

STA TEX OIL COMPANY

(R.A. Stamey)

August 13, 1962

Russell No. 1

Sec. 14, T. 19 S., R. 44 E.

Malheur County, Oregon

Descriptions of Well Cuttings\*

0 - 40	<u>Gravel</u>
40 - 310	<u>Shale</u> : With a few thin interbedded sands.
380 - 652	<u>Shale</u> : Soft, sticky.
652 - 1320	<u>Shale</u> : Sandy.
1320 - 1360	<u>Sand</u> : Tan, soft - firm, extremely fine grained. Possible oil fluorescence reported by Well Logging Company. No gas detected in this interval, however.
1360 - 1750	<u>Shale</u> : Firm to hard.
1750 - 1809	<u>Sand</u> : Brownish white, soft - firm, fine grained. Gas show, 15 units dry gas and 18 units of wet gas recorded on the logging unit in this interval.
1809 - 1828	<u>Sand</u> : Greenish-white, soft - firm, fine grained.
1828 - 2248	<u>Shale</u> : Firm and some soft, grayish green to whitish, fine-grained sand. Small show of gas.
2248 - 2289	<u>Sand</u> : Grayish white, soft, fine grained, thinly interbedded with shale. Gas logging unit recorded 32 units of dry gas and 35 units of wet gas.
2289 - 2296	<u>Shale</u> : Medium to dark grayish black, firm.
2296 - 2321	<u>Siltstone</u> : Light gray and greenish, firm, with some thin interbedded whitish, feldspathic very fine-grained sandstone.
2321 - 2336	<u>Sandstone</u> : Light gray, very fine grained, silty, friable, with an occasional large mica flake. A thin layer of coarse sandstone composed of quartz and feldspar toward the bottom of the zone. Gas logging unit recorded 10 units methane, 14 units propane.

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- 2336 - 2350 Siltstone: Medium to light gray, firm, and some thinly interbedded medium to dark grayish-black shale.
- 2350 - 2356 Sandstone: Whitish gray, very fine grained, silty, and some silty coarse-grained friable sandstone with quartz, basalt, and white ash. Occasional large mica flakes. Gas logging unit recorded 14 units methane, 10 units propane.
- 2356 - 2390 Siltstone: Medium to light gray, firm, and thin interbeds of dark-gray siltstone.
- 2390 - 2406 Sandstone: Whitish-gray, friable, very fine-grained silty, tuffaceous sandstone.
- 2406 - 2417 Siltstone: Light grayish, fine sandy, and thinly layered black shale and white ash interbedded.
- 2417 - 2510 Sandstone: Whitish light green, very fine silty, tuffaceous, and thinly interbedded siltstone. Occasional mica flakes and thin layers of white ash.
- 2510 - 2545 Siltstone: Light gray, very fine sandy, tuffaceous. Small pieces of black shale and white ash intermixed with siltstone in the cutting sample. Occasional large flakes of mica in the siltstone. Grades back and forth between sandy siltstone and silty sandstone.
- 2545 - 2575 Sand: Whitish, medium to coarse grained, loose - friable, tuffaceous, with subangular grains of quartz and feldspar. Scattered fragments of hard black shaly coal, some calcite. Some light-grayish chert fragments.
- 2575 - 2580 Siltstone: Whitish gray, fine sandy, firm to friable, slightly calcareous, tuffaceous.
- 2580 - 2644 Sandstone: Whitish, fine to coarse, tuffaceous, slightly calcareous, composed of quartz and feldspar, some chert, white ash, and a small amount of coal, and interbeds of light-gray, firm to hard siltstone.
- 2644 - 2680 Sand: Whitish, loose, coarse to medium grained, composed of subangular quartz and feldspar with fragments of white ash, some dark-gray chert and interbedded light-gray, firm to hard, siltstone.
- 2680 - 2684 Siltstone: Light gray, firm to brittle, thinly bedded. Some interbedded black shale.
- 2684 - 2690 Sandstone: Friable, whitish, coarse grained, composed of subangular quartz and feldspar grains. Some sub-rounded pieces of basalt.

