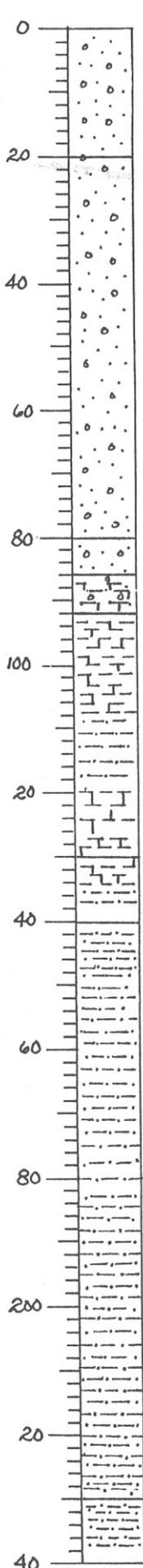


Duck Creek 1
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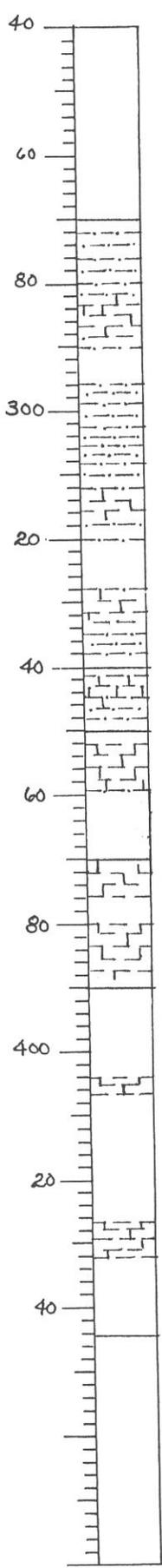
Hole No. Duck Creek No. 1

Page _____ of _____



From	To	Thick.	Description
0	20	20	Alluvium; soil, sily, lt brn, uncons, v calc, sl. Arg, vf-powder.
20	80	60	Alluvium; gravel & soil; intmx; gravel; pebble sized, asrtd siltstns, sandstns & mlstns, s.r.-r; soil: lt-m brn; sily; sl-mod Arg; v sft, v calc; tr dk brn-blk organic clay matrl; tr caliche.
80	86	06	Alluvium; gravel: pebble sized; asrtd siltstns, sandstns & mlstns; s.r.-r.
86	130	44	Mrlstn w/ siltstn. Mrlstn: lt gy brn-buf, evn bdg; fnly lam; frily hd. tr lt brn gran tuf strks. Siltstn: lt brn-buf, mas, calc, brit-hd, sl Arg, calc. tr FeO stng; tr o'sh frags fm 120-130.
130	140	10	Mrlstn & o'sh w/ siltstn: Mrlstn: buf, evn bdg, fnly lam, frily hd, tr o'sh strks; o'sh: dk gy-brn, evn bdg, fnly lam, v hd. Siltstn: lt gy brn-lt brn, mas, calc, brit-frily hd, tr lt brn gran tuf strks & lam. sl. Arg.
140	230	90	Siltstn: lt-m brn, mas, sl. Arg, calc, brit-frily hd, tr dk brn o'sh frags; tr pyr; tr mrlstn; abnt pyr frags fm 190-200.
230	240	10	Siltstn: (75%) as above; o'sh (25%) as below.

6



From	To	Thick.	
240	270	30	O Sh, lt-m brn, evn bdg, brit - frly hd, abnt lt brn - buf lam & strgs, tr Asp cty; tr tuf strgs; few scat siltstn strgs.
270	340	70	Siltstn w/ O Sh, intbd & few Mrlstn strgs; Siltstn: lt-m brn, MAS, brit, calc, grds to vfg sndstn in places; O Sh: m-dk brn, evn bdg, brit - frly hd. Mrlstn: buf, evn bdg - nrly MAS, frly hd, few scat pyr strgs.
340	350	10	Mrlstn & Siltstn, intbd. Mrlstn, lt brn - buf, MAS, frly hd; Siltstn: lt brn, MAS, calc, brit - sl fri, sl sndy; few vfg lt brn - buf sndstn strgs, tr O Sh; tr Asp cty.
350	370	20	O Sh w/ Mrlstn, intbd; O Sh: m-dk brn, evn - irg bdg, frly hd; Mrlstn: lt brn - buf, MAS & evn bdg, frly hd; tr siltstn strgs; tr Asp cty; few pyr frags.
370	390	20	Mrlstn w/ O Sh, intbd; Mrlstn: AS ABOVE, O Sh: AS ABOVE, tr vfg lt-m brn sndstn strgs w/ abnt carb matr.; few pyr frags; tr Asp cty; abnt v'sml Asp flks Assoc w/ Mrlstn.
390	444.5	54.5	O Sh w/ FEW Mrlstn strgs: O Sh, m & dk brn, evn bdg, brit - frly hd; Mrlstn: lt brn - buf, evn - nrly MAS, brit - frly hd; few thin m brn O Sh strgs Assoc w/ Mrlstn, tr pyr, tr Asp.
	444.5		CORE POINT

SAMPLE/CORE DESCRIPTION

Hole No. Duck Creek No. 1
 Location NE, NE, SW, of Sec. 3, T1S, R99W
 County and State Pio Blanco County, Colorado
 Elev. KB 6625' TD
 Spud 01/21/81 Compl. 03/05/81
 Examined by John A. Hartley

From	To	
	444.5 C.P.	
444.5	447.4	Oil Shale, light olive brown with medium olive brown, faintly banded, streaked and even bedding, fair to good competence, low grade; abundant light brown to buff, very thin marlstone and granular tuff streaks; .20 zone with abundant blebby structure at 446.6; slightly marly very low to low grade from 446.3-447.4.
447.4	449.4	Siltstone, medium brownish gray, massive, poor competence; slight to moderately calcareous; abundant dark greenish gray pinpoint pyrite blebs and streaks; abundant disseminated pyrite; few scattered light brown to light olive brown marly oil shale streaks and stringers.
449.4	454.4	Marlstone, silty, light brownish gray, streaked to nearly massive bedding with trace irregular bedding, fair to good competence; abundant very small light brown to buff marlstone and tuff streaks; buff marlstone band .40 at 449.6 and .10 stringer at 453.3; medium olive brown, low grade oil shale with streaked bedding .20 at 449.4; few scattered medium brownish gray irregular siltstone band and stringers; few scattered gilsonite streaks; few scattered pyrite streaks; from 453.4-454.4 light olive brown marly very low grade oil shale with streaked bedding.
454.4	461.0	Siltstone, medium brown, massive, poor to fair competence; fairly brittle, slightly argillaceous, slight to moderately calcareous; trace gilsonite streaks; few scattered pyrite streaks; from 459.8-460.7 abundant evidence collapsed leached nahcolite with trace calcite and asphalt; light brown to buff marly stringers at 460.6 and 460.7.
461.0	464.5	Siltstone with oil shale, interbedded; Siltstone, medium and dark brownish gray, banded, massive bedding, slight to moderately calcareous, fairly hard, abundant disseminated pyrite; oil shale, marly, light brown, streaked bedding, very low grade, abundant very thin light brown to buff marlstone and tuff lamina and stringers; overall fair competence, very low grade; few scattered light blue gray granular analcitized tuff blebs; abundant dark greenish gray pyritic blebs, stringers and lamina from 463.0-464.1; 0.4 core loss from 464.1-464.5.

From	To	
464.5	467.7	Oil Shale, marly, light gray brown to light olive brown, faintly banded, even and irregular with streaked bedding, fair competence, very low grade; very marly from 464.5-465.6; few dark gray pyrite inclined at 465.6; several scattered pyrite streaks; abundant light brown small tuff and marly blebs and streaks; gradational contact.
467.7	469.1	Oil Shale, medium to dark olive brown, even with trace wavy bedding, fair competence, high grade, fairly low density, fairly elastic; several scattered medium brown asphaltic granular tuff stringers and blebs; abundant very thin light brown tuffaceous lamina; gradational contact.
469.1	473.6	Oil Shale, medium gray brown with light brown banding, even with trace looped and irregular bedding, fair to good competence, low to medium grade, several scattered tan to buff marly stringers; several scattered light blue gray analcitized tuff blebs and streaks; few scattered medium to dark brown asphaltic tuff blebs and stringers; trace streaked bedding.
473.6	474.5	Oil Shale, dark olive brown to black, even and streaked bedding, very poor to poor competence, very high grade, very low density, very elastic; numerous thin light brown granular tuffaceous lamina; dark gray pyrite tuff stringer at 473.7; 0.2 core loss from 474.3-474.5.
474.5	475.9	Oil Shale, light to medium olive brown, even with trace streaked bedding, good to excellent competence, low to medium grade; slightly marly low grade from 475.4-475.9; trace pyrite blebs; .20 zone with numerous pyrite lamina at 475.7.
475.9	486.8	Oil Shale, marly, light gray brown to light brown, even bedding, poor to fair competence, very low grade; several scattered dark gray pyrite streaks, blebs and lamina; abundant tan to buff marly stringers and bands; white pinpoint calcite stringer at 480.3; .40 zone with several dark brown pinpoint asphalt stringers and dark brown asphaltic tuff stringer at 480.3; .40 zone with abundant light brown granular tuff stringers and lamina and very small pinpoint calcite blebs at 482.3; 0.2 core loss from 484.3-484.5; solution fracture zones from 483.6-484.3; grades to light brownish gray brittle marlstone from 484.8-486.8; gradational contact.
486.8	492.6	Marlstone, light gray to light brownish gray, even bedding, poor competence, brittle, several scattered pyrite blebs, streaks and lamina; trace looped bedding; trace gilsonite streaks; several scattered faint light olive brown very low grade oil shale stringers.
492.6	495.1	Oil Shale, light to medium gray brown, even with streaked bedding, good to excellent competence, low grade, slightly marly, abundant thin light brown marlstone and tuffaceous streaks and lamina; .40 zone with abundant medium gray pyrite tuff lamina and stringers at 492.6; medium brown and gray asphaltic and pyritic tuff stringer

From	To	
		at 492.7 with associated white calcareous mineral.
495.1	497.1	Oil Shale, dark olive brown with dark olive brown to black, irregular and streaked with even and trace looped bedding, poor competence, high grade from 495.1-496.4; very high grade from 496.4-497.1, fairly low density, fairly elastic, abundant solution fracture with calcite; abundant very thin light brown tuff lamina and stringers from 496.4-497.1.
497.1	503.7	Oil Shale, light olive brown and light brown to buff with medium olive brown banded, even with streaked and irregular bedding, very low to low grade, slightly marly with abundant light brown to buff marlstone stringers and bands; abundant scattered dark gray pyrite streaks, stringers and lamina; few scattered light blue gray analcitized and dark brown asphaltic tuff blebs and streaks; from 500.4-502.6 marly very low grade oil shale; numerous dark brown asphalt and several medium gray pyritic tuff blebs, stringers and bands from 501.5-502.5 and .20 zone at 503.5.
503.7	505.6	Oil Shale, dark olive brown to black, even with trace wavy bedding, poor to fair competence, high grade, fairly low density, fairly elastic; numerous thin light brown to medium brown granular tuff stringers and lamina; abundant medium gray pyritic tuff stringers and lamina; .30 medium gray brown slightly asphaltic and slightly pyritic granular tuff band at 504.3; several scattered asphaltic granular tuff blebs.
505.6	508.4	Oil Shale, light olive brown with medium olive brown, even with faint streaked bedding, fair competence, low grade from 505.6-506.6 and 507.6-508.4, medium grade from 506.6-507.6; few scattered dark brown asphaltic and dark gray pyritic tuff blebs and stringers; few scattered pyrite blebs and stringers.
508.4	510.5	Oil Shale, medium to dark olive brown, even with trace looped and wavy bedding, poor competence, high grade; fairly low density, fairly elastic, abundant thin light brown granular tuff lamina from 509.0-510.1; .10 dark gray pyritic tuff pod at 509.9; medium brown asphaltic granular tuff stringer at 510.0.
510.5	514.5	Oil Shale, light to medium gray brown, even to streaked bedding, good competence, low grade, abundant light brown and dark brown asphaltic tuff blebs and stringers from 511.0-512.5; medium orange brown slightly asphaltic granular tuff stringer with FeO staining at 511.6; abundant light brown to buff small marly blebs and streaks; gradational contact.
514.5	519.9	Oil Shale, light to medium olive brown, even with trace irregular and faint streaked bedding, good competence, low to medium grade; gilsonite streaks at 514.9; several scattered thin light gray pyrite and light brown analcitized tuff stringers; few scattered gilsonite streaks; abundant very small buff marly blebs and streaks; solution fracture zones with calcite from 516.0-517.3.

