

SAMPLE/CORE DESCRIPTION

Hole No. Cole Gulch #1A
 Location SW, SW, SW of Sec. 11 - T1S - R97W
 County and State Rio Blanco Co., Colorado
 Elev. KB 6000' TD 2358.2
 Spud 4/14/81 Compl. 6/4/81
 Examined by J. Hartley and Crea McMullin

From	To	
	530.0	Core Point
530.0	531.5	Siltstone; light gray, faintly wavy to nearly massive, fair competence; abundant small asphalt flakes and streaks; few Marlstone blebs and streaks; trace oil shale streaks; few light blue gray analcitized tuff blebs; <u>solution vugs</u> common from 530.3-531.5; silty-moderately calcareous.
531.5	533.9	Marlstone; light brown-tan, even bedding, poor to fair competence; trace thin very low grade oil shale stringers; from 532.7-532.9 a band of gray brown siltstone with massive bedding; asphalt flakes and streaks common; <u>solution vugs</u> common; white-buff tuff bleb at 532.9.
533.9	536.2	Oil Shale, light olive brown, streaked-even bedding, poor-fair competence, very low grade; trace asphalt streaks; light blue-gray granular analcitized tuff stringer at 534.2, 534.4 and 534.5; 0.5 band of dark olive brown high grade oil shale at 534.7 with streaked bedding; gradational contact.
536.2	538.1	Oil Shale, light-medium olive brown, streaked bedding, fair competence, low-medium grade; trace asphalt streaks; trace light blue-gray granular analcitized tuff streaks and stringers; gradational contact.
538.1	539.8	Oil Shale, medium olive brown, streaked with trace looped bedding, fair competence, medium grade; trace very thin marlstone stringers; trace light blue-gray analcitized tuff streaks; gradational contact.
539.8	544.4	Oil Shale, light-medium olive brown, streaked bedding, fair competence, low to medium grade; trace asphalt streaks and flakes; trace white-buff tuff streaks and blebs; 0.5 zone of wavy white-light blue tuff at 543.1; white-light blue tuff stringer and blebs at 543.7 and 543.9.
544.4	544.8	Siltstone with oil shale intermixed, light brown-gray, massive with streaked bedding, good competence; asphalt streaks common; trace white tuff streaks and blebs.
544.8	545.0	Tuff, white and light blue-gray, wavy with looped bedding, few interbedded very thin light olive brown low grade oil shale stringers.

From	To	
545.0	548.8	Oil Shale, light-medium olive brown, streaked bedding, fair competence, low-medium grade; few asphalt streaks and stringers, light blue-gray analcitized tuff streaks, stringers and blebs, trace marlstone streaks; 0.2' band of medium olive brown grade oil shale with marlstone streaks and stringers at 547.5.
548.8	550.9	Oil Shale and Tuff interbedded; Oil Shale, light-medium olive brown, streaked bedding, fair competence, low-medium grade; Tuff, dark brown, wavy-irregular bedding, fair competence, asphalt; scattered asphalt streaks; Tuff, light blue-gray, granular, analcitized, .05 bands and large circular blebs.
550.9	552.8	Oil Shale, medium olive brown, even bedding, poor-fair competence, medium grade; abundant thin light brown-buff granular tuff streaks; trace streaked bedding; trace marlstone bands; 0.5 core loss from 551.2-551.7.
552.8	554.0	Siltstone, light brownish gray, massive with trace irregular bedding, poor-fair competence; slightly calcareous; asphalt flakes common; tan marlstone bleb at 553.5; .05 zone with abundant medium brown oil shale stringers at 553.8.
554.0	556.2	Oil Shale, light-medium olive brown, even-streaked bedding, poor-fair competence, low-medium grade; light brown granular tuff streaks and blebs common.
556.2	558.2	Oil Shale with abundant marlstone stringers and lamina, light-medium olive brown with tan, even and irregular with trace looped bedding, poor competence, very low grade; from 557.0-557.7 are several light gray, slightly calcareous, irregular siltstone stringers.
558.2	559.8	Siltstone, light brownish gray, massive bedding, very poor-poor competence, moderately calcareous, asphalt flakes common.
559.8	563.0	Oil Shale, light-medium olive brown, even bedding, poor-fair competence, low-medium grade; trace gilsonite streaks; buff, very thin, tuff streaks common; .10 zone with several tan marlstone stringers at 559.8.
563.0	564.2	Siltstone, light brownish gray, massive bedding, poor-fair competence; slightly calcareous; asphalt flakes common.
564.2	568.0	Oil Shale, medium olive brown, even-streaked bedding, fair competence, low-medium grade; from 564.4-564.9 are several light blue gray, analcitized and light brown asphalt tuff stringers; light brownish gray, thin granular tuff streaks common; few asphalt streaks and blebs; .20 zone of medium-dark olive brown, medium-high grade oil shale at 567.2; .05 light brown asphalt tuff pod at 567.8.
568.0	569.0	Tuff, with abundant oil shale stringers, light-medium gray brown, wavy bedding, good competence, low grade with asphalt tuff.

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569.0	578.3	Oil Shale, light-medium olive brown, even bedding, poor competence, low-medium grade; abundant light blue gray analcitized and light brown granular tuff streaks and stringers; trace gilsonite streaks; .30 band of medium brown asphalt tuff at 570.5; from 572.7-573.5 are abundant light gray brown moderately calcareous, very low grade, silty oil shale stringers; 0.3 core loss from 573.2-573.5; 0.30 zone of light brown-gray very calcareous massive siltstone at 547.9; several dark brown asphalt tuff stringers; light blue-gray irregular analcitized tuff stringer at 576.0; from 576.0-577.6 grades to light olive brown, low grade oil shale; from 577.6-578.3 light gray moderately calcareous siltstone with medium olive brown oil shale stringers; dark green-gray irregular pyrite patch at 578.1.
578.3	582.2	Oil Shale, light-medium olive brown, even with trace streaked and irregular bedding, poor-fair competence, low-medium grade; several dark brown asphalt streaks from 579.4-579.8; abundant light brown very calcareous siltstone and buff marlstone stringers, streaks and lamina; trace gilsonite; from 581.8-582.2 zone of <u>abundant leached vugs with kaolinite and pyrite coating.</u>
582.2	583.5	Tuff with oil shale and siltstone stringers; light olive brown-light gray-brown, fair competence, very low grade; trace gilsonite from 583.1-583.5, massive medium brown with light gray granular tuff.
583.5	586.3	Oil Shale, light-medium olive brown, even with faint streaked bedding, poor-fair competence, low-medium grade; abundant light brown granular tuff blebs and streaks; trace gilsonite; few dark brown asphalt tuff streaks.
586.3	591.4	Tuff, light brown-gray, wavy-irregular bedding, poor-fair competence; abundant medium olive brown oil shale streaks; asphalt; trace gilsonite; abundant buff-white analcitized tuff streaks; asphalt flakes common; from 589.4-590.7 a light gray-brown marly, brittle very low grade oil shale band; sharply defined upper and lower contact.
591.4	608.9	Oil Shale, light-medium olive brown, even with faint streaked bedding, fair-good competence, low-medium grade; several buff granular tuff streaks and lamina; a 0.03 band of medium olive brown medium-high grade oil shale at 594.0; light brown granular tuff bands at 595.5, 598.5, 606.7 and 607.4; from 603.2-604.1 pinpoint pyrite and pyrite streaks common; trace gilsonite; few scattered zones of dark gray pyrite streaks; gradational contact.
508.9	609.9	Oil Shale, light gray brown, even and wavy bedding, very low grade, marly, trace gilsonite streaks; fair-good competence; gradational contact.

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09.9	612.8	Oil Shale, medium olive brown with dark gray brown banding, even with irregular and trace streaked bedding, fair competence, medium to high grade; several dark gray pyrite streaks and blebs, gilsonite streak at 611.0, several scattered zones with abundant light brown granular tuff streaks and blebs; evidence collapsed leached nahcolite 0.30 zone at 611.5; trace gilsonite streaks; light gray analcitized tuff staining at 612.3.
12.8	618.3	Oil Shale, light-medium olive brown, even with faint streaked bedding, fair competence, low-medium grade; several light brown granular and light blue-gray analcitized tuff streaks and blebs; trace gilsonite streaks; few pyrite streaks; 0.10 dark brown band of light blue-gray asphalt and analcitized tuff band at 616.7.
18.3	620.4	Oil Shale, light olive brown, even bedding, poor competence, low grade; slightly marly.
20.4	623.6	Marlstone, light-medium brown-gray with buff, even with nearly massive bedding, poor competence; trace kerogen; from 622.3-623.6 several dark olive brown oil shale stringers; 1.0 core loss from 621.3-622.3; very brittle and broken.
23.6	628.2	Oil Shale, light-medium olive brown, even with abundant offset bedding, very poor to poor competence, low grade, few slightly marly zones; abundant evidence of collapsed leached nahcolite; light blue-gray analcitized irregular tuff stringer at 624.9; 0.6 core loss from 626.2-626.8; gradational contact.
28.2	630.8	Oil Shale, medium olive brown, even with trace looped bedding, poor-fair competence, medium grade; trace light brown tuff blebs; few 0.1 bands of dark olive brown medium-high grade oil shale; evidence of collapsed leached nahcolite at 628.3; gradational contact.
30.8	637.4	Oil Shale, light olive brown, streaked with trace looped bedding, fair competence, low grade; light brown tuff bands, stringers, and streaks common; trace gilsonite stringers; from 635.0-637.4 are light blue gray analcitized and light brown granular tuff blebs, streaks, and stringers; trace contorted bedding at 636.9.
37.4	645.1	Tuff, medium brown, massive bedding, poor competence; slightly asphaltic; asphalt flakes common; 0.1 bands of light olive brown, marly low grade oil shale at 637.9, 644.2, 644.7, and 645.0; several scattered zones of pyrite streaks; from 642.0-642.8 looped and contorted bedding; several scattered zones of abundant analcitized tuff lamina and stringers.
45.1	647.2	Oil Shale, light olive brown with medium olive brown banding, even bedding, poor-fair competence, low grade; from 645.1-645.4 light brown granular analcitized tuff streaks and lamina common; trace gilsonite streaks; trace faint streaked bedding.

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47.2	651.5	Oil Shale, medium olive brown, even with trace faint streaked and irregular bedding, fair competence, medium grade; abundant irregular asphalt and pyrite streaks; few thin tuff streaks, stringers, and blebs.
51.5	654.3	Oil Shale, light gray brown to light olive brown, even and wavy with trace streaked bedding, poor competence, very low grade; medium brown massive tuff stringers from 651.5-651.9, .10 band at 651.9 and from 652.2-652.6; 0.20 zone of medium olive brown, medium grade, oil shale at 653.0; from 653.3-654.3 light olive brown-tan marly, brittle, very low grade oil shale with evidence collapsed leached nahcolite; gradational contact.
54.3	656.1	Tuff, medium brown, streaked to wavy bedding, good competence, slightly asphaltic; 0.20 zone with several irregular radiated pyrite streaks at 654.7; abundant dark brown asphaltic streaks and blebs; 0.25 zone at 655.9 with abundant white calcite blebs.
56.1	665.0	Oil Shale, light-medium olive brown, even bedding, poor-fair competence, low-medium grade; trace gilsonite streaks; abundant light brown granular analcitized tuff blebs and streaks from 657.9-659.9; 0.20 zone of medium olive brown, medium grade, oil shale with streaked bedding at 658.8; from 659.9-660.5 light gray brown granular tuff stringers and bands common; trace pyrite streaks; trace asphalt streaks; gradational contact.
55.0	674.5	Oil Shale, medium gray brown-medium olive brown, even bedding, poor competence, medium grade; few light brown tuff blebs and stringers; trace irregular bedding; gradational contact.
74.5	691.4	Oil Shale, light-medium olive brown, even bedding, poor-fair competence, low-medium grade; trace gilsonite streaks; few buff granular tuff streaks; 1.9 core loss from 679.8-681.7; 0.8 core loss from 683.7-684.5; 1.2 core loss from 688.3-689.5; gilsonite streaks at 686.4; gradational contact.
91.4	697.0	Oil Shale, light olive brown, even with wavy bedding, fair-good competence; very low-low grade; slightly marly; few light brown granular and light gray analcitized tuff blebs, streaks, and stringers; trace gilsonite streaks.
97.0	698.2	Siltstone, light-medium gray brown, massive bedding, excellent competence; moderately calcareous; dark brown small asphalt flakes common.
98.2	702.6	Oil Shale, light olive brown, even bedding, fair-good competence, low grade; few buff tuff blebs; .20 zone with abundant partly collapsed leached nahcolite with abundant asphalt and kaolinite filling at 702.1.

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02.6	709.8	Oil Shale, light olive brown and medium olive brown banded, even bedding, fair-good competence, medium grade; few dark brown asphalt tuff streaks and blebs; .05 buff marlstone stringer at 705.0; trace gilsonite; several thin light brown granular tuff streaks and lamina; gradational contact.
09.8	717.2	Oil Shale, light olive brown, even with trace irregular bedding, good competence, low-medium grade; buff granular tuff blebs and streaks common; trace gilsonite streaks.
17.2	718.6	Oil Shale, medium-dark olive brown, even with trace looped bedding, good-excellent competence, medium-high grade; buff granular tuff streaks and stringers common; partly leached kaolinite filled vugs at 718.4; trace gilsonite streaks.
18.6	725.9	Oil Shale, light gray brown-light olive brown and medium olive brown banded, even with trace looped bedding, good-excellent competence, low-medium grade; buff and light gray granular tuff streaks; stringers common; trace gilsonite streaks.
25.9	726.7	Oil Shale, light-medium olive brown, even with looped bedding, excellent competence, low grade; buff granular tuff streaks, stringers, and blebs common; abundant light blue gray analcitized tuff streaks & and blebs; trace gilsonite streaks.
26.7	731.2	Siltstone, light gray brown, massive with trace wavy bedding, fair to good competence, moderately calcareous; medium olive brown, medium grade oil shale streaks and stringers common; buff and light blue gray granular analcitized tuff streaks, stringers, and blebs common; .2 band of light olive brown low grade oil shale at 730.2; .5 band of medium-dark gray brown siltstone with trace kerogen at 726.9; trace gilsonite streaks.
31.2	733.9	Oil Shale, light-medium olive brown, even with trace looped bedding, fair-good competence, low-medium grade; tan and light blue gray granular analcitized tuff streaks, stringers, and blebs common; .5 zone of light gray brown, moderately calcareous, siltstone with massive bedding at 732.7; trace gilsonite streaks.
33.9	735.7	Oil Shale, dark olive brown and light-medium olive brown, streaked, looped, and finely laminated bedding, excellent competence, medium grade; buff and light gray analcitized tuff stringers and blebs common; buff marly streaks and blebs common; .2 band of light gray, massive bedding, moderately calcareous siltstone at 735.5; trace gilsonite streaks; partly leached vug with kaolinite filling at 735.7.
35.7	739.4	Oil Shale, light-medium olive brown, even with looped bedding, good-excellent competence, low grade; light brown and light gray granular analcitized tuff streaks, stringers, and blebs common; .4 zone of buff marlstone with looped bedding at 736.8; .4 zone of moderately calcareous massive siltstone with light olive brown low grade oil shale streaks and stringers at 737.5; trace gilsonite streaks.

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39.4	744.8	Siltstone, light-medium gray brown, massive with trace streaked and looped bedding, good-excellent competence, moderately calcareous; medium olive brown and light olive brown, low-medium grade oil shale streaks, stringers, and blebs common; gilsonite streaks common; tan and light blue gray granular analcitized tuff streaks, stringers, and blebs common; .3 zone of medium-dark olive brown even bedded medium grade oil shale at 742.6.
44.8	747.6	Oil Shale, light olive brown and medium olive brown banded, even bedding inclined at 5° with trace looped, excellent competence, medium grade; trace gilsonite streaks; trace blue gray granular analcitized tuff blebs; gradational contact.
47.6	750.9	Oil Shale, light gray brown to light olive brown, even bedding inclined at 5°, fair-good competence, low-medium grade; light blue gray granular analcitized tuff stringers and blebs common; trace marly blebs; trace gilsonite streaks.
50.9	753.4	Oil Shale, dark olive brown and medium olive brown banded, even with trace looped bedding, good competence, medium grade; dark gray granular tuff stringer at 752.1; brown granular tuff stringer with partially leached vugs common at 752.4; .1 band of light gray brown tuff with gilsonite streaks at 752.8; light brown-buff marly streaks common; gradational contact. Top A Groove at 753.4.
53.4	756.2	Oil Shale, light-medium olive brown-gray, even with trace looped bedding, good competence, low grade; light brown-gray siltstone stringer at 753.9; trace gilsonite streaks.
56.2	764.7	Oil Shale, very light olive brown, even bedding, poor competence, marly, very low grade; light brown and light blue-gray analcitized tuff stringers and streaks common; trace gilsonite streaks; a 0.3 band of medium brown massive siltstone with thin band low grade oil shale at 760.3; a 0.3 band of light brown massive siltstone with leached vugs at 762.4.
54.7	773.0	Marlstone, light brown gray, even bedding, poor-fair competence; trace gilsonite stringers and blebs; trace buff tuff stringers; a 0.3 band of light-medium gray, massive moderately calcareous, siltstone with massive bedding at 766.1 with few partially leached vugs; from 767.4-769.0 partially leached very small vugs, some with kaolinite filling; core loss from 769.0-770.0; trace light blue-gray analcitized tuff stringers, streaks, and blebs.
73.0	775.6	Oil Shale, light olive brown-gray, even with trace wavy bedding, poor competence, very low-low grade; trace asphalt streaks, trace buff marly stringers; trace tan tuff streaks and stringers; few partially leached vugs from 775.1-775.5.
75.6	778.8	Oil Shale, medium olive brown, wavy and looped bedding, poor-fair competence, low-medium grade; abundant light brown and light blue-gray tuff streaks, stringers, and blebs with wavy bedding; asphalt streaks and blebs common; a 0.3 band of light brown partially leached tuff with wavy bedding and tan marlstone at 777.5

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778.8	783.6	Oil Shale, light olive brown, wavy and looped with trace even bedding, good-excellent competence, very low-low grade; light blue-gray granular analcitized tuff streaks, stringers, and blebs common; trace asphalt streaks; a 0.25 band of light brown, partially leached asphalt tuff with wavy bedding at 779.6; a 0.15 band of medium-gray brown partially leached massive tuff at 780.6; a 0.35 band of tan pyrite, partially tuff at 782.5.
783.6	785.9	Oil Shale, medium olive and light olive brown band, even with looped bedding, excellent competence, low-medium grade; abundant light blue-gray granular analcitized tuff blebs and stringers; a 0.2 zone of light blue-gray granular analcitized tuff blebs at 784.2; a 0.05 stringer at 784.7 and a 0.2 band at 785.7.
785.9	788.6	Oil Shale, dark olive brown-dark mahogany brown, even with trace looped bedding, excellent competence, high-very high grade; few buff-light gray tuff stringers; few light blue-gray granular analcitized tuff blebs and streaks; gradational contact.
788.6	791.7	Oil Shale, medium-dark olive brown, even with trace looped and streaked bedding, fair-good competence, medium-high grade; trace gilsonite streaks and stringers; trace marlstone lamina; a light blue-gray analcitized tuff stringer with partially leached vugs at 788.8; a medium brown tuff blebs and stringers at 789.5 and 790.6.
791.7	794.4	Oil Shale, very dark mahogany brown, even with trace looped bedding, very poor competence, very high grade; light gray-brown, leached tuff with poor competence and wavy bedding at 792.4 and 792.6.
794.4	802.0	Oil Shale, light-medium olive brown, even with streaked bedding, poor to fair competence, medium grade; trace gilsonite streaks; trace buff tuff blebs and lamina; from 794.4-795.7 a dark mahogany brown and medium brown and medium olive brown oil shale bands, with good competence and medium-high grade; 0.15 zone of buff-light brown partially leached tuff stringers with inclined bedding .05°; 0.4 zone of medium gray tuff with massive and streaked bedding and numerous medium olive brown oil shale stringers at 798.7; a 0.4 core loss from 800.3-800.7; gradational contact.
802.0	805.0	Oil Shale, dark olive brown and medium olive brown lamina, even with trace looped bedding, poor-fair competence, medium grade; trace buff tuff streaks; trace gilsonite streaks.
805.0	810.0	Oil Shale, light-medium olive brown, even with looped bedding, poor competence, low-medium grade trace gilsonite stringers, blebs, and flakes; trace buff tuff stringers; trace light blue-gray granular analcitized tuff blebs and stringers; 0.05 stringer of medium gray granular analcitized tuff with partially leached vugs at 807.1; 0.1 tuff of medium gray tuff with massive bedding at 808.1; .15 zone light blue gray granular analcitized tuff blebs and stringers at 809.3; 0.3 band of medium brown gray, massive tuff with numerous medium olive brown gray oil shale streaks and lamina at 809.5.

