

Kerr-McGee Corp. Potash Exploration 8-5
Red Lake #1, Mohave Co. Sec30-T26N-R16W

P-W

16

County Mohave

Area _____

Lease No. _____

Well Name Red Lake Potash, R. L. #1 Kerr-McGee Oil Industries, Inc.

Location se se se Sec 30 Twp 26N Range 16W Footage 100' FSL & 100' FEL
Elev _____ Gr _____ KB _____ Spud Date 2-17-58 Completed 3-26-58 Total Depth 2608
~~Abandon~~

Contractor _____

Casing Size 4 1/2" Depth 1310 Cement _____
Drilled by Rotary _____
Cable Tool _____
Production Horizon _____
Initial Production _____

REMARKS Top of Salt at 1420 (+1323)

Elec Logs Lithologic Log of Drill Hole Samma Ray Neutron Sample Log _____
Applic. Plugging Completion _____ Sample Descript.
to Plug _____ Record _____ Report _____ Sample Set _____
Core Analysis _____
DSTs _____

Water well accepted by _____

Bond Co. & No. _____

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

Filing Receipt _____ Dated _____ Well Book _____ Plat Book _____

API No. _____ Loc. Plat _____ Dedication _____

Permit Number None Date Issued _____ # 8-3

See also #2 well
28-26N-16W
in this file

KERR-McGEE OIL INDUSTRIES, INC.
LITHOLOGIC LOG OF DRILL HOLE



<u>Hole Number:</u> R.L. #1	<u>Commenced:</u> 2/17/1958
<u>Project:</u> Red Lake Potash	<u>Completed:</u> 3/26/1958
<u>Location:</u> 100' FSL & 100' FEL, Sec. 30, T26N., R16W., GSR.	<u>Total Depth:</u> 2608 feet.
<u>County:</u> Mohave	<u>None-Core:</u> 1410 feet.
<u>State:</u> Arizona	<u>Core:</u> 1208 1198 feet.
	<u>Casing:</u> 4½" O.D. to 1310 feet
	<u>Collar elev:</u> Unknown.

From	To	Interval	Description
0'-0"	10'-0"	10'-0"	Surface soil (Clay, brown & gray, few small rounded pebbles.)
10'-0"	20'-0"	10'-0"	Clay, brown, silty, few pebbles.
20'-0"	40'-0"	20'-0"	Clay, brown, silty, approximately 10% white loose clay.
40'-0"	50'-0"	10'-0"	Clay, brown, silty, slight white.
50'-0"	60'-0"	10'-0"	Clay, brown and white, silty, few small pebbles.
60'-0"	70'-0"	10'-0"	Gravel (small rounded), brown clay.
70'-0"	100'-0"	30'-0"	Gravel (small rounded).
100'-0"	110'-0"	10'-0"	Sand and gravel (small gravel).
110'-0"	150'-0"	40'-0"	Sand and gravel.
150'-0"	160'-0"	10'-0"	Sand and gravel, approximately 50% brown clay, silty.
160'-0"	170'-0"	10'-0"	Clay, brown, silty, few small pebbles.
170'-0"	180'-0"	10'-0"	Clay, brown, silty, 50% gravel.
180'-0"	210'-0"	30'-0"	Clay, brown, silty, few small pebbles.
210'-0"	300'-0"	90'-0"	Clay, brown, silty, occasional small pebble.
300'-0"	310'-0"	10'-0"	Sand and small gravel. Approximately 50% brown clay.
310'-0"	320'-0"	10'-0"	Sand and gravel, brown clay.
320'-0"	340'-0"	20'-0"	Clay, brown, silty. Approximately 50% sand & gravel.
340'-0"	350'-0"	10'-0"	Clay, brown, silty. 10% sand and gravel.
350'-0"	380'-0"	30'-0"	Clay, brown, silty, occasional small pebble.
380'-0"	400'-0"	20'-0"	Clay, brown, sandy, few small pebbles.
400'-0"	430'-0"	30'-0"	Clay, brown.
430'-0"	440'-0"	10'-0"	Clay, brown, occasional small pebble.
440'-0"	510'-0"	70'-0"	Clay, brown.
510'-0"	520'-0"	10'-0"	Brown clay, occasional pebble.
520'-0"	540'-0"	20'-0"	Clay, brown.
540'-0"	550'-0"	10'-0"	Clay, brown, occasional pebble.

From	To	Interval	Description
550'-0"	560'-0"	10'-0"	Clay, brown, approximately 15% small gravel.
560'-0"	590'-0"	30'-0"	Clay, brown, few small pebbles.
590'-0"	660'-0"	70'-0"	Clay, brown.
660'-0"	700'-0"	40'-0"	Clay, brown, approximately 30% coarse sand and small gravel.
700'-0"	710'-0"	10'-0"	Clay, brown.
710'-0"	780'-0"	70'-0"	Clay, brown, stringers of gray shale.
780'-0"	790'-0"	10'-0"	Clay, brown, stringers of shale, few pieces of gypsum.
790'-0"	800'-0"	10'-0"	Clay, brown, traces of gypsum.
800'-0"	810'-0"	10'-0"	Clay, brown, stringers of gray shale.
810'-0"	820'-0"	10'-0"	Clay, brown, stringers of gray shale, few pebbles.
820'-0"	830'-0"	10'-0"	Sand, medium to coarse grain, some brown clay.
830'-0"	840'-0"	10'-0"	Sand, medium to coarse grain, some brown clay, gray shale stringers.
840'-0"	850'-0"	10'-0"	Clay, brown, few small pebbles.
850'-0"	860'-0"	10'-0"	Clay, brown, stringers of gray clay, occasional small pebbles.
860'-0"	890'-0"	30'-0"	Clay, brown and gray.
890'-0"	910'-0"	20'-0"	Clay, gray brown.
910'-0"	930'-0"	20'-0"	Clay, gray brown, inclusions of red & gray clay.
930'-0"	970'-0"	40'-0"	Clay, gray.
970'-0"	980'-0"	10'-0"	Clay, brown & gray, few small pebbles.
980'-0"	990'-0"	10'-0"	Clay, brown and gray.
990'-0"	1020'-0"	30'-0"	Clay, brown, gray & slight bluish.
1020'-0"	1030'-0"	10'-0"	Clay, brown & gray, a little reddish brown.
1030'-0"	1100'-0"	70'-0"	Clay, brown & gray, a little bluish gray clay.
1100'-0"	1170'-0"	70'-0"	Clay, brown.
1170'-0"	1200'-0"	30'-0"	Clay, brown, little gray.
1200'-0"	1250'-0"	50'-0"	Clay, brown.
1250'-0"	1270'-0"	20'-0"	Clay, brown, a little gypsum.
1270'-0"	1300'-0"	30'-0"	Clay, brown, approximately 25% gypsum.
1300'-0"	1310'-0"	10'-0"	Gypsum - At 1310', set 4½" O.D. Casing - 2/25/1958.
1310'-0"	1400'-0"	90'-0"	Lost circulation - No samples.

RL #1

From	To	Interval	Description
1400'-0"	1418'-0"	18'-0"	Recovered 6'. Bedded Anhydrite and brown silty shale.
1418'-0"	1438'-6"	20'-6"	Recovered 3'. Badly leached halite with grey and brown clay inclusions.
1438'-6"	1459'-0"	20'-6"	Recovered 6'. Badly leached halite with brown silty clay inclusions.
1459'-0"	1473'-1"	14'-1"	Halite clear, medium to coarse grained. Approx. 12% brown silty clay.
1473'-1"	1476'-0"	2'-11"	Halite very clear, very coarse grained. Light inclusions of brown clay in the top 11".
1476'-0"	1476'-7"	0'-7"	Shale, brown, silty. A few blebs of halite and white anhydrite.
1476'-7"	1477'-11"	1'-4"	Halite, clear, coarse grained.
1477'-11"	1480'-4"	2'-5"	Shale, brown to gray, silty. Approximately 30% clear halite.
1480'-4"	1494'-0"	13'-8"	Halite, clear, coarse grained. Approximately 10% brown silty clay.
1494'-0"	1497'-3"	3'-3"	Halite, clear, medium grained. Light inclusions of black clay.
1497'-3"	1512'-5"	15'-2"	Halite, clear, medium to coarse grained. Approximately 8% brown to redish brown silty clay.
1512'-5"	1513'-6"	1'-1"	Halite, very clear, coarse grained.
1513'-6"	1514'-3"	0'-9"	Shale, brown, silty. Few blebs of halite.
1514'-3"	1520'-6"	6'-3"	Halite, clear, medium to coarse grained. Approx. 10% brown, silty clay.
1520'-6"	1558'-8"	38'-2"	Halite, clear, medium grained. Approx. 5% brown to redish brown, silty clay.
1558'-8"	1562'-5"	3'-9"	Halite, clear, medium grained. Approx. 8%, grey, silty clay.
1562'-5"	1562'-8"	0'-3"	Clay, brown and grey, silty. Few halite blebs.
1562'-8"	1563'-3"	0'-7"	Halite, clear, medium grained. Approx. 10% brown, silty clay.
1563'-3"	1572'-3"	9'-0"	Halite, clear, medium grained. Approx. 5% brown, silty clay. An irregular brown clay parting at 1571'-3".
1572'-3"	1572'-10"	0'-7"	Halite, very clear, very coarse grained.
1572'-10"	1573'-0"	0'-2"	Clay, brown, silty.
1573'-0"	1575'-10"	2'-10"	Halite, clear, medium grained. Approx. 8% brown, silty clay.
1575'-10"	1577'-2"	1'-4"	Halite, very clear, very coarse grained. Light inclusions of brown clay.
1577'-2"	1577'-6"	0'-4"	Clay, brown, silty. A few halite crystals.
1577'-6"	1599'-0"	21'-6"	Halite, clear, medium to coarse grained. Approx. 4% brown, silty clay. Clay partings at 1577'-9" and 1582'-2".
1599'-0"	1603'-0"	4'-0"	Halite, clear, medium to coarse grained. Approx. 2% brown clay.

