

Received 5/14/58 from Jim Brown.

LITHOLOGIC DESCRIPTION OF
GENERAL PETROLEUM CORPORATION'S OIL SHALE COREHOLE 37-4Location: 777.47 ft N. and 1,281.03 ft W. from St corner
Section 4 - 10S - 25E, Uintah County, Utah

Drilled : October 1957

Surface Elev: 5,880.60 ft TD 486.3 ft
Mahogany Marker @ 392.9 ft

From	To	Feet	
0	22.0	Not cored.	
22.0	24.0	2.0	Marlstone, dark gray to gray-brown. Speckled appearance. Some secondary mineralization.
24.0	33.5	9.5	Marlstone, light gray to gray, laminations, several light buff streaks in top portion, somewhat speckled appearance, secondary mineralization.
33.5	40.0	6.5	Marlstone, dark gray, secondary mineralization throughout, both lineations and random patterns. Some vugs locally are filled with tar and gilsonite(?).
40.0	45.5	5.5	Marlstone, gray, high degree of secondary mineralization which weathers buff locally, rock is highly altered locally.
45.5	55.5	10.0	Marlstone, gray to dark gray, massive, occasional zones of secondary mineralization. Fracture zone near base has tar on surfaces.
55.5	65.5	10.0	Marlstone, as above with abundant tarry matrix enclosing highly broken rock in bottom 2-feet.
65.5	70.5	5.0	Rec. 3.7 ft. Marlstone, predominantly dark gray as above with tarry matrix surrounding broken rock near top for about 1 ft, otherwise rock is fairly well consolidated and massive.
70.5	72.0	1.5	Marlstone, gray to dark gray, similar to last above; however, grades downward to lighter gray.
72.0	80.5	8.5	Marlstone, gray to dark gray as above.
80.5	90.0	9.5	Marlstone, light gray to dark gray, laminations more pronounced and lighter color, lighter coloration in top 2 ft only.
90.0	92.5	2.5	Marlstone, predominantly dark gray, massive.
92.5	102.5	10.0	Marlstone, gray to dark gray, massive. Brown cast locally. Rare secondary mineralization in fractures and vugs.
102.5	112.5	10.0	Marlstone, gray as above with few very dark gray to black streaks, locally light gray-brown in bottom 2 ft.

<u>From</u>	<u>To</u>	<u>Feet</u>	
112.5	122.5	10.0	Marlstone, gray as above with occasional light brown streak with good laminations especially in lower 3 ft.
122.5	132.5	10.0	Marlstone, gray as above, dark gray in top 1 ft generally medium gray to grayish brown throughout, laminations poor to fair.
132.5	141.5	9.0	Marlstone, gray as above with laminations becoming more pronounced locally, however, still retains somewhat massive appearance at first glance.
141.5	142.5	1.0	Marlstone, gray to dark gray, locally black, retains high specific gravity but better values than adjacent rock. Possibly a low grade blue bed.
142.5	148.5	6.0	Marlstone, gray, massive to somewhat laminated especially on bottom 1 ft.
148.5	149.5	1.0	Marlstone, gray to dark gray, very fine laminations locally, possibly low grade blue bed.
149.5	159.0	9.5	Marlstone, gray massive. Occasional analcite stringers less than 0.1 ft.
159.0	169.0	10.0	Marlstone, gray as above, becoming darker color in lower part, contains rare analcite stringers.
169.0	177.5	8.5	Marlstone, as above, with prominent analcite bed 0.2 ft thick at 172.4 ft, several thin analcites near middle.
177.5	178.5	1.0	Blue bed. Generally fair grade with 2 analcite stringers less than 0.1 ft near middle.
178.5	188.5	10.0	Marlstone, brownish gray to dark gray, massive to laminated. Contains rare streaks of high values.
188.5	198.5	10.0	Marlstone, brownish gray as above, generally massive throughout, contains rare rich streak and several thin analcite partings.
198.5	208.5	10.0	Marlstone, as above, becoming darker gray and more laminated especially towards the base, contains several thin analcite partings throughout.
208.5	218.5	10.0	Marlstone, gray massive to somewhat laminated, contains a thin oil saturated analcite.
218.5	228.5	10.0	Marlstone, gray to dark gray with fairly rich streak less than 0.5 ft thick at 222.5 ft, badly fractured in bottom half.