From	To	
519.9	521.9	Oil Shale, medium olive brown and light brown banded, even bedding, fair to good competence, low grade; trace looped bedding, several scattered very small buff marly blebs and streaks; gradational contact.
521.9	531.9	Oil Shale, tan and light olive brown banded, even with irregular and trace streaked and contorted bedding, good competence, very low to low grade, marly; tuff and marly very low grade oil shale with contorted bedding from 522.9-523.4; dark brownish gray pyritic granular tuff bands .40 at 523.4, .30 at 529.8, and .10 at 530.7; trace gilsonite streaks; few scattered asphaltic tuff blebs and stringers; several scattered pyrite streaks.
531.9	532.7	Oil Shale, dark olive brown to black, even bedding, poor competence, very high grade, very low density, fairly elastic; numerous light brown granular tuff lamina.
532.7	534.9	Oil Shale, medium olive brown, even with trace looped and wavy bedding, good competence, medium grade; few scattered small light blue gray and light brown analcitized tuff streaks; gradational contact.
534.9	538.3	Oil Shale, light gray brown to light olive brown with medium olive brown banded, even with faint streaked and trace looped bedding, fair competence, very low to low grade, marly, trace dark brown asphaltic tuff blebs; .30 zone of irregular medium and dark brown asphaltic granular tuff stringers at 538.0.
538.3	539.85	Oil Shale, dark mahogany brown to black with few medium olive brown bands, even bedding, fair to good competence, high to very high grade, fairly tough, fairly low density, fairly elastic; few light to medium brown asphaltic granular tuff blebs and stringers.
539.85	540.5	Oil Shale, light olive brown, even bedding, poor to fair competence, low grade; few scattered small light blue gray and medium brown analcitized and asphaltic tuff streaks and blebs.
540.5	541.6	Oil Shale, dark olive brown, looped with even bedding, poor competence, high grade; fairly low density, fairly elastic.
541.6	546.3	Oil Shale, dark mahogany brown to black, even and looped bedding, fair to good competence, very high grade; very low density, very elastic, fairly tough; abundant thin light brown granular tuff lamina and stringers.
546.3	547.3	Oil Shale, light olive brown, even with trace looped bedding, fair competence, low to medium grade; trace thin dark brown asphalt and light blue gray analcitized and pyritic tuff blebs and stringers.
547.3	549.9	Oil Shale, dark mahogany brown, even bedding, fair to good competence, high to very high grade, fairly low density, fairly elastic, very tough; trace dark brown asphalt and light blue gray to brown analcitized tuff blebs; gradational contact.

From	To	
549.9	553.7	Oil Shale, medium olive brown, even with trace looped and faint streaked bedding, fair to good competence, medium grade; several scattered thin light brown granular tuff streaks.
553.7	556.0	Oil Shale, dark olive brown to dark mahogany brown, even with trace looped bedding, poor competence, high to very high grade; fairly low density, fairly elastic; few scattered dark brown asphaltic tuff streaks and stringers.
556.0	563.3	Oil Shale, light to medium olive brown, even with trace looped, streaked, and irregular bedding, fair to good competence; low to medium grade; from 561.9-563.3 abundant medium to dark olive brown oil shale banding.
563.3	566.2	Oil Shale, dark olive brown to black with medium olive brown faintly banded, even and wavy with streaked bedding, poor competence, high grade, fairly low density, elastic; several scattered medium brown asphaltic granular tuff stringers; abundant very small light brown tuff blebs and streaks; .20 solution fracture zones with abundant asphalt at 566.0.
566.2	569.3	Oil Shale, medium gray brown with light olive brown, even bedding, fair to good competence, medium grade; few scattered pyrite stringers; trace gilsonite streaks.
569.3	570.8	Oil Shale, medium to dark olive brown with black, streaked with even bedding, poor competence, medium to high grade; .10 zone with several light brown asphaltic tuff stringers at 569.9.
570.8	573.9	Oil Shale, light olive brown to light gray brown, streaked with even bedding, poor to fair competence, very low to low grade; marly from 572.0-573.9; numerous small light brown marlstone and tuff blebs and streaks; trace light brown granular asphaltic tuff stringers; .40 medium to dark olive brown medium to high grade oil shale band with streaked bedding at 572.4.
573.9	575.7	Oil Shale, dark olive brown to black, even with trace wavy bedding, poor competence, high grade, fairly low density; elastic, light brown tuff stringers at 575.3 and 575.4.
575.7	578.7	Oil Shale, light olive brown with medium olive brown banding, even bedding, fair competence, low to medium grade; trace pyrite stringers; trace looped bedding; gradational contact.
578.7	580.4	Oil Shale, light gray brown with medium olive brown faintly banded, even with faint streaked bedding, fair to good competence, very low to low grade, marly; trace light gray pyrite lamina.
580.4	583.2	Oil Shale, medium olive brown, streaked bedding, excellent competence, medium to high grade; numerous very small light brown granular and dark brown asphaltic tuff streaks and blebs; numerous very small light brown marly blebs and streaks.

From	To	
583.2	584.0	Oil Shale, light gray brown to light olive brown, even bedding, poor to fair competence, very low to low grade, marly, .10 zone of abundant irregular black asphaltic streaks and stringers at 583.2.
584.0	587.2	Oil Shale, medium to dark olive brown, even with irregular and trace contorted bedding, fair to good competence, medium to high grade, few scattered tan marly blebs and stringers; .30 solution fracture zones with several light brown and dark brown asphaltic tuff stringers, associated contorted bedding and evidence collapsed leached nahcolite with white calcite filling at 585.3; several medium to dark brown granular tuff stringers from 587.0-587.2.
587.2	591.7	Tuff, medium brown, massive, very poor to poor competence, brittle-fairly hard, gilsonite flakes common; abundant dark greenish gray to black pyrite streaks and blebs; very slightly calcareous; medium olive brown medium to high grade oil shale with streaked bedding, .10 stringer at 589.3, and bed from 589.5-590.1; asphaltic from 590.1-591.7.
591.7	598.5	Oil Shale, light olive brown, even with looped and irregular bedding, fair competence, low grade; numerous calcite sealed fractures and irregular calcite streaks from 591.7-592.8; irregular calcite stringer with associated asphalt at 593.5; few scattered pyrite stringers; irregular blue gray analcitized tuff stringer at 596.3.
598.5	600.8	Oil Shale, medium olive brown with few dark olive brown bands, even with looped bedding, fair to good competence, medium grade; trace gilsonite stringers; .05 asphaltic analcitized tuff bands at 599.3.
600.8	606.2	Oil Shale, light olive brown, even with trace looped bedding, poor competence, low grade; solution fractures with calcite and asphalt common; medium olive brown low to medium grade oil shale bands with streaked bedding .40 at 604.5 and .30 at 605.2; few scattered irregular asphalt stringers; buff kaolinitic tuff stringer at 605.7.
606.2	613.0	Oil Shale, medium brown to medium olive brown, even with irregular and offset bedding, very poor competence, low to medium grade; numerous poker chip partings with kaolinite and trace pyrite; solution fractures with calcite, kaolinite and trace pyrite common; few scattered pyrite stringers; few scattered kaolinitic tuff stringers; light blue gray to buff kaolinitic tuff band from 608.8-609.3; few scattered thin solution breccia zones; dark gray brown to black, very asphaltic solution fracture zones from 611.8-612.1; 0.7 core loss from 612.1-612.8.
613.0	618.3	Oil Shale, light olive brown, medium olive brown, and dark brown banded, even with looped and trace wavy bedding, poor to fair competence, low to medium grade; few scattered solution fractures with kaolinite and calcite; several partings with kaolinite and calcite; few scattered pyrite streaks and stringers.

From	To	
618.3	620.5	Oil Shale, dark olive brown with dark brown to black banding, even bedding, good competence, high grade, fairly low density, fairly elastic; dark black very high grade very low density from 618.3-618.8; few scattered black gilsonite blebs and stringers; gradational contact.
620.5	625.5	Oil Shale, with Marlstone, interbedded; Oil Shale: light olive brown, even, irregular and streaked bedding, poor competence, very low grade, slightly marly; abundant solution fractures and few thin solution breccia zones with abundant calcite; trace collapsed leached nahcolite with associated pyrite; few scattered gilsonite streaks, Marlstone: from 622.8-624.6, light gray brown to buff, even, irregular and offset bedding, very poor to poor competence, abundant evidence collapsed leached nahcolite and leached nahcolite vugs with abundant pyrite and calcite; abundant solution fractures and thin solution breccia with calcite, kaolinite, and pyrite; several blue gray analcitized tuff stringers from 623.7-623.8.
625.5	626.8	Oil Shale, light olive brown and medium olive brown banded, even and looped bedding, fair competence, low to medium grade; trace calcite streaks and stringers; light brown to buff granular massive tuff bed from 626.5-626.8.
626.8	628.5	Oil Shale, dark olive brown, looped with even bedding, fair competence, high grade, fairly low density, fairly elastic; several scattered tan kaolinitic tuff stringers.
628.5	633.5	Oil Shale, light and medium olive brown banded, even, irregular and streaked bedding, poor to fair competence, low to medium grade; from 628.5-629.1 light gray brown to buff, tuff with massive bedding with several oil shale streaks; .30 at 629.4 zone of irregular marlstone stringers and blebs, abundant solution fractures, and abundant collapsed leached nahcolite with associated pyrite; from 629.7-630.7 numerous tan marlstone blebs and streaks; from 630.7-631.0 solution breccia zones with abundant calcite and marlstone; from 631.0-631.5 and 632.2-632.4 and 633.0-633.5 abundant pinpoint calcite streaks; 631.5-632.2 numerous tan marly streaks and blebs; disseminated pinpoint pyrite blebs common from 632.7-633.0; blue gray analcitized tuff stringer at 633.1.
633.5	634.6	Tuff, light gray brown to tan, massive with irregular and trace streaked bedding, granular, very hard, kaolinitic, numerous oil shale stringers from 633.5-633.8; blue gray analcitized tuff blebs common from 633.7-633.9; few scattered pyrite blebs; fairly crumbly, abundant evidence collapsed leached nahcolite and solution fractures.
634.6	643.7	Oil Shale, light olive brown with medium olive brown bands and zones, even, streaked, and irregular bedding with few zones of contorted and looped bedding, poor to fair competence, low grade; numerous scattered zones of pinpoint calcite blebs and streaks; pinpoint calcite common on several partings; few scattered solution fracture zones with calcite and evidence collapsed leached nahcolite; few scattered white

From	To	
643.7	647.3	granular calcareous tuff stringers at 637.4; 638.3 and 638.9; buff interbedded tuff bands and lamina from 638.0-638.2; dark gray to black asphaltic bands and stringers at 642.2 and 642.5; gilsonite stringer at 643.3; gradational contact.
647.3	652.0	Oil Shale, marly, light olive brown to buff, even with looped bedding, poor competence, very low grade; abundant pinpoint calcite; numerous planar partings with pinpoint calcite; several scattered pyrite streaks and lamina; trace gilsonite streaks; 0.2 band of blue gray analcitized tuff at 646.8.
647.3	652.0	Marlstone, light gray brown to buff, even with abundant offset bedding, very poor to poor competence, abundant solution fractures, tectonic fractures and poker chip partings with pyrite common; few scattered thin zones of pinpoint calcite; numerous pyrite streaks and lamina; light gray analcitized tuff band with dark gray pyrite bands from 650.1-650.4; pinpoint calcite common from 651.1-652.0; .05 dark brown oil shale band at 651.9.
652.0	658.2	Marlstone, light brownish gray to buff, even and irregular with abundant offset bedding, poor competence; few thin solution breccia zones; disseminated pyrite common; pyrite stringers and lamina common; fairly argillaceous; few scattered oil shale and asphalt stringers; several scattered pyrite blebs and patches, 0.5 core loss from 654.0-654.5; numerous scattered white calcite streaks, stringers and blebs.
658.2	661.2	Marlstone, light gray brown to buff, even bedding, poor competence, several scattered partings with calcite and pyrite; fairly brittle, several scattered pyrite streaks, stringers, and lamina; numerous pinpoint calcite blebs and stringers from 658.2-658.8; tectonic fractures and poker chip zones with abundant earthy red hem? staining from 659.8-660.6; scattered evidence collapsed leached nahcolite; gradational contact.
661.2	665.0	Oil Shale, marly, light gray brown to light brown, irregular with offset bedding, very poor to poor competence, very low grade, fairly argillaceous; abundant pinpoint calcite, abundant evidence solution fractures, solution breccia and collapsed leached nahcolite; several scattered pyrite stringers; 2.20 core loss from 661.7-663.9.
665.0	666.7	Marlstone, light brownish gray to buff, irregular bedding, very poor to poor competence, fairly argillaceous, abundant pinpoint calcite and numerous calcite stringers, disseminated pyrite common; pyrite stringers common; gilsonite stringer at 665.8; few scattered solution fracture zones with collapsed leached nahcolite.

From	To	
666.7	669.6	Oil Shale, light olive brown, even to streaked bedding, poor competence, low grade, slightly argillaceous; pinpoint calcite common from 666.7-667.0; dark brown oil shale bands .10 at 667.1 and 667.4; trace scattered zones of thin pinpoint calcite; numerous thin scattered medium to dark olive brown oil shale bands from 667.5-669.6; 1.2 core loss from 668.2-669.4.
669.6	673.8	Oil Shale, marly, buff and light olive brown with medium brown banding, even with looped and offset bedding, very poor to poor competence, very low grade, numerous scattered pyrite streaks and lamina; numerous partings and solution fractures with calcite and pyrite common; trace gilsonite stringers.
673.8	676.0	Oil Shale, light and medium olive brown with tan banding, even and streaked bedding, poor to fair competence, low to medium grade; numerous scattered light orange brown slightly oxidized tuff stringers and streaks; trace scattered pyrite stringers.
676.0	684.1	Oil Shale, with interbedded Marlstone; Oil Shale, marly, light olive brown to light gray brown, even with looped and wavy bedding; Marlstone: light brownish gray to buff, even, massive and irregular bedding, fairly brittle; overall: fair competence, from 676.0-676.8 low grade, from 676.8-677.3 Marlstone: from 677.3-677.8 very low grade, from 677.8-678.4 Marlstone, from 678.4-680.5 very low grade, from 680.5-682.6 very low to low grade, from 682.6-684.1 Marlstone; several scattered pyrite and blue gray tuff streaks, stringers and blebs; .30 zone of light orange brown tuff at 677.1 with calcite and slight FeO staining from 677.4-677.8 numerous tan marly stringers and blue gray analcitized tuff stringers, .30 massive light orange brown slightly oxidized analcitized tuff band at 677.8; calcite and pyrite common on solution fractures and partings; .30 light orange brown slightly oxidized granular tuff at 680.3 with irregular bedding and abundant disseminated pyrite; disseminated pyrite common from 683.5-684.1.
684.1	687.6	Marlstone, buff, even and irregular bedding, poor competence, fairly brittle, abundant disseminated pyrite and numerous pyrite stringers and blebs; numerous solution fractures and few thin solution breccia zones with evidence collapsed leached nahcolite; kaolinite and calcite common on solution fractures; gilsonite common on solution fractures from 686.5-687.4; gradational contact.
687.6	692.9	Oil Shale, marly, light olive brown, even with trace streaked and looped bedding, poor to fair competence, very low to low grade; few scattered solution fractures and partings with calcite and pyrite; few scattered pyrite streaks,

