

SUPERIOR OIL CO. #1 FEDERAL 63-15
NE Sec 15-T5S-R23E, Graham Co. 5-16

County Graham
Area W. of Ashurst
Lease No. _____

Well Name SUPERIOR OIL COMPANY #1 SUPERIOR-FEDERAL 63-15

Location NE Sec 15 Twp 5S Range 23E Footage 1935 fml 1485 fel
Spud _____ Completed _____ Total _____
Elev 2790 ± Gr _____ KB _____ Date 2-28-61 Abandon 3-19-61 Depth -1296 (+1494±)
Contractor H. Thomas 15' logs
Boyles Bros. Drilling Co.

Casing Size Nx(3 1/4") Depth 490' (150' left in hole) Cement _____
Bx(2"-2 1/2") 700' _____
Drilled by Rotary X
Cable Tool _____
Production Horizon _____
Initial Production Abd.

Summary of well & core description by Ralph M. Barnard, Superior Oil-March '61

REMARKS Cost, exclusive of salaries & expenses of Superior personnel \$8,605.49
"Core suggests beds dip 5° " at 1097'-1120'.

Cement plug was placed at 860' + 10' plug was cemented at surface
location marked by pipe at surface. Cores 16'-936' stored with Gd. Wtr. Division of U.S.G.S.
at Tucson, Az.

Elec SP & Resistivity by U.S.G.S. to 892'
Logs GRN-we do not have any of the logs here
Applic. Plugging Completion Core Sample Log
to Plug Record Report Sample Descript. R.M. Barnard
of Superior
About 4" Core Analysis 16'-700'
About 2 1/2" Core- 700-1296 T.D.

DATA RECEIVED FROM WES PEIRCE 11-5-73

Water well accepted by _____

Bond Co. & No. _____ Date _____

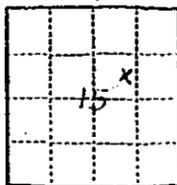
Bond Am't \$ _____ Cancelled _____ Organization Report _____

Filing Receipt _____ Dated _____ Well Book _____ Plat Book _____

API No. 02-009-05031 Loc. Plat _____ Dedication _____

Permit Number 5-16 Date Issued _____

Form 9-331a
(Feb. 1961)



(SUBMIT IN TRIPLICATE)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

Budget Bureau No. 42-B358.4
Approval expires 12-31-60.

Land Office Phoenix
Lease No. AR-026077
Unit _____

RECEIVED

SUNDRY NOTICES AND REPORTS ON WELLS

NOTICE OF INTENTION TO DRILL		SUBSEQUENT REPORT OF WATER SHUT-OFF	
NOTICE OF INTENTION TO CHANGE PLANS		SUBSEQUENT REPORT OF SHOOTING OR ACIDIZING	
NOTICE OF INTENTION TO TEST WATER SHUT-OFF		SUBSEQUENT REPORT OF ALTERING CASING	
NOTICE OF INTENTION TO RE-DRILL OR REPAIR WELL		SUBSEQUENT REPORT OF RE-DRILLING OR REPAIR	
NOTICE OF INTENTION TO SHOOT OR ACIDIZE		SUBSEQUENT REPORT OF ABANDONMENT	
NOTICE OF INTENTION TO PULL OR ALTER CASING		SUPPLEMENTARY WELL HISTORY	
NOTICE OF INTENTION TO ABANDON WELL	X		

(INDICATE ABOVE BY CHECK MARK NATURE OF REPORT, NOTICE, OR OTHER DATA)

March 24, 1961

Federal
Well No. 63-158 is located 1935 ft. from [N] line and 1485 ft. from [E] line of sec. 15

NE 1/4 Sec. 15 (1/4 Sec. and Sec. No.) T58 (Twp.) R23E (Range) G & S R (Meridian)

Wildcat (Field) Graham (County or Subdivision) Arizona (State or Territory)

The elevation of the derrick floor above sea level is 2878 ft.