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310.0	810.9	Tuff, light-medium blue-gray, massive with wavy bedding, poor-fair competence; abundant light olive brown low grade oil shale stringers and streaks with wavy bedding from 810.0-810.2; from 810.5-810.8 tuff is granular and kaolinitic.
810.9	816.8	Oil Shale, light olive brown-gray; even and looped with trace streaked bedding, low grade; trace gilsonite streaks and blebs; trace light gray tuff blebs; from 811.3-811.5 oil shale has wavy and contorted bedding with partly leached vugs filled with calcite and pyrite; a 0.15 band of medium brown-gray tuff with massive bedding at 812.2 and a 0.10 band at 812.4; a 0.1 band of medium brown granular partially leached tuff at 813.8; a light blue-gray granular analcitized tuff bleb at 816.7.
316.8	819.1	Oil Shale, light olive brown and medium olive brown banded; even with trace looped and streaked bedding, good competence, low-medium grade; trace buff tuff stringers and blebs; a 0.3 band of medium brown-gray tuff with massive bedding and asphalt streaks and stringers at 817.6; 0.02 band of dark olive brown high grade oil shale with even bedding at 818.2; a 0.075 band of medium blue-gray granular analcitized tuff with wavy bedding at 818.8.
319.1	820.3	Oil Shale, very dark mahogany brown, wavy and inclined bedding at 15°, poor competence, very high grade.
320.3	823.3	Oil Shale, dark olive brown, even with trace looped bedding, poor-fair competence, high grade; trace gilsonite streaks and blebs; 0.1 zone of medium gray tuff with massive bedding and with oil shale streaks and stringers at 821.2; gradational contact.
323.3	826.3	Oil Shale, light-medium olive brown, even bedding, good-excellent competence, low grade; trace gilsonite streaks; trace blue-gray analcitized tuff blebs; gradational contact.
326.3	827.3	Oil Shale, light-medium olive brown, even with trace streaked bedding, fair-good competence, low-medium grade; light blue-gray granular analcitized tuff stringer at 826.7; tan marly lamina common; trace gilsonite streaks; trace medium brown granular tuff blebs.
327.3	828.3	Oil Shale, dark olive brown, even with trace looped bedding, fair-good competence, medium-high grade; trace light gray analcitized tuff stringers; trace gilsonite streaks; .3 band light brown gray granular tuff with massive bedding and with dark olive brown high grade oil shale stringers at 828.0.
328.3	832.7	Oil Shale, dark olive brown-dark mahogany brown, even, streaked and looped bedding, fair-good competence, high grade; trace light gray analcitized tuff streaks and stringers; trace light brown granular analcitized tuff stringers and blebs; trace gilsonite streaks; .10 zone of light brown granular analcitized wavy bedding tuff with numerous dark olive brown high grade oil shale stringers at 829.0; .70 zone of light-medium olive brown, even bedding, low grade oil shale with numerous dark olive brown high grade oil shale stringers at 830.0; light brown marlstone streaks, stringers, and blebs common; gradational contact.

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32.7	835.5	Oil Shale, dark olive brown-dark mahogany brown, even with trace looped bedding, poor competence, very high grade; buff tuff streaks and stringers common; light blue gray granular analcitized tuff streaks and stringers common; light brown marly streaks and stringers common; gradational contact.
35.5	837.8	Oil Shale, dark olive brown-dark mahogany brown, even with trace looped bedding, good-excellent competence, high-very high grade; light brown granular tuff streaks and stringers common; buff marly streaks and stringers common; gradational contact.
37.8	839.5	Oil Shale, dark mahogany brown, even with trace looped bedding, good competence, very high grade; trace blue gray and brown granular tuff streaks and stringers; tan marly streaks and lamina common; gradational contact.
39.5	841.3	Oil Shale, light olive brown and dark olive brown banded, even with trace looped bedding, excellent competence, medium-high grade; light blue gray and light brown granular tuff streaks, stringers, and blebs common; tan marly streaks, lamina, and blebs common; .3 zone of light olive brown low grade oil shale with even bedding and dark olive brown high grade oil shale streaks and stringers at 839.9; trace gilsonite streaks; gradational contact.
41.3	842.4	Oil Shale, dark olive brown-dark mahogany brown, even with trace looped bedding, good competence, high-very high grade; light brown granular tuff streaks, stringers, and blebs common; trace gilsonite; very thin tan marly lamina common; gradational contact.
42.4	845.7	Oil Shale, light olive brown and dark olive brown banded, even with trace looped bedding, good competence, medium grade; light brown granular tuff streaks and blebs common; .10 zone of dark brown granular tuff with wavy bedding and with dark olive brown high grade oil shale stringers at 842.2; .05 band of dark mahogany brown even bedding, high grade oil shale, .05 band of dark brown granular tuff with wavy bedding and with dark olive brown high grade oil shale stringers at 842.8; .20 zone of partially leached vugs with calcite filling at 845.1; gradational contact.
45.7	847.7	Oil Shale, light-medium olive brown, even with trace looped bedding, good-excellent competence, medium grade; trace gilsonite streaks; trace light brown granular tuff stringers and blebs; gradational contact.
47.7	850.4	Oil Shale, dark olive brown-dark mahogany brown, even and looped bedding, good-excellent competence, high-very high grade; dark brown granular tuff streaks, stringers, and blebs common; trace gilsonite streaks; light brown marly streaks, stringers, and blebs common; gradational contact.

From	To	
350.4	856.0	Oil Shale, dark olive brown-dark mahogany brown, streaked and looped with trace even bedding, excellent competence, high grade; medium to dark brown granular tuff streaks, stringers, and blebs common; trace light blue gray granular analcitized tuff streaks and blebs; tan marly streaks, stringers, and blebs common; trace gilsonite streaks; gradational contact.
356.0	857.9	Oil Shale, medium-dark olive brown, even with looped bedding, fair competence, medium-high grade, tan marly streaks, stringers, and blebs common; abundant from 856.0-856.5; gradational contact.
357.9	865.9	Oil Shale, medium olive brown, even with trace looped bedding, good competence, medium grade; trace gilsonite streaks, stringers, and lamina; from 862.3-863.5 bedding is wavy and looped; from 865.0-865.9 bedding is evenly inclined 10°; 0.8 core loss from 864.2-865.0.
365.9	868.1	Oil Shale, light olive brown, even bedding, excellent competence, low grade; trace gilsonite streaks; trace buff marly stringers, from 867.6-868.1 abundant dark olive brown high grade oil shale streaks and stringers.
368.1	870.6	Oil Shale, light gray brown, streaked and looped bedding, fair-good competence, very low grade, marly; trace medium olive brown, medium grade oil shale streaks and stringers; trace gilsonite streaks.
370.6	875.9	Oil Shale, light olive brown and medium olive brown banded; streaked and looped bedding with trace even bedding, poor-fair competence, low-medium grade; abundant dark olive brown high grade oil shale streaks, stringers, and bands; light brown marly stringers and blebs common; trace gilsonite streaks and blebs; core loss 0.9 from 874.1-875.0.
375.9	878.1	Oil Shale, light olive brown, even bedding, fair competence, low grade; trace gilsonite streaks.
378.1	880.8	Oil Shale, light olive brown, even with trace streaked bedding, very poor-poor competence, very low grade, marly; trace gilsonite streaks; abundant partially leached vugs; core loss from 880.8-881.5 (0.7).
381.5	898.1	Oil Shale, medium olive brown, streaked with trace looped, fair competence, medium grade, abundant dark olive brown high grade oil shale streaks and stringers; light brown marly streaks, stringers, and blebs common; trace gilsonite streaks and blebs; 0.2 band of light yellow-brown marlstone with wavy bedding at 888.3 and 0.1 band at 889.6; solution fractures common from 886.0-888.6, and from 890.6-891.7; gradational contact.

From	To	
398.1	906.8	Oil Shale, light olive brown, streaked with even bedding, good competence, low grade, slightly marly; trace asphalt streaks and blebs; trace medium olive brown medium grade oil shale streaks and stringers; abundant solution fractures with calcite and pyrite filling from 899.9-902.3; 0.1 zone of dark olive brown oil shale streaks at 902.5; 0.3 zone of medium brown marly very low grade oil shale with abundant leached vugs at 904.0; light blue-gray granular analcitized tuff stringer at 904.9.
906.8	909.8	Oil Shale, light-medium olive brown, even with trace looped bedding, fair competence, medium grade; trace gilsonite streaks, trace light brown granular analcitized tuff streaks, stringers, and blebs.
909.8	917.2	Oil Shale, light olive brown, even bedding, poor competence, very low-low grade; marly; trace gilsonite streaks; tan-light brown granular analcitized tuff streaks and stringers common; .10 band of dark mahogany brown high grade oil shale with looped bedding at 911.1; abundant solution fractures from 910.8-917.2 with evidence of collapsed leached nahcolite; 2.3 core loss from 911.6-913.9; .10 zone with abundant irregular dark greenish gray pyritic stringers.
917.2	920.7	Oil Shale, medium olive brown, even-streaked bedding, poor-fair competence, medium grade; few light brown granular tuff blebs; evidence of collapsed leached nahcolite and leached nahcolite vugs; 0.3 core loss from 920.3-920.6.
920.7	925.4	Oil Shale, light gray brown and medium olive brown faintly banded, even bedding, poor competence, low grade; slightly marly; abundant dark gray pyrite stringers and lamina; trace gilsonite; .20 medium gray granular tuff band at 922.7; several thin light brown granular tuff streaks and lamina.
925.4	927.1	Oil Shale, medium olive brown with dark olive brown, even bedding, poor competence, medium-high grade; dark brown asphaltic tuff blebs at 926.4; 925.4-926.1 a dark olive brown high grade oil shale with abundant very thin light brown tuff streaks and lamina; gradational contact.
927.1	932.0	Marlstone, light gray brown with buff band, even with abundant offset bedding, very poor-poor competence; trace kerogen; very brittle; dark gray pyrite streaks and lamina common; from 929.7-930.7 a dark gray-brown with buff banding; abundant evidence collapsed leached nahcolite.
932.0	935.0	Oil Shale, light olive brown and medium olive brown band; poor competence, very low-low grade; slightly marly; abundant solution fractures with evidence of collapsed leached nahcolite; 0.3 core loss from 933.9-934.2; several dark gray pyrite blebs and lamina; 0.15 zone of light brown-medium brown slightly asphaltic tuff band at 934.85.
935.0	936.7	Oil Shale, medium-dark olive brown, even with abundant offset bedding, poor-fair competence, medium-high grade; gradational contact.

From	To	
936.7	940.4	Oil Shale, light olive brown, even with abundant offset bedding, very poor competence, very low-low grade; marly; several dark gray pyrite streaks and lamina; abundant solution fractures with calcite and evidence collapsed leached nahcolite; gradational contact.
940.4	945.3	Oil Shale, marly, light gray brown, even with abundant offset bedding, very poor competence, very low grade; abundant solution fractures with abundant calcite and evidence collapsed leached nahcolite; several pyritic blebs and streaks; from 942.0-944.7 several buff marlstone stringers and bands; gradational contact.
945.3	946.4	Oil Shale, light olive brown, streaked with even bedding, very poor-poor competence, very low-low grade; abundant solution fractures with calcite and evidence of collapsed leached nahcolite.
946.4	952.3	Oil Shale, medium olive brown with light olive brown and medium olive brown banding, even, streaked, and abundant offset bedding, poor-fair competence, medium grade; abundant solution fractures with calcite, pyrite, and collapsed leached nahcolite; several dark brown asphaltic streaks and stringers; trace gilsonite; gradational contact.
952.3	955.0	Oil Shale, light olive brown, abundant offset with even and streaked bedding, very poor-poor competence, low grade; several buff marlstone blebs; .10 zone with dark brown irregular asphalt stringers at 953.9; abundant solution fractures with calcite, pyrite, and collapsed leached nahcolite; gradational contact.
955.0	958.2	Oil Shale, light brown-light olive brown, even with trace looped bedding, fair competence, low grade; numerous medium gray asphalt streaks, stringers, and blebs; medium brown granular analcitized tuff streaks, stringers, and blebs common; trace gilsonite streaks.
958.2	963.7	Oil Shale, light gray brown-light olive brown, even with trace looped bedding, poor competence, very low-low grade; slightly marly; abundant medium brown tuff stringers, .4 band at 961.6, .55 band at 962.7; trace gilsonite streaks; trace pyrite streaks; gradational contact.
963.7	969.0	Oil Shale, light olive brown, even with trace streaked bedding, very poor competence, low grade, slightly argillaceous, slightly marly; solution fractures common with pyrite and collapsed leached nahcolite; medium brown tuff stringer at 965.4; calcite common on fractures; 0.8 core loss from 967.2-968.0; gradational contact.
969.0	971.0	Oil Shale, medium gray-brown, even and abundant offset bedding, very poor-poor competence, low-medium grade; few zones of white pinpoint calcite; from 969.9-971.0 abundant solution fractures with collapsed leached nahcolite, calcite and trace pyrite; gradational contact.
971.0	974.6	Oil Shale, medium gray brown with light gray brown banded, evenly inclined at 05°-45° with abundant offset and trace contorted bedding, very poor-poor competence, very low-low grade; slightly marly; few zones of pinpoint calcite; abundant solution fractures with collapsed leached nahcolite, pyrite and calcite; several dark gray pyrite streaks, blebs and lamina; trace gilsonite.

From	To	
974.6	977.6	Oil Shale, marly, light gray brown, even with trace offset bedding, very poor competence, very low grade; pyrite blebs, streaks, and lamina common; 0.3 core loss from 975.2-975.5; solution fractures and poker chip partings with collapsed leached nahcolite, calcite, and pyrite common from 975.0-977.6.
977.6	979.7	Marlstone, light brown-gray to buff, even bedding, very poor competence, trace kerogen; solution fractures and poker chip partings with collapsed leached nahcolite and trace calcite and pyrite common; 0.10 light gray granular analcitized tuff band at 977.9; trace pinpoint calcite; several pyrite streaks and lamina; 0.50 core loss from 975.2-979.7; grades to light gray brown marly very low grade oil shale from 978.5-979.7; gradational contact.
979.7	983.7	Oil Shale, light-medium olive brown, even bedding, very poor competence, very low-low grade; planar partings and solution fractures with abundant evidence collapsed leached nahcolite common; 0.5 core loss from 981.2-981.7.
983.7	985.3	Oil Shale, light brown-light olive brown, offset bedding, very poor-poor competence, very low grade; marly; pinpoint calcite common; solution fractures with collapsed leached nahcolite, calcite, and pyrite common; several dark gray pyrite streaks and blebs; gradational contact.
985.3	992.7	Marlstone, light brown-gray, abundant offset bedding, very poor competence; brittle and crumbly; abundant solution fractures with collapsed leached nahcolite, calcite, and pyrite; disseminated pyrite common; few zones of solution breccia with angular rotated fragments; 0.5 core loss from 987.4-987.7; .2 band light gray granular analcitized tuff at 990.5; zone of white kaolinite stringers from 992.1-992.8; trace light olive brown, low grade oil shale stringers.
992.7	1001.5	Marlstone, light gray brown, even bedding inclined at 5°, very poor competence; abundant pyrite streaks and stringers; disseminated pyrite common; abundant solution fractures with collapsed leached nahcolite, pyrite from 996.7-999.0; abundant solution breccia with pyrite, calcite, and kaolinite from 999.4-1001.5; common pinpoint calcite.
1001.5	1002.8	Oil Shale, dark olive brown-dark mahogany brown, even, streaked, and looped bedding, fair competence, high grade; trace light blue gray analcitized tuff stringers; trace gilsonite streaks; solution fractures with evidence collapsed leached nahcolite, pyrite common; gradational contact.
1002.8	1006.8	Oil Shale, light-medium olive brown, even, looped, and contorted bedding, good competence, medium grade; asphaltic streaks and stringers common; trace gilsonite streaks; trace light gray and light blue gray, granular, analcitized tuff blebs and streaks.

