CONTACT INFORMATION
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Arizona Geological Survey
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inquiries@azgs.az.gov

The following file is part of the Walter E. Heinrichs, Jr. Mining Collection

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QUALITY STATEMENT

The Arizona Geological Survey is not responsible for the accuracy of the records, information, or opinions that may be contained in the files. The Survey collects, catalogs, and archives data on mineral properties regardless of its views of the veracity or accuracy of those data.

Re: Leroy Gott - left this one evening

0-9	Top silty soil
9-28	Caliche, hard
28-40	Clay streaks of fine sand
40-58	Sand and gravel
58-87	Caliche in clay streaks of fine sand
87-123	Sand and gravel and boulders, water 108'
123-134	Gravel in clay
134-146	Sand and gravel
146-157	Brown silty clay
157-159	Gravel in caliche in clay, hard
159-190	Caliche in red clay
190-198	Brown clay and caliche some hard, salt
198-254	Gravel and caliche in clay
254-262	Red clay
262-326	Gravel in siltyclay soft
326-352	Blue silty clay with red streaks of clay
352-354	Coarse sand and pea gravel
354-373	Caliche and sand very hard
373-397	Brown clay
397-421	Gypsum in clay, very hard streaks
421-497	Red clay, streaks of gypsum
497-526	Conglomerate, hard
526-537	Gravel in clay and hard stks. of red clay
537-572	Conglomerate, very hard, 90% gypsum
572-581	Gypsum, 100%
581-643	Gypsum in red and blue caly
643-663	Brown rock, hard
663-682	Talc, white 100%
682-688	Loose clay chuncks, water showing
688-731	Gypsum in clay, very hard
731-739	Talc, hard streaks 100%
739-744	Gypsum in clay
744-755	Talc, a little green in color
755-793	Red clay with hard straks
793-818	Gypsum in brown clay

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY (B-2-1)21

WATER RESOURCES DIVISION

WELL SCHEDULE

Date July 19, 1962, 19___ Field No. 20A

Record by ach Office No. ___

Source of data W. Kam and Goodyear Farms

1. *Location:* State Arizona County Maricopa

Map ___

NE ¼ NE ¼ sec. 21 T 2 N R 1 W

2. *Owner:* Goodyear Farms Address ___

Tenant ___ Address ___

Driller Click Address ___

3. *Topography* ___

4. *Elevation* 1065 ft. above/below ___

5. *Type:* Dug, drilled, driven, bored, jetted 5 19 62

6. *Depth:* Rept. 1024 ft. Meas. ___ ft.

7. *Casing:* Diam. ___ in., to ___ in., Type ___

Depth ___ ft., Finish ___

8. *Chief Aquifer* ___ From ___ ft. to ___ ft.

Others ___

9. *Water level* 105.0 ft. rept./meas. ___ 19___ above/below ___ which is ___ ft. above/below surface

10. *Pump:* Type ___ Capacity ___ G. M.

Power: Kind ___ Horsepower ___

11. *Yield:* Flow ___ G. M., Pump ___ G. M., Meas., Rept. Est.

Drawdown ___ ft. after ___ hours pumping ___ G. M.

12. *Use:* Dom., Stock, PS., RR., Ind., Irr., Obs. ___

Adequacy, permanence ___

13. *Quality* ___ Temp ___ °F.

Taste, odor, color ___ Sample Yes/No ___

Unfit for ___

14. *Remarks:* (Log, Analyses, etc.) Soil samples collected. Log ~~on back and attached.~~

Gamma Ray Logged 1004

U. S. GOVERNMENT PRINTING OFFICE 16-62891-1 GPO 835013

Log for well (B-2-1)21 abb

1035-1038	Conglomerate with talc showing strong
1038-1059	Gypsum in brown clay and cinders
1059-1084	Gypsum in brown clay
1084-1087	Brown clay with gray sandy streaks
1087-1091	Volcano ash in tight fine sand
1091-1099	Brown clay, very hard Gyp
1099-1105	Decomposed granite in clay, very hard
1105-1133	Clay and volcano ash very hard brown
1133-1152	Talc in clay Tr Fine Brown Clay (1139) water
1152-1157	Brown clay with blue streaks
1157-1159	White clay Gyp
1159-1173	Hard red clay
1173-1185	Dark brown clay sticky
1185-1216	Hard brown clay almost rock
1216-1252	Hard red clay with blue streaks (salty)
1252-1268	Brown clay with very hard streaks
1268-1271	Fine pea gravel in clay Some Gyp
1271-1281	Brown clay with silty streaks (salty)
1281-1324	Blue and brown clay sticky (salty)
1324-1388	Blue sticky clay (salty) alternating with brown cl
1388-1428	Hard blue clay streaks of water crystals
1428-1447	Blue clay, very sticky
1447-1452	✓Solid rock salt. Bottom of well.

Original depth 1452'.
Backfilled to 1044'.
Pump test with bowls set at 300 feet produced about 270 gpm with ±30' of drawdown figuring from regional water table - not pumping level

DRILLERS LOG

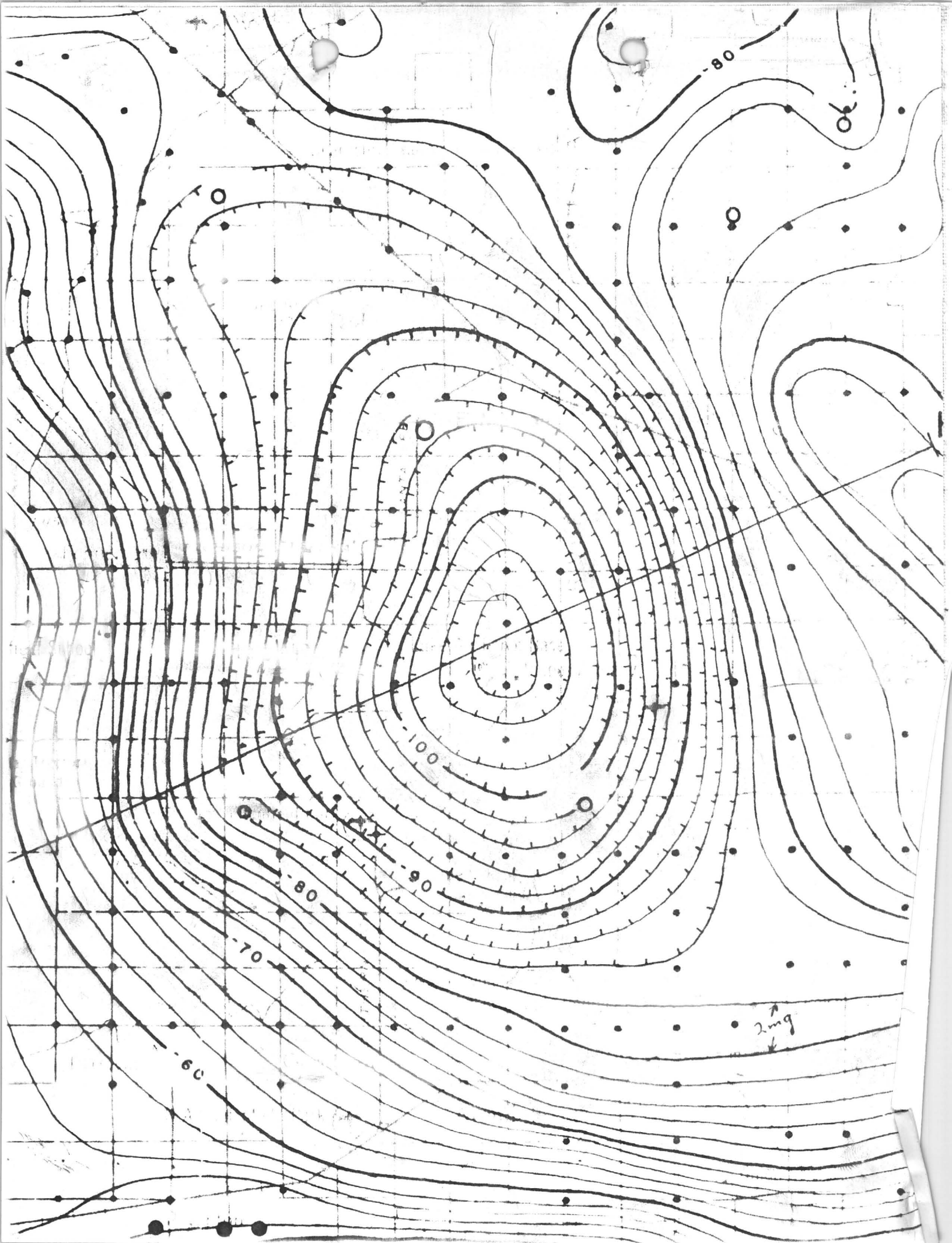
(B-2-1)21abb -- Continued Wells 20A

818-825	Talc 100% Gyp
825-857	Gypsum in brown clay, hard
857-863	Talc-white, and hard 100% Gyp
863-892	Brown silty clay
892-893	Talc white 100%
893-908	Brown silty clay & blue streaks
908-917	Gypsum in clay
917-919	Talc 100%
919-939	Brown silty clay blue streaks
939-941	Talc in clay
941-959	Gypsum in brown clay
959-973	Gypsum and cemented sand very hard
973-986	Tough brown clay
986-991	Cemented sand very hard
991-1002	Gypsum in clay very hard
1002-1003	Green tight clay-Gypsum
1003-1008	✓Conglomerate very hard & black like lava
1008-1035	✓Conglomerate very hard & black and red, in color and getting harder as we go deeper. Little water
1035-1044	✓Conglomerate. ~~Bottom~~

This well was drilled to a depth of slightly less than 1500 feet. The quality of water at the bottom of hole was reported to be 12,000 ppm. The well was plugged to 1044'.