DETAILS OF WORK

(State names of and expected depths to objective sands; show sizes, weights, and lengths of proposed casings; indicate mudding jobs, cementing points, and all other important proposed work)

Total depth of hole was 1296 ft. 700 ft. of BX casing and 340 ft. of NX casing were pulled. 150 ft. of NX casing was left in hole. A cement plug was set at approximately 860 ft. and a 10 ft. plug was set at the surface. The well location is marked with a pipe set in the surface plug. The mud pit is to be filled and leveled. No important fresh or salt water aquifers were encountered in this hole.

I understand that this plan of work must receive approval in writing by the Geological Survey before operations may be commenced.

Company The Superior Oil Company
Address P. O. Box 1698
Grand Junction, Colorado

Ralph H. Wilpolt
Ralph H. Wilpolt, Manager
Minerals Division

APPROVED: MAR 27 1961
U. S. Geological Survey

By R. S. Fullerton
Title REGIONAL MINING SUPERVISOR

928 - tan-brown; ^{calcareous} sandy ~~mudstone~~ sandy mudstone
limonite after pyrite (?) stains; } sand particles
<5%

950.3 - whitish-tan calcareous ~~mudstone~~ ^{mudstone (sl.)} (fine sand)
calche(?) ; gtz ~5% ^{calc} ~~(?)~~ ^{stains} ~5% - CaCO₃
~5% ^(?) (gyp)

954 - whitish-tan calcareous mudstone; calcite
concretions; gyp (?) ; several soft, black spots

986.5 - whitish-tan calcareous fine sand
Fe stains; orange color on surface; gtz; feldspar;
black "soot" on surface in a couple of places.

1011 - tannish-white ~~calcareous~~ silty ls (?) ; calcite ab

1017.5 - whitish-tan calcareous ss. ; some deformed bedding
mainly gtz grains

1074.5 - whitish tan calcareous mudstone; sulfide-pyrite (?)

1079.5 - ^{-none seen-} "chalcedonic amygdaloid" (?) tan calcareous mudstone
"greenish" lichen scale when HCl applied - micro (?)

-2-

1051 — whitish-tan calcareous ^{fine ss} mudstone; calcite filled vugs.
Fe staining - pyrite → limonite(?)

1090.5 — whitish-tan calcareous mudstone; thin-bedded
ls & mud; extremely friable

1013 — whitish-tan calcareous mudstone; thin beds alt.
ls & mud; very friable; calcite lined vugs;

1023 — tan calcareous mudstone; fairly uniform

1112 — tanish-white calcareous ~~mud~~ mudstone

1136 — tan calcareous mudstone; bedded; very friable
mudstone ~5%

1148 — tan mudstone; very slightly calcareous

1153 — whitish tan calcareous mudstone

~~1175~~ 1175.5 — tan slightly calcareous mudstone

1215 - light tan calcareous mudstone.

1233 - light tan calcareous mudstone.

1251 - light tan calcareous mudstone.

1294 brownish tan calcareous mudstone.

	Drilling mud makeup H ₂ O 1200-1296 (ppm)	Drilling mud return from bottom of hole T.D. 1296 (ppm)
Ca	189	45
Mg	53	20
Na	785	1150
K	18	18
Li	45	45
SO ₄	300	550
Cl ₂	1000	1300
CO ₃	181	133
B	2.4	3.0

Taken by telephone by RHW from
Harold Fophol of Dow Chemical, 11-20-61
(Could not find Dow transmitted letter).

THE SUPERIOR OIL COMPANY

INTER-OFFICE CORRESPONDENCE

TO John T. Isberg LOCATION Los Angeles DATE March 22, 1961

FROM Ralph H. Wilpolt LOCATION Grand Junction

SUBJECT Completion of Superior-Federal 63-158
Safford Basin Boron Prospect
Section 15, T5S, R23E
Graham County, Arizona

The above boron test was completed at midnight, March 18 at a T.D. of 1296 ft. The general stratigraphic intervals encountered in this well are as follows:

0 - 5'	Alluvium
5 - 930'	Brown Clay, shale and siltstone, a few thin stringers of fine sandstone.
930'	Top of lake beds
930' - 950'	Green-gray shale and brown shale, very calcareous
950' - 1097'	White limestone, vugular, interbedded gray and brown clay and shale; a few gypsum stringers
1097' - 1296'	Shale, green, gray and brown, minor limestone, a few gypsum stringers.

