

SAMPLE DESCRIPTION

THE CARTER OIL COMPANY YELLOW CREEK NO. 2: 1450' FNL x 300' FEL Section 9-1S-98W, Rio Blanco County, Colorado. Elevation 6330'.

0	20	Sandstone, orange to buff, very fine to fine grained, poorly sorted, porous, calcite cement, friable, silty, detrital quartz sand grains-polished, faceted, subround to subangular with few angular grains, equivalent to elongate, few biotite grains and muscovite flakes, clayey some pink Fe stain.
20	50	Sandstone, light buff, very fine to medium grained, poorly sorted, slightly porous, calcite cement, friable, silty, clayey, micaceous, few biotite grains, detrital quartz grains-polished, some with pink stain, transparent to opaque, faceted, subround with few angular, equant.
50	90	Hole collared off - poor returns. Sandstone, fine to medium grained, calcareous, silty, clay inferred.
90	100	Sandstone (50%), light buff, very fine to medium grained, poorly sorted, slightly porous, friable, silty, clayey, micaceous, abundant biotite flakes, detrital quartz sand grains-polished and frosted, transparent and opaque, faceted, some pink stain, subround with few angular, equant; sandstone (50%), medium gray, fine to medium grained, medium sorted, slightly porous, silty, calcite cement, slightly hard, numerous biotite and muscovite flakes, detrital quartz sand grains-polished, transparent and opaque, faceted, subround to subangular, equant.
100	120	Sandstone, light gray, very fine to medium grained, poorly sorted, slightly porous, calcite cement, friable, very silty, clayey, numerous biotite flakes and grains, detrital quartz sand grains-polished and frosted, transparent and opaque, faceted, subround, equant.
120	130	Siltstone, light gray, clayey, slightly sandy, very calcareous, detrital quartz sand grains-very fine to fine grained, polished and frosted transparent and opaque, faceted, subround, equant.
130	140	Siltstone, light buff, brittle, calcite cement, few biotite grains.
140	160	Siltstone, light gray, brittle, calcite cement, clayey, slightly sandy, micaceous, few biotite grains.
160	180	Siltstone, buff to light gray, brittle, very calcareous, clayey, slightly sandy, slightly micaceous, few biotite grains, few metallic grains, dark gray, shiny from 170-180'.

- 180      218.5      Sandstone (80%), light gray, very fine to medium grained, poorly sorted, porous, dolomite cement, brittle, slightly hard, slightly silty, abundant biotite and muscovite grains and flakes, black mineral stain on surface which does not give cut in chlorothene, some red Fe stain, detrital qrtz sand grains-polished and frosted, faceted, transparent and opaque, subround to subangular, equant; siltstone (10%), light buff, very calcareous; sandstone (10%), buff, very fine to fine grained, moderately sorted, calcite cement, soft, abundant biotite grains, detrital qrtz sand grains-polished and frosted, transparent and opaque, subround, equant. Some limestone (<1%), light gray, clay, dissolves in HCL.
- 218.5      230      Sandstone (80%), light gray, very fine to medium grained, poorly sorted porous, dolomite cement, brittle, slightly hard, slightly silty, abundant biotite and muscovite grains and flakes, black, dull, mineral coating on surface which does not cut in chlorothene, some red Fe stain, detrital qrts sand grains-polished and frosted, faceted, transparent and translucent, vitreous luster, subround to subangular, equant; siltstone (10%), light buff, very calcareous; sandstone(10%), buff, very fine to fine grained, moderately sorted, calcite cement, soft, abundant biotite grains, detrital qrtz sand grains-polished and frosted, transparent and translucent, subround, equant; some marlstone, light gray, clayey, dissolves in HCL.
- 230      280      Sandstone (80%), medium light gray (N6), very fine to medium grained, poorly sorted, slightly porous, dolomite cement, brittle, slightly hard, slightly silty, abundant biotite and muscovite flakes and grains, black, dull mineral stain on surface which does not cut in chlorothene, some red Fe stain, detrital qrtz sand grains-polished and frosted, faceted, transparent and translucent, vitrain lustre, subround to angular, equant; some siltstone (15%), medium light gray (N6), very calcareous, slightly sandy. From 240-250' some siltstone (<1%); buff (10 yr 8/2), calcareous, sandy; from 260-280', some sandstone (<5%), yellow gray (5 Y 7/2), very fine to fine grained, medium sorted, brittle, dolomite cement, slightly silty, slightly micaceous, detrital qrtz sand grains-polished and frosted, transparent and translucent, vitrain luster, subround, equant; some siltstone (<5%), light gray (N7), hard, very calcareous, with faint even bedding, some gray, shiny metallic vein (pyrite); some marlstone (<5%), medium gray (N5), fair, slightly hard, micxl, slightly micaceous. Some sandstone (<1%), pale yellow brown (10 yr 6/2), very fine to fine grained, moderately shorted, dolomite cement, brittle, soft, micaceous, Fe stain, detrital qrtz sand grains-polished and frosted, transparent and translucent, vitreousluster, subround to subangular, equant.
- 280      290      Sandstone, medium light gray (N6), very fine to fine grained, moderately sorted, porous, calcite cement, brittle, slightly hard, slightly silty, abundant biotite and muscovite flakes and grains, detrital qrtz sand grains-polished and frosted, faceted, transparent and translucent, subround to subangular, equant; some sandstone (<1%), yellow gray (5Y 7/2), very fine to fine grained, moderately sorted, calcite cement, FE stain.

- 290        320        Sandstone, medium light gray (N6), very fine to fine grained, moderately sorted, porous, calcite cement, brittle, slightly hard, slightly silty, abundant biotite and muscovite flakes and grains, pyrite, detrital qrtz sand grains-polished and frosted, faceted, transparent and translucent, subround to subangular, equant; marlstone (30%), medium gray (N5), massive, microcrystalline, friable, hard, brittle, greasy to earthy luster, micaceous, some red mineral (Fe) interbedded. Sandstone (30%), light gray (N7), very fine grained, moderately sorted, silty, slightly hard, brittle, dolomite cement, micaceous, detrital quartz sand grains-polished and frosted, transparent and translucent, faceted, subround, equant; some siltstone (<1%), yellow gray (5Y 7/2), slightly sandy, hard, brittle, dolomite cement; from 310-320 some metallic mineral inclusions, white gray, shiny, splintery (marc).
- 320        350        Sandstone (50%), light olive gray (5Y 6/1), very fine to fine grained, moderately to poorly sorted, moderate porosity, dolomite cement, slightly hard, brittle, micaceous, clay, detrital qrtz sand grains-polished and frosted, faceted, transparent and translucent, subround with few subangular, equant; sandstone (40%), medium light gray (N6), very fine to medium grained, poorly sorted, slightly porous, dolomite cement, brittle, slightly hard, slightly silty, abundant biotite and muscovite flakes and grains, detrital quartz sand grains-polished and frosted, transparent and translucent, vitrain luster, faceted, subround to subangular, equant; sandstone (1%), tan, very fine to fine grained, moderately sorted, clay, silty, micaceous, slightly porous, calcareous to dolomitic effervescence, brittle, soft, detrital qrtz sand grains-polished and frosted, transparent and translucent, vitrain luster, slight orange stain, faceted, subround, equant; from 330-340' marlstone (1%), medium gray (N5), massive, microcrystalline, fair hard, brittle, greasy to earthy luster, slightly micaceous, some red orange Fe stain from 340-350'.
- 350        360        Sandstone (50%), medium light gray (N6), very fine to medium grained, poorly sorted, slightly porous, dolomite cement, brittle, slightly hard, slightly silty, abundant biotite and muscovite flakes and grains, detrital qtz sand grains-polished and frosted, transparent and translucent, vitrain luster, faceted, subround to subangular, equant. Sandstone (50%), buff (10 YR 8/2), very fine to fine grained, silty, micaceous, poor to moderately sorted, poor porosity, calcite cement, soft to slightly hard, brittle, detrital qrtz sand grains-polished and frosted, transparent and translucent, vitrain luster, slight orange stain, faceted, subround to angular, equant with some elongate.
- 360        370        Sandstone (45%), light gray (N7), fine to medium grained, poor to moderately sorted, dolomite cement, brittle, some biotite and muscovite flakes and grains, detrital qrtz sand grains-polished and frosted, transparent and translucent, vitrain luster, faceted, subround to subangular, equant; siltstone (40%), light gray (N7), slightly sandy, brittle, calcite cement, micaceous; sandstone (15%), yellow gray (5Y 7/2), very fine to fine grained, poorly sorted, brittle, calcite cement, very silty, micaceous, detrital qrtz sand grains-polished and frosted, transparent and translucent, vitrain luster, orange Fe stain, subround, equant.

- 370 380 Sandstone (35%), light gray (N7), fine to medium grained, poor to medium sorted, dolomite cement, brittle, some biotic and muscovite flakes and grains, detrital quartz sand grains-polished and frosted, transparent and translucent, vitrain lustre, faceted, subround to subangular, equant; sandstone (35%), yellow gray (5Y 7/2), very fine to fine grained, poorly sorted, brittle, slightly hard, calcite cement, very silty, micaceous, some orange Fe stain, detrital quartz sand grains-polished and frosted, transparent and translucent, vitrain lustre, orange Fe stain, subround to subangular, equant; siltstone (25%), light gray (N7), slightly sandy, brittle, calcite cement, micaceous; some marlstone (5%), light gray (N7), greasy to dull lustre, massive, moderate effervescence in HCL.
- 380 430 Sandstone (75%), yellow gray (5Y 7/2), very fine to fine grained, poorly sorted, brittle, slightly hard, calcite cement, silty, micaceous heavy Fe stain, cuttings large and round (weathered), detrital quartz sand grains-polished and frosted, transparent and translucent, vitrain lustre, orange Fe stain, subround to subangular, equant; siltstone (25%), light gray (N7), slightly sandy, brittle, calcite cement, micaceous.
- 430 500 Sandstone (35%), yellow gray (5Y 7/2), very fine to medium grained, poorly sorted, brittle, slightly hard, calcite cement, very silty, micaceous, heavy Fe stain, large round cuttings (weathered), detrital quartz sand grains-polished and frosted, vitrain lustre, transparent and translucent, orange Fe stain, subround to subangular, equant; siltstone (35%), light gray (N7), slightly sandy, micaceous, calcite cement, brittle, large round cuttings appear abraded or weathered; sandstone (30%), light gray (N7), fine to medium grained, poor to medium sorted, dolomite cement, brittle, detrital quartz sand grains-polished and frosted, transparent and translucent, vitrain lustre, faceted, subround to subangular, equant; from 440 to 470' abundant pyrite or marc, from 450 to 480' very oxidized, very friable sandstone
- 500 550 Shale (60%), light olive gray (5Y 6/1) and buff (10 yr 8/2), fissile, micaceous, silty and hard; sandstone (20%), tan (10 yr 6/6), very fine to fine grained, poor to medium sorted, clayey, silty, micaceous, slightly calcareous, hard, detrital quartz sand grains-polished and frosted, transparent and translucent, orange Fe stain, vitrain lustre, faceted, subround, equant; sandstone (15%), olive gray (5Y 4/1), fine to medium grained, poor to medium sorted, very calcareous, hard, very pyritic, abundant biotite and muscovite grains and flakes, detrital quartz sand grains-polished and frosted, translucent and transparent, vitrain lustre, subangular, equant. From 510-540' some siltstone, buff (10 YR 8/2), hard, argillaceous, calcareous; some marlstone, medium gray (N6), even bedding, hard, calcareous; from 520-540' some pyrite veins and stringers, some Fe stain; from 540-550' Oil Shale (1%), dark brown (5 YR 3/4) to dark gray (N3), hard, very slightly calcareous.