(See attached sheet for rest of log)

1065
12-7
902

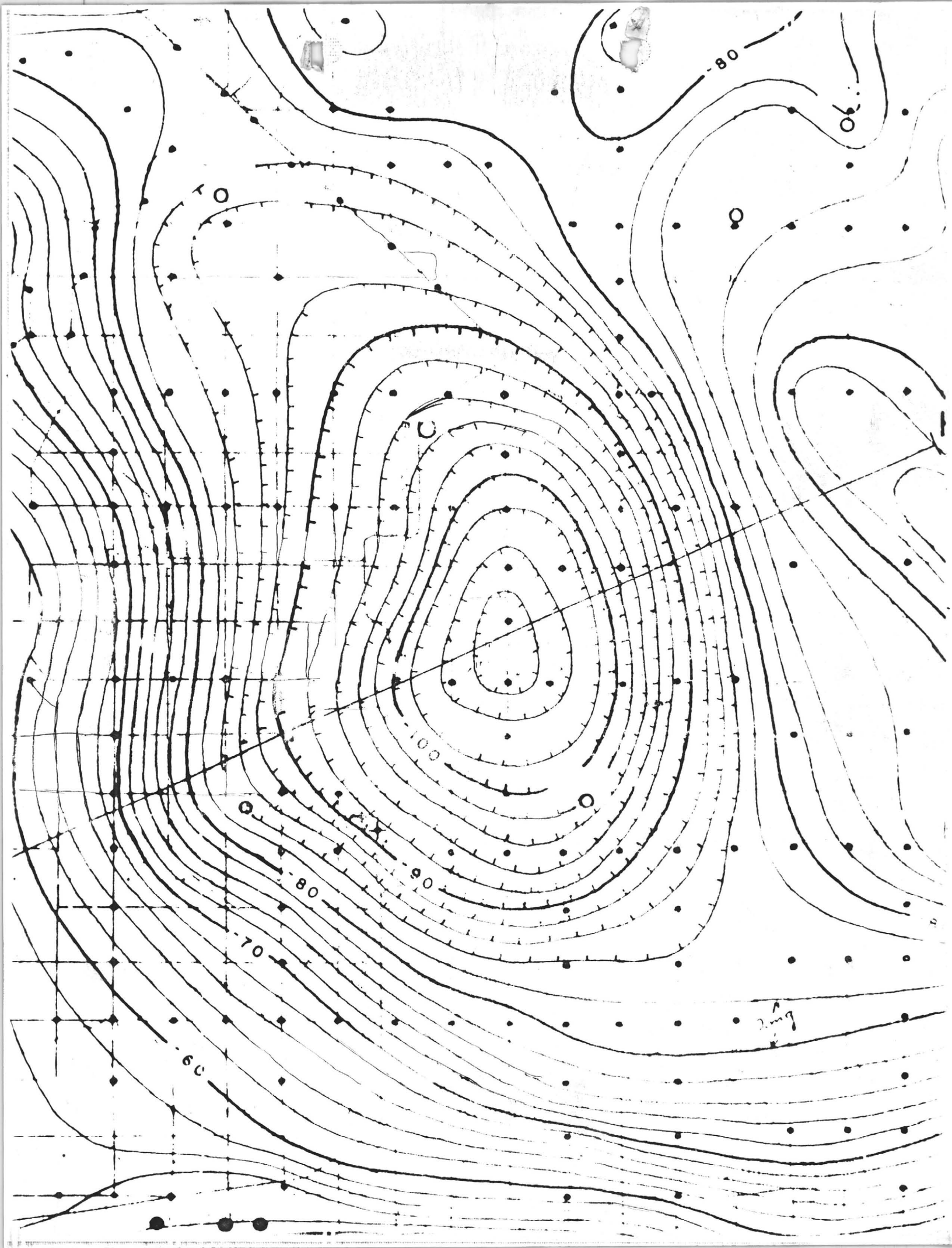

-80
-100
-90
-80
-70
-60
2mg

LOG OF GOODYEAR FARMS WELL 19-E

(3-2-1) 19bca

0	6	Soil
6	30	Calichia
30	65	Packed sand
65	82	Clay & gravel
82	96	Boulders & sand
96	130	Sand Clay
130	170	Hard clay
170	180	Sand struck water
180	213	Sand Stone
213	230	Silt
230	248	Sand stone & gravel
248	254	Cemented gravel
254	258	Tight gravel
258	262	Loose sand & gravel
262	268	Loose sand & gravel some clay
268	295	Tight gravel
295	304	Loose gravel
304	308	Tight gravel
308	326	Loose gravel (water sample) 308-326
326	340	Loose silt sand & gravel
340	354	Tight silt
354	362	Loose gravel
362	374	Clay gravel & sand
374	394	Tight gravel
394	406	Clay some gravel
406	414	Loose gravel
414	490	Tight clay & gravel
490	504	Hard clay
504	545	Sand & gravel
545	555	Clay
555	580	Sand stone & small gravel & water
580	590	Clay
590	620	Clay & sand
620	630	Hard clay
630	815	Clay & some gravel
815	855	Clay silt & water
855	881	Dry silt
881	935	Joint clay & silt
935	970	Silt (water sample 920)
970	1178	Clay & silt dry with little streaks of sand (Water sample 1012)
1178	1192	Silt & sand stone
1192	1194	Clay & trace of sand
1194	1195	Hard sand stone
1195	1206	Clay & fine sand
1206	1246	Clay & silt
1246	1254	Soft clay & [illegible]
1254	1260	Soft [illegible]
1260	1296	Sticky [illegible]
1296	1318	Clay [illegible]
1318	1337	
1337	1340	

1058


-80
-100
-90
-80
-70
-60

February 12, 1968
1205 Orlando Drive
Coolidge, Arizona 85228

Mr. Grover Heinrichs
Heinrichs Geoexploration Company
P. O. Box 5671
Tucson, Arizona 85703

Dear Grover:

While this project is in an early stage, salt production from brine wells is a straight forward type of business and the location of this salt deposit in the center of a growing market allows larger than usual profits.

My prime objective in exploiting this salt development is to develop a regular income in a manner which will ultimately leave me a good bit of free time to continue as an independent prospector and developer.

Attached is a short summary of the salt picture here together with a financing plan worked out in conjunction with Arizona Milling Company. They are the major salt customer in this marketing area and want the sales and distribution also. However, an impending merger caused much rethinking and an ultimate decision that the problems inherent in the merger would take their full attention for a few months and that they should not start a new project during the merger.

Arizona Milling Company understands the dangers in delay and has offered their assistance in my finding another partner without having attached any strings to their assistance, though they have suggested a way they can stay in the deal. I am going to accept their help. However, there is no basis on which to judge the possibilities of success and I do not wish to depend on that alone.

Perhaps one of your clients will find this of interest and we can work out a plan for financing the development.

Best regards.

Very truly yours,

G J Grott

Gerald J. Grott

GJG:emg

Enclosures

Organization and Financing

An Arizona Corporation will be formed with a nominal amount of capital stock. The balance of the capital will be obtained by loans by the stockholders other than myself. The loans must allow use of capital items as security for working capital loans.

Maturity of these notes or bonds will be as short as possible consistent with building the production capacity to about 100,000 tons per year before the notes are repaid.

Previous Plan

The plan worked out with Arizona Milling Company called for their receiving 81 percent of the capital stock. I, Gerald J. Grott, was to receive the balance of the stock and a consulting contract at $2,000 per month as long as I cared to keep it. For the consulting contract, I was to provide all planning and managing supervision until the company was in profitable operation. Through this period service would be essentially full time but it was recognized that occasional absences of several days might be required.

After attaining profitable production, the duties would be reduced as fast as supervisory personnel were adequately trained to perform with only occasional checking on my part. This is the sort of operation I can direct very well on no more than a half-time basis.