From	To	
		stringers and lamina; thin granular analcitized tuff stringer with slight FeO staining at 688.2; gradational contact.
692.9	697.3	Oil Shale, medium gray brown to medium olive brown, even with looped bedding, poor to fair competence, low to medium grade; several scattered pyrite stringers; trace gilsonite streaks; few scattered dark black pyritic tuff stringers from 694.9-695.5; gradational contact.
697.3	700.4	Oil Shale, dark olive brown, streaked bedding, fair competence, high grade, trace solution fractures with calcite and pyrite; few scattered tan marly blebs, streaks, and stringers; trace gilsonite streaks.
700.4	701.9	Oil Shale, marly, light to medium olive brown, even with looped bedding, poor to fair competence, very low to low grade; few partings with kaolinite and calcite; partings with unknown white soft slightly calcareous mineral - dawsonite ? at 701.5; gradational contact.
701.9	703.4	Marlstone, light olive brown to buff, even with looped bedding, poor to fair competence, slightly argillaceous, few pyrite streaks and stringers; trace gilsonite.
703.4	704.4	Oil Shale, medium olive brown, streaked bedding, good competence, medium grade, buff marly streaks common.
704.4	706.6	Oil Shale, medium olive brown, even with wavy bedding, poor to fair competence, low grade, slightly argillaceous, few pyrite streaks and lamina; partly collapsed leached nahcolite vugs with calcite and pyrite at 704.6, 704.8, 705.5, and 705.9; 0.4 core loss from 705.5-705.9; abundant solution fractures with collapsed leached nahcolite, calcite, kaolinite and pyrite from 705.9-706.6.
706.6	711.0	Oil Shale, medium olive brown with medium gray brown, even, looped and irregular bedding, poor competence, low to medium grade; numerous solution fractures and tectonic fractures with calcite, asphalt and kaolinite; several partings with kaolinite and calcite; trace evidence collapsed leached nahcolite; few scattered gilsonite streaks.
711.0	717.8	Marlstone, light brownish gray to buff, even with offset and irregular bedding, very poor to poor competence, fairly brittle, fairly crumbly; fairly argillaceous; numerous poker chip partings and solution fractures with calcite, pyrite and trace kaolinite; evidence collapsed leached nahcolite with pyrite common; several scattered pyrite stringers and lamina; few scattered thin solution breccia zones; few scattered light blue gray analcitized tuff blebs.

From	To	
717.8	726.6	Oil Shale, light gray brown and light olive brown with medium olive brown banding, even with streaked and trace offset bedding, very poor to poor competence from 717.8-721.1, fair competence from 721.1-726.6, low to medium grade; few scattered solution fracture zones, partings and fractures with calcite, pyrite and trace kaolinite; .30 dark olive brown high grade oil shale band at 718.1; several scattered pyrite blebs and streaks; few scattered asphaltic tuff blebs; trace gilsonite; from 721.7-726.6 abundant light gray brown slightly marly banding; 0.20 light gray massive granular tuff band at 723.7; 0.20 core loss from 724.3-724.5; gradational contact.
726.6	731.0	Oil Shale, marly, light gray to brown and buff, even with abundant offset bedding, very poor to poor competence, very low grade; abundant solution fractures and numerous partings with pyrite, calcite and kaolinite; dark brown high grade oil shale bands with streaked bedding at 728.5, 729.7 and 729.9; abundant evidence collapsed leached nahcolite; several scattered fractures with calcite, asphalt and trace slicks.
731.0	732.0	Oil Shale, dark olive brown, streaked bedding, poor competence, high grade; fairly low density, fairly elastic; abundant evidence collapsed leached nahcolite.
732.0	735.8	Oil Shale, medium brown to medium gray brown, even with streaked and offset bedding, very poor to poor competence, low to medium grade; several scattered tan marly stringers from 732.0-733.5; several scattered pyrite lamina; evidence collapsed leached nahcolite; abundant solution fractures with pyrite and trace kaolinite; gradational contact.
735.8	741.7	Oil Shale, medium brown to medium gray brown, even and streaked with offset bedding, poor competence, medium grade; several scattered tan marly blebs and stringers from 735.8-738.8; abundant solution fractures and partings with calcite, collapsed leached nahcolite and pyrite; dark brown to black asphalt stringer at 738.7; few scattered pyrite lamina.
741.7	744.7	Marlstone, light brownish gray to buff, even with abundant offset bedding, very poor to poor competence; solution fractures with pyrite, collapsed leached nahcolite and trace kaolinite common; "poker chip" partings common; few scattered light and dark brown oil shale streaks and stringers.
744.7	745.7	Oil Shale, medium olive brown, even and streaked bedding, poor competence, medium grade; few "poker chip" parting zones.

From	To	
745.7	748.8	Oil Shale, light olive brown, even with streaked and trace irregular bedding, poor competence, very low to low grade; marly, scattered evidence collapsed leached nahcolite; scattered solution fracture zones; abundant pyritic lamina; gradational contact.
748.8	749.8	Marlstone, light olive brown to buff, even bedding, poor competence, trace kerogen; several scattered partings and solution fractures with kaolinite, pyrite and evidence collapsed leached nahcolite; pinpoint pyrite .30 at 749.5.
749.8	757.7	Oil Shale, light olive brown with medium to dark olive brown banding, even and streaked bedding, poor to fair competence, low to medium grade; few scattered pyrite streaks; abundant very small light brown granular tuff blebs and streaks from 750.7-753.4 and 757.0-757.7; several scattered partings and solution fractures with kaolinite and pyrite; .10 medium brown granular asphaltic tuff pod at 754.2 with associated contorted bedding.
757.7	759.6	Oil Shale, light brown with dark olive brown banding, even with trace looped bedding, poor competence, very low to low grade; marly; abundant pinpoint pyrite and pyritic streaks and lamina; gradational contact.
759.6	767.5	Marlstone, light brownish gray to buff, even with abundant offset bedding, very poor to poor competence; numerous scattered pyrite streaks and lamina; few scattered oil shale stringers; brittle; abundant partings and solution fractures with kaolinite, pyrite and evidence collapsed leached nahcolite, 1.0 core loss from 761.7-762.7; disseminated pyrite common.
767.5	769.0	Oil Shale, dark olive brown, streaked bedding, poor to fair competence, high grade; fairly low density, elastic; numerous very small light brown marlstone and tuff blebs and streaks.
769.0	771.8	Oil Shale, light to medium olive brown and light gray brown with dark gray brown banding, even with trace looped bedding, poor to fair competence, low to medium grade; slightly marly low grade oil shale with light gray to brown banding from 770.8-771.8; few scattered dark gray analcitized tuff blebs; dark gray pyritic tuff stringer at 770.8.
771.8	773.3	Marlstone, light gray-brown to buff, even and abundant offset bedding, very poor to poor competence; abundant solution fractures and partings with collapsed leached nahcolite, pyrite and kaolinite; trace solution breccia; pinpoint pyrite and disseminated pyrite common.

From	To	
773.3	777.4	Oil Shale, medium olive brown with dark olive brown, streaked with trace even bedding, poor to fair competence, medium grade scattered evidence collapsed leached nahcolite; several scattered solution fractures with kaolinite and pyrite; grades to light gray brown from 776.5-777.4.
777.4	779.3	Oil Shale, marly, light olive brown with few buff stringers, even and abundant offset bedding, very poor to poor competence very low grade; abundant solution fractures with pyrite and kaolinite; .30 zone of abundant small leached vugs with associated pyrite filling at 778.7; trace pyrite stringers.
779.3	782.0	Marlstone, light gray brown to buff, abundant offset and even bedding, very poor competence; pinpoint pyrite and abundant pyritic streaks from 779.3-780.8; abundant solution fractures and several partings with pyrite and kaolinite; few thin solution breccia zones.
782.0	786.6	Oil Shale, medium to dark olive brown with few light olive brown bands, streaked with even bedding, poor competence, medium to high grade; several scattered solution fracture zones and partings with pyrite and kaolinite; evidence collapsed leached nahcolite with associated 60° inclined bedding from 783.4-783.8; .20 light brownish gray marlstone band with abundant pinpoint pyrite at 784.0; numerous small light brown marlstone and tuff streaks and blebs; gradational contact.
786.6	790.4	Oil Shale, light olive brown, medium olive brown and buff, banded, even with looped bedding, poor to fair competence, low grade; slightly marly; numerous scattered buff marlstone bands; several scattered pyrite streaks and lamina.
790.4	793.5	Oil Shale, medium gray brown, even bedding inclined 05°-15°, poor to fair competence, medium grade.
793.5	798.0	Marlstone, light gray brown to buff, even bedding, poor competence, fairly brittle; few scattered medium brown oil shale stringers; several scattered solution fracture zones and partings with kaolinite and pyrite; trace solution breccia; gradational contact.
798.0	802.2	Oil Shale, medium gray brown, even with streaked to irregular bedding, poor competence, low to medium grade; from 800.2-802.2 abundant pyrite streaks and pinpoint pyrite; from 801.3-802.2 abundant solution fractures with pyrite and kaolinite; several scattered partings with pyrite and kaolinite.
802.2	812.3	Core loss - Note: Driller noted fast drilling but not avoid area; possibly very crumbly solution fracture or solution breccia zone.

From	To	
812.3	815.5	Oil Shale, medium to dark olive brown and light olive brown, banded, even and streaked bedding, poor competence, medium grade; small light brown tuff blebs and streaks common; several scattered solution fracture zones with collapsed leached nahcolite and pyrite, gradational contact; numerous partings with kaolinite.
815.5	821.8	Oil Shale, marly, light olive brown with tan and buff banding, even with looped and offset bedding, very poor to poor competence, very low grade; abundant partings with pyrite and kaolinite, numerous scattered pyrite stringers and lamina; trace scattered solution breccia zones; numerous solution fractures with kaolinite and pyrite; trace collapsed leached nahcolite; 1.9 core loss from 819.3-821.2.
821.8	829.4	Oil Shale, light to medium olive brown, even with looped and irregular bedding, poor competence, low grade; abundant solution fractures and partings with kaolinite and pyrite; abundant evidence collapsed leached nahcolite; few scattered pyrite streaks and stringers; very brittle crumbly marly core from 825.0-826.9; trace thin solution breccia zones; abundant disseminated pyrite from 827.7-829.4; gradational contact.
829.4	833.0	Oil Shale, light olive brown, even with looped and irregular bedding, fair competence, low grade; slightly marly several scattered pyrite stringers and lamina; several scattered fractures with kaolinite and pyrite; few scattered buff marly stringers.
833.0	837.7	Oil Shale, marly, light olive brown to tan, streaked to irregular bedding, poor competence, very low grade; medium olive brown low to medium grade from 833.0-833.4, and 834.5-835.1; abundant evidence collapsed leached nahcolite, solution fractures and thin solution breccia zones with kaolinite; trace scattered pyrite stringers; few scattered zones of pinpoint pyrite from 835.5-836.5; .10 buff marlstone band with abundant kaolinite and disseminated pyrite at 837.2; 0.2 core loss from 837.5-837.7.
837.7	838.0	Oil Shale, light olive brown, streaked bedding, poor to fair competence, very low grade; slightly marly, abundant disseminated pyrite; trace gilsonite.
838.0	840.6	Core loss (2.6')
840.6	844.4	Oil Shale, dark olive brown and dark brown banded, even with looped bedding, fair competence, medium to high grade; several scattered solution fractures with evidence collapsed leached nahcolite and abundant kaolinite; gray tuff stringer at 841.1

From	To	
844.4	847.1	Oil Shale, light and medium brown banded, even with looped bedding, poor to fair competence, medium grade; few scattered tectonic fractures and solution fractures with abundant kaolinite and trace collapsed leached nahcolite.
847.1	851.6	Marlstone, light brownish gray to buff, irregular to massive bedding, very poor competence, heavily solution fractured with abundant evidence collapsed leached nahcolite, pyrite and calcite, soft and crumbly; numerous scattered pyrite streaks and stringers, disseminated pyrite common, few scattered solution breccia zones; very crumbly from 847.1-850.6; abundant pinpoint calcite and irregular calcite stringers from 850.5-851.6.
851.6	853.1	Oil Shale, marly, light gray brown, even bedding, poor to fair competence, very low grade; abundant pinpoint calcite; several scattered irregular calcite stringers, numerous pyrite stringers; abundant disseminated pyrite.
853.1	857.3	Oil Shale, light to medium gray brown, even bedding, poor to fair competence, very low to low grade; numerous partings and solution fractures with kaolinite and pyrite; abundant blue gray pyrite stringers and lamina; .05 buff marly stringer at 854.1; abundant disseminated pinpoint calcite from 855.5-857.3.
857.3	861.6	Marlstone, light brownish gray to buff, even and irregular with zones of nearly massive bedding, poor to fair competence fairly argillaceous; solution fractures with pyrite and collapsed leached nahcolite common from 857.3-859.3; numerous scattered pyrite stringers; few scattered zones of pinpoint pyrite; numerous buff calcite lamina and pinpoint zones common from 859.3-861.5; abundant solution fractures with offset bedding and pyrite from 861.5-861.6.
861.6	864.5	Oil Shale, marly, light olive brown, irregular bedding, very poor competence, very low grade; fairly argillaceous, abundant solution fractures with offsets and collapsed leached nahcolite; trace gilsonite; numerous pyrite lamina from 863.5-864.0 numerous irregular stringers with associated calcite and pyrite; from 864.0-864.5 dark gray massive granular analcitized tuff bed.
864.5	866.2	Oil Shale, light to medium olive brown, even with trace streaked bedding, fair competence, low grade; numerous scattered solution fractures with offsets, abundant pyrite lamina, few partings with kaolinite; trace leached disseminated nahcolite from 864.6-865.0.
866.2	868.1	Oil Shale, medium olive brown, streaked bedding, fair competence, low to medium grade, abundant white pinpoint calcite streaks; 0.5 core loss from 867.0-867.5 possibly vug; collapsed leached nahcolite on partings at 867.5.