Top Salt
1420'
FAK

20 5/8
1599
10 09

From	To	Interval	Description
1603'-9"	1614'-3"	11'-3"	Halite, clear, coarse grained. Approx. 4% brown clay.
1616'-3"	1614'-11"	0'-8"	Halite, clear, coarse grained.
1614'-11"	1618'-2"	3'-3"	Halite, clear, coarse grained. Approx. 5% brown silty clay.
1618'-2"	1623'-6"	5'-4"	Halite, clear, medium to coarse grained. Approx. 6% brown, silty, clay.
1623'-6"	1632'-6"	9'-0"	Halite, clear, coarse, to very coarse grained. Approx. 2% brown, silty clay.
1632'-6"	1634'-9"	2'-3"	Halite, very coarse grained. Clear. Light inclusions of brown clay in top 12".
1634'-9"	1636'-5"	1'-8"	Halite, clear, coarse grained. Approx. 30% sandy brown clay. Clay parting at bottom.
1636'-5"	1679'-6"	43'-1"	Halite, clear, medium to coarse grained. Varying amounts from 2% to 5% brown silty clay.
1679'-6"	1683'-1"	3'-7"	Halite, clear, coarse grained. Approx. 3% brown silty clay.
1683'-1"	1683'-7"	0'-6"	Halite, clear, coarse grained. Approx. 25% brown, silty clay.
1683'-7"	1687'-4"	3'-9"	Halite, clear, coarse grained. Approx. 2% brown, silty clay.
1687'-4"	1690'-7"	3'-3"	Halite, clear, medium to coarse grained. Approx. 7% brown, silty clay.
1690'-7"	1699'-11"	9'-4"	Halite, clear, medium grained. Approx. 3% brown, silty clay.
1699'-11"	1700'-4"	0'-5"	Halite, clear, a few blebs of white anhydrite. Approx. 8% brown sandy clay.
1700'-4"	1700'-6"	0'-2"	Clay, grey, sandy.
1700'-6"	1704'-9"	4'-3"	Halite, clear, medium grained. Approx. 25% brown to grey sandy clay. Approx. 20" clay filled vertical fracture in bottom.
1704'-9"	1705'-5"	0'-8"	Halite, very clear, coarse grained. Very light inclusions of brown, silty clay.
1705'-5"	1725'-6"	19'-11"	Halite, clear, medium grained. Approx. 3% brown, silty clay. A thin seam at the top.
1725'-6"	1726'-0"	0'-6"	Halite, clear, coarse grained. Very light inclusions of brown silty clay.
1726'-0"	1746'-6"	20'-6"	Halite, clear medium to coarse grained. Approx. 4% brown silty clay.
1746'-6"	1751'-6"	5'-0"	Halite, clear, coarse grained. Light inclusions of brown clay. Occasional blebs of white anhydrite.
1751'-6"	1752'-8"	1'-2"	Halite, very clear, very coarse grained.
1752'-8"	1767'-0"	14'-4"	Halite, clear, medium to coarse grained. Approx. 4% brown silty clay. Light inclusions of black clay from 1759'-1764'.

From	To	Interval	Description
1767'-0"	1767'-11"	0'-11"	Halite, clear, coarse grained. Light inclusions of brown silty clay.
1767'-11"	1775'-1"	7'-2"	Halite, clear, medium to coarse grained. Approx. 8% brown and grey silty clay.
1775'-1"	1797'-0"	21'-11"	Halite, clear, medium to coarse grained. Approx. 3% brown silty clay.
1797'-0"	1798'-7"	1'-7"	Halite, very clear, very coarse grained.
1798'-7"	1808'-0"	9'-5"	Halite, clear, medium grained. Approx. 5% brown silty clay.
1808'-0"	1839'-0"	31'-0"	Halite, clear, medium to coarse grained. Approx. 3% brown to redish brown clay. Clay partings at 1816'-0", 1837'-0".
1839'-0"	1841'-11"	2'-11"	Halite, clear, coarse grained. Approx. 5% grey clay.
1841'-11"	1843'-11"	2'-0"	Halite, clear, medium to coarse grained. Approx. 3% brown clay.
1843'-11"	1853'-2"	9'-3"	Halite, clear, coarse grained. Approx. 1% brown, silty clay.
1853'-2"	1859'-0"	5'-10"	Halite, clear, coarse grained. Approx. 3% brown, silty clay. Thin brown clay parting at 1858'-8".
1859'-0"	1869'-6"	10'-6"	Halite, clear, coarse grained. Approx. 2% brown silty clay.
1869'-6"	1901'-5"	31'-9"	Halite, clear, medium to coarse grained. Approx. 3% brown, silty clay.
1901'-5"	1902'-7"	1'-2"	Halite, very clear, very coarse grained.
1902'-7"	1903'-6"	0'-11"	Halite, clear, coarse grained. Approx. 4% brown clay.
1903'-6"	1907'-0"	3'-6"	Halite, very clear, very coarse grained. Brown clay parting at bottom.
1907'-0"	1918'-10"	11'-10"	Halite, clear, medium to coarse grained. Approx. 5% brown silty clay.
1918'-10"	1923'-8"	4'-10"	Halite, very clear, very coarse grained.
1923'-8"	1924'-2"	0'-6"	Brown clay.
1924'-2"	1929'-0"	4'-8"	Halite, clay medium to coarse grained. Approx. 2% brown silty clay.
1929'-0"	1934'-8"	5'-8"	Halite clear, coarse grained. Approx. 4% brown silty clay.
1934'-8"	1937'-4"	2'-8"	Halite clear, medium grained. Approx. 5% grey clay some brown.
1937'-4"	1947'-5"	10'-1"	Halite clear, medium to coarse grained. Approx. 3% brown clay.
1947'-5"	1949'-0"	1'-7"	Halite clear, medium grained. Approx. 4% brown silty clay.
1949'-0"	1955'-0"	6'-0"	Halite clear, medium to coarse grained. Approx. 8% brown silty clay. A thin clay seam at 1933'-6". A 1/2" vertical clay filled fracture in the bottom 15".

From	To	Interval	Description
1955'-0"	1957'-1"	2'-1"	Halite very clear, very coarse grained. A clay parting at the bottom.
1957'-1"	1959'-1"	2'-0"	Halite, clear, medium grained. Approx. 3% brown clay.
1959'-1"	1961'-9"	2'-8"	Halite, very clear, very coarse grained.
1961'-9"	1968'-10"	7'-1"	Halite, clear, medium to coarse grained. Approx. 3% brown clay.
1968'-10"	1970'-4"	1'-6"	Halite, very clear, very coarse grained. Light inclusions of brown clay.
1970'-4"	1971'-10"	1'-6"	Halite clear, medium grained. Approx. 6% brown clay.
1971'-10"	1974'-6"	2'-8"	Halite, very clear, very coarse grained.
1974'-6"	1976'-0"	1'-6"	Shale, reddish brown, silty.
1976'-0"	1979'-6"	3'-6"	Halite clear, medium grained. Approx. 5% brown and grey clay.
1979'-6"	1981'-0"	1'-6"	Halite clear, medium to coarse grained. Approx. 8% grey sandy shale.
1981'-0"	1981'-9"	0'-9"	Shale and fine sandy shale grey. Approx. 15% halite.
1981'-9"	1990'-0"	8'-3"	Halite clear, coarse grained. Approx. 4% brown sandy clay.
1990'-0"	1999'-1"	9'-1"	Halite clear, coarse grained. Approx. 10% brown silty clay.
1999'-1"	2009'-1"	10'-0"	Halite clear, coarse grained. Approx. 5% brown silty clay.
2009'-1"	2015'-10"	6'-9"	Halite clear, coarse grained. Approx. 10% brown silty clay. An 8" vertical clay filled fracture from 1990'-1" to 1990'-9".
2015'-10"	2025'-4"	9'-6"	Halite clear, coarse grained. Approx. 6% dark grey clay. A little brown clay.
2025'-4"	2028'-2"	2'-10"	Halite clear, coarse grained. Approx. 4% brown silty clay. A clay parting at the bottom.
2028'-2"	2032'-0"	3'-10"	Halite clear, medium to coarse grained. Approx. 12% brown silty clay in the top 2' grading to 5% in the bottom 18".
2032'-0"	2033'-7"	1'-7"	Halite clear, medium grained. Clear coarse grained in the top 2". Approx. 8% brown silty clay.
2033'-7"	2044'-3"	10'-8"	Halite very clear, very coarse grained. Light inclusions of brown silty clay.
2044'-3"	2051'-8"	7'-5"	Halite clear, medium to coarse grained. Approx. 5% black clay, some brown clay.
2051'-8"	2077'-0"	25'-4"	Halite clear, coarse grained. Approx. 6% brown silty clay, some grey clay.
2077'-0"	2077'-5"	0'-5"	Halite very clear, very coarse grained. A 1/2" brown silty clay seam at the bottom.
2077'-5"	2094'-10"	17'-5"	Halite clear, medium to coarse grained.