<u>From</u>	<u>To</u>	<u>Feet</u>	
228.5	238.5	10.0	Marlstone, gray as above, but badly fractured throughout entire interval.
238.5	241.5	3.0	Marlstone, gray but appears somewhat lighter than above.
241.5	242.5	1.0	Blue bed with gradational contacts at top and bottom, contains very thin laminations with satiny lustre.
242.5	248.5	6.0	Marlstone, gray with very thin analcite partings scattered throughout.
248.5	249.5	1.0	Blue bed, low grade, only good values in middle (0.3 ft) portion.
249.5	254.5	5.0	Marlstone, medium gray, has very fine laminations in bottom portion.
254.5	255.5	1.0	Blue bed with good values throughout 0.6 ft.
255.5	260.5	5.0	Marlstone, gray to dark gray, easily fractured, contains oil saturated analcite less than 0.1 ft at base.
260.5	261.5	1.0	Blue bed with fair values throughout locally has streak 0.25 ft with satiny lustre.
261.5	271.5	10.0	Marlstone, gray to gray brown massive to somewhat laminated, contains several thin oil saturated analcite stringers.
271.5	273.5	2.0	Marlstone, gray laminations slightly brown cast locally.
273.5	274.5	1.0	Blue bed, fair to good values becoming leaner towards base, contains several very thin analcite partings.
274.5	280.0	5.5	Marlstone, light gray to gray, laminations are more pronounced in streaks.
280.0	281.0	1.0	Marlstone, gray to very dark gray with 0.3 ft thick blue bed in middle portion giving satiny lustre locally.
281.0	291.0	10.0	Marlstone, gray to greyish brown generally massive, contains several oil saturated analcite partings.
291.0	301.0	10.0	Marlstone, gray as last above contains a fairly prominent sequence of analcite and Marlstone 0.5 ft thick at 293.3 ft.
301.0	308.5	7.5	Marlstone, gray as above locally contains very light gray-brown laminations also several thin oil saturated analcite partings.

<u>From</u>	<u>To</u>	<u>Feet</u>	
308.5	311.5	3.0	Marlstone, gray as above appears somewhat lighter in color contains several very thin oil saturated analcite partings.
311.5	313.5	2.0	Marlstone, light gray to gray laminations becoming more prominent.
313.5	321.0	7.5	Marlstone, gray with occasional lighter streaks and laminations, rare analcite stringers.
321.0	323.5	2.5	Sandstone, tuffaceous (upper wavy bed) top actually at 320.3 ft and unit is 2.8 ft thick mottled appearance but no obvious oil saturations, not assayed. *
323.5	333.5	10.0	Marlstone, gray to gray-brown with rare dark and light streaks, well laminated locally.
333.5	340.5	7.0	Marlstone, as last above.
340.5	342.5	2.0	Marlstone, light brown to dark brown, massive to laminated, predominantly dark coloring throughout.
342.5	345.5	3.0	Marlstone, as above with light brown laminations more prevalent, good laminations throughout.
345.5	347.0	1.5	Marlstone, dark brown occasional blue bed streaks with satiny lustre.
347.0	352.5	5.5	Marlstone, light brown to dark brown, common laminations.
352.5	353.5	1.0	Blue bed, fair grade with gradational contacts top and bottom.
353.5	356.0	2.5	Marlstone, light brown to dark brown, richer in top 1 ft.
356.0	357.0	1.0	Blue bed, somewhat altered (cork-like) appearance. Low specific gravity.
357.0	358.0	1.0	Marlstone, medium brown massive grading to laminations in lower part.
358.0	364.0	6.0	Marlstone, very light brown to occasional brown, fine laminations throughout.
364.0	370.0	6.0	Marlstone, as last above.
370.0	373.0	3.0	Marlstone, brown, massive to somewhat laminated becoming richer towards the base.
373.0	373.5	0.5	Blue bed, with gradational contacts, richest portion only 0.2 ft thick.