Investment

Exploration Stage (three months)

Corporate Organization and Leasing including expenses to date	$ 7,000
Expenses, three months	8,000
Contract Exploration	35,000
	$ 50,000

Production(1)

Brine well including high pressure pump	$ 60,000
Pipelines, valves, surface pumps	20,000
Pond Preparation (leased land) 50 acres	10,000
Harvesting Equipment	10,000
Washer, Kiln, Grinder, Screens	20,000
Conveyors, Bagger, etc.	5,000
Metal Roof Building	5,000
Contingency - miscellaneous (10%)	20,000
	$150,000

Construction and Start up Expenses - six months @ $5,000/month $ 30,000

---

(1) Individual items can vary widely depending on availability of used equipment and on the nature of the salt bed.

Production Costs

At this time information on the cost of the brine well is pretty much of a guess as the salt bed is not that well defined: it is necessary to estimat the well cost and brine cost on the high side. However, even allowing for high brine costs, a broad type engineering appraisal gives a cost for producing solar salt, Kiln Dried and Screened, at a little under $5.00 per ton in bulk and placed in storage bins. There is a reasonable possibility of making this as low as $4.00 per ton. The chance that the costs could go as high as $6.00 per ton seems very remote.

These estimates include royalties on the lease(s) and amortization of exploration costs and capital investment in ten years, plus insurance, property taxes, etc.

Sales and Profits

The best Sales Policy is to maximize sales of the Kiln Dried Products. Profits are greatest because competitive products come in from San Francisco and the competitors are working on very slim margins. Minimum sales at the end of one year are expected at the rate of 80 - 90 percent of this market with a 5 - 10 percent price cut. Sales of Feed Salt are projected on a "lowest competitive price" level at half of this business by the end of the first year.

Projection: Minimum Rate at end of first year of production:

Water Softener	20,000 tons	@ $20.00/ton		$400,000
Industrial	5,000 tons	@ 15.50/ton		77,500
Stock Feed	25,000 tons	@ 12.50/ton		312,500
	50,000 tons/year			$790,000
less: freight		@ $ 2.50[1]	$125,000	
production		@ 5.00	250,000	
warehousing & sales		@ 12%	100,000	$375,000
Gross Profits before salaries and expenses of Corporate Officers and before taxes				$315,000

The marketing area extends along the Southern Pacific east to El Paso for Kiln Dried salt and west to El Centro for all grades of salt. Sales three years from start of production, including Southern New Mexico as far as El Paso and Southern California to El Centro, and assuming a 10 percent cut in the price of feed salt, should reach about 75,000 tons/year. Gross Profits should reach $450,000/year on the same basis as above.

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[1] On Delivered to Phoenix basis - delivery to farther points is at higher prices.

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It would also leave the sale of industrial brine for chemical manufacturing all to my partner and myself.

Salt in Arizona

Market Survey data from two different customers, each of whom want to get into the business of salt distribution, check within a few thousand tons per year. There are no official records of salt brought into Arizona so these surveys, coupled with several spot checks, are used to estimate tonnage. Tonnage is for Central and Southern Arizona only.

Prices are for salt delivered in Phoenix, in carload or tuck-load lots, at wholesale, to large users. Thus the prices given are the lowest under the present conditions.

Stock Feed	45,000-50,000 short tons/year	$12.50-$15.00/ton
Water Softener	22,000-25,000 short tons/year	$21.20/ton*
Other Industrial	5,000- 7,000 short tons/year	$16.70/ton
	72,000-82,000 short tons/year	

*Calculated as bagged salt less cost of bagging.

The Water Softener and Industrial Grades are kiln dried and now come from San Francisco. The feed salt is crude and comes from Carlsbad, New Mexico, from Old Mexico, and from the Danby Lake area in California.

The major advantage of the near Phoenix location is a freight saving of from $2.00 per ton over Danby Lake, $5.00 per ton over either New Mexico or Old Mexico, and about $9.00 per ton over San Francisco. This advantage is estimated to be worth about $250,000 - $300,000 per year on the total market.

Southern Pacific feels there may be a chemical company which would like to locate at a source of low cost brine. This could be quite profitable but is still speculation.

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Gerald J. Grott
1205 Orlando Drive
Coolidge, Arizona 85228
Telephone: 723-3885

Married, 4 children
45 years old
6 feet, 195 pounds

Education: M.S., Metallurgy, 1951, M. I. T.
B.S., Business & Engineering Adm., 1949, M. I. T.

Experience

July 1964 to date. Consulting and development work including: an evaluation of manufacturing practices for cobalt-base weld rod, Crucible steel Company of America; plan for reorganizing and modernizing Superior Smelter, Magma Copper Company.

January 1962 - 1964. Arkota Steel Corporation, Coolidge, Arizona, General Manager. Pilot operation for producing sponge iron and ultra high purity pig iron. Responsible for all phases of planning, operations and sales.

January 1958 - December 1961. WaiMet Alloys Division (now Metals Division), Howmet Corporation, Dearborn, Michigan. Manufacturer of certified master alloy materials for jets, rockets, airframe and other critical applications, in form of shot and pig (ingot). Assistant General Manager and Operations Manager responsible for all company operations including labor negotiations, sales assistance, and customer consulting service and for duties of the General Manager (President) in his absence.

November 1956 - December 1957. Michigan Industries Division, Consolidated Foundry and Manufacturing Company, Detroit, Michigan. Assistant to Division President: Responsible for Technical Activities and assistance as production problem solver in the five companies in this division - a foundry, a machine shop, a fabricating shop for high alloys, a master alloy producer and a gray iron foundry. A major responsibility was Technical Director, Michigan-Standard Alloy Casting Company.

March 1955 - October 1956. Airloy, Inc., Ennis, Texas. Producer of precision steel castings for aircraft. Vice President, Manufacturing. Responsible for plant design and construction, equipment and installation, and work force recruitment and training.

April 1951 - February 1955. Unitcast Corporation, Toledo, Ohio. Producer of steel castings for the transportation and heavy equipment manufacturers. Superintendent of Standards (for Materials and Methods). Established standard manufacturing methods and specifications for purchased materials and gave technical assistance throughout the company.

September 1949 - February 1951. Steel Founders' Society - General Electric Company cooperative study "Metal Removal in the Cleaning of Steel Castings". As Research Associate, planned this program for industrial evaluation of "all known methods and all possible methods" (for metal removal), solicited manufacturers assistance, and directly supervised all activities, including the first known study of noise (sound intensity and frequency) produced by industrial tools.

Professional Societies

American Foundrymen's Society - 1948 to date.
Charter Chairman, M.I.T. Student Chapter, 1948-1949.
Treasurer, Toledo Chapter, 1951-1955.
Sand Division Technical Committee - 1952-1958.
National Officers Nominating Committee - 1954.
Publications of Technical Papers in Transactions A.F.S., 1954, 1955 and 1958.

American Society for Metals - 1949 to date.
Contributing Author, A.S.M. Correspondence Course in Steel Foundry Practice.

American Inst. of Min., Metall. and Pet. Engrs. - 1950 to date.
Electric Furnace Steel Conference Committee - 1959-1961.
Publications of Technical Papers, Transactions of E.F.S.C., A.I.M.E., 1960 and 1961.

American Society for Testing Materials, Specifications Committee A-10 (Steel), Sub-Committee VII, High Alloy Steels, 1957-1960.

Honorary Societies

Kappa Kappa Sigma - M.I.T. Honorary Society for Chemical Science.
Sigma Xi - National Honorary Society for Research in Science and Engineering.

Trade Societies

Steel Founders' Society of America
Gustav A. Lilliquist Award for Most Valuable Paper of Year in "Steel Foundry Facts", Co-Recipient in 1953 and Recipient in 1956.

Alloy Casting Institute
Research Steering Committee, Corrosion Resistant Alloys, 1956-1958.
This Committee Authorized and evaluated society research at Battelle Memorial Institute, Columbus, Ohio.

Investment Casting Institute
Research Steering Committee, 1959-1961.
Chairman, Low Alloy Steel Specifications Committee, 1959-1961.