From	To	
1006.8	1009.6	Marlstone, light brownish gray, even with trace looped and offset bedding, poor competence; abundant pyrite streaks and stringers; solution fractures with evidence collapsed leached nahcolite, pyrite from 1007.0-1007.6; common light olive brown low grade oil shale stringers.
1009.6	1012.0	Oil Shale, medium olive brown, streaked with trace looped bedding, fair competence, medium grade; abundant pyrite streaks and stringers; few buff granular tuff blebs; trace gilsonite streaks; .3 band very marly, very low grade oil shale at 1011.0.
1012.0	1015.8	Oil Shale, light-medium olive brown, even with trace looped and contorted bedding, poor-fair competence, low-medium grade; abundant pyrite streaks and stringers; few tan analcitized tuff streaks and stringers; trace gilsonite streaks; .3 core loss from 1014.7-1015.0.
1015.8	1021.3	Oil Shale, marly, light gray brown-light olive brown, even with trace streaked and looped bedding, poor competence, very low grade; abundant pyrite streaks and stringers; .1 band light brown granular tuff at 1017.4 and at 1017.6, .3 band at 1018.1; light blue gray granular analcitized tuff streaks and stringers common; .90 core loss from 1016.1-1017.0; .4 zone light blue gray granular analcitized tuff with light olive brown oil shale stringers at 1020.9.
1021.3	1025.1	Oil Shale, light-medium olive brown, even with trace looped bedding, fair competence, low grade; marly; abundant pyrite streaks, stringers, and lamina; trace light brown granular analcitized tuff streaks and blebs; trace gilsonite streaks; .2 zone solution fractures with pyrite, calcite, kaolinite at 1024.3.
1025.1	1030.0	Marlstone, buff-light brown, looped and contorted bedding, poor competence; trace kerogen; abundant solution fractures with evidence collapsed leached nahcolite, pyrite, calcite; few medium brown granular analcitized tuff stringers and blebs; few medium olive brown, low grade oil shale stringers.
1030.0	1036.1	Oil Shale, marly, light gray brown-light olive brown, even with trace streaked and looped bedding, fair competence, very low grade; abundant medium brown granular analcitized tuff stringers and blebs; abundant light brown marlstone streaks, stringers, and lamina; abundant pyritic streaks and stringers; trace gilsonite streaks; solution fractures with evidence collapsed leached nahcolite, pyrite common; gradational contact.
1036.1	1042.0	Oil Shale, light olive brown and medium gray brown banded, even with looped bedding, poor-fair competence, low grade; abundant pyritic streaks, stringers, and lamina; few medium brown granular analcitized tuff stringers and blebs; .5 zone medium olive brown, medium grade oil shale stringers at 1038.1, .7 zone at 1039.0; few light blue gray analcitized tuff stringers and blebs.
1042.0	1046.4	Oil Shale, light-medium olive brown, streaked with trace looped bedding, good competence, low-medium grade; abundant asphaltic streaks and stringers; light brown marly streaks, stringers, and blebs common; 0.2 band light brown granular analcitized tuff with pyritic stringers at

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		1046.2; 1.0 core loss from 1044.0-1045.0.
046.4	1049.8	Oil Shale, light olive brown and light gray brown, banded, even with trace looped bedding, good competence, low grade; abundant pyritic streaks, stringers, and blebs; abundant light brown marly stringers; trace gilsonite streaks.
049.8	1054.2	Oil Shale, marly, light olive brown-light gray brown, even, streaked, and looped bedding, poor-fair competence, very low grade; abundant asphaltic streaks, stringers, and lamina; solution fractures with collapsed leached nahcolite, leached nahcolite vugs, pyrite common; trace kaolinite stringers; trace light blue gray analcitized tuff streaks and stringers.
054.2	1062.2	Oil Shale, light-medium olive brown, streaked with trace looped bedding, fair competence, low-medium grade; abundant light brown marly streaks, stringers, blebs; abundant pyritic streaks and stringers; trace gilsonite streaks; trace medium brown granular analcitized tuff stringers and blebs; solution fractures with collapsed leached nahcolite, leached nahcolite vugs, pyrite common; trace light blue gray granular analcitized tuff streaks and stringers; gradational contact.
062.2	1063.6	Oil Shale, light olive brown-light gray brown, streaked with even bedding, good competence, low grade; light brown marly streaks, stringers, and blebs common; pyritic streaks, stringers, and blebs common; trace light blue gray analcitized tuff streaks and stringers.
063.6	1070.2	Oil Shale, light olive brown, even bedding inclined at 10°, fair competence, very low grade; marly, pyrite streaks and stringers common; trace gilsonite streaks; 0.3 core loss from 1064.7-1065.0; solution fractures with evidence collapsed leached nahcolite, pyrite, and calcite common; 0.5 zone medium olive brown low-medium grade oil shale at 1068.1; 0.5 zone of loop and contorted bedding at 1068.8; gradational contact.
070.2	1075.3	Oil Shale, light-medium olive brown; streaked, even and looped bedding, fair-good competence, low-medium grade; light brown and light blue gray granular analcitized tuff stringers and blebs common; few tan marly streaks and blebs; pyritic streaks and stringers common; 0.4 core loss from 1074.5-1074.9.
075.3	1076.3	Oil Shale, light olive brown and medium olive brown band, even and looped bedding, fair competence, low grade; trace pyrite streaks; trace tan marly stringers and streaks; trace medium brown granular analcitized tuff stringers; trace gilsonite streaks; gradational contact.
076.3	1080.5	Oil Shale, medium olive brown, streaked with even and looped bedding, excellent competence, low-medium grade; trace buff granular tuff streaks and blebs; trace gilsonite streaks; tan marlstone streaks and blebs common; few medium blue-gray analcitized tuff blebs; 0.2 core loss from 1078.3-1078.5; 0.05 zone of dark olive brown high grade oil shale at 1079.6; gradational contact.

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080.5	1085.8	Oil Shale, light gray brown-light olive brown, even with trace streaked bedding, poor competence, very low grade; marly; trace asphaltic streaks; trace pyritic streaks; solution fractures with evidence collapsed leached nahcolite and pyrite common; 0.2 band of medium olive brown, medium grade, oil shale with streaked and offset bedding at 1084.2; medium gray analcitized tuff bleb at 1084.6.
085.8	1087.9	Oil Shale, dark olive brown, streaked and even bedding, excellent competence, high-very high grade; trace light blue-gray analcitized tuff stringers; trace gilsonite streaks; trace marly stringers and blebs.
087.9	1095.1	Oil Shale, medium olive brown, streaked, looped, and even bedding, good competence, medium-high grade; marly streaks and blebs common; trace gilsonite streaks; trace pyritic streaks and blebs; buff granular analcitized stringer at 1088.8; 0.2 zone of light gray granular analcitized tuff blebs and stringers at 1092.3.
095.1	1096.9	Oil Shale, medium olive brown, even with trace streaked and looped bedding, poor-fair competence; low-medium grade; trace gilsonite streaks; 0.1 zone of pyrite stringers and blebs at 1096.4 and 0.1 at 1096.8; trace marly stringers.
096.9	1098.9	Oil Shale, buff and medium olive brown, streaked, looped, and evenly inclined at 10° bedding, fair competence, low grade; abundant pyritic blebs and stringers; solution fractures with evidence collapsed leached nahcolite, leached nahcolite vugs, and pyrite common.
098.9	1100.1	Oil Shale, medium-dark olive brown, evenly inclined at 10° with streaked bedding, very poor competence, medium grade; abundant solution fractures with collapsed leached nahcolite, pyrite, and calcite; trace gilsonite streaks.
100.1	1102.3	Oil Shale, dark olive brown, evenly inclined at 10° bedding, poor-fair competence, very high grade; trace solution fractures with collapsed leached nahcolite and pyrite; trace marly streaks.
102.3	1105.9	Oil Shale, very light olive brown, even with looped bedding, poor-fair competence, very low grade; pyritic streaks, stringers, and blebs common; marly stringers and blebs common; solution fractures with collapsed leached nahcolite, pyrite, and calcite common; trace gilsonite streaks; medium brown granular pyritic tuff stringer at 1105.9.
105.9	1107.2	Oil Shale, medium-dark olive brown, streaked with trace looped bedding, poor competence, medium-high grade; medium brown granular pyritic tuff stringers common; pyritic stringers common; trace gilsonite streaks.
107.2	1114.3	Oil Shale, light olive brown and medium olive brown banded, even, streaked and looped bedding, fair competence, low-medium grade; light brown granular analcitized tuff stringers common; few light blue gray analcitized tuff streaks and blebs; pyritic streaks and stringers common; trace gilsonite streaks; .2 band of dark olive

From	To	
		brown high grade oil shale at 1108.4, .15 band at 1111.7; solution fractures with collapsed leached nahcolite, pyrite at 1113.6; gradational contact.
1114.3	1117.8	Oil Shale, light olive brown and medium olive brown banded, even and streaked bedding, poor competence, low-medium grade; pyritic streaks and stringers common; light brown analcitized tuff streaks and stringers common; trace gilsonite streaks; .70 band of dark olive brown high grade oil shale and tan marlstone, thinly laminated at 1114.3; .30 band medium gray granular analcitized tuff with medium olive brown, medium grade oil shale stringers at 1115.2.
1117.8	1122.2	Marlstone, medium gray brown, even with trace streaked bedding, very poor competence; trace kerogen; pyritic stringers, streaks, and lamina common; trace gilsonite streaks; trace light olive brown low grade oil shale streaks and stringers.
1122.2	1126.2	Oil Shale, light olive brown, even with trace looped and streaked bedding, poor-fair competence, very low-low grade; pyrite streaks and stringers common; light brown granular analcitized tuff streaks and stringers common; .5 band medium olive brown medium grade oil shale at 1125.2.
1126.2	1128.0	Oil Shale, medium olive brown, streaked with trace even and looped bedding, fair competence, medium-high grade; pyritic streaks and stringers common; light brown granular analcitized tuff streaks and stringers common; trace gilsonite streaks; solution fractures with leached nahcolite vugs, pyrite at 1126.4.
1128.0	1129.8	Oil Shale, light olive brown and medium olive brown, banded, even with trace streaked bedding, good competence, low-medium grade; abundant pyrite streaks and stringers; abundant light brown granular analcitized tuff streaks and stringers; trace gilsonite streaks.
1129.8	1132.0	Oil Shale, marly, light olive brown to buff, even bedding, very poor competence, very low grade; pyrite streaks and stringers common; solution fractures with pyrite and collapsed leached nahcolite common.
1132.0	1135.5	Oil Shale, dark olive-brown, even with trace streaked bedding, fair-good competence, medium-high grade; light blue-gray granular, analcitized, tuff blebs and streaks common; trace gilsonite streaks and stringers; pyrite streaks and stringers common; trace solution fractures with collapsed leached nahcolite, leached nahcolite vugs and pyrite; medium olive-brown, massive, argillaceous, medium grade oil shale from 1133.1-1133.9; pyrite bleb and stringer at 1134.2.
1135.5	1136.7	Oil Shale, light olive brown, streaked with trace looped bedding, excellent competence, low grade; abundant pyrite streaks, blebs and lamina; trace buff granular tuff blebs; trace light brown marly streaks and stringers; trace gilsonite blebs and stringers.

From	To	
1136.7	1140.4	Oil Shale, marly; light gray-brown to light olive-brown, even with irregular bedding, poor-fair competence, very low grade; abundant solution fractures with collapsed leached nahcolite, leached nahcolite vugs and pyrite; abundant evidence gas and water escaping core (bubbling core) associated with solution fracture zones; abundant pyrite streaks, stringers, blebs, and lamina; buff granular, tuff streaks, stringers, and blebs common; tan marly stringers common; trace offset bedding; .15 light brown, granular tuff band at 1137.6 and .20 at 1138.2.
1140.4	1142.7	Marlstone, light brownish gray to buff, irregular with even bedding, very poor competence; trace pyrite streaks and lamina; trace gilsonite streaks; abundant solution fracture with collapsed leached nahcolite, leached nahcolite vugs and associated bubbling core; buff granular, analcitized tuff stringers and blebs common.
1142.7	1143.7	Oil Shale, light-medium olive brown, streaked with trace looped bedding, fair competence, low-medium grade; abundant marly streaks, stringers, and blebs; trace gilsonite streaks; light blue-gray granular tuff stringer at 1143.2.
1143.7	1149.4	Oil Shale, light olive brown, even with trace looped bedding, poor competence, very low-low grade; slightly marly; trace scattered light blue-gray granular tuff blebs and stringers; pyrite stringers and blebs common; .65 bed of medium to dark olive-brown, high grade oil shale with streaked bedding at 1144.8; zone of small leached nahcolite vugs from 1143.8-1144.2; zone of abundant solution fractures with collapsed leached nahcolite, leached nahcolite vugs, pyrite and kaolinite from 1145.7-1146.5; 1.0 core loss from 1148.0-1149.0.
1149.4	1151.7	Oil Shale, marly, medium brownish gray, abundant offset bedding with even and streaked bedding, very poor-poor competence, very low-low grade; abundant evidence collapsed leached nahcolite with pyrite and bubbling core; several scattered pyrite streaks, stringers, and lamina.
1151.7	1155.0	Oil Shale, light olive-brown to light gray-brown, even with trace streaked and looped bedding, poor competence, very low-low grade; slightly marly; abundant pyrite lamina and streaks; numerous solution fractures with kaolinite and pyrite; 0.6 core loss from 1154.4-1155.0.
1155.0	1157.9	Marlstone, buff-light brown, even with trace irregular, very poor competence; abundant medium brown low-medium grade oil shale stringer from 1156.3-1157.9; trace buff granular analcitized tuff stringers; abundant solution fractures with evidence collapsed leached nahcolite and pyrite; abundant pyrite blebs and stringers.
1157.9	1165.4	Oil Shale, light gray brown-light olive brown, even with trace offset and looped bedding, very poor-poor competence, low grade; solution fractures with evidence collapsed leached nahcolite, pyrite and leached nahcolite vugs common; abundant pyrite streaks, stringers, and blebs, trace gilsonite streaks; abundant marly stringers light blue-gray analcitized tuff stringers and blebs common; 0.3 core loss from 1159.7-1160.0.

From	To	
165.4	1166.9	Oil Shale, medium olive brown, even with trace streaked bedding, poor competence, medium-high grade; abundant pyrite streaks, stringers, and blebs; abundant buff marly stringers and blebs; trace gilsonite streaks; dark mahogany brown, very high grade oil shale; 0.3 at 1165.9, 0.05 at 1166.8.
166.9	1169.5	Marlstone, buff-light brown gray, even and massive bedding, very poor competence; abundant solution fractures with collapsed leached nahcolite, kaolinite, and pyrite; pyrite stringers and blebs common.
169.5	1172.1	Oil Shale, medium olive brown, streaked with wavy, contoured and looped bedding, fair-good competence, medium grade; light blue-gray and buff, granular, stringers, streaks, and blebs common; abundant pyrite streaks, stringers, and blebs; marly blebs, streaks, and fragments common; trace gilsonite streaks; solution fractures with evidence collapsed leached nahcolite, leached nahcolite vugs, and pyrite common.
172.1	1179.8	Oil Shale, light-medium olive brown, even with trace streaked and looped bedding, poor-fair competence, low-medium grade; abundant pyrite streaks, stringers, and blebs; trace gilsonite streaks; buff tuff streaks and blebs common; abundant kaolinite on fractures; a golden brown, medium grade oil shale with abundant pyrite stringers from 1175.1-1176.7; 1.8 core loss from 1173.2-1175.0.
179.8	1191.6	Oil Shale, light gray-brown, even with trace looped bedding, fair-good competence, low grade; pyrite streaks, stringers, and blebs common; trace gilsonite streaks; buff granular analcitized stringers and blebs common; trace solution fractures with evidence collapsed leached nahcolite and kaolinite; a 0.05 band of light gray tuff at 1188.2.
191.6	1198.2	Oil Shale, marly, tan-light gray brown with light olive brown banded, wavy with trace offset bedding, poor-fair competence, very low grade; pyrite streaks and blebs common; abundant marly stringers and blebs; abundant solution fractures with collapsed leached nahcolite, pyrite and bubbling core; abundant light brown granular analcitized tuff stringers with pyrite from 1195.7-1196.7; 0.3 band of medium-high grade oil shale at 1195.3, and 0.45 band at 1197.2.
198.2	1201.2	Oil Shale, medium gray brown-medium olive brown, streaked with trace evenly inclined at 10°, and offset bedding, fair competence, low-medium grade; pyrite streaks and blebs common; marly stringers and blebs common; trace gilsonite streaks.
201.2	1209.0	Oil Shale, light olive brown and medium gray brown banded, evenly inclined at 10° and wavy bedding, fair competence, low grade; abundant pyrite streaks, stringers, and blebs; tan marly streaks and blebs common; trace buff granular tuff stringers; abundant solution fractures with collapsed leached nahcolite, and pyrite.

From	To	
1209.0	1214.3	Marlstone, light brownish gray, even with trace streaked and offset bedding, very poor-poor competence, abundant pyrite streaks and stringers; abundant solution fractures with collapsed leached nahcolite, pyrite, and kaolinite; abundant pinpoint calcite; light olive brown, very low grade oil shale stringers and bands common.
1214.3	1217.8	Oil Shale, marly, light gray brown, even with trace offset bedding, poor competence, very low grade; abundant pyrite streaks and stringers, trace gilsonite streaks; trace tan granular tuff stringers; bubbling core.
1217.8	1223.4	Marlstone, light brown gray, wavy with looped bedding, poor competence; trace light blue gray granular analcitized tuff stringers; trace golden brown granular tuff stringers; abundant medium olive brown low grade oil shale streaks and stringers; abundant pyrite streaks and stringers; trace gilsonite streaks; abundant vugs partially filled with calcite.
1223.4	1225.7	Oil Shale, light olive brown, even with trace looped bedding, poor competence, low grade; marly; abundant pyrite streaks and stringers; trace gilsonite streaks; abundant tan marly streaks, stringers, and blebs; 0.2 band tan marlstone at 1224.1; trace light blue gray analcitized tuff stringers.
1225.7	1233.8	Oil Shale, light olive brown-light gray brown, even with trace streaked and looped bedding, good competence, low grade; abundant pyrite streaks and stringers; trace gilsonite streaks, trace tan marly streaks and stringers; 0.1 band tan marlstone at 1227.2, .3 band at 1229.0; trace medium brown granular pyritic tuff streaks and blebs.
1233.8	1238.0	Oil Shale, light olive brown-light gray brown, even and looped bedding, fair competence, very low grade; marly; abundant pyrite streaks and stringers; trace medium brown pyritic tuff streaks and stringers; 0.3 band golden brown marlstone at 1223.8; trace medium olive brown, medium grade oil shale stringers; trace pinpoint calcite.
1238.0	1242.7	Oil Shale, light olive brown-light gray brown, even with trace streaked and offset bedding, fair competence, low grade; abundant pyrite streaks and stringers; .05 stringers of golden brown granular tuff at 1239.7, 1240.5, 1241.7; trace gilsonite streaks; pinpoint calcite abundant from 1241.0-1242.7; .6 zone light gray brown marlstone with pyrite stringers at 1241.3.
1242.7	1250.4	Marlstone, light brownish gray, even and looped bedding, poor competence; abundant pyrite streaks and stringers; solution fractures with collapsed leached nahcolite, pyrite, bubbling core common; trace gilsonite streaks; trace medium olive brown medium grade oil shale streaks and stringers; trace golden brown granular tuff stringers; trace pinpoint calcite.