From	To	
868.1	869.3	Marlstone, light brownish gray to buff; even with trace wavy bedding, poor competence, few partings with kaolinite; trace pinpoint calcite; abundant pinpoint pyrite; few scattered pyrite stringers and lamina; trace collapsed leached nahcolite; few small partly leached nahcolite vugs with associated pyrite filling at 868.8.
869.3	872.6	Oil Shale, medium gray brown to medium olive brown, even bedding, poor competence, very low grade; slightly argillaceous; trace dessication; few scattered partings with kaolinite and pyrite; few fractures with kaolinite; numerous pyrite stringers and lamina; trace gilsonite streaks and blebs.
872.6	876.5	Marlstone, light brownish gray to buff, even, irregular and nearly massive bedding, very poor competence, abundant partings and solution fracture zones with evidence collapsed leached nahcolite, calcite and pyrite; soft to slightly brittle, fairly crumbly in places; abundant pinpoint calcite and pinpoint pyrite; several scattered pyrite stringers; several scattered large white calcite stringers with associated pyrite from 874.2-874.5; abundant offset bedding; several zones of abundant pyrite lamina; disseminated pyrite common; gradational contact.
876.5	878.1	Oil Shale, argillaceous, medium olive brown to medium gray brown, even bedding, poor competence, very low grade, slight dessication; abundant pinpoint leached disseminated nahcolite abundant offset bedding; numerous pyrite lamina; trace gilsonite.
878.1	879.3	Oil Shale, marly, light gray brown to light olive brown, even bedding, very poor to poor competence, very low grade; numerous pyrite lamina; light orange brown tuff stringer at 878.3; numerous partings with kaolinite and pyrite.
879.3	885.6	Marlstone, light brownish gray to buff, even, wavy and nearly massive bedding, very poor to poor competence; abundant pyrite blebs, streaks, stringers and lamina; abundant disseminated pyrite; numerous partings with calcite, dawsonite, kaolinite and pyrite; abundant solution fractures with evidence collapsed leached nahcolite, calcite and pyrite; abundant pinpoint leached disseminated nahcolite vugs; pinpoint calcite common from 879.3-880.1; numerous irregular stringers of associated calcite and pyrite from 879.7-882.0; several scattered thin solution breccia zones; .10 light orange brown marly band with abundant pyrite blebs at 879.6; bedding highly contorted and inclined 45° from 882.8-883.6; fairly soft to slightly brittle core, crumbly in places.
885.6	892.2	Oil Shale, argillaceous, light to medium gray brown, even bedding, very poor to poor competence, very low grade; slight to moderate dessication; solution fractures with abundant evidence collapsed leached nahcolite from 885.6-888.3; kaolinite common

From	To	
		on solution fractures and partings; several scattered zones of pinpoint calcite streaks; several scattered pyrite stringers; .15 light orange brown tuff band with pyrite blebs at 890.9.
892.2	895.8	Marlstone, buff, even and irregular to nearly massive bedding, very poor competence, abundant solution fractures and few thin solution breccia zones with abundant collapsed leached nahcolite, calcite and pyrite; fairly soft to slightly brittle, very crumbly; abundant pyrite blebs, streaks, stringers and lamina; abundant disseminated pyrite; several scattered zones of abundant pinpoint calcite.
895.8	900.4	Shale, medium brownish gray, even bedding, very poor competence, slight to moderately calcareous; numerous planar shaly partings; numerous scattered thin zones of solution fractures with evidence collapsed leached nahcolite and kaolinite; abundant pinpoint leached disseminated nahcolite from 895.8-899.0; dark gray massive granular tuff bed from 896.8-897.4; several scattered pyrite stringers and lamina; light orange brown tuff stringer at 899.6.
900.4	918.6	Marlstone, light brownish gray to buff, even and nearly massive bedding, very poor competence, abundant solution fractures and thin solution breccia zones with evidence collapsed leached nahcolite; abundant pinpoint calcite from 900.4-902.5; fairly soft to slight brittle very crumbly core; numerous scattered pyrite streaks, stringers and lamina; 0.4 core loss from 902.1-902.5; fairly argillaceous; from 904.1-918.6 abundant medium brownish gray argillaceous bands with abundant even bedding; 6.80 core loss from 906.2-913.0; numerous scattered pinpoint calcite zones from 904.5-918.6; few scattered tan bands; numerous "poker chip" partings with calcite, kaolinite, and pyrite.
918.6	923.8	Marlstone, buff, abundant offset bedding with even bedding, very poor to poor competence, solution fractures and partings common with pyrite and kaolinite; disseminated pyrite common; several scattered pyrite streaks and lamina.
923.8	927.8	Oil Shale, marly, light to medium olive brown and light gray brown to buff, even with abundant offset bedding, very poor to poor competence, very low to low grade; "poker chip" partings and solution fractures common with kaolinite and pyrite; abundant pyrite lamina from 923.8-926.0.
927.8	934.5	Marlstone, light brown to buff, even with abundant offset bedding, very poor competence; fairly brittle, trace kerogen from 927.8-932.0; solution fractures and "poker chip" partings common with pyrite and kaolinite; 0.6 core loss from 928.4-929.0; disseminated pyrite and pyrite lamina common; .40 zone of light gray, granular, slightly kaolinitic tuff bed at 930.6

From	To	
934.5	939.0	Oil Shale, light to medium olive brown and light gray brown, even with trace wavy bedding, poor competence, low grade; abundant partings and several solution fracture zones with evidence collapsed leached nahcolite and trace kaolinite and pyrite; few scattered pyrite lamina and pinpoint pyrite blebs; gradational contact.
939.0	954.6	Marlstone, light brownish gray to buff and light to medium gray, banded, even bedding, very poor to poor competence; brittle to hard; few scattered light olive brown very low grade oil shale bands and stringers; "poker chip" partings and solution fractures common with pyrite and trace kaolinite; pyrite lamina common; few scattered pinpoint pyrite zones; numerous scattered medium greenish gray zones grading to calcareous shale; 0.80 core loss from 943.7-944.5; 0.70 core loss from 946.2-946.7; 1.70 core loss from 948.8-950.6; from 952.8-953.4 light olive brown very low grade oil shale bed.
954.6	957.7	Oil Shale, medium olive brown to dark gray brown, abundant offset with even and contorted bedding, very poor competence, yellow to high grade solution fractures, scattered red partings of nahcolite and calcite; calcite nodules; slightly argillaceous in places; from 954.6-957.7 light brown granular buff blebs and streaks; grades to very argillaceous low grade oil shale from 956.5-957.7; 1.10 light orange brown granular buff band at 957.1.
957.7	964.8	Marlstone, light brownish gray to buff, abundant offset bedding with even bedding, very poor competence, trace kerogen; fairly soft to slightly brittle; solution fractures and "poker chip" partings common with pyrite and kaolinite; disseminated pyrite common; several scattered pyrite lamina and stringers; 2.00 core loss from 960.6-962.5.
964.8	969.0	Marlstone, buff, brecciated and recemented, very poor competence, well cemented; abundant pinpoint calcite; abundant evidence collapsed leached nahcolite from 967.2-969.0; disseminated pyrite, pinpoint pyrite blebs and pyrite stringers common; from 967.2-969.0 grades to very low grade oil shale.
969.0	969.8	Oil Shale, dark olive brown, brecciated and recemented with streaked bedding on oil shale fragments, very poor competence, medium grade; well cemented; abundant evidence collapsed leached nahcolite; few scattered pyrite stringers and blebs; several scattered tan marly blebs and stringers.
969.8	972.4	Oil Shale, medium to dark olive brown, streaked bedding, good competence, high grade, fairly low density; fairly elastic; abundant tan marly streaks and dark gray buff streaks; few scattered thin stringers of pinpoint calcite; numerous pinpoint leached disseminated nahcolite blebs; from 972.1-972.4 even bedding.

From	To	
972.4	974.4	Marlstone, light brownish gray with tan bands and stringers, even with abundant offset bedding, very poor to poor competence, abundant planar kaolinite partings, abundant solution fractures and thin solution breccia zones with abundant evidence collapsed leached nahcolite, kaolinite and offset bedding; abundant medium gray pyrite stringers, streaks and lamina; fairly hard to brittle; gradational contact.
974.4	979.3	Marlstone, buff, even bedding to nearly massive with abundant offset and irregular bedding, very poor to poor competence; abundant solution fractures and solution breccia zones with offset bedding, kaolinite and pyrite; numerous pyrite stringers, streaks and lamina; disseminated pyrite common; several partings with collapsed leached nahcolite, kaolinite and pyrite; fairly soft and crumbly in places; trace scattered oil shale stringers.
979.3	983.0	Marlstone, light brownish gray to buff, brecciated and cemented, very poor competence, medium to well cemented; abundant evidence collapsed leached nahcolite; disseminated pyrite common; kaolinitic; few scattered pyrite stringers.
983.0	984.8	Oil Shale, marly with interbedded marlstone; Oil Shale, light gray to brown, even bedding; Marlstone, buff, even, irregular and massive bedding; overall very poor to poor competence, very low grade; several scattered partings with kaolinite and pyrite; solution fractures and thin solution breccia zones with abundant offset bedding, kaolinite and pyrite common; numerous scattered pyrite stringers and lamina; fairly brittle, fairly crumbly; .05 soft white kaolinite stringer at 983.1; .05 asphaltic breccia band at 983.7.
984.8	988.4	Oil Shale, dark olive brown, streaked bedding, fair competence, high grade; light brown, low grade oil shale with irregular bedding from 984.8-985.6; dark brownish black, very low density, very high grade oil shale from 987.5-988.4; numerous scattered solution fractures with evidence collapsed leached nahcolite and heavy kaolinite coatings; numerous scattered tan marly blebs and streaks; numerous black asphalt streaks, stringers, and bands from 984.8-985.7; .25 diameter partly collapsed leached nahcolite vug with heavy kaolinite coating at 987.8.
988.4	989.7	Oil Shale, light olive brown from 988.4-989.1, medium brownish gray from 989.1-989.7; even with trace streaked bedding, good competence, low grade; few scattered analcitized tuff streaks and stringers.

From	To	
989.7	992.4	Marlstone, light brownish gray, even bedding, poor competence, trace kerogen; grades to gray calcareous shale; abundant pyrite lamina; numerous scattered solution fracture zones and very thin solution breccia zones with evidence collapsed leached nahcolite, kaolinite and pyrite; several scattered pyrite streaks, stringers, and blebs; several scattered irregular white calcite stringers and blebs with associated pyrite - probably altered nahcolite stringers and bands.
992.4	995.9	Oil Shale, dark olive brown, streaked with irregular bedding, poor to fair competence, very high grade; very low density, fairly elastic; white to buff analcitized tuff blebs and streaks common; from 992.7-993.4 and 995.0-995.6 abundant solution fractures and solution breccia with asphalt, collapsed leached nahcolite and kaolinite; numerous scattered black asphalt and gilsonite stringers; 0.3 core loss from 994.2-994.5.
995.9	997.0	Oil Shale, dark olive brown, even bedding, fair to good competence, high grade; fairly tough, fairly low density; large black gilsonite streaks with lenticular, bladed crystalline structure at 996.1 and 996.3; few scattered small gilsonite streaks; few scattered light blue gray analcitized tuff stringers; gradational contact.
997.0	999.9	Oil Shale, medium olive brown, even with trace streaked bedding, fair competence; medium to high grade; fairly hard to tough; from 997.5-998.8 few scattered tan marly blebs and streaks; numerous scattered small blue gray analcitized tuff blebs and streaks.
999.9	1004.5	Oil Shale, marly, light to medium gray brown, even with abundant offset bedding and trace looped and streaked bedding, poor competence, very low grade; abundant pyrite stringer and lamina; numerous scattered closed solution fractures with heavy kaolinite coating and offset bedding; .20 irregular band with abundant pinpoint pyrite stringers at 1001.8; scattered evidence collapsed leached disseminated nahcolite; .05 stringer at 1004.4 of white, opaque, fairly hard (4), very slightly calcareous crystals - dawsonite? from 1003.9-1004.5 several irregular partings with heavy kaolinite coating.
1004.5	1006.5	Oil Shale, medium brown, streaked with even and irregular bedding, poor competence, low to medium grade; several scattered solution fractures and irregular partings with evidence collapsed leached nahcolite and heavy kaolinite coating; several medium size (.05 diameter) leached nahcolite vugs with heavy altered pyrite filling from 1005.4-1005.6.