- 2690 - 2740 Basalt: Brownish-black, hard, microcrystalline, olivine (?), and interbeds of light-gray, firm to hard siltstone. Occasional mica flakes in the siltstone.
- 2740 - 2840 Siltstone and shale: Light-gray to medium-gray, firm siltstone, and interbedded dark-gray to black, firm, carbonaceous shale. Some thin layers of coal. Occasional layers of fine silty sandstone. Medium-sized grains of quartz and small basalt fragments appear to be scattered in the siltstone. Gas logging unit recorded 8 units methane, 6 units propane, 4 units butane.
- 2840 - 2850 Shale: Medium dark gray to grayish black, firm to hard. Some white ash fragments intermixed.
- 2850 - 2900 Siltstone: Medium gray, fine, sandy, firm with some white ash fragments intermixed. Occasional areas of pyrite mineralization. Some interbedded dark-gray and grayish-black shale at bottom. Occasional thin layers of coal.
- 2900 - 2906 Sandstone: Dark-gray, very fine-grained, firm graywacke. Some white and light-brown, very fine-grained tuffaceous sandstone, with medium quartz grains and basalt particles.
- 2906 - 2916 Siltstone: Light to medium gray, some light green, firm. Some of the medium-gray siltstone contained small splinters of carbonaceous material. Some thinly interbedded black shale.
- 2916 - 2920 Siltstone and ash: Light-gray, firm siltstone and fragments of firm white ash.
- 2920 - 2960 White ash: Very fine, particles, mostly crystal debris. Some interbedded light-gray siltstone and black carbonaceous material.
- 2960 - 2965 Claystone: Light greenish gray, waxy looking, firm.
- 2965 - 3003 Siltstone: Medium light gray, fine sandy, with some scattered white ash fragments, some black carbonaceous fragments also. Some greenish-gray claystone.
- 3003 - 3020 Sandstone: Light gray, medium to coarse grained, silty, composed of subangular quartz and feldspar grains, some subrounded chert fragments, slightly calcareous.

- 3020 - 3048 Siltstone: Whitish gray, fine sandy, thinly bedded, firm. Some coal streaks and layers of black shale. A small amount interbedded light-gray, tuffaceous, feldspathic, silty sandstone.
- 3048 - 3060 Siltstone: Light gray, tuffaceous, fine sandy, friable, with scattered medium-sized grains of quartz; some feldspar and a small amount white ash.
- 3060 - 3070 Sandstone: Whitish, fine, silty, feldspathic, with small pieces of biotite.
- 3070 - 3088 Siltstone: Light gray, firm, fine sandy, with scattered medium-sized subangular grains of quartz and feldspar. Some gray chert fragments and a small amount of ash fragments, occasional mica flakes. A few thin interbeds of black shale and coal.
- 3088 - 3095 Shale: Medium gray to grayish black, firm. Also some black microcrystalline basalt fragments intermixed in the cutting sample in this interval.
- 3095 - 3100 Siltstone: Light gray, fine sandy, firm, with medium-sized grains of quartz scattered throughout.
- 3100 - 3110 Sand: Light color, loose to friable, composed of medium-sized grains of quartz, chert, and occasional fragments of white ash.
- 3110 - 3160 Siltstone: Light gray, firm, some interbedded black shale and coal.
- 3160 - 3165 Shale: Black, firm, and shaly black coal.
- 3165 - 3175 Sandstone: Whitish, very fine grained, silty, feldspathic.
- 3175 - 3195 Siltstone: Light gray, firm, with occasional mica (muscovite) flakes.
- 3195 - 3220 Sandstone: Whitish, firm, fine- to medium-grained, feldspathic sandstone with fragments of medium- to dark-gray chert. Partly cemented with silica (?).
- 3220 - 3230 Siltstone: Light gray, tan, and greenish, firm.
- 3230 - 3235 Shale: Dark gray to black, firm; some coal.
- 3235 - 3250 Siltstone: Light gray and greenish, fine sandy, firm. Some interbedded black shale and shaly coal.
- 3250 - 3290 Shale: Black, firm, massive and thin coal seams. Some interbeds of light-gray and green siltstone.