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1250.4	1255.5	Oil Shale, argillaceous, light-medium brownish gray, even and streaked bedding, fair competence, very low grade; trace light olive brown low grade oil shale streaks and stringers; abundant pyrite streaks and stringers; trace tan marly stringers and blebs; trace gilsonite streaks; trace pinpoint calcite.
1255.5	1258.8	Marlstone, light brownish gray, even with streaked and looped bedding, very poor competence; abundant pyrite streaks and stringers; abundant pinpoint calcite; .3 zone golden brown marlstone at 1255.5; solution fractures with collapsed leached nahcolite, calcite, pyrite, bubbling core common; trace gilsonite streaks.
1258.8	1264.1	Oil Shale, argillaceous, medium brownish gray, even and offset bedding, poor-fair competence, very low grade; abundant pyrite streaks and stringers; trace medium brown granular tuff stringers; pinpoint calcite common; trace gilsonite streaks; trace solution fractures with collapsed leached nahcolite, pyrite, and bubbling core; trace light olive brown low grade oil shale streaks and stringers.
1264.1	1269.3	Marlstone, light brownish gray, even with streaked and looped bedding, fair competence; abundant pyrite streaks and stringers; pinpoint calcite common; abundant solution fractures with collapsed leached nahcolite, pyrite, bubbling core; abundant medium gray argillaceous very low grade oil shale stringers.
269.3	1271.7	Marlstone, light brown-buff, even and looped bedding, poor competence; trace kerogen; trace pyrite streaks and stringers; pinpoint calcite common; trace medium olive brown low grade oil shale stringers.
271.7	1275.3	Oil Shale, light olive brown, even, streaked, and offset bedding, very poor competence, very low-low grade; marly; abundant pyrite streaks and stringers; trace tan marly blebs; solution fractures with collapsed leached nahcolite, pyrite, bubbling core common; 0.6 core loss from 1274.4-1275.0.
275.3	1276.9	Oil Shale, medium-dark brownish gray, even with offset bedding, very poor-poor competence, low grade, slightly argillaceous; abundant pyrite streaks and stringers; abundant solution fractures with collapsed leached nahcolite and pyrite; trace tan marly streaks and stringers.
276.9	1278.9	Marlstone, light brown and medium brown gray banded, even with offset bedding, poor competence, trace kerogen; abundant pyrite streaks and stringers; trace light olive brown low grade oil shale streaks and stringers, trace pinpoint calcite; abundant solution fractures with evidence collapsed leached nahcolite and pyrite.
278.9	1280.0	Oil Shale, medium brownish gray, even with trace offset bedding, poor competence, low grade; slightly argillaceous; abundant pyrite streaks and stringers, trace tan marly streaks and stringers; trace gilsonite streaks; kaolinite coating common on fractures.

From	To	
1280.0	1287.3	Oil Shale, light olive brown-light gray brown; even, irregular and offset bedding, very poor-poor competence, very low grade; slightly marly; abundant pyrite streaks and stringers; abundant tan marly stringers and blebs; abundant solution fractures with evidence collapsed leached nahcolite and pyrite.
1287.3	1292.8	Oil Shale, light-medium olive brown, even with trace offset bedding, fair competence, low-medium grade; abundant pyrite streaks and stringers; trace light brown granular tuff streaks and stringers; abundant solution fractures with pyrite and evidence collapsed leached nahcolite; trace gilsonite streaks.
1292.8	1296.1	Oil Shale, light olive brown, irregular bedding, very poor competence, very low grade, marly; abundant tan marly stringers and bands; abundant pyrite stringers and streaks; .10 band of light gray-white kaolinite tuff ? at 1295.2; trace pinpoint calcite; abundant solution fractures with pyrite and evidence collapsed leached nahcolite.
1296.1	1298.3	Marlstone, light brownish gray, even with trace looped and offset bedding, very poor competence, trace kerogen; medium olive brown medium grade oil shale streaks and stringers common; pyrite stringers and disseminated pyrite flakes common.
1298.3	1304.1	Oil Shale, light-medium olive brown; even, streaked and looped bedding, poor competence, medium grade; medium gray pyrite and light brown granular tuff streaks common; abundant pyrite streaks and stringers; trace gilsonite streaks; abundant solution fractures; trace leached nahcolite vugs with kaolinite coating; trace marly stringers.
1304.1	1305.6	Oil Shale, light-medium brownish gray, even with trace offset bedding, very poor competence, very low grade, argillaceous; trace medium olive brown medium grade oil shale stringers; abundant pyrite stringers; 0.4 core loss from 1304.6-1305.0.
1305.6	1309.1	Oil Shale, light olive brown-light gray brown, even with trace looped and offset bedding, very poor competence, low grade, slightly argillaceous; abundant tan marly stringers; abundant pyrite streaks and stringers; 1.0 bed of light brown marlstone with asphalt stringers at 1306.8.
1309.1	1313.8	Oil Shale, light olive brown, even and looped bedding, very poor competence, low grade, abundant pyrite streaks and stringers; tan marly streaks and stringers common; trace light brown granular tuff streaks; solution fractures with evidence collapsed leached nahcolite and pyrite; abundant kaolinite on fractures; 1.2 core loss from 1313.8-1315.0.
1313.8	1323.6	Oil Shale, medium olive-brown even with trace streaked and looped bedding, very poor competence, low-medium grade; abundant pyrite streaks and stringers; trace tan marly streaks and stringers; solution fractures with evidence collapsed leached nahcolite and pyrite common; trace medium olive brown medium grade oil shale stringers; 0.4 core loss from 1321.1-1321.5.

From	To	
1323.6	1330.2	Oil Shale, light and medium olive brown, even, irregular, looped, and streaked bedding, fair competence, medium grade; brecciated and recemented from 1326.6-1326.8 and from 1330.1-1330.2; abundant pyrite streaks and stringers; abundant light tan marly stringers and blebs; medium brown granular tuff stringers common with associated disseminated pyrite; trace buff granular tuff streaks and stringers; light olive-brown low grade oil shale with looped bedding from 1325.2-1326.2; light olive-brown, even bedding, marly, very low grade oil shale from 1323.6-1324.3; abundant solution fractures with pyrite and calcite; .05 medium brown granular tuff with associated pyrite at 1329.6.
1330.2	1331.8	Oil Shale, marly; light brown-buff, even with abundant offset bedding, poor-fair competence; very low grade; abundant solution fractures with offset bedding; abundant pyrite streaks and stringers; few scattered thin solution breccia zones; gradational contact.
1331.8	1338.4	Marlstone, light brownish gray-buff, even, streaked, and irregular bedding, poor-fair competence; abundant light brown marly oil shale streaks and stringers; abundant kaolinite on fractures from 1332.5-1335.5; abundant soft white pinpoint altered nahcolite blebs and streaks from 1335.5-1338.4; abundant disseminated pyrite.
1338.4	1340.9	Oil Shale, light and medium olive brown, irregular and streaked bedding, good competence, low-medium grade; brecciated and recemented from 1338.8-1339.4; light brownish gray brecciated and recemented marlstone from 1339.0-1339.4; numerous dark brown asphaltic streaks and stringers from 1340.8-1340.9.
1340.9	1344.7	Oil Shale, medium olive brown, streaked with irregular bedding, excellent competence, medium-high grade; abundant white disseminated pinpoint calcite blebs - possibly altered nahcolite; several scattered dark brown-black asphalt and gilsonite streaks and stringers; dark gray brown analcitized tuff with associated pyrite streaks at 1341.8; gradational contact.
1344.7	1349.9	Marlstone, light brownish gray-buff, irregular with trace even and looped bedding, fair-good competence; slightly argillaceous; abundant solution fractures with offset kaolinite, pyrite; abundant white pinpoint calcite from 1344.7-1345.8; numerous scattered soft white kaolinite clay streaks from 1345.2-1345.8, 1349.2-1349.7; disseminated pyrite common; several scattered solution breccia zones.
1349.9	1357.5	Marlstone, light brown-buff, even with abundant offset and irregular bedding, fair-good competence; slightly argillaceous; trace kerogen; several scattered zones of pyrite stringers and lamina; abundant disseminated pinpoint calcite; disseminated pyrite common; few scattered asphalt gilsonite and asphalt stringers; fairly brittle core; brecciated and recemented from 1352.4-1353.3, 1353.7-1354.3, 1355.4-1355.7 and 1356.0-1357.1; grades to very low grade marly oil shale from 1355.0-1357.5.

From	To	
1357.5	1361.6	Oil Shale, dark olive-brown, streaked with wavy bedding from 1359.6-1361.1, fair-good competence; high to very high grade; abundant pyrite streaks and stringers; abundant tan marly streaks and blebs; few scattered asphalt streaks and blebs; .10 zone of buff granular tuff blebs at 1358.3 and at 1360.8; trace gilsonite streaks; several scattered solution fracture zones with collapsed leached nahcolite and leached nahcolite vugs.
361.6	1366.6	Oil Shale, light olive brown to tan, even with wavy and trace offset bedding, fair-good competence, low grade; abundant pyrite streaks, stringers, and blebs; abundant disseminated pyrite; trace asphalt streaks; abundant white soft calcite altered nahcolite stringers and few light brown kaolinite clay stringers from 1365.6-1366.4; fairly argillaceous and marly from 1364.2-1365.4; gradational contact.
366.6	1369.5	Oil Shale, dark olive brown, streaked with trace looped bedding, good competence, high grade; white soft kaolinite clay blebs common from 1367.4-1368.0; trace asphalt blebs and streaks; several scattered .10 dia. leached nahcolite vugs with bladed, radiated structure and altered pyrite coating from 1367.0-1369.2; white granular tuff bleb at 1369.2; gradational contact.
369.5	1375.0	Oil Shale, light and medium olive brown, even with streaked and trace wavy bedding, poor-fair competence, medium grade with low grade from 1370.0-1372.0; few scattered disseminated pyrite blebs; pyrite stringers common from 1370.6-1370.9; marly and slightly argillaceous from 1370.0-1372.0; trace marly streaks and blebs; .05 leached nahcolite vugs at 1372.4; few scattered .05 dia. radiated marcasite nodules from 1372.3-1372.9; 0.4 core loss from 1374.6-1375.0.
375.0	1377.4	Oil Shale, medium-dark gray brown with medium olive brown, even with trace irregular and streaked bedding, fair-good competence, medium grade; 0.40 with abundant dark gray pyrite lamina at 1376.1; few gilsonite streaks and blebs; dark brown thin asphalt stringer at 1376.6.
377.4	1381.4	Oil Shale, light olive brown-light gray brown, even with irregular bedding, poor competence, very low-low grade; marly, from 1377.4-1378.4 abundant small leached nahcolite vugs few replaced with pyrite; several tan marly stringers and bands; few leached nahcolite vugs with pyrite filling; several white altered nahcolite stringers; 0.40 buff marlstone band with altered nahcolite stringers at 1380.0; 0.40 core loss from 1381.0-1381.4.
381.4	1392.9	Oil Shale, medium-dark olive brown, streaked bedding, good competence, medium-high grade; from 1381.4-1384.0 abundant small pinpoint white altered nahcolite blebs and few medium brown fine-medium crystalline nahcolite stringers; several zones of partially collapsed leached nahcolite with pyrite and trace altered nahcolite; trace gilsonite blebs; several small pyrite blebs and streaks; few medium brown fine-medium crystalline nahcolite stringers; few leached nahcolite vugs.

From	To	
1392.9	1394.3	Core loss
394.3	1398.6	Oil Shale, light olive brown with medium olive brown banding, even streaked and irregular bedding, poor to fair competence, low grade; several 0.05-0.15 leached nahcolite vugs with pyrite; several zones of solution fractures with partly collapsed leached nahcolite with pyrite and trace nahcolite; several light brown and white altered nahcolite stringers and streaks; several pyrite streaks and blebs; gradational contact.
398.6	1401.9	Oil Shale, light olive brown and medium gray brown faintly banded, even with trace irregular bedding, fair to good competence, low to medium grade; 0.50 band with abundant irregular dark gray pyrite stringers and trace partly collapsed leached nahcolite at 1400.0; few pyrite and gilsonite blebs.
401.9	1402.7	Marlstone, light brown gray to buff, even with wavy bedding, poor competence; trace kerogen; few thin light olive brown low grade oil shale stringers; pinpoint pyrite stringers common; several thin light brown to buff fine crystalline nahcolite stringers; several thin zones of partially collapsed leached nahcolite; several 0.05-0.10 leached nahcolite vugs with pyrite.
402.7	1404.0	Oil Shale, light olive brown, even with trace wavy bedding, poor competence, very low-low grade; slightly marly; few buff marlstone stringers; few leached nahcolite vugs; few thin light brown fine crystalline nahcolite stringers.
404.0	1405.3	Oil Shale, medium olive brown, streaked and irregular bedding, fair competence, medium grade; trace gilsonite blebs; abundant small leached nahcolite vugs.
405.3	1408.1	Oil Shale, light olive brown, even with trace streaked and contorted bedding, poor to fair competence, low grade; abundant solution fracture zones with partially collapsed leached nahcolite, pyrite, and trace white altered nahcolite; few leached nahcolite vugs; gradational contact.
408.1	1410.2	Oil Shale, medium olive brown, streaked bedding, good competence, medium grade; abundant small leached nahcolite vugs and partially collapsed leached nahcolite with pyrite rims; pyrite blebs and streaks common; gradational contact.
410.2	1411.4	Oil Shale, light to medium olive brown, even with trace looped and irregular bedding, fair to good competence, low to medium grade; few pyrite blebs and streaks.
411.4	1419.8	Oil Shale, medium to dark olive brown, streaked with trace irregular bedding; good to excellent competence medium to high grade; trace gilsonite streaks; several pyritic streaks, stringers, and blebs; 0.3 core loss from 1414.7-1415.3; 0.10 light brown fine microcrystalline nahcolite bands at 1415.7 and 1416.8; 0.15 light brown fine crystalline nahcolite vug with pyrite rim at 1417.8.

From	To	Description
419.8	1421.8	Oil Shale, medium to dark gray brown, even with irregular bedding, excellent competence, medium to high grade; few gilsonite streaks.
421.8	1425.0	Oil Shale, medium-dark olive brown, streaked bedding, excellent competence, high grade; fairly low density; fairly tough and elastic; few gilsonite and pyrite blebs and streaks; 0.10 zone with abundant irregular and radiated pyrite streaks and stringers at 1422.7.
425.0	1435.0	Note: Heavy gas blow (colorless, odorless); blew core barrel tube, catcher and core approximately 100' from Rig; core disoriented within this interval, but generally as follows: Oil Shale, medium to dark olive brown, streaked bedding, good to excellent competence, high grade; fairly low density; tan marly streaks and stringers common; pyrite streaks and blebs common; trace scattered gilsonite blebs; .10 leached nahcolite vugs with associated pyrite at 1425.0 and at 1431.7; several scattered partially leached nahcolite stringers with associated pyrite; from 1432.2-1433.1 medium brown, medium to coarse crystalline, <u>bladed nahcolite band</u> - trace pyrite rim; 30°-45° inclined bedding from 1430.8-1431.1 and 1432.7-1433.5 associated with above nahcolite bed; .05 marcocite pods at 1426.3 and 1429.9; from 1430.9-1432.1 light olive brown, even bedded, low grade oil shale.
435.0	1440.9	Oil Shale, medium to dark olive brown, streaked bedding, excellent competence, high grade; trace gilsonite blebs and lamina; marly streaks and blebs common; dark brown, medium crystalline <u>bladed and radiating, nahcolite</u> bes from 1435.7-1436.9, and from 1439.7-1440.9.
440.9	1443.5	Oil Shale, medium to dark olive brown, even bedding, good to excellent competence, high grade; abundant pyrite stringers and lamina; trace gilsonite streaks and lamina; trace buff granular tuff stringers.
443.5	1447.2	Oil Shale, marly, light to medium gray brown, irregular with offset bedding, poor to fair competence, very low grade; abundant pyrite streaks, stringers, and blebs; abundant solution fractures with pyrite, <u>collapsed leached nahcolite</u> and nahcolite; marly stringers common; 0.7 core loss from 1445.3-1446.0.
447.2	1448.3	Oil Shale, medium olive brown, evenly inclined at 10° bedding, good competence, medium grade; trace gilsonite streaks, trace buff marly streaks and stringers; pyrite streaks and lamina common; .05 leached nahcolite vugs at 1447.3, 1448.1.
448.3	1449.0	Oil Shale, marly, light gray brown, irregular bedding, good competence, very low grade; abundant buff marly streaks and stringers; abundant pyrite streaks and stringers; trace gilsonite streaks; abundant solution fractures with <u>collapsed leached nahcolite</u> , pyrite, and white altered nahcolite.
449.0	1455.0	Oil Shale, medium olive brown, streaked bedding, good to excellent competence, medium to high grade; abundant pyrite streaks and stringers; trace buff marly streaks and blebs; .05 <u>leached nahcolite</u> vugs at 1449.2, 1450.7, and 1451.0; .10 <u>leached nahcolite</u> vugs at 1451.4, and

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		1452.5; .05 marcocite nodules common; .10 zones of medium brown, medium crystalline nahcolite with bladed and radiating structure and associated pyrite at 1453.4 and 1453.6.
455.0	1456.8	Oil Shale, medium olive brown and light olive brown, even with trace looped bedding, excellent competence, medium grade; abundant buff marly streaks and stringers; abundant pyrite streaks and stringers; trace gilsonite streaks; gradational contact.
456.8	1461.7	Oil Shale, light to medium olive brown, even and irregular bedding, fair competence, low to medium grade; abundant buff marly streaks and stringers; abundant pyrite streaks and stringers; trace gilsonite streaks; solution fractures with collapsed leached nahcolite, pyrite and white altered nahcolite common; trace marcocite nodules; light gray brown, even bedding, very low grade oil shale bands from 1457.1-1457.8 and from 1459.2-1460.1; .10 partially leached nahcolite vugs with associated pyrite at 1461.3.
461.7	1464.2	Oil Shale, medium olive brown, streaked with trace looped bedding, fair competence, medium to high grade; abundant buff marly streaks; trace pyrite streaks and stringers; abundant dark olive brown high grade oil shale streaks and stringers; 0.5 band of light gray brown very low grade oil shale at 1462.3, .20 band at 1463.8, .30 band at 1464.1; trace marcocite nodules; .70 core loss from 1462.9-1463.6.
464.2	1466.9	Oil Shale, medium to dark olive brown, streaked with trace even bedding, good to excellent competence, high grade; trace buff marly streaks and blebs; trace gilsonite streaks; trace pyrite streaks and stringers; .05 marcocite nodule at 1466.3.
466.9	1472.5	Oil Shale, marly, light gray brown to light golden brown, even and irregular bedding, very poor to poor competence, very low grade; abundant medium olive brown medium grade oil shale stringers; trace pyrite streaks and stringers; abundant solution fractures with collapsed leached nahcolite, pyrite, and white altered nahcolite; .10 leached nahcolite vugs at 1469.0, 1469.1, 1470.3; .05 leached nahcolite vugs at 1472.1 and 1472.4.
472.5	1481.5	Oil Shale, light to medium olive brown, streaked with trace even bedding, good to excellent competence, medium grade; trace marly streaks and blebs; trace pyrite streaks and stringers; abundant marcocite nodules; .05 medium brown medium crystalline nahcolite stringers at 1474.2, 1477.7, 1479.1; .10 zones partially leached dark brown, medium crystalline nahcolite with bladed and radiating structure and associated pyrite common; .30 zone leached nahcolite vugs with pyrite rims at 1480.0, .20 at 1480.4.
481.5	1484.8	Oil Shale, marly, light gray brown, even with trace looped bedding, poor competence, very low to low grade; medium olive brown medium grade oil shale stringers common; trace gilsonite streaks; abundant solution fractures with collapsed leached nahcolite, pyrite, and white altered nahcolite; trace pyrite streaks and stringers.