<u>From</u>	<u>To</u>	<u>Feet</u>	
373.5	377.5	4.0	Marlstone, brown to occasional dark brown laminations containing scattered lenses and stringers of analcite.
377.5	381.5	4.0	Marlstone, brown to dark brown as above with more prevalent dark coloring throughout, contains several thin oil saturated analcite stringers.
381.5	383.5	2.0	Marlstone, brown to dark brown possibly higher values, contains several thin analcites.
383.5	392.5	9.0	Marlstone, light brown to brown, common laminations, several thin analcite stringers scattered throughout.
392.5	393.0	0.5	Analcite bed, Mahogany Marker, actually 0.3 ft thick and top X is at 392.9 ft.
393.0	397.5	4.5	Marlstone, light gray to brown laminations, richer in lower 2 ft.
397.5	398.5	1.0	Blue bed, with several scattered streaks giving satiny lustre throughout, has somewhat cork-like appearance locally.
398.5	400.0	1.5	Marlstone, light brown to brown, laminations, grades to richer values in top half-ft.
400.0	401.0	1.0	Blue bed with gradational contacts top and bottom.
401.0	401.5	0.5	Marlstone, light brown to brown laminations contains 0.2 ft analcite at base.
401.5	404.5	3.0	Blue beds interbedded marlstone varying from light brown to dark brown, highly laminated, contains several thin analcite stringers, better values are more pronounced.
404.5	405.0	0.5	Marlstone, light brown to brown with very rare dark brown laminations.
405.0	408.0	3.0	Blue beds with occasional lean streaks fair to good values throughout. Low specific gravity.
408.0	409.0	1.0	Marlstone, light brown to brown higher specific gravities than above.
409.0	411.0	2.0	Blue beds with occasional leaner streaks especially in top portion.
411.0	414.5	3.5	Marlstone, light brown to brown, laminations, fairly uniform distribution of values.

<u>From</u>	<u>To</u>	<u>Feet</u>	
414.5	415.5	1.0	Blue bed with numerous laminations with satiny lustre, fair to good values throughout, occasional interbeds of leaner marlstones.
415.5	419.0	3.5	Marlstone, common brown to occasional dark brown, highly laminated.
419.0	422.0	3.0	Marlstone, as above with occasional very dark brown streaks, overall value appears to be higher than unit last above.
422.0	424.0	2.0	Marlstone, light brown to brown, laminations, contains several very thin analcites.
424.0	425.0	1.0	Blue bed, fair value, occasional very dark streak, overall coloring dark brown.
425.0	429.5	4.5	Marlstone, light brown to brown, rare dark brown, highly laminated, overall value low.
429.5	430.5	1.0	Marlstone, brown with occasional interbeds of blue beds and analcite stringers.
430.5	435.0	4.5	Marlstone, light brown to occasional brown, fine laminations.
435.0	441.5	6.5	Marlstone, brown to occasional dark brown, laminated to somewhat massive in darker colors, contains thin analcite stringers.
441.5	446.5	5.0	Marlstone, light brown to brown, fine laminations.
446.5	447.0	0.5	Blue bed, lower grade, contains thin analcite at base.
447.0	451.5	4.5	Marlstone, very light brown to brown, generally fine laminations uneven color distribution throughout, locally whitish.
451.5	453.0	1.5	Marlstone, brown to dark brown, very fine laminations throughout, abundant dark laminations in a 0.2 ft streak in middle portion.
453.0	453.5	0.5	Marlstone, light gray to light brown, somewhat massive to laminated.
453.5	454.0	0.5	Analcite bed (good marker) somewhat oil saturated medium-grained texture. Not assayed.
454.0	455.0	1.0	Marlstone, gray, light brown to brown, laminations, general color distribution uneven.
455.0	456.5	1.5	Blue bed, lower grade, highly altered (cork-like) appearance in upper middle portion, grades downward to lower values, occasional laminations with satiny lustre.

Lithologic Description of
General Petroleum Corporation's Oil Shale Corehole 37-4

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<u>From</u>	<u>To</u>	<u>Feet</u>	
456.5	459.5	3.0	Marlstone, gray, light brown to brown, fine laminations, overall coloring becomes darker towards base.
459.5	461.0	1.5	Blue bed, lower grade, grades into leaner values in top portion, highly altered locally with cork-like appearance.
461.0	466.0	5.0	Marlstone, light brown to gray, laminations, overall coloring is very light brown with whitish cast locally.
466.0	467.0	1.0	Blue beds with interbeds of leaner marlstone, brown to dark brown.
467.0	468.5	1.5	Sandstone, tuffaceous, gray, medium to coarse, (lower wavy bed) no oil saturation apparent. Not assayed. A
468.5	469.0	0.5	Blue bed with occasional leaner marlstone streaks.
469.0	471.0	2.0	Marlstone, light brown to brown laminations. Occasional analcite stringers.
471.0	479.0	8.0	Marlstone, light brown to brown with whitish cast locally, laminations, uneven color distribution.
479.0	481.5	2.5	Marlstone, as above with grey cast, overall coloring is darker, very fine blue-gray laminations throughout.
481.5	486.3	4.8	Rec. 3 ft. Marlstone, as above, but overall color is somewhat lighter. Fine laminations to somewhat massive locally.
486.3	TD		

Described by:

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3/27/58