sandy conglomerate; 237-263, white	limestone. Log; 0-3, sandy soil; 3-278, sandy clay conglomerate; 278-320, white	Log attached.  Log; 0-5, sandy soil; 5-237, loose sand little clay, caves; 237-255, white	attached. Water levels attached. Rep't. hit water 425-430 and 445-452. Baird rep'ts well dry 1-27-50.	Water levels attached. Elevation of M.P. 3034.901. Log	attached.  Partial log; 0-320, sand, clay and gravel. Struck water at 212'. Rose	sand, clay and gravel. Analysis available. TSS=382 ppm. Elevation of M. P. 2830.021. Water levels	gravel. Partial log; 0-130, dug well; 130-230,	gravel. Partial log; 0-202, sand, clay and	Partial log; 0-320, sand, clay and	Remarks

	(D-17-13)36 dc	(D-17-13)36 cb	(D-17-13)36 bcc	(D-17-13)36 add	(D-17-13)35 ddd	(D-17-13)35 dc	(D-17-13)35 db	Well Location
	R. A. Land	J. Bull	Itzweire	Itzweire	Itzweire	Itzweire	Itzweire	Owner
	Pistor; 11/41	Pistor; 3/49	Pistor; 2/42	Scott;1942?	Pistor;	Pistor;1952	Pistor; 2/52	Driller and date drilled
	209; 12	254; 12	254; 16	158? 14	256;	274; 8	472; 16	Depth and diam. (ft; in)
	49,	68, 3/49	60,1942	60.53, 1/53	63.48, 1/47	119.20,2/52	116.91,11/51	Water level ) (ft) and date
boulders and gravel. Rep't. 1000 gpm.	boulders and gravel. Partial log; 0-209, sand, clay, silt,	8/49. Partial log; 0-254, sand, clay,	Rep't 570 gpm 8/49.  Partial log; 0-254, sand, clay,  boulders and gravel. Rep't. 940 gpm	Rep't. to be a windmill. Water levels attached. U of A rep'ts total depth as 200'.	gravel. Elevation of M. P. 2837. 84. Water levels attached.  Partial log; 0-256, sand, clay and	gravel. Elevation of M. P. 2828.05'. Water levels attached. Partial log; 0-274, sand, clay and	Partial log; 0-472, sand, clay and	Remarks med.

# Additional remarks:

- tabulated or it has no value. tabulating purposes it was not used as it is either a duplication of material already There is more information in the files for sections 1, 12, 13, 24, 25, 35 and 36.
- 2 of sand, gravel, clay, boulders, etc. A more complete log is on file. Partial log was used when the entire section penetrated consisted of alternating layers

Drillers' logs of wells in T. 17 S., R. 13 E.

Source: Ag. Engr. Dept., Univ. of Arizona, and U.S.G.S.

Well (D-17-13) 20 Owner: Emmons	0-3 3-10 10-83 83-104 104-280 280-320 320-360 360-380 380-450 450-470 470-507 507-522 522-610 Reported	Sandy soil Hard dark brown sandy clay Yellow sandy clay Boulders and clay Yellow sandy clay Boulders and clay Cemented boulders and gravel Cemented boulders and gravel brown Cemented boulders Conglomerate, solid Conglomerate, hard Cemented boulders Conglomerate dry hole
	Reported	dry note
Well (D-17-13)21 bd Owner: L. Emmons	0-235 235-300 300-325 325-340 340-360 360-370 370-395 395-420 420-430 430-440 440-445 445-450	Sand, gravel, boulders Sand, shale Hard blue lime Hard sand Brown sand clay Hard granite Sand, brown clay No record Hard granite Sand and brown shale Sand, gray Sand Broken formation
Well (D-17-13)21 cc Owner: Mrs. Williams	0-350 350-460	Soil, cemented outwash of clay, sand and gravel Cemented material with rock and boulders up to 8" dia. Driller says had to case this as
	460-500	boulders would break loose. Limy sandstone or shale. Driller thinks it porous and could carry water. Also thinks this formation stands on edge. Hit water at bottom of

this stratum.

500-506-8 Granite or syenite. Went into it far enough to make sure it was solid rock.