From	To	
1484.8	1487.8	Oil Shale, light olive brown, even with trace streaked bedding, poor competence, low grade; marly; trace medium olive brown medium grade oil shale streaks and stringers; trace pyrite streaks and stringers; trace gilsonite streaks, abundant buff marly streaks and stringers; .05 leached nahcolite vugs at 1485.1; trace solution fractures with collapsed leached nahcolite, pyrite, and white altered nahcolite.
1487.8	1501.2	Oil Shale, light to medium olive brown, streaked with trace looped bedding, excellent competence, medium grade; abundant buff marly streaks and blebs; trace pyrite streaks and stringers; trace gilsonite streaks; trace marcocite nodules; .10 medium brown, medium crystalline nahcolite pod at 1489.5, .05 stringer at 1491.7, .3 at 1492.6, .05 at 1493.9, .05 at 1494.1; .40 core loss from 1494.6-1495.0; .05 medium brown medium crystalline nahcolite at 1495.5, 1496.1, 1496.4, .10 stringer at 1498.0; .20 medium brown, medium crystalline nahcolite pod with associated pyrite at 1495.7; several partially leached nahcolite vugs with pyrite and white altered nahcolite from 1499.0-1500.5; solution fractures with collapsed leached nahcolite, pyrite, and white altered nahcolite common from 1500.7-1501.0.
501.2	1507.4	Oil Shale, light olive brown, even with trace streaked and looped bedding, poor to fair competence, low grade; abundant tan marly streaks and stringers; pyrite streaks and stringers common; solution fractures with collapsed leached nahcolite, pyrite, and white altered nahcolite and bubbling core common; .10 partially leached nahcolite vug with associated pyrite and white altered nahcolite at 1502.7, .20 at 1503.5 and .20 at 1503.9; .10 partially leached nahcolite stringers at 1504.3; 0.2 core loss from 1504.8-1505.0; .20 core loss from 1505.0-1505.2.
507.4	1515.0	Oil Shale, medium olive brown, streaked bedding, excellent competence, medium to high grade; tan marly streaks and blebs common; trace pyrite streaks and stringers; trace gilsonite streaks; .10 light brown coarse crystalline nahcolite pod with bladed structure and with associated pyrite rims at 1511.0; several .05 partially leached nahcolite vugs with associated pyrite from 1514.2-1514.6.
515.0	1516.9	Oil Shale, light to medium olive brown, even with trace looped bedding, good to excellent competence, medium grade; trace pyrite streaks and stringers; trace tan marly streaks and stringers; trace gilsonite streaks.
516.9	1520.0	Oil Shale, light olive brown to light gray brown; even with trace offset bedding, good competence, low to medium grade; trace tan marly streaks and stringers; abundant medium olive brown medium grade oil shale streaks and stringers; trace gilsonite streaks; .30 medium brown, medium crystalline nahcolite pods with bladed and radiating structure with associated pyrite and white altered nahcolite at 1517.1, 1517.5; .20 at 1518.5, 1518.7; trace solution fractures with collapsed leached nahcolite, and bubbling core from 1519.4-1519.6.

From	To	Description
520.0	1529.1	Oil Shale, medium to dark olive brown, streaked with trace even bedding, good to excellent competence, high grade; trace tan marly blebs; trace pyrite streaks and stringers; trace gilsonite streaks; .40 light brown coarse crystalline nahcolite pod at 1521.4, .40 medium brown crystalline nahcolite pod with bladed and radiating (B/R) structure with associated white altered nahcolite and pyrite at 1522.1; .10 zone of light brownish gray marly stringer at 1526.8; .20 band dark brown, medium crystalline nahcolite with bladed and radiating structure and associated pyrite with trace white altered nahcolite at 1527.7.
529.1	1531.2	Oil Shale, light olive brown, even with looped bedding, excellent competence, low grade; slightly marly; medium olive brown, medium grade oil shale streaks and stringers common; abundant disseminated pyrite and pyrite stringers from 1530.2-1530.4; buff marly streaks, stringers, and blebs common.
531.2	1533.1	Oil Shale, medium olive brown, even with looped and streaked bedding, excellent competence; medium to high grade; buff marlstone blebs and stringers common; trace pyrite lamina; white tuff blebs common.
533.1	1542.1	Oil Shale, dark olive brown, even bedding, fair to good competence, high grade; trace gilsonite streaks; pyrite streaks and lamina common; trace buff marly streaks and lamina; very thin buff granular tuff stringers at 1439.7.
542.1	1544.3	Oil Shale with interbedded tuff stringer and bands; Oil Shale, medium to dark olive brown, even bedding; tuff, medium gray, massive with trace even bedding, slightly calcareous, slightly granular; overall good competence, overall low to medium grade; trace gilsonite streaks; trace pyrite streaks and lamina; .05 buff granular tuff stringer at 1543.6.
544.3	1545.9	Tuff, medium gray, massive, good competence; trace dark olive brown high grade oil shale streaks and stringers; slightly calcareous, fairly hard, brittle.
545.9	1548.5	Tuff with interbedded oil shale stringers; tuff, medium gray, streaked bedding, slightly calcareous, slightly granular, fairly brittle; Oil Shale, medium olive brown, medium grade; overall good competence; Overall very low grade; trace pyrite streaks and blebs, trace gilsonite streaks; trace marly streaks and blebs.
548.5	1549.6	Oil Shale, dark olive brown, looped with trace offset bedding, good competence, high to very high grade; trace tan marly streaks and stringers; trace pyrite streaks and stringers; trace solution fractures with collapsed leached nahcolite, pyrite, bubbling core.
549.6	1552.9	Oil Shale, light olive brown, streaked with trace even bedding, fair competence, low to medium grade; abundant tan marly streaks and blebs; abundant pyrite streaks and stringers; abundant solution fractures with collapsed leached nahcolite, pyrite, white altered nahcolite, and bubbling core.

From	To	
1552.9	1554.4	Oil Shale, medium olive brown, streaked bedding, good to excellent competence, medium to high grade; abundant pyrite streaks and stringers; trace tan marly streaks; medium brown stringers with disseminated nahcolite from 1553.1-1553.5; several marcocite nodules from 1553.6-1554.0.
1554.4	1560.2	Oil Shale, light olive brown, irregular bedding, fair competence, low to medium grade; abundant pyrite streaks and stringers; abundant solution fractures with collapsed leached nahcolite, pyrite, dolomite, and bubbling core; .05 leached nahcolite vugs at 1557.2; several white light brown, slightly calcareous, granular, dolomitic stringers from 1557.5-1559.4; .50 band of dark olive brown high grade oil shale at 1558.6.
560.2	1563.7	Oil Shale, medium to dark olive brown, streaked bedding, fair competence, high grade; trace tan marly streaks and blebs; trace pyrite streaks; .10 band partially leached and partially collapsed nahcolite stringers with trace white altered nahcolite at 1560.2, .20 at 1560.8, .20 at 1561.2; several partially leached nahcolite vugs from 1562.0-1562.4; trace solution fractures with collapsed leached nahcolite, pyrite, bubbling core from 1562.7-1563.7.
563.7	1566.5	Oil Shale, marly, light olive brown to light gray brown, streaked and looped bedding, fair competence, very low grade; abundant tan marly streaks and blebs; trace pyrite streaks and stringers; trace gilsonite streaks; trace solution fractures with collapsed leached nahcolite, pyrite, and bubbling core.
566.5	1568.1	Oil Shale, medium to dark olive brown, streaked with irregular bedding, poor to fair competence, medium to high grade; trace marly streaks; trace pyrite streaks; 0.1 leached nahcolite vugs with pyrite at 1567.0; 0.45 band of dark brown fine to medium crystalline nahcolite pods with trace partially leached nahcolite vugs at 1567.5.
568.1	1570.5	Oil Shale, light olive brown, even with irregular bedding, poor competence, very low to low grade; marly; light gray brown marlstone band from 1568.8-1569.1 and 1569.8-1570.5; trace pyrite streaks, stringers, and disseminated flakes; .05 leached nahcolite vugs with associated pyrite at 1568.7; several .05 partially leached nahcolite vugs with pyrite from 1569.1-1569.3; solution fractures with pyrite and collapsed leached nahcolite common.
570.5	1575.2	Oil Shale, dark olive brown, streaked with irregular bedding, poor to fair competence, high grade; pyrite streaks and stringers common; trace gilsonite streaks; trace buff tuff streaks and blebs; several white granular very calcareous stringers from 1571.4-1572.1; few medium brown marly stringers; .1 leached nahcolite vugs at 1570.6, 1571.2, 1573.8, and 1574.5; .05 partially leached nahcolite vug with white altered nahcolite at 1570.8; several very small leached nahcolite vugs scattered through core; solution fractures with collapsed leached nahcolite, pyrite and calcite common; .5 band of dark olive brown very high grade oil shale at 1574.7.

From	To	
575.2	1581.1	Oil Shale, light olive brown, even and streaked with trace offset bedding, poor to fair competence, low grade; marly, abundant pyrite streaks, blebs, and lamina; trace gilsonite streaks; medium gray brown, even bedding, marly, very low grade oil shale from 1578.1-1578.9; light gray brown, irregularly bedded, marly oil shale with abundant marly blebs and stringers from 1580.1-1581.1; .20 light gray fairly brittle tuff at 1579.6; .10 zone of buff slightly granular, slightly calcareous dolomitic stringer at 1579.5; solution fractures with collapsed leached nahcolite and pyrite common; several scattered small partially leached nahcolite vugs.
581.1	1582.4	Oil Shale, medium olive brown, streaked with even bedding, excellent competence, medium grade; pyrite streaks and stringers common; trace gilsonite streaks; trace very small granular calcareous blebs; abundant marly streaks and blebs; light brown slightly calcareous tuff stringer at 1581.9.
582.4	1586.1	Oil Shale, light olive brown, even with irregular bedding, fair to good competence, low grade; trace pyrite streaks and stringers; zone of light brown finely disseminated nahcolite stringers and bands from 1583.2-1585.4; .10 partially leached nahcolite vug with pyrite rim at 1584.1; .10 medium brown coarse crystalline nahcolite pod at 1584.5; several .05 partially leached nahcolite vugs with pyrite from 1583.8-1584.1.
586.1	1588.8	Oil Shale, medium to dark olive brown, streaked bedding, good to excellent competence, high grade; abundant marly blebs and streaks; trace pyrite streaks; several finely disseminated partially leached nahcolite stringers and blebs from 1586.3-1586.5; .10 light brown finely disseminated nahcolite lense at 1587.5.
588.8	1590.6	Oil Shale, light olive brown with medium gray brown banding, irregular with even bedding, excellent competence, low grade; tan marly stringers and streaks common; abundant pyrite streaks and stringers; abundant disseminated pyrite; abundant finely disseminated nahcolite stringers and bands from 1589.3-1590.6.
590.6	1592.6	Oil Shale, light to medium olive brown, even bedding, poor competence, low to medium grade; abundant pyrite stringers, lamina, and blebs; .05 partially leached nahcolite vugs with pyrite at 1590.9; solution fractures with collapsed leached nahcolite and pyrite common. Base R5 at 1592.6.
592.6	1598.2	Oil Shale, dark olive brown, streaked bedding, good to excellent competence, high grade; pyrite streaks and blebs common; marly blebs common; trace gilsonite streaks; .3 band of light olive brown, low grade, oil shale at 1597.3; medium brown, granular, slightly calcareous tuff stringer at 1596.6.

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598.2	1599.3	Oil Shale, light to medium olive brown, streaked with trace wavy bedding, excellent competence, medium grade; buff marly streaks and blebs common; .2 zone with abundant pyrite streaks and stringers at 1598.5.
599.3	1600.8	Oil Shale, dark olive brown, even with trace streaked bedding, excellent competence, high grade; abundant pyrite streaks, stringers, and lamina; trace marly streaks and blebs; trace gilsonite streaks.
600.8	1605.9	Oil Shale, medium to olive brown, even with looped and contoured bedding, poor to fair competence, medium grade; trace gilsonite streaks and blebs; trace marly streaks and blebs; abundant solution fractures with pyrite, <u>collapsed leached nahcolite</u> and leached <u>nahcolite vugs</u> from 1603.3-1603.9; .1 band of pyrite stringers and disseminated pyrite at 1604.2; .6 band of light olive brown, very low grade, marly oil shale at 1603.3; dark olive brown, high grade, oil shale stringers and streaks common.
605.9	1607.3	Marlstone, medium brown gray, massive, fair competence, .15 band of medium olive brown, medium grade oil shale at 1606.5; abundant pyrite streaks and stringers; gilsonite stringers common; .2 zone of abundant solution fractures with pyrite, <u>collapsed leached nahcolite</u> , and leached <u>nahcolite vug</u> at 1606.0; a buff granular tuff stringer at 1607.0; few .05 partly leached nahcolite vugs from 1605.9-1606.3.
607.3	1620.1	Oil Shale, medium olive brown, streaked with even bedding, fair to good competence, high grade; abundant disseminated pyrite and abundant pyrite streaks, stringers, and blebs; trace gilsonite streaks and blebs; trace marly streaks and lamina; .15 dark brown medium crystalline nahcolite pods with B&R structure at 1610.2, 1611.8, and 1614.4; .15 medium brown fine crystalline nahcolite pod at <u>1613.8</u> ; a .1 dark brown medium crystalline nahcolite pods with B&R habit at 1613.1, 1613.3, and 1614.1, several .05 medium brown partially leached nahcolite vugs with associated pyrite.
620.1	1627.9	Oil Shale, light olive brown and light green brown, even bedding, fair competence, medium grade; pyrite streaks and stringers common; trace gilsonite streaks; marly streaks and stringers common; zone of several partially leached nahcolite vugs from 1622.1-1623.6; light gray brown very low grade marly oil shale from 1622.3-1623.5; 0.5 zone of abundant solution fractures with pyrite and leached nahcolite vugs at <u>1625.5</u> ; .4 at <u>1626.5</u> .
627.9	1636.3	Oil Shale, light to medium olive brown, streaked bedding, good competence, medium grade; abundant disseminated pyrite; pyrite streaks and lamina common; marly streaks, stringers, and blebs common; .35 band of light olive brown, very low grade, marly, oil shale at 1627.9; .05 zone of medium brown finely disseminated <u>nahcolite</u> pods, blebs, and streaks at 1630.5; .15 leached nahcolite vugs with associated pyrite at 1630.2; several .05 medium brown fine crystalline nahcolite pods from 1632.0-1632.5 and from 1633.3-1633.5; .2 dark brown medium crystalline nahcolite pod with bladed and radiated habit at 1632.5 and 1633.5; 0.1 partially leached nahcolite vug at 1635.4.

From	To	Description
1636.3	1639.8	Oil Shale, medium dark olive brown, even with trace looped bedding, fair competence, high grade; abundant pyrite streaks and stringers; trace solution fractures with collapsed <u>leached nahcolite</u> and pyrite; trace gilsonite streaks.
1639.8	1650.5	Oil Shale, light to medium olive brown, streaked bedding, good competence, low to medium grade; abundant pyrite streaks and blebs; trace marly blebs; a .1 <u>leached nahcolite</u> vug at 1645.3, 1647.1, and 1648.8; 0.2 pod of medium brown, medium crystalline nahcolite at 1647.4; .7 core loss from 1649.3-1650.0.
1650.5	1665.5	Oil Shale, light olive brown, streaked with even bedding, good to excellent competence, low to medium grade; abundant pyrite streaks and blebs; abundant .05 medium brown, medium crystalline nahcolite pods from 1653.3-1656.8; abundant buff marly stringers and blebs; a .3 band of light brown, finely disseminated nahcolite at 1657.4, 1657.8, a .1 band at 1659.8; .4 band dark brown finely disseminated nahcolite at 1662.9, .1 band at 1662.3; abundant .2 <u>nahcolite</u> pods with bladed and radiated structure with associated pyrite from 1658.3-1659.7, from 1663.7-1664.4; gradational contact.
1665.5	1668.7	Oil Shale, dark olive brown, even with trace streaked bedding, excellent competence, high grade; abundant pyrite streaks and blebs; trace buff marly blebs; 0.2 band of dark brown medium crystalline nahcolite with bladed and radiated structure at 1666.5, 0.3 at 1667.3 and .1 at 1667.2; 0.2 dark brown, medium crystalline nahcolite pod with bladed and radiated structure and associated pyrite rims at 1667.5; 0.7 band of medium brown, medium crystalline <u>nahcolite</u> with bladed and radiated structure at 1667.8.
1668.7	1672.8	Oil Shale, light olive brown, even with trace streaked bedding, excellent competence, low grade; slightly marly; abundant medium brown <u>microcrystalline nahcolite</u> stringers and bands with abundant buff marly stringers and blebs; trace pyrite streaks and blebs. Top R4 at 1672.8.
1672.8	1682.0	Oil Shale, light to medium olive brown, streaked bedding, excellent competence, low to medium grade; abundant buff marly stringers and blebs; pyrite streaks and blebs common; a .2 medium brown, medium crystalline <u>nahcolite</u> pod with associated pyrite rim at 1674.0, 1678.0, and 1678.2; .8 band of medium olive brown finely disseminated nahcolite at 1675.7, 0.2 band at 1672.7, 1679.1, 0.4 at 1679.4, and 1680.3; abundant .1 medium brown, medium crystalline <u>nahcolite</u> pod with bladed and radiated structure from 1681.2-1682.0.
1682.0	1689.9	<u>Nahcolite with oil shale</u> intertongued; Nahcolite, medium to dark brown, medium crystalline with bladed and radiated structure and associated pyrite; Oil Shale, light to medium olive brown, streaked bedding, excellent competence, low to medium grade; abundant buff marly streaks and blebs; trace pyrite streaks and blebs.

