

Generalized Core Description

Getty Core Hole No. 6 - Section 33 T-5-S R-97-W Ground elevation
 Garfield County, Colo. 2004' from south line 8268'
 1688' from west line

Drill 0 to 420' Date commenced: October 7, 1963
 Core 420' to 788' TD. Date completed: October 11, 1963

- 420 - 422.6 Horizontal banded cream and tan marlstone.
 - 422.6 - 424.2 Black to brown banded marlstone.
 - 424.2 - 442 Brown marlstone, bands of calcite?
 - 442 - 447.9 Cream marlstone, vertical fracture.
 - 447.9 - 451.8 Brown to black marlstone.
 - 451.8 - 453 Tan marlstone.
 - 453 - 453.6 Brown to tan, silty marlstone, vuggy.
 - 453.6 - 460 Brown marlstone, dark brown at top.
 - 460 - 467 Brown to black banded marlstone.
 - 467 - 470 Brown marlstone.
 - 470 - 480 Black to brown banded marlstone.
 - 480 - 486 Tan to brown marlstone.
 - 486 - 499 Dark brown to black marlstone.
 - 499 - 522 Brown marlstone banded w/ black marlstone.
 - 522 - 527 Tan marlstone.
 - 527 - 531 Dark brown to black marlstone, 2" of calcite? at 529.6.
 - 531 - 542.2 Brown to tan marlstone, vertical fracture filled w/ pyrite and calcite?
 - 542.2 - 544 Black marlstone.
 - 544 - 550.3 Brown marlstone.
 - 550.3 - 551.2 Black & brown marlstone.
 - 551.2 - 557 Brown marlstone.
 - 557 - 558.6 Black marlstone.
 - 558.6 - 562.8 Brown marlstone.
 - 562.8 - 564.7 Black marlstone.
 - 564.7 - 568 Brown marlstone.
 - 568 - 571 Horizontal banded cream to tan marlstone.
 - 571 - 583.5 Brown marlstone.
 - 583.5 - 583.6 Brown tuff.
 - 583.6 - 585 Brown marlstone.
 - 585 - 585.1 Brown tuff.
 - 585.1 - 589 Dark brown marlstone.
 - 589 - 605.5 Brown marlstone w/ irregular bands and streaks of calcite?
 - 605.5 - 624 Dark brown marlstone, 2" calcite? w/ asphalt at 617.
 - 624 - 626.4 Tan marlstone.
 - 626.4 - 635 Brown marlstone.
 - 635 - 638 Tan marlstone, mineralized streaks (calcite?) and asphalt.
 - 638 - 660 Brown marlstone w/ dark bands, solid.
 - 660 - 666.7 Brown and tan laminated marlstone.
 - 666.7 - 668 Brown marlstone.
 - 668 - 669.1 Black marlstone.
 - 669.1 - 675.4 Brown to dark brown marlstone.
 - 675.4 - 676 Black marlstone.
 - 676 - 679 Brown marlstone.
 - 679 - 679.5 Black marlstone, open fracture lined w/ calcite?
 - 679.5 - 696 Cream and tan laminated marlstone.
- XXXXXXXXXX

696	- 697.3	Tan marlstone w/ mineralized (calcite?) streaks.	8268
• 697.3	- 697.6	Tan tuff. Mahogany marker	697
697.6	- 698	Brown and tan banded marlstone.	plus 7571
698	- 698.2	Tan tuff.	
698.2	- 701	Brown and tan banded marlstone.	
701	- 703	Black marlstone.	
703	- 710.1	Brown marlstone, asphalt or gilsonite on bedding planes.	
710.1	- 710.9	Brown tuff, appears sandy and wet.	
710.9	- 714	Tan marlstone, oblique bedding planes.	
714	- 717	Black marlstone, oblique bedding planes, light weight.	
717	- 724	Brown marlstone w/ tan bands, leached zones w/ calcite?	
724	- 729	Black marlstone.	
729	- 729.1	Tuff, brown, vuggy, asphaltic.	
729.1	- 732	Brown marlstone, horizontal laminated w/ tan.	
732	- 733	Dark brown & black marlstone.	
733	- 734.8	Tan marlstone w/ fracture and leached streaks.	
734.8	- 739.4	Brown marlstone.	
739.4	- 741.6	Tan marlstone.	
741.6	- 742.3	Black marlstone.	
742.3	- 745.6	Tan marlstone.	
745.6	- 747.8	Black marlstone, oblique bedding planes, mineralized bands.	
747.8	- 752.8	Brown marlstone, asphalt on bedding planes.	
752.8	- 754	Brown, wavy banded marlstone, asphalt.	
754	- 762.3	Tan marlstone, asphalt on bedding planes.	
762.3	- 762.4	Asphaltic tuff?	
762.4	- 763.5	Black marlstone.	
763.5	- 767	Tan marlstone w/ brown bands.	
767	- 768	Tan, silty marlstone.	
768	- 768.1	Gray, very fine grain sandstone, hard.	
768.1	- 773	Tan marlstone.	
773	- 773.8	Black marlstone.	
773.8	- 776.7	Tan marlstone.	
776.7	- 780	Brown marlstone, wavy and oblique bedding.	
780	- 780.4	Tan marlstone.	
780.4	- 780.5	Tan tuff.	
780.5	- 786.2	Tan to brown marlstone. very vuggy, asphalt on bedding planes.	
786.2	- 786.3	Brown tuff.	
786.3	- 788	Tan to brown marlstone, vuggy.	