From	To	
1006.5	1007.6	Oil Shale, light to medium brown, even with trace irregular bedding, fair competence, low grade; .25 diameter leached nahcolite vugs with abundant altered pyrite at 1006.6; asphaltic tuff stringer at 1007.3; trace pinpoint analcitized tuff streaks; few partings with heavy kaolinite coating.
1007.6	1011.7	Oil Shale, marly, light brown, even bedding to nearly massive, poor competence, very low grade; few scattered solution fracture zones with evidence partly collapsed leached nahcolite, kaolinite and dawsonite; several scattered partings with heavy kaolinite coating; (.05-.10 diameter), well rounded, leached nahcolite vugs with bladed structure at 1008.1, 1009.0, 1009.7 and 1011.4; few scattered partly collapsed leached nahcolite vugs with associated pyrite coating; pyrite stringers at 1008.8, 1009.6, 1010.1 and 1011.4; tan to buff marly stringer at 1009.4, 1010.0 and 1011.0; few scattered very thin (less than .05) solution breccia zones; light blue gray analcitized tuff stringer at 1010.8; 0.3 core loss from 1014.2-1014.5.
1011.7	1024.6	Oil Shale, light olive brown, streaked, even and irregular bedding, poor competence, very low grade; slightly marly; numerous solution fracture zones with evidence collapsed leached nahcolite and heavy kaolinite coating; .20 diameter leached non-collapsed nahcolite vug at 1020.5; bedding contorted and inclined 45° from 1021.0-1023.5; 0.9 core loss from 1021.6-1022.5; several scattered pyrite stringers from 1023.0-1024.0; from 1020.3-1024.6 grades to low grade oil shale.
1024.6	1026.6	Oil Shale, marly, light brown to light gray brown, even bedding to nearly massive, poor to fair competence, very low grade; several solution fracture zones and partly collapsed leached nahcolite vugs with heavy kaolinite coating; several partings with kaolinite and pyrite; several scattered pyrite stringers and lamina.
1026.6	1029.3	Oil Shale, light to medium brown, even with trace looped bedding, good competence, low grade; slightly marly; tan marly stringers at 1027.2; trace scattered pyrite streaks and stringers.
1029.3	1031.3	Oil Shale, marly, light brownish gray to buff, even with irregular to wavy bedding, very poor to poor competence, very low grade; numerous shaly partings; fairly brittle to soft, slightly crumbly in places, numerous scattered partly collapsed leached nahcolite vugs with kaolinite; numerous scattered thin bands and stringers of collapsed leached disseminated nahcolite; several scattered pyrite stringers; non-collapsed leached nahcolite vugs at 1029.3 and 1030.5; white kaolinite stringer at 1029.4, 1030.2, 1030.4

From	To	
1031.3	1033.9	Oil Shale, marly, light olive brown, streaked bedding, fair to good competence, very low to low grade; zones of non-collapsed and partly collapsed, small leached nahcolite vugs with pyrite and hard white altered nahcolite from 1031.3-1032.3 and 1032.8-1033.9; pinpoint pyrite blebs common.
1033.9	1040.8	Oil Shale, light olive brown, even, streaked and irregular bedding, fair competence, very low grade; marly; few scattered solution fracture zones and thin solution breccia zones with kaolinite; few scattered partings with heavy kaolinite; small well rounded non collapsed leached nahcolite vugs (.05 diameter) at 1035.8, 1037.7 and 1038.8, .10-.20 partly collapsed leached nahcolite vugs at 1037.4, 1038.4 and 1039.2; few scattered round pyrite blebs; light blue gray analcitized tuff stringers common from 1037.7-1038.3.
1040.8	1049.1	Oil Shale, light to medium olive brown, streaked bedding, fair to good competence, low to medium grade; few scattered small leached nahcolite vugs; several scattered pyrite blebs and streaks; 0.30 core loss from 1044.2-1044.5; few irregular partings and evidence collapsed leached nahcolite from 1045.5-1047.0; 0.8 core loss from 1047.3-1048.1; several scattered asphaltic stringers; .10 elliptical asphalt bleb at 1048.9.
1049.1	1052.8	Oil Shale, dark olive brown, even bedding, good to excellent competence, medium to high grade; very slightly argillaceous; several scattered white calcite stringer; trace gilsonite streaks.
1052.8	1055.8	Oil Shale, light and medium olive brown, even and irregular bedding, fair competence, low grade; few solution fractures with heavy kaolinite coating; .30 diameter partly collapsed leached nahcolite vugs with heavy pyrite coating at 1053.7; tuffaceous with wavy bedding from 1054.3-1054.5; light brown granular tuff bed with wavy oil shale stringers from 1054.5-1055.1.
1055.8	1067.1	Oil Shale, medium olive brown, streaked bedding, good competence, medium to high grade; numerous black altered pyrite blebs and large irregular stringers from 1055.8-1058.2; several scattered large pyrite stringers from 1058.2-1063.0; few scattered .05 diameter leached nahcolite vugs with associated black altered pyrite; evidence .10 diameter leached nahcolite vugs on partings at 1063.3; few scattered irregular patches of dawsonite, trace gilsonite, even and irregular bedding from 1066.2-1067.1.

From	To	
1067.1	1071.3	Oil Shale, marly, light gray to brown, even bedding, poor competence, very low grade; abundant partings and thin solution fracture and solution breccia zones with evidence collapsed leached nahcolite and abundant kaolinite; from 1067.1-1067.4 solution fracture zones with abundant dawsonite and heavy pyrite; few scattered pyrite stringers; few scattered tan marly stringers.
1071.3	1085.8	Oil Shale, light to medium olive brown, streaked bedding with trace even and irregular bedding, fair competence, low to medium grade; very marly very low grade from 1078.2-1080.8; numerous scattered pyrite blebs, stringers, and streaks; abundant evidence collapsed leached nahcolite with kaolinite and pyrite; trace disseminated pyrite; .05-.10 diameter leached nahcolite vugs with associated kaolinite and pyrite at 1075.5, 1077.3 and 1077.5; few scattered large black irregular altered pyrite stringers; 0.5 core loss from 1074.0-1074.5; few scattered small calcite pods; trace thin solution breccia at 1082.4 and 1085.0; 0.2 core loss from 1084.3-1084.5.
1085.8	1094.0	Oil Shale, marly, light brownish gray to buff, even bedding with abundant offset bedding, very poor to poor competence, very low grade; abundant partings, solution fracture zones and few thin solution breccia zones with collapsed leached nahcolite and kaolinite; fairly brittle; slightly crumbly in places; few scattered pyrite stringers and blebs; few scattered tan marly bands and stringers; few scattered thin stringers of pinpoint pyrite blebs.
1094.0	1098.3	Oil Shale, light to medium olive brown, streaked bedding, fair competence, low to medium grade; few scattered partly collapsed leached nahcolite vugs with kaolinite and pyrite; several scattered pyrite stringers and blebs; irregular stringer of white opaque fairly hard crystals (altered nahcolite) associated with partly collapsed leached vug at 1095.6; grades to medium grade from 1096.8-1098.3.
1098.3	1099.4	Oil Shale, medium olive brown, even to irregular bedding, fair to good competence, medium grade; numerous pyrite stringer and lamina; .10 diameter leached nahcolite vugs with pyrite and associated 45° inclined bedding at 1099.3.
1099.4	1103.9	Oil Shale, marly, light gray to brown, even with irregular bedding, very poor to poor competence, very low grade; fairly brittle, slightly crumbly; numerous solution fracture zones, several irregular partings and few thin solution breccia zones with abundant evidence collapsed leached nahcolite and heavy kaolinite coatings; .05 irregular stringer at 1101.0 with abundant white opaque fairly hard slightly calcareous altered nahcolite crystals (dawsonite); 0.7 core loss from 1101.8-1102.5; grades to Marlstone.

From	To	
1103.9	1106.8	Oil Shale, medium olive brown with few light olive brown bands, streaked with trace even and irregular bedding, fair competence, low to medium grade; few scattered pyrite streaks; numerous pyrite streaks from 1104.8-1109.0; numerous scattered tan marly streaks and stringers; trace gilsonite streaks; .10-.30 leached nahcolite vugs with bladed structure, kaolinite and pyrite at 1105.8 and 1106.1.
1106.8	1108.4	Oil Shale, marly, light olive brown, streaked bedding, fair competence, very low grade; several scattered small partly collapsed leached nahcolite vugs filled with kaolinite clay and pyrite; numerous scattered pinpoint pyrite streaks.
1108.4	1112.1	Oil Shale, light to medium olive brown, streaked bedding, fair to good competence, low to medium grade; abundant tan marly blebs and streaks; few small leached nahcolite vugs with clay and pyrite filling; .10 diameter leached nahcolite vugs with associated pyrite at 1108.8; several scattered pyrite blebs and streaks; .15 irregular tan marly clast at 1109.7; 1.0 core loss from 1110.0-1111.0.
1112.1	1115.4	Marlstone, light tan to buff, even with trace wavy, streaked and irregular bedding, poor to fair competence, trace kerogen; numerous partings and trace solution fracture zones with kaolinite; several scattered pyrite stringers; several zones of partly collapsed leached nahcolite; several scattered buff irregular soft kaolinite clay clasts, stringers, and bands.
1115.4	1122.8	Oil Shale, light brown with light olive brown banding, even with irregular and trace streaked bedding, fair competence, very low to low grade; slightly marly; few scattered solution fracture zones and partings with evidence collapsed leached nahcolite, kaolinite and trace pyrite; few tan soft kaolinite clay stringers from 1115.8-1116.0; few scattered irregular pyrite stringers; asphalt common on solution fractures from 1121.5-1122.2; blue gray analcitized tuff stringer at 1121.0; trace gilsonite.
1122.8	1125.8	Oil Shale, light brown to medium olive brown, streaked bedding from 1122.8-1124.0, even and irregular from 1124.0-1125.8; good competence, low to medium grade; trace gilsonite streaks; .40 diameter leached nahcolite vugs with pyrite at 1123.7.
1125.8	1130.8	Oil Shale, light to medium olive brown, streaked, even and irregular bedding, good competence, low to medium grade; trace gilsonite streaks and blebs; trace pyrite streaks and stringers; evidence collapsed leached nahcolite on partings at 1127.9; blue gray analcitized tuff stringer at 1128.0; pyrite stringers common from 1128.1-1128.9; several partings

From	To	
1130.8	1137.0	with kaolinite and asphalt from 1129.0-1130.6; gradational contact.
1130.8	1137.0	Oil Shale, medium to dark olive brown, streaked bedding, excellent competence, very high grade; very low density, tough, elastic; several scattered gilsonite streaks; few scattered small analcitized tuff blebs; several scattered tan marly streaks; 0.4 core loss from 1134.1-1134.5; trace leached nahcolite vugs with pyrite filling; tan marly very low grade oil shale from 1134.5-1134.8; few white calcite streaks at 1135.0; from 1135.7-1136.1 numerous partly collapsed leached nahcolite vugs with abundant kaolinite and pyrite; several scattered small white calcite streaks from 1136.0-1137.0.
1137.0	1138.5	Oil Shale, medium to dark olive brown with dark gray brown, irregular to streaked bedding, fair competence, medium to high grade.
1138.5	1142.6	Oil Shale, light olive brown to light gray brown, even with trace streaked bedding, poor to fair competence, very low to low grade; slightly marly.
1142.6	1150.6	Oil Shale, dark olive brown, even bedding, fair competence, high grade; fairly tough; 0.5 core loss from 1144.0-1144.5; medium to dark brown granular asphaltic tuff stringers at 1146.6, 1148.8 and 1149.8; asphaltic tuff blebs at 1147.0; grades to dark gray brown from 1149.5-1150.6; gradational contact.
1150.6	1152.9	Oil Shale, medium gray brown, light to medium olive brown and dark olive brown, even with looped bedding, fair competence, low to medium grade from 1150.6-1152.2, medium to high grade from 1152.2-1152.9; numerous pyrite lamina and streaks from 1150.6-1152.8; dark brown granular asphaltic tuff stringers at 1151.8.
1152.9	1161.6	Oil Shale, light olive brown, even with irregular and trace massive bedding, poor to fair competence, very low grade; marly; abundant scattered zones of solution fractures and disseminated leached nahcolite with abundant collapsed leached nahcolite and kaolinite with trace pyrite; very marly from 1152.9-1153.7; numerous tan marlstone stringers and bands; 0.2 core loss from 1154.3-1154.5; abundant scattered pyrite streaks and pinpoint pyrite blebs; abundant scattered small partly collapsed leached nahcolite vugs.
1161.6	1167.3	Oil Shale, medium olive brown, streaked bedding, fair to good competence, medium to high grade; numerous small marly blebs and streaks; from 1161.6-1163.1 numerous small pyrite blebs and streaks and several light brown tuff streaks; trace gilsonite streaks; .10 zone of collapsed leached nahcolite

From	To	
		with abundant asphalt at 1165.6; streaked to irregular bedding from 1166.5-1167.3.
1167.3	1170.4	Oil Shale, light olive brown and dark olive brown, irregular and abundant offset bedding, very poor competence, low grade; solution fractures with collapsed leached nahcolite and kaolinite common.
1170.4	1172.9	Marlstone, light brownish gray to buff, even with trace offset bedding, fair to good competence; several scattered light brown low grade oil shale stringers; pinpoint pyrite streaks and stringers common; several scattered solution fracture zones with abundant collapsed leached nahcolite, kaolinite, and pyrite.
1172.9	1176.3	Oil Shale, medium gray brown, streaked bedding, fair to good competence, medium grade; trace gilsonite blebs and streaks; few scattered pyrite blebs; several scattered leached nahcolite vugs with kaolinite filling and pyrite rims.
1176.3	1177.3	Oil Shale, medium to dark olive brown, looped with wavy bedding, poor to fair competence, medium to high grade.
1177.3	1189.1	Marlstone, light brownish gray to buff, even and abundant offset bedding, poor competence, several scattered very low grade light olive brown oil shale stringers and bands; abundant solution fractures and partings with evidence collapsed leached nahcolite, kaolinite and pyrite; pinpoint pyrite streaks, stringers, and lamina common.
1189.1	1191.3	Oil Shale, medium olive brown, irregular with streaked bedding, poor competence, medium grade; from 1186.5-1188.9 several scattered tan marly stringers; abundant solution fractures with collapsed leached nahcolite, pyrite and kaolinite; leached disseminated nahcolite with kaolinite and pyrite filling common; pinpoint pyrite blebs common.
1191.3	1194.6	Oil Shale, light olive brown, even with trace streaked bedding, poor competence, low to medium grade; abundant scattered zones of very fine leached disseminated nahcolite vugs; few scattered partly collapsed leached nahcolite vugs and solution fractures with pyrite and kaolinite from 1194.1-1194.6 light olive brown slightly marly low grade oil shale.
1194.6	1204.5	Oil Shale, medium brownish gray with light olive brown, even with irregular bedding, good to excellent competence, low to medium grade; 0.60 core loss from 1195.9-1196.5 possibly in leached nahcolite vugs from 1196.5-1197.5 abundant small pyrite blebs and several leached nahcolite vugs replaced with pyrite and kaolinite; partly collapsed leached nahcolite with pyrite and kaolinite at 1197.4 and