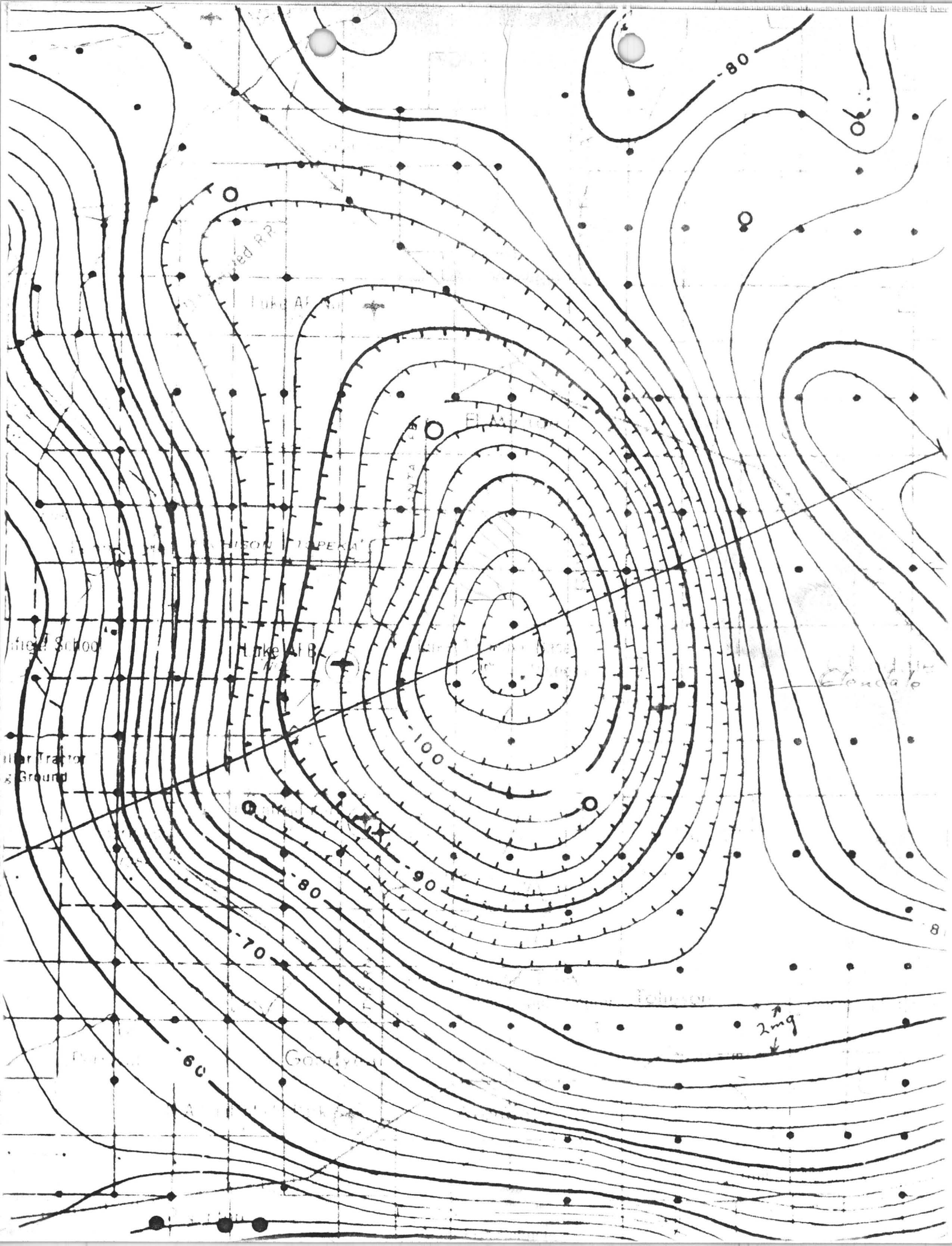
Other Publications

Ohio State Engineering Bulletin, 1951.
"Foundry" Magazine, 1954.

Patents

Application (1961) for new production process for hard facing and high alloy welding rod.

Applications currently in process for (a) converting autos and other miscellaneous scrap to useful products, (b) producing iron powder, (c) removing sulfurous gases from combustion gases, and (d) gasification of liquid and solid ~~fuels.~~ recovery of elemental sulfur from mineral sulfides


-80
-100
-90
-80
-70
-60
2mg

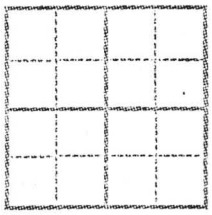
UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
WATER RESOURCES DIVISION

(2-2-1) 2aca

WELL SCHEDULE

Date September 20, 1963 Field No.
Record by Don Stulik Office No.
Source of data Goodyear Farms

1. *Location:* State Arizona County Maricopa
Map
SE ¼ NE ¼ sec. 2 T 2 N R 1 W
2. *Owner:* Goodyear Farms Address Litchfield Park
Tenant Address
Driller W. S. Williams Address
3. *Topography*
4. *Elevation* 1073 ft. above / below
5. *Type:* Dug, drilled, driven, bored, jetted 19
6. *Depth:* Rept. 730 ft. Meas. ft.
7. *Casing:* Diam. 20 in., to in., Type
Depth 260 ft., Finish Perf. 262-730
8. *Chief Aquifer* From ft. to ft.
Others
9. *Water level* 224.47 ft. rept. / meas. 12-30-1960 above / below
which is ft. above / below surface
10. *Pump:* Type Turbine Capacity G. M.
Power: Kind Electric Horsepower
11. *Yield:* Flow G. M., Pump G. M., Meas., Rept. Est.
Drawdown ft. after hours pumping G. M.
12. *Use:* Dom., Stock, PS., RR., Ind., Irr., Obs.
Adequacy, permanence
13. *Quality* Temp 81 °F.
Taste, odor, color Sample Yes / No
Unfit for
14. *Remarks:* (Log, Analyses, etc.) Plugged with cement from 730 because of salt
Spec Cond 680 8-31-59



U. S. GOVERNMENT PRINTING OFFICE 16-62801-1 GPO 885013

Drillers Log

(8-2-1) 2aca

0-4	Soil
4-15	Hard pan
15-22	Clay & silt
22-48	Cemented gravel
48-82	Clay & gravel
82-106	Gravel & boulders
106-124	Clay, sand & gravel
124-162	Clay & silt
162-186	Sand & clay
186-216	Clay
216-226	Silt
226-243	Silt & gravel
243-274	Gravel
274-278	Gravel & clay
278-287	Cemented silt & gravel
287-293	Silt lime sand & gravel
293-315	Clay & fyp rock
315-339	Sand & gravel
339-420	Clay & sora gravel
420-428	Hard dry clay
428-484	White mountain formation
484-558	Cemented clay dry
558-598	White chalk
598-696	Green & white clay
696-703	Red lava gravel & hot water
703-724	Lava louge
724-740	Red clay & lava rock
740-791	Clay & silt
791-827	Clay, soft
827-832	Gravel & salt
832-840	Rock salt

-clay & caliche bindings

} black malapa bedrock?

[illegible]	[illegible]	Tight gravel
[illegible]	262	Loose [illegible] & gravel
262	268	Loose [illegible] & gravel some clay
268	295	Tight gravel
295	[illegible]	Loose gravel
306	308	Tight gravel
308	326	Loose gravel (water sample) 308-326
326	340	Loose silt sand & gravel
340	354	Tight silt
354	362	Loose gravel
362	374	Clay gravel & sand
374	394	Tight gravel
394	406	Clay some gravel
406	414	Loose gravel
414	490	Tight clay & gravel
490	504	Hard clay
504	545	Sand & gravel
545	555	Clay
555	580	Sand stone & small gravel & water
580	590	Clay
590	620	Clay & sand
620	630	Hard clay
630	815	Clay & some gravel
815	855	Clay silt & water
855	881	Dry silt
881	935	Joint clay & silt
935	970	Silt (water sample 920)
970	1178	Clay & silt dry with little streaks of sand (Water sample 1012)
1178	1192	Silt & sand stone
1192	1194	Clay & trace of sand
1194	1195	Hard sand stone
1195	1206	Clay & fine sand
1206	1246	Clay & silt
1246	1254	Soft clay & silt
1254	1260	Soft sand stone
1260	1296	Sticky clay & silt — plugged @ 12
1296	1318	Clay
1318	1337	Clay & silt
1337	1340	Sand & silt, very fine-hot water-don't cut in.
1340	1360	Clay & silt (water sample 1350)
1360	1490	Clay very sticky some silt (Water sample 1418)
1490	1516	Silt with a clay binder
1516	1520	Fine grain rock-ledge-very hard
1520	1528	Silt
1528	1570	Silt & sand (water was cold)
1570	1586	Fine sand with salt water don't cut in.
1586	1597	Clay & Silt
*1597	1601	Mountain rock & sand-water hot (water sample 1596)
1601	1605	Clay silt & sand
1605	1615	Fine sand stone & clay
1615	1630	Clay & silt (water level 600 ft.)
1630	1660	Sand stone inlaid in silt, no water
1660	1689	A White mountain gravel in clay & silt
*1689	1700	White spar rock in boulder form
1700	1720	White rock in [illegible] to 1/2 ft (very hot water) anhydrite ?