Well (D-17-13)22 bc Owner: G. Ainslie	115-135 135-150 150-175 175-187 187-250 250-262 262-264 264-280 280-285 285-300 300-307 307-322 322-350 350-362	Clay and sand Clay and gravel White talc and blue lime rock White talc Blue limestone White talc and blue limestone Red talc White talc and blue limestone Yellow talc
Well (D-17-13)22 da Owner: Mrs. Emmons	0-2 2-80 80-95 95-125 125-140 140-240 240-285 285-340 340-350 350-360 360-370	3
Well (D-17-13)22 dac Owner: Mrs. Frances Emmons	0-3 3-15 15-125 125-135 135-290 290-325 325-335 335-360 360-390 390-402	Sandy soil Sandy clay Conglomerate Clay Gravelly clay Muddy sand and water Clay Gravelly clay Muddy gravel and water Clay

 $e^{-ik} = -i \cdot e^{-ikt} d\alpha$ 

Well (D-17-13) 23 Owner: Mrs. Elizabeth Hazen	0-25 25-100 100-235 235-290 290-295 295-325	Alluvial fill Sand and gravel Caliche ledge
Well (D-17-13)27 bc Owner: Matthew Baird	0-2 2-35 35-45 45-115 115-330 330-335 335-345 345-375 375-385 385-390 390-405 405-425 425-435 435-462	No record Sandy brown conglomerate Sandy gray conglomerate Brown sandy clay Sandy brown conglomerate, uniform overburden Sand and gravel-water Very sandy conglomerate Muddy sand and gravel-water Fine sand and gravel-water Rocky clay conglomerate Hard cemented clay conglomerate Brown clay conglomerate Sand and gravel-water Hard gray clay conglomerate
Well (D-17-13)28 bb Owner: Matthew Baird	0-3 3-365 365-425 425-430 430-445 445-452 452-462 462-466 466-467	Red clay Sandy gravelly conglomerate No log Loose sand and gravel-water Hard cemented conglomerate Sand and gravel-water Hard quartz and limestone Yellow clay Hard blue-white limestone (bedrock)

Records of water-level measurements in wells in T. 17 S., R. 13  $\pm$ .

Source: Files of Ground Water Branch, U.S.G.S., Tucson and Agricultural Engineering Department, University of Arizona

Well location	Owner	Depth to water (ft)	Date
(D-17-13)1 cab	Gus Altfillisch	108.85	2/53
		199.8 (pumping)	7/53
		112.6	1/54
		112.89	2/55
		113.05	2/56
		116.51	2/57
		118.95	2/58
		121.68	2/59
		121.81(pumping	2/59
		nearby)	
(D-17-13)1 cdc	Gus Altfillisch	109.91	2/53
		162.9 (pumping)	7/53
		117.12	1/54
		116.98	2/55
		118.29	2/56
		123.09	2/57
		128,84 (pumped	2/58
		recently?)	
(D-17-13)10 db	Lewisohn	305.6	2/58
		309.10	2/59
/m		312.14	2/60
(D-17-13)11 dc	Sahuarita School	167.56	10/57
		168.69	2/58
		172.73	2/59
/D 17 10\10 1		175.69	2/60
(D-17-13)13 ba	SHIPPY NAME	80.70	3/49
		83.02	2/50
		84.78	1/51
		88.04	2/52
		92.22 100.20	1/53
			2/54
		93.60 99.40	1/55
		97.51	1/56 $1/57$
			7/57
		Dry	1/01

Project 660	page 2	March 2	29, 1960
(D-17-13)21 bd	Mrs. Emmons	422.68 424.75 422.90 422.2 422.85 423.25 423.90 421.35 424.55 426.46 427.42	2/47 3/48 3/49 1/50 3/51 2/52 2/53 2/55 2/56 3/57 2/59
(D-17-13)22 ba	Jas. Hazen	287.10 287.78 288.74 290.46 292.40 294.13 296.02 299.80 305.32 Dry at 310 314.09 317.30 320.87	1/47 2/47 3/48 2/49 2/50 3/51 2/52 2/53 2/54 2/55 3/57 2/58 2/59
(D-17-13)22 bc	**gare** servet	324.01 352.43 334.76 343.00 344.90 346.80 349.10 352.44 357.40 335.7 362.96 369.56 370.52 373.61	2/60 2/47 3/48 2/49 2/50 3/51 2/52 2/53 2/54 2/55 2/56 3/57 2/58 2/59
(D-17-13)22 da	Mrs. Emmons	227.37 229.23	1/47 3/48