- 550      580      Shale (50%), light olive gray (5 Y 6/1), fissile, micaceous, calcareous, hard, silty; marlstone (45%), medium light gray (N6), even bedding, hard, very calcareous; sandstone (5%), tan (10 YR 6/6), very fine to fine grained, poor to medium sorted, slightly calcareous, hard, clayey, silty, micaceous, detrital quartz sand grains-polished and frosted, translucent and transparent, vitrain lustre, subangular, equant.
- 580      610      Sandstone, olive gray (5 Y 4/1), fine grained, medium sorted, very calcareous, hard, asphalt, micaceous, detrital quartz sand grains-polished and frosted, transparent and translucent, vitrain lustre, subangular, equant to elongate; sandstone, buff (10 YR 8/2), fine to medium grained, poor to medium sorted, calcite cement with orange Fe stain, micaceous, clayey, detrital quartz sand grains-polished and frosted, transparent and translucent, vitrain lustre, orange Fe stain, subround to subangular, equant; siltstone, very light gray (N8), hard, calcareous, micaceous; shale, very light gray (N7) to olive gray (5 Y 4/1), fissile, hard, calcareous, some micaceous; sandstone, light olive gray (5 Y 6/1), fine to medium grained, arkosic, hard, calcareous, detrital quartz sand grains-polished and frosted, transparent and translucent, vitrain lustre, subround, equant; from 590-600' trace of Oil Shale, dark brown (5 YR 3/4), to dark gray (N3), slightly fissile, some asphalt coating, abundant marc and pyrite.
- 610      620      Marlstone (50%), light gray (N7), greasy to dull lustre, massive, moderate effervescence in HCL; shale (25%), very light gray (N8), hard, calcareous, micaceous, fissile; siltstone (15%), very light gray (N8), hard, calcareous, micaceous; sandstone (10%), olive gray (5 Y 4/1), fine grained, medium sorted, very calcareous, hard, asphalt, micaceous, detrital quartz sand grains-polished and frosted, translucent and transparent, vitrain lustre. subangular, equant to elongated
- 620      640      Sandstone (40%), light gray (N7), very fine to fine grained, poor to medium sorted, brittle, dolomite, micaceous, detrital quartz sand grains-polished and frosted, transparent and translucent, vitrain lustre, subround with some subangular; siltstone (40%), light olive gray (5 Y 6/1), calcareous, hard, black (asphalt) stringers abundant; abundant marc or pyrite; some sandstone, buff (10 YR 8/2), fine to medium grained, poor to medium sorted, calcite cement with orange Fe stain, micaceous, detrital quartz sand grains-polished and frosted, translucent and transparent, vitrain lustre, orange Fe stain, subround to subangular, equant; some marlstone, light gray (N7), greasy to dull lustre, with even bedding; some Oil Shale, brown (5 YR 3/4), to dark gray (N3), even bedding, slightly fissile.
- 640      660      Sandstone (35%), light gray (N7), very fine to fine grained, poor to medium sorted, brittle, dolomitic, micaceous, detrital quartz sand grains-polished and frosted, transparent and translucent, vitrain lustre, subround with some subangular; siltstone (35%), light olive gray (5 Y 6/1), calcareous, hard, black (asphalt) stringers, abundant marc or pyrite; marlstone (30%), light gray (N7), dull to greasy lustre, even bedding.

- 660 680 Siltstone (50%), light olive gray (5 Y 6/1), calcareous, hard, black (asphalt) stringers, abundant pyrite or marc; sandstone (50%), light gray (N7), very fine to fine grained, poor to medium sorted, brittle, dolomitic, micaceous, detrital quartz sand grains-polished and frosted, transparent and translucent, vitrain lustre, subround with some subangular; from 670-680' trace siltstone, cream (5 Y 8/4), sandy, clayey, orange Fe stain, dolomite cement.
- 680 710 Marlstone, pale yellow brown (10 YR 6/2), slightly fissile, hard, calcareous, micaceous, some marc or pyrite.
- 710 720 Siltstone (75%), pale yellow brown (10 YR 6/2), slightly fissile, soft to slightly brittle, micaceous, dull lustre, clayey, calcareous; marlstone (20%), light olive gray (5 Y 5/2), dull to slightly greasy lustre, brittle, calcareous; some sandstone (5%), light gray (N7), very fine to fine grained, poorly sorted, dolomite cement, brittle, micaceous, detrital quartz sand grains-polished and frosted, transparent and translucent, vitrain lustre, subround to subangular, equant.
- 720 730 Siltstone (50%), pale yellow brown (10 YR 6/2), slightly fissile, soft to slightly brittle, micaceous, dull lustre, clayey, calcareous, some gray shiny metallic mineral veins (pyrite); marlstone (25%), medium gray (N5) to light olive gray (5 Y 5/2), massive to even bedding, calcareous, brittle, dull to slightly greasy lustre; sandstone (25%), yellow gray (5 Y 7/2) to buff (10 YR 8/2), very fine grained, medium sorted, calcite cement, soft, friable, silty, clayey, micaceous, orange Fe stain, detrital quartz sand grains-polished and frosted, transparent and translucent, vitrain lustre, orange Fe stain, faceted, subround to subangular, equant to elongate; trace of Oil Shale, dark gray (N3), slightly fissile, slight effervescence in HCL, hard.
- 730 740 Marlstone (75%), medium gray (N5), to medium dark gray (N4), slightly greasy lustre, calcareous, fissile, brittle, some even bedding, trace mica; siltstone (25%), pale yellow brown (10 YR 6/2), slightly fissile, soft to slightly brittle, micaceous, dull lustre, clayey, calcareous; some Oil Shale, medium dark gray (N4), to dark gray (N3), even bedding, very slightly calcareous, fissile, hard.
- 740 760 Oil Shale and marlstone, medium light gray to dark gray (N6-N3), even bedding, brittle to hard, fissile, slight to moderate effervescence in HCL; siltstone (10%), pale yellow brown (10 YR 6/2), slightly fissile, soft to slightly brittle, micaceous, clayey, calcareous, trace pyrite; sandstone (10%), light gray (N7), fine to medium grained, poorly sorted, friable, calcite cement, detrital quartz sand grains-polished and frosted, transparent and translucent, vitrain lustre, faceted, subround to subangular, equant, some orange Fe stain.

760	780	Sandstone (50%), light gray (N7), fine to medium grained, poorly to medium sorted, slight to moderate effervescence in HCL, soft, biotite and muscovite flakes and grains, abundant orange Fe stain, detrital quartz sand grains-polished and frosted, translucent with some transparent, vitrain lustre, some orange Fe stain, subround to subangular, equant; siltstone (40%), very light gray (N8), slightly hard to brittle, micaceous, clayey, calcareous; marlstone and Oil Shale (10%), medium light gray (N6) to dark gray (N3), even bedding, brittle to hard, fissile, slight to moderate effervescence in HCL.
780	790	Marlstone and Oil Shale (50%), medium light gray to dark gray (N6-N3), even bedding, brittle to hard, fissile, slight to moderate effervescence in HCL; sandstone (25%), light gray (N7), fine to medium grained, poor to medium sorted, slight to moderate effervescence in HCL, soft, biotite and muscovite flakes and grains, abundant orange Fe stain, detrital quartz sand grains-translucent with some transparent, polished and frosted, vitrain lustre, some orange stain, subround to subangular, equant; siltstone (25%), very light gray (N8), slightly hard to brittle, micaceous, clayey, calcareous.
790	802.5	Siltstone, very light gray (N8), slightly hard to brittle, micaceous, clayey, calcareous; marlstone (45%), light gray (N7), massive and even bedding, dull to slightly greasy lustre, slight to moderate effervescence in HCL, brittle; sandstone (5%), buff (10 YR 8/2), very fine to fine grained, poor to medium sorted, calcite cement, brittle, micaceous, silty, detrital quartz sand grains-transparent and translucent, orange stain, vitrain lustre, subround, equant.

CORE DESCRIPTION

RUN NO. 1, 802.5-803.5' - cut 1' and recovered 1'

802.5	802.75	Siltstone, pale yellow brown (10 YR 6/2), massive bedding, calcareous, few black carbonaceous flakes and stain.
802.75	803.5	Marlstone, brown (5 YR 3/4), even with looped bedding, calcareous, thin tuff bed .10' at 802.9'.

RUN NO. 2, 803.5-812.5' - cut 9' and recovered 8'

803.5	806.0	Oil Shale, brown (5 YR 3/4), even with some looped bedding and irregular bedding around marlstone and tuff intraclast, analcitized tuff beds and interbedded throughout, pyrite on partings and fractures, poor to medium competency.
806.0	807.3	Marlstone, light olive gray (5 Y 5/2), irregular to contorted bedding, silty stringers, pyrite on partings and fractures, moderate amount of high angular fractures, poor to medium competency.
807.3	808.6	Marlstone, light olive gray (5 Y 5/2), even to irregular bedding.
808.6	809.2	Siltstone, pale yellow brown (10 YR 6/2), massive, calcareous, oil shale strong throughout, pyrolusite stringers.

RUN NO. 2 - Continued

- 809.2      811.5      Oil shale, brown (5 YR 3/4), even with slight looped bedding, numerous marlstone intraclast, analcitized tuff stringers, very light gray to cream, slight undulatory contact .5' at 810.3'.
- 811.5      812.5      Core loss.

RUN NO. 3, 812.5-822.5' - cut 10' and recovered 10'

- 812.5      817.5      Marlstone, pale yellow brown (10 YR 6/2) to yellow gray (5 Y 7/2), contorted with looped and irregular bedding, poor competency rock, numerous high analcitized fractures, parts with white, earthy, chalky laminated, pyrite, black mineral, dull (pyrite or marc) on fractures, asphalt on some partings, numerous altered tuff beds-white, massive, straight contact .1' at 813.3', tuff bed, blue-gray to very light gray, irregular bedding, erregular contact, .1' at 816.5', numerous altered tuff blebs, very calcareous.
- 817.5      822.5      Oil shale and marlstone interbedded; oil shale olive gray (5 Y 4/1), to brownish gray (5 YR 4/1), even, irregular, streaked and contorted bedding, medium competency; marlstone pale yellow brown (10 YR 6/2), massive bedding, some carb. streaks, black, shiny, (asphalt) mineral on some partings.

RUN NO. 4, 822.5-831.5' - cut 9' and recovered 9'

- 822.5      824.5      Marlstone, pale yellow brown (10 YR 6/2), massive to irregular bedding, medium competency, very calcareous, few tuff intraclast and mare blebs, some oil shale stringers, asphalt plant cast on some partings.
- 824.5      828.0      Marlstone, pale yellow brown (10 Yr 6/2), massive to faint irregular bedding, poor to medium competency, numerous medium angular fractures, numerous black, dull marc blebs and stringers.
- 828.0      829.7      Oil shale with interbedded marlstone, pale ywllow brown (10 YR 6/2), contorted bedding, medium competency, black (carb) material on partings
- 829.7      831.5      Marlstone, pale yellow brown (10 YR 6/2), massive to faint irregular bedding, poor to medium competency, numerous dull, black, mark stringers and blebs, numerous medium angular fractures.

RUN NO. 5, 831.5-841.5' - cut 10' and recovered 9.7'

- 831.5      834.6      Marlstone cont., grades to buff (10 YR 8/2), very silty, very calcareous, pyrite on partings, medium competency, pyrite blebs and stringers few high angular fractures with offset bedding.
- 834.6      839.8      Oil shale, brownish gray (5 YR 4/1), even to streaked bedding, numerous marlstone streaks and blebs, tuff stringers and thin beds, buff (10 YR 8/2), massive, straight and wavy contact, .1' from 835-836.1'; tuff, very light gray (N8), granular with blue tint, slightly wavy content, .5' at 835.6'.

RUN NO. 5 - Continued

839.8	840.2	Marlstone, buff (10 YR 8/2), contorted bedding, medium competency, very calcareous.
840.2	841.2	Marlstone, buff (10 YR 8/2) to pale yellow brown (10 YR 6/2), massive to irregular bedding with some even and contorted bedding, poor to medium competency, few thin brown oil shale beds, pyrite blebs and stringers common, pyrolusite common, part silty, tuff bed, white (N9) to buff (10 YR 8/2), slightly irregular bedding, upper contact slightly wavy, lower contact gradual, granular with mudstone stringers, .5' at 846.3'.
841.2	841.5	Core loss.

RUN NO. 6, 841.5-850.5' - cut 9' and recovered 6.8'

841.5	848.3	Marlstone, as above.
848.3	850.5	Core loss.

RUN NO. 7, 850.5-852.5' - cut 2' and recovered 2'

850.5	852.5	Oil shale, pale yellow brown (10 YR 6/2) and brown (5 YR 3/4), even bedding to looped and streaked bedding.
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RUN NO. 8, 852.5-862.5' - cut 10' and recovered 10'

852.5	857.7	Oil Shale, as above, with thin tuff beds, blue gray (5B 5/1), <.1' @ 855.3' and 857.3', fair competency, disseminated pyrite.
857.7	861.2	Marlstone, pale brown (5 YR 5/2) to buff (10 YR 8/2), even bedding with some looped and irregular bedding, few pyrolusite and pyrite stringers disseminated, pyrolusite on partings, fair competency, few high angular fractures with pyrolusite.
861.2	862.5	Marlstone, buff (10 YR 8/2), even bedding with some looped bedding, fair competency.

RUN NO. 9, 862.5-872.5' - cut 10' and recovered 9.5'

862.5	863.5	Marlstone, as above.
863.5	866.5	Marlstone, buff (10 YR 8/2), contorted bedding, good competency.
866.2	869.0	Marlstone, yellow gray (5 Y 7/2), even to irregular bedding, poor competency, some interbedded oil shale, olive gray (5 Y 4/1), streaked and even bedding, poor competency, few high angular fractures, slightly silty, tuff bedding, white, altered, .05' at 868.4'.
869.0	872.0	Marlstone, yellow gray (5 Y 7/2), irregular and contorted bedding with some blebby structures, fair competency, few thin oil shale stringers.
872.0	872.5	Core loss.