1720	1729	White rock in sand-water level at 169 ft. (water sample 1729)
1729	1740	Clay & silt more clay
1740	1743	Clay
1743	1747	Hard clay
1747	1810	Clay & silt (water level 158 ft. very hot)
1810	1837	Silt sand stone-with a white line-water 158 ft.
1837	1840	Hard sand stone-water level 350 ft.
1840	1868	Clay dry
1868	1871	Fine sand & silt-water level 149 ft. (water sample 1868)
1871	1898	Hard silt stone & clay
1898	1910	Sand some gravel & clay-water good
1910	1928	Clay & silt
1928	1936	Fine sand (water sample at 1936)
1936	1968	Hard clay (water sample at 1900)
1968	2004	Soft clay & silt with hot water
2004	2040	Sand & gravel water level 147 ft.
2040	2048	Granite boulders imbeded in hard cemented sand (water sampled 2054)
2048	2054	Granite gravel-loose (water level at 147. temp. 124°
2054	2070	Granite gravel-tight-water level 172
2070	2073	Hard granite ledge
2073	2084	Fine sand & granite gravel-level 147 ft. hot salt water temp. 114°
2084	2106	Granite sand & gravel-filled up pipe 6 ft. (water sample 2098)
2106	2138	Coarse sand-water level 152 ft. temp. 112°
2138	2142	Granite ledge very hard
2142	2155	Sand, clay & silt-water sample 2155 to 2190
2155	2218	Sand stone some clay or silt & granite imbeded
2218	2230	Red sticky clay
2230	2235	Sand, gravel & clay-water level 210 ft.
2235	2255	Hard clay, gravel & silt temp. 124°
2255	2280	Hard clay silt & sand stone water level 180
2280	2311	Soft brown sand stone
2311	2318	Granite boulders imbeded in clay-water level 300 ft. Temp. 129°
2318	2386	Rock salt ledge (don't cut) Water level 168'
2386	2398	Brown sand & salt
2398	2550	Salt ledge
2550	2556	Granite ledge (Water sample 2350)
2556	2632	Salt
2632	2636	Sand
2636	2648	Salt
2648	2652	Mountain gravel & sand
2652	2656	Blue rock-
2656	2743	Salt
2743	2745	Very hard rock imbedded in salt
2745	2774	Salt
2774	2781	Large granite boulders imbeded in sand stone.
2781	2784	Salt

USGS file in Tucson | 19baa

Sct No 207

completed to 2205' by S Schwintz & E Green

Lab # 1729 dr 1075 at 1452' ~~[illegible]~~ Color

(B-2-1) 21abb Raw Color Remarks

1452' Off White Salt Flakes

(B-2-1) 21ccb

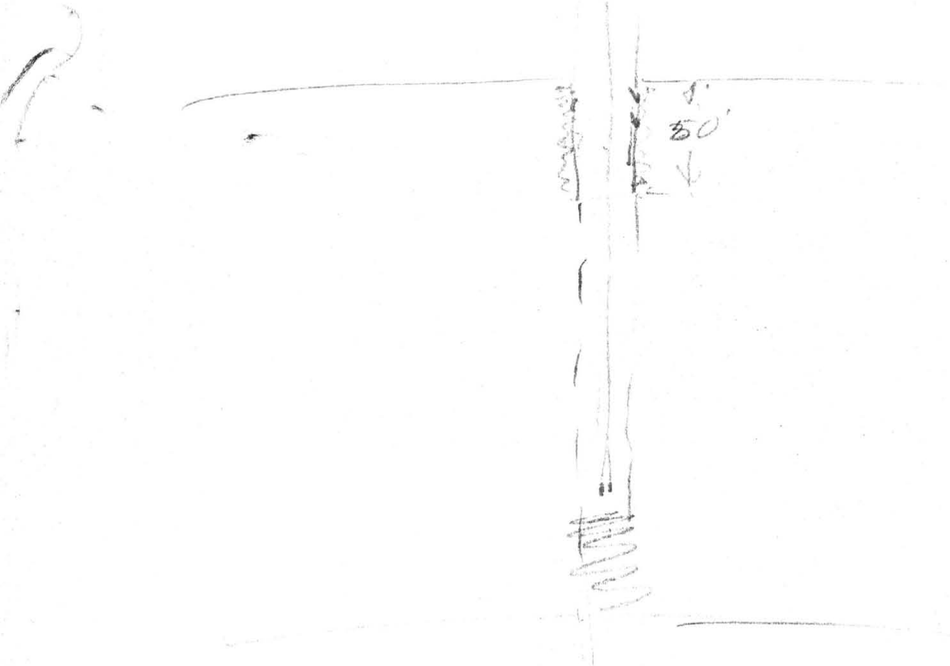
Lab # 1858

at 1570-1580 Fine to Med Sand & Gypsum Flakes

on th 1905' see note.

(B-2-1) 31bba

Lab # 2162 at 2100' mostly fine sand & pebbles



LOG OF GOODYEAR FARMS WELL 19-E

(13-2-1) 19baa

0	6	Soil
6	30	Calichia
30	65	Packed sand
65	82	Clay & gravel
82	96	Boulders & sand
96	130	Sand Clay
130	170	Hard clay
170	180	Sand struck water
180	213	Sand Stone
213	230	Silt
230	248	Sand stone & gravel
248	254	Cemented gravel
254	258	Tight gravel
258	262	Loose sand & gravel
262	268	Loose sand & gravel some clay
268	295	Tight gravel
295	306	Loose gravel
306	308	Tight gravel
308	326	Loose gravel (water sample) 308-326
326	340	Loose silt sand & gravel
340	354	Tight silt
354	362	Loose gravel
362	374	Clay gravel & sand
374	394	Tight gravel
394	406	Clay some gravel
406	414	Loose gravel
414	490	Tight clay & gravel
490	504	Hard clay
504	545	Sand & gravel
545	555	Clay
555	580	Sand stone & small gravel & water
580	590	Clay
590	620	Clay & sand
620	630	Hard clay
630	815	Clay & some gravel
815	855	Clay silt & water
855	881	Dry silt
881	935	Joint clay & silt
935	970	Silt (water sample 920)
970	1178	Clay & silt dry with little streaks of sand (Water sample 1012)
1178	1192	Silt & sand stone
1192	1194	Clay & trace of sand
1194	1195	Hard sand stone
1195	1206	Clay & fine sand
1206	1246	Clay & silt
1246	1254	Soft clay &
1254	1260	Soft sand
1260	1296	Stick
1296	1318	Cla
1318	1337	
1337	1340	

(B-2-1) 19[illegible]

REGISTRATION OF WELL

[illegible] is hereby made and filed with the State Land Commissioner as required by Section [illegible], Chapter [illegible] [illegible]

1. [illegible]
Name

[illegible], Arizona
Address

[illegible] or Operator Same
Name

Address

3. Driller W-O Williams
Name

[illegible] Phoenix, Arizona
Address

4. Location of well: Twp. [illegible] Rge. [illegible] Section [illegible] [illegible] [illegible] [illegible]
10-acre subdivision

Useable Depth 1220 Ft.

DESCRIPTION OF WELL

Note: Well plugged with cement below 1232 Ft. be[illegible] of high salt content in [illegible]

5. Total depth of hole [illegible]
6. Type of casing 10 3/4" I.D. [illegible] Wall [illegible] Pipe
7. Diameter and length of casing [illegible] in. from 0 to [illegible] in. from to 10 3/4 from [illegible] to [illegible]
8. Method of sealing at reduction points 10 3/4" I.D. pipe cut off at 1220 Ft.
9. Perforated from 224 to 1218, from to , from to , from to
10. Size of cuts 3/8" x 4" Number cuts per foot 8
11. If screen was installed: Length ft. Diam. in. Type
12. Method of construction drilled
drilled, dug, driven, bored, jetted, etc.
13. Date completed Dec. 14 1954 Deepened
Month Year Month Year
14. Depth to water when drilled 167 ft.
If flowing well, so state.
15. Present depth to water 177 ft. Date of measurement Ground surface
If flowing well, so state.
16. Describe point from which depth measurements were made, and give sea-level elevation if available
17. If flowing well, state method of flow regulation

DISCHARGE DATA

3337 GPM Measured [illegible] 3/20/54

18. Well discharge

EQUIP[illegible]

DO NOT WRITE IN THIS SPACE
OFFICE RECORD

[illegible] Kind of pump

Gerald J. Grott
1205 Orlando Drive
Coolidge, Arizona 85228
Telephone: 723-3885

Married, 4 children
45 years old
6 feet, 195 pounds

Education: M.S., Metallurgy, 1951, M. I. T.
B.S., Business & Engineering Adm., 1949, M. I. T.

Experience

July 1964 to date. Consulting and development work including: an evaluation of manufacturing practices for cobalt-base weld rod, Crucible steel Company of America; plan for reorganizing and modernizing Superior Smelter, Magma Copper Company.