No brines were noted and the hole was cored all of the way (below the alluvium). The drilling time was 19 days. The hole was cased with 2½" (BX) casing to 700 ft. It was plugged properly and marked at the surface subsequent to completion.

A much more complete report will be prepared later. As more geological information on the Safford Basin has become available recently, it is our intention to restudy the area before doing any further drilling.

Ralph H. Wilpolt

RHW/nb

THE SUPERIOR OIL COMPANY
INTER-OFFICE CORRESPONDENCE

5-16

TO R. H. Wilpolt LOCATION Grand Junction DATE March, 1961

FROM R. M. Barnard ¹⁰ APR 6, 1960 LOCATION Grand Junction

SUBJECT Results of the Safford Basin Boron Test
 Superior-Federal 63-15S
 T5S-R23E, Graham County, Arizona ← NE 1/4 Sec 15

DRILLING HISTORY

Drilling commenced on February 28, and ended on March 19. Boyles Brothers Drilling Company was the contractor. The hole was wire line cored from 16 feet to 1296 feet (total depth). An unsuccessful attempt was made to use diesel oil as the drilling fluid. The diesel oil did not lift the cuttings out of the hole. The hole was thereafter cored with a water base mud. Core recovery was good to fair in soft clays and silts above 930 feet, and very good in the harder limestones and shales from 930 feet to total depth. NX core was cut from 16 feet to 700 feet and BX core was cut from 700 feet to 1296 feet (T.D.). NX casing was run to 490 feet and BX casing to 700 feet. Gamma ray, self-potential and resistivity logs were run by the U.S. Geological Survey, but bridging in the hole prevented logging below 892 feet. 150 feet of NX casing was not recovered when the hole was abandoned. A cement plug was placed at 860 feet and a 10 feet plug was cemented at the surface. The mud pit was filled and leveled and a piece of pipe in the surface plug marks the hole location. The total drilling cost for this hole, exclusive of salaries and expenses of Superior personnel and location work, was \$8605.49.

BEDS ENCOUNTERED

The sediments from 5 feet to 930 feet consist almost entirely of brown clays, soft shales and silts. The silts occasionally grade to fine grained sand beds, several inches to several feet in thickness. Some cross bedding was noted. No flowing water or dilution of the mud by formation water was encountered. However, slight salt crusts were observed on some of the dried-out cores, suggesting that some of the silty and sandy beds are saturated with brackish or salty water. The beds above 930 feet appear to be sediments deposited in marshes and slow moving streams, and are unfavorable for the occurrence of borate deposits. The sediments in this part of the section are very poorly consolidated.

The sediments from 930 feet to 1296 feet are primarily lacustrine limestones, shales and clays. These lake beds are more consolidated than the overlying sediments and appear to have a dip of 5 degrees or more. Much of the limestone is very vuggy, but the vugs are dry and lined with small secondary crystals. The shales are dominantly green, gray and dark gray, and are often waxy. A minor amount of gypsum and tuffaceous material was also noted. Traces

RECEIVED

NOV 05 1960

O & G CONS. COMM.
from Wes Peirce

THE SUPERIOR OIL COMPANY

INTER-OFFICE CORRESPONDENCE

TO R. H. Wilpolt LOCATION Grand Junction DATE March, 1961
FROM R. M. Barnard LOCATION Grand Junction
SUBJECT Superior-Federal 63-153
Page Two

of a green mineral (yet unidentified) were observed in limestone and shale, and one small bleb of fluorite was noted in limestone. These lake beds appear to be a favorable environment for borates, brines and other saline deposits, but none were encountered.

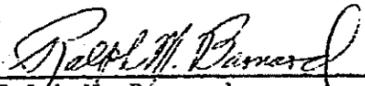
CONCLUSIONS

Since no borates or brines were encountered in this test, no further drilling is recommended on sodium prospecting permits HRM-22 and 23, and the claims which we located on adjacent state land should be allowed to expire without trying to perfect discoveries.

To guard against the possibility that there may have been undetected formation fluids in the hole, a mud return sample from the lake bed section will be analyzed in the near future.

A recommendation as to whether or not another hole should be drilled in the Safford Basin is withheld until the results of the initial test, together with recent work by the Geological Survey, are thoroughly digested.