From	To	Interval	Description
1955'-0"	1957'-1"	2'-1"	Halite very clear, very coarse grained. A clay parting at the bottom.
1957'-1"	1959'-1"	2'-0"	Halite, clear, medium grained. Approx. 3% brown clay.
1959'-1"	1961'-9"	2'-8"	Halite, very clear, very coarse grained.
1961'-9"	1968'-10"	7'-1"	Halite, clear, medium to coarse grained. Approx. 3% brown clay.
1968'-10"	1970'-4"	1'-6"	Halite, very clear, very coarse grained. Light inclusions of brown clay.
1970'-4"	1971'-10"	1'-6"	Halite clear, medium grained. Approx. 6% brown clay.
1971'-10"	1974'-6"	2'-8"	Halite, very clear, very coarse grained.
1974'-6"	1976'-0"	1'-6"	Shale, reddish brown, silty.
1976'-0"	1979'-6"	3'-6"	Halite clear, medium grained. Approx. 5% brown and grey clay.
1979'-6"	1981'-0"	1'-6"	Halite clear, medium to coarse grained. Approx. 8% grey sandy shale.
1981'-0"	1981'-9"	0'-9"	Shale and fine sandy shale grey. Approx. 15% halite.
1981'-9"	1990'-0"	8'-3"	Halite clear, coarse grained. Approx. 4% brown sandy clay.
1990'-0"	1999'-1"	9'-1"	Halite clear, coarse grained. Approx. 10% brown silty clay.
1999'-1"	2009'-1"	10'-0"	Halite clear, coarse grained. Approx. 5% brown silty clay.
2009'-1"	2015'-10"	6'-9"	Halite clear, coarse grained. Approx. 10% brown silty clay. An 8" vertical clay filled fracture from 1990'-1" to 1990'-9".
2015'-10"	2025'-4"	9'-6"	Halite clear, coarse grained. Approx. 6% dark grey clay. A little brown clay.
2025'-4"	2028'-2"	2'-10"	Halite clear, coarse grained. Approx. 4% brown silty clay. A clay parting at the bottom.
2028'-2"	2032'-0"	3'-10"	Halite clear, medium to coarse grained. Approx. 12% brown silty clay in the top 2' grading to 5% in the bottom 18".
2032'-0"	2033'-7"	1'-7"	Halite clear, medium grained. Clear coarse grained in the top 2". Approx. 8% brown silty clay.
2033'-7"	2044'-3"	10'-8"	Halite very clear, very coarse grained. Light inclusions of brown silty clay.
2044'-3"	2051'-8"	7'-5"	Halite clear, medium to coarse grained. Approx. 5% black clay, some brown clay.
2051'-8"	2077'-0"	25'-4"	Halite clear, coarse grained. Approx. 6% brown silty clay, some grey clay.
2077'-0"	2077'-5"	0'-5"	Halite very clear, very coarse grained. A 1/2" brown silty clay seam at the bottom.
2077'-5"	2094'-10"	17'-5"	Halite clear, medium to coarse grained.

From	To	Interval	Description
2094'-10"	2096'-10"	2'-0"	Halite very clear, very coarse grained.
2096'-10"	2097'-7"	0'-9"	Halite very clear, very coarse grained. Light inclusions of brown clay.
2097'-7"	2098'-3"	0'-8"	Clay brown silty. A 1" band of clear halite at 2097'-10".
2098'-3"	2098'-9"	0'-6"	Halite clear, coarse grained. Approx. 3% brown silty clay.
2098'-9"	2099'-8"	0'-11"	Halite very clear, very coarse grained.
2099'-8"	2110'-8"	11'-0"	Halite clear, coarse grained. Approx. 7% brown silty clay in the top 4' grading to 3% in the bottom 6'.
2110'-8"	2111'-0"	0'-4"	Halite very clear, coarse grained.
2111'-0"	2114'-4"	3'-4"	Halite clear, Medium to coarse grained. Approx. 4% black clay.
2114'-4"	2142'-2"	37'-10"	Halite clear, medium to coarse grained. Approx. 6% brown silty clay.
2142'-2"	2149'-2"	7'-0"	Halite clear, medium grained. Approx. 2% reddish brown clay.
2149'-2"	2152'-0"	2'-10"	Halite clear, medium to coarse grained. Approx. 3% black clay.
2152'-0"	2178'-6"	26'-6"	Halite clear, coarse grained. Approx. 9% brown silty clay. Occasional clay parting. Occasional black clay inclusion.
2178'-6"	2189'-6"	11'-0"	Halite clear, medium to coarse grained. Approx. 4% brown silty clay, a little black clay.
2189'-6"	2192'-6"	3'-0"	Halite clear, medium grained. Approx. 7% brown silty clay.
2192'-6"	2194'-1"	1'-7"	Sandstone fine grained, grey. A few clear halite crystals.
2194'-1"	2196'-1"	2'-9"	Halite clear, medium to coarse grained. Inclusions of grey fine grained sandstone.
2196'-1"	2200'-9"	4'-8"	Halite clear, coarse grained. Approx. 5% brown silty clay. A 1" band of brown clay at 2197'-9".
2200'-9"	2203'-3"	2'-6"	Halite very clear, very coarse grained. Very light inclusions of black clay.
2203'-3"	2203'-7"	0'-4"	Clay black, a little brown.
2203'-7"	2217'-7"	14'-0"	Halite clear, coarse grained. Approx. 7% black clay.
2217'-7"	2217'-9"	0'-2"	Clay black.
2217'-9"	2235'-6"	17'-9"	Halite clear, coarse grained. Approx. 2% black clay and halite at 2223'-0" and a brown clay parting at 2233'-6".
2235'-6"	2241'-6"	6'-0"	Halite clear, coarse grained. Approx. 2% black clay.
2241'-6"	2248'-0"	6'-6"	Halite clear, medium grained. Approx. 8% brown clay in the top 2' grading to 3% in the bottom.
2248'-0"	2253'-6"	5'-6"	Halite clear, coarse grained. Approx. 4% black clay.

From	To	Interval	Description
2094'-10"	2096'-10"	2'-0"	Halite very clear, very coarse grained.
2096'-10"	2097'-7"	0'-9"	Halite very clear, very coarse grained. Light inclusions of brown clay.
2097'-7"	2098'-3"	0'-8"	Clay brown silty. A 1" band of clear halite at 2097'-10".
2098'-3"	2098'-9"	0'-6"	Halite clear, coarse grained. Approx. 3% brown silty clay.
2098'-9"	2099'-8"	0'-11"	Halite very clear, very coarse grained.
2099'-8"	2110'-8"	11'-0"	Halite clear, coarse grained. Approx. 7% brown silty clay in the top 4' grading to 3% in the bottom 6'.
2110'-8"	2111'-0"	0'-4"	Halite very clear, coarse grained.
2111'-0"	2114'-4"	3'-4"	Halite clear, Medium to coarse grained. Approx. 4% black clay.
2114'-4"	2142'-2"	37'-10"	Halite clear, medium to coarse grained. Approx. 6% brown silty clay.
2142'-2"	2149'-2"	7'-0"	Halite clear, medium grained. Approx. 2% reddish brown clay.
2149'-2"	2152'-0"	2'-10"	Halite clear, medium to coarse grained. Approx. 3% black clay.
2152'-0"	2178'-6"	26'-6"	Halite clear, coarse grained. Approx. 9% brown silty clay. Occasional clay parting. Occasional black clay inclusion.
2178'-6"	2189'-6"	11'-0"	Halite clear, medium to coarse grained. Approx. 4% brown silty clay, a little black clay.
2189'-6"	2192'-6"	3'-0"	Halite clear, medium grained. Approx. 7% brown silty clay.
2192'-6"	2194'-1"	1'-7"	Sandstone fine grained, grey. A few clear halite crystals.
2194'-1"	2196'-1"	2'-9"	Halite clear, medium to coarse grained. Inclusions of grey fine grained sandstone.
2196'-1"	2200'-9"	4'-8"	Halite clear, coarse grained. Approx. 5% brown silty clay. A 1" band of brown clay at 2197'-9".
2200'-9"	2203'-3"	2'-6"	Halite very clear, very coarse grained. Very light inclusions of black clay.
2203'-3"	2203'-7"	0'-4"	Clay black, a little brown.
2203'-7"	2217'-7"	14'-0"	Halite clear, coarse grained. Approx. 7% black clay.
2217'-7"	2217'-9"	0'-2"	Clay black.
2217'-9"	2235'-6"	17'-9"	Halite clear, coarse grained. Approx. 2% black clay and halite at 2223'-0" and a brown clay parting at 2233'-6".
2235'-6"	2241'-6"	6'-0"	Halite clear, coarse grained. Approx. 2% black clay.
2241'-6"	2248'-0"	6'-6"	Halite clear, medium grained. Approx. 8% brown clay in the top 2' grading to 3% in the bottom.
2248'-0"	2253'-6"	5'-6"	Halite clear, coarse grained. Approx. 4% black clay.

From	To	Interval	Description
2253'-6"	2253'-10"	0'-4"	Clay grey.
2253'-10"	2255'-0"	1'-2"	Halite clear, medium to coarse grained. Approx. 3% black clay.
2255'-0"	2260'-7"	5'-7"	Halite clear, medium to coarse grained. Approx. 6% reddish brown clay.
2260'-7"	2264'-9"	4'-2"	Halite clear, coarse grained. Approx. 3% black clay. A clay parting at the bottom.
2264'-9"	2266'-6"	1'-9"	Halite clear, coarse grained. Approx. 6% reddish brown silty clay. A clay parting at the bottom.
2266'-6"	2269'-4"	2'-10"	Halite clear coarse grained. Approx. 3% black clay.
2269'-4"	2275'-11"	6'-7"	Halite very clear very coarse grained bands alternating with bands of clear coarse grained with clay inclusions. Clay partings at 2271'-4", 2273'-0" and 2274'-4".
2275'-11"	2277'-5"	1'-6"	Clay reddish brown, silty. Bands of clear, coarse grained halite.
2277'-5"	2278'-5"	1'-0"	Halite very clear, very coarse grained.
2278'-5"	2280'-5"	2'-0"	Lost core.
2280'-5"	2282'-8"	2'-3"	Clay brown, silty.
2282'-8"	2302'-0"	19'-4"	Halite clear, medium to coarse grained. Approx. 5% brown silty clay.
2302'-0"	2307'-6"	5'-6"	Halite, dark grey clay. Approx. 4% clay medium to fine grain.
2307'-6"	2308'-2"	0'-8"	Very clear halite fine grain.
2308'-2"	2314'-2"	6'-0"	Halite clear with clay inclusions M-C grained. Approx. 4% clay. Clay partings at 2309'-2" and 2310'-2".
2314'-2"	2317'-7"	3'-5"	Very clear Halite fine grained.
2317'-7"	2321'-6"	3'-9"	Halite clear with clay inclusions. Approx. 7% clay.
2321'-6"	2323'-2"	1'-8"	Very clear halite with alternating clay parting. Approx. 8% clay brown.
2323'-2"	2325'-7"	2'-5"	Halite clear coarse grained.
2325'-7"	2329'-6"	3'-11"	Halite clear, medium to coarse grained. Approx. 8% clay brown.
2329'-6"	2329'-11"	5"	Brown clay partings.
2329'-11"	2334'-5"	4'-6"	Halite clear coarse grained. Approx. 1% brown clay.
2334'-5"	2337'-1"	2'-8"	Halite clear coarse grained with small brown clay inclusions.
2337'-1"	2341'-1"	4'-0"	Halite clear with alternating bands of brown clay silty. Approx. 3% clay. Coarse grained.
2341'-1"	2350'-8"	9'-7"	Halite clear coarse with approx. 10% brown clay silty with clay partings at bottom.
2350'-8"	2358'-1"	7'-5"	Halite clear coarse grained with approx. 2% dark grey clay.
2358'-1"	2358'-6"	5"	Brown clay silty.
2358'-6"	2359'-8"	1'-2"	Halite clear with large clay inclusions approx. 5% clay brown coarse.

