

Call daily: AMherst 6-2181, J. M. Hansell, Div. Geologist, Sun Oil Co., P. O. Box 1798, Denver Club Bldg., Denver.

1084-Sun Oil Co.
AMherst 6-2371, Arley Haig, Div. Geol., Phillips Petr. Co., 1200 Denver Club Bldg., Denver. ~~Mr. Haig asked that we call Mr. Earle back - call Mr. Earle~~

Wire daily: (Tabor 5-2112) - John Mohr, Div. Mgr., Shell Oil Co. P.O. Box 2135, Salt Lake City, Utah ~~310 Newhouse Building~~ 33 Richards St. ~~Mr. Mohr~~
AND - Shell Oil Co., 1901 Main Ave., Durango, Colorado ~~Mr. Earle~~

u - a of 10/16/56 - Mr. Fryxell, Arrowhead Geol. Co., am 6-2724

NAME OF WELL: #1 Es-ka-yazzie

LOCATION: C NW SW Section 28-25N-11W, San Juan County, New Mexico

ELEVATION: 6580.8 GL 6590 KB.

10/15 Earle
back-call him!

1956

- 9/23 Spudded at 3:00 P.M. September 22, 1956. Drilled & reamed 215' of 15" hole. Set 200' of 10-3/4" OD 32.75# H-40 casing, landed at 212', cemented w/200 sax regular cement w/3% calcium chloride. Plug pumped to 185'. Cement circulated. Plug down at 8:00 A.M. September 23.
- 24 Drilling 9" hole at 700'.
 - 25 Drilling at 2000', 1/4 deg. off at that depth.
 - 26 Drilling at 2650', off 1/2 deg. at 2600'.
 - 27 Drilling at 3216', off 1/2 deg. at that depth. (Installing geolograph some time this morning.)
 - ✓ 28 Drilling at 3765'.
 - ✓ 29 Drilling at 4165'.
 - ✓ 30 Drilling at 4436'.
 - ✓ 10/1 Drilling at 4567'.
 - ✓ 2 Drilling at 4707'.
 - ✓ 3 Drilling at 4877'. Expect to core today.
 - ✓ 4 Drilled from 4877 to 4889. Twisted off & left 6 drill collars & 2 stands pipe in hole. Recovered fish. Started coring at 4889, now coring at 4930. (15'-cored 23 to 37 min./ft.; 11' - 12 to 16 min./ft.; 11' - under 10 min./ft.; 4' - 12 to 16 min./ft.)
 - ✓ 5 Core #1: 4889-4947 1/2, recovered 58-1/2':
 - 4889-97 (8') shale, black, dense, fissile
 - 4897-4900 (3') shale as above w/silty to sandy shale, thinly laminated (vertical frac. 4899-4900)
 - 4900-03 (3') shale, black, dense
 - 4903-06 (3') as above 4897-4900, very slight fluorescence
 - 4906-13 (7') shale, black, 90%, w/occasional laminae of sandstone
 - 4913-14 (1') as above, slight increase in sandstone w/a slight show of oil
 - 4914-25 (11') sandstone, soft, med. grained, angular, glauconitic, partially clay filled, no shale partings, fair to good por. & perm., scattered plant remains, well saturated
 - 4925-26 (1') sandstone as above transitional into shale, saturated
 - 4926-44 (18') siltstone, shaly, micaceous, carboniferous
 - 4944-47 1/2 (3 1/2') sandstone, medium coarse grained, glauconitic, angular, slightly carboniferous, quite quartzitic and dense, NS.
 - Preparing-to-core-ahead. Now coring at 4996'.
 - ✓ 6 Core #2: 4948-5008, recovered 60':
 - 4948-56 1/2 (8 1/2') dark, highly carbonaceous fine sand & silt, few coarse grains sand, slightly glauconitic, NS, no fluorescence
 - 4956 1/2-62 (5 1/2') sand, large grained, med-coarse grained, glauc. w/shale partings, fair porosity, bleeding gas, NS, some clay-filled

WCP found with 10/10/57

1956

10/6 (Continued):

- 4962-69 (7') sand, very fine to med. grained, very shaly, NS.
4969-72 (3') sandstone, fine to med. grained, glauc., with black shale laminations *550' fluor*
4972-75 (3') silt, highly carbonaceous
4975-79½ (4½') sandstone, very fine grained, somewhat RW, good fluor., fair odor, 50/50 sand & shale, poor p&p. *file p. 2*
4979½-92 (12½') sandstone, very fine grained, shale RW but w/high sand content, *somewhat clay-filled*, good odor & fluor., doubtful por. *(18-20%)*
4992-94 (2') same as 79-92 but higher shale content, lighter fluor. and odor
4994-5008 (14') highly carbonaceous silt & fine sandstone, about 15% sand, NS.