The most adverse factor revealed by this test is that the presence of 930 feet of poorly consolidated sediments overlying the favorable lake beds would probably prohibit the mining of a solid borate deposit.


Ralph M. Barnard

RMB/nb

Attached: Core Discriptions

CORE LOG

Superior-Federal 63-15S
Sec. 15, T5S-R23E, Graham County, Arizona

<u>Depth</u>	<u>Description</u>
0-5	Recent alluvium. (cutting spls.)
5-16	Clay, brown. (cutting spls.)
16-50	Clay & siltstone, brown, calcareous. (beginning of NX core)
50-52	Siltstone, light brown.
52-60	Clay & siltstone, chocolate brown, calcareous.
60-62	Sandstone, brown, medium grained, arkosic.
62-72	Siltstone & clay, choc. brown.
72-77	No recovery (prob. brown clay).
77-122	Clay, choc. brown.
122-122.2	Sandstone, tan, fine, arkosic.
122.2-141.7	Clay, slightly silty in part, choc. brown.
141.7-157	No recovery.
157-167	Clay, choc. brown (2ft. recovered).
167-172	No recovery (prob. brown clay).
172-202	Clay, choc. brown.
202-205	Sandstone, brown, fine, poorly consolidated.
205-212	Clay, sandy to silty, brown.
212-214	Clay, choc. brown.
214-225	Clay, sl. sandy in part, choc. brown.
225-247	Clay, silty, brown.
247-259	Clay, brown, a few thin sandy stringers.
259-282	No recovery.
282-322	Clay, brown, a few thin sandy stringers.
322-334	Clay, choc. brown.
334-337.5	Clay, slightly sandy to silty, gray brown.
337.5-338.4	Sandstone, fine, silty, gray-brown, iron staining.
338.4-343	Clay, choc. brown, somewhat slightly sandy.
343-353.5	Clay, choc. brown.
353.5-354	Siltstone, tan, crumbly.
354-356	Clay, choc. brown.
356-359	Mudstone, gray-brown to gray-green, sl. micaceous.
359-365	Clay, choc. brown.
365-375	Clay, silty, choc. brown.
375-376	Sandstone & clay, ss. is gray-brown, very fine.
376-389.5	Clay, choc. brown.
389.5-419	Clay, silty to sandy, calcareous.
419-421	Silty sandstone, brown, fine, poorly consolidated; slight salt crust on core.
421-443	Mudstone, choc. brown, calcareous, slightly micaceous.
443-453	No recovery.
453-455	Clay, silty, brown.
455-464	Mudstone, brown, calc., silty at base; slight salt crust on core.
464-473	Siltstone, some clay, choc. brown.
473-493	Clay, sandy & silty in part, brown, calc.
493-494.5	Silty sandstone, fine, calc., poorly consolidated.