January 1962 - 1964. Arkota Steel Corporation, Coolidge, Arizona, General Manager. Pilot operation for producing sponge iron and ultra high purity pig iron. Responsible for all phases of planning, operations and sales.

January 1958 - December 1961. WaiMet Alloys Division (now Metals Division), Howmet Corporation, Dearborn, Michigan. Manufacturer of certified master alloy materials for jets, rockets, airframe and other critical applications, in form of shot and pig (ingot). Assistant General Manager and Operations Manager responsible for all company operations including labor negotiations, sales assistance, and customer consulting service and for duties of the General Manager (President) in his absence.

November 1956 - December 1957. Michigan Industries Division, Consolidated Foundry and Manufacturing Company, Detroit, Michigan. Assistant to Division President: Responsible for Technical Activities and assistance as production problem solver in the five companies in this division - a foundry, a machine shop, a fabricating shop for high alloys, a master alloy producer and a gray iron foundry. A major responsibility was Technical Director, Michigan-Standard Alloy Casting Company.

March 1955 - October 1956. Airloy, Inc., Ennis, Texas. Producer of precision steel castings for aircraft. Vice President, Manufacturing. Responsible for plant design and construction, equipment and installation, and work force recruitment and training.

April 1951 - February 1955. Unitcast Corporation, Toledo, Ohio. Producer of steel castings for the transportation and heavy equipment manufacturers. Superintendent of Standards (for Materials and Methods). Established standard manufacturing methods and specifications for purchased materials and gave technical assistance throughout the company.

September 1949 - February 1951. Steel Founders' Society - General Electric Company cooperative study "Metal Removal in the Cleaning of Steel Castings". As Research Associate, planned this program for industrial evaluation of "all known methods and all possible methods" (for metal removal), solicited manufacturers assistance, and directly supervised all activities, including the first known study of noise (sound intensity and frequency) produced by industrial tools.

Professional Societies

American Foundrymen's Society - 1948 to date.
Charter Chairman, M.I.T. Student Chapter, 1948-1949.
Treasurer, Toledo Chapter, 1951-1955.
Sand Division Technical Committee - 1952-1958.
National Officers Nominating Committee - 1954.
Publications of Technical Papers in Transactions A.F.S., 1954, 1955 and 1958.

American Society for Metals - 1949 to date.
Contributing Author, A.S.M. Correspondence Course in Steel Foundry Practice.

American Inst. of Min., Metall. and Pet. Engrs. - 1950 to date.
Electric Furnace Steel Conference Committee - 1959-1961.
Publications of Technical Papers, Transactions of E.F.S.C., A.I.M.E., 1960 and 1961.

American Society for Testing Materials, Specifications Committee A-10 (Steel), Sub-Committee VII, High Alloy Steels, 1957-1960.

Honorary Societies

Kappa Kappa Sigma - M.I.T. Honorary Society for Chemical Science.
Sigma Xi - National Honorary Society for Research in Science and Engineering.

Trade Societies

Steel Founders' Society of America
Gustav A. Lilliquist Award for Most Valuable Paper of Year in "Steel Foundry Facts", Co-Recipient in 1953 and Recipient in 1956.

Alloy Casting Institute
Research Steering Committee, Corrosion Resistant Alloys, 1956-1958.
this Committee Authorized and evaluated society research at Battelle Memorial Institute, Columbus, Ohio.

Investment Casting Institute
Research Steering Committee, 1959-1961.
Chairman, Low Alloy Steel Specifications Committee, 1959-1961.

Other Publications

Ohio State Engineering Bulletin, 1951.
"Foundry" Magazine, 1954.

Patents

Application (1961) for new production process for hard facing and high alloy welding rod.

Applications currently in process for (a) converting autos and other miscellaneous scrap to useful products, (b) producing iron powder, (c) removing sulfurous gases from combustion gases, and (d) gasification of liquid and solid ~~fuels~~. recovery of elemental sulfur from natural gases

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
WATER RESOURCES DIVISION

(2-2-1) 2aca

WELL SCHEDULE

Date September 28, 1963 Field No.

Record by Jon Stulik Office No.

Source of data Goodyear Farms

1. *Location:* State Arizona County Maricopa

Map

SW ¼ NE ¼ sec. 2 T 2 N R 1 W

2. *Owner:* Goodyear Farms 21 Address Litchfield Park

Tenant Address

Driller W. S. Williams Address

3. *Topography*

4. *Elevation* 1013 ft. above / below

5. *Type:* Dug, drilled, driven, bored, jetted 1953

6. *Depth:* Rept. 230 ft. Meas. ft.

7. *Casing:* Diam. 20 in., to in., Type

Depth 210 ft., Finish Perf. 200-230

8. *Chief Aquifer* From ft. to ft.

Others

9. *Water level* 221.47 ft. below land surf. 12-30-1960 above / below

which is ft. above / below surface

10. *Pump:* Type Sunshine Capacity G. M.

Power: Kind Electric Horsepower

11. *Yield:* Flow G. M., Pump G. M., Meas., Rept. Est.

Drawdown ft. after hours pumping G. M.

12. *Use:* Dom., Stock, PS., RR., Ind., Irr., Obs.

Adequacy, permanence

13. *Quality* Temp 81 °F.

Taste, odor, color Sample Yes / No

Unfit for

14. *Remarks:* (Log, Analyses, etc.) Plugged with cement from 210-230 because of salt

See Card 930 5-31-51

U. S. GOVERNMENT PRINTING OFFICE 16-62971-1 GPO 835013

Drillers Log

(3-2-1) 2aca

0-4	Soil
4-15	Hard pan
15-22	Clay & silt
22-48	Cemented gravel
48-82	Clay & gravel
82-106	Gravel & boulders
106-124	Clay, sand & gravel
124-162	Clay & silt
162-186	Sand & clay
186-216	Clay
216-226	Silt
226-248	Silt & gravel
248-274	Gravel
274-278	Gravel & clay
278-287	Cemented silt & gravel
287-298	Silt lime sand & gravel
298-315	Clay & fyp rock
315-339	Sand & grevel
339-420	Clay & coes gravel
420-428	Hard dry clay
428-484	White mountain formation - clay & caliche bindings
484-558	Cemented clay dry
558-578	White chalk
578-698	Green & white clay
698-703	Red lava gravel & hot water } black malaya
703-724	Lava lauge
724-740	Red clay & lava rock
740-791	Clay & silt
791-827	Clay, soft
827-832	Gravel & silt
832-840	Rock salt

(B-2-1) 19 [illegible]

[illegible] OF WELL

[illegible] is hereby made and filed with the State Land Commissioner as required by Section [illegible], Chapter [illegible] [illegible]

[illegible] ______ Name

[illegible], Arizona ______ Address 19-[illegible]

[illegible] or Operator ______ [illegible] ______ Name

______ Address

[illegible] ______ [illegible] ______ Name

______ [illegible], Arizona ______ Address

4. Location of well: Twp. [illegible] Rge. [illegible] Section [illegible] ______ [illegible] [illegible] [illegible] (10-acre subdivision)

Useable Depth 1220 Ft.

DESCRIPTION OF WELL

Note: Well plugged with cement below 1232 Ft. be[cause] of high salt content in [illegible]

5. Total depth of hole [illegible] ft.

6. Type of casing 10 3/4" I.D. [illegible] Wall [illegible] Pipe

7. Diameter and length of casing [illegible] in. from 0 to [illegible] ft. ______ in. from ______ to ______ 10 3/4 from [illegible] to [illegible]

8. Method of sealing at reduction points ______ 10 3/4" I.D. pipe cut off at 1220 ft.

9. Perforated from [illegible] to [illegible], from ______ to ______, from ______ to ______, from ______ to ______

10. Size of cuts [illegible] x 4" ______ Number cuts per foot 8

11. If screen was installed: Length ______ ft. Diam. ______ in. Type ______

12. Method of construction ______ drilled ______ (drilled, dug, driven, bored, jetted, etc.)

13. Date completed Dec. 14 (Month) 1954 (Year) Deepened ______ (Month) ______ (Year)

14. Depth to water when drilled ______ 167 ______ ft. If flowing well, so state.

15. Present depth to water ______ 177 ______ ft. Date of measurement ______ Ground surface ______ If flowing well, so state.