RUN NO. 10, 872.5-882.5' - cut 10' and recovered 9.7'

872.5	876.2	Marlstone, yellow gray (5 Y 7/2), even and irregular bedding, few medium angular fractures, medium competency.
876.2	879.4	Oil shale, brown (5 YR 3/4) to brownish gray (5 YR 4/1), streaked bedding, poor competency, rubble, abundant medium to high angular fractures, some dull black (carb.) material on partings, some fractured with slickenside.
879.4	882.2	Marlstone, yellow gray (5 Y 7/2), irregular bedding with some blebby structure, medium competency, silty in part, abundant oil shale stringers, very calcareous.
882.2	882.5	Core loss.

RUN NO. 11, 882.5-892.5' - cut 10' and recovered 10'

882.5	891.5	Oil shale, brownish gray (5 YR 4/1), massive to irregular bedding with contorted bedding from 886.6-888.3', medium competency, few high angular fractures with pyrite, several medium angular solid fractures, numerous asphalt stringers disseminated throughout, asphalt on partings, thin marlstone bed, buff (10 YR 8/2), irregular bedding, .2' at 884.7', 885.1', 885.7'; very silty, appears to be mudstone with high kerogen content.
891.5	892.5	Marlstone, buff (10 YR 8/2), irregular bedding, poor competency, very silty, very calcareous.

RUN NO. 12, 892.5-902.5' - cut 10' and recovered 10'

892.5	902.5	Marlstone and siltstone, interbedded; marlstone, buff (10 YR 8/2), even to slightly irregular bedding, slightly silty; siltstone, buff (10 YR 8/2) to pale yellow brown (10 YR 6/2), massive to irregular bedding, calcareous, poor competency, numerous medium-high angular fractures with pyrite, siltstone has good kerogen content in part.
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RUN NO. 13, 902.5-912.5' - cut 10' and recovered 10'

902.5	911.7	Marlstone with interbedded siltstone; marlstone buff (10 YR 8/2), irregular bedding with even to looped bedding from 910-911.7', poor to medium competency, some oil shale stringers, pyrite blebs common; siltstone yellow gray (5 Y 7/2), massive to irregular bedding, medium competency, pyrite disseminated throughout, lng pyrite sld in angular fractures.
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RUN NO. 14, 912.5-922.5' - cut 10' and recovered 10'

912.5	916.1	Marlstone with interbedded siltstone; marlstone buff (10 YR 8/2), irregular bedding, poor to medium competency, pyrite blebs common; siltstone yellow gray (5 Y 7/2), massive to irregular bedding, medium competency, pyrite dissemination throughout.
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RUN NO. 14 - Continued

916.1      922.5      Oil shale, pale yellow brown (10 YR 6/2) to brown (5 YR 3/4), contorted with some even and streaked bedding, poor to fair competency, numerous tuff blebs, altered tuff bed, tan (10 YR 6/6), wavy bedding, breccia and recmt, upper and lower contact sl straight .2' at 917.2'; Tf bed, buff to very light gray, slightly wavy bedding with oil shale stringers, upper and lower contact grad., .2' at 921.7' and .5' at 922.5'.

RUN NO. 15, 922.5-932.5' - cut 10' and recovered 10'

922.5      932.5      Siltstone with some interbedded oil shale; siltstone pale yellow brown (10 YR 6/2), massive, poor to fair competency, calcareous, abundant small black (asphalt) stringer throughout, numerous high angular fractures; oil shale pale yellow brown (10 YR 6/2) to light brown (5 YR 6/4), irregular and contorted bedding, tuf.

RUN NO. 16, 932.5-942.5' - cut 10' and recovered 10'

932.5      934.8      Siltstone with interbedded oil shale, as above.  
 934.8      936.1      Oil shale, olive gray (5 Y 4/1), even to irregular bedding inclined approx. 30°, fine to excellent competency, tf stringers and bedding from 935.7-936'.  
 936.1      939.0      Oil shale and tuff interbedded; oil shale tan (10 YR 6/6), irregular to streaked bedding; tuff pale yellow brown (10 YR 6/2), asphalt stringer, white crystalline (analcime) inclusions, massive to irregular bedding, mare blebs, calcareous.  
 939.0      941.6      Oil shale, olive gray (5 Y 4/1) to gray shale, black (N2), streaked to even bedding, fine competency, pyrite on partings, gilsonite at 940.8', pyrite on fracture.  
 941.6      942.5      Tuff and oil shale interbedded; tuff pale yellow brown (10 YR 6/2), massive to irregular bedding, poor competency, marc blebs, calcareous, asphalt stringer, white crystalline (analcime) inclusions; oil shale tan (10 YR 6/6), irregular to streaked bedding, pyrite on parting.

RUN NO. 17, 942.5-952.5' - cut 10' and recovered 10'

942.5      946.2      Tuff and oil shale interbedded, as above.  
 942.6      952.5      Oil shale, olive gray (5 Y 5/2) to pale red brown (10 R 5/4), even with some looped bedding, fine competency, few medium angular fractures with calcite on surface, several medium angular calcareous sld fractures.

RUN NO. 18, 952.5-959.5' - cut 7' and recovered 6.5'

952.5      959.0      Oil shale, as above.  
 959.0      959.5      Core loss.

RUN NO. 19, 959.5-964.0' - cut 4.5' and recovered 3.5'

959.5	963.0	Oil shale, as above.
963.0	964.0	Core loss.

RUN NO. 20, 964-972.5' - cut 8.5' and recovered 7.7'

964.0	965.5	Oil shale, as above.
965.5	971.7	Oil shale, light olive gray (5 Y 5/2) to olive gray (5 Y 4/1), even bedding with some looped bedding, fine to good competency, several cal sld medium angular fracture, low-medium angular fracture with calcite coating common, bedding inclined approx. 45° from 965.5' to 965.8'; tuff, brown, analcimitized, .30' at 965.5', few partings.
971.7	972.5	Core loss.

RUN NO. 21, 972.5-982' - cut 9.5' and recovered 9.5'

972.5	974.5	Oil shale, as above.
974.5	975.8	Shale, pale yellow brown (10 YR 6/2), massive, fine competency, calcareous, very silty, few marc and asphalt blebs and stringers.
975.8	981.7	Oil shale, light olive gray (5 Y 6/1) to olive gray (5 Y 4/1), even bedding with few loop structures, good competency, few medium angular fractures with dark brown asphalt resin.
981.7	982.0	Marlstone, pale yellow brown (10 YR 6/2), massive, fair competency, calcareous, very silty, few marc and asphalt blebs and stringers.

RUN NO. 22, 982-992' - cut 10' and recovered 10'

982.0	988.8	Oil shale, buff (10 YR 8/2) to pale yellow brown (10 YR 6/2), even bedding with slight loop bedding and contorted bedding from 982-984', fine to excellent competency, partings with pyrolusite or pyrite on surface, thin siltstone bed, olive gray, .2' at 984.8' and 985.5'.
988.8	992.0	Marlstone, olive gray (5 Y 4/1), massive, poor competency, numerous medium angular fractures, abundant black (asphalt) streaks, few angular oil shale inclusions.

RUN NO. 23, 992-999' - cut 7' and recovered 7'

992.0	999.0	Marlstone, olive gray (5 Y 4/1), massive bedding, very poor competency (rubble), dull black mineral coating on fractures and partings (pyrolusite), numerous black dull stringers (pyrolusite), very slightly calcareous.
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RUN NO. 24, 999-1,008.5' - cut 9.5' and recovered 9.5'

999.0	1008.5	Marlstone, as above.
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RUN NO. 25, 1008.5-1014' - cut 5.5' and recovered 5.5'

1008.5	1014.0	Marlstone, as above.
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RUN NO. 26, 1014-1022.5' - cut 8.5' and recovered 8.5'

1014.0 1020.2 Marlstone, as above.  
 1020.2 1022.5 Oil shale, brown (5 YR 3/4), irregular bedding, poor competency; with interbedded marlstone, olive gray (5 Y 4/1), massive, very poor competency, dull black mineral (pyrolusite) coating and stringers.

RUN NO. 27, 1022.5-1032.5' - cut 10' and recovered 10'

1022.5 1024.4 Marlstone, pale yellow brown (10 YR 6/2), even to looped bedding, poor competency, pyrite on partings.  
 1024.4 1032.5 Oil shale, dark gray (N3) and pale yellow brown (10 YR 6/2), irregular bedding with some contorted bedding, fair to good competency, several medium to high angular fractures with calcite.

RUN NO. 28, 1032.5-1042.5' - cut 10' and recovered 10'

1032.5 1033.3 Oil shale, pale yellow brown (10 YR 6/2), streaked bedding, fair to good competency.  
 1033.3 1040.1 Oil Shale, olive gray (5 Y 4/1) to light olive gray (5 Y 5/2) with some dark gray (N3) band, even with looped bedding, black, dull, soft, feather-like stringers (asphalt) at 1038', few gilsonite stringers, few tuff blebs, few calcite sld fractures.  
 1040.1 1041.5 Oil shale, grayish black (N2), streaked bedding, poor to fair competency, few thin tuff beds, medium dark gray (N4) and light brown (5 YR 6/4), granular, straight, sharp contact from 1039.5-1040'.  
 1041.5 1042.5 Oil shale, light olive gray (5 Y 6/1), even to irregular bedding, rubbly, tuf, pt leached calcite coated pods, blue gray to white tuff with calcite stringers.

RUN NO. 29, 1042.5-1048.0' - cut 5.5' and recovered 5.5'

1042.5 1048.0 Marlstone, light olive gray (5 Y 6/1) to yellow gray (5 Y 7/2), even bedding, very poor competency, small buff col parting with no marlstone number fractures with calcite from 1044-1046.5', few thin oil shale zones.

RUN NO. 30, 1048-1052.5' - cut 4.5' and recovered 4.5'

1048.0 1052.5 Marlstone, as above, with bedding dip,  $\sim 15^{\circ}$  from 1050.3-1051', tuffaceous from 1049.5-1050', medium angular fracture with pyrite.

RUN NO. 31, 1052.5-1062.5' - cut 10' and recovered 10'

1052.5 1061.2 Marlstone, as above, fair competency, number dull to shiny, black to gray, metallic (marc) streaks and blebs, few medium angular fractures, some marc solid fractures.  
 1061.2 1062.5 Oil shale, olive gray (5 Y 4/1), streaked bedding, poor competency..

RUN NO. 32, 1062.5-1072.50' - cut 10' and recovered 8.5'

1062.5	1063.5	Oil shale, as above.
1063.5	1069.0	Marlstone, light olive gray (5 Y 5/2), even irregular and loop bedding, fair to good competency, some partings with no minerals, some tuff blebs and stringers, white, op (sil) minerals on some partings, marc streak common, numerous thin tuff beds and stringers, olive gray and green gray, massive, irregular contact from 1067.2-1069'.
1069.0	1071.0	Oil shale, olive gray (5 Y 4/1) to grayish black (N2), even bedding, good competency, numerous thin tuff lam., pale yellow brown to blue gray, massive, asphaltic.
1071.0	1072.5	Core loss.

RUN NO. 33, 1072.5-1081.5' - cut 9' and recovered 8.7'

1072.5	1073.0	Tuff, olive gray (5Y 4/1), massive, with gilsonite stringers.
1073.0	1075.5	Oil shale, pale yellow brown (10 YR 6/2) to light olive gray (5 Y 5/2), even with loop bedding, fair competency.
1075.5	1077.8	Oil shale, brown (5 YR 3/4) to grayish black (N2), even bedding, poor to fair competency; tuff .1' at 1076.5', pale yellow brown, massive, upper contact straight, low contact slight undulatory, asphaltic.
1077.8	1081.2	Oil shale, grayish red (5 R 4/2) to brown (5 YR 3/4) to pale yellow brown (10 YR 6/2), even bedding, dip 15° from 1080-1080.6', breccia and recement with calcite from 1080-1080.7', medium angular fractures at 1080.5'.
1081.2	1081.5	Core loss.

RUN NO. 34, 1081.5-1091.5' 0 cut 10' and recovered 9.2'

1081.5	1082.8	Oil shale, olive gray (5 Y 4/1) to light olive gray (5 Y 5/2), even bedding with some loop bedding, good to excellent competency.
1082.8	1083.6	Core loss. Partings at top and bottom indicate a vug with asphalt resin.
1083.6	1091.5	Oil shale, olive gray (5Y 4/1) to light olive gray (5Y 5/2), even with loop bedding, good to excellent competency, partings sm with no mineral frac and recement with asph and calcite at 1090.3'.

RUN NO. 35, 1091.5-1101.5' - cut 10' and recovered 9.5'

1091.5	1100.0	Oil shale, yellow gray (5Y 7/2) to light olive gray (5Y 5/2), even bedding, good competency, sm partings with no mineral; tuff, light gray, granular, massive, upper and lower contact sharp and straight, .50' at 1092.7'.
1100.0	1101.0	Oil shale, grayish black (N2), even bedding, poor competency, pyrite on some fractures.
1101.0	1101.5	Core loss.