<u>Depth</u>	<u>Description</u>
494.5-496.5	Clay, sandy to silty, calc.
496.5-499.5	Mudstone, brown, calc., slightly micaceous, slight salty taste.
499.5-519	Silty clay, brown, calc.; grades in minor part to fine silty ss.
519-529	Shale, brown, calc.; a few thin silty & sandy stringers; has a greater degree of consolidation than material above.
529-531	Shale, light brown, calc., silty, micaceous.
531-537	Clay, brown, calc.
537-539	Sandy clay, calc., micaceous.
539-541	Silty sandstone, brown, fine, micaceous, calc., soft.
541-544.5	Silty clay, brown calc.
544.5-545	Mudstone, green, calc.
545-548.5	Shale, brown, calc.
548.5-550.5	Sandstone, brown, very fine, silty, calc., poorly consolidated.
550.5-552	Clay, brown, silty, calc.
552-584	Siltstone & shale, brown, calc.; grades in part to fine brown sandstone; slight salt crust on core at 569ft.
584-610	Shale & clay, brown, calc.; a few stringers of siltstone & fine sandstone.
610-617	Siltstone & fine sandstone, brown, calc., cross-bedded; minor shale.
617-620	Clay, brown.
620-622	Sandstone, fine, silty, soft.
622-630	Siltstone, grades to shale, calc.; slight salt crust on core.
630-631.2	Sandstone, very fine, silty, calc., soft.
631.2-641	Clay & shale, brown, calc., some slightly silty.
641-644	Siltstone & sandstone, soft, calc.
644-667	Shale & clay, sandy in part, brown, calc.
667-669	Shale, red-brown, hard, calc.
669-676	Clay & shale, brown, calc.
676-688	Siltstone, brown, calc., soft (only 1 ft. recovered)
688-696.5	Clay, brown, calc.
696.5-700	Siltstone, gray-brown, calc., fairly hard
(End of NX core; beginning of BX core)	
700-700.3	Sandstone, very fine, brown.
700.3-712	Siltstone & silty shale, brown, calc., sl. micaceous (2.5ft. recovered).
712-722	No recovery.
722-762	Shale & siltstone, brown, calc., slightly micaceous, a few inches of fine sandstone at 742.
762-769	Sandstone, brown, fine to silty, slightly, micaceous, calc. (3ft. recovered).
769-781	Shale & siltstone, brown, calc., micaceous.
781-782	Silty to argillaceous sandstone, micaceous.
782-793.5	Shale, brown, calc., micaceous; some silty streaks.
793.5-794	Sandstone, silty & argillaceous, calc., micaceous.
794-799	Shale, brown, calc.
799-807	Siltstone & fine sandstone, gray to brown with black carbonaceous streaks, micaceous, calc. (50% recovery)
807-842	Siltstone & shale, brown, calc., micaceous; includes some thin black carbonaceous laminations; several thin zones of fine ss.
842-852	Silty sandstone & siltstone interbedded with shale; brown, calc., micaceous.