From	To	Interval	Description
2359'-8"	2360'-1"	5"	Clay silty bands of halite.
2360'	2371'-11"	11'-10"	Halite clear with dark grey clay, coarse grained 3% clay.
2371'-11"	2373'-4"	5"	Clay silty.
2373'-4"	2381'-10"	8'-6"	Halite clear coarse grained. Approx. 3% brown clay.
2381'-10"	2382'-7"	9"	Clay with bands halite.
2382'-7"	2401'-8"	19'-1"	Halite clear dark grey with clay inclusions. Approx. 5% clay grey.
2401'-8"	2413'-8"	12'	Halite clear clay inclusions. Coarse to medium grained. 3% clay.
2413'-8"	2416	2'-4"	Halite clear, clay parting with <u>vertical fractures</u> Approx. 20% clay reddish brown.
2416'	2424	8'	Halite, clear, grey clay, medium to coarse grained.
2424	2437	13'	Halite clear, medium to coarse grained, light grey, grey clay inclusions. Approx. 12% clay.
2437	2438	1'	Halite very clear fine grained, with clay partings.
2438	2439	1'	Halite clear with clay inclusions, light brown. Approx. 10% clay.
2439	2450	1'	Silty clay parting light brown.
2450	2471	21'	Halite clear, grading from fine to coarse grained, grading light grey to dark grey in color. Approx. 8% clay.
2471	2473	2'	Halite clear, vertical fracture 18% clay medium grained, grey.
2473	2477	4'	Halite clear, medium to coarse grey dark grey, clay inclusions.
2477	2486	9'	Halite clear, dark grey, medium to coarse grained. Approx. 12 grey clay.
2486	2490	4'	Halite clear, coarse grained. 2" silty clay parting, light brown in color.
2490	2507	17'	Halite clear 4" clay parting, brown medium to coarse grained. Approx. 8% brown clay. Color grading from dark brown to light grey. Little brown silty clay inclusions.
2507	2522	15'	Halite clear medium to coarse grained. Approx. 7% brown silty clay inclusions.
2522	2543	21'	Halite clear medium to coarse grained. Approx. 8% dark grey clay with some brown clay inclusions
2543	2545	2'	Halite clear medium to coarse grained. Approx. 30% silty brown clay, 3" brown clay parting.
2545	2551	6'	Halite clear, coarse grained. Approx. 15% silty dark grey clay.
2551	2569	18'	Halite clear medium to coarse grained. Approx. 9% silty brown clay.
2569	2574	5'	Halite clear medium to coarse grained, large light brown clay inclusions. Approx. 15% brown silty clay, with some grey clay inclusions.

RL #1 (Cont'd.)

Page 8

From	To	Interval	Description
2574	2580	6'	Halite clear, coarse grained. Approx. 5% brown silty clay.
2580	2592	12'	Halite clear coarse grained, light brown, grading to light grey with Approx. 4% silty clay.
2592	2608 Bottom	16'	Halite clear, coarse grained. Approx. 10% brown silty clay, grading to light grey at bottom. 6" brown clay parting.

KERR-MCGEE OIL INDUSTRIES, INC.
LITHOLOGIC LOG OF DRILL HOLE

<u>Hole Number:</u>	R.L. #1	<u>Commenced:</u>	2/17/1958
<u>Project:</u>	Red Lake Potash	<u>Completed:</u>	3/26/1958
<u>Location:</u>	100' FSL & 100' FEL, Sec. 30, T26N., R16W., GSR.	<u>Total Depth:</u>	2608 feet.
<u>County:</u>	Mohave	<u>None-Core:</u>	1410 feet.
<u>State:</u>	Arizona	<u>Core:</u>	1198 feet.
		<u>Casing:</u>	4½" O.D. to 1310 feet
		<u>Collar elev:</u>	Unknown.

From	To	Interval	Description
0'-0"	10'-0"	10'-0"	Surface soil (Clay, brown & gray, few small rounded pebbles.).
10'-0"	20'-0"	10'-0"	Clay, brown, silty, few pebbles.
20'-0"	40'-0"	20'-0"	Clay, brown, silty, approximately 10% white loose clay.
40'-0"	50'-0"	10'-0"	Clay, brown, silty, slight white.
50'-0"	60'-0"	10'-0"	Clay, brown and white, silty, few small pebbles.
60'-0"	70'-0"	10'-0"	Gravel (small rounded), brown clay.
70'-0"	100'-0"	30'-0"	Gravel (small rounded).
100'-0"	110'-0"	10'-0"	Sand and gravel (small gravel).
110'-0"	150'-0"	40'-0"	Sand and gravel.
150'-0"	160'-0"	10'-0"	Sand and gravel, approximately 50% brown clay, silty.
160'-0"	170'-0"	10'-0"	Clay, brown, silty, few small pebbles.
170'-0"	180'-0"	10'-0"	Clay, brown, silty, 50% gravel.
180'-0"	210'-0"	30'-0"	Clay, brown, silty, few small pebbles.
210'-0"	300'-0"	90'-0"	Clay, brown, silty, occasional small pebble.
300'-0"	310'-0"	10'-0"	Sand and small gravel. Approximately 50% brown clay.
310'-0"	320'-0"	10'-0"	Sand and gravel, brown clay.
320'-0"	340'-0"	20'-0"	Clay, brown, silty. Approximately 50% sand & gravel.
340'-0"	350'-0"	10'-0"	Clay, brown, silty. 10% sand and gravel.
350'-0"	380'-0"	30'-0"	Clay, brown, silty, occasional small pebble.
380'-0"	400'-0"	20'-0"	Clay, brown, sandy, few small pebbles.
400'-0"	430'-0"	30'-0"	Clay, brown.
430'-0"	440'-0"	10'-0"	Clay, brown, occasional small pebble.
440'-0"	510'-0"	70'-0"	Clay, brown.
510'-0"	520'-0"	10'-0"	Brown clay, occasional pebble.
520'-0"	540'-0"	20'-0"	Clay, brown.
540'-0"	550'-0"	10'-0"	Clay, brown, occasional pebble.

From	To	Interval	Description
550'-0"	560'-0"	10'-0"	Clay, brown, approximately 15% small gravel.
560'-0"	590'-0"	30'-0"	Clay, brown, few small pebbles.
590'-0"	660'-0"	70'-0"	Clay, brown.
660'-0"	700'-0"	40'-0"	Clay, brown, approximately 30% coarse sand and small gravel.
700'-0"	710'-0"	10'-0"	Clay, brown.
710'-0"	780'-0"	70'-0"	Clay, brown, stringers of gray shale.
780'-0"	790'-0"	10'-0"	Clay, brown, stringers of shale, few pieces of gypsum.
790'-0"	800'-0"	10'-0"	Clay, brown, traces of gypsum.
800'-0"	810'-0"	10'-0"	Clay, brown, stringers of gray shale.
810'-0"	820'-0"	10'-0"	Clay, brown, stringers of gray shale, few pebbles.
820'-0"	830'-0"	10'-0"	Sand, medium to coarse grain, some brown clay.
830'-0"	840'-0"	10'-0"	Sand, medium to coarse grain, some brown clay, gray shale stringers.
840'-0"	850'-0"	10'-0"	Clay, brown, few small pebbles.
850'-0"	860'-0"	10'-0"	Clay, brown, stringers of gray clay, occasional small pebbles.
860'-0"	890'-0"	30'-0"	Clay, brown and gray.
890'-0"	910'-0"	20'-0"	Clay, gray brown.
910'-0"	930'-0"	20'-0"	Clay, gray brown, inclusions of red & gray clay.
930'-0"	970'-0"	40'-0"	Clay, gray.
970'-0"	980'-0"	10'-0"	Clay, brown & gray, few small pebbles.
980'-0"	990'-0"	10'-0"	Clay, brown and gray.
990'-0"	1020'-0"	30'-0"	Clay, brown, gray & slight bluish.
1020'-0"	1030'-0"	10'-0"	Clay, brown & gray, a little reddish brown.
1030'-0"	1100'-0"	70'-0"	Clay, brown & gray, a little bluish gray clay.
1100'-0"	1170'-0"	70'-0"	Clay, brown.
1170'-0"	1200'-0"	30'-0"	Clay, brown, little gray.
1200'-0"	1250'-0"	50'-0"	Clay, brown.
1250'-0"	1270'-0"	20'-0"	Clay, brown, a little gypsum.
1270'-0"	1300'-0"	30'-0"	Clay, brown, approximately 25% gypsum.
1300'-0"	1310'-0"	10'-0"	Gypsum - At 1310', set 4 1/2" O.D. Casing - 2/25/1958.
1310'-0"	1400'-0"	90'-0"	Lost circulation - No samples.