16. Describe point from which depth measurements were made, and give sea-level elevation if available ______

17. If flowing well, state method of flow regulation ______

DISCHARGE DATA

3367 GPM Measured [illegible] 12/20/54

18. Well discharge ______ [illegible] ______ [illegible] inches

19. [illegible]

EQUIP[MENT]

DO NOT WRITE IN THIS SPACE

OFFICE RECORD

20. Kind of pump

LOG OF GOODYEAR FARMS WELL 19-E

(13-2-1) 19baa

0	6	Soil
6	30	Calichia
30	65	Packed sand
65	82	Clay & gravel
82	96	Boulders & sand
96	130	Sand Clay
130	170	Hard clay
170	180	Sand struck water
180	213	Sand Stone
213	230	Silt
230	248	Sand stone & gravel
248	254	Cemented gravel
254	258	Tight gravel
258	262	Loose sand & gravel
262	268	Loose sand & gravel some clay
268	295	Tight gravel
295	306	Loose gravel
306	308	Tight gravel
308	326	Loose gravel (water sample) 308-326
326	340	Loose silt sand & gravel
340	354	Tight silt
354	362	Loose gravel
362	374	Clay gravel & sand
374	394	Tight gravel
394	406	Clay some gravel
406	414	Loose gravel
414	490	Tight clay & gravel
490	504	Hard clay
504	545	Sand & gravel
545	555	Clay
555	580	Sand stone & small gravel & water
580	590	Clay
590	620	Clay & sand
620	630	Hard clay
630	815	Clay & some gravel
815	855	Clay silt & water
855	881	Dry silt
881	935	Joint clay & silt
935	970	Silt (water sample 920)
970	1178	Clay & silt dry with little streaks of sand (Water sample 1012)
1178	1192	Silt & sand stone
1192	1194	Clay & trace of sand
1194	1195	Hard sand stone
1195	1206	Clay & fine sand
1206	1246	Clay & silt
1246	1254	Soft clay & [illegible]
1254	1260	Soft [illegible]
1260	1296	Stick[illegible]
1296	1318	Cla[illegible]
1318	1337	
1337	1340	

[illegible]	295	Tight gravel
[illegible]	262	Loose sand & gravel
262	268	Loose [illegible]d & gravel some clay
268	295	Tight gravel
295	[illegible]	Loose gravel
306	308	Tight gravel
308	326	Loose gravel (water sample) 306-326
326	340	Loose silt sand & gravel
340	354	Tight silt
354	362	Loose gravel
362	374	Clay gravel & sand
374	394	Tight gravel
394	406	Clay some gravel
406	414	Loose gravel
414	490	Tight clay & gravel
490	504	Hard clay
504	545	Sand & gravel
545	555	Clay
555	580	Sand stone & small gravel & water
580	590	Clay
590	620	Clay & sand
620	630	Hard clay
630	815	Clay & some gravel
815	855	Clay silt & water
855	881	Dry silt
881	935	Joint clay & silt
935	970	Silt (water sample 920)
970	1178	Clay & silt dry with little streaks of sand (Water sample 1012)
1178	1192	Silt & sand stone
1192	1194	Clay & trace of sand
1194	1195	Hard sand stone
1195	1206	Clay & fine sand
1206	1246	Clay & silt
1246	1254	Soft clay & silt
1254	1260	Soft sand stone
1260	1296	Sticky clay & silt — plugged @ 12
1296	1318	Clay
1318	1337	Clay & silt
1337	1340	Sand & silt, very fine-hot water-don't cut in.
1340	1360	Clay & silt (Water sample 1360)
1360	1490	Clay very sticky some silt (Water sample 1418)
1490	1516	Silt with a clay binder
1516	1520	Fine grain rock-ledge-very hard
1520	1528	Silt
1528	1570	Silt & sand (water was cold)
1570	1586	Fine sand with salt water don't cut in.
1586	1597	Clay & Silt
*1597	1601	Mountain rock & sand-water hot (water sample 1596)
1601	1605	Clay silt & sand
1605	1615	Fine sand stone & clay
1615	1630	Clay & silt (water level 600 ft.)
1630	1660	Sand stone inlaid in silt, no water
1660	1689	A White mountain gravel in clay & silt
*1689	1700	White spar rock in boulder form
1700	1720	White rock in [illegible] to 169 ft (very hot water) artesian to ?

1720	1729	White rock in sand-water level at 169 ft. (water sample 1729)
1729	1740	Clay & silt more clay
1740	1743	Clay
1743	1747	Hard clay
1747	1810	Clay & silt (water level 158 ft. very hot)
1810	1837	Silt sand stone-with a white line-water 158 ft.
1837	1840	Hard sand stone-water level 350 ft.
1840	1868	Clay dry
1868	1871	Fine sand & silt-water level 149 ft. (water sample 1868)
1871	1898	Hard silt stone & clay
1898	1910	Sand some gravel & clay-water good
1910	1928	Clay & silt
1928	1936	Fine sand (water sample at 1936)
1936	1962	Hard clay (water sample at 1980)
1962	2004	Soft clay & silt with hot water
2004	2040	Sand & gravel water level 147 ft.
2040	2048	Granite boulders imbeded in hard cemented sand (water sampled 2054)
2048	2054	Granite gravel-loose (water level at 147. temp. 124°
2054	2070	Granite gravel-tight-water level 172
2070	2073	Hard granite ledge
2073	2084	Fine sand & granite gravel-level 147 ft. hot salt water temp. 114°
2084	2106	Granite sand & gravel-filled up pipe 6 ft. (water sample 2098)
2106	2138	Coarse sand-water level 152 ft. temp. 112°
2138	2142	Granite ledge very hard
2142	2155	Sand, clay & silt-water sample 2155 to 2190
2155	2218	Sand stone some clay or silt & granite imbeded
2218	2230	Red sticky clay
2230	2235	Sand, gravel & clay-water level 210 ft.
2235	2255	Hard clay, gravel & silt temp. 124°
2255	2280	Hard clay silt & sand stone water level 180
2280	2311	Soft brown sand stone
2311	2318	Granite boulders imbeded in clay-water level 300 ft. Temp. 129°
2318	2386	Rock salt ledge (don't cut) Water level 168'
2386	2398	Brown sand & salt
2398	2550	Salt ledge
2550	2556	Granite ledge (Water sample 2350)
2556	2632	Salt
2632	2636	Sand
2636	2648	Salt
2648	2652	Mountain gravel & sand
2652	2656	Blue rock
2656	2743	Salt
2743	2745	Very hard rock imbedded in salt
2745	2774	Salt
2774	2781	Large granite boulders imbeded in sand stone.
2781	2784	Salt

USGS Lab in Tucson } 19baa
Sat # 207
Samples divided to 2290' by S Schmitt & RE Geer

Lab # 1729 Rec 1075 - at 1452' ~~Color~~

(B-2-1) 21abb Raw Color
1452' Off white

Remarks
Sack 3 labels

(B-2-1) 21ccb
Sat # 1858
at 1570-1580 Fine to Med Sand & Gypsum Flakes
at 1905' no salt.