2/49

2/50

3/51

230.92 231.90

233.41

Project 660	page 3	March	29, 1960
		235.49 239.31 244.77 246.86 253.60	2/52 2/53 2/54 2/55 3/57
(D-17-13)23 ?	Mrs. E. Hazen	222.33 225.01 228.68 232.50	3/57 2/58 2/59 2/60
(D-17-13)24 acc	Agricultural Products Co.	57.54 66.88	2/46 1/52
(D-17-13)26 bd	M. Baird	125.99 125.11 126.70 129.26 131.32 128.04 131.12 132.10 129.50 131.7 133.14 133.10 137.68 142.70 142.89 145.55 151.97 153.02 157.48 158.98	1/47 3/47 3/48 6/48 10/48 2/49 7/49 10/49 2/50 3/51 7/51 2/52 2/53 2/54 2/55 2/56 3/57 2/58 2/59 2/60
(D-17-13)26 cca?	Los Quintas Serenas Water Co.	196.06 200.11 203.39	2/58 2/59 2/60
(D-17-13)27 bc	M. Baird	325.25 326.39 328.93 332.80 337.35 340.76 343.07	5/50 3/51 2/52 2/53 2/54 2/55 2/56

Ä .. #

Project 660	page 4	March 29, 19	60
		348.18 350.78 354.51 357.55	3/57 2/58 2/59 2/60
(D-17-13)35 ac	Itzweire	140.05 138.00 143.56 145.55 151.02 153.96	2/54 2/55 2/56 2/58 2/59 2/60
(D-17-13)35 db	Itzweire	116.91 115.21 120.44 130.04 126.69 136.13 142.42	11/51 2/52 2/53 2/54 3/55 2/58 2/59 2/60
(D-17-13)35 de	Itzweire	119.20 123.60 131.85(pumping) 130.48 136.11 146.62	2/52 2/53 2/54 3/55 2/58 2/59 2/60
(D-17-13)35 ddd	Itzweire	63.48 65.21 66.84 68.25 71.61 74.91 89.70 87.19 89.65 98.13 104.18(pumping) 105.90 ?	1/47 3/48 2/49 2/50 3/51 2/52 2/54 3/55 2/56 2/58 2/59 2/60

Records of wells in T. 16 S., R. 13 E., sections 31, 32, 33, 34, 35 and 36

Sources: Files of Ground Water Branch, U.S.G.S, Tucson and Agricultural Engineering Department, University of Arizona.

		University of Arizona.	I Arizona.		
Well Location	Owner	Driller and date drilled	Depth and diam. (ft;in)	Water level (ft) and date	Remarks
(D-16-13)31 a	T. Gibbings	Forsyth;1930?	218;	Dry	Little seep at 195'. Rep't as dry hole. Log attached.
(D-16-13)32 (D-16-13)33	No records available No records available				
(D-16-13)34 abb	A S and R	Winninger; 1956	720;8	220. 5, 1957	Log as rep't by Jack Clark; 0-350, overburden; 350-720, San Xavier
					Conglomerate. Analysis available. TSS = 370 ppm. Rep't 420 gpm with
					2/59 and 228.64' 1/60.
(D-16-13)35 aaa	G. Carey	Pistor;3/57	181;8	128, 3/57	Log attached.
(D-16-13)35 ac	G. Carey	McDaniel; 3/52	300;12	139,3/52	Rep't 840 gpm with 42, 5' of drawdown.  Log and water levels attached.
(D-16-13)35 da	-	1	170;	110, 11/41	Rep't to be a windmill. Elevation land surface $2730^{-4}$ .
(D-16-13)36 aab	Pima Mining Co.	Freelove; 3/55	300;21	72.7 7/56	Rep't 1380 gpm with 71' drawdown. Elevation land surface 2663'.
(D-16-13)36 aca (D-16-13)36 ada	Pima Mining Co. Pima Mining Co.	Freelove;1/55 Freelove;2/55	300;21 300;21	75.25 7/56 76.9, 7/56	Rep't 1200 gpm with 250' drawdown? Elevation land surface 2665. Rep't 1690 gpm with 109' drawdown. Elevation land surface 2667.
(D-16-13)36 bb	D. B. Valencia Torington	1 1 1	110;50 114;48	107.39,10/39 109.88,10/39	Dug well. Windmill.  Dug well.
	M. M. Sundt	Pistor;11/52	275;20	72, 11/52	Log attached.
(D-16-13)36 ddd	Masek	1	i	58.69, 1/47	levels attached.

Records of water-level measurements in T. 16 S., R. 13 E., sections 31, 32, 33, 34, 35 and 36.