From	To	
		1200.9; zones with abundant dark gray irregular pyrite streaks and stringers .10 at 1200.9 and .20 at 1203.1; large pyrite bleb at 1203.6; gradational contact.
1204.5	1210.2	Oil Shale, light olive brown with light gray brown to tan banded, irregular with even bedding, poor to fair competence, very low to low grade; marly, abundant solution fracture and partly collapsed leached nahcolite vugs with pyrite and kaolinite; pinpoint pyrite streaks, stringers, and lamina common; gilsonite streaks at 1207.9.
1210.2	1215.4	Oil Shale, medium olive brown, streaked to irregular bedding with trace even bedding, fair to good competence, medium grade; pinpoint pyrite common; pyrite streaks common; several scattered partly collapsed leached nahcolite vugs and solution fractures with kaolinite and pyrite.
1215.4	1227.7	Oil Shale, medium gray brown with light to medium olive brown, even bedding, fair to good competence, medium grade; several scattered zones with abundant solution fractures and partly collapsed leached nahcolite vugs with pyrite and kaolinite; several scattered partings with kaolinite and pyrite; from 1218.3-1221.6 and from 1222.5-1223.2 light olive brown low grade oil shale with abundant solution fractures; several scattered pyrite streaks and lamina.
1227.7	1232.5	Oil Shale, light olive brown, irregular bedding, fair to good competence, low grade; pinpoint pyrite common; pyrite blebs and streaks common; abundant small and disseminated leached nahcolite vugs with pyrite and kaolinite filling.
1232.5	1243.0	Oil Shale, medium gray brown, irregular with even and trace streaked bedding, good competence, medium grade; abundant scattered dark gray pyrite blebs, streaks, and stringers; light olive brown, slightly marly low grade zones .40 at 1232.7, from 1233.5-1234.1, and .30 at 1242.5; solution fractures common with pyrite and kaolinite from 1232.5-1234.0; few scattered partly collapsed leached nahcolite vugs with kaolinite and pyrite; .30 zone with abundant irregular pyrite streaks at 1240.0.
1243.0	1249.3	Oil Shale, marly, light olive brown and tan, banded, wavy bedding, very poor to poor competence, very low grade; abundant partings, solution fracture zones and small partly collapsed leached nahcolite vugs with pyrite and kaolinite; abundant pinpoint pyrite streaks and stringers; gradational contact.

From	To	
1249.3	1270.6	Oil Shale, light olive brown - light gray brown, streaked to irregular with trace wavy bedding, fair competence, low to medium grade; abundant solution fractures and partly collapsed leached nahcolite vugs with pyrite and kaolinite; .20 leached nahcolite vugs at 1249.8; from 1251.0-1251.8 solution breccia with abundant pyrite and kaolinite; pyrite blebs and streaks common; few scattered zones of abundant irregular pyrite stringers and streaks; from 1257.1-1258.6 light olive brown to tan low grade marly oil shale.
1270.6	1279.6	Oil Shale, medium gray brown, streaked bedding, fair to good competence, medium grade; light brown to tan small marly blebs and streaks common; few scattered irregular pyrite stringers and patches; few scattered partly collapsed leached nahcolite zones and few small leached nahcolite vugs; gradational contact; 0.2 core loss from 1279.4-1279.6.
1279.6	1282.7	Oil Shale, light to medium gray brown, streaked with irregular bedding, excellent competence, low to medium grade; from 1279.6-1280.9 abundant collapsed leached nahcolite and several solution fracture zones with kaolinite and pyrite; several scattered buff marly blebs.
1282.7	1288.2	Oil Shale, light olive brown and light gray brown, faintly banded, even bedding, fair competence, low to medium grade; from 1283.1-1284.2 solution fractures with collapsed leached nahcolite, kaolinite and pyrite common; few scattered pyrite blebs and streaks; gilsonite streaks at 1284.9; partly collapsed leached nahcolite vugs on partings at 1284.8 with associated kaolinite and pyrite; solution fractures common from 1287.4-1288.2; gradational contact.
1288.2	1294.0	Oil Shale, light olive brown, streaked with even and irregular bedding, poor to fair competence, low grade; .40 zone of abundant pyrite streaks and stringers at 1289.5; several scattered partly collapsed leached nahcolite vugs, partings and solution fracture zones with kaolinite and pyrite; irregular pyrite stringer at 1292.1; 1.40 core loss from 1292.5-1293.9.
1294.0	1300.7	Oil Shale, medium olive brown to medium gray brown, streaked bedding, good to excellent competence, medium grade; few scattered pyrite streaks; several scattered tan marly streaks; coarse crystalline bladed partly leached nahcolite bands with white altered nahcolite coating .30 at 1297.1 and .10 at 1299.4.
1300.7	1302.9	Oil Shale, dark olive brown to dark gray brown, streaked to irregular with even bedding, excellent competence, high grade.

From	To	
1302.9	1304.2	Oil Shale, light olive brown with tan banding, even with irregular bedding, excellent competence, low to medium grade; .10 marlstone stringer at 1303.1.
1304.2	1306.4	Oil Shale, medium olive brown, streaked bedding, excellent competence, medium grade; tan marly blebs common; from 1305.1-1305.8 abundant medium brownish gray oil shale stringer.
1306.4	1308.9	Oil Shale, medium to dark olive brown, looped with irregular and contorted bedding, fair to good competence, medium to high grade.
1308.9	1310.0	Oil Shale, dark olive brown, irregular bedding, fair competence, high grade.
1310.0	1314.5	Oil Shale, light olive brown, nearly massive with trace streaked and irregular bedding, poor competence, very low grade; slightly marly; abundant partings, evidence collapsed leached nahcolite and solution fracture zones with kaolinite and pyrite; few thin zones of leached disseminated nahcolite with kaolinite and pyrite; few scattered thin solution breccia zones; gradational contact.
1314.5	1318.9	Oil Shale, light to medium olive brown, streaked bedding, poor to fair competence, low to medium grade; abundant leached disseminated nahcolite; several partings and several solution fracture zones with kaolinite and pyrite; tan marly blebs common; .30 partly leached nahcolite pod at 1317.8 with irregular pyrite stringers at top and bottom; gradational contact.
1318.9	1321.5	Oil Shale, medium to dark olive brown, even with trace wavy bedding, excellent competence, medium to high grade; 1.20 core loss from 1319.3-1320.0 buff marly bleb at 1321.2; gradational contact.
1321.5	1329.8	Oil Shale, medium to dark olive brown, streaked with irregular bedding, excellent competence, medium to high grade; tan and buff marly blebs common; from 1322.1-1323.1 medium olive brown medium grade oil shale with few tan bands.
1329.8	1332.5	Oil Shale, medium to dark gray brown, even bedding, fair to good competence, medium grade; abundant light brown tuff and white calcite stringers and lamina; gradational contact.
1332.5	1336.4	Oil Shale, dark olive brown, even bedding, good to excellent competence, high grade; gradational contact.
1336.4	1340.8	Oil Shale, medium to dark olive brown, streaked bedding, excellent competence, very high grade; very low density, tough; gray pyrite stringer at 1338.4; abundant scattered buff marly and light brown tuff blebs from 1338.9-1339.9; numerous small

From	To	
		Leached nahcolite vugs from 1339.9-1340.8; very asphaltic from 1340.4-1340.8.
1340.8	1351.4	Oil Shale, light olive brown, streaked with irregular bedding, poor to fair competence, low to medium grade; abundant tan marly blebs and streaks; medium olive brown medium grade oil shale from 1340.8-1341.3; tan to buff very marly very low grade oil shale from 1341.3-1342.9; abundant solution fracture zones and collapsed leached nahcolite with pyrite and calcite from 1340.8-1342.3; numerous pyrite stringers from 1342.3-1342.7; several scattered partly collapsed leached nahcolite vugs with pyrite; 0.8 core loss from 1349.2-1350.0; few scattered zones of small leached nahcolite vugs; abundant solution fractures from 1350.8-1351.4.
1351.4	1353.4	Oil Shale, light gray brown, light olive brown and medium olive brown, banded, even with looped bedding, excellent competence, low to medium grade.
1353.4	1355.2	Oil Shale, medium gray brown, even bedding, fair competence, low to medium grade; 0.30 core loss from 1354.2-1354.5; .40 zone with leached nahcolite vugs at 1354.6.
1355.2	1357.0	Oil Shale, light olive brown with medium olive brown bands, even, looped and streaked bedding, excellent competence, low to medium grade; several scattered irregular pyrite streaks; .20 zone of abundant buff marly streaks at 1356.1.
1357.0	1361.8	Oil Shale, medium olive brown, streaked with even bedding, good to excellent competence, medium grade; leached nahcolite vugs with pyrite at 1360.4, 1361.0, and 1361.7; .30 zone of abundant collapsed and partly collapsed leached nahcolite with pyrite at 1361.5.
1361.8	1365.0	Oil Shale, marly, light olive brown to buff, even with irregular bedding, very low grade; solution fracture zones and partly collapsed leached nahcolite with pyrite from 1361.8-1362.1, 1362.9-1363.1, and 1363.8-1364.3; 0.70 core loss from 1363.1-1363.8; 0.2 core loss from 1364.3-1364.5.
1365.0	1374.8	Oil Shale, medium olive brown, streaked with trace even bedding, excellent competence, medium to high grade; hackly leached nahcolite vugs with abundant pyrite at 1365.1, 1365.6, from 1372.2-1372.8, and at 1373.0; .05-.15 diameter medium crystalline, dark brown nahcolite pods with associated pyrite rims at 1366.7, 1368.1 and 1371.6; light olive brown very low to low grade oil shale from 1367.5-1368.1.
1374.8	1376.4	Oil Shale, light olive brown to tan, even to wavy bedding, poor to fair competence, very low to low grade; slightly marly; solution fractures with offset bedding and pyrite common; collapsed leached nahcolite stringer with abundant pyrite and dawsonite at 1375.7.

From	To	
1376.4	1391.2	Oil Shale, light to medium olive brown, streaked bedding, excellent competence, medium to high grade; tan marly blebs and streaks common; grades to medium gray brown in places; .30 medium to coarse crystalline nahcolite pod with massive pyrite at 1380.3; few scattered pyrite streaks; root beer brown medium to coarse crystal bladed nahcolite bed from 1385.0-1385.8.
1391.2	1394.0	Oil Shale, dark gray brown, even with trace looped bedding, excellent competence, high grade; numerous scattered faint gray pyrite lamina; gradational contact.
1394.0	1396.0	Oil Shale, light olive brown, even with irregular bedding, excellent competence, low to medium grade; pinpoint disseminated pyrite common from 1395.2-1395.8; tan and slightly marly from 1395.8-1396.0.
1396.0	1403.8	Oil Shale, light to medium olive brown, streaked bedding with abundant blebby structure, excellent competence, high to very high grade; abundant tan oil shale bands, streaks, and stringers; trace gilsonite streaks.
1403.8	1406.0	Oil Shale, dark gray brown, even with trace looped and irregular bedding, excellent competence, high grade; trace gilsonite streaks; several dark brown asphaltic bands from 1405.5-1406.0.
1406.0	1407.7	Oil Shale, dark olive brown, streaked bedding, excellent competence, very high grade; very low density, very tough, very elastic, several scattered tan marly blebs.
1407.7	1409.9	Oil Shale, light olive brown, tan and medium olive brown banded, looped and irregular bedding, excellent competence, low to medium grade; several scattered pyrite stringers; .20 zones of abundant pyrite stringers at 1408.0, 1408.3, 1409.3, and 1409.6; few scattered dark brown oil shale stringers; several scattered tuff streaks.
1409.9	1412.5	Oil Shale, dark gray brown to brown, even with trace streaked bedding, good to excellent competence, high to very high grade; several scattered gilsonite streaks and stringers; numerous dark brown asphaltic tuff stringers from 1409.9-1411.2; few scattered gray analcitized tuff blebs; gradational contact.
1412.5	1414.5	Oil Shale, medium gray brown, even bedding, good to excellent competence, medium to high grade; very slightly argillaceous with alternating dark black and light gray oil shale lamina; several scattered gilsonite streaks and stringers; gradational contact.

From	To	
1414.5	1417.8	Oil Shale, medium gray brown to medium brown, even with looped bedding, excellent competence, medium grade; very slightly argillaceous, several scattered pyrite streaks and stringers; trace gilsonite streaks.
1417.8	1421.5	Oil Shale, dark gray brown, even bedding, good to excellent competence, high to very high grade; pyrite stringers and lamina common; trace gilsonite stringers; trace offset bedding; few scattered partings with asphalt and FeO staining; gradational contact.
1421.5	1423.7	Oil Shale, medium gray brown, even bedding, good to excellent competence, medium grade, very slightly argillaceous; abundant pyrite streaks, stringers, and lamina; gradational contact.
1423.7	1426.0	Oil Shale, light gray brown, even with trace streaked bedding, excellent competence, low to medium grade; abundant pyrite stringers and blebs; numerous scattered medium brown oil shale stringers.
1426.0	1430.5	Oil Shale, light olive brown and tan, slightly banded, even, looped and irregular bedding, excellent competence, low to medium grade; few scattered pyrite streaks and stringers; numerous large irregular black pyrite patches and stringers common from 1427.6-1430.5; very low grade oil shale with abundant buff marly stringers from 1429.7-1430.5; trace disseminated nahcolite at 1429.8.
1430.5	1433.8	Oil Shale, medium olive brown with light olive brown and tan banded, even and irregular bedding, excellent competence, low to medium grade; numerous large black altered pyrite stringers with associated calcite stringers from 1430.5-1431.9 and .10 at 1433.5; thin white fine crystalline nahcolite stringers at 1431.3 and 1432.8; gradational contact.
1433.8	1444.5	Oil Shale, light gray brown to light brown, even and irregular bedding, excellent competence, medium grade from 1433.8-1437.3, low grade from 1437.3-1444.5; numerous scattered pyrite stringers from 1433.8-1437.1; .15 band of abundant dark black altered pyrite with associated altered nahcolite at 1434.1; dark brown fine to medium crystalline nahcolite bed with altered pyrite contacts from 1437.3-1438.2, 1441.3-1442.2 and 1448.0-1448.5; numerous large .05-.20 round dark brown fine to medium crystalline radiated and bladed nahcolite pods at 1438.7, 1439.0, 1440.2, 1440.5, 1442.5, 1444.0, and 1444.3; inclined and contorted bedding associated with nahcolite beds and pods.