From	To	
689.9	1698.3	Oil Shale, light olive brown to light gray brown, even and streaked bedding, excellent competence, low grade; abundant marly streaks and blebs; abundant pyrite streaks and stringers, trace dark olive brown, high grade oil shale streaks and stringers; a .2 pod of medium brown medium crystalline nahcolite with bladed and radiated structure at 1693.4, 0.3 pod at 1694.2 and .1 band at 1694.0; several scattered 0.1 pods of medium brown medium crystalline nahcolite with associated pyrite rims from 1693.4-1698.3; .1 medium brown, medium crystalline nahcolite pods with bladed and radiated structure common from 1695.0-1696.7; 0.6 zone with abundant small, medium brown, medium crystalline nahcolite pods at 1696.9 and .3 zone at 1698.0.
598.3	1709.1	Oil Shale, medium to dark olive brown, streaked bedding, excellent competence, high grade; abundant asphalt streaks and blebs; abundant tan marly streaks and blebs; trace pyrite blebs and streaks; .15 band of dark brown, finely disseminated nahcolite at 1698.3 and .3 band at 1699.0; medium brown finely disseminated nahcolite stringer at 1701.5; .05 medium brown fine crystalline nahcolite pod at 1702.9; .05 band light olive brown, low grade, marly oil shale at 1703.8; dark brown microcrystalline nahcolite with interbedded medium olive brown, medium to high grade oil shale stringers from 1705.1-1706.0; .2 band of dark brown fine crystalline nahcolite at 1706.8 and .1 band at 1707.2.
709.1	1711.1	Nahcolite with oil shale; Nahcolite, dark brown medium crystalline; Oil Shale, light olive brown, streaked and even with trace wavy bedding, excellent competence, low grade; abundant marly streaks and blebs, abundant pyrite streaks from 1709.5-1709.9.
711.1	1712.3	Oil Shale, light olive brown and dark olive brown, even with trace streaked bedding, excellent competence, medium grade; abundant marly streaks, stringers, and blebs; trace pyrite stringers; trace gilsonite streaks.
712.3	1714.9	Oil Shale, light to medium olive brown, even with trace streaked and wavy bedding, excellent competence, low to medium grade; abundant marly streaks, stringers, and blebs; trace gilsonite streaks; .3 band of dark brown, medium crystalline nahcolite with trace white altered nahcolite at 1712.6; .2 dark brown, finely crystalline nahcolite pod at 1713.8 and .1 pod at 1714.4.
714.9	1716.3	Oil Shale, light gray brown and light olive brown, even bedding, poor to fair competence, very low to low grade; abundant pyrite streaks and stringers; trace gilsonite streaks.
716.3	1720.9	Oil Shale, light olive brown, even with wavy bedding, good competence, low grade; abundant pyrite streaks and stringers; trace gilsonite streaks; marly blebs and streaks common; .1 dark brown, medium crystalline nahcolite pod with bladed and radiated structure and pyrite rim at 1717.8; abundant large (0.3-0.4) dark brown medium to coarse crystalline nahcolite pods with bladed and radiated structure and with several scattered .05 dark brown nahcolite pods from 1718.0-1719.0; .05 medium brown, fine to medium crystalline

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1720.9	1728.7	nahcolite pod with bladed and radiated structure and trace light altered nahcolite common from 1720.3-1720.8; gradational contact.
1728.7	1743.6	Oil Shale, light to medium olive brown, even with wavy bedding, excellent competence, medium grade; abundant marly streaks, stringers, and blebs; trace pyrite streaks; .05 dark brown fine to medium crystalline nahcolite pods with trace white altered nahcolite common from 1721.2-1722.0, and 1722.2-1722.6; .3 band of medium brown finely disseminated nahcolite with trace white altered nahcolite rims at 1722.8; .1-.2 dark brown, fine to medium crystalline nahcolite pods with bladed and radiated structure and trace white altered nahcolite common from 1723.4-1724.8; 0.1 and .2 fine to medium crystalline nahcolite pods with bladed and radiated structure and trace white altered nahcolite from 1725.0-1727.8; .05 dark brown, fine crystalline nahcolite band at 1728.0; 0.5 medium brown microcrystalline nahcolite pod at 1728.2.
1743.6	1745.5	Oil Shale, light to medium olive brown, streaked bedding, excellent competence, medium grade; abundant marly streaks, stringers, and blebs; abundant dark olive brown, high grade oil shale streaks and blebs; zone of 0.05 dark brown, finely crystalline nahcolite pod with bladed and radiated structure from 1731.7-1732.3; 0.2 dark brown, fine to medium crystalline nahcolite pods with bladed and radiated structure; and trace white altered nahcolite at 1741.4 and 1742.5; 0.2 band of dark olive brown, high grade oil shale at 1741.8.
1745.5	1747.0	^{RED?} Nahcolite with Oil Shale; Nahcolite, medium to dark brown, micro-coarse crystalline with bladed and radiated structure, trace white altered nahcolite; Oil Shale, dark olive brown, streaked with wavy bedding, high grade; excellent competence, light olive brown low grade oil shale stringers common.
1747.0	1748.2	Oil Shale, light to medium olive brown, streaked bedding, excellent competence, medium grade; abundant marly streaks and blebs, abundant dark olive brown oil shale streaks and blebs; 0.4 band of dark brown, coarse crystalline nahcolite pods with bladed and radiated structure and trace white altered nahcolite at 1746.6.
1748.2	1752.8	Nahcolite with trace oil shale; Nahcolite, dark brown, medium to coarse crystalline with bladed and radiated structure and trace white altered nahcolite; Oil Shale, light olive brown, even bedding, low grade, excellent competence.
		Oil Shale, light olive brown, even with streaked bedding, excellent competence, low grade; buff marly bands, stringers, and blebs common, trace dark olive brown, high grade oil shale stringers; trace pyrite streaks; 0.15 medium brown, medium crystalline nahcolite pod at 1748.4 and 1749.5; 0.7 band of medium dark brown, coarse crystalline nahcolite with bladed and radiated structure and trace white altered nahcolite at 1750.2; several dark brown microcrystalline nahcolite stringers with abundant white altered nahcolite from 1751.8-1752.2.

From	To	
1752.8	1756.1	Oil Shale, light to medium olive brown, streaked with wavy bedding, excellent competence, low to medium grade; abundant marly streaks and blebs; abundant dark olive brown, high grade oil shale streaks, stringers, and blebs; 0.5 band of dark brown microcrystalline nahcolite at 1754.3; 0.5 band of finely crystalline nahcolite with medium crystalline rims, and white altered nahcolite common at 1755.2; 0.2 dark brown fine to medium crystalline nahcolite pod at 1755.9.
1756.1	1758.3	Oil Shale, dark olive brown, even bedding, excellent competence, high to very high grade; trace marly streaks and blebs; trace pyrite streaks; several scattered, partially leached, small dark brown nahcolite vugs.
1758.3	1759.6	Oil Shale, light to medium olive brown, even bedding, excellent competence, low to medium grade; 0.2 medium brown, medium crystalline nahcolite band at 1758.3; 0.3 medium brown medium crystalline nahcolite pod with bladed and radiated structure at 1758.6; 0.3 zone of dark brown, medium crystalline nahcolite pods from 1759.3-1759.6.
1759.6	1762.8	Oil Shale, medium olive brown, streaked bedding, excellent competence, medium grade; abundant dark olive brown, high grade oil shale streaks, stringers, and blebs; buff marly blebs common; trace pyrite streaks and blebs; 0.3 dark brown, medium crystalline nahcolite band at 1761.3; 0.2 medium brown, fine crystalline nahcolite band at 1761.9 and 0.3 band at 1762.3.
1762.8	1769.1	Oil Shale, medium to dark olive brown, streaked bedding, excellent competence, high grade; abundant dark olive brown, very high grade oil shale streaks, stringers, and blebs; trace buff marly blebs; 0.3 dark brown finely crystalline nahcolite pod with bladed and radiated structure at 1762.8; 0.1 band of dark brown, fine to medium crystalline nahcolite at 1763.0; 0.6 dark brown, fine crystalline nahcolite pod at 1763.0; .35 dark brown, medium crystalline nahcolite band at 1764.8.
1769.1	1774.4	Oil Shale, dark olive brown, even with looped bedding, excellent competence, high grade; abundant dark olive brown, very high grade oil shale stringers; trace buff marly blebs; medium brown gray marly stringers common; trace gilsonite streaks; pyrite stringer at 1770.2.
1774.4	1778.5	Oil Shale, medium olive brown to medium gray brown, streaked bedding, excellent competence, medium to high grade; abundant buff marly blebs; dark olive brown, high grade oil shale streaks common; trace gilsonite.
1778.5	1779.8	Oil Shale, medium gray brown, even bedding, poor to fair competence, low to medium grade; fairly argillaceous; white finely disseminated calcite stringers common; trace gilsonite streaks; medium olive brown, medium grade oil shale stringers common; bubbling core.
1779.8	1782.6	Oil Shale, medium olive brown to medium gray brown, streaked with wavy bedding, excellent competence, medium to high grade, abundant buff marly blebs and streaks; trace gilsonite streaks; trace pyrite stringers; 0.2 band of light olive brown, marly, low grade oil shale at 1781.1.

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1782.6	1786.2	Oil Shale, medium to dark gray brown, even with trace irregular bedding, poor to fair competence, low to medium grade; argillaceous; abundant white disseminated calcite stringers; pyrite streaks and stringers common; trace gilsonite, bubbling core; gradational contact at 1786.2.
1786.2	1799.5	Oil Shale, dark olive brown, streaked and even bedding, excellent competence, high grade; trace buff marly streaks and blebs; trace of gray to white marly stringers, and trace gilsonite.
1799.5	1801.2	Nahcolite, medium to dark brown, micro-fine crystalline, excellent competence; bands and stringers of medium olive brown, medium grade oil shale common; trace asphaltic pyrite.
1801.2	1804.4	Nahcolite and Oil Shale; Nahcolite, very large (0.4-0.5 diameter), dark brown, medium to coarse crystalline pods, with bladed and radiated structure, and light to medium, micro-fine crystalline bands with trace white altered nahcolite; Oil Shale, light olive brown, wavy bedding associated with nahcolite pod, excellent competence, and low grade.
1804.4	1815.5	Oil Shale, medium olive brown, streaked bedding, excellent competence, medium grade; abundant buff marly streaks, stringers, and blebs; pyrite blebs common; trace of gilsonite streaks; a dark brown, medium crystalline nahcolite stringer at 1806.3; 0.3 band of dark brown, medium crystalline nahcolite with trace white altered nahcolite; 0.7 band of dark brown, medium crystalline nahcolite with bladed and radiated structure and white altered nahcolite common at 1810.8; 0.5 band of dark brown, medium crystalline nahcolite with associated pyrite rims at 1813.0; and abundant .05 marcocite nodules from 1813.7-1815.0.
815.5	1817.3	Nahcolite, dark brown, medium to coarse crystalline with bladed and radiated structure and a trace of pyrite; excellent competence, a few medium olive brown, medium grade oil shale stringers from 1815.5-1815.8; and a 0.1 medium olive brown, medium grade oil shale band at 1816.9.
817.3	1820.8	Oil Shale and Nahcolite; Oil Shale, medium olive brown, streaked with wavy bedding, excellent competence, low to medium grade; Nahcolite, dark brown, medium to coarse crystalline with bladed and radiated structure; abundant buff marly streaks, stringers, and blebs; dark olive brown, high grade oil shale stringers from 1820.7-1820.8.
820.8	1826.2	Oil Shale, light olive brown, light gray brown, even with trace streaked and looped bedding, excellent competence, very low to low grade; abundant buff marly streaks and stringers; abundant light gray to white marly stringers, trace gilsonite streaks, and trace pyrite streaks, dark olive brown, high grade oil shale stringers common; a 0.3 zone of medium gray brown, very low grade oil shale at 1822.7; abundant light brown to white marly streaks and stringers from 1823.5-1825.9; a 0.2 band of medium brown, medium coarse crystal-

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		line at 1823.2, 1824.1, and 1824.7; a 0.3 band of medium to dark brown coarse crystalline nahcolite with bladed and radiated structure and trace white altered nahcolite at 1823.4; and 0.3 band medium olive brown, medium grade oil shale at 1825.2.
1826.2	1829.9	Oil Shale, medium to dark olive brown, streaked with trace looped bedding, excellent competence, medium to high grade; abundant buff marly streaks, stringers, and blebs; trace gilsonite streaks; trace of pyrite blebs; gray marly streaks and stringers common from 1828.6-1829.0; a 0.05 dark brown, medium crystalline nahcolite band at 1829.0.
829.9	1836.5	Nahcolite with Oil Shale; Nahcolite, dark brown, medium to coarse crystalline, with bladed and radiated structure and white altered nahcolite common; oil shale, light olive brown, streaked with wavy bedding associated with nahcolite bands, low grade; overall excellent competence; trace buff marly streaks and stringers; trace dark olive brown, high grade oil shale stringers; 0.7 zone of dark olive brown, high grade oil shale at 1830.2; 0.1 dark olive brown, medium grade, oil shale band at 1836.4.
836.5	1847.9	Oil Shale and finely disseminated nahcolite; Oil Shale, light to medium olive brown streaked bedding, excellent competence, low to medium grade; nahcolite, medium to dark brown, finely disseminated through out bed; light olive brown, very low grade marly oil shale at 1844.4; buff marly streaks and blebs common; trace pyrite stringers; and 0.2 dark brown, medium to coarse crystalline nahcolite pod with pyrite rims at 1847.4.
847.9	1849.5	Oil Shale, dark olive brown, streaked bedding, excellent competence, very high grade; trace buff marly streaks and blebs; trace gilsonite streaks; a 0.3 dark brown medium to coarse crystalline nahcolite band with pyrite rims at 1847.9, and a 0.5 band at 1849.5.
849.5	1852.1	Oil Shale, marly, light olive brown, even, looped, and wavy bedding, excellent competence, very low grade; abundant buff marly streaks and stringers; medium olive brown, medium grade oil shale stringers common, a 0.4 band of dark brown medium to coarse crystalline nahcolite at 1849.5, trace pyrite blebs, a 0.2 medium brown, medium to coarse crystalline nahcolite pod with bladed and radiated and associated pyrite at 1851.4 and 1851.6; gradational contact.
852.1	1855.3	Oil Shale, medium olive brown, streaked with trace even bedding, excellent competence, low to medium grade; marly streaks, stringers, and blebs common; trace pyrite nodules; a 0.2 pod of dark brown, medium to coarse crystalline nahcolite pod with bladed and radiated structure and associated pyrite rims at 1854.3; trace gilsonite streaks; and trace dark brown, high grade oil shale streaks.

From	To	
1855.3	1857.5	Nahcolite with oil shale stringers; Nahcolite, dark brown, medium to coarse crystalline with white altered nahcolite common and trace bladed and radiated structure; trace pyrite rims; oil shale stringers, light olive brown, streaked with wavy bedding associated with nahcolite pods, low grade; overall excellent competence; and buff marly streaks, stringers, and blebs common.
1857.5	1870.7	Oil Shale, medium olive brown to gray brown, streaked with trace wavy bedding, excellent competence, low to medium grade; buff marly streaks, stringers, and blebs common; trace gilsonite streaks; trace pyrite streaks and stringers; slightly argillaceous; a 0.8 zone of light olive brown, very low grade marly oil shale at 1859.9; trace pyrite streaks and stringers; trace light blue gray, analcitized tuff blebs; trace asphalt streaks; and a 0.05 asphaltic stringer at 1868.6.
1870.7	1875.1	Oil Shale, medium to dark olive brown, streaked bedding, excellent competence, medium to high grade; marly streaks and blebs common; blue gray granular, analcitized tuff streaks and blebs common; trace gilsonite streaks; pyrite stringers common; and trace asphalt blebs.
1875.1	1878.4	Oil Shale, medium olive to medium gray brown, even with trace streaked bedding, excellent competence, medium grade; slightly argillaceous; marly streaks, stringers, and blebs common; trace gilsonite streaks; and trace pyrite streaks and blebs.
1878.4	1881.8	Oil Shale, marly, light olive brown, streaked with trace wavy bedding, excellent competence, very low grade; marly streaks and blebs common; blue gray, granular, analcitized tuff streaks and blebs common; and trace gilsonite streaks.
1881.8	1886.1	Oil Shale, light to medium olive brown, streaked with trace wavy bedding, excellent competence, low to medium grade; marly streaks, stringers, and blebs common; blue gray, granular analcitized tuff common; trace gilsonite streaks; and a 0.1 light olive brown, very low grade oil shale band at 1883.9.
1886.1	1887.9	Oil Shale, medium olive brown, streaked with trace wavy bedding, excellent competence, medium grade; marly streaks, stringers, and blebs common; blue gray granular, analcitized tuff common; and trace pyrite blebs.
1887.9	1891.6	Oil Shale, dark olive brown, even with trace looped bedding, excellent competence, high to very high grade; blue gray, granular, analcitized tuff streaks and blebs common; bubbling core; trace gray, marly streaks and stringers; trace gilsonite streaks.
1891.6	1893.8	Oil Shale, medium olive brown, streaked bedding, excellent competence, medium grade, abundant buff marly streaks, stringers, and blebs; trace dark olive brown, high grade oil shale streaks; trace pyrite streaks and blebs; trace gilsonite streaks. Base R4 at 1893.8.

om	To	
893.8	1896.6	Oil Shale, light olive brown, streaked with trace wavy bedding, excellent competence, low grade; slightly marly; abundant buff marly streaks, stringers, and blebs; trace medium olive brown, medium grade oil shale stringers; trace pyrite streaks, stringers, and blebs; a 0.1 band of buff marly stringer at 1896.1; a 0.2 band of dark olive brown, high grade oil shale at 1896.2; and a 0.2 gray marly band at 1896.4.
896.6	1898.8	Oil Shale, dark olive brown, even with trace streaked bedding, excellent competence, high grade; trace pyrite streaks and stringers, 0.05 band of brown granular tuff at 1897.9; a 0.5 band of gray marly at 1898.4; blue gray, granular, analcitized tuff streaks common; gradational contact.
898.8	1905.1	Oil Shale, medium to dark olive brown, streaked with even bedding, excellent competence, medium to high grade; gray marly stringers common; trace pyrite streaks and blebs; trace gilsonite streaks; trace asphalt streaks and stringers.
905.1	1909.8	Oil Shale, medium olive brown to medium gray brown, even with trace looped bedding, excellent competence, medium grade; slightly argillaceous; dark olive brown high grade oil shale stringers common; gray marly stringers common; trace pyrite streaks, stringers, and blebs; gradational contact.
909.8	1913.5	Oil Shale, dark olive brown, streaked with trace even bedding, excellent competence, high grade; pyrite streaks and blebs common; trace gilsonite streaks; buff marly stringers common; trace medium brown asphaltic tuff stringers, gradational contact.
913.5	1915.0	Oil Shale, dark olive brown, streaked bedding, excellent competence, very high grade; trace pyrite streaks and stringers; and trace gilsonite streaks, blue gray granular and light brown green tuff streaks common.
915.0	1918.3	Oil Shale, light olive brown, even with trace looped bedding, excellent competence, low grade; abundant buff marly streaks and stringers; a 0.9 zone of abundant pyrite stringers; at 1917.3; medium brown, medium grade oil shale stringers common, trace light blue gray granular, analcitized tuff stringers, trace medium brown asphaltic tuff streaks.
918.3	1920.2	Marlstone, light gray brown, irregular and wavy bedding; poor competence; trace kerogen; abundant medium olive brown medium grade oil shale streaks, stringers, and bands, light blue gray, granular analcitized tuff streaks and stringers common; asphaltic streaks common; trace pyrite streaks.
920.2	1924.2	Oil Shale, light olive brown to light gray brown, even with trace looped bedding, excellent competence, very low to low grade; abundant light blue gray and light brown, granular, analcitized tuff streaks and stringers; abundant light gray and buff marly stringers; pyrite stringers common.

