

Richfield LOG AND HISTORY
BARBER # 1
Section 23-1 N/ 1 W, WB&M
Portland, Oregon

(Drilled by Fowler Drilling Company)

Commenced drilling operations at 3:00 P.M., February 5, 1946, drilling a 17½" hole to 811' and a 12½" hole to 865'

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| 0 | 97 | Shale and boulders |
| 97 | 181 | Boulders, hard sand and basalt |
| 181 | 681 | Basalt |
| 681 | 706 | Basalt and shale |
| 706 | 793 | Basalt |
| 793 | 865 | Basalt and shale with hard streaks |

March 16, 1946, ran and cemented 796' of 13-3/8" 54.5# J-55 casing at 811' with 700 sacks hi-early and construction cement mixed to an estimated 40% slurry. Stood cemented. Landed casing. Installed blow-out prevention equipment. Closed Shaffer gate and tested Shaffer gate and casing under 1000# pressure for 30 minutes without loss. Tested Hydril and casing under 600# pressure for 30 minutes without loss. Drilled out cement and plugs 795-817', checking shoe of 13-3/8" casing at 811'.

Alternately cored an 8½" hole and drilled a 12½" hole from 865' to 7885', the total depth, which was reached on June 5, 1946.

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| 865 | 875 | <u>Core #1</u> - Recovered 10' 10' Sand, firm, dull gray, fine-grained, fairly well sorted, silty, tuffaceous, thinly laminated, few red colored grains, tight. |
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| 875 | 1801 | Shale and silt with streaks of sand |
| 1801 | 2025 | Shale and sand |

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| 2025 | 2035 | <u>Core #2</u> - Recovered 9' 3' Sand, firm, dark grass-green, massive, fine to medium grained, consisting of pellets of basalt and a few small brick-red grains in bentonitic clay matrix, probably impervious and of volcanic origin. 3" Sand: ditto; but with abundant large gastropod and pelecypod shell fragments. 2'9" Sand as in top of core with abundant large pelecypod impressions. 2" Sand as in top of core with abundant large pelecypod fragments. 2'10" Sand, firm, dark green, massive, composed of black grains and pellets and lesser amounts of red grains in matrix of bentonitic clay; several small pelecypod impressions and of volcanic origin. |
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- 2035 2045 Core #3 - Recovered 9'
9' Ditto; as above; one fragment of large pelecypod.
- 2045 2055 Core #4 - Recovered 7'
5' Volcanic sand: as above; with abundant large pelecypods at 2047' (3" thick bed) and 2049' (5" thick bed).
2' Volcanic sands: as above; but indicates breccia fragments of basalt up to 1/2" in length.
- 2055 2065 Core #5 - Recovered 10'
10' Volcanic agglomerate: firm, dark green, sharp angular basalt fragments in matrix of impure bentonitic clay; clay contains streaks of white tuffaceous material.
- 2065 2075 Core #6 - Recovered 10'
10" Ditto.
- 2075 2082 Core #7 - Recovered 6'
6' Ditto.
- 2082 2534 Sand and shale
2534 2690 Basalt, shale and conglomerate
2690 2907 Sand and shale
2907 3080 Shale, sand and conglomerate
3080 3235 Volcanic shale and conglomerate
- 3235 3244 Core #8 - Recovered 9'
9' Volcanic agglomerate: firm to hard, dark gray-green, massive, consisting mostly of dark green to black finely crystalline angular fragments up to 1" of basalt in matrix of green muddy clay, and vitreous silica, and several light gray veins of lime-silicate.
- 3244 3254 Core #9 - Recovered 4'
4' Ditto.
- 3254 3264 Core #10 - Recovered 4"
4" Ditto.
- 3264 3268 Core #11 - No recovery
- 3268 3278 Core #12 - No recovery
- 3278 3289 Core #13 - No recovery
- 3289 3292 Core #14 - No recovery
- 3292 3357 Volcanic shale and conglomerate
3357 3508 Volcanic shale, basalt and conglomerate
3508 3689 Volcanic shale and agglomerate
3689 3814 Volcanic agglomerate