RUN NO. 36, 1101.5-1111' - cut and recovered 9.5'

1101.5	1103.5	Oil shale, dark gray (N3) to brownish gray (5Y 4/1), even with loop bedding, good competency, few medium angular fractures with pyrite, (asphalt), for csts on partings.
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- 1103.5 1106.2 Oil shale, light olive gray (5Y 5/2) to yellow gray (5Y 7/2), even to loop bedding, good to excellent competency, very thin tuff stringers common.
- 1106.2 1111 Oil shale, medium dark gray (N4) to dark gray (N3), even bedding with some loop bedding and streaked bedding from 1106.3-1106.5' and 1110-1111'; tuff .20' at 1107', pale yellow brown (10 YR 6/2), massive, very slightly granular, asphaltic.

RUN NO. 37, 1111-1115' - cut 4' and recovered 3.2'

- 1111.0 1114.2 Oil shale, grayish black (N2) with thin tan bands (10 YR 6/6), even with some loop bedding, very poor competency (poker chip parting); tuff .25' at 1113.9', greenish gray (5G 6/1), massive, granular, analcimitized, with oil shale stringer (possible Mahogany Marker).
- 1114.2 1115.0 Core loss.

RUN NO. 38, 1115-1122.5' - cut 7.5' and recovered 6.5'

- 1115.0 1121.5 Oil shale, as above, streaked bedding from 1119-1119.6', marlstone, pale yellow brown (10 YR 6/2), slight streaked bedding from 1119.6-1120'.

RUN NO. 39, 1122.5-1131' - cut and recovered 8.5'

- 1122.5 1125.8 Oil shale, olive gray (5Y 4/1) to brownish gray (5 YR 4/1), even bedding, fair to good competency, medium ang fractures with calcite.
- 1125.8 1130.0 Oil shale, olive gray (5Y 4/1) to grayish black (N2), even bedding, very poor competency (poker chip parting), very light core (low dens), no mineral on parting, high frac density (possible Mahogany bed).
- 1130.0 1131.0 Oil shale, olive gray (5Y 4/1), irregular bedding, tuff, asphaltic, poor competency.

RUN NO. 40, 1131-1140.5' - cut and recovered 9.5'

- 1131.0 1135.9 Oil shale, brown (5 YR 3/4), to grayish black (N2), even to irregular bedding, very poor to poor competency, numerous fractures with no minerals, humber fractures with fine xln pyrite, tuff .30' at 1133.5', buff, irregular bedding to massive, very asphaltic, upper and lower contact slightly wavy.
- 1135.9 1140.5 Oil shale, olive gray (5Y 4/1) to grayish black (N2), even bedding with some loop bedding, good competency, some calcite sld fractures.

RUN NO. 41, 1140.5-1150.5' - cut and recovered 10'

- 1140.5 1150.5 Oil shale, brownish gray (5 YR 4/1) to grayish black (N2), even to loop bedding with streaked bedding from 1144-1144.9', fair competency, numerous calcite std fractures from 1147.2-1150.5'.

RUN NO. 42, 1150.5-1155.5' - cut and recovered 5'

1150.5 1155.5 Oil shale, olive gray (5Y 4/1) to brownish gray (5Y 4/1), even to streaked bedding, poor competency, rubble at vuggy zones from 1150.5-1152.1', several high angular fractures from 1153.6-1155.5'.

RUN NO. 43, 1155.5-1159.5' - cut and recovered 4'

1155.5 1159.5 Oil shale, as above, numerous calcite sld fractures from 1156.5-1159.5'

RUN NO. 44, 1159.5-1163' - cut 3.5' and recovered 3'

1159.5 1162.5 Oil shale, olive gray (5Y 4/1) to brownish gray (5YR 4/1), even bedding to irregular bedding, poor competency, numerous medium ang fractures, vug with marc and asphalt coating at 1161.1', numerous partings with calcite.

1162.5 1163.0 Core loss.

RUN NO. 45, 1163-1172.5' - cut and recovered 9.5'

1163.0 1164.9 Oil shale, as above.

1164.9 1167.0 Oil shale, olive gray (5Y 4/1) to brownish gray (5YR 4/1), streaked bedding, good to excellent competency.

1167.0 1172.5 Oil shale, light olive gray (5Y 5/2) to tan (10 YR 6/6), even to irregular and loop bedding, very poor to poor competency, numerous calcite sld fractures from 1169-1172.5', collapse breccia recement with calcite from 1171.5-1172.5', vug with marc coating at 1167' and 1170.1'.

RUN NO. 46, 1172.5-1180' - cut 7.5' and recovered 6'

1172.5 1178.0 Oil shale, tan (10 YR 6/6) to brown (5YR 3/4), even bedding with some loop bedding, poor competency, numerous medium ang calc sld fractures, numerous fractures (rubble) zones with calcite coating.

1178.5 1180.0 Core loss.

RUN NO. 47, 1180-1184' - cut 4' and recovered 3'

1180.0 1183.0 Oil shale, as above.

1183.0 1184.0 Core loss.

RUN NO. 48, 1184-1188' - cut 4' and recovered 3'

1184.0 1185.0 Oil shale, as above.

1185.0 1187.0 Oil shale, olive gray (5Y 4/1), streaked bedding, poor competency, low ang fractures with slickensides, marc blebs common.

1187.0 1188.0 Core loss.

RUN NO. 49, 1188-1192.5' - cut and recovered 4.5'

1188.0 1192.5 Oil shale, olive gray (5Y 4/1), even bedding, very poor competency, very thin partings (poker chip), brittle from 1191-1192'.

RUN NO. 50, 1192.5-1198' - cut 5.5' and recovered 4'

1192.5	1196.5	Oil shale, as above.
1196.5	1198.0	Core loss.

RUN NO. 51, 1198-1202.5' = cut 4.5' and recovered 2'

1198.0	1199.5	Oil shale, as above.
1199.5	1202.0	Core loss.
1202.0	1202.5	Oil shale, as above.

RUN NO. 52, 1202.5-1208' - cut 5.5' and recovered 5'

1202.5	1207.5	Oil shale, olive gray (5Y 4/1), even bedding, very poor competency, numerous hairline calcite sld fractures, collapse breccia from 1203.7-1207.5', pp calcite filled vugs 1205-1207.5'.
1207.5	1208.0	Core loss.

RUN NO. 53, 1208-1212.5' - cut 4.5' and recovered 4'

1208.0	1212.0	Oil shale, olive gray (5Y 4/1) to brownish gray (5YR 4/1), even bedding, poor competency, numerous low to medium angular fractures
1212.0	1212.5	Core loss.

RUN NO. 54, 1212.5-1220' - cut and recovered 7.5'

1212.5	1216.3	Oil shale, as above, even to irregular bedding with dip 15°.
1216.3	1220.0	Oil shale, brownish gray (5 YR 4/1), streaked to even bedding, poor competency, abundant pp calcite, numerous medium angular fractures.

RUN NO. 55, 1220-1226.5' - cut and recovered 6.5'

1220.0	1222.0	Oil shale, as above.
1220.0	1226.5	Oil shale, grayish red (5R 4/2) to tan (10YR 6/6), even to irregular bedding, very poor competency, abundant pp calcite, very abundant tuff stringers.

RUN NO. 56, 1226.5-1230' - cut and recovered 3.5'

1226.5	1230.0	Oil shale, as above, breccia and recement from 1227-1227.3', few high angular fractures with slickensides.
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RUN NO. 57, 1230-1234.5' - cut 4.5' and recovered 3.5'

1230.0	1233.5	Oil shale, as above, breccia and recement from 1230.2-1232.7'.
1233.5	1234.5	Core loss.

RUN NO. 58, 1234.5-1239.5' - cut 5' and recovered 3'

1234.5	1235.5	Oil shale, as above, with pyrite on fractures.
1235.5	1237.5	Marlstone, buff (10 YR 8/2), even bedding, poor competency, pyrite on fractures and partings; tuff .20' at 1236.7', blue gray, massive, granular.
1237.5	1239.5	Core loss.

RUN NO. 59, 1239.5-1242.5' - cut 3' and recovered 2'

1239.5 1241.5 Oil shale, grayish red (5 R 4/2), even bedding, very poor competency (rubble), pyrite on fractures and partings, some blue gray analcimitized tuff stringers.

1241.5 1242.5 Core loss.

RUN NO. 60, 1242.5-1246' - cut 3.5' and recovered 2'

1242.5 1244.0 Oil shale, as above, abundant pp calcite.

1244.0 1244.5 Marlstone, yellow gray (5 Y 7/2), massive, very poor competency, soft, crumbly, calcite, argillaceous, breccia and recement, some marc or pyrite stringers and blebs (possible B Groove).

1244.5 1246.0 Core loss.

RUN NO. 61, 1246.0-1250.5' - cut and recovered 4.5'

1246.0 1250.5 Marlstone, as above.

RUN NO. 62, 1250.5-1258.5' - cut and recovered 8'

1250.5 1257.4 Marlstone, yellow gray (5 Y 7/2), even bedding, very poor competency, abundant pyrite and pyro streaks and stringers, abundant pp calcite, partings with pyro, some Osh, tan, even bedding from 1256-1256.6', numerous high angular fractures with pyrite.

1257.4 1258.5 Marlstone, yellow gray (5 Y 7/2), massive, very poor competency, soft, crumbly, very calcareous, argillaceous, breccia and recement, some marc or pyrite stringers and blebs.

RUN NO. 63, 1258.5-1264' - cut 5.5' and recovered 5'

1258.5 1262.5 Oil shale, grayish black (N2) to pale brown (5 YR 5/2), streak to irregular bedding, poor competency.

1262.5 1263.5 Oil shale, pale brown (5 YR 5/2), even bedding with some loop bedding, poor competency, some pyrite on partings and fractures, some partings with pyrolusite.

1263.5 1264.0 Core loss.

RUN NO. 64, 1264-1267.5' - cut and recovered 3.5'

1264.0 1267.5 Oil shale and marlstone, interbedded; oil shale brownish gray (5 YR 4/1) to tan (10 YR 6/6), even and looped bedding with some offset at fracture, fair competency; marlstone, yellow gray (5 Y 7/2) to pale yellow-brown (10 YR 6/2), even to looped bedding with streaked bedding at 1267.3', abundant pyrite streaks, fair competency, several medium angular fractures, black dull mineral (pyrolusite) on some partings.

RUN NO. 65, 1267.5-1272.5' - cut 5' and recovered 3'

1267.5      1270.5      Oil shale, dark reddish-brown (10 R 3/4) to brown (5 YR 3/4), even to streaked bedding, poor to fair competency, bedding dip approx. 5° from 1267.5-1269', pyrite on some partings, few medium angular fractures.

1270.5      1272.5      Core loss.

RUN NO. 66, 1272.5-1280' - cut 7.5' and recovered 7.3'

1272.5      1279.8      Oil shale, pale yellow brown (10 YR 6/2) to dark reddish brown (10 Y 3/4), even bedding with some looped bedding, fair to good competency, .20' marlstone beds, tan (10 YR 6/6), massive at 1273.3' and 1274.3', .30' tuff, medium gray (N5), irregular bedding, analcimitized, upper contact undulatory, lower contact straight to slightly undulatory, angular calcite sld fractures from 1276-1278'.

1279.8      1280.0      Core loss.

RUN NO. 67, 1280-1283.5' - cut 3.5' and recovered 2.5'

1280.0      1282.5      Oil shale and marlstone, interbedded; brown (5 YR 3/4) and buff (10 YR 8/2), even bedding, very poor competency, rubble, breccia and recement, pp calcite.

1282.5      1283.5      Core loss.

RUN NO. 68, 1283.5-1287.5' - cut 4' and recovered 2.5'

1283.5      1286.0      Oil shale and marlstone interbedded, as above.

1286.0      1287.5      Core loss.

RUN NO. 69, 1287.5-1292.5' - cut and recovered 5'

1287.5      1292.5      Oil shale, pale yellow brown (10 YR 6/2) to dark reddish brown (10 R 3/4), even to looped bedding, poor to fair competency, some interbedded marlstone, yellow gray (5 Y 7/2), medium to high angular sld fractures, fracture and recement from 1288.2-1289', some leached vugs, some yellow gray partings with no minerals, tuf bleb at 1289.9'.

RUN NO. 70, 1292.5-1302.5' - cut 10; and recovered 9.5'

1292.5      1302.0      Oil shale, brown (5 YR 3/4) to olive gray (5 Y 4/1), even bedding with some streaked and irregular bedding, poor to fair competency, numerous medium to high angular fractures with slickensides, numerous sld fractures with offset bedding, 10' tuff with angular marlstone fragments at 1296.1', numerous collapse zones from 1298-1302', calcite on some fractures.

1302.0      1302.5      Core loss.