From	To	
924.2	1926.3	Oil Shale, light olive brown to light gray brown, even with trace looped bedding, excellent competence, low grade; trace dark olive brown, high grade oil shale streaks and stringers; light blue gray brown, granular, analcitized tuff stringers; trace light gray and buff marly stringers; trace asphaltic streaks; trace pyrite streaks; a 0.3 medium to dark brown, medium to coarse crystalline nahcolite band with associated pyrite rims at 1925.9.
926.3	1931.9	Oil Shale, light olive to light gray brown, even with trace looped bedding, excellent competence, very low to low grade; abundant gray marly stringers and streaks; buff marly stringers and streaks common; a 0.05 light gray marly band at 1930.3; trace gilsonite streaks; medium olive brown, medium grade oil shale stringers common; dark brown, medium to coarse crystalline nahcolite band with bladed and radiated structure and trace pyrite rims from 1926.5-1927.1 and from 1927.2-1927.4 and from 1928.8-1928.9; a dark brown finely crystalline nahcolite band with bladed and radiated structure and associated pyrite rim from 1928.0-1928.1 and from 1929.1-1929.2 and from 1931.7-1931.9; a 0.1 dark brown medium to coarse crystalline nahcolite pod with pyrite rims and bladed and radiated structure at 1926.4; a 0.3 pod at 1929.8; a zone of dark brown medium crystalline nahcolite pods from 1931.0-1931.6.
931.9	1935.8	Oil Shale, medium olive brown, even with trace looped bedding, good to excellent competence, medium grade; abundant tan to light gray marly streaks and stringers; dark olive brown high grade oil shale stringers common; abundant medium brown microcrystalline nahcolite stringers and bands from 1931.9-1935.8; a 0.2 core loss from 1934.8-1935.0.
935.8	1947.5	Nahcolite and Oil Shale; Nahcolite, dark brown microcrystalline bands, medium to dark brown fine to medium bands and pods with bladed and radiated structure; finely disseminated nahcolite bands and stringers throughout the oil shale; associated pyrite rims and white altered nahcolite; Oil Shale, light olive brown, irregular bedding in association with the nahcolite, low grade; medium olive brown, medium grade oil shale stringers common; and buff marly stringers, bands, and blebs common; asphalt streaks and stringers common.
947.5	1959.4	Oil Shale, light to medium olive brown, streaked with trace wavy bedding, excellent competence, low to medium grade; buff marly streaks, stringers, and blebs common; medium brown, medium grade oil shale streaks common; trace pyrite blebs; a 0.1 dark brown, medium crystalline nahcolite pod with bladed and radiated structure and white altered nahcolite common at 1948.6, 1949.3, 1949.7, 1951.2 and 1957.9; a 0.3 medium brown, medium crystalline nahcolite pod with bladed and radiated structure, white altered nahcolite common and associated pyrite rims at 1952.8 and 1956.9; a 0.2 medium to dark brown, medium crystalline nahcolite band with bladed and radiated structure and associated pyrite rims at 1949.9 and 1950.9; a 0.2 light brown, microcrystalline nahcolite band at 1954.1; a 0.1 band at 1956.2 and a 0.1 band at 1959.1; finely disseminated nahcolite

From	To	
1959.4	1963.0	crystals scattered throughout the bed. Top R3 at 1959.4. Nahcolite, medium to dark brown, medium to coarse crystalline, excellent competence, bladed and radiated structure with pyrite rims and white altered nahcolite common; light to medium olive brown, low grade oil shale stringers with abundant buff marly streaks and blebs; from 1960.2-1960.3 and 1960.9-1961.4; a 0.3 light to medium olive brown, low to medium grade oil shale band with buff marly streaks and blebs common and trace gilsonite streaks, at 1961.8 and 1962.7.
1963.0	1967.7	Oil Shale, light to medium olive brown, even with trace wavy and looped bedding, excellent competence, low to medium grade; buff marly blebs and streaks common; abundant medium to dark olive brown, medium to high grade oil shale stringers; trace pyrite streaks and blebs; a 0.2 dark brown finely crystalline nahcolite pod with associated pyrite and white altered nahcolite at 1963.1; a 0.1 medium brown, medium crystalline nahcolite band with bladed and radiated structure and associated pyrite at 1965.8, a 0.05 band at 1966.8; a 0.2 dark olive brown, high grade oil shale band at 1964.4, a 0.1 band at 1964.7.
1967.7	1971.0	Nahcolite with Oil Shale; Nahcolite, medium to dark brown, medium crystalline nahcolite bands and pods with bladed and radiated structure with trace white altered nahcolite and medium to dark brown, fine crystalline nahcolite bands; Oil Shale, light olive brown, even with trace wavy bedding, very low grade with medium brown, medium grade, oil shale stringers common and buff marly stringers common; trace gilsonite streaks; trace pyrite streaks, overall excellent competence.
1971.0	1975.0	Oil Shale, light olive brown, even with wavy and trace looped bedding, excellent competence, very low to low grade; abundant marly with medium to dark olive brown, medium to high grade oil shale stringers; trace pyrite streaks and blebs; trace buff marly streaks, stringers, and blebs; a 0.2 dark brown, fine to medium crystalline nahcolite pod with trace pyrite rims and trace white altered nahcolite at 1971.7, 1971.8, 1972.7, 1973.0, 1973.2, 1973.8 and 1973.9, a 0.3 pod at 1973.6; a 0.05 microcrystalline nahcolite pod with trace white altered nahcolite at 1971.4; a zone of dark brown fine to medium crystalline nahcolite crystals from 1974.7-1975.0.
1975.0	1976.4	Nahcolite, light brown finely disseminated in light olive brown oil shale matrix, excellent competence; trace pyrite blebs and trace white altered nahcolite, a 0.2 medium to dark brown, finely crystalline nahcolite band at 1975.8; medium olive brown oil shale stringers common; a 0.1 medium olive brown low to medium grade oil shale band at 1976.1.

From	To	
976.4	1981.7	Oil Shale and Nahcolite; Oil Shale, light to medium olive brown, streaked with trace wavy bedding, low grade; Nahcolite, medium to dark brown, medium to coarse crystalline nahcolite pods, bands, and stringers and finely disseminated nahcolite, throughout; medium to dark olive brown, medium to high grade oil shale stringers common; buff marly streaks and stringers common; white altered nahcolite common; trace pyrite streaks, trace asphalt; trace gilsonite streaks; a 0.1 gray brown microcrystalline nahcolite band at 1980.8.
981.7	1984.4	Nahcolite with Oil Shale; Nahcolite, medium to dark brown, medium to coarse crystalline pods, stringers, and bands and medium brown finely disseminated bands; Oil Shale, light olive brown, even with wavy bedding, very low grade; trace white altered nahcolite; medium olive brown, low to medium grade oil shale stringers common; trace pyrite; a 0.1 band of medium brown microcrystalline nahcolite at 1983.0; and buff marly streaks and stringers common.
984.4	1987.3	Nahcolite, medium to dark brown, finely disseminated in a medium olive brown low grade oil shale matrix, excellent competence; trace white altered nahcolite; trace pyrite; a 0.1 band of light olive brown, very low grade oil shale with buff marly streaks and stringers common at 1984.5 and a 0.1 band at 1985.0; a 0.1 dark brown coarse crystalline nahcolite pod at 1985.5 and a 0.05 pod at 1985.7.
987.3	1991.3	Oil Shale, light olive brown, streaked with wavy bedding, excellent competence, very low grade; buff marlstone streaks, stringers, and blebs common; medium olive brown, medium grade oil shale stringers common; a 0.1 medium buff marlstone band at 1988.9; a 0.2 dark brown, medium crystalline nahcolite pod with bladed and radiated structure and trace white altered nahcolite and trace pyrite at 1988.2, 1990.0, 1990.6, and 1990.7; a 0.1 pod at 1988.4, 1988.5, 1988.7, 1989.6; a 0.2 medium brown, medium to coarse crystalline nahcolite pod with bladed and radiated structure at 1989.7; a 0.2 dark brown, medium to coarse crystalline nahcolite band with white altered nahcolite common at 1990.2; a 0.3 medium to dark brown, medium crystalline nahcolite band with trace white altered nahcolite at 1988.9 and a 0.2 band at 1988.4; a 0.1 band of medium to dark, medium to coarse crystalline nahcolite band at 1987.7, 1988.0 and 1988.1; a 0.05 band of light to medium brown microcrystalline nahcolite with white altered nahcolite common.
991.3	1993.8	Oil Shale, medium olive brown, streaked bedding, excellent competence, medium grade; trace marly streaks and blebs; trace pyrite streaks; abundant disseminated pyrite; fine to medium nahcolite crystals disseminated throughout bed; a 0.2 medium brown, medium to coarse crystalline nahcolite pod with bladed and radiated structure and trace white altered nahcolite; a 0.2 dark brown, fine to medium crystalline nahcolite pod with associated pyrite rims at 1993.2 and 1993.4; a 0.3 pod at 1993.5.

From	To	
993.8	1995.9	Oil Shale, medium olive brown, streaked bedding, excellent competence, medium to high grade; trace marly streaks and blebs; trace gilsonite streaks; gradational contact.
995.9	2007.4	Oil Shale, medium olive brown, streaked bedding, excellent competence, medium grade; trace buff marly streaks and blebs; trace pyrite streaks and blebs; disseminated medium nahcolite crystals scattered throughout bed; a 0.2 dark brown, coarse crystalline nahcolite pod with white altered nahcolite at 1996.6; a 0.2 dark brown, medium to coarse crystalline nahcolite band with trace white altered nahcolite at 1997.2, a 0.7 band at 1999.1, a 0.3 band at 2002.4, a 0.4 band at 2006.6, a 0.1 band at 2004.0 and a 0.05 band at 2004.6; a 0.5 band of medium brown; medium crystalline nahcolite at 2000.8, a 0.4 band at 2001.4 and a 0.1 band at 2002.1.
007.4	2008.4	Oil Shale, dark olive brown, streaked bedding, excellent competence, high grade; trace buff marly streaks and blebs; trace gilsonite streaks.
008.4	2010.3	Nahcolite, dark brown, micro-fine crystalline nahcolite and excellent competence.
010.3	2012.6	Nahcolite, medium to dark brown, finely disseminated in a light olive brown, low grade oil shale matrix; trace white altered nahcolite; a 0.3 light olive brown, low grade oil shale band at 2011.5.
012.6	2020.4	Oil Shale, marly, light olive brown, streaked with trace even and looped bedding, excellent competence, very low grade; abundant buff marly streaks, stringers, and blebs; asphalt streaks common; trace pyrite streaks; bubbling core; a 0.2 medium to dark brown, medium to coarse crystalline nahcolite pod with bladed and radiated structure at 2012.7, 2015.4, 2016.0, 2017.8, and 2018.2; a 0.3 light to medium brown, fine to medium crystalline nahcolite pods with bladed and radiated structure and associated pyrite rims at 2013.7, 2017.0, and 2020.0.
020.4	2027.0	Oil Shale, light to medium olive brown, streaked bedding, excellent competence, medium to high grade; abundant asphalt streaks; buff marly streaks and blebs common; trace gilsonite streaks; a 0.4 dark brown, coarse crystalline nahcolite pod with trace white nahcolite at 2023.6.
027.0	2029.0	Oil Shale, light olive brown and dark olive brown band, streaked with wavy bedding, excellent competence, low to medium grade; buff marly streaks, stringers, and blebs common; trace pyrite streaks and stringers; bubbling core; a 0.05 band of irregularly bedded pyrite at 2028.7.
029.0	2031.3	Oil Shale, medium to dark olive brown, streaked with trace looped bedding, excellent competence, medium to high grade; marly streaks and blebs common; 0.1 band of medium to dark brown, coarse crystalline nahcolite at 2030.8; 0.3 band of medium brown medium crystalline nahcolite at 2039.9.

From	To	Description
2031.3	2033.9	Oil Shale, light olive brown, streaked with trace wavy bedding, excellent competence, low grade; irregularly bedded pyrite from 2031.3-2032.3; white altered nahcolite common throughout, bubbling core; medium olive brown, high grade oil shale stringers common; a 0.5 dark olive brown, medium to high grade oil shale band at 2032.9; 0.05 pyrite nodule at 2032.6; and trace gilsonite streaks.
2033.9	2042.9	Oil Shale, dark olive brown, streaked bedding, excellent competence, high to very high grade; buff to gray marly streaks and blebs common; trace gilsonite streaks; medium olive brown, low to medium grade oil shale stringers common; 0.2 medium olive brown, medium grade oil shale band at 2034.8; 0.3 band at 2035.2 and a 0.4 band at 2037.5; 0.05 pyrite band with associated white altered nahcolite at 2038.2 and 2042.6.
2042.9	2046.7	Oil Shale, dark olive brown, even bedding, excellent competence, high grade; buff to gray marly streaks and stringers common; trace gilsonite streaks; bubbling core; a 0.5 medium olive brown medium gray oil shale band at 2043.8; 0.1 buff to gray marly band at 2046.3 and 2046.4.
2046.7	2050.7	Oil Shale, medium olive to medium gray brown, even with trace looped bedding, good competence, medium grade; trace dark brown high grade oil shale stringers; gray marly streaks and stringers common; trace gilsonite streaks; trace asphalt streaks; trace blue gray granular analcitized tuff streaks; bubbling core.
2050.7	2052.7	Oil Shale, light olive to light gray brown, even with trace looped bedding, good competence, low grade; slightly marly; buff to gray marly streaks and stringers common; trace blue gray granular analcitized tuff streaks; medium olive brown, medium grade oil shale stringers common; bubbling core; trace pyrite blebs.
2052.7	2056.5	Oil Shale, dark olive brown, streaked bedding, good competence, high to very high grade; trace buff marly streaks and blebs; blue gray granular analcitized tuff common; bubbling core; and a 0.1 medium buff marly band at 2053.5 and 2054.0.
2056.5	2058.8	Oil Shale, dark olive brown to gray brown, even with trace looped bedding, excellent competence, medium to high grade; abundant buff to gray marly streaks and stringers; blue gray granular analcitized tuff streaks common; 0.05 blue gray granular analcitized tuff band at 2057.8 and 2058.5; trace gilsonite streaks; and bubbling core.
2058.8	2060.7	Oil Shale, medium olive brown to medium gray brown, even bedding, good competence, low to medium grade; gray marly streaks and stringers common; trace blue gray granular analcitized tuff streaks; bubbling core; and trace gilsonite streaks.
2060.7	2063.4	Oil Shale, medium to dark olive brown, even with trace looped bedding, good competence, high grade; abundant buff marly streaks and stringers; and trace gilsonite streaks.

From	To	Description
2063.4	2068.0	Oil Shale, medium olive brown, even with trace looped bedding, fair competence, medium grade; bubbling core; buff marly streaks and stringers common; blue gray granular analcitized tuff stringers common; trace gilsonite streaks; 0.05 blue gray granular analcitized tuff band and 2064.5; 0.6 dark olive brown very high grade oil shale band at 2067.3. Top R2 at 2070.5.
2068.0	2070.5	Nahcolite, dark brown, medium crystalline bands with dark olive brown high grade oil shale stringers; 0.1 dark olive brown high grade oil shale band at 2068.1 and 2068.5, 0.2 band at 2069.0; good competence.
2070.5	2074.5	Oil Shale with Nahcolite; Oil Shale, marly, light olive brown, even with wavy bedding, very low grade; Nahcolite, dark brown, medium to coarse crystalline pods and bands and medium brown, coarse crystalline bands; overall, fair competence, abundant buff marly streaks and stringers, trace medium olive brown, medium grade oil shale stringers; 0.1 gray marly band at 2070.5; 0.1 dark brown, coarse crystalline disseminated nahcolite band at 2070.6; bladed and radiated structure and trace white altered nahcolite associated with nahcolite pods and bands; 0.05 blue gray granular analcitized tuff band at 2073.5; trace blue gray, granular, analcitized tuff stringers; bubbling core.
2074.5	2077.9	Oil Shale, dark olive brown, streaked bedding, good competence, medium to high grade; trace buff marly streaks and blebs; trace gilsonite streaks; 0.5 dark brown, medium to coarse crystalline nahcolite bed with bladed and radiated structure at 2075.2 and 0.2 bed at 2076.1.
2077.9	2079.1	Oil Shale, light olive brown, streaked with trace wavy bedding, excellent competence, low grade; blue marly streaks and blebs common; trace blue gray, granular, analcitized tuff streaks; 0.1 medium to dark brown, medium to coarse crystalline nahcolite pod with bladed and radiated structure and pyrite rims at 2078.3, 2078.6, and 2078.8.
2079.1	2082.7	Oil Shale, light to medium olive brown, streaked bedding, good competence, low to medium grade; buff marly streaks and blebs common; blue gray, granular, analcitized tuff common; trace dark olive brown high grade oil shale; 0.4 medium brown, medium crystalline nahcolite band with bladed and radiated structure at 2079.7; 0.1 pyrite band at 2081.7.
2082.7	2085.0	Oil Shale, medium olive brown, streaked with trace looped bedding, excellent competence, medium to high grade; buff marly streaks, stringers, and blebs common; blue gray, granular, analcitized tuff streaks common; trace pyrite stringers; and trace gilsonite streaks.
2085.0	2089.0	Oil Shale, dark olive brown, streaked with trace wavy bedding, fair competence, high to very high grade; buff marly streaks, stringers, and blebs common; 0.05 band of irregular pyrite stringers at 2086.5.

From	To	Description
2089.0	2096.7	Oil Shale, light olive brown, streaked with trace looped and wavy bedding, good competence, very low to low grade, marly; abundant buff marly streaks, stringers, and blebs; trace medium olive brown, medium grade oil shale; trace gilsonite streaks; trace asphalt streaks; 0.1 band of irregular pyrite stringers at 2089.6; 0.05 band at 2091.8 and 2094.4; irregular pyrite streaks and stringers common; 0.2 light buff marlstone band at 2092.2; a zone of pinpoint calcite from 2096.0-2096.7.
2096.7	2104.2	Oil Shale, medium olive brown, streaked with trace even and looped bedding, fair competence, medium grade; buff marly streaks and blebs common; trace gilsonite streaks; blue gray granular, analcitized tuff streaks common; 0.05 band of irregular pyrite stringers at 2096.9 and 2099.6; and dark olive brown high grade oil shale stringers common.
2104.2	2106.5	Oil Shale, light olive brown, even with trace looped bedding, good competence, very low to low grade; abundant buff to gray marly streaks and stringers; dark olive brown high grade oil shale stringers common; trace gilsonite streaks; a 0.05 band of irregular pyrite stringers at 2104.6.
2106.5	2110.2	Oil Shale, medium to dark olive brown, streaked with trace wavy and looped bedding, excellent competence, medium to high grade; buff marly streaks, stringers, and blebs common; trace gilsonite streaks; trace pyrite streaks and blebs.
2110.2	2113.7	Oil Shale, medium olive brown to gray brown, even bedding, fair to good competence, medium grade; buff and gray marly streaks and stringers common; blue gray, granular, analcitized tuff streaks and stringers common; trace gilsonite streaks; 0.1 dark olive brown high grade oil shale band at 2113.6.
2113.7	2114.9	Oil Shale, light olive brown, streaked with trace looped and wavy bedding, excellent competence, low grade; abundant buff marly streaks, stringers, and blebs; and abundant dark olive brown, high grade oil shale stringers.
2114.9	2116.6	Oil Shale, dark olive brown, even bedding, good competence, high grade; trace pyrite blebs; and medium olive brown, medium grade oil shale stringers and bands common.
2116.6	2118.9	Oil Shale, dark olive brown, even bedding, good competence, high to very high grade; trace buff to gray marly streaks and stringers; 0.05 gray marly band at 2118.0 and 2118.9; and trace gilsonite streaks.
2118.9	2122.5	Oil Shale, medium olive brown to medium gray brown, even bedding, excellent competence, low to medium grade; buff to gray marly streaks and stringers common; gray claystone stringers common; and trace gilsonite streaks.