- 3814 3819 Core #15 - Recovered 2'
2' Volcanic agglomerate: broken and mixed up fragments of brick-red impure bentonitic clay and hard green volcanic agglomerate containing angular fragments of volcanic rocks. Core may consist of wall cuttings.
- 3819 3820 Core #16 - Recovered 1'
6" As above but may be wall cuttings.
6" Basalt: hard, dark green, dense.
- 3820 3823 Core #17 - Recovered 2'
2' Basalt: hard, dark green, dense, common small veins of white chalcedonic ? silica.
- 3823 3827 Core #18 - Recovered 1'
1' Basalt: as above.
- 3827 3832 Core #19 - Recovered 1½'
1½' Basalt: as above.
- 3832 3834 Core #20 - Recovered 1'
1' Basalt: as above.
- 3834 3836 Core #21 - Recovered 2'
2' Basalt: as above.
- 3836 3861 Basalt and agglomerate
3861 3904 Basalt
3904 4211 Volcanic agglomerate
- 4211 4218 Core #22 - Recovered 5'
5' Volcanic agglomerate, firm, olive-green, bentonitic with common chunks of white ash, veinlets of chalcedonic silica, and a few calcite veins.
- 4218 4223 Core #23 - Recovered 4'
2' Ditto: several slickensides.
2' Ditto: but firmer with several rose-colored chalcedonic silica veins.
- 4223 4231 Core #24 - Recovered 8'
8' Andesite: hard, green, dense, veins of silica, scattered quartz.
- 4231 4240 Core #25 - Recovered 6'
6' Ditto.
- 4240 4250 Core #26 - Recovered 7'
7' Ditto.
- 4250 4260 Core #27 - Recovered 4'
4' Ditto.

- 4260 4265 Core #28 - Recovered 2½'
2½' Ditto.
- 4265 4270 Core #29 - Recovered 4'
4' Ditto.
- 4270 4927 Volcanic agglomerate and shale
- 4927 4937 Core #30 - Recovered 9'
6' Volcanic clay: dark red to blood red, firm, greasy.
3' Basalt: hard, dark gray, vesicular, more dense than
basalt cored above this depth.
- 4937 4947 Core #31 - Recovered 10'
10' Basalt: hard, variegated green, gray and rusty brown,
showing a few slickensides and white veins mostly vertical,
one vertical fault contact of basalt and volcanic
agglomerate.
- 4947 4955 Core #32 - Recovered 4'
4' Ditto.
- 4955 4960 Core #33 - Recovered 2'
2' Ditto.
- 4960 4966 Core #34 - Recovered 2'
2' Ditto.
- 4966 4973 Core #35 - Recovered 1'
1' Broken-up pieces of basalt.
- 4973 5237 Volcanic agglomerate, basalt and shale
- 5237 5243 Core #36 - Recovered 3'
3' Basalt: hard, black to green, dense and aphanitic.
- 5243 5253 Core #37 - Recovered 6'
2' Basalt: hard, gray, black, and green, dense, several
white veins.
4' Basalt: hard, gray, black, green and reddish-brown
with rounded and elliptical inclusions of snow white
zeolites including natrolite.
- 5253 5263 Core #38 - Recovered 7'
7' Ditto; as above but with a few calcite veins.
- 5263 5273 Core #39 - Recovered 2'
2' Basalt: hard, black, dense and aphanitic.
- 5273 5276 Core #40 - Recovered 2½'
2½' Ditto: as above.

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| 5276 | 5745 | Volcanic agglomerate |
| 5745 | 5748 | <u>Core #41</u> - Recovered 2' 2' Basalt: hard, black, dense. |
| 5748 | 5750 | <u>Core #42</u> - Recovered 1' 1' Ditto. |
| 5750 | 5751 | <u>Core #43</u> - Recovered 1' 1' Ditto. |
| 5751 | 5753 | <u>Core #44</u> - Recovered 1' 1' Ditto. |
| 5753 | 5754 | <u>Core #45</u> - Recovered 1' 1' Ditto. |
| 5754 | 5755 | <u>Core #46</u> - Recovered 1' 1' Ditto. |
| 5755 | 5899 | Volcanic agglomerate |
| 5899 | 5909 | <u>Core #47</u> - Recovered 7' 7' Volcanic agglomerate: hard, green, angular basalt fragments up to one inch; few slickensides and white veins, matrix alive, green, and aphanitic. |
| 5909 | 5919 | <u>Core #48</u> - Recovered 1' 1' Ditto. |
| 5919 | 5929 | <u>Core #49</u> - Recovered 1½' 1½' Ditto. |
| 5929 | 5939 | <u>Core #50</u> - Recovered 3' 3' Ditto. |
| 5939 | 5949 | <u>Core #51</u> - Recovered ½' ½' Ditto. |
| 5949 | 6680 | Volcanic agglomerate |
| 6680 | 6690 | <u>Core #52</u> - Recovered 9' 9' Volcanic agglomerate: intermixed and poorly bedded; 1) hard olive green volcanic agglomerate with sharp angular pieces of basalt in matrix of grayish-green impure bentonitic clay; 2) dark gray volcanic agglomerate consisting mostly of hard shale with small fragments of basaltic debris showing several slickensides. |