- 3290 - 3295 Basalt: Brownish black, hard, microcrystalline; some of the olivine weathered brownish pink.
- 3295 - 3305 Siltstone: Light gray to medium gray, firm; some thin interbeds of whitish medium-grained feldspathic sandstone, partially cemented with silica.
- 3305 - 3315 Shale: Black, brittle, and some shaly coal.
- 3315 - 3437 Basalt: Brownish black, firm, weathered, microcrystalline; some quartz veinlets and some interbedded medium-gray, firm siltstone.
- 3437 - 3450 Basalt: Black, hard, microcrystalline.
- 3450 - 3480 Siltstone: Medium gray, some pinkish, firm, tuffaceous, fine sandy, and interbeds of firm white ash.
- 3480 - 3500 Basalt: Brownish black, weathered, some zeolite.
- 3500 - 3580 Siltstone: Light gray, sandy, tuffaceous, firm, with grains of quartz and feldspar (contains fragments of white ash and basalt); some interbedded thin black shale layers.
- 3580 - 3640 Basalt: Brownish black, fairly hard, microcrystalline with veinlets and cavity fillings of quartz; some calcite. Some of the basalt is softer, weathered. Thin interbeds of medium-gray siltstone and reddish, baked clay. Gas logging unit recorded 6 units methane, 2 units propane (3619-3635).
- 3640 - 3770 Sand: Loose, coarse to medium grained, angular grains of quartz and feldspar; some basalt fragments. Occasional grayish-green chert fragments. Contains a small amount of magnetite, slightly calcareous. Gas logging unit recorded 14 units methane, 14 units propane, 20 units butane.
- 3770 - 3820 Siltstone: Light gray and green, brittle. Grades to fine sandy siltstone. Some fine white ash interbedded. Medium-sized grains of quartz and feldspar scattered throughout siltstone. Gas logging unit recorded 6 units methane, 4 units propane, 2 units butane.
- 3820 - 3860 Sand: Loose, friable, medium grained, composed of quartz and feldspar grains; some basalt fragments and scattered grains of olivine.

- 3860 - 3895 Siltstone: Medium gray, light gray, and greenish gray, firm, with some thinly interbedded dark-gray siltstone and shale. Some thin coal layers.
- 3895 - 4110 Sand: Loose to friable, medium grained, fairly uniform, composed of subangular grains of quartz and feldspar, some basalt fragments. Somewhat limy in portions. Some of the cuttings' samples contain a considerable amount of basalt which may represent cobbles or boulders of basalt. Interval (4020 to 4025) had a great deal of pyroclastic material intermixed with the sand. Also some magnetite.
- 4110 - 4150 Basalt: Grayish black, microcrystalline, hard, with some calcite veinlets.
- 4150 - 4170 Shale: Black, firm to brittle, and shaly coal. Also medium-gray shale.
- 4170 - 4195 Sand: Loose to friable, composed of subangular grains of quartz and feldspar with some basalt fragments. Bottom portion finer and partially cemented with lime.
- 4195 - 4210 Siltstone: Whitish, light green, and pink, firm.
- 4210 - 4215 Shale: Medium gray to black, firm.
- 4215 - 4255 Sandstone: Whitish gray, firm, silty, fine, with medium to coarse grains of quartz and feldspar scattered throughout. Also some basalt fragments. Slightly calcareous. A small amount of limestone, also. Occasional pieces of greenish-gray chert scattered in the sandstone. Thin interbeds of dark-gray siltstone and shale.
- 4255 - 4320 Sand: Loose to friable, fine to medium grained, subangular, composed of quartz and feldspar with lesser amount of basalt fragments. Slightly calcareous. Interbedded whitish-colored siltstone.

Note: No gas shows were reported below 3806 in the well records, but the records must be missing as the sands in the bottom of the hole should contain gas.