RL #1

From	To	Interval	Description
1400'-0"	1418'-0"	18'-0"	Recovered 6'. Bedded Anhydrite and brown silty shale.
1418'-0"	1438'-6"	20'-6"	Recovered 3'. Badly leached halite with grey and brown clay inclusions.
1438'-6"	1459'-0"	20'-6"	Recovered 6'. Badly leached halite with brown silty clay inclusions.
1459'-0"	1473'-1"	14'-1"	Halite clear, medium to coarse grained. Approx. 12% brown silty clay.
1473'-1"	1476'-0"	2'-11"	Halite very clear, very coarse grained. Light inclusions of brown clay in the top 11".
1476'-0"	1476'-7"	0'-7"	Shale, brown, silty. A few blebs of halite and white anhydrite.
1476'-7"	1477'-11"	1'-4"	Halite, clear, coarse grained.
1477'-11"	1480'-4"	2'-5"	Shale, brown to gray, silty. Approximately 30% clear halite.
1480'-4"	1494'-0"	13'-8"	Halite, clear, coarse grained. Approximately 10% brown silty clay.
1494'-0"	1497'-3"	3'-3"	Halite, clear, medium grained. Light inclusions of black clay.
1497'-3"	1512'-5"	15'-2"	Halite, clear, medium to coarse grained. Approximately 8% brown to redish brown silty clay.
1512'-5"	1513'-6"	1'-1"	Halite, very clear, coarse grained.
1513'-6"	1514'-3"	0'-9"	Shale, brown, silty. Few blebs of halite.
1514'-3"	1520'-6"	6'-3"	Halite, clear, medium to coarse grained. Approx. 10% brown, silty clay.
1520'-6"	1558'-8"	38'-2"	Halite, clear, medium grained. Approx. 5% brown to redish brown, silty clay.
1558'-8"	1562'-5"	3'-9"	Halite, clear, medium grained. Approx. 8%, grey, silty clay.
1562'-5"	1562'-8"	0'-3"	Clay, brown and grey, silty. Few halite blebs.
1562'-8"	1563'-3"	0'-7"	Halite, clear, medium grained. Approx. 10% brown, silty clay.
1563'-3"	1572'-3"	9'-0"	Halite, clear, medium grained. Approx. 5% brown, silty clay. An irregular brown clay parting at 1571'-3".
1572'-3"	1572'-10"	0'-7"	Halite, very clear, very coarse grained.
1572'-10"	1573'-0"	0'-2"	Clay, brown, silty.
1573'-0"	1575'-10"	2'-10"	Halite, clear, medium grained. Approx. 8% brown, silty clay.
1575'-10"	1577'-2"	1'-4"	Halite, very clear, very coarse grained. Light inclusions of brown clay.
1577'-2"	1577'-6"	0'-4"	Clay, brown, silty. A few halite crystals.
1577'-6"	1599'-0"	21'-6"	Halite, clear, medium to coarse grained. Approx. 4% brown, silty clay. Clay partings at 1577'-9" and 1582'-2".
1599'-0"	1603'-0"	4'-0"	Halite, clear, medium to coarse grained. Approx. 2% brown clay.

From	To	Interval	Description
1603'-9"	1614'-3"	11'-3"	Halite, clear, coarse grained. Approx. 4% brown clay.
1616'-3"	1614'-11"	0'-8"	Halite, clear, coarse grained.
1614'-11"	1618'-2"	3'-3"	Halite, clear, coarse grained. Approx. 5% brown silty clay.
1618'-2"	1623'-6"	5'-4"	Halite, clear, medium to coarse grained. Approx. 6% brown, silty, clay.
1623'-6"	1632'-6"	9'-0"	Halite, clear, coarse, to very coarse grained. Approx. 2% brown, silty clay.
1632'-6"	1634'-9"	2'-3"	Halite, very coarse grained. Clear. Light inclusions of brown clay in top 12".
1634'-9"	1636'-5"	1'-8"	Halite, clear, coarse grained. Approx. 30% sandy brown clay. Clay parting at bottom.
1636'-5"	1679'-6"	43'-1"	Halite, clear, medium to coarse grained. Varying amounts from 2% to 5% brown silty clay.
1679'-6"	1683'-1"	3'-7"	Halite, clear, coarse grained. Approx. 3% brown silty clay.
1683'-1"	1683'-7"	0'-6"	Halite, clear, coarse grained. Approx. 25% brown, silty clay.
1683'-7"	1687'-4"	3'-9"	Halite, clear, coarse grained. Approx. 2% brown, silty clay.
1687'-4"	1690'-7"	3'-3"	Halite, clear, medium to coarse grained. Approx. 7% brown, silty clay.
1690'-7"	1699'-11"	9'-4"	Halite, clear, medium grained. Approx. 3% brown, silty clay.
1699'-11"	1700'-4"	0'-5"	Halite, clear, a few blebs of white anhydrite. Approx. 8% brown sandy clay.
1700'-4"	1700'-6"	0'-2"	Clay, grey, sandy.
1700'-6"	1704'-9"	4'-3"	Halite, clear, medium grained. Approx. 25% brown to grey sandy clay. Approx. 20" clay filled vertical fracture in bottom.
1704'-9"	1705'-5"	0'-8"	Halite, very clear, coarse grained. Very light inclusions of brown, silty clay.
1705'-5"	1725'-6"	19'-11"	Halite, clear, medium grained. Approx. 3% brown, silty clay. A thin seam at the top.
1725'-6"	1726'-0"	0'-6"	Halite, clear, coarse grained. Very light inclusions of brown silty clay.
1726'-0"	1746'-6"	20'-6"	Halite, clear medium to coarse grained. Approx. 4% brown silty clay.
1746'-6"	1751'-6"	5'-0"	Halite, clear, coarse grained. Light inclusions of brown clay. Occasional blebs of white anhydrite.
1751'-6"	1752'-8"	1'-2"	Halite, very clear, very coarse grained.
1752'-8"	1767'-0"	14'-4"	Halite, clear, medium to coarse grained. Approx. 4% brown silty clay. Light inclusions of black clay from 1759'-1764'.

From	To	Interval	Description
1767'-0"	1767'-11"	0'-11"	Halite, clear, coarse grained. Light inclusions of brown silty clay.
1767'-11"	1775'-1"	7'-2"	Halite, clear, medium to coarse grained. Approx. 8% brown and grey silty clay.
1775'-1"	1797'-0"	21'-11"	Halite, clear, medium to coarse grained. Approx. 3% brown silty clay.
1797'-0"	1798'-7"	1'-7"	Halite, very clear, very coarse grained.
1798'-7"	1808'-0"	9'-5"	Halite, clear, medium grained. Approx. 5% brown silty clay.
1808'-0"	1839'-0"	31'-0"	Halite, clear, medium to coarse grained. Approx. 3% brown to redish brown clay. Clay partings at 1816'-0", 1837'-0".
1839'-0"	1841'-11"	2'-11"	Halite, clear, coarse grained. Approx. 5% grey clay.
1841'-11"	1843'-11"	2'-0"	Halite, clear, medium to coarse grained. Approx. 3% brown clay.
1843'-11"	1853'-2"	9'-3"	Halite, clear, coarse grained. Approx. 1% brown, silty clay.
1853'-2"	1859'-0"	5'-10"	Halite, clear, coarse grained. Approx. 3% brown, silty clay. Thin brown clay parting at 1858'-8".
1859'-0"	1869'-6"	10'-6"	Halite, clear, coarse grained. Approx. 2% brown silty clay.
1869'-6"	1901'-5"	31'-9"	Halite, clear, medium to coarse grained. Approx. 3% brown, silty clay.
1901'-5"	1902'-7"	1'-2"	Halite, very clear, very coarse grained.
1902'-7"	1903'-6"	0'-11"	Halite, clear, coarse grained. Approx. 4% brown clay.
1903'-6"	1907'-0"	3'-6"	Halite, very clear, very coarse grained. Brown clay parting at bottom.
1907'-0"	1918'-10"	11'-10"	Halite, clear, medium to coarse grained. Approx. 5% brown silty clay.
1918'-10"	1923'-8"	4'-10"	Halite, very clear, very coarse grained.
1923'-8"	1924'-2"	0'-6"	Brown clay.
1924'-2"	1929'-0"	4'-8"	Halite, clay medium to coarse grained. Approx. 2% brown silty clay.
1929'-0"	1934'-8"	5'-8"	Halite clear, coarse grained. Approx. 4% brown silty clay.
1934'-8"	1937'-4"	2'-8"	Halite clear, medium grained. Approx. 5% grey clay some brown.
1937'-4"	1947'-5"	10'-1"	Halite clear, medium to coarse grained. Approx. 3% brown clay.
1947'-5"	1949'-0"	1'-7"	Halite clear, medium grained. Approx. 4% brown silty clay.
1949'-0"	1955'-0"	6'-0"	Halite clear, medium to coarse grained. Approx. 8% brown silty clay. A thin clay seam at 1933'-6". A 1/2" vertical clay filled fracture in the bottom 15".