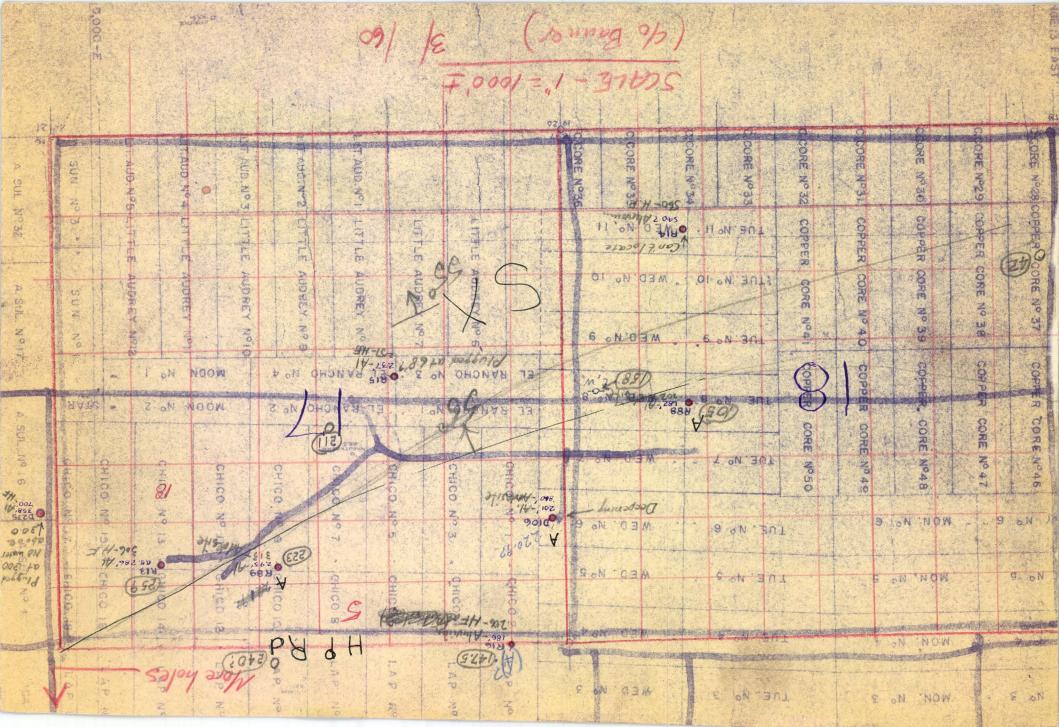
Source: Files of Ground Water Branch, USGS, Tucson and Agricultural Engineering Department, University of Arizona

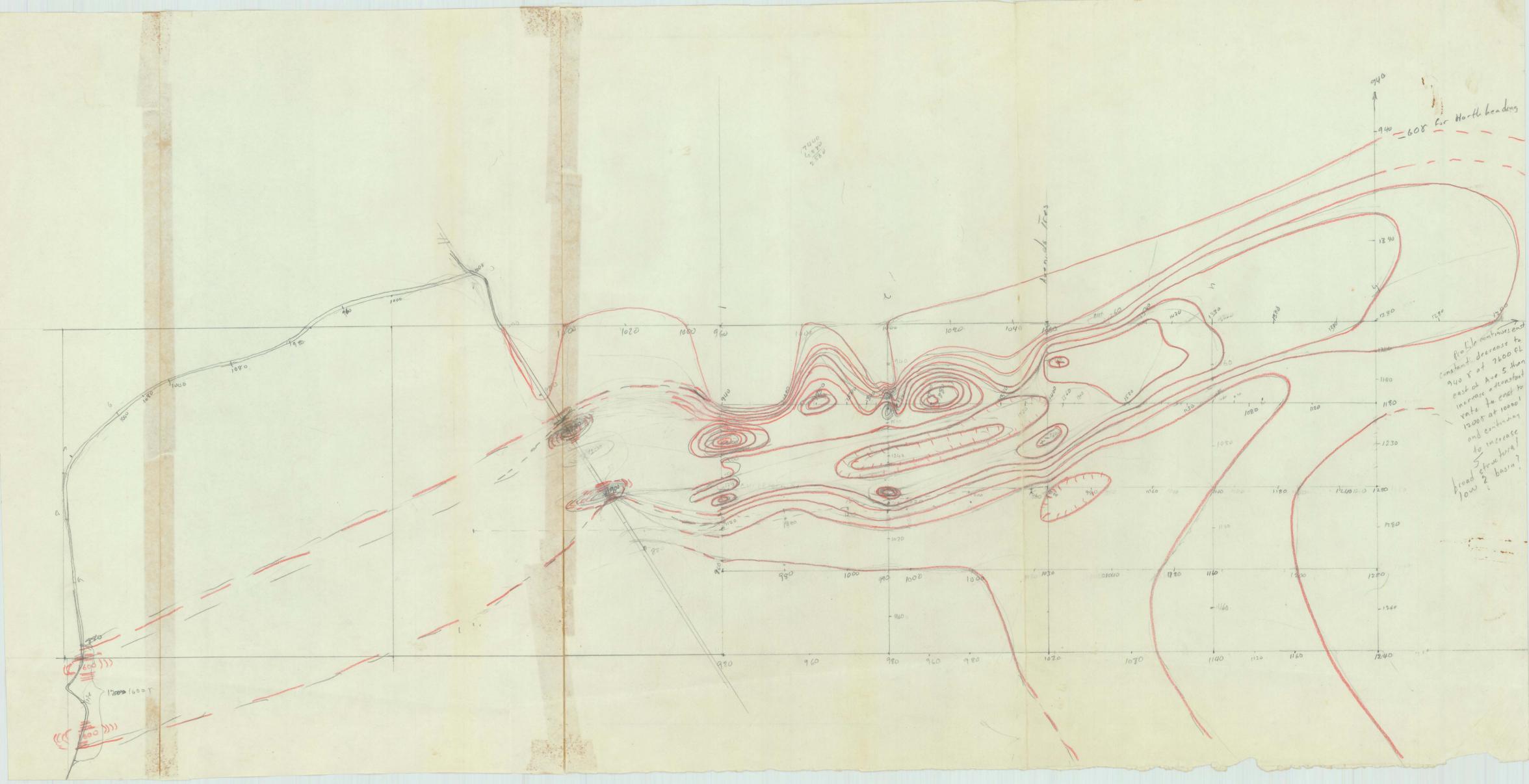
Well location	Owner	Depth to water (ft)	Date
(D-16-13)35 ac	G. Carey	140.99	6/52
		145.1	1954
		146.33	1955
(D-16-13)36 ddd	Masek	58.69	1/47
		61.03	3/47
		67.33	7/47
		61.42	10/47
		59.45	2/48
		70.25	6/48
		67.31	10/48
		61.58	2/49
		74.25	6/49
		66.86	10/49
		62.70	2/50
		65.12	11/50
		63.49	3/51
		77.15	7/51
		66.59	2/52