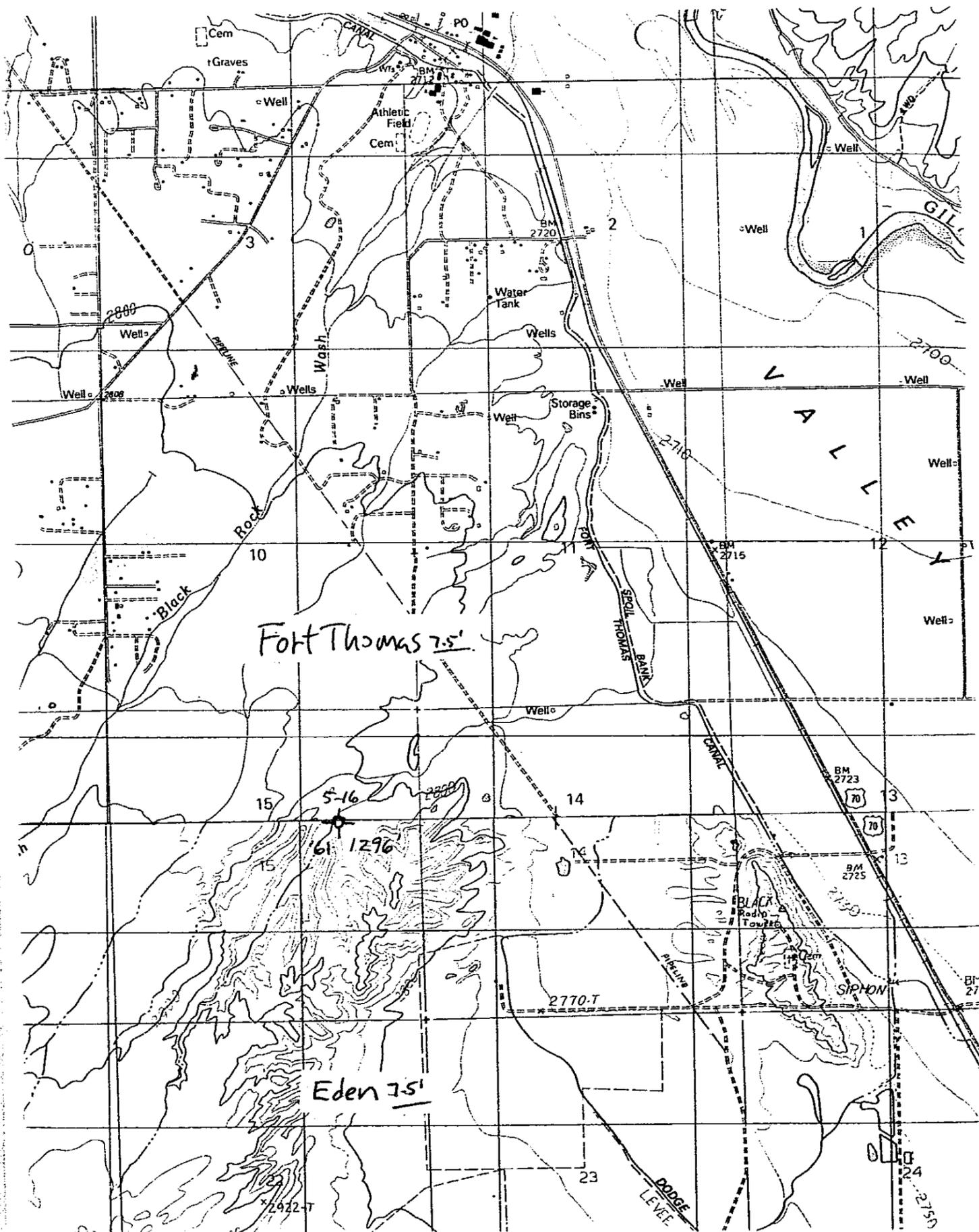
<u>Depth</u>	<u>Description</u>
852-854.7	Shale, brown, calc.
854.7-862	Silty sandstone & siltstone, brown with black carbonaceous inclusions; cross-bedded, calc., micaceous (3 ft. recovered)
862-872	No recovery.
872-927.5	Shale & minor silty shale, brown, calc., sl. micaceous; a few thin beds (up to 1 ft. thick) of fine brown sandstone & siltstone containing carbonaceous material.
927.5-929.7	Shale, brown to gray, calc.
929.7-932.7	Shale, light gray-green, very calc., contains ostracods(?).
932.7-936.2	Shale, brown, calc., fairly hard.
936.2-942	Shale & clay, brown, calc., crumbled.
942-946.5	Shale, brown, calc., fairly hard, sl. silty.
946.5-951	Shale, brown, calc., inclusions of white limestone increasing in abundance towards base.
951-952	Limestone, white, hard vugular
952-960	Limestone & shale; the ls. is vuggy and occurs as laminations and inclusions in the brown shale.
960-962	Limestone, argillaceous, gray.
962-968	Shale, very calc., gray-brown to brown; contains small inclusions of CaCO ₃ .
968-971.5	Shale, gray, very calc., slightly silty in part.
971.5-985	Shale, brown, abundant small inclusions & thin laminations of white limestone.
985-987	Sandstone, fine, porous, calc; interbedded vuggy white limestone.
987-999.5	Limestone, argillaceous, white, very vugular; contains interbedded brown shale & clay.
X 999.5-1049	Limestone, white, honeycombed & vugular; vugs contain secondary crystal growth; minor stringers of brown to gray clay; possibly a little intermixed gypsum.
1049-1070	Limestone, white, vugular, intermixed gray clay; a few thin (1/8" to 4") beds of gray, non-calcareous shale.
1070-1072	Argillaceous limestone & very calc. gray clay; contains white powdery CaCO ₃ .
1072-1072.5	Limestone, white, fine crystalline, hard, slightly vuggy.
1072.5-1075.5	Shale, gray to dark gray; a few thin white CaCO ₃ stringers; small amounts of a green mineral.
1075.5-1078	Limestone, white, vugular; large admixture of dark gray shale.
1078-1097	Limestone & shale; shale is gray to dark gray, non calc.; limestone occurs in numerous thin stringers beds & inclusions; gypsum noted at 1078' and 1093.5'.
1097-1120	Shale, gray to brown, waxy in part; abundant thin stringers of CaCO ₃ and some gypsum. <u>Core suggests beds dip 5°</u>
1120-1122	Shale, waxy, brown, soft; white CaCO ₃ & gypsum inclusions.
1122-1127.3	Shale, silty, dark gray, slightly micaceous; occasional thin white calcareous streaks; traces of bright green mineral.
1127.3-1129	Siltstone, gray, porous, sl. micaceous.
1129-1132	Shale, dark brown, sl. micaceous; some thin white limestone stringers.
1132-1134.5	Limestone, white soft, gypsiferous (?); contains dark gray to black shale stringers
1134.5-1141	Shale, dark brown to dark gray, sl. micaceous, numerous irregular white CaCO ₃ stringers make up 50% of rock in places.