(B-2-1) 31bba
Sat # 2162 at 2100' mostly fine sand & pebbles

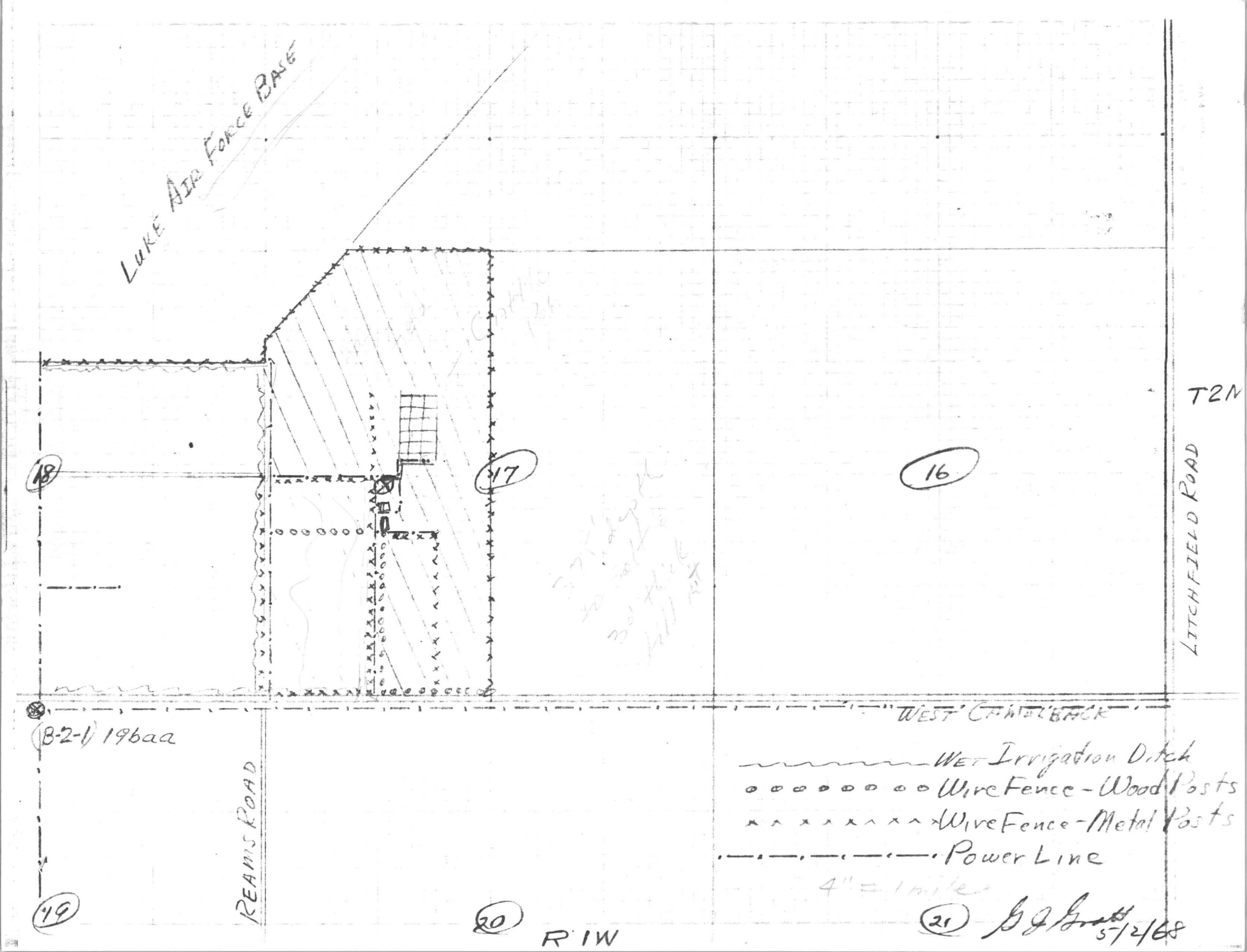
Jerry Ghotz

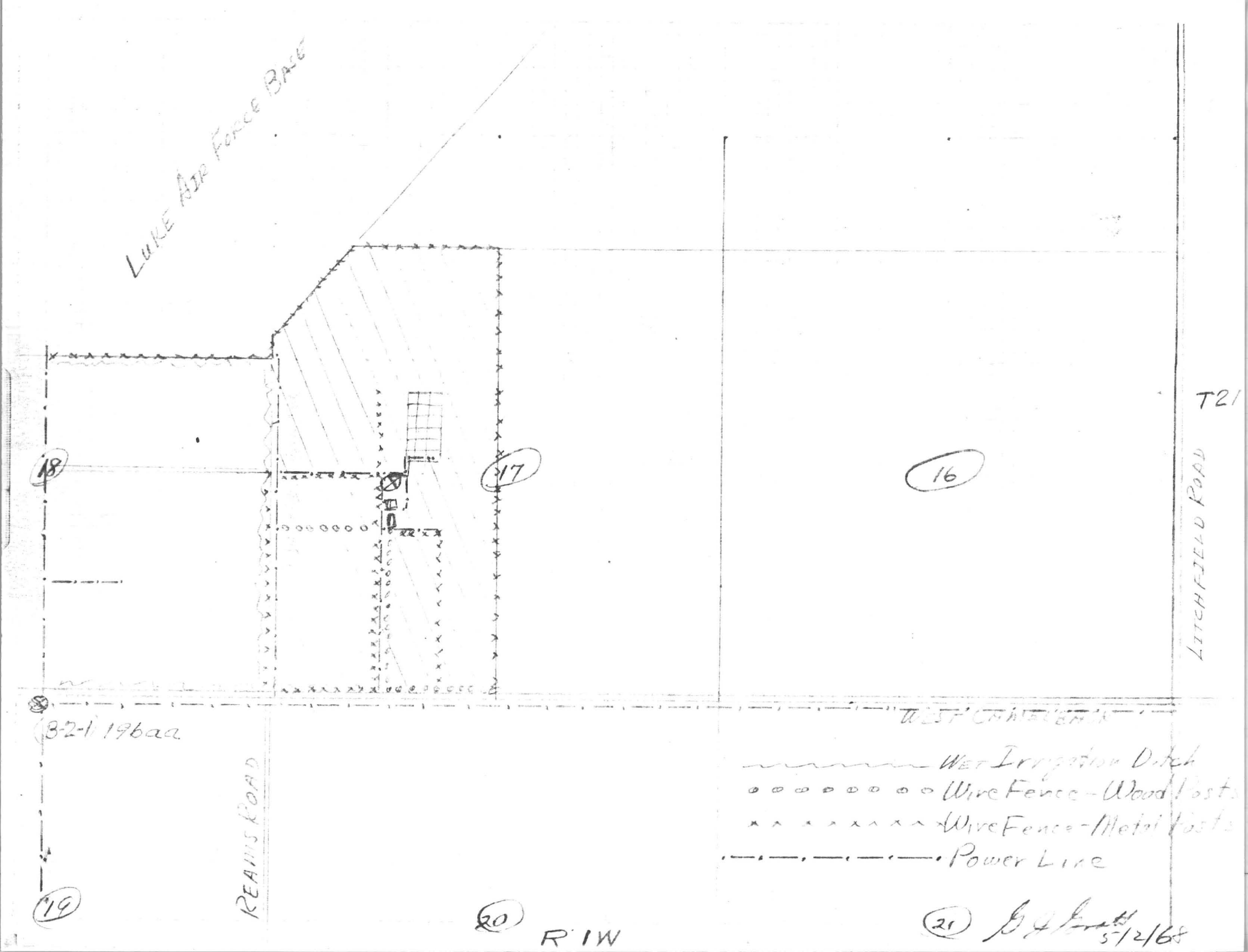
sent this

over

5/3/68

1/2


LUKE AIR FORCE BASE
T2N
LITCHFIELD ROAD
18
17
16
19
20
21
WEST CAMELBACK
(B-2-1) 19baa
REAMS ROAD
R 1W
WEST Irrigation Ditch
Wire Fence - Wood Posts
Wire Fence - Metal Posts
Power Line
4" = 1 mile
5-2-68


LUKE AIR FORCE BASE
18
17
16
T21
LITCHFIELD ROAD
W.S.P. CANAL
8-2-1 196aa
REAVIS ROAD
19
20
R 1W
21
5/2/68
Wet Irrigation Ditch
Wire Fence - Wood Posts
Wire Fence - Metal Posts
Power Line

January 16, 1968

Mr. Jerry Grott
1205 Orlando Dr.
Coolidge, Arizona 85228

Re: Proposed Resistivity & Gravity Surveys, Maricopa County,Ariz.

Dear Jerry:

This will confirm the conversation of January 4, 1968 with you and for our mutual understanding and agreement we propose the following :

1. A resistivity depth probe survey in the vicinity of Well B-19 located in Sec. 19, T2N, R1W, Maricopa County, Arizona. The purpose of the survey is to gain resistivity information to a depth of 2,600 feet if possible and possible resistivity correlation with salt (sodium chloride?) zones reportedly encountered in the drill hole.

If a resistivity correlation is found to exist an extension program may be recommended for future development of the adjacent areas.

2. To confirm and define a gravity low known to exist in the vicinity of Sec. 1 & 2, T 2 N, R 1 W and Sec. 35, 36, T 3 N, R 1 W. Maricopa County, Arizona by conducting a gravity survey on a closer line and station spacing than has been done to date.

3. Conduct a resistivity survey over the located gravity low to determine the possible existence of and depth of suspected salt zones.

Charges for the above will be at the following rate:

Report compilation and interpretation $150.00/staff day.
A resistivity Survey Crew, $250.00 / 3 man crew.
$350.00/ 5 man crew

A gravity survey crew $200.00/day, 2 men
$250.00/day, 3 men.

Expenses charged will include vehicles at $12.00/day plus $0.12 per mile. Directly related supplies, communications living and other directly incidental charges, at cost.

Mobilization and demobilization, travel, excessive weather delay and standby charges are one half the daily rate. Breakdown of our equipment in excess of one hour per day will be made up or not charged.

Total estimate for the job as proposed above will be approximately $4,500.00 and take about three to four weeks to complete the field work and write a report.

Others of our technical staff are involved as needed and/or are supplied as requested and mutually agreed upon.

All property permits, brushing and trespassing-liability and related costs incurred on behalf of client assumed by client. Charges for extra equipment and personnel employed if mutually desired, are extra.

GEOEX will save harmless from all Workmen's Compensation, public liability and property damage liability incurred by GEOEX employees.

Preliminary reports or copies of rough field plotting sheets will be available as work progresses.

Payments due on presentation. Billings may be submitted periodically with final statement after completion of final report.

In order to schedule a crew, since we have had no previous business relationship, an advance on account in the amount of $2,500.00 will be required.

Indication of your understanding and approval of the above by executing as provided below on the attached copy of this letter and returning it to us, will be most appreciated.

Sincerely yours,
HEINRICHS GEOEXPLORATION CO.

ECH:jh

E. Grover Heinrichs
Vice President

Date:_____

Accepted by:_____

Title:_____

cc: Extra Encl.