From	To	Interval	Description
1955'-0"	1957'-1"	2'-1"	Halite very clear, very coarse grained. A clay parting at the bottom.
1957'-1"	1959'-1"	2'-0"	Halite, clear, medium grained. Approx. 3% brown clay.
1959'-1"	1961'-9"	2'-8"	Halite, very clear, very coarse grained.
1961'-9"	1968'-10"	7'-1"	Halite, clear, medium to coarse grained. Approx. 3% brown clay.
1968'-10"	1970'-4"	1'-6"	Halite, very clear, very coarse grained. Light inclusions of brown clay.
1970'-4"	1971'-10"	1'-6"	Halite clear, medium grained. Approx. 6% brown clay.
1971'-10"	1974'-6"	2'-8"	Halite, very clear, very coarse grained.
1974'-6"	1976'-0"	1'-6"	Shale, reddish brown, silty.
1976'-0"	1979'-6"	3'-6"	Halite clear, medium grained. Approx. 5% brown and grey clay.
1979'-6"	1981'-0"	1'-6"	Halite clear, medium to coarse grained. Approx. 8% grey sandy shale.
1981'-0"	1981'-9"	0'-9"	Shale and fine sandy shale grey. Approx. 15% halite.
1981'-9"	1990'-0"	8'-3"	Halite clear, coarse grained. Approx. 4% brown sandy clay.
1990'-0"	1999'-1"	9'-1"	Halite clear, coarse grained. Approx. 10% brown silty clay.
1999'-1"	2009'-1"	10'-0"	Halite clear, coarse grained. Approx. 5% brown silty clay.
2009'-1"	2015'-10"	6'-9"	Halite clear, coarse grained. Approx. 10% brown silty clay. An 8" vertical clay filled fracture from 1990'-1" to 1990'-9".
2015'-10"	2025'-4"	9'-6"	Halite clear, coarse grained. Approx. 6% dark grey clay. A little brown clay.
2025'-4"	2028'-2"	2'-10"	Halite clear, coarse grained. Approx. 4% brown silty clay. A clay parting at the bottom.
2028'-2"	2032'-0"	3'-10"	Halite clear, medium to coarse grained. Approx. 12% brown silty clay in the top 2' grading to 5% in the bottom 18".
2032'-0"	2033'-7"	1'-7"	Halite clear, medium grained. Clear coarse grained in the top 2". Approx. 8% brown silty clay.
2033'-7"	2044'-3"	10'-8"	Halite very clear, very coarse grained. Light inclusions of brown silty clay.
2044'-3"	2051'-8"	7'-5"	Halite clear, medium to coarse grained. Approx. 5% black clay, some brown clay.
2051'-8"	2077'-0"	25'-4"	Halite clear, coarse grained. Approx. 6% brown silty clay, some grey clay.
2077'-0"	2077'-5"	0'-5"	Halite very clear, very coarse grained. A 1/2" brown silty clay seam at the bottom.
2077'-5"	2094'-10"	17'-5"	Halite clear, medium to coarse grained.

From	To	Interval	Description
2094'-10"	2096'-10"	2'-0"	Halite very clear, very coarse grained.
2096'-10"	2097'-7"	0'-9"	Halite very clear, very coarse grained. Light inclusions of brown clay.
2097'-7"	2098'-3"	0'-8"	Clay brown silty. A 1" band of clear halite at 2097'-10".
2098'-3"	2098'-9"	0'-6"	Halite clear, coarse grained. Approx. 3% brown silty clay.
2098'-9"	2099'-8"	0'-11"	Halite very clear, very coarse grained.
2099'-8"	2110'-8"	11'-0"	Halite clear, coarse grained. Approx. 7% brown silty clay in the top 4' grading to 3% in the bottom 6'.
2110'-8"	2111'-0"	0'-4"	Halite very clear, coarse grained.
2111'-0"	2114'-4"	3'-4"	Halite clear, Medium to coarse grained. Approx. 4% black clay.
2114'-4"	2142'-2"	37'-10"	Halite clear, medium to coarse grained. Approx. 6% brown silty clay.
2142'-2"	2149'-2"	7'-0"	Halite clear, medium grained. Approx. 2% reddish brown clay.
2149'-2"	2152'-0"	2'-10"	Halite clear, medium to coarse grained. Approx. 3% black clay.
2152'-0"	2178'-6"	26'-6"	Halite clear, coarse grained. Approx. 9% brown silty clay. Occasional clay parting. Occasional black clay inclusion.
2178'-6"	2189'-6"	11'-0"	Halite clear, medium to coarse grained. Approx. 4% brown silty clay, a little black clay.
2189'-6"	2192'-6"	3'-0"	Halite clear, medium grained. Approx. 7% brown silty clay.
2192'-6"	2194'-1"	1'-7"	Sandstone fine grained, grey. A few clear halite crystals.
2194'-1"	2196'-1"	2'-9"	Halite clear, medium to coarse grained. Inclusions of grey fine grained sandstone.
2196'-1"	2200'-9"	4'-8"	Halite clear, coarse grained. Approx. 5% brown silty clay. A 1" band of brown clay at 2197'-9".
2200'-9"	2203'-3"	2'-6"	Halite very clear, very coarse grained. Very light inclusions of black clay.
2203'-3"	2203'-7"	0'-4"	Clay black, a little brown.
2203'-7"	2217'-7"	14'-0"	Halite clear, coarse grained. Approx. 7% black clay.
2217'-7"	2217'-9"	0'-2"	Clay black.
2217'-9"	2235'-6"	17'-9"	Halite clear, coarse grained. Approx. 2% black clay and halite at 2223'-0" and a brown clay parting at 2233'-6".
2235'-6"	2241'-6"	6'-0"	Halite clear, coarse grained. Approx. 2% black clay.
2241'-6"	2248'-0"	6'-6"	Halite clear, medium grained. Approx. 8% brown clay in the top 2' grading to 3% in the bottom.
2248'-0"	2253'-6"	5'-6"	Halite clear, coarse grained. Approx. 4% black clay.

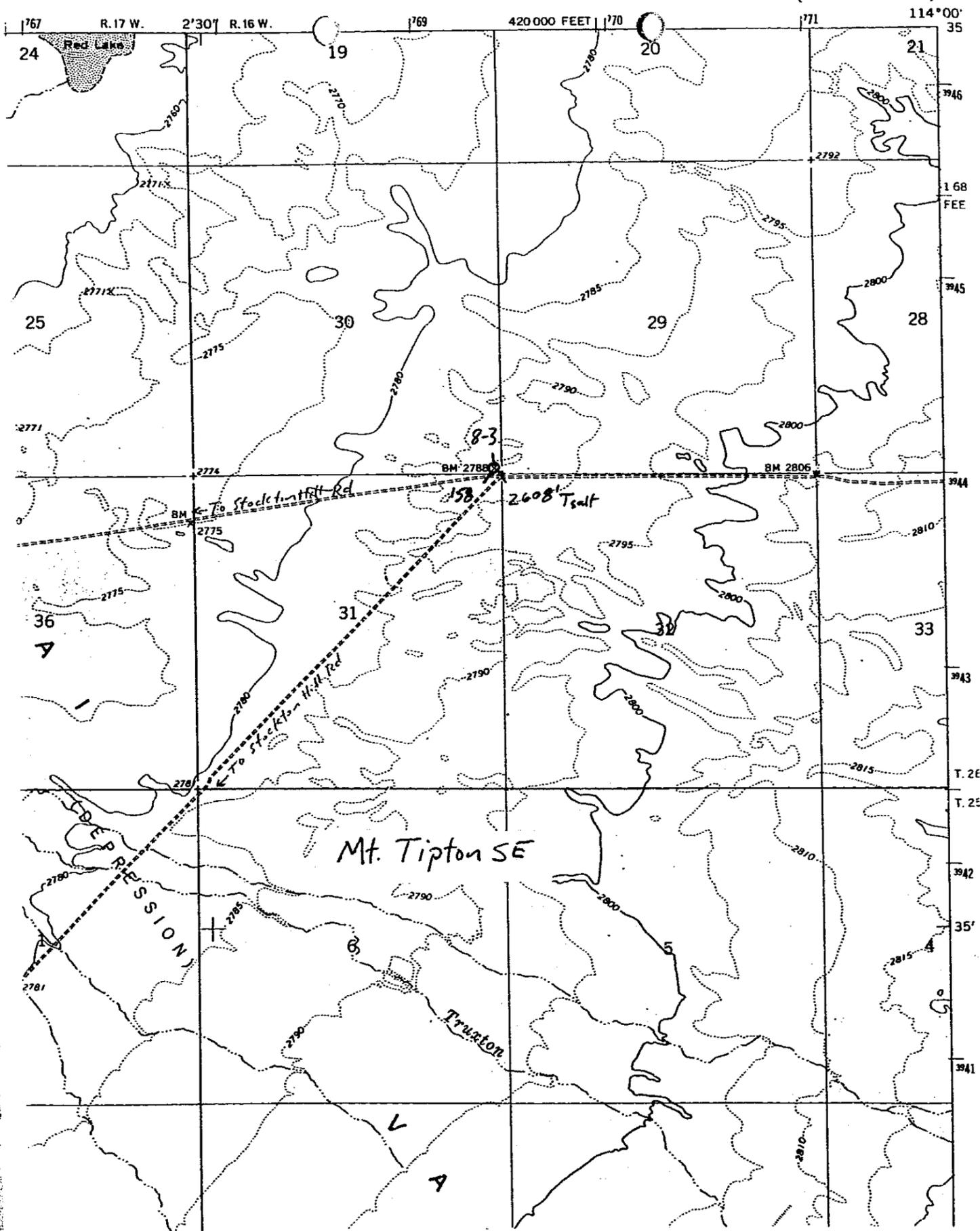
From	To	Interval	Description
2253'-6"	2253'-10"	0'-4"	Clay grey.
2253'-10"	2255'-0"	1'-2"	Halite clear, medium to coarse grained. Approx. 3% black clay.
2255'-0"	2260'-7"	5'-7"	Halite clear, medium to coarse grained. Approx. 6% reddish brown clay.
2260'-7"	2264'-9"	4'-2"	Halite clear, coarse grained. Approx. 3% black clay. A clay parting at the bottom.
2264'-9"	2266'-6"	1'-9"	Halite clear, coarse grained. Approx. 6% reddish brown silty clay. A clay parting at the bottom.
2266'-6"	2269'-4"	2'-10"	Halite clear coarse grained. Approx. 3% black clay.
2269'-4"	2275'-11"	6'-7"	Halite very clear very coarse grained bands alternating with bands of clear coarse grained with clay inclusions. Clay partings at 2271'-4", 2273'-0" and 2274'-4".
2275'-11"	2277'-5"	1'-6"	Clay reddish brown, silty. Bands of clear, coarse grained halite.
2277'-5"	2278'-5"	1'-0"	Halite very clear, very coarse grained.
2278'-5"	2280'-5"	2'-0"	Lost core.
2280'-5"	2282'-8"	2'-3"	Clay brown, silty.
2282'-8"	2302'-0"	19'-4"	Halite clear, medium to coarse grained. Approx. 5% brown silty clay.
2302'-0"	2307'-6"	5'-6"	Halite, dark grey clay. Approx. 4% clay medium to fine grain.
2307'-6"	2308'-2"	0'-8"	Very clear halite fine grain.
2308'-2"	2314'-2"	6'-0"	Halite clear with clay inclusions M-C grained. Approx. 4% clay. Clay partings at 2309'-2" 2310'-2".
2314'-2"	2317'-7"	3'-5"	Very clear Halite fine grained.
2317'-7"	2321'-6"	3'-9"	Halite clear with clay inclusions. Approx. 7% clay.
2321'-6"	2323'-2"	1'-8"	Very clear halite with alternating clay parting. Approx. 8% clay brown.
2323'-2"	2325'-7"	2'-5"	Halite clear coarse grained.
2325'-7"	2329'-6"	3'-11"	Halite clear, medium to coarse grained. Approx. 8% clay brown.
2329'-6"	2329'-11"	5"	Brown clay partings.
2329'-11"	2334'-5"	4'-6"	Halite clear coarse grained. Approx. 1% brown clay.
2334'-5"	2337'-1"	2'-8"	Halite clear coarse grained with small brown clay inclusions.
2337'-1"	2341'-1"	4'-0"	Halite clear with alternating bands of brown clay silty. Approx. 3% clay. Coarse grained.
2341'-1"	2350'-8"	9'-7"	Halite clear coarse with approx. 10% brown clay silty with clay partings at bottom.
2350'-8"	2358'-1"	7'-5"	Halite clear coarse grained with approx. 2% dark grey clay.
2358'-1"	2358'-6"	5"	Brown clay silty.
2358'-6"	2359'-8"	1'-2"	Halite clear with large clay inclusions approx. 5% clay brown coarse.

From	To	Interval	Description
2359'-8"	2360'-1"	5"	Clay silty bands of halite.
2360'	2371'-11"	11'-10"	Halite clear with dark grey clay, coarse grained 3% clay.
2371'-11"	2373'-4"	5"	Clay silty.
2373'-4"	2381'-10"	8'-6"	Halite clear coarse grained. Approx. 3% brown clay.
2381'-10"	2382'-7"	9"	Clay with bands halite.
2382'-7"	2401'-8"	19'-1"	Halite clear dark grey with clay inclusions. Approx. 5% clay grey.
2401'-8"	2413'-8"	12'	Halite clear clay inclusions. Coarse to medium grained. 3% clay.
2413'-8"	2416	2'-4"	Halite clear, clay parting with vertical fractures Approx. 20% clay reddish brown.
2416'	2424	8'	Halite, clear, grey clay, medium to coarse grained.
2424	2437	13'	Halite clear, medium to coarse grained, light grey, grey clay inclusions. Approx. 12% clay.
2437	2438	1'	Halite very clear fine grained, with clay partings.
2438	2439	1'	Halite clear with clay inclusions, light brown. Approx. 10% clay.
2439	2450	1'	Silty clay parting light brown.
2450	2471	21'	Halite clear, grading from fine to coarse grained, grading light grey to dark grey in color. Approx. 8% clay.
2471	2473	2'	Halite clear, vertical fracture 18% clay medium grained, grey.
2473	2477	4'	Halite clear, medium to coarse grey dark grey, clay inclusions.
2477	2486	9'	Halite clear, dark grey, medium to coarse grained. Approx. 12 grey clay.
2486	2490	4'	Halite clear, coarse grained. 2" silty clay parting. light brown in color.
2490	2507	17'	Halite clear 4" clay parting, brown medium to coarse grained. Approx. 8% brown clay. Color grading from dark brown to light grey. Little brown silty clay inclusions.
2507	2522	15'	Halite clear medium to coarse grained. Approx. 7% brown silty clay inclusions.
2522	2543	21'	Halite clear medium to coarse grained. Approx. 8% dark grey clay with some brown clay inclusions
2543	2545	2'	Halite clear medium to coarse grained. Approx. 30% silty brown clay, 3" brown clay parting.
2545	2551	6'	Halite clear, coarse grained. Approx. 15% silty dark grey clay.
2551	2569	18'	Halite clear medium to coarse grained. Approx. 9% silty brown clay.
2569	2574	5'	Halite clear medium to coarse grained, large light brown clay inclusions. Approx. 15% brown silty clay, with some grey clay inclusions.

RL #1 (Cont'd.)

Page 8

<u>From</u>	<u>To</u>	<u>Interval</u>	<u>Description</u>
2574	2580	6'	Halite clear, coarse grained. Approx. 5% brown silty clay.
2580	2592	12'	Halite clear coarse grained, light brown, grading to light grey with Approx. 4% silty clay.
2592	2608 Bottom	16'	Halite clear, coarse grained. Approx. 10% brown silty clay, grading to light grey at bottom. 6" brown clay parting.



March 20, 1972

Mr. Chuck Sheffing
Shell Oil Company
P. O. Box 1200
Farmington, New Mexico 87401

Dear Chuck:

Attached is miscellaneous information on the Southwest Salt Company wells and the Kerr-McGee Red Lakes Potash Test.

The logs on these wells have been delivered to Acme Blueprint for copying. They will send your copies directly to you. They are being reproduced on a scale of 1 inch = 100 feet.

If we can be of further assistance, please advise.

Very truly yours,

W. E. Allen, Director
Enforcement Section

WEA/r1b

Encs.

4 / Red Lake



KERR-MCGEE OIL INDUSTRIES, INC.

KERR-MCGEE BUILDING - OKLAHOMA CITY, OKLAHOMA 73102

November 19, 1965

Mr. John Bannister, Executive Secretary
Oil and Gas Conservation Commission
1624 West Adams - Room 202
Phoenix, Arizona 85007

Dear Mr. Bannister:

Responsive to your letter of November 10, 1965, I enclose well summary-lithographic description and Gamma Ray-Neutron log on the two potash test holes drilled by Kerr-McGee in Mohave County several years ago. This material was furnished by our minerals exploration department who have previously filed it with the U. S. G. S. in Carlsbad, New Mexico, and who were of the impression that it had been furnished to your office. Your letter served to rectify this oversight, and I trust that the material will satisfy your requirements.

Yours very truly,

L. W. Curtis
L. W. Curtis

LWC/ja

Enc.



November 10, 1965

Kerr-McGee Oil Industries, Inc.
Kerr-McGee Building
Oklahoma City, Oklahoma 73102

Attention: Mr. Larry Curtis

Gentlemen:

This Commission has previously furnished you, at your request, copies of information submitted by the several companies who have drilled in Arizona in search of potash.

As you know, your company too has engaged in exploration in Mohave County, Arizona. This letter is to request you to file information along the line of the information furnished by Duval and National Potash. Duval has further promised that in the near future they will file copies of logs down to the salt so that the information most valuable to this Commission may be made available to the public.

Your cooperation will be greatly appreciated.

Yours very truly,

John Bannister
Executive Secretary
wr

December 10, 1962

Mr. Leonard Neal
Kingman, Arizona

Dear Mr. Neal:

I want to take this opportunity to thank you again for the information that you furnished us on our recent trip to the Red Lake plays area. We visited your son later the morning of the 10th and then spent the rest of the day on and around the edge of the plays. We also spent most of Sunday in the area. We now have a much better idea as to how to proceed in future field work.

I had written to Dick Zitting on October 30th relative to the cores but had not received a reply at the time of my visit with you. A reply did arrive just yesterday. I have enclosed a copy. According to this letter the cores are now your property. If you do not have other plans for these cores, would you permit the Arizona Bureau of Mines to provide for storage facilities of sample cuts in their well sample library here in Tucson?

The Arizona Bureau of Mines is the official state repository for all well cuttings. In addition, the Museum of Northern Arizona in Flagstaff is interested in receiving cuttings from wells drilled in the Colorado Plateau portion of northern Arizona. These agencies then make the cuttings available to anyone interested in their study.

Very truly yours,

Joseph F. Schreiber, Jr.
Associate Professor

JFS/a

Encl.

cc: Dean J. D. Forrester
Dr. H. Wesley Peirce
Mr. William Breed

KERR-McGEE OIL INDUSTRIES, INC.

Kerr-McGee Building • Oklahoma City 2, Oklahoma

December 4, 1962

Mr. Joseph F. Schreiber, Jr.
Associate Professor
The University of Arizona
Tucson, Arizona

Dear Professor:

I apologize for my long delay in answering your letter of October 30 concerning the cores at the Neal Ranch at Red Lake. We have reassigned all of our interest in that area to Neal and I suppose you should probably therefore have his permission to examine those cores since they are on the property we so reassigned. We have no further interest in the project.

I certainly remember your name from the University of Utah in 1952, but I am having a hard time placing your face. Since we have a mineral exploration office in Tucson, I do occasionally make a trip to your town and I will try to arrange to drop by and visit sometime when I am down that way.

If there is anything else I can do to help you on your project, please do not hesitate to drop me a note.

Very best regards,

KERR-McGEE OIL INDUSTRIES, INC.

R. T. Zitting

R. T. Zitting, Manager
Minerals Exploration

RTZ-ew

October 30, 1962

Mr. Richard T. Zitting
Kerr-McGee Oil Industries, Inc.
Kerr-McGee Building
Oklahoma City 2, Oklahoma

Dear Mr. Zitting:

In July of 1960 I obtained copies of the logs of the 2 wells that Kerr-McGee drilled at Red Lake in Mohave County, Arizona. You sent these to me through Pete Scott.

For over a year several of my students and I have been studying playa sedimentation in southern Arizona. We are trying to give the program the fullest field and laboratory treatment possible with the funds and time available. We are partially supported by a small National Science Foundation grant.

From the sedimentation standpoint we are interested chiefly in the Recent and late Pleistocene materials. Our findings will be integrated with other geochronology in order to put together a better picture for the last 30,000 years in southern Arizona. One of our preliminary findings is that there is not much clay (and thus soil) formation going on at present. In fact we can not move very much sediment on the slopes bordering the Willcox Playa.

I have one man working on clay mineralogy. He would like to use this data for a Ph.D. dissertation. I have suggested that we move into other playa areas for additional clay mineral, soil mineralogy, and general petrographic studies. Red Lake is one of the areas. Preliminary studies of aerial photos suggest to me that the problems here are similar to those in the Willcox Playa. I hope to get in 4 or 5 days of reconnaissance later in November and actually start augering and coring to a 30 foot depth next April.

The logs of the Red Lake wells mention the presence of brown, silty clays throughout much of the halite section. If

Mr. Richard T. Zitting
October 30, 1962
Page 2.

Kerr-McGee has no objections could I look for the cores and samples in the barn on the Neal Ranch at Red Lake and obtain samples for our studies? I am sure that some interesting comparisons could be made.

Sincerely,

Joseph F. Schreiber, Jr.
Associate Professor

JFS/s

KERR-McGEE OIL INDUSTRIES, INC.

Kerr-McGee Building • Oklahoma City 2, Oklahoma

October 3, 1962

Joseph F. Schreiber Jr.
Dept. of Geology
University of Arizona
Tucson, Arizona

Dear Dr. Schreiber:

I was very pleasantly surprised to hear from you. In July I was sent to Uravan, Colorado to watch a well and thought about you and Wayland as I passed Antero Junction. I would still like to climb Antero someday.

Dick Zitting tells me that all cores and samples were left in a barn on the Neal Ranch at Red Lake but he doubts that any cuttings were saved from 0-200 feet. Dick's address is the same as mine - Kerr-McGee Bldg., Oklahoma City.

I saw Dr. Monnett last week at the Geological Society luncheon. He says that things are sure slow up there now.

Phil Chandler is with some sort of extension of technical education set-up here in the city.

It sounds like you and Wayland are enjoying Tucson. Since we have been in the city I have fallen victim to the usual suburbanite decay process whereby we work five days to make a living and the other two farming a 50 x 150' lot, painting the house, etc., without enjoying anything in particular. Maybe I'll be transferred to a district office again someday.

If you ever get back to this part of the country stop and visit with us.

Very truly yours,

Pete
Pete

I have lost wayland's address - would you set this to him? P.

September 27, 1962

Mr. Peter L. Scott
Kerr-McGee Oil Industries, Inc.
Oklahoma City, Oklahoma

Dear Pete:

I was examining the lithologic logs of the two holes that Kerr-McGee drilled in the Red Lake Area north of Kingman, Arizona. You probably recall that Dick Zitting sent me copies through you in July of 1960. Both holes went to over 2000 feet with coring starting at about 1200 feet. Can you find out if cuttings were saved for the 0-200 feet interval? Where would these be stored?

Most of my research in the past two years has concerned Cenozoic basin-fill sediments in southern Arizona. We have been concentrating on the Willcox Playa in Cochise County for the past 6 months. We do not require deep cores for geochronological work since we have found that most of the late Pleistocene record is in the upper 150-200 feet. Our deepest hole (drilled by a commercial outfit) went to 140 feet with 85% core recovery. With my homemade, modified augering gear we can go to 30 feet, and as soon as we complete a hoisting system we will go deeper.

Next April we plan to obtain some shallow cores (20-30 feet) from Red Lake. I assure you that we are interested only in the Recent and Pleistocene sedimentational history. Incidentally, where can I get in touch with R. T. Zitting?

Wayland and Elaine are still in town. He left the Banner Mining Company and now estimates for a plastering contractor. They still have 4 or 5 quarter horses and a bunch of steers that Wayland uses for practice bulldogging. We hunt together a lot, and now I have him started on big bore (.30 cal.) target shooting.

Thanks for any help that you can offer.

Sincerely,

Joseph F. Schreiber, Jr.
Associate Professor

JFS/s

August 16, 1960

Mr. Peter L. Scott
Kerr-McGee Oil Industries, Inc.
Globe News Building
Amarillo, Texas

Dear Peter:

The logs for the Red Lake wells arrived shortly before I left for the field. They were very interesting - so much that I hope that someday Kerr-McGee will release some samples for sedimentological and paleontological studies. The occurrence of so much salt also presents some interesting problems in structure and later geomorphological development of the area. We are engaged in similar basin studies in southeastern Arizona at present.

I remember Dick Zitting from Utah. He was finishing his M. S. while I was still working on my doctorate.

Doris and I had dinner with Elaine and Wayland at one of the local bistros about two weeks ago. Haven't heard from them since.

Thanks again for the help on the logs. I will hold them confidential.

Sincerely,

Joseph F. Schrieber, Jr.
Associate Professor

JFS/d

Kerr-McGee Oil Industries, Inc.
Globe News Building
Amarillo, Texas

July 11, 1960

Mr. Joseph F. Schreiber, Jr.
University of Arizona
Tucson, Arizona

Dear Joe:

I sent R. T. Zitting a copy of your letter and asked for the ~~drop~~ on the Red Lake well. I have enclosed copies of all the correspondence along with the lithologic logs. Dick Zitting is manager of mineral exploration for Kerr-McGee.

What is Heatley doing besides raising horses? Next time you see him tell him he might write sometime. Stan Buffington is with Baroid in Liberal as a mud engineer. Eddie Ritchie is an engineer for Schlumberger in Liberal, and Fred Gordon is working for Continental EMSCO there. I am sitting on a well in Beaver County, so we get to visit some.

I hope this information will help you.

Very truly yours,

P. L. Scott

Enc.

KERR-McGEE OIL INDUSTRIES, INC.
INTERNAL CORRESPONDENCE

TO P. L. Scott
FROM R. T. Zitting

DATE July 6, 1960
SUBJECT

I am enclosing copies of the lithologic logs of two holes we drilled in the Red Lake Area north of Kingman, Arizona. This is in response to your request of June 17th, in which you ask that we provide this information for Mr. Joseph F. Schreiber, Jr.

We have been keeping this information confidential because we still hold leases in the area and might wish to conduct additional exploration and acquisition at a future date, and I would therefore like to ask that Mr. Schreiber treat this information as being provided for his own use only.

I hope you are enjoying your new assignment in Amarillo.

Dick
R. T. Zitting

RIZ:jl

R. T. Zitting

June 17, 1960

P. L. Scott

Dr. Schreiber is a good friend of mine and I would appreciate it if you would send me anything that is available for release and I will forward it.

I am sure he would be glad to do anything he can to help Kerr-McGee in Arizona so if you would like to obtain any information don't hesitate to ask.

Larry stopped by on his way to Craig with his new car and we had a short visit.

Pete Scott

PS:jcg

February 29, 1960

Mr. Peter Scott
Kerr-McGee Oil Industries, Inc.
Globe News Building
Amarillo, Texas

Dear Pete:

I was glad to hear from you and that Kerr-McGee is keeping you busy. I hadn't heard about your transfer from the uranium to the petroleum division. Heatley has been scarce since early October. He was going to start on some graduate work but didn't follow through after everything had been set up for him.

We like Tucson and the University very much. There is no comparison with O.S.U.

Regarding your questions about Arizona sedimentary basins -- there are several good references.

- 1) Darton, N. H., 1925, A resume of Arizona geology: Bulletin No. 119, Arizona Bureau of Mines, Tucson. This is the only comprehensive volume out but is also out-of-print.
- 2) McKee, B. D., 1951, Sedimentary basins of Arizona and adjoining areas: Bull. Geol. Soc. America, v. 62, May, 1951. This is excellent; also out-of-print but available in libraries.
- 3) (a) Southern Arizona Guidebook II - 1959 - published by the Arizona Geological Society - \$6.25 including mailing charges. This is available from the Mailing Bureau, University of Arizona, Tucson, Arizona. It is an excellent summary of the information that you want.
(b) Also purchase for \$2.25 including mailing charges, the Arizona Geological Society Digest - 1958 - from the Mailing Bureau. The 1959 Digest is contained in (a) above. The 1960 volume is being printed now.

- 4) Guidebook of the Black Mesa Basin, Northeastern Arizona, 1958. This is available from the New Mexico Geological Society, Campus Station, Socorro, New Mexico, for \$8.75.
- 5) Over the last five years the A.A.P.G. Bulletin has contained several papers on southeastern Arizona.
- 6) Also see the U.S.G.S. 1958 catalog; the Galiuro and Gila Mountains have been covered mostly in mining reports.

I hear from John Naff frequently; he has a sabbatical this semester to finish his thesis. He reports that Brent is worse than ever. Also have heard from Bill Ellis, Stan Buffington, and Gary Stewart. Gary will probably return to graduate school next September.

Speaking of graduate schools -- we have over a hundred master's and doctoral candidates. This keeps us all busy.

Best regards,

Joseph F. Schreiber, Jr.
Associate Professor

JFS:js

Kerr-McGee Oil Industries, Inc.
Globe News Building
Amarillo, Texas

Amarillo, Texas
Feb. 10, 1960

Dear Dr. Schrieber,

I have intended to write for quite some time and finally got a nudge to start me. One of the geologists here is doing exploration work in Arizona and was asking about the depositional basins of the state. I volunteered to write and find out what had been published on the subject. He is interested in the sedimentary section in southern Arizona. Anything on the Caluro mtns., the Gila mtns., or the sedimentary basins of the state would be of great help. If the University has a list of available publications we would certainly appreciate receiving a copy. That's enough business, let's gossip. Heatly has probably told you that I transferred into the petroleum division. I enjoyed the work in uranium but I have hopes that the economic rewards will be greater in oil.

Kerr McGee is casting a greedy eye on some deposits on Mt. Antero and I had hopes of going there this past summer but was too busy at Craig. It would almost be sinful to accept money for working deposits there. After a few months in northwest Colorado I can understand the enthusiasm you had for the mountain states. It is certainly an invigorating place to work.

How do you like the U. of A.? Better than O.S.U. I hope. From the relief map it looks more like the sort of country you like.

I am marking porosity on some logs and had better get back to it. If you ever pass through Amarillo stop and visit.

Sincerely,
Pete Seatt

I hope you can read my poor typing.

Orig. Resumes

Mc Kee

Black Mesa

2 GB

Orig. Digest

Caluro

Gila

HA PG

Boh. Mtns.

Dist.