### Project 660

Drillers' logs of wells in T. 16 S., R. 13 E. Source: Ag. Engr. Dept., Univ. of Arizona, and U. S. G. S.

Well (D-16-13)31 a Owner: Tom Gibbings	0-10 10-30 30-32 32-40 40-43 43-44 44-105 105-110 110-145 145-195 195-200 200-218	Granite conglomerate Caliche (white) Large granite boulders Granite conglomerate and clay (white) Large boulders Blue mud Granite conglomerate and clay (white) Sand, loose Clay (white, no gravel) Granite conglomerate No. 1 red rock-seepage No. 1 red clay
Well (D-16-13)35 aaa Owner: Gene Carey	0-3 3-4 4-15 15-18 18-130 130-135 135-181	Topsoil-sandy Black clay Sandy clay Red clay Sandy clay Sandy clay Sand and gravel, water at 128 ft. Red sandy clay-soft
Well (D-16-13)35 ac Owner: Gene Carey	0-5 5-73 73-150 150-220 220-290 290-300	Sandy soil Gravel Brown clay Clayey gravel and water Gravel w/ increasing clay Sticky clay, sandy and hard
Well (D-16-13)36 ddd Owner: M. M. Sundt	0-135 135-142 142-160 160-166 166-195 195-215 215-230 230-235 235-250 250-275	Old well Sand and gravel Red clay Cemented gravel Red clay-sticky Cemented gravel-hard Red clay, very sticky Cemented gravel Red clay-very sticky Red clay-very sticky





# A MAGNETIC APPLICATION IN GROUND WATER STUDIES.

In a subdivision southwest of Tueson,
Arizona, the owner of two lots desired advice and help as to availability and/or potential of water for a well on his property. The problem was to determine the overall water potential in Sections 17 and 18 and particularly, the relative favorability of Lot 5 versus Lot 18 in Section 17.

water production data in the immediate area was meagre and limited to very small producers. However, a few holes were available for neasurement of states water level, and excellent producers exist a mile or two to the north and east nearer the Santa Cruz river valley. This area is on the west side of the valley, is completely allivial covered, but his just east of an alluvial outerop boundary, see Plate -.

Static water level gradient is essentially easterly with some northward component. A major andesite dike or sill is known from exposures on and near Twin Buttes Road in Section 13. To properly evaluate the water possibilities in the desired area it was felt desirable to know whether the andesite extended into the area and it so accurate location, as it might act as an impermeable dam to ground water movement.

As shown, it was a simple objective to magnetically trace this feature across the property. Using the track mounted continuous recording, total intensity magnetometer, profiles were obtained in two hours over all the roads of subdivided sections 17 and 18 as well as adjacent roads. Results confirmed the existence of the andesite in both sections and following an arcuate pattern such that it underlies Lot 5. This unformation was most important as it excluded the possibility of a thick section of alluvium below the water table under Lot 5.