RUN NO. 71, 1302.5-1308' - cut 5.5' and recovered 5'

1302.5      1307.5      Oil shale, pale yellow brown (10 YR 6/2) to brownish gray (5 Y 4/1), even to cntrt bedding, poor competency, rubble, numerous medium to high angular calcite std fractures, numerous fractures with slickensides, breccia and recement, leached vugs with marc coating from 1305-1307.5', marlstone pod at 1306.4', numerous partings at vug, analcimitized tuf pod at 1305.8'.  
1307.5      1308.0      Core loss.

RUN NO. 72, 1308-1315' - cut 7' and recovered 6.6'

1308.0      1313.4      Oil shale, brown (5 YR 3/4) to brownish gray (5 YR 4/1), even to streaked bedding with blebby structure, fine to medium competency.  
1313.4      1314.6      Marlstone, buff (10 YR 8/2) to pale yellow-brown (10 YR 6/2), even bedding, fractured and recement, partings with slickensides, pyrite on some fractures.  
1314.6      1315.0      Core loss.

RUN NO. 73, 1315-1322.5' - cut 7.5' and recovered 6.8'

1315.0      1317.6      Marlstone, as above.  
1317.6      1321.8      Oil shale, dark reddish brown (10 R 3/4) to pale brown (5 YR 5/2), even with looped bedding and some blebby structure, good competency, asphalt on some partings.  
1321.8      1322.5      Core loss.

RUN NO. 74, 1322.5-1322.5' - cut and recovered 10'

1322.5      1332.5      Oil shale and marlstone interbedded; oil shale brown (5 YR 3/4), to pale brown (5 YR 5/2), even bedding with some streaked bedding, poor competency; marlstone, pale yellow brown (10 YR 6/2), even bedding, very poor competency, rubble.

RUN NO. 75, 1332.5-1339' - cut 6.5' and recovered 6'

1332.5      1335.2      Oil shale interbedded with marlstone; oil shale brown (5 YR 3/4) to pale brown (5 YR 5/2), even bedding with some streaked bedding, 15-30° bedding dip, numerous asphalt streaks.  
1335.2      1338.5      Oil shale, light brown (5 YR 6/4) to pale yellow brown (10 YR 6/2), streaked bedding with some even bedding, asphalt and tuf streak thru, marc stringers at 1337.8', rubble .4' at 1335.8', .15' at 1338', good competency.  
1338.5      1339.0      Core loss.

RUN NO. 76, 1339-1346.5' - cut and recovered 7.5'

1339.0      1344.4      Oil shale, dark reddish brown (10R 3/4) to brown (5 YR 3/4), irregular to streaked bedding, good competency, abundant marc streaks and stringers; at 1342' grades to oil shale, mrly, olive gray (5 Y 4/1), light brown (5 YR 6/4) to pale yellow brown (10 YR 6/2), even bedding, tuff .4' at 1343.9'  
1344.4      1346.5      Marlstone, light brown (5 YR 6/4) to pale yellow brown (10 YR 6/2), even bedding to massive, sml marc and calcareous lined vugs, numerous marc stringers, some rubble zones, poor competency.

RUN NO. 77, 1346.5-1351.5' - cut and recovered 5'

1346.5 1347.1 Marlstone, as above.  
 1347.1 1349.0 Oil shale, dark reddish brown (10 R 3/4) to brown (5 YR 3/4), irregular to streaked bedding, excellent competency, marck streaks and stringers.  
 1349.0 1351.5 Marlstone, pale yellow brown (10 YR 6/2) to brownish gray (5 YR 4/1), even bedding, pyrite dism thru, tuf, soft .5' at 1350', very poor competency, rubble.

RUN NO. 78, 1351.5-1361.5' - cut 10' and recovered 8.5'

1351.5 1360.0 Marlstone, interbedded with oil shale; marlstone, pale yellow brown (10 YR 6/2) to brownish gray (5 YR 4/1), even bedding, poor competency; oil shale dark reddish brown (10 R 3/4) to brown (5 YR 3/4), irregular to streaked bedding, very thin gil stringers at 1359.2', numerous rubble zones.  
 1360.0 1361.5 Core loss.

RUN NO. 79, 1361.5-1365' - cut and recovered 3.5'

1361.5 1362.5 Oil shale, olive gray (5 Y 4/1) to brown gray (5 YR 4/1), even to massive bedding, poor competency, numerous fractures, numerous rubble zones.  
 1362.5 1363.5 Siltstone, medium light gray (N6) to light olive gray (5 Y 6/1), massive to streaked bedding, poor competency, numerous carb streaks, numerous fractures.  
 1363.5 1365.0 Oil shale, olive gray (5 Y 4/1) to brown gray (5 YR 4/1), even bedding to massive, poor competency, numerous fractures.

RUN NO. 80, 1365-1372.5' - cut 7.5' and recovered 6.5'

1365.0 1365.5 Oil shale, as above.  
 1365.5 1367.0 Siltstone, medium light gray (N6) to light olive gray (5 Y 6/1), massive to streaked bedding, poor competency, numerous carb streaks, numerous fractures.  
 1367.0 1371.5 Oil shale, light olive gray (5 Y 6/1) to pale yellow brown (10 YR 6/2), even bedding with some looped bedding, poor competency, mrlly, numerous marc stringers, pyrite on fractures, abundant fractures.  
 1371.5 1372.5 Core loss.

RUN NO. 81, 1372.5-1375.5' - cut and recovered 3'

1372.5 1375.5 Oil shale, as above, grades to oil shale brown gray (5 YR 4/1) to brown (5 YR 3/4), even to looped bedding, very poor competency, scattered marc stringers, numerous fractures.

RUN NO. 82, 1375.5-1379' - cut 3.5' and recovered 3'

1375.5 1377.5 Oil shale, brown gray (5 YR 4/1) to brown (5 YR 3/4), even to looped bedding, good competency.  
 1377.5 1378.5 Oil shale, pale brown (5 YR 5/2) to dark reddish brown (10 R 3/4), massive, very poor competency, tuff; tuff light brown, very soft, flaky argillaceous, .4' at 1377.8', .2' at 1377.5'.  
 1378.5 1379.0 Core loss.

RUN NO. 83, 1379-1382.5' - cut 3.5' and recovered 2.5'

1379.0	1381.5	Oil shale, brown gray (5 YR 4/1) to brown (5 YR 3/4), even to slight looped bedding, abundant rubble, very poor competency, scattered sml vug, dism pyrite.
1381.5	1382.5	Core loss.

RUN NO. 84, 1382.5-1386.5' - cut and recovered 4'

1382.5	1385.8	Oil shale, as above, good competency.
1385.8	1386.5	Oil shale, pale brown (5 YR 5/2) to brown (5 YR 3/4), even to massive bedding, poor competency, tuf; tuff, dark brown, flaky, pyrite streaks thru .2' at 1385.9'.

RUN NO. 85, 1386.5-1390.5' - cut 4' and recovered 3'

1386.5	1389.5	Oil shale, as above.
1389.5	1390.5	Core loss.

RUN NO. 86, 1390.5-1397.5' - cut 7' and recovered 6.5'

1390.5	1391.8	Oil shale, as above, large marc lined vug at 1391.5'.
1391.8	1397.0	Oil shale, pale brown (5 YR 5/2) olive gray (5 Y 6/1) to brown (5 YR 3/4), streaked to looped bedding with some massive, numerous small vugs, sml marc streaks and blebs thruout, tuf, sl argillaceous, mrly at base.
1397.0	1397.5	Core loss.

RUN NO. 87, 1397.5-1399.5' - cut 2' and recovered 1.5'

1397.5	1399.0	Oil shale, as above.
1399.0	1399.5	Core loss.

RUN NO. 88, 1399.5-1403' - cut and recovered 3.5'

1399.5	1401.5	Oil shale, as above, very poor competency, rubble.
1401.5	1403.0	Oil shale, pale brown (5 YR 5/2) to brown (5 YR 3/4), streaked to looped bedding, very poor competency, tuf, very soft, mrly.

RUN NO. 89, 1403-1405' - cut and recovered 2'

1403.0	1405.0	Oil shale, as above, rubble, numerous fractures with pyrite on surface
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RUN NO. 90, 1405-1410.5' - cut 5.5' and recovered 3'

1405.0	1406.5	Oil shale, as above, rubble.
1406.5	1408.0	Oil shale; olive gray (5 Y 4/1) to brown (5 YR 3/4), looped to slight even bedding, good competency, pp calc at 1407.8'.
1408.0	1410.5	Core loss.

RUN NO. 91, 1410.5-1414.5' - cut 4' and recovered 1'

1410.5      1411.0      Oil shale, medium gray (N5), to light olive gray (5 Y 5/2), even bedding, very poor competency, numerous fractures, marly.  
 1411.0      1411.5      Oil shale, olive gray (5 Y 4/1) to brown (5 YR 3/4), irregular to looped bedding with some streaked bedding, very poor competency, numerous fractures.  
 1411.5      1414.5      Core loss.

RUN NO. 92, 1414.5-1422.5' - cut and recovered 8'

1414.5      1416.8      Oil shale, as above; tuff, clay, abundant pyrite, flaky, .8' at 1416'.  
 1416.8      1422.5      Oil shale, medium gray (N5) to brown (5 YR 3/4), even to looped bedding anal tuff stringers at 1420.4', 1' rubble at 1420.5', good competency.

RUN NO. 93, 1422.5-1427.5' - cut and recovered 5'

1422.5      1427.5      Oil shale, as above; dark brown, .5' at 1423.5', pyrite blebs and streaks at 1422.7', numerous fractures from 1426-1427.5'.

RUN NO. 94, 1427.5-1432.5' - cut and recovered 5'

1427.5      1432.5      Oil shale, as above, marc stringers thruout; tuff, alt, light grey, argillaceous at .05' at 1430.9', rubble 1' at 1427.5'.

RUN NO. 95, 1432.5-1441.5' - cut 9' and recovered 8.5'

1432.5      1436.5      Oil shale, light olive gray (5 Y 5/2) to rust brown (10 R 4/6), irregular bedding to massive, good competency; tuff, light brown, .1' at 1434.1', .1' at 1434.4', .25' at 1436.1', scattered small vugs, rubble .5' at 1436'.  
 1436.5      1441.0      Oil shale, light olive gray (5 Y 5/2) to brown (5 YR 3/4), streaked to even bedding, small scattered vugs, tuff in parts, asphalt stringers at 1438.8', grading to oil shale, marly, light olive gray (5 Y 6/1) to olive gray (5 Y 4/1) at base.  
 1441.0      1441.5      Core loss.

RUN NO. 96, 1441.5-1451' - cut 9.5' and recovered 9'

1441.5      1447.7      Oil shale, as above, contorted bedding at 1442.5', 1444', 1445', some offset bedding.  
 1447.7      1450.5      Marlstone, light grey (N7) to medium dark gray (N4), massive to streaked bedding, abundant pp calc, poor to fair competency.

RUN NO. 97, 1451-1459.5' - cut and recovered 8.5'

1451.0      1451.8      Marlstone, as above.  
 1451.8      1454.1      Oil shale, olive gray (5 Y 5/2) to dark red brown (10 R 3/4), even bedding, some pp calc at 1451.8'; tuff, alt, light brown, marc, .1' at 1452.5'.

RUN NO. 97 - Continued

1454.1 1457.5 Oil shale, light olive grey (5 Y 6/1) to pale yellow brown (10 YR 6/2), contorted bedding to massive with streaked bedding, good competency, pp calc thruout, numerous pyritic stringers and calc streaks, marly.  
1457.5 1459.5 Oil shale, light olive grey (5 Y 5/2) to brown (5 YR 3/4), streaked bedding, poor to fair competency, calc streaks and blebs thruout, very friable at 1458.5'.

RUN NO. 98, 1459.5-1466.5' - cut and recovered 7'

1459.5 1461.3 Oil shale, as above, pp calc thruout, anal tuff blebs, red brown at 1460', mudstone, medium gray, silty .4' at 1460.9'.  
1461.3 1466.5 Oil shale, yellow brown (10 YR 6/2) to light olive grey (5 Y 6/1), even to streaked bedding with some contorted bedding, fair to good competency, bedding dip approx. 20° at 1466', marc stringers at 1462.1' and from 1464-1465'.

RUN NO. 99, 1466.5-1472.5' - cut 6' and recovered 5.5'

1466.5 1468.7 Oil shale, as above, tuff, orange brown, alt., .1' at 1468.5'.  
1468.7 1472.0 Marlstone, light grey (N7) to medium dark grey (N4), massive to contorted bedding with some streaked bedding, numerous small blebs, calc streaks thruout; grades to oil shale, olive grey (5Y 6/1), fair to good competency, slightly friable at base.  
1472.0 1472.5 Core loss.