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2122.5	2125.1	Oil Shale, very light olive brown to very light gray brown, even bedding, fair competence, very low grade; buff to gray marly streaks and stringers common; gray claystone streaks and stringers common; trace light olive brown, low to medium grade oil shale stringers; trace gilsonite streaks; 0.1 gray marly band at 2122.9; and slightly argillaceous.
2125.1	2127.1	Oil Shale, light olive brown to light gray brown, streaked with trace wavy bedding, fair competence, low grade; slightly argillaceous; bubbling core; buff to gray marly streaks and stringers common; 0.1 gray marly band at 2125.4.
2127.1	2131.0	Oil Shale, light olive brown to light gray brown, even bedding, poor to fair competence, very low to low grade; buff to gray marly streaks and stringers common; gray claystone streaks and stringers common; medium olive brown medium grade oil shale streaks and stringers common; bubbling core; and slightly argillaceous.
2131.0	2135.8	Oil Shale, medium olive brown, streaked with trace wavy and looped bedding, fair to good competence, medium to high grade; buff marly streaks and blebs common; pyrite streaks and blebs common; dark olive brown, high grade oil shale streaks and stringers common; trace gilsonite streaks.
2135.8	2142.1	Oil Shale, dark olive brown to black, even bedding, good competence, high to very high grade; black band of very high grade oil shale common; trace buff marly streaks and stringers, trace gilsonite streaks; bubbling core; blue gray, granular, analcitized tuff stringers common; 0.05 light buff tuff band at 2137.4.
2142.1	2148.0	Oil Shale, medium to dark olive brown to medium gray brown, even with trace looped bedding; good competence, medium to high grade; buff to gray marly streaks and stringers common; blue gray, granular, analcitized tuff streaks and stringers common; bubbling core; trace gilsonite streaks; and slightly argillaceous.
2148.0	2152.2	Oil Shale, medium olive brown, even with trace looped and wavy bedding, fair to good competence, medium grade; buff marly streaks, stringers, and blebs common; dark olive brown, high grade oil shale streaks and stringers common; gilsonite streaks.
2152.2	2153.9	Oil Shale, medium dark olive brown to gray brown, even bedding, good competence, low to medium grade; buff to gray marly streaks and stringers common; trace dark olive brown, high grade oil shale streaks and stringers; trace blue gray, granular, analcitized tuff streaks; trace pyrite streaks and blebs; bubbling core; and slightly argillaceous. Base R2 (Blue marker-Top Garden Gulch) at 2153.9.
2153.9	2155.1	Oil Shale, argillaceous; light to medium gray brown, streaked bedding, poor to fair competence, very low grade; trace gray claystone streaks and stringers; trace blue gray, granular, analcitized tuff streaks; bubbling core; a 0.05 band of medium buff marlstone at 2154.3 and 2154.6.

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2155.1	2158.9	Oil Shale, medium olive brown to medium gray brown, even with trace offset bedding, very poor competence, low grade; abundant, tan, marly streaks and stringers; trace, blue gray, granular, analcitized tuff streaks; trace gilsonite streaks; dark olive brown, high grade, oil shale stringers common; a 0.2 band buff marlstone at 2158.6.
2158.9	2160.4	Oil Shale, medium dark gray brown, even bedding, very poor competence, very low to low grade; buff to light gray, marly, stringers common; trace, dark olive brown, high grade, oil shale stringers.
2160.4	2167.9	Shale, light gray brown to light olive brown banded, even bedding, very poor competence; trace kerogen abundant, gray, marly, streaks and stringers; medium olive brown, medium grade, oil shale stringers common; white, calcite, stringers common from 2163.3-2164.5.
2167.9	2169.8	Oil Shale, light olive brown to light gray brown, even with trace wavy offset bedding, poor competence, low grade; abundant, buff and light gray, marly, stringers; medium, olive brown, medium grade, oil shale stringers common, trace blue gray, granular, analcitized, tuff streaks and stringers; slightly argillaceous.
2169.8	2174.0	Shale, medium to dark gray brown, even with trace wavy bedding, poor competence; trace kerogen light to medium olive brown, medium grade oil shale stringers common; trace gilsonite streaks; trace light blue gray, granular, analcitized, tuff streaks, bubbling core.
2174.0	2175.6	Oil Shale, medium olive brown to medium gray brown, even with trace streaked bedding, poor competence, low grade; numerous scattered planar, shaly, partings some with pyrite; few scattered light olive brown, slightly marly, bands and stringers; fairly argillaceous; slightly bentonitic; trace gilsonite fossils on partings.
2175.6	2177.3	Oil Shale, dark gray brown to black, even bedding, poor to fair competence, medium to high grade; slightly argillaceous; several scattered planar, shaly partings some with pyrite; several scattered light olive brown marly streaks, stringers, and lamina; trace tuff blebs and streaks; gradational contact.
2177.3	2179.0	Oil Shale, argillaceous, medium brown to gray, even bedding, poor competence, very low grade; numerous planar and disked shaly partings some with pyrite and trace gilsonite; core breaks easily by hand.
2179.0	2181.7	Oil Shale, medium olive brown with few scattered light olive brown and buff bands, even and looped bedding, good competence, medium grade; 0.2 buff marly band at 2180.8; few irregular gilsonite stringers from 2181.0-2181.7.
2181.7	2183.7	Oil Shale, medium gray brown to medium olive brown, even with trace looped bedding, good competence, medium grade; partings with heavy pyrite at 2181.9; numerous scattered gilsonite streaks and blebs; altered olive brown oil shale bands from 2183.5-2183.7.

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183.7	2186.6	Oil Shale, dark gray brown to dark olive brown, even with trace looped and streaked bedding, fair to good competence, medium to high grade; slightly argillaceous with few scattered shaly partings; fossil fish cast on parting at 2184.0; trace gilsonite and pyrite on partings; core breaks fairly easily by hand; numerous scattered gilsonite streaks and stringers; a 0.30 zone of abundant pyrite streaks at 2184.7; 0.1 light brown oil shale band at 2184.9; 0.2 light olive brown oil shale band at 2185.5.
186.6	2191.2	Oil Shale, medium olive brown to medium gray brown, even with trace streaked bedding, fair competence, low to medium grade; slightly argillaceous, trace gilsonite streaks and blebs; trace buff marly streaks and stringers; core breaks easily by hand; numerous partings.
191.2	2192.2	Oil Shale, dark olive brown to dark gray brown, streaked with trace even bedding, good competence, medium to high grade; trace buff marly streaks; trace gilsonite streaks.
192.2	2193.1	Oil Shale, light gray brown to medium olive brown banded, even with trace looped bedding, fair competence, medium grade; abundant buff marly streaks, stringers, and bands; trace gilsonite streaks; bubbling core; numerous partings, some with gilsonite fossils; gradational contact.
193.1	2194.3	Oil Shale, dark olive brown to dark gray brown, even with trace streaked bedding, excellent competence, high to very high grade; trace gilsonite streaks; trace buff marly streaks; gradational contact.
194.3	2196.5	Oil Shale, medium olive brown to medium gray brown banded, even and streaked bedding, poor to fair competence, low to medium grade; light blue gray, claystone stringers common; trace gilsonite streaks; trace buff marly streaks; 0.1 light brown marly band at 2196.4; numerous partings, some with gilsonite fossils.
196.5	2198.7	Oil Shale, dark olive brown to black; even and streaked bedding, poor competence, high to very high grade; tan and light gray marly stringers common; trace light brown tuff stringers; numerous partings, some with gilsonite fossils; core breaks easily by hand; trace bubbling core; a fish fossil cast on parting at 2196.8.
198.7	2205.0	Oil Shale, light olive brown to light gray brown, even with trace streaked bedding, poor competence, very low to low grade; buff and light gray marly stringers and bands common; light blue gray claystone stringers and bands common; slightly argillaceous; trace gilsonite streaks; trace light brown tuff streaks; numerous partings, some with gilsonite fossils; core breaks easily by hand; 0.3 asphalt-tuff band exuding medium brown sticky asphalt resin (bleeding tuff) at 2198.9.

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2205.0	2207.1	Oil Shale, dark olive brown and light olive brown banded, even with trace wavy bedding, good to excellent competence, medium to high grade; trace gilsonite streaks; trace light brown tuff streaks; trace buff marly stringers; gradational contact. Top R1 at 2207.1
2207.1	2208.9	Oil Shale, dark olive brown to black, streaked and even bedding, fair competence, high to very high grade; trace buff, marly streaks; trace gilsonite streaks; trace bubbling core.
2208.9	2210.4	Oil Shale, medium olive brown to light olive brown banded, even with trace wavy bedding, excellent competence, medium grade; buff marly stringers and bands common; trace light brown tuff streaks; trace gilsonite streaks; dark olive brown oil shale stringers common.
2210.4	2211.8	Oil Shale, light olive brown, streaked with trace wavy bedding, excellent competence, low to medium grade; medium brown asphalt tuff stringers common; buff marly streaks and blebs common; asphalt streaks common; trace gilsonite streaks; gradational contact.
2211.8	2216.7	Oil Shale, light olive brown to light gray brown, even and streaked bedding, poor competence, very low to low grade; abundant buff marly streaks and stringers; trace white calcite stringers; trace asphalt streaks; trace light brown tuff streaks and stringers; 0.2 light blue gray, claystone band at 2212.0; numerous partings, some with gilsonite fossils, and some with pyrite; core breaks easily by hand.
2216.7	2219.7	Oil Shale, dark olive brown, even with trace looped bedding, fair competence, high to very high grade; trace buff marly stringers; trace asphalt streaks; trace gilsonite streaks; 0.5 light brown tuff stringer at 2218.6; trace white calcite stringers; gradational contact.
219.7	2223.3	Oil Shale, medium olive brown to medium gray brown, streaked and even bedding, fair competence, low grade; light blue gray claystone streaks and stringers common; trace white calcite streaks; 0.5 light blue claystone stringer at 2220.6; 0.05 white calcite stringer at 2221.8 and 2222.0; trace asphalt blebs; gradational contact.
223.3	2226.7	Oil Shale, light olive brown to light gray brown, even with trace looped bedding; fair competence, low grade; abundant buff marly streaks and stringers; trace gilsonite streaks; trace light brown tuff streaks; white calcite streaks and stringers common from 2223.2-2223.9; numerous partings, some with gilsonite fossils; core breaks easily by hand; trace asphalt streaks; gradational contact.
226.7	2228.3	Oil Shale, light olive brown to light gray brown, streaked with trace looped bedding, fair competence, very low grade; abundant buff marly streaks and stringers; light blue gray tuff streaks common; trace asphalt streaks; gradational contact.

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2228.3	2229.7	Oil Shale, light to medium olive brown, even and looped bedding, excellent competence, medium grade; trace buff marly streaks and stringers; trace asphalt streaks and stringers; trace light blue gray claystone streaks; gradational contact.
2229.7	2237.4	Oil Shale, dark olive brown to black, even with trace looped bedding, good to excellent competence, high to very high grade; trace buff marly streaks and stringers; asphalt blebs and streaks common; trace light blue gray claystone stringer; 0.2 zone of white calcite streaks and blebs at 2230.0; 0.7 band of light to medium gray brown, low to medium grade oil shale at 2231.2 and 0.8 band at 2236.2.
2237.4	2239.3	Oil Shale, medium to dark olive brown, even with trace looped bedding, good to excellent competence; medium to high grade; marly streaks and stringers common; pyrite streaks common; trace gilsonite streaks; 0.1 buff marlstone band at 2239.0.
2239.3	2240.8	Oil Shale, light olive brown to light gray brown, even bedding, fair competence, very low to low grade; numerous shaly partings common; slightly argillaceous; trace pyrite streaks; trace gilsonite streaks; trace dark olive brown, high grade oil shale stringers.
2240.8	2243.1	Oil Shale, dark olive brown to black, even bedding, fair competence, high grade; trace gilsonite fossils; numerous shaly partings, trace asphalt streaks; trace pyrite streaks; trace gray tuff streaks.
2243.1	2245.6	Oil Shale, dark olive brown to dark gray brown, even bedding, fair competence, medium to high grade; numerous shaly partings; trace asphalt streaks, trace gilsonite streaks; 0.05 light gray claystone band at 2245.2; trace buff marly streaks and stringers.
2245.6	2247.7	Oil Shale, argillaceous, medium brown to gray, poor to fair competence, very low to low grade; abundant shaly partings; trace buff marly streaks and stringers; trace light olive brown, low grade oil shale stringers; 0.1 band of gray claystone at 2247.0; trace gilsonite streaks.
2247.7	2253.2	Oil Shale, medium to dark olive brown, even with streaked bedding, fair to good competence, medium to high grade; numerous shaly partings, some with pyrite and gilsonite fossils; buff marly stringers and bands common; 0.1 light gray, granular tuff band at 2249.4, 0.2 band at 2252.3, and 0.05 at 2248.2; 0.05 medium gray claystone band at 2248.6.
2253.2	2262.2	Oil Shale, dark olive brown to black, even bedding, fair to good competence, high to very high grade; numerous shaly partings; trace buff marly streaks; trace gilsonite streaks; trace gray granular tuff streaks; trace asphalt streaks; trace calcite streaks from 2261.0-2262.0; few medium brown oil shale bands from 2259.3-2261.0.
2262.2	2264.6	Oil Shale, light olive brown and medium brown, banded, even with trace looped bedding, good to excellent competence, low to medium grade; few scattered buff marly stringers and bands; few scattered calcite blebs; trace asphalt streaks.

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2264.6	2270.6	Oil Shale, medium olive brown to medium gray brown, even with trace wavy bedding, poor to fair competence, low grade; from 2268.6-2270.6 fairly argillaceous very low grade oil shale; .30 zone of white calcite streaks and blebs at 2265.1; trace scattered gilsonite streaks; .20 buff to gray marlstone band at 2268.9, .05 at 2269.3 and .10 at 2270.5.
2270.6	2273.0	Oil Shale, dark olive brown to black, even bedding, good competence, high grade; trace scattered buff marly streaks and stringers; trace scattered gilsonite streaks; trace blue gray clay stringers from 2270.6-2270.9; several scattered shaly partings.
2273.0	2275.0	Oil Shale, medium brownish gray, even bedding, poor to fair competence, low grade; fairly argillaceous with numerous gray clay stringers and lamina; numerous planar and disked shaly partings; trace gilsonite streaks.
2275.0	2278.1	Oil Shale, dark olive brown, streaked with trace looped bedding, high grade; trace buff marly streaks and blebs; gilsonite streaks and stringers common; fish fossils on partings at 2277.7; gradational contact.
2278.1	2283.1	Oil Shale, light olive brown to light gray brown, even and streaked bedding, poor competence, very low grade, argillaceous; light blue gray claystone streaks and stringers common; gilsonite streaks common; abundant partings some with gilsonite fossils; core breaks easily by hand; fish fossils on partings at 2278.5 and 2280.1; gradational contact.
2283.1	2286.8	Oil Shale, dark olive brown, streaked with trace even bedding, good competence, high to very high grade; trace buff marly streaks; trace gilsonite streaks; a few gilsonite nodules from 2285.0-2285.4; gradational contact.
2286.8	2292.8	Oil Shale, light olive brown to light gray brown, even with trace wavy bedding, good competence, low to medium grade; light blue gray claystone bands common; buff marly streaks and stringers common; trace gilsonite streaks; 0.05 pyrite clay band at 2287.6; 0.05 asphalt stringer at 2288.9; gradational contact.
2292.8	2295.3	Oil Shale, argillaceous, light brown gray, streaked with trace even bedding, very poor competence, very low grade; light gray stringers common; trace gilsonite streaks; numerous partings, some with gilsonite fossils; core breaks easily by hand.
2295.3	2298.3	Oil Shale, dark olive brown to black, streaked with trace even bedding, fair to good competence, high grade; trace buff marly streaks; trace light blue gray claystone streaks; a few scattered light olive brown oil shale bands.

From	To	Description
298.3	2303.6	Oil Shale, argillaceous, light olive brown to light gray brown; even and streaked bedding, very poor competence, very low grade; abundant light blue gray claystone stringers and bands; light olive brown low grade oil shale stringers and bands common; abundant partings, some with gilsonite fossils; core easily broken by hand; gradational contact.
303.6	2304.8	Oil Shale, medium olive brown, streaked and even bedding, fair to good competence, medium to high grade; trace buff marly streaks and stringers; trace asphalt streaks; gilsonite streaks common; 0.05 gilsonite nodule at 2303.9; gradational contact.
304.8	2308.9	Oil Shale, medium olive brown to medium gray brown, streaked bedding, fair competence, medium grade; light olive brown oil shale streaks and stringers common; trace light blue gray claystone streak; gilsonite streaks and 0.05 nodules common; from 2307.2-2308.9 grades to high grade oil shale; gradational contact.
308.9	2314.2	Oil Shale, argillaceous, medium gray brown, streaked and even bedding, poor competence, very low grade; abundant light blue gray claystone stringers and bands; medium olive brown oil shale stringers common; trace gilsonite streaks; abundant partings, some with gilsonite fossils; core breaks easily by hand; asphalt resin on fractures; gradational contact.
314.2	2317.6	Shale, medium green gray, even bedding, poor competence, brittle, well indurated; possible trace kerogen; trace light olive brown oil shale streaks; numerous partings, some with gilsonite fossils; core easily broken by hand; gradational contact.
317.6	2322.5	Oil Shale, medium olive brown, even with trace streaked bedding, poor to fair competence, high grade; trace tan marly streaks; trace gilsonite streaks; trace asphalt streaks and stringers; gradational contact.
322.5	2325.3	Oil Shale, light olive brown to light gray brown, even and streaked bedding, poor to fair competence, very low grade, slightly argillaceous; light olive brown oil shale streaks and stringers common; numerous partings, some with gilsonite fossils; core breaks easily by hand.
325.3	2326.8	Oil Shale, dark olive brown to black, streaked bedding, good to excellent competence, high grade; light olive brown, low grade oil shale streaks common; buff marly streaks and blebs common; gilsonite streaks and blebs common; trace asphalt streaks and blebs; gradational contact.
326.8	2331.9	Oil Shale, argillaceous, light olive brown to light gray brown, streaked with even bedding, poor competence, very low grade; abundant light blue gray claystone streaks and stringers; medium olive brown oil shale stringers common; a 0.1 band of buff marlstone at 2329.5; numerous partings, some with gilsonite fossils; core breaks easily by hand.

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2331.9	2337.9	Oil Shale, medium olive brown to medium gray brown, even and streaked bedding, good competence, low to medium grade; dark olive brown oil shale stringers common; buff marly streaks and stringers common; trace asphalt streaks; gradational contact.
2337.9	2340.0	Oil Shale argillaceous, medium gray brown, even bedding, poor competence, very low grade; abundant light blue gray claystone stringers and bands; buff marly stringers and bands common; trace asphalt stringers; numerous partings some with gilsonite fossils; core breaks easily by hand.
2340.0	2354.7	Oil Shale, medium olive brown and medium gray brown, streaked with even bedding, good competence, low to medium grade; dark olive brown oil shale streaks and stringers common; asphalt stringers and blebs common; trace light olive brown oil shale streaks; trace light blue gray claystone streaks and blebs; gradational contact. Base R1 at 2354.7.
2354.7	2358.2	Shale, light greenish gray, even bedding, poor competence, brittle, trace kerogen; light olive brown oil shale streaks common; light blue gray claystone stringers common; numerous partings, some with gilsonite fossils; core breaks easily by hand; trace light blue gray granular analcitized tuff streaks.
	2358.2	Total Depth at 2358.2.