From	To	
1444.5	1458.8	Oil Shale, with interbedded nahcolite; Oil Shale: light brown, even, irregular and streaked bedding; Overall: excellent competence, low to medium grade; nahcolite occur: abundant light brown to tan micro-fine crystalline nahcolite bands and stringers; zones of .05 micro-fine crystalline nahcolite pods from 1447.8-1448.0, 1449.5-1449.7, 1450.4-1450.5, and 1453.8-1454.5; fine crystalline disseminated nahcolite bed from 1452.9-1453.6; from 1453.3-1458.3 numerous large .10-.20 fine to medium crystalline brown nahcolite pods and several irregular nahcolite stringers.
1458.8	1459.9	Nahcolite, very fine to microcrystalline, disseminated, light brown, massive, with abundant very thin oil shale septa, excellent competence, undulatory upper and lower contacts.
1459.9	1472.5	Oil Shale, light to medium olive brown, streaked bedding with abundant blebby structure, excellent competence, medium to high grade; abundant scattered small fine crystalline nahcolite blebs and pods; several scattered .05 microcrystalline nahcolite pods and stringers; several scattered fine to medium crystalline dark brown nahcolite stringers; dark brown fine to medium crystalline nahcolite bands and beds from 1461.0-1461.4, 1462.7-1463.1, 1464.7-1464.9, .10 at 1469.0, .20 at 1470.0, from 1470.2-1470.6, 1471.0-1471.5; disseminated fine crystalline nahcolite zones from 1461.8-1462.2, .10 at 1463.2, and .10 at 1469.5; coarse crystalline dark brown nahcolite bed from 1471.8-1472.5.
1472.5	1477.2	Oil Shale, with interbedded nahcolite; Oil Shale: medium olive brown, even with irregular and streaked bedding; Overall: excellent competence, low to medium grade; Nahcolite occur: medium crystalline dark brown nahcolite beds from 1473.5-1473.8, 1474.2-1474.8, 1475.0-1475.5; numerous medium crystalline .05-.10 radiated and bladed nahcolite pods from 1475.7-1477.2; trace scattered pyrite blebs and streaks; pyrite streaks common from 1473.1-1473.5; .05 clear coarse crystalline nahcolite stringers at 1477.0.
1477.2	1497.9	Oil Shale, with abundant nahcolite pods; Oil Shale: light olive brown, even with irregular bedding, Overall: excellent competence, low to medium grade; Nahcolite occur: abundant interbedded .01-.05 medium crystalline bladed and radiated nahcolite blebs and pods; several scattered .05-.10 medium to coarse crystalline nahcolite pods; medium crystalline disseminated nahcolite from 1481.6-1482.1; fine crystalline disseminated nahcolite .20 at 1486.4; very fine crystalline disseminated nahcolite bed from 1490.5-1491.1; tan microcrystalline nahcolite bands and stringers at 1490.0, 1491.2, 1491.4; clear coarse crystalline nahcolite stringer at 1486.4; abundant warped and contorted bedding associated with nahcolite; trace black altered pyrite blebs.

From	To	
1497.9	1504.8	Oil Shale, medium olive brown, streaked bedding, excellent competence, medium to high grade; trace black altered pyrite blebs and stringers; tan microcrystalline nahcolite band with oil shale septa and heavy pyrite coating at 1501.3, .20 zone of very small microcrystalline nahcolite blebs at 1501.6; fine to medium crystalline dark brown nahcolite bands with heavy pyrite coating from 1502.5-1502.9 and 1503.3-1503.7.
1504.8	1506.1	Nahcolite, coarse crystalline, dark root beer brown, radiated and bladed, trace white altered nahcolite coating at 1505.1; .05 medium olive brown oil shale stringer at 1505.6; heavy pyrite coating on upper and lower contacts.
1506.1	1507.5	Oil Shale, light olive brown, irregular bedding, excellent competence, low grade; trace scattered small nahcolite pods; .10 irregular nahcolite patch at 1506.3; medium crystalline dark brown nahcolite bed with heavy pyrite coating from 1506.8-1507.3; gradational contact.
1507.5	1508.5	Oil Shale, dark mahogany brown, even bedding, excellent competence, very high grade; very low density, very tough; trace gilsonite.
1508.5	1511.4	Nahcolite, from 1508.5-1510.0, dark brown, fine crystalline, abundant irregular oil shale septa; from 1510.0-1511.4 dark brown fine crystalline disseminated nahcolite with abundant very fine oil shale septa.
1511.4	1517.3	Oil Shale, light olive brown, even with irregular and trace streaked bedding, excellent competence, low grade; several scattered tan and buff marly bands and stringers; .05-.20 diameter medium crystalline nahcolite bands and pods from 1511.4-1511.9, .20 at 1512.4, .20 at 1513.0, .30 at 1514.0, .20 at 1515.0 and from 1515.5-1515.9; dark brown coarse crystalline bladed nahcolite bed from 1516.2-1516.8.
1517.3	1520.0	Oil Shale, light to medium olive brown, streaked bedding, excellent competence, medium grade; few scattered buff marly streaks and blebs.
1520.0	1521.1	Oil Shale, light olive brown, streaked with irregular bedding, excellent competence, medium grade; .30 irregular nahcolite patch at 1520.0; from 1520.7-1521.1 few scattered tan marly blebs and gray pyrite stringers.
1521.1	1523.0	Oil Shale, medium olive brown, streaked bedding, excellent competence, medium to high grade; abundant scattered buff marly streaks, few scattered pyrite streaks and stringers.

From	To	
1523.0	1524.7	Oil Shale, light olive brown, streaked and irregular bedding, excellent competence, low to medium grade; numerous soft black altered pyrite stringers from 1523.5-1524.7; .10 fine crystalline nahcolite band at 1523.6.
1524.7	1531.9	Oil Shale, medium olive brown to medium gray brown with light olive brown, streaked and irregular bedding, excellent competence, medium to high grade; several scattered small gilsonite blebs and streaks; dark gray irregular pyrite stringers at 1528.6 and 1528.8.
1531.9	1535.2	Oil Shale, medium gray to brown, even bedding, good to excellent competence, medium to high grade; trace gilsonite streaks; faint dark gray pyrite stringers and lamina common.
1535.2	1540.9	Oil Shale, light gray brown, even bedding, fair competence, low grade; very slightly marly; irregular pyrite streaks and lamina common; few scattered buff marly stringers.
1540.9	1543.2	Oil Shale, dark gray brown, even bedding, good competence, medium grade; very slightly argillaceous, trace gilsonite and pyrite streaks.
1543.2	1551.6	Oil Shale, medium to dark gray brown, even with trace offset and irregular bedding, excellent competence, medium grade; very slightly argillaceous, numerous pyrite streaks and lamina; trace gilsonite streaks and blebs; few scattered light brown marly streaks and blebs; from 1551.2-1551.6 abundant irregular dark gray pyrite stringers.
1551.6	1554.5	Oil Shale, light olive brown to tan, irregular with even bedding, fair to good competence, very low to low grade; slightly marly; dark gray to black irregular pyrite streaks and stringers common; buff thin marlstone stringers common.
1554.5	1561.1	Oil Shale, light olive brown to light gray brown, streaked to irregular with trace even bedding, good competence; medium grade, zones of irregular black pyrite stringers .20 at 1554.8 .10 at 1558.1, .10 at 1560.0 and .10 at 1560.5; few scattered pyrite blebs and streaks; from 1558.7-1561.1 light gray brown low grade slightly marly oil shale.
1561.1	1564.1	Oil Shale, medium gray brown, streaked bedding, excellent competence, medium grade; several scattered pyrite streaks.
1564.1	1565.2	Oil Shale, medium to dark gray brown, even to streaked bedding, excellent competence, medium to high grade; irregular pyrite stringer at 1564.2; several scattered small gilsonite streaks and blebs.

From	To	
1565.2	1572.1	Oil Shale, light to medium olive brown, streaked to irregular bedding, excellent competence, low to medium grade; "blebby structure" common with light brown to buff marly blebs and streaks; zones of dark gray irregular pyrite stringers .20 at 1567.8, .10 at 1568.2 and from 1569.6-1569.9; few scattered gray analcitized tuff blebs.
1572.1	1576.3	Oil Shale, medium to dark gray brown, streaked bedding, excellent competence, medium grade; .30 zone with abundant dark brown asphaltic blebs at 1574.8; few scattered faint pyrite stringer.
1576.3	1578.8	Oil Shale, light to medium gray brown with light olive brown, irregular with trace even and looped bedding, excellent competence, low grade; very slightly marly; several scattered light brown granular tuff blebs; several scattered pyrite streaks and stringers.
1578.8	1581.6	Oil Shale, medium olive brown, streaked to irregular bedding, excellent competence, medium grade; light brown granular tuff blebs common; few scattered tan marly blebs.
1581.6	1583.9	Oil Shale, light to dark gray brown, even bedding, fair competence, low to medium grade; slightly argillaceous; from 1581.6-1582.9 buff to white thin dawsonite stringers common.
1583.9	1585.7	Oil Shale, light olive brown, medium olive brown and dark olive brown, banded, even with irregular bedding, excellent competence, medium grade.
1585.7	1588.0	Oil Shale, dark gray brown, even bedding, fair competence, medium to high grade; dawsonite stringer common; several scattered light brown tuff blebs; slightly argillaceous.
1588.0	1590.3	Oil Shale, light to medium gray brown, even bedding, poor to fair competence, low grade; few scattered pyrite stringers; few scattered light brown marly stringer; few shaly partings.
1590.3	1596.7	Oil Shale, argillaceous, medium greenish gray brown, even bedding, poor competence, very low to low grade; from 1590.3-1593.1 abundant buff marly stringers; shaly partings common.
1596.7	1598.1	Oil Shale, medium to dark olive brown, even with looped bedding, good competence, medium to high grade.

From	To	
1598.1	1601.4	Oil Shale, light to medium olive brown, streaked to irregular bedding, good competence, medium grade; light brown and medium brown granular asphaltic blebs common; trace gilsonite; few scattered blue gray analcitized tuff blebs; from 1601.0-1601.4 several faint light gray pyrite stringers.
1601.4	1610.9	Oil Shale, argillaceous, dark gray brown, even bedding, poor competence, medium to high grade; shaly partings common; few scattered light olive brown oil shale bands and stringers; slight dessication; light apple green, soft, bentonitic clay stringer at 1622.5; several scattered small blue gray and brown tuff blebs; trace gilsonite stringers.
1610.9	1614.5	Oil Shale, light to medium gray brown with greenish tint, streaked and irregular bedding, good competence, low to medium grade; tan marly and light brown granular tuff blebs common.
1614.5	1616.3	Oil Shale, argillaceous, dark gray brown, even bedding, poor competence, medium grade; planar shaly partings common.
1616.3	1620.5	Shale, clay, light to medium greenish gray, even bedding, very poor to poor competence, soft to slightly brittle; "poker chip" partings common; dessication common; fairly greasy feel; several scattered shaly fractures with slicks; trace gilsonite fish fossils on partings; gradational contact.
1620.5	1622.1	Oil Shale, argillaceous, dark gray brown, even bedding, poor competence, low grade; "poker chip" partings common with trace gilsonite fossils; slight dessication; several scattered light olive brown oil shale stringers; gradational contact.
1622.1	1624.7	Oil Shale, argillaceous, light gray brown and medium to dark gray brown, faintly banded, even with trace offset bedding, poor competence, very low grade; planar shaly partings common with trace gilsonite fish fossils; few scattered gilsonite blebs and stringers; slight dessication; gradational contact.
1624.7	1631.5	Shale, calcite, clay, light to medium brownish gray with slight blue gray tint, even bedding, poor competence, trace kerogen; abundant "poker chip" partings with trace gilsonite fish fossils; slight dessication; trace gilsonite blebs and streaks; few scattered light brownish gray marly stringers and bands; abundant scattered light gray

From	To	
		moderate to very calcareous clay stringers; from 1626.5-1627.2 thin light brown granular tuff stringers and lamina; from 1628.7-1631.3 several scattered undulatory shaly fractures with slicks.
1631.5	1639.4	Oil Shale, argillaceous, dark gray brown, even bedding, poor competence, very low grade; "poker chip" partings common with trace gilsonite fish fossils; moderate desiccation; few scattered shaly fractures with slicks; few scattered light olive brown oil shale stringers.
1639.4	1640.9	Oil Shale, medium gray brown with light olive brown to tan banding, even with trace irregular bedding, poor to fair competence, very low grade; several scattered dark brownish gray pyrite tuff streaks.
1640.9	1644.3	Oil Shale, argillaceous, dark gray brown, even bedding, poor to fair competence, very low grade; moderate desiccation; planar shaly partings comm with gilsonite fish fossils; few scattered light olive brown marly oil shale stringers; few scattered gilsonite streaks; few scattered medium brown slightly asphaltic tuff blebs and streaks; gradational contact.
1644.3	1645.4	Oil Shale, light to medium gray brown, even with trace streaked bedding, poor competence, low grade; trace light brown tuff blebs.
1645.4	1652.5	Oil Shale, dark brown to dark gray brown, even bedding, poor competence, medium grade; slightly argillaceous; planar shaly partings common with trace gilsonite fish fossils; few scattered gilsonite blebs and streaks; from 1649.9-1651.1 light to medium gray brown very low to low grade oil shale bed with few buff marly bands and stringers; gradational contact.
1652.5	1657.0	Oil Shale, medium to dark gray brown, even bedding, poor competence, low grade from 1652.5-1654.7, medium grade from 1654.7-1657.0; shaly partings common; moderately argillaceous; few scattered gilsonite blebs and streaks; light gray brown to buff marlstone band .10 at 1652.6 and .20 at 1656.8; from 1652.5-1654.7 abundant faint light gray clay stringer and lamina; gradational contact.
1657.0	1661.4	Oil Shale, argillaceous, medium gray brown with several buff marly bands and stringers, even bedding, poor competence, very low grade; slight dessication; planar "poker chip" partings common with trace gilsonite fish fossils; several scattered shaly fractures with slicks; gradational contact.