RUN NO. 100, 1472.5-1482.5' - cut and recovered 10'

1472.5 1478.0 Oil shale, light olive grey (5 Y 5/2) to brown (5 YR 3/4), streaked bedding, poor to good competency, contorted bedding at 1474.8' and 1476.8', abundant small calc blebs.  
1478.0 1482.5 Oil shale, light olive grey (5 Y 6/1) to medium dark grey (N4), even bedding to massive, poor competency; some interbedded marlstone, argillaceous, very friable, calc streaks and blebs thruout.

RUN NO. 101, 1482.5-1490' - cut and recovered 7.5'

1482.5 1490.0 Oil shale, light olive grey (5 Y 6/1) brown grey (5 YR 4/1), even to contorted bedding with some streaked bedding, good competency, tuff from 1485.5-1486.5', some small calc blebs, few rubble zones; tuff bed, orange brown .2' at 1489.8'.

RUN NO. 102, 1490-1499' - cut and recovered 9'

1490.0 1490.4 Oil shale, as above.  
1490.4 1499.0 Oil shale, light olive grey (5Y 6/1) medium dark grey (N4), contorted bedding, some offset bedding, poor competency, breccia from 1492.4-1492.8', calc solid fractures and calc blebs thruout, marley, interbedded mudstone from 1494.3-1496'; medium dark grey (N4), alt tuff bed, orange brown .2' at 1496.7'; small calc blebs at 1495' and 1497.5', offset bedding at 1496.6', rubble at bottom.

RUN NO. 103, 1499-1505.5' - cut and recovered 6.5'

1499.0 1505.0 Oil shale, as above, several rubble zones.

RUN NO. 104, 1505.5-1512.5' - cut and recovered 7'

1505.5 1508.5 Oil shale, as above.

1508.5 1509.8 Oil shale, light olive grey (5Y 6/1) to medium dark grey (N4), even bedding to massive; grades to mudstone, medium dark grey ( ), soft, oily smell.

1509.8 1512.5 Siltstone, light olive grey (5 Y 5/2), massive to slightly streaked bedding, carb streaks, oily smell, well cemented, hard, good competency.

RUN NO. 105, 1512.5-1519' - cut and recovered 6.5'

1512.5 1517.0 Oil shale, olive grey (5Y 4/1) to brownish grey (5 YR 4/1), even to streaked bedding with some contorted bedding, poor competency, abundant small calc blebs; tuff, orange brown .3' at 1513'.

1517.0 1519.0 Oil shale, light olive grey to pale brown (5 Y 5/2 - 5 YR 5/2), contorted bedding to massive, very poor competency, some calc blebs partly leached, pyrite stringers thruout, marley.

RUN NO. 106, 1519-1524' - cut 5' and recovered 4.5'

1519.0 1520.8 Oil shale, as above; tuff, light brown, .2' at 1520.5'.

1520.8 1523.5 Oil shale, olive grey (5 Y 4/1) to brownish-grey (5 YR 4/1), even bedding to massive, very poor competency, rubble, numerous fractures with asphalt on surface.

1523.5 1524.0 Core loss.

RUN NO. 107, 1524-1527.5' - cut and recovered 3.5'

1524.0 1527.5 Oil shale, olive grey (5 Y 4/1) to brownish grey (5 YR 4/1), massive with slightly even bedding, very poor competency, rubble, silty.

RUN NO. 108, 1527.5-1532.5' - cut and recovered 5'

1527.5 1532.5 Oil shale, as above, rubble, argillaceous, friable from 1529.5-1532'; mudstone, light blue-grey .3' at 1530', oily smell, tuf at base.

RUN NO. 109, 1532.5-1541' - cut and recovered 8.5'

1532.5 1541.0 Oil shale, as above, argillaceous from 1534.5-1536', very highly fractured.

RUN NO. 110, 1541-1546.5' - cut and recovered 5.5'

1541.0 1543.5 Oil shale, olive grey (5 Y 4/1) to pale yellow brown (10 YR 6/2), even bedding to massive, very poor competency, numerous fractures, breccia and recement .2' at 1543.5', marley.

1543.5 1546.5 Oil shale, olive grey (5 Y 4/1) to brown (5 YR 3/4), even bedding, very poor competency, slightly argillaceous, very soft, pyrite stringers, few small vugs, numerous fractures.

RUN NO. 111, 1546.5-1549.5' - cut and recovered 3'

1546.5      1549.5      Oil shale, as above, tuff, light brown .2' at 1547.5', rubble.

RUN NO. 112, 1549.5-1554.5' - cut and recovered 5'

1549.5      1553.0      Oil shale, as above, tuff, porous, light brown, .4' at 1551'.  
 1553.0      1554.5      Oil shale, olive grey (5 Y 4/1) to brown (5 YR 3/4), streaked bedding,  
 bedding dip approx 10-15°, marley streak and blebs thruout, fair  
 competency.

RUN NO. 113, 1554.5-1562.5' - cut and recovered 8'

1554.5      1556.5      Oil shale, as above, small calc vugs partly leached.  
 1556.5      1562.5      Oil shale, olive grey (5 Y 4/1) to pale yellow-brown (10 YR 6/2),  
 contorted bedding, fair to good competency, marc blebs at 1558.2',  
 calc solid fractures at 1560.8'.

RUN NO. 114, 1562.5-1569' - cut and recovered 6.5'

1562.5      1564.5      Oil shale, as above, very contorted bedding, breccia and recement from  
 1563.4-1564.5', numerous calc solid and clay filled fractures, orange  
 (Fe) blebs at base.  
 1564.5      1569.0      Oil shale, olive grey (5 Y 4/1) to brown (5 YR 3/4), irregular to  
 streaked bedding, good to excellent comptency, some orange (Fe) blebs  
 from 1565.5-1566', calc stringers thruout, asphalt pod, red brown,  
 resinous at 1566.7'.

RUN NO. 115, 1569-1578.5' - cut and recovered 9.5'

1569.0      1574.7      Oil shale, as above, calc blebs and streaks thruout, tuff streak, light  
 brown, elt., argillaceous at 1569.5' and 1570', slightly argillaceous.  
 1574.7      1578.5      Oil shale, pale yellow brown (10 YR 6/2) to brownish-grey (5 YR 4/1),  
 irregular to streaked bedding, excellent competency, calc streaks and  
 blebs thruout, argillaceous, marley, very friable, breccia from  
 1576.5-1578', some offset bedding at 1569'.

RUN NO. 116, 1578.5-1588.5' - cut and recovered 10'

1578.5      1581.3      Oil shale, as above, slightly argillaceous, few marc stringers thruout,  
 asphalt (gil) pod, hard, blocky, black -t 1579.3', thin tuff beds  
 thruout, light brown.  
 1581.3      1587.5      Oil shale, pale yellow brown (10 YR 6/2) to brown (5 YR 3/4), streaked  
 bedding to massive, scattered asphalt tuffs thruout, excellent comptenc  
 numerous marc streaks and blebs, small vugs common, porous from  
 1584.8-1587'.  
 1587.5      1588.5      Oil shale, pale yellow brown (10 YR 6/2) to brown (5 YR 3/4), streaked  
 bedding to massive, very poor comptency, argillaceous, very soft.

RUN NO. 117, 1588.5-1598' - cut and recovered 9.5'

1588.5      1598.0      Oil shale, pale yellow brown (10 YR 6/2) to brown (5 YR 3/4), streaked bedding to massive, good competency, numerous large leached Nah vugs tuf and marc lined, scattered tuffs with calc and marc, marly from 1594.8-1595.7', fractures and vugs common.

RUN NO. 118, 1598-1600.5' - cut and recovered 2.5'

1598.0      1600.5      Oil shale, as above, scattered vugs with tuf and asphalt coating, few marc blebs.

RUN NO. 119, 1600.5-1610.5' - cut and recovered 10'

1600.5      1610.5      Oil shale, as above, marly from 1600.5-1601' and 1601.8-1603.8', alt tuff, light grey, argillaceous .3' at 1602.7', numerous calcareous streaks, Nah pods, red brown, radiate, bladed, xln from 1605-1608.6' and 1610.5', numerous small Nah leached vugs "swiss cheese structure" from 1601-1601.8'.

RUN NO. 120, 1610.5-1620.5' - cut and recovered 10'

1610.5      1620.5      Oil shale, as above, excellent competency, Nah pods at 1610, 1612.7' and from 1615-1617', several large vugs, tuf from 1618-1618.6', bedding contorted around vugs, slight "swiss cheese structure" at base, marc associated with Nahcolite.

RUN NO. 121, 1620.5-1627.5' - cut 7' and recovered 6'

1620.5      1626.5      Oil shale, pale yellow brown (10 YR 6/2) to brown (5 YR 3/4), irregular to streaked bedding with some massive, good to excellent competency. tuff, porous, with marc .5' at 1620.5'; tuff, porous, with contorted bedding, calcareous .4' at 1625', numerous marc lined vugs, scattered marc blebs and stringers.

1626.5      1627.5      Core loss.

RUN NO. 122, 1627.5-1632.5' - cut and recovered 5'

1627.5      1632.5      Oil shale, as above, Nahcolite bed, red brown, bladed .1' at 1629.8', Nah blebs partly leached from 1628.4-1632.5'; Nahcolite bed, cream, microcrystalline .15' at 1632.4'; Nahcolite pod, white, microcrystallin at 1629.1' and 1631.3'.

RUN NO. 123, 1632.5-1642.5' - cut and recovered 10'

1632.5      1642.5      Oil shale, as above, Nahcolite bed, red brown, bladed, xln-micxl .1' at 1632.5', .2' at 1634.7', .4' at 1635.7', 3' at 1637.5', 2' at 1639.7'; Nahcolite blebs and pods thruout.

RUN NO. 124, 1642.5-1652.5' - cut 10' and recovered 9'

1642.5      1651.5      Oil shale, as above; interbedded with Nahcolite, red brown and cream, bladed xln and mcrxl from 1645.5-1647' and 1649-1651.3'; tuff, "bleeding" asphalt, light gray, .3' at 1644'.

1651.5      1652.5      Core loss.

RUN NO. 125, 1652.5-1662.5' - cut and recovered 10'

1652.5      1655.8      Oil shale, as above, Nahcolite bed, cream, micxl, .4' at 1653.3', numerous pyrite blebs, several partly leached Nahcolite blebs.

1655.8      1658.4      Nahcolite; dark red brown (10 R 3/4), xln, bladed, rad, some buff, micxl Nahcolite.

1658.4      1662.5      Oil shale; pale yellow-brown (10 YR 6/2) to brown (5 YR 3/4), irregular to streaked bedding with some massive, good to excellent competency, Nahcolite, red brown, bladed at 1660.8', Nahcolite bed .5' at 1661.5', numerous marc blebs and stringers.

RUN NO. 126, 1662.5-1672.5' - cut and recovered 10'

1662.5      1672.5      Oil shale, as above, Nahcolite pods, red-brown, bladed, xln from 1668.5-1672.5'.

RUN NO. 127, 1672.5-1682.5' - cut and recovered 10'

1672.5      1674.5      Oil shale, as above, thin Nahcolite beds and stringers, cream, micxl.

1674.5      1676.5      Nahcolite, white, xln, bladed, massive, some interbedded oil shale stringers.

1676.5      1682.5      Oil shale, as above, numerous pyrite blebs and streaks, Nahcolite pods, red-brown, xln, bladed from 1678-1680', interbedded thin Nahcolite beds, cream, micxl from 1677-1678'.

RUN NO. 128, 1682.5-1692.5' - cut and recovered 10'

1682.5      1692.5      Oil shale; pale yellow-brown (10 YR 6/2) to brown (5 YR 3/4), even to streaked bedding, excellent competency, Nahcolite bed, cream micxl .5' at 1685.8' and .4' at 1686.8', several large Nahcolite stringers from 1682.8-1684'; Nahcolite bed, red-brown, xln bladed .4' at 1689.8', .4' at 1691.1'; numerous Nahcolite pods and blebs from 1687.9-1690.5'; Halite, white, small blebs and stringers associated with Nahcolite at 1686' and 1690.5', scattered pyrite blebs.

RUN NO. 129, 1692.5-1702.5' - cut and recovered 10'

1692.5      1694.0      Oil shale, as above, with interbedded Nahcolite, red-brown, xln, bladed, with halite blebs.

1694.0      1702.5      Oil shale, pale yellow brown (10 YR 6/2) to light brown (5 YR 6/4), even to massive bedding, Nahcolite pods, red-brown, bladed thruout, numerous thin (.1-.3') Nahcolite beds, Nahcolite bed, cream, micxl .5' at 1699.4', .6' at 1700.3', numerous pyrite stringers and halite blebs.

RUN NO. 130, 1702.5-1712.5' - cut and recovered 10'

- 1702.5      1708.0      Oil shale, as above, marly, Nahcolite bed, red-brown, xln, bladed .5' at 1707.5', numerous marc blebs thruout.
- 1708.0      1712.5      Oil shale, pale yellow brown (10 YR 6/2) to brown (5 YR 3/4), even to irregular bedding with slightly irregular bedding around Nahcolite pods, numerous Nahcolite pods, Nahcolite bed, red-brown, xln, bladed .6' at 1709.6', .7' at 1710.7'.