788' Total depth.

LITHOLOGIC DESCRIPTIONS

GETTY OIL CO. #6-D
NW $\frac{1}{4}$, SW $\frac{1}{4}$, SEC 33, T5S, R97W, GARFIELD COUNTY, COLORADO

CORE DESCRIPTION

791.0 - 793.9

Siltstone - light brownish gray to light buff; earthy to chalky luster; some minor laminations lower section, predominantly banded; highly fractured with bitumen and pyrite coated surfaces; some pieces bleeding bitumen when removed from hole; rare solution cavities along fracture surfaces. Entire section highly broken up. 793.9 - 794.5 missing.

794.5 - 797.9

Siltstone - light brownish gray; earthy luster; massive with common pyritic stringers throughout; highly fractured and broken; common bitumen coated fracture surfaces.

797.9 - 798.95

Siltstone/mudstone - gray to light brownish gray; chalky to earthy luster; predominantly massive with some banding upper part; some solution cavities top of section in tuff layer; highly fractured with bitumen coated surfaces.

798.95- 802.5

Mudstone - light gray to light brownish gray; earthy luster; finely laminated with common oil shale laminae; rare solution cavities with some bitumen and bitumen odor at 801.0; highly fractured and broken with numerous microfractures. 802.5 - 802.75 missing.

802.75- 804.9

Mudstone - light brownish gray to buff; earthy with rare satiny luster; laminated with rare banding, some kerogen bearing

- laminae present; some minor solution cavities with pyrite.
- 804.9 - 805.9 Mudstone - gray to light brownish gray; chalky to earthy luster; massive with some banding; common solution cavities.
- 805.9 - 810.2 Oil shale - medium to dark brownish gray; satiny with rare waxy luster; laminated with rare distorted bedding to 806.5; common calcitic veinlets lower 0.5 foot.
- 810.2 - 811.8 Oil shale - light to medium brownish gray; earthy to satiny luster; laminated with numerous calcite stringers throughout interval, rare loop structures in lower portion.
- 811.8 - 817.0 Oil shale - light to medium brownish gray; earthy with rare satiny luster; laminated with calcitic stringers 814.0 - 817.0; tuff layers at top of interval and 814.0 (analctized); bedding distorted by lens of tuff at 814.6; tuff at 816.1. 817.0 - 817.25 missing.
- 817.25- 820.0 Oil shale - light to medium brownish gray; earthy luster; laminated; altered tuff at 819.2; some minor fractures lower section.
- 820.0 - 823.9 Oil shale and mudstone - light brownish gray to gray; earthy luster; laminated, with calcitic stringers throughout; minor fracture at 820.7; thin tuff layer at 821.2.
- 823.9 - 827.4 Oil shale - medium to dark brownish gray; earthy with rare satiny luster; laminated, with some calcitic stringers; distorted bedding at top of section with minor slump features; tuff (analctized) at 826.3.
- 827.4 - 833.4 Oil shale and mudstone - gray to light brownish gray; earthy luster; laminated with some distorted bedding at 830.7, some calcitic stringers; dark gray tuff at 830.0; rare tuff layers throughout interval.
- 833.4 - 837.45 Oil shale - medium to dark brownish gray; earthy to satiny luster; laminated with

- common loop structures and some distorted laminations.
- 837.45- 843.3 Oil shale - gray to light brownish gray with rare medium brownish gray; earthy luster; laminated with rare loop structures and distorted bedding; calcite filled, near vertical fracture from 838.0 to 840.0; tuff layer at top of interval.
- 843.3 - 847.0 Oil shale - medium to dark brownish gray; satiny with rare resinous luster; laminated with common streaked bedding, loop structures and distorted bedding; shaly parting at 845.0; tuff at 844.2 and 844.6.
- 847.0 - 849.0 Oil shale - light, medium and dark brownish gray; earthy with some satiny luster; laminated with common streaked bedding and loop structures; rare tuff stringers throughout interval.
- 849.0 - 850.3 Oil shale - medium to dark brownish gray; satiny with rare vitreous luster; laminated with rare contorted bedding and loop structures; rare blebs of pyrite at lower end.
- 850.3 - 854.5 Oil shale - light to medium brownish gray with some dark brownish gray; earthy with rare satiny luster; laminated with rare loop structures at lower end of interval; rare calcite stringers throughout interval.
- 854.5 - 858.7 Oil shale - light brownish gray with some medium brownish gray; earthy luster; laminated with rare tuff and pyrite stringers throughout interval.
- 858.7 - 864.5 Mudstone - buff to light brownish gray; earthy luster; laminated with oil shale laminae throughout, rare portions of oil shale less than 0.1 inch; some calcitic stringers with rare pyritic blebs upper portion; some microfracturing lower portion.
- 864.5 - 867.9 Oil shale - medium to dark brownish gray with some brownish black; earthy with some satiny luster; laminated with some loop structures and contorted bedding; highly ground up top of interval; tuff layer at 867.0.