From	To	
1661.4	1665.3	Oil Shale, dark gray brown to black, even bedding, poor competence, medium to high grade; slightly to moderately argillaceous; slight dessication; planar shaly partings common; light brown to buff faint marly stringers and bands common; few scattered light brown tuff streaks and blebs.
1665.3	1669.3	Oil Shale, argillaceous, light to medium brownish gray, even bedding, poor competence, very low grade; moderate dessication; shaly partings common; several scattered light brown and blue gray analcitized tuff stringers and blebs; .20 medium gray, slightly calcareous clay band at 1666.5; gradational contact.
1669.3	1678.4	Oil Shale, medium brown to medium gray brown with light to medium brownish gray, even bedding, poor competence, low grade; argillaceous, slight dessication; shaly partings common; 1.0 (90°) fractures with asphalt at 1674.5; white thin calcite stringer and lamina .40 zone at 1674.0 and from 1675.6-1676.1; gradational contact.
1678.4	1680.8	Oil Shale, light gray to brown, even with streaked and trace looped bedding, poor competence, very low grade; shaly partings common; slightly argillaceous; trace medium gray pyrite streaks; tan marly bleb with pyrite at 1679.2; .10 tan to buff marlstone stringer at 1680.7.
1680.8	1683.5	Oil Shale, medium gray brown, even bedding, low to medium grade; several scattered dark brown to black asphaltic streaks and blebs with gilsonite and pyrite.
1683.5	1687.1	Oil Shale, dark olive brown to dark gray brown, even with streaked and irregular bedding, fair to good competence, high grade; several scattered light brown asphaltic tuff and gilsonite streaks; .05 light apple green bentonitic clay stringer at 1686.9.
1687.1	1690.7	Oil Shale, medium to dark gray brown, even bedding, poor to fair competence, medium grade; slightly argillaceous, slight dessication; several scattered zones of shaly partings; gradational contact.
1690.7	1694.5	Shale, clay, medium greenish gray, even bedding, very poor to poor competence, dessication common; abundant planar and disked "poker chip" partings; several scattered shaly fractures with slicks.
1694.5	1696.9	Oil Shale, dark gray brown, even bedding, poor to fair competence, high grade; slightly argillaceous, light greenish gray irregular pyrite streaks common; few scattered shaly partings.

From	To	
1696.9	1700.0	Oil Shale, argillaceous, medium gray brown, even bedding, poor competence, very low to low grade; dessication common; abundant "poker chip" partings with gilsonite fish fossils; gilsonite flakes and streaks common; greasy feel; gradational contact.
1700.0	1705.5	Oil Shale, medium to dark gray brown, even bedding, poor to fair competence, medium to high grade; slightly argillaceous, several planar shaly partings; from 1700.7-1701.8 several light olive brown faint marly stringers; 1.10 core loss from 1703.4-1704.5; 0.4 core loss from 1705.1-1705.5.
1705.5	1706.5	Oil Shale, light to medium brown, irregular bedding, good to excellent competence, medium grade; several scattered asphalt stringers and blebs.
1706.5	1709.7	Oil Shale, dark gray brown, even with trace looped bedding, poor to fair competence, medium to high grade; planar shaly partings common; slightly argillaceous; trace dessication; white calcareous stringers common from 1706.8-1707.3; gray analcitized tuff with clay stringer contacts at 1707.4 and 1708.1; trace light brown asphaltic stringers; several scattered gilsonite streaks and blebs; trace gilsonite fish fossils on partings.
1709.7	1712.5	Oil Shale, argillaceous, medium greenish gray brown, even bedding, very poor competence, very low grade, abundant planar shaly partings, several scattered light gray to buff marly stringers and bands; greasy, bentonitic; moderate to heavy dessication.
1712.5	1713.8	Oil Shale, dark olive brown, even with looped bedding, fair competence, high grade.
1713.8	1718.4	Oil Shale, argillaceous, medium brownish gray, even bedding, very poor competence, very low grade, very greasy, bentonitic, heavy dessication; abundant planar poker chip partings few with gilsonite fossils; numerous scattered gilsonite stringers; gray clay bands and stringers common.
1718.4	1723.4	Oil Shale, dark brownish gray to black, even bedding, very poor to poor competence, medium grade; fairly argillaceous; abundant poker chip partings with gilsonite fish fossils; abundant gilsonite stringers; few scattered light gray clay bands and stringers; light gray granular argillaceous analcitized tuff stringers at 1719.2 and 1722.3; light orange brown bentonitic clay stringer at 1719.1; light brownish gray irregular bed analcitized tuff with abundant gilsonite stringers from 1719.2-1719.5; gradational contact.

From	To	
1723.4	1728.0	Oil Shale, dark gray brown to black, even bedding, fair competence, very high grade, very low density, fairly tough and elastic; few scattered shaly partings; several scattered gilsonite streaks and stringers; few scattered faint irregular pyrite stringers; several scattered large gilsonite lenses from 1726.3-1726.9; gradational contact.
1728.0	1732.7	Oil Shale, argillaceous, medium gray brown, even bedding, very poor to poor competence, very low to low grade; bentonitic, greasy, numerous poker chip partings with trace gilsonite fossils; several scattered gilsonite stringers; light orange brown tuff stringer at 1728.9, and from 1731.3-1732.0; gradational contact.
1732.7	1735.0	Oil Shale, medium gray brown, even bedding, poor competence, low to medium grade; fairly argillaceous, abundant planar shaly partings few with gilsonite fish fossils; dark brown asphaltic tuff stringers at 1733.1; abundant gilsonite stringers from 1734.1-1734.5; large black gilsonite lense at 1734.3; gray clay band .05 at 1734.9; gradational contact.
1735.0	1739.5	Oil Shale, argillaceous, medium gray brown, even bedding, very poor competence, very low grade; abundant planar shaly partings with gilsonite fossils; grades to gray calcareous shale; light olive brown marly streaks and stringers common from 1734.7-1739.5; numerous light gray clay bands and stringers; abundant gilsonite streaks and stringers; large black gilsonite lenses at 1736.4; light tan oil shale stringers 1735.6, 1735.7, and 1735.8; gradational contact.
1739.5	1743.5	Oil Shale, dark gray brown to black, even bedding, poor competence, high to very high grade; fairly low density, fairly tough; slightly argillaceous with numerous planar shaly partings; several scattered gilsonite stringers; large irregular gilsonite stringers and lenses common from 1741.9-1742.7; gradational contact.
1743.5	1750.8	Oil Shale, argillaceous, medium greenish gray brown, even bedding, very poor competence, very low grade; grades to greenish gray shale; abundant planar shaly partings; heavy dessication; numerous polished and shaly fractures with slicks; few irregular fractures with asphalt; few scattered light brown oil shale stringers and bands; buff granular analcitized tuff stringer at 1745.3; disked partings common; gradational contact.

From	To	
1750.8	1753.6	Oil Shale, dark gray brown, even to streaked bedding, fair competence, medium to high grade; abundant fine faint irregular pyrite stringers; abundant disseminated gilsonite streaks; numerous tan pinpoint tuff streaks and blebs; gradational contact.
1753.6	1756.4	Oil Shale, argillaceous, light gray brown, even bedding, poor competence, very low grade; abundant planar and disked shaly partings; dessication common; very marly.
1756.4	1757.9	Oil Shale, dark brown to black, even with trace irregular bedding, fair to good competence, very high grade, very low density, fairly tough; trace fine irregular pyrite streaks and stringers.
1757.9	1760.0	Oil Shale, argillaceous, medium gray brown, even bedding, very poor competence, very low grade; abundant planar and disked shaly partings; dessication common; few scattered irregular fractures with slicks and reddish brown asphalt coating.
1760.0	1761.9	Oil Shale, dark gray brown to black, even bedding, good competence, very high grade; very low density; fairly tough and elastic; abundant fine irregular nearly vertical pyrite stringers; abundant pinpoint gilsonite flakes and streaks; gradational contact.
1761.9	1763.0	Oil Shale, medium gray brown, even bedding, poor to fair competence, low to medium grade; fairly argillaceous, several planar shaly partings with trace gilsonite fossils; gradational contact.
1763.0	1765.4	Oil Shale, dark gray brown to black, even bedding, fair competence; medium to high grade, slightly argillaceous; abundant fine irregular pyrite streaks, stringers, and blebs; abundant pinpoint gilsonite streaks; gradational contact.
1765.4	1770.0	Oil Shale, dark gray brown to black, even bedding, poor competence, medium to high grade, fairly argillaceous with numerous planar and disked shaly partings; few scattered undulatory shaly fractures with slicks; trace gilsonite fossils on partings; gradational contact.
1770.0	1772.8	Oil Shale, dark brownish black, even with trace streaked bedding, fair competence, high to very high grade; few scattered gilsonite streaks; dark black gilsonite bands at 1770.1 and 1770.3; abundant gilsonite stringers from 1772.4-1772.7; gradational contact.

From	To	
1772.8	1777.4	Oil Shale, dark brownish black, streaked bedding, fair to good competence, very high grade; very low density, fairly tough, trace faint irregular pyrite stringers; several scattered gilsonite streaks and stringers; .10 light gray anal-citized tuff at 1774.0 and .05 at 1774.4.
1777.4	1783.5	Shale, clay, medium greenish gray, even bedding, very poor to poor competence, trace kerogen; abundant "poker chip" planar and disked shaly partings with trace gilsonite fossils; few scattered undulatory shaly fractures with slicks; heavy dessication; trace gilsonite streaks; light gray marly band from 1781.2-1781.4; very bentonitic.
1783.5	1784.5	Oil Shale, argillaceous, medium gray brown, even bedding, poor competence, very low grade; several shaly partings with trace gilsonite fossils; few scattered shaly fractures with slicks.
1784.5	1787.6	Shale, clay, medium greenish gray, even bedding, poor competence, fairly soft to brittle; "poker chip" shaly partings common; moderate dessication, bentonitic, trace kerogen; slightly greasy feel; few shaly undulatory fractures with slicks; gradational contact.
1787.6	1791.0	Oil Shale, argillaceous, medium greenish gray brown, even bedding, poor competence, very low grade; "poker chip" shaly partings common; few fractures with slicks; .40 zone with faint light brown slightly marly stringers at 1789.9.
1791.0	1794.9	Shale, clay, medium gray, even bedding, very poor to poor competence, greasy, bentonitic, abundant "poker chip" shaly partings; several scattered shaly fractures with slicks; dessication common; gradational contact.
1794.9	1797.3	Oil Shale, argillaceous, dark brownish gray, even with irregular bedding, poor competence, very low grade; "poker chip" shaly partings common; trace fractures with slicks; greasy, bentonitic; few scattered light brown to tan marly stringers and bands; gradational contact.
1797.3	1803.4	Shale, clay, dark greenish gray, even with irregular bedding, poor competence, trace kerogen; "poker chip" shaly partings common; dessication common; greasy, bentonitic; few shaly fractures with slicks; abundant light gray to brown marly stringers and bands.
1803.4	1806.0	Oil Shale, dark gray brown, even bedding, poor to fair competence, low to medium grade; tan marly band .30 at 1803.4 and stringers at 1804.5; slightly argillaceous, slightly bentonitic, several planar shaly partings; trace dessication.

From	To	
1806.0	1809.3	Oil Shale, light brown with dark gray brown banding, even bedding, poor to fair competence, low grade; few shaly partings; trace asphalt blebs; 1.10 vertical fractures with asphalt at 1808.2; gradational contact.
1809.3	1816.3	Oil Shale, medium to dark gray brown, even bedding, fair competence, low to medium grade; few scattered shaly partings; light gray brown marly bands .10 at 1810.2, .10 at 1810.6 and .20 at 1811.7; light brown to white very calcareous stringer at 1810.5; light brown low grade oil shale from 1815.3-1815.7; gradational contact.
1816.3	1819.9	Oil Shale, dark brown to black, even bedding, good to excellent competence, medium to high grade; slightly argillaceous, slightly bentonitic; gilsonite flakes and streaks common from 1816.6-1819.3; gradational contact.
1819.9	1823.5	Oil Shale, medium to dark gray brown, even bedding, good competence, medium grade; light green pyrite sealed fractures common; slightly argillaceous, slightly bentonitic; few scattered shaly partings; light green pyrite blebs and streaks common; gradational contact.
1823.5	1826.4	Oil Shale, medium gray brown, even bedding, poor competence, medium grade; slightly argillaceous, slightly bentonitic; trace dessication; planar shaly partings common; few 85°-90° planar shaly fractures.
1826.4	1828.2	Oil Shale, light brown, even bedding, poor to fair competence, very low to low grade; slightly argillaceous, slightly bentonitic; few 85° planar shaly fractures.
1828.2	1829.5	Oil Shale, dark gray brown to black, even bedding, poor to fair competence, medium to high grade; slightly argillaceous; several planar shaly partings.
	1829.5	TOTAL DEPTH.