<u>Depth</u>	<u>Description</u>
1141-1142	Limestone, white, soft, powdery, possibly gypsiferous; contains admixture of dark brown clay.
1142-1144	Limestone, white, numerous irregular stringers of waxy, brown clay.
1144-1149	Shale, dark brown; numerous thin stringers of white limestone. Beds have <u>apparent dip of 5°</u> .
1149-1154	Shale & limestone, shale is waxy, brown to gray-green; limestone, hard to soft.
1154-1162	Shale with laminations of white limestone; shale is brown to gray, waxy in part; trace of green mineral at 1160' to 62'.
1162-1172	Shale & white limestone; shale is green & gray; ½ inch of red shale at 1168.5'; green mineral in ls. at 1167'.
1172-1182	Shale, green to gray, hard, sl. silty in part; occasional thin white calcareous stringers.
1182-1187	Shale, green, waxy, occasional thin white stringers of vuggy limestone & argillaceous limestone.
1187-1188	Clay, green, waxy.
1188-1189	Shale, green, brown & gray.
1189-1190	Limestone, white, sl. vuggy; minor gray shale.
1190-1196	Shale, brown, gray & gray-green, hard, sl. micaceous; occasional thin calcareous stringers.
1196-1199	Clay, brown, & white limestone.
1199-1205	Shale, dark green, gray, gray-brown; interbedded limestone stringers.
1205-1206	Siltstone & silty shale, gray-green micaceous.
1206-1208	Shale & siltstone green to dark gray; a few calc. stringers.
1208-1212	Shale & clay, green & very dark green; some calc. stringers.
1212-1224	Shale & argillaceous limestone; shale is green to black.
1224-1231.4	Shale, gray, very sl. calc., waxy in part, sl. micaceous in part; occasional light gray calc. bands.
1231.4-1237	Shale, gray, green & brown; interbedded thin limestone stringers.
1237-1246	Shale, brown to olive green; interbedded limestone.
1246-1258	Shale, gray, occasional light gray to white calcareous streaks; 1 inch of vuggy white limestone at 1246'.
1258-1260	Limestone, white, intermixed with green shale; some gypsum.
1260-1270.5	Shale, gray-brown, gray, gray-green; a few light gray calcareous stringers; some gypsum stringers at 1270'.
1270.5-1271.5	Limestone, white, intermixed green shale.
1271.5-1274	Shale, gray, calc., crumbled core.
1274-1281	Shale, green to gray; a few thin calc. streaks.
1281-1285	Shale, black & gray-green.
1285-1287	Shale, gray, slightly micaceous.
1287-1296	Shale or clay, dark gray, slightly micaceous (1 ft. recovered)

Note: The cores were described when wet. Colors exhibited by the dry sediments may differ.

The cores from 16 ft. to 936 ft. are stored by the Ground Water Division of the Geological Survey at Tucson, Arizona.

Some of the shales & silts below 950' are tuffaceous. This was not noted until cores were dry. R.M.B.





UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
Ground Water Branch
P. O. Box 4070
Tucson, Arizona

IN REPLY REFER TO:

THE SUPERIOR OIL CO.

JAN 19 1962

MINERALS DIVISION
DENVER

January 17, 1962

Mr. Ralph H. Wilpolt
The Superior Oil Company
P. O. Box 600
Denver 1, Colorado

Dear Ralph:

Thanx for your kind offer, but it is not necessary to re-examine the Safford core; I just wanted to obtain the core in case you felt it was not worth the storage space and were about to throw it away.