RUN NO. 131, 1712.5-1722.5' - cut and recovered 10'

- 1712.5      1714.0      Oil shale, as above, numerous Nahcolite beds and pods, red-brown and cream, micxl and xln, marc thruout.
- 1714.0      1719.0      Oil shale, pale yellow brown (10 YR 6/2) to light brown (5 YR 6/4), even bedding to massive, excellent competency, marly, Nahcolite bed, cream, micxl .8' at 1714', .5' at 1715.2'; numerous Nahcolite pods and blebs, red-brown, cream, xln, micxl; marc blebs thruout, trace of halite blebs associated with Nahcolite beds.
- 1719.0      1722.5      Oil shale, pale yellow brown (10 YR 6/2) to brown (5 YR 3/4), even to irregular bedding, excellent competency, numerous marc blebs and stringers thruout; alt tuff stringers thruout, scattered thin Nahcolite beds, cream, micxl.

RUN NO. 132, 1722.5-1732.5' - cut and recovered 10'

- 1722.5      1732.5      Oil shale, as above, numerous marc blebs, numerous Nahcolite pods and blebs, red-brown, cream, micxl, xln; Nahcolite bed, red-brown, xln, bladed .6' at 1731.7'; halite blebs associated with several Nahcolite pods.

RUN NO. 133, 1732.5-1742.5' - cut and recovered 10'

- 1732.5      1735.5      Nahcolite, red-brown, xln, bladed to massive, interbedded oil shale, as above, scattered marc blebs.
- 1735.5      1742.5      Oil shale, pale yellow-brown (10 YR 6/2) to brown (5 YR 3/4), even to irregular bedding, good competency, several large Nahcolite pods, red-brown, xln from 1735.5-1740', few pyrite and marc stringers.

RUN NO. 134, 1742.5-1752.5' - cut and recovered 10'

- 1742.5      1752.5      Oil shale, pale yellow brown (10 YR 6/2) to brown (5 YR 3/4), contorted bedding, excellent competency, tuff at 1747.7', Nahcolite pod, red-brown, xln at 1748.7' and 1749.4'.

RUN NO. 135, 1752.5-1762.5' - cut and recovered 10'

- 1752.5      1758.9      Oil shale, as above, Nahcolite bed, red-brown to white, xln, bladed 1.3' at 1755'.
- 1758.9      1762.5      Oil shale, as above, interbedded with Nahcolite; nahcolite red-brown to white, transparent-translucent, xln, bladed to massive, halite blebs and stringers thruout.

RUN NO. 136, 1762.5-1772.5' - cut and recovered 10'

1762.5      1767.5      Oil shale and Nahcolite interbedded, as above; gas smell from 1763.5-1764.5'.

1767.5      1772.5      Oil shale, pale brown (5 YR 5/2) to light olive grey (5 Y 5/2), even bedding, good-excellent competency, scattered pyrite stringers, few Nahcolite stringers.

RUN NO. 137, 1772.5-1782.5' - cut and recovered 10'

1772.5      1773.8      Oil shale, as above, several Nahcolite blebs and pods, red-brown, xln, bladed, few marc blebs.

1773.8      1782.5      Oil shale, pale brown (5 YR 5/2) to brown (5 YR 3/4), irregular to contorted bedding; interbedded Nahcolite, red-brown, xln, micxl, bladed, partly leached from 1779-1782.5', few marc stringers, excellent competency.

RUN NO. 138, 1782.5-1792.5' - cut and recovered 10'

1782.5      1792.5      Oil shale, as above, interbedded with Nahcolite; Nahcolite red-brown to white, transparent-translucent, xln, good to excellent competency.

RUN NO. 139, 1792.5-1802.5' - cut 10; and recovered 6.5'

1792.5      1799.0      Oil shale and Nahcolite interbedded, as above; fair to poor competency.

1799.0      1802.5      Core loss.

RUN NO. 140, 1802.5-1812.5' - cut and recovered 10'

1802.5      1806.0      Oil shale and Nahcolite interbedded, as above; scattered halite blebs.

1806.0      1812.5      Oil shale, pale brown (5 YR 5/2) to brown (5 YR 3/4), streaked bedding to massive with irregular bedding around Nahcolite pods, excellent competency, Nahcolite pods thruout.

RUN NO. 141, 1812.5-1822.5' - cut 10' and recovered 9.5'

1812.5      1817.8      Oil shale, as above, Nahcolite bed, red-brown, xln .6' at 1814.1', 1.5' at 1815.9', some asphalt solid fractures.

1817.8      1822.0      Oil shale, light olive grey (5 Y 6/1) to brownish-grey (5 YR 4/1), even bedding to massive with some contorted bedding, with interbedded halite, white, transparent-translucent, xln to micxl, part dissolved; scattered Nahcolite beds, red-brown, fair to good competency, marly.

1822.0      1822.5      Core loss.

RUN NO. 142, 1822.5-1832.5' - cut 10' and recovered 9'

1822.5      1826.5      Halite, white to clear, transparent-translucent, xln-micxl, part dissolved; thin oil shale stringers, scattered Nahcolite stringers, fair to good competency.

1826.5      1831.5      Oil shale, light olive grey (5 Y 6/1) to brownish-grey (5 YR 4/1), even bedding to massive with some contorted bedding, excellent competency, marly, numerous Nahcolite pods, red-brown, xln, halite bed, white-clearn, xln-micxl, 1.2' at 1829.5'.

1831.5      1832.5      Core loss.

RUN NO. 143, 1832.5-1842.5' - cut and recovered 10'

1832.5      1836.5      Oil shale, as above, number large Nahcolite pods, red-brown, xln, with associated halite.

1836.5      1842.5      Oil shale, as above, interbedded with Nahcolite; Nahcolite red-brown, xln, bladed, partly leached, good to excellent competency, few marc blebs, marly from 1840.4-1842.5'.

RUN NO. 144, 1842.5-1852.5' - cut 10' and recovered 9'

1842.5      1843.5      Oil shale and Nahcolite interbedded, as above.

1843.5      1844.5      Halite; white-clear, xln-micxl, slightly dissolved.

1844.5      1851.5      Oil shale, light olive grey (5 Y 6/1) to brownish-grey (5 YR 4/1), even bedding to massive, interbedded Nahcolite, red-brown, xln, bladed; interbedded halite, white-clear, xln-micxl, good competency, marly.

1851.5      1852.5      Core loss.

RUN NO. 145, 1852.5-1862.5' - cut 10' and recovered 9'

1852.5      1861.5      Halite with interbedded Nahcolite and oil shale; halite white (N9) to tan (10 YR 6/6), transparent-translucent, xln-micxl; Nahcolite cream (5 Y 8/4), opaque, micxl; thin oil shale bed, pale yellow-brown (10 YR 5/2), even bedding.

1861.5      1862.5      Core loss.

RUN NO. 146, 1862.5-1872.5' - cut and recovered 10'

1862.5      1868.7      Halite, as above.

1868.7      1872.5      Oil shale, olive grey (5 Y 4/1) to brownish-grey (5 YR 4/1), even bedding, fine to good competency, numerous Nahcolite pods, dark reddish-brown (10 R 3/4), micxl and xln, transparent-translucent, soft, effervescent, marc lined.

RUN NO. 147, 1872.5-1882.5' - cut and recovered 10'

1872.5      1879.9      Oil shale, pale yellow brown (10 YR 6/2) to tan (10 YR 6/6), streaked bedding, excellent competency, numerous small marc and Nahcolite blebs, numerous Nahcolite pods, brown and cream, micxl.

1879.9      1882.5      Oil shale, light olive grey (5 Y 6/1) to olive grey (5 Y 4/1), even bedding with some looped bedding, excellent competency, Nahcolite bed, dark reddish-brown, xln, bladed .15-.20' at 1881.4', 1881.8', and 1882.1'.

RUN NO. 148, 1882.5-1892.5' - cut and recovered 10'

1882.5      1890.0      Nahcolite and oil shale, interbedded; Nahcolite, dark reddish-brown (10 R 3/4), fair dism., micxl; oil shale, pale yellow-brown (10 R 6/2), even bedding, excellent competency; some Nahcolite pods, coarse, xln, bladed, dark reddish-brown, translucent, with white coating .3' at 1888' and .2' at 1888.7'.

1890.0      1892.5      Oil shale, light olive grey (5 Y 5/2) to pale brown (5 YR 5/2), streaked bedding with irregular bedding around Nahcolite pods, excellent competency, Nahcolite pods dark brown, xln, bladed, marc lined, some marc streaks and blebs.

RUN NO. 149, 1892.5-1902.5' - cut and recovered 10'

1892.5      1902.5      Oil shale, pale yellow brown (10 YR 6/2) to tan (10 YR 6/6), even with some irregular bedding, excellent competency, numerous small to large Nahcolite pods, dark reddish-brown, micxl-xln, some marc lined.

RUN NO. 150, 1902.5-1912.5' - cut 10' and recovered 9.7'

1902.5      1904.0      Oil shale, as above, Nahcolite bed, cream (5 Y 8/4) to tan (10 YR 6/6), translucent-opaque, micxl, massive .1' at 1902.1' and .6' at 1902.5'.  
1904.0      1912.2      Oil shale, olive grey (5 Y 4/1) to pale yellow-brown (10 YR 6/2), streaked bedding, excellent competency, numerous marc streaks, numerous small marc lined Nahcolite blebs; Nahcolite bed, dark reddish-brown, transparent-translucent, micxl-xln, bladed .2' at 1907.7', 1' at 1908.7', .05' at 1910.1', .05' at 1910.2' and .2' at 1910.9'.  
1912.2      1912.5      Core loss.

RUN NO. 151, 1912.5-1922.5' - cut and recovered 10'

1912.5      1914.3      Oil shale, as above.  
1914.3      1919.0      Oil shale, brownish-grey (5 YR 4/1), even bedding, excellent competency  
1919.0      1919.7      Oil shale, tan (10 YR 6/2), even bedding, excellent competency, abundant Nahcolite pods.  
1919.7      1921.7      Nahcolite; brown (5 YR 3/4), transparent-translucent, xln, bladed.  
1921.7      1922.5      Marlstone, yellow-grey (5 Y 7/2), even bedding, excellent competency, numerous marc lined Nahcolite pods.

RUN NO. 152, 1922.5-1932.5' - cut and recovered 10'

1922.5      1923.1      Marlstone, as above.  
1923.1      1925.5      Oil shale, olive grey (5 Y 4/1), even bedding, excellent competency.  
1925.5      1931.0      Oil shale and Nahcolite intermixed; buff (10 YR 8/2) to brownish-grey (5 YR 4/1), irregular bedding, excellent competency, Nahcolite, fair dism. to massive micxl beds.  
1931.0      1932.5      Oil shale, pale brown (5 YR 5/2), streaked bedding, excellent competency numerous small Nahcolite blebs, some brown Nahcolite pods, bladed, xln; some thin micxl Nahcolite beds, numerous marc streaks.

RUN NO. 153, 1932.5-1942.5' - cut 10' and recovered 9.2'

1932.5      1935.1      Oil shale, as above, Nahcolite bed .2' at 1933.3' and .2' at 1934.4'.  
1935.1      1936.9      Oil shale, as above, interbedded with Nahcolite, brown, fair dism. to massive micxl beds.

RUN NO. 154, 1942.5-1952' - cut and recovered 9.5'

1942.5      1945.5      Oil shale, olive grey (5 Y 4/1), streaked bedding, excellent competency numerous marc streaks, numerous very small Nahcolite blebs.  
1945.5      1948.8      Oil shale, brown (5 YR 3/4), even bedding, excellent competency, Nahcolite pods and thin beds, brown, xln, bladed from 1947.7-1948.8'.  
1948.8      1952.0      Nahcolite, tan (10 YR 6/6), massive, translucent-opaque, micxl; some brown xln Nahcolite pods, some thin oil shale stringers and beds.

RUN NO. 155, 1952-1962' - cut and recovered 10'

1952.0      1962.0      Oil shale and Nahcolite interbedded; oil shale olive grey (5 Y 4/1) to brown (5 YR 3/4), even, streaked and irregular bedding, excellent competency; Nahcolite bed, cream-tan, translucent-opaque, micxl, irregular bedding to massive; numerous small marc lined Nahcolite pods, numerous marc blebs.

RUN NO. 156, 1962-1972' - cut and recovered 10'

1962.0      1972.0      Oil shale, olive grey (5 Y 4/1), streaked bedding, excellent competency numerous large Nahcolite pods, brown, xln, bladed, few tuff stringers.

RUN NO. 157, 1972-1982' - cut and recovered 10'

1972.0      1973.8      Oil shale and Nahcolite interbedded; oil shale brownish-grey (5 YR 4/1) even bedding; Nahcolite brown (5 YR 3/4), transparent-translucent, xln, bladed, excellent competency.