- 867.9 - 874.4 Oil shale and marlstone - buff to light brownish gray; earthy luster; laminated with some rich laminae, some streaked bedding and loop structures; shaly parting at 872.2.
- 874.4 - 879.0 Oil shale - medium to dark brownish gray; earthy with rare satiny luster; laminated with some streaked bedding and loop structure, rare shaly parting at 874.7.
- 879.0 - 887.3 Oil shale and mudstone to dolomitic mudstone - buff to medium brownish gray with rare dark brownish gray; earthy luster; laminated with rare loop structures in oil-rich laminae, some kerogen-rich sections greater than 0.1 inch lower portion; rare tuff stringers throughout interval.
- 887.3 - 889.2 Oil shale - light to medium brownish gray; earthy luster; laminated with common pyritic stringers; tuff layer at 887.5; vertical fracture throughout with some associated microfractures.
- 889.2 - 897.3 Oil shale (marlstone) - light to medium brownish gray; earthy luster; laminated with common pyritic stringers throughout; some loop structures and streaked bedding; vertical fracturing 892.0 - 894.0.
- 897.3 - 901.75 Oil shale - medium to dark brownish gray; earthy luster; laminated with some pyritic blebs and stringers, some loop structures and streaked bedding.
- 901.75- 907.75 Oil shale - light to medium brownish gray; earthy luster; laminated with rare looped bedding upper portion; vertical fracturing 902.0 - 904.0, common calcite-filled bedding fractures throughout; rare pyritic stringers throughout.
- 907.75- 911.5 Oil shale - medium to dark brownish gray; earthy with rare satiny luster; laminated with common loop structures and streaked bedding.
- 911.5 - 917.2 Oil shale and mudstone - light brownish gray with some medium brownish gray; laminated with some loop structures and

- contorted bedding; some solution vugs
916.0 - 917.0.
- 917.2 - 928.8 Oil shale - medium to dark brownish gray; earthy luster; laminated with rare banding; common loop structures, streaked and distorted bedding; rare pyritic and tuff stringers throughout.
- 928.8 - 940.3 Oil shale with some mudstone - medium to dark brownish gray; earthy luster; laminated with rare banding, common loop structures; streaked and contorted bedding; rare pyritic stringers throughout; pyrite blebs at 929.0. 933.3 - 933.8 Compressive Strength Sample.
- 940.3 - 947.6 Marlstone and siltstone - medium brownish gray; earthy luster; laminated with some kerogen-rich laminae, rare looped structures and contorted bedding; rare pyritic stringers; solution vugs 944.0 - 945.0.
- 947.6 - 954.0 Siltstone and mudstone - medium brownish gray with some light brownish gray; earthy luster; laminated to banded with some kerogen-rich laminae throughout, common looped structures, contorted and streaked bedding.
- 954.0 - 954.7 Oil shale - medium to dark brownish gray; satiny luster; laminated.
- 954.7 - 967.75 Siltstone and mudstone - light to medium brownish gray with rare dark brownish gray; earthy luster; laminated with rare banding, rare kerogen-rich laminae, common streaked and distorted bedding; some pyritic stringers throughout; gray analcitized tuff with rare pyrite at 959.5. 961.3 - 961.9 Compressive Strength Sample.
- 967.75- 971.6 Siltstone - light brownish gray; chalky to earthy luster; banded with some lamination, vertical fracture with broken core throughout; rare solution cavities lower portion.
- 971.6 - 977.8 Mudstone - gray to light brownish gray with rare medium brownish gray; earthy luster; banded with common lamination; rare pyritic stringers throughout; analcitized tuff at 975.7.

977.8 - 986.0

Mudstone - light to medium brownish gray; earthy luster; laminated to banded with some streaked and contorted bedding; some pyritic stringers throughout; rare high angle fractures throughout.

986.0 - 990.55

Sandstone - gray to steel gray; earthy luster; laminated to massive with common streaked and contorted bedding; entire interval is calcareous.

TOTAL DEPTH