- 6690 6697 Core #53 - Recovered 2'
1' Volcanic breccia: hard, dark green, numerous slickensides, chloritized, several veins of chalcedonic silica;
1' Basalt: hard, dark gray, dense.
- 6697 6707 Core #54 - Recovered 9'
3½' Basalt: hard, variegated red and gray.
5½' Ditto but mostly gray colored, one 1/32" thick vein of calcite.
- 6707 6713 Core #55 - Recovered 6'
2' Ditto.
3' Variegated red and green clay; some gouge, fragments of chloritized basalt.
1' Basalt: hard, green, several slickensides, several veins of chalcedonic silica.
- 6713 6723 Core #56 - Recovered 6'
6' Intermixed fragments of basalt and variegated green and red clay, possibly some gouge.
- 6723 6731 Core #57 - Recovered 6'
2' Fragments of basalt: chloritized basalt and gouge.
4' Basalt: hard, dark gray and green, several calcite veins and several slickensides.
- 6731 7517 Volcanic agglomerate and basalt
- 7517 7527 Core #58 - Recovered 3'
3' Andesite: hard, varicolored gray, red and purple, dense, aphanitic, with many veins of calcite.
- 7527 7537 Core #59 - Recovered 2'
2' Ditto.
- 7537 7542 Core #60 - Recovered 3'
3' Ditto.
- 7542 7547 Core #61 - Recovered 3'
3' Ditto.
- 7547 7555 Core #62 - Recovered 4'
4' Ditto.
- 7555 7560 Core #63 - Recovered 4'
4' Ditto.

- 7560 7565 Core #64 - Recovered 5'
5' Ditto.
- 7565 7570 Core #65 - Recovered 3'
3' Ditto.
- 7570 7575 Core #66 - Recovered 1'
1' Ditto.
- 7575 7829 Volcanic agglomerate
- 7829 7837 Core #67 - Recovered 1'
1' Andesitic breccia: firm to soft, varicolored gray and red, angular fragments of andesite up to 1", common calcite veins.
- 7837 7844 Core #68 - Recovered 6'
6' Andesitic breccia: firm to friable, varicolored gray and red, angular fragments of andesite up to 1", common calcite veins, good evidence of flow structure showing dip of 80° between contacts of breccia and weathered breccia.
- 7844 7851 Core #69 - Recovered 7'
7' Ditto.
- 7851 7859 Core #70 - Recovered 2'
2' Ditto.
- 7859 7867 Core #71 - Recovered 7'
7' Red muddy clay: with fragments of andesite, few calcite veins.
- 7867 7877 Core #72 - Recovered 5'
4' Red muddy clay: as above.
1' Andesite: hard, gray, finely crystalline.
- 7877 7885 Core #73 - Recovered 3'
3' Andesitic breccia: hard, portions fractured, common calcite veins.

Ran Schlumbergers at the following depths: 2180', 3298', 4883', 5899', 6854' and 7885'.

Plugged Across Shoe of 13-3/8" casing In Process of Abandonment:

With 4½" 16.6# open-end drill pipe hanging at 823', pumped in 130 sacks construction cement mixed to estimated 40% slurry. Laid down drill pipe and dismantled equipment. Ran in with 12½" bit on 4½" drill pipe and found top of hard cement at 745'. HOLE ABANDONED - June 7, 1946. Welded steel plate on 13-3/8" casing at the surface and erected marker.

PRESENT CONDITION OF HOLE:

Total depth: 7885'. Plugged: 823-745'. Junk: none.

Casing Record: 4' - 22" 117# conductor set at 20'.
796' - 13-3/8" 54.5# J-55 cemented 811'.

HOLE ABANDONED - June 7, 1946.

(Welded steel plate on 13-3/8" casing at the surface and erected marker)

Fowler Drilling Company Drillers:

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