Sincerely,

Ed S.
Edward S. Davidson
Geologist

January 15, 1962

Mr. Edward S. Davidson
U.S.G.S.
University of Arizona
Tucson, Arizona

Dear Ed:

I apparently have misplaced your letter in which you requested permission to examine the lower portion of the core from the hole we drilled during 1961 in the Safford Basin. This core is now in the corehouse at our drilling and production headquarters at Cortez, Colorado. You are welcome to examine it in Cortez. I would appreciate your contacting me when you know your plans as to visiting Cortez and I will arrange to have the cores made available to you.

Very truly yours,

THE SUPERIOR OIL COMPANY

Ralph H. Wilpolt
Manager, Minerals Division

RHW/jmw



UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

Ground Water Branch
P. O. Box 4070
Tucson, Arizona

IN REPLY REFER TO:

THESE OFFICES

DEC 19 1961

MINERAL DIVISION
DENVER

December 14, 1961

Mr. Ralph Wilpolt
Superior Oil Company
1700 Broadway
Denver, Colorado

Dear Mr. Wilpolt:

Am just now beginning to see my way clear to working on the core from Superior's test in the Safford basin, and in this regard it occurred to me that you might no longer have use for the bottom few hundred feet of core from the hole. If this is the case, and you are willing, I'd be delighted to come to Colorado to get it. As I've stated previously, we will keep all information regarding this core "Survey confidential" until such time as you feel we may release the data.

Sincerely yours,

Edward S. Davidson
Geologist

THE SUPERIOR OIL COMPANY
INTER-OFFICE CORRESPONDENCE

TO John T. Isberg LOCATION Denver DATE 11/20/61
 FROM Ralph H. Wilpolt LOCATION Denver
 SUBJECT SAFFORD BASIN BORON PROSPECT
 Superior-Federal 63-15S
 Graham County, Arizona

As you know, we have drilled one test, Superior-Federal No. 63-15S, on the above prospect. You were furnished a copy of Ralph Barnard's memo summarizing the results of said drilling.

In brief, our test hole drilled through 930 feet of clays, shales, and silts before reaching lacustrine limestones, shales, and clays in the interval 930 to 1296 feet (TD). It had been our hope to encounter the lake bed facies at shallower depths and, of course, to find a bedded sodium borate deposit. It would probably not be economical to attempt to mine a deposit similar to the sodium borate deposit being mined by U.S. Borax at Kramer, California, with the overburden conditions existing in the Safford drill hole.

No evidence of borate mineralization was evident in the core. The drilling mud makeup water and the drilling mud return were analyzed for us by Dow Chemical and the results are as follows (no unusual amounts are present of any of the elements or radicals analyzed):

	Drilling Mud Makeup Water 1200-1296' (ppm)	Drilling Mud Return from Btm of Hole, TD 1296' (ppm)
Ca	189	45
Mg	53	20
Na	785	1150
K	18	18
Li	< 5	< 5
SO ₄	500	550
Cl	1000	1300
CO ₃	181	133
B	2.4	3.0

THE SUPERIOR OIL COMPANY

INTER-OFFICE CORRESPONDENCE

TO **JTI** LOCATION DATE **11/20/61**

FROM **RHW** LOCATION

SUBJECT **SAFFORD BASIN PROSPECT - page 2**

The boron anomalies which caused us to develop this "play" are present only in the water from shallow irrigation wells drilled in the Salt River channel gravels and from hot springs. Recent geological work in the Safford Valley has resulted in the identification of diatremes which cut (intrude) the valley fill in the southern part of the Safford Basin. It is my present thought that these diatremes are the source of the boron and said element may still be "leaking" into the valley from depth through the diatremes and any available structural conduits. Thus the lake bed deposits of the Safford Basin are pre-diatremes in age and would probably not contain concentrations of boron in any evaporite facies due to the absence of boron emanations during the time of deposition.

B.S.

Also, more recent geological work conducted at the University of Arizona has indicated that any salt deposition in the valley fill lacustrine sediments is located upstream from Safford, whereas all of our holdings are located some distance downstream from Safford. This is in agreement with the findings in Superior-Federal 63-15S.

Not so!
Just deeper
than this
HWP

I do not now believe that this is a good prospect and recommend that we drop the land involved as rentals come due. I intend to maintain contact and thus watch geological developments in the area in case some adaptation of our original thinking might be applied to another portion of the general area.

Ralph H. Wilpolt

RHW/jw