1. Picture of Momay

2. Copy of this portion of Cooper's Map

3. Plato showing andesite outcrops, roads, sub-dinsin

10ts, momoy coverage.

4. Plate showing magnetic contours.

## Water-level measurements. March 24, 1960

### Project 660

### (D-17-13) 8ccc

Drill hole. Water level 148.5 below top of 2 in. pipe which is 1 ft. above land surface.

Measured with sounder.

### (D-17-13) 8 dcc

A S & R well. Man at house says too tight to measure Pistor worked well over about 1 month ago. Water level reported approximately 240'.

### (D-17-13) 9 bbd

Drill hole. Banner DDH 238, SEC Ida No. 2 Water level 279 ft. below top of 2 in. pipe which is at land surface. Measured with sounder.

### (D-17-13) 9 cca

Drill hole. Banner RDH 69, SEC Ida No. 18
Water level 296 ft. below top 2 in. pipe which is 1 ft.
above land surface.
Measured with sounder.

### (D-17-13) 16 bcb

Drill hole. NWC A. **S**ul No. 16 Banner DDH. 235. Tape and sounder hang at 300 ft. No water this depth.

### (D-17-13) 17 aac

Drill hole. NEC Chico No. 13 or SEC Chico No. 14
Too much moisture for tape. Water level 260 below top of 2 in.
pipe which is 1 ft. above land surface.
Measured with sounder.

### (D-17-13) 17 abc

Drill hole. NEC Chico No. 9 or SEC Chico No. 10.
Water level 221.92 ft. below top of 2 in. pipe which is 1 ft.
below land surface. Spotty on tape.
Checked with sounder.

### (D-17-13) 17 bcb

Rig on hole. Deepening.

# Water-level measurements. March 24, 1960 continued.

### (D-17-13) 17 bdd

Abandoned well. Lot 28 A.
Water level 211.88 below hole north side of pump base which is 0.5 above land surface.
Measured with tape.

### (D-17-13) 17 caa

Drill hole between El Rancho No. 3 and El Rancho No. 4 Casing pulled. Plugged at 68 ft.

### (D-17-13) 18 adc

Drill hole between Wed. No. 8 and Tue. No. 8 Water level 105 ft. below top of 2 in. pipe which is at land surface. Measured with sounder.

### (D-17-13) 18 cbc

Drill hole. Water level 41.54 ft. below and surface. Casing pulled. Measured with tape.