1973.8      1079.0      Oil shale and Nahcolite interbedded; oil shale tan (10 YR 6/6), even with streaked bedding; Nahcolite cream (5 Y 8/4) to tan (10 YR 6/6), fair dism., micxl, excellent competency, very porous.

1979.5      1982.0      Oil shale, pale brown (5 YR 5/2), even to slightly streaked bedding, excellent competency, numerous small micxl Nahcolite blebs, some marc streaks

RUN NO. 158, 1982-1992' - cut and recovered 10'

1982.0      1992.0      Oil shale, brownish grey (5 YR 4/1), streaked bedding, excellent competency, numerous marc blebs and streaks, numerous small Nahcolite blebs, numerous Nahcolite pods, brown, xln; several thin Nahcolite beds, brown, transparent-translucent, xln, bladed, slightly porous.

RUN NO. 159, 1992-2002' - cut and recovered 10'

1992.0      1997.3      Oil shale, as above.

1997.3      2002.0      Oil shale, tan (10 YR 6/6), even bedding, excellent competency, abundant Nahcolite pods, brown, xln, bladed, transparent-translucent, some with white coating.

RUN NO. 160, 2002-2012' - cut and recovered 10'

2002.0      2003.1      Oil shale, as above.

2003.1      2012.0      Oil shale, pale brown (5 YR 5/2), streaked bedding, excellent competency Nahcolite and oil shale interbedded from 2003.1-2003.9'; Nahcolite pod, brown, xln at 2005', 2007.7', 2008.7'; numerous small marc lined Nahcolite blebs, several marc blebs.

RUN NO. 161, 2012-2021.5' - cut and recovered 9.5'

2012.0      2019.1      Oil shale, as above, numerous large Nahcolite pods from 2017-2018.2', brown, xln, bladed; Nahcolite bed, brown, xln, bladed, transparent-translucent from 2018.1-2019.1'.

2019.1      2021.5      Oil shale, pale yellow brown (10 YR 6/2), even with some looped bedding excellent competency, few large Nahcolite pods.

RUN NO. 162, 2021.5-2031.5' - cut and recovered 10'

2021.5	2024.0	Oil shale, pale yellow brown (10 YR 6/2) to tan (10 YR 6/6), even and looped bedding, good to excellent competency, few marc lined Nahcolite pods.
2024.0	2027.1	Oil shale, tan (10 YR 6/6), even and irregular bedding, good to excellent competency, numerous large Nahcolite pods, brown, xln, bladed, marc lined.
2071.1	2029.6	Nahcolite, light brown (5 YR 6/4), micxl and xln, bladed, translucent-Opaque, some intermixed oil shale stringers.
2029.6	2031.5	Oil shale, tan (10 YR 6/6), streaked bedding, good to excellent competency, few large Nahcolite pods.

RUN NO. 163, 2031.5-2041.5' - cut and recovered 10'

2031.5	2032.9	Oil shale, as above.
2032.9	2038.7	Oil shale, tan (10 YR 6/6), even to irregular bedding, good to excellent competency; Nahcolite bed, brown, transparent-translucent, xln, radiating, bladed, marc lined .3' at 2033.1', .6' at 2033.8', .3' at 2053.3', .6' at 2036' and from 2037-2038.7'.
2038.7	2041.5	Oil shale, tan (10 YR 6/6), streaked bedding, good to excellent competency, Nahcolite bed brown, xln, bladed, transparent-translucent at 2040.2'.

RUN NO. 164, 2041.5-2051.5' - cut and recovered 10'

2041.5	2051.5	Oil shale, light olive grey (5 Y 5/2), streaked bedding with some even and irregular bedding, excellent competency, Nahcolite pods, brown, transparent-translucent, xln, bladed, marc lined from 2044-2045'.
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RUN NO. 165, 2051.5-2061.5' - cut and recovered 10'

2051.5	2054.6	Oil shale, as above.
2054.6	2058.1	Oil shale, light olive grey (5 Y 5/2), even, irregular and streaked bedding, excellent competency, numerous large brown xln Nahcolite pods.
2058.1	2061.5	Oil shale, light olive grey (5 Y 5/2), streaked bedding with some even and irregular bedding, excellent competency.

RUN NO. 166, 2061.5-2071.5' - cut and recovered 10'

2061.5	2071.5	Oil shale, pale yellow brown (10 YR 6/2) to tan (10 YR 6/6), streaked bedding, with some irregular bedding, excellent competency, numerous large Nahcolite pods, some marc streaks.
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RUN NO. 167, 2071.5-2081.5' - cut and recovered 10'

2071.5	2073.7	Oil shale, brown (5 YR 3/4), even to looped bedding, excellent competency, marc lined Nahcolite pod at 2072.5'.
2073.7	2081.5	Oil shale, pale yellow brown (10 YR 6/2) to tan (10 YR 6/6), streaked bedding with some irregular bedding, excellent competency, Nahcolite pod at 2075'.

RUN NO. 168, 2081.5-2091.5' - cut and recovered 10'

2081.5	2089.0	Oil shale, brownish-grey (5 YR 4/1), even, irregular and contorted bedding, good to excellent competency, tuf from 2082.8-2084.3', light weight, very rich, some brown resin on partings, few low angular fractures with resin, few gilsonite stringers.
2089.0	2091.5	Oil shale, brownish-grey (5 YR 4/1), even with some looped bedding, excellent competency, few marc stringers, Nahcolite pod at 2091.5'.

RUN NO. 169, 2091.5-2101.5' - cut and recovered 10'

2091.5	2094.9	Oil shale and Nahcolite interbedded; oil shale pale yellow-brown (10 YR 6/2), streaked bedding, excellent competency; Nahcolite brown, xln, radiant, bladed.
2094.9	2099.6	Oil shale, tan (10 YR 6/6), even to irregular bedding, excellent competency, abundant large Nahcolite pods and thin beds, brown, xln, radiating.
2099.6	2101.5	Oil shale, pale yellow brown (10 YR 6/2) to tan (10 YR 6/6), streaked bedding with some irregular bedding, excellent competency.

RUN NO. 170, 2101.5-2109.5' - cut 8' and recovered 6.6'

2101.5	2108.1	Oil shale, brownish-grey (5 YR 4/1), streaked bedding, excellent competency, Nahcolite pods and thin beds, brown, xln, radiant at 2102.1', 2103.8', 2104.5' and 2108.1'.
2108.1	2109.5	Core loss.

RUN NO. 171, 2109.5-2112.5' - cut and recovered 3'

2109.5	2112.5	Oil shale, as above, "blebby" structure, few Nahcolite pods.
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RUN NO. 172, 2112.5-2122.5' - cut and recovered 10'

2112.5	2117.8	Oil shale, as above, large Nahcolite pods at 2114.1' and 2114.6', slightly porous.
2117.8	2122.5	Oil shale, brown (5 YR 3/4) and tan (10 YR 6/6), even, irregular and looped bedding, few thin Nahcolite beds and pods.

RUN NO. 173, 2122.5-2132.5' - cut and recovered 10'

2122.5	2128.5	Oil shale, brown (5 YR 3/4) to brownish-grey (5 YR 4/1), streaked bedding, "blebby" structure, excellent competency.
2128.5	2132.5	Oil shale, tan (10 YR 6/6), even bedding, excellent competency; Nahcolite bed, brown, micxl, granular from 2128.5-2130', abundant Nahcolite pods, brown, transparent-translucent, xln, radiant, bladed.

RUN NO. 174, 2132.5-2142.5' - cut and recovered 10'

2132.5	2137.0	Oil shale, tan (10 YR 6/6), even to slightly irregular bedding, good to excellent competency, numerous Nahcolite pods, brown, xln, radiating, bladed; Nahcolite bed, brown, transparent-translucent, xln, radiating, bladed, from 2135.3-2136'.
2137.0	2142.5	Oil shale, brown (5 YR 3/4), streaked bedding, excellent competency, few marc lined Nahcolite pods, few marc blebs.

RUN NO. 175, 2142.5-2152.5' - cut and recovered 10'

2142.5	2151.3	Oil shale, brown (5 YR 3/4), streaked to even bedding, excellent competency, Nahcolite bed, brown, transparent-translucent, xln, radiating, bladed from 2147.1-2142.9', 2148-2149.6', 2150.1-2151.3'.
2151.3	2152.5	Oil shale, tan (10 YR 6/6), even to irregular bedding, few Nahcolite pods, excellent competency.

RUN NO. 176, 2152.5-2162.5' - cut and recovered 10'

2152.5	2155.5'	Oil shale, light olive grey (5 Y 5/2) to pale yellow-brown (10 YR 6/2), even to slightly streaked bedding, excellent competency, thin Nahcolite bed from 2152.5-2152.9'.
2155.5	2162.5	Oil shale, olive grey (5 Y 4/1), streaked bedding, excellent competency Nahcolite bed, brown, transparent-translucent, xln, bladed from 2158.1-2158.8', marc lined Nahcolite pod at 2159.1' and 2159.4'.

RUN NO. 177, 2162.5-2172.5' - cut and recovered 10'

2162.5	2172.5	Oil shale, as above, numerous marc lined Nahcolite pods from 2166.6-2172.5'; Nahcolite bed brown, transparent-translucent, xln, bladed from 2167.1-2168.6' and 2169.5-2170'.
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RUN NO. 178, 2172.5-2182.5' - cut and recovered 10'

2172.5	2175.6	Oil shale, brown (5 YR 3/4) to tan (10 YR 6/6), even and irregular bedding, excellent competency.
2175.6	2182.5	Oil shale, brown (5 YR 3/4), streaked bedding, excellent competency.

RUN NO. 179, 2182.5-2192.5' - cut and recovered 10'

2182.5	2184.4	Oil shale, brown (5 YR 3/4), streaked bedding, excellent competency.
2184.4	2187.3	Oil shale, brownish grey (5 YR 4/1) to dark grey (N3), even to looped bedding, excellent competency.
2187.3	2191.7	Oil shale, tan (10 YR 6/6), streaked bedding, excellent competency.
2191.7	2192.5	Oil shale, light olive grey (5 Y 6/1) to green-gray (5 GY 6/1), even to irregular bedding, excellent competency.

RUN NO. 180, 2192.5-2202.5' - cut and recovered 10'

2192.5	2195.0	Oil shale, as above.
2195.0	2202.5	Oil shale, brownish grey (5 YR 4/1), even bedding, excellent competency.

RUN NO. 181, 2202.5-2212.5' - cut and recovered 10'

2202.5	2206.7	Oil shale, pale brown (5 YR 5/2), even to looped bedding, excellent competency, few marc blebs and streaks.
2206.7	2212.5	Oil shale, tan (10 YR 6/6) to buff (10 YR 8/2), even to looped and irregular bedding, some marc stringers, thin Nahcolite bed, cream, micxl, opaque, .05' at 2211', .1' at 2211.7', .15' at 2212.1', fair competency.

RUN NO. 182, 2212.5-2222.5' - cut and recovered 10'

2212.5      2219.2      Oil shale, olive grey (5 Y 4/1), even with some irregular bedding, fair competency, numerous marc lined Nahcolite pods, thin Nahcolite bed, brown, transparent-translucent, xln, bladed, radiated, .3' at 2218.1', .4' at 2218.8', some marc stringers.

2219.2      2222.5      Oil shale, pale yellow brown (10 YR 6/2) to tan (10 YR 6/5), even to irregular bedding, bedding contorted around numerous Nahcolite pods, excellent competency.

RUN NO. 183, 2222.5-2232.5' - cut and recovered 10'

2222.5      2223.3      Oil shale, as above.

2223.3      2230.0      Oil shale and Nahcolite interbedded; oil shale brownish-grey (5 YR 4/1) and tan (10 YR 6/6), even and irregular bedding, good competency; Nahcolite tan (10 YR 6/6) to buff (10 YR 8/2), massive, micxl, opaque, some irregular bedding with oil shale stringers, some white, micxl coating on Nahcolite, good competency.

2230.0      2232.1      Nahcolite, brown, transparent-translucent, xln, bladed, radiating, some oil shale stringers, good competency.

2232.1      2232.5      Oil shale, tan (10 YR 6/6), even bedding, good competency.

RUN NO. 184, 2232.5-2242.5' - cut and recovered 10'

2232.5      2233.1      Oil shale, as above.

2233.1      2241.7      Oil shale, brownish grey (5 YR 4/1) and tan (10 YR 6/6), even to irregular bedding, good competency, numerous Nahcolite pods.

2241.7      2242.5      Oil shale, tan (10 YR 6/6), even bedding, good competency.

RUN NO. 185, 2242.5-2252' - cut 9.5' and recovered 9'

2242.5      2251.5      Oil shale, light brown (5 YR 6/4), streaked bedding, good to excellent competency, abundant dism Nahcolite blebs, micxl with few xln