DST #1: 4916-5008, open 1 hour, SI 20 min. Had weak blow when tool was opened, died in 18 min. Rec. 25' drlg. mud w/ a few gas bubbles in mud (NOT gas-cut). IFF 55, FFP 55, SIBHP 55, Hydrostatic pressure 2800.

- 10/7 Core #3: 5008-54, recovered 46': Entire core: shale to sandy shale, dark grey, RW, interbedded, hard, dense, tight, highly carbonaceous, NS, no fluor., appeared wet.
- 10/8 Ran electric log & Microlog to SJ TD of 5051. Went in hole to condition mud. Laying down drill pipe.
- 10/9 Finished laying down drill pipe. Ran 156½' of 5-1/2" OD 14# J-55 8 rd STC Rge. 2 Lone Star seamless casing, new, 5068' overall. Landed at 5045', cemented w/100 sax reg. cement & 100 sax Pozmix w/2% gal. Rotated pipe while cementing, had good returns on the mud. Ran 4 centralizers and 50' of scratchers through the pay section. Pumped plug to 5015, bumped it with 1400# at 4:30 P.M. 10/8. Now WOC.
- ✓ 10 Ran temperature survey to 5003. Found top of cement behind pipe at 4400. RD preparing to MORT.
- ✓ 11 RD and MORT.
- ✓ 12 RD and MORT.
- ✓ 13 WO swabbing unit.
- ✓ 14 Moved in swabbing unit.
- ✓ 15 RU and swabbed load water to 4200'. Ran Gamma Ray log. Perforated 4987-95 (G-R measurements) (S-J 4986-94) w/four 80-gram charges per foot. Swabbed hole down. Recovered a show of gas on each pull of swab, and recovering some drilling mud.
- ✓ 16 Left well SI overnight. Found fluid level at 3500'. Swabbed approx. 30 bbls. mud which was dead oil & water cut. Started swabbing at the rate of approx. 1 bbl. per hour gas & oil cut slightly muddy salt water. Faced w/5,000# of 20/40 sand spearheaded w/20 gals. Hi-Flow mixed w/20 bbls. crude oil. Break-down pressure 1800, maximum pressure 3000, minimum pressure 2100, standing pressure 700, injection rate 29.2 bbls. per minute. Total load oil 432 bbls. Well was SI overnight, and this morning preparing to swab.
- ✓ 17 SIP 750#. Opened well, flowed 80 BLO in 4 hrs., swabbed 147 BLO in 6 hrs., no water. 205 BLO to recover. Continuing to swab. (Water which we swabbed natural on yesterday's report tested 30,550 ppm salt and 18,050 ppm chloride.)
- ✓ 18 Swabbed 48.8 BF including a trace of water in 12 hours as follows:
- | | |
|--------------------------|---|
| First 2 hours - 32.76 BF | Fourth 2 hours - 2.34 BF, 20% water, 3% mud |
| Second 2 hours - 6.68 BF | Fifth 2 hours - 2.34 BF, 20% water, 1% mud |
| Third 2 hours - 2.34 BF | Sixth 2 hours - 2.34 BF, 25% water, no mud |
- Approximately 158 BLO yet to recover. Continuing swabbing. (now swabbing 1 bbl. plus per hour, 25% water.)