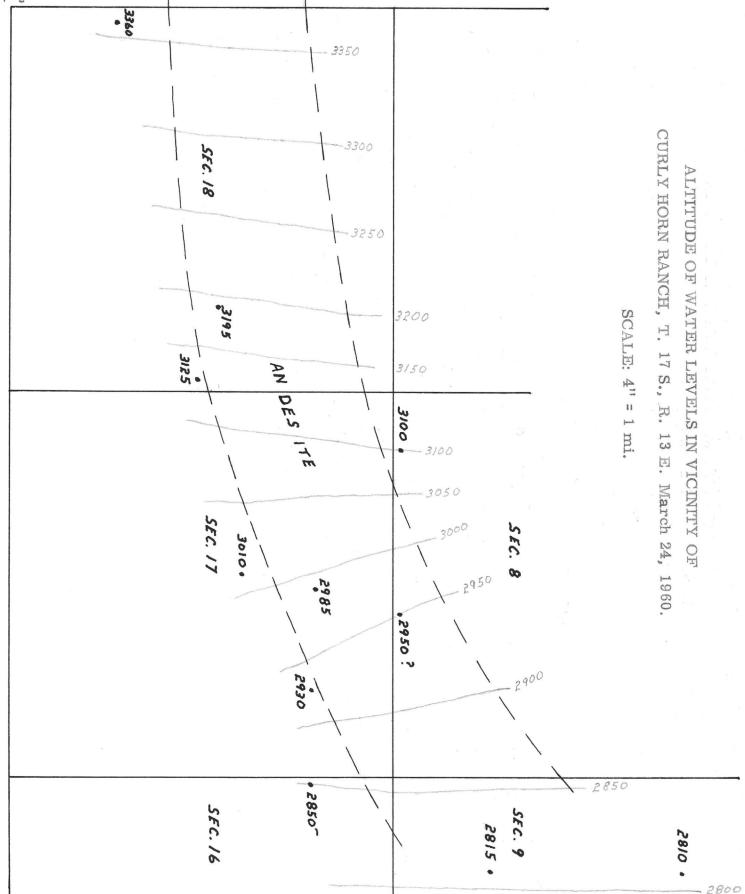
### (D-17-13) 18 daa

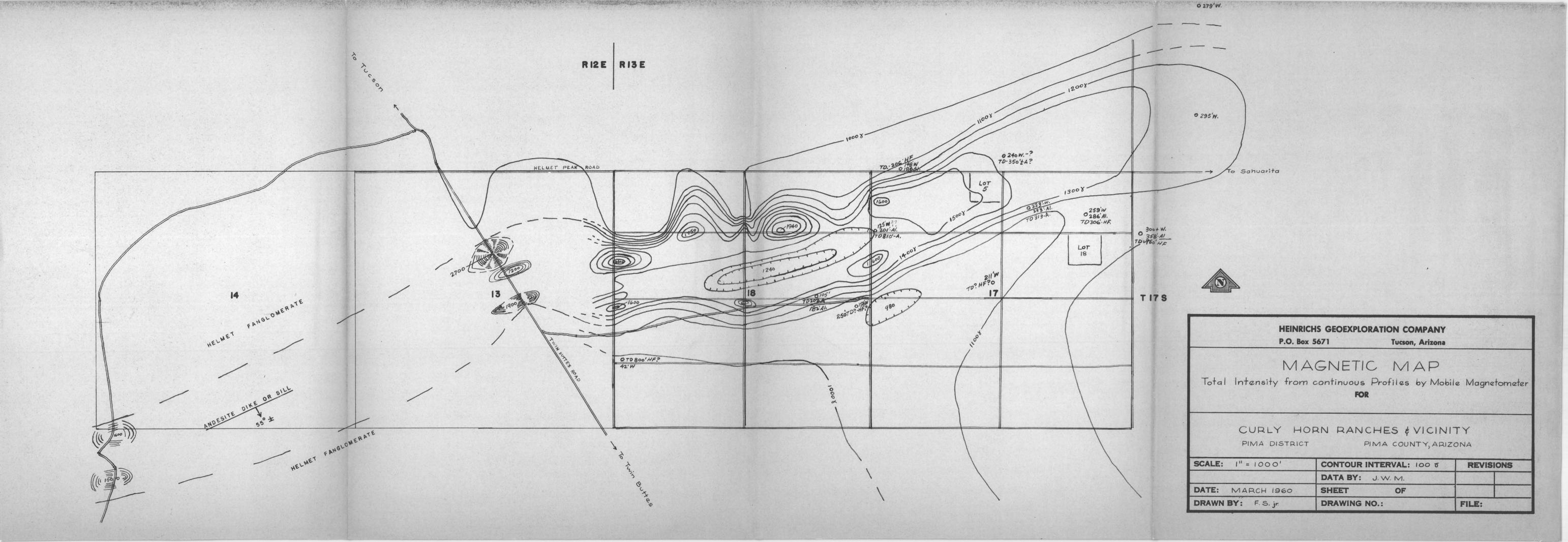
Windmill. Water level 160.01 below top of clamp which is 2.0 above surface. Had been pumping.

Off about 10 minutes. Measured with tape.

### (D-17-13) 18 ddb

Drill hole between Tue. No. 11 and Wed. No. 11 Cannot locate





### A MAGNETIC APPLICATION IN GROUND WATER STUDIES

General problem here was to determine overall water potential in Sections 17 & 18 and particularly, the relative favorability of lot 5 versus lot 18 in Section 17. Production data in the immediate area was meagre and limited to very small producers. However, quite a few holes were available for measurement of static water level and excellent producers existed a mile or two to the north and east nearer the bottom of the Santa Cruz river valley. This area is on the west side of the valley and is completely alluvial covered but is immediately east of the alluvial outcrop boundary as noted on the accompanying map.

Static water level gradient is presented by dashed line contours and is essentially easterly with some variation effected by the andesite dike. Though not shown, considerable northerly gradient, north of the area is expected since the river flows in that direction and is further evidenced by the good producers in that direction.

The major andesite dike or sill was known from exposure on Twin Buttes Road. As shown, it was a simple objective to magnetically trace this feature across the property. This was done in a few hours by using the continuous recording mobile magnetometer. Results confirming the existence of the dike across the property were most important as this indicated that the possibility of a thick section of alluvium below the water table is nil, and therefore the probability of a large shallow producer from the alluvium is very poor. Of course, a large deep producer is possible, especially south of the dike in the Helmet fauglomerate at an order of magnitude depth of about 700' or 800' or deeper. Porosity and permeability of the andesite is suggested to be less than the fauglomerate, therefore lot 18 is to be preferred over lot 5 for small shallower producers.

Supplemental resistivity work was not done but should aid considerably in further dileneating the possibilities in the area in more detail.

WEH: jh August 28

8, 1961

HEINRICHS, JR.

Walter E. Heinrichs, Jr.

March 26, 1960

Mr. Forest Seaman 2774 E. 22nd Street Tucson, Arizona

Dear Forest:

This is a letter resume of professional services on potential well site location and preliminary ground water appraisal, Seaman Curly Horn Ranches, Lots 5 and 18, Section 17, T 17 S, R 13 E, Pima County, Arizona.

Lot 5 - 200' to water + - probable 1 gal./minute + ?
200' of alluvium + or overburden to Andesite bedrock
Minimum drill hole depth - 300"

Lot 18 - 275' to water ± - probable 1-2 gal./minute ± ?

possible 5-10 gal./minute ± ?

300' of alluvium + or overburden to Helmet Fanglomerate

bedrock

Minimum drill hole depth - 375'-400'

Possibility of measureably more water with increased depth or hole below recommended minimums, but maximum potential or amount of increase not predictable at present. At least 700' - 1000' for possibility of any appreciable increase.

Very truly yours,

HEINRICHS GEOEXPLORATION COMPANY

Walter E. Heinrichs Jr.

cc: copy of map WEH/pr



March 26, 1960

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Minimum drill hole depth - 300"

Lot 18 - 275' to water ± - probable 1-2 gal./minute ± ?

possible 5-10 gal./minute ± ?

300' of alluvium + or overburden to Helmet Fanglomerate

bedrock

Minimum drill/hole depth - 375'-400'

Possibility of measureably more water with increased depth or hole below recommended minimums, but maximum potential or amount of increase not predistable at present. At least 700' - 1000' for possibility of any appreciable increase.

Very truly yours,

HEINRICHS GEOEXPLORATION COMPANY

Walter E. Heinrichs Jr.

cc: copy of map WEH/pr



March 26, 1960

### STATEMENT

to: Mr. Forest Seaman 2274 E. 22nd Street Tucson, Arizona

Re: Professional Services; Potential well site location and preliminary ground water appraisal, Lots 5 and 18, Section 17, T 17 S, R 13 E, Pima County, Arizona - March 11, 1960 - March 25, 1960.

Original estimate of cost: \$500.00

Research at University of A U. S. Geological Survey	rizona and	\$125.00
Research from Mining Compan	ies	50.00
Mobile Magnetometer detail	of andesite location	100.00
Measure wells in area Expenses: Maps, plats, etc.		75.00 \$350.00 4.43 \$354.43
Misc. office consultations	@ \$10.00 per hour	N.C.
	Total Less Advance, 3/14/60 Balance due	\$354.43 200.00 \$154.43

January 12, 1960

Mr. Wayne C. Clampitt 186 N. Meyer Street Tucson, Arizona

Re: Curley Horn Ranches
Water procurement project
Pima County, Arizona

Dear Mr. Clampitt:

We recommend the following approach to try to successfully develop an adequate water supply for 240 homes known as the Curley Horn Ranches, located in all of Sections 17 & 18, T17S, R13E, GSRB&M, Pima County, Arizona.

The water development program should be divided into three phases:

PHASE I Geological - Hydrological

On the ground examination and data correlation @ \$100.00/day estimated cost-----\$300.00

PHASE II Geophysical Survey

a) Magnetic Survey

Based strictly on and subject to the findings of Phase I, a geophysical program may be recommended which would consist of a mobile magnetic survey to outline several magnetically suseptible structural expressions which are known to exist in Section 18 and possibly extend to Section 17 and when correlated with the existing drill data, would certainly have bearing on the location of a favorable drill site. @ \$250.00/day, estimated cost---\$250.00 b) Resistivity Survey

The objective would be to measure the electrical resistance character of the subsurface at several selected points of which one location is near a good producing well in the general areal

Estimated cost -----\$750.00

PHASE III Drilling Supervision @ \$10.00/hour

@ \$250.00/day

Estimated cost-----\$150.00
Total estimated cost-----\$1450.00
PLUS vehicle expenses of \$7.50 per day per vehicle and \$0.10
per mile traveled.

Mr. Wayne C. Clampitt - 2 -January 12, 1960 Each phase would of course be dependent and conditional to the results obtained by the previous phase and conceivably a considerable reduction in cost could be effected if in our opinion sufficient data &s secured at any stage of the investigations. Prior to sending any crew to the field, it is our custom to require a deposit of 50% (fifty percent) of the total estimated cost. The amount in this instance will be \$750.00. I believe this information will be sufficient. However, if you require more particulars, please feel free to contact this office at any time. I hope we may be of service to you on this project. Very truly yours, HEINRICHS GEOEXPLORATION COMPANY E. Grover Heinrichs EGH: jh

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