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- ✓ 10/19 Swabbed 17.55 BF in 12 hours, as follows:
2 hours - 10.53 BF, 4% water
Then ran sand pump, cleaned out 22' frac sand.
4 hours - 2.34 BF, 5% salt water, 1% mud
2 hours - 2.34 BF, 25% water, 1% mud
2 hours - 1.17 BF, 25% water.
2 hours - 1.17 BF, 25% water
142 BLO to recover. Slight increase in gas. 2-hour SIP 5#.
- 20 Well SI 12 hours, SICP 30#. Swabbed 6 hours for total of 10.52 BF, which was swabbed as follows:
2 hrs. - 7.6 BF, 15% water
2 hrs. - 1.75 BF, 35% water
2 hrs. - 1.17 BF, 65% water.
Loaded hole with oil to 3750', preparing to set bridge plug.
- 21 Ran Neutron log from 4730 to 5011. Set lane-Wells cast iron bridge plug at 4980. Perforated from 4923-29 (6' - lane-Wells Gamma Ray measurements) (4922-28 Schlumberger measurements) with four 80-gram cone shots per foot. Swabbed load oil out to 4920. Let well set for 2 hours, swabbed natural 1-1/2 BF in 2 hours, grindout about 6% water and showing some gas.
- ✓ 22 Swabbed 10 BF in 1 hour; swabbed 3-1/2 BF in 6 hours, cut 30% salt water. Sandfraced w/7500# of 20/40 sand and 7500# of 10/20 sand, spearheaded w/20 gals. H4-flo mixed w/20 bbls. crude oil. Breakdown pressure, 1 truck 1550#; w/3 trucks 2900#. Maximum treating pressure 2250#, minimum treating pressure 1700#; final treating pressure 1700#; standing pressure 600#. Injection rate 24.2 bbls. per minute. 659 total load oil to recover. Well SI over night.
- ✓ 23 Standing pressure still 600#. Opened well, flowed back 152 BLO in 5 hrs., swabbed 194 BLO in 7 hrs., total of 346 bbls., no water. 313 BLO to recover.
- ✓ 24 Swabbed total of 63-1/2 BF in 12 hrs., as follows:
39 BF in 1 hr.
3 BF in 1 hr., trace water.
2-1/2 BF in 1 hr., trace water.
4 BF in 2 hrs., 4% water.
5 BF in 2 hrs., 3-1/2% water.
4 BF in 2 hrs., 5 % water.
6 BF in 3 hrs., 4-1/2% water.
Showing of gas. 250 BLO to recover.
- ✓ 25 SI 12 hrs., SICP 80#. Swabbed 12 hrs., made 19 BF first hour. Sand pumped, recovered metal from (jet perforating) carrier strip, no sand. Swabbed 21 BF in 11 hours, cut 5% water. 215 BLO to recover.
To Ok. Cy. ONLY: Recovery from sand pumping indicated packer leak at 4980. Swabbing was as follows:
1st hour - 19 BF cut 4% water.
Sand pumped.
4th hour - 5 BF cut 6% water.
6th hour - 4 BF cut 6% water.
8th hour - 4 BF cut 5% water.
10th hour - 4 BF cut 5% water.
12th hour - 4 BF cut 5% water.
- ✓ 26 12-hour SICP 100#. Ran Baker junk basket and gauge ring to 4970'. Set Baker cast iron bridge plug at 4970 (G R measurements).
(CONTINUED ON NEXT PAGE)

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✓ 10/26 (Continued):

Swabbed: 1 hr. - 14 BF cut 4% water
1 hr. - 3.51 BF cut 15% water
2 hrs. - 2.34 BF cut 45% water
2 hrs. - 1.75 BF cut 20% water
2 hrs. - 1.75 BF cut 28% water
8 hrs. - 23.35 BF - Total

Were swabbing hole from below perforations at 4923-29. 12-hour SICP this morning 25#.

27 12-hour SICP 25#. Swabbed total of 20 BF cut average of .7% water in 22 hours, as follows:

1 hr. - 9.94 cut 10% water
2 hrs. - 2.92 cut 9% water
Let set 4 hrs. - 2.92 cut 7% water
2 hrs. - 1.75 cut 6% water
2 hrs. - 1.75 cut 6% water
1 hr. - .58 cut 4% water

28 12-hour SICP 55#. Casing swabbed 2 hrs.: 1 hr. - 10 BF, 9% water
1 hr. - 2 BF, 8% water.

Spotted Calseal plug on top of bridge plug from 4970 back to 4964. Sand-fraced as follows: Ran 20 gals. Hi-Flow in breakdown oil ahead of frac, used 7500# of 10/20 sand and 7500# 20/40 sand (total of 15,000# sand) and 15,000 gals. lease crude. Pressures: Pumping in formation w/one truck, 1400#, w/four trucks, 2400#; maximum treating pressure 2400#, minimum treating pressure 1500#, final treating pressure 1900#, standing pressure 850#; injection rate 30.5 bbls. per minute. Total load oil 627 bbls. Standing pressure after 3 hours, 850#. Opened well and it flowed back 257 BLO in 12 hours. 370 BLO yet to recover.

✓ 29 Casing swabbed 154 BLO in 3 hours. Went in & found 45 ft. of frac sand in hole below perforations. Sand pumped well, cleaned out to 4964.

Casing swabbed 45.78 BLO in 5 hrs.: 1-1/2 hrs. - 30 BLO, no water. } Total
1/2 hr. - 4.68 BF, trace mud } for
1 hr. - 3.51 BF, .6% BS&W } 5 hrs. -
1 hr. - 4.09 BF, .2% water } 45.78 BLO
1 hr. - 3.50 BF, .2% water }

200 BLO recovered in 8 hours.

170 BLO yet to recover.

✓ 30 12-hour SICP 25#. Swabbed total of 52 BF, average 17% water, as follows:

1 hr. 26.87 BF, 10% water	1 hr. 2.04 BF, 20% water	(Total 51.89 bbls.)
1 hr. 3.51 BF, 20% water	1 hr. 2.04 BF, 20% water	
1 hr. 2.54 BF, 15% water	1 hr. 2.34 BF, 10% water	
1 hr. 3.51 BF, 15% water	1 hr. 2.04 BF, 20% water	
1 hr. 1.75 BF, 25% water	1 hr. 1.75 BF, 10% water	
	1 hr. 2.04 BF, 20% water	
	1 hr. 1.46 BF, 15% water	

Approximately 125 BLO yet to recover.

31 12-hour SICP 70#. Swabbed as follows: First hour - 17 bbls. oil, cut .2% water
Next eleven hours - 18 bbls. fluid, 20% water

Approximately 97 BLO to recover.

✓ 11/1 12-hour SICP 75#. Swabbed as follows: XXXXXXXXXX

1 hr. 13.58 BF, 8% water	1 hr. 1.46 BF, 25% water
1 hr. 2.63 BF, 15% water	1 hr. 1.17 BF, 25% water
1 hr. 1.46 BF, 25% water	1 hr. 1.17 BF, 25% water
1 hr. 1.46 BF, 25% water	1 hr. 1.46 BF, .25% water
1 hr. 2.04 BF, 20% water	1 hr. 1.17 BF, 25% water
1 hr. 1.46 BF, 25% water	1 hr. 1.17 BF, 25% water

Approximately 74 BLO to recover.

Total - 30.23 BF, 22% water

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- ✓ 11/2 12-hour SICP 75#. Swabbed total of 25 BF cut 20% water in 12 hours.
55 BLO to recover.
- ✓ 3 12-hour SICP 75#. Swabbed total of 22.19 BF cut average of 20% water in
12 hours, net 18 BO, balance of 37 BLO to recover. Swabbed as follows:
(1-hour intervals) 9.36 1.17
2.34 .87
1.46 .87
1.17 .87
1.17 .87
1.17 .87
- 4 12-hour SICP 75#. Swabbed total of 21.31 BF cut average of 20% water in
12 hours, net 17 BO, balance of 20 BLO to recover. Swabbed as follows,
in 1-hour intervals); 9.36 1.17
1.75 1.17
1.17 .87
1.17 .87
.87 .87
1.17 .87
- ✓ 5 12-hour SICP 75#. Swabbed total of 18.94 BF cut average of 20% water in
12 hours, net 15 BO, balance of 5 BLO to recover. Swabbed as follows:
(in 1-hour intervals): 7.00 .87
2.34 .87
1.17 .87
.87 .87
1.17 .87
1.17 .87
- ✓ 6 12-hour SICP 75#. Swabbed total of 18.94 BF cut average of 18% water in
12 hours, net 15 BO, all load oil recovered, 10 BNO. Swabbed as follows,
(in 1-hour intervals): 10.53 .87
.58 .87
.58 .87
.58 .87
.58 .87
.87 .87
- ✓ 7 SD waiting on approval from DH contributors to P & A.
- ✓ 8 WOO.
- ✓ 9 WOO to plug and abandon.
- ✓ 10 WOO to plug and abandon.
- ✓ 11 WOO to plug and abandon.
- ✓ 12 WOO to plug and abandon.
- ✓ 13 WOO to plug and abandon.
- ✓ 14 WOO to plug and abandon. (Actually WO casing unit.)
- ✓ 15 WOO to plug and abandon. (" " " ")
- ✓ 16 Prep. to P & A.
- ✓ 17, 18 and 19: Prep. to P & A.
- 20 Moved in casing pulling unit. Now rigging up.
- ✓ 21 Ran free point indicator, found pipe free at 1700'. Loaded hole w/water and spotted
25 sax cement from 4750 to 4927. Preparing to shoot pipe off.
- ✓ 22 No report.
- ✓ 23 Cut 5-1/2" casing at 1719'. Spotted plugs: 1735 - 1620
1320 - 1200
400 - 290
25 - surface

Used total of 165 sacks cement. F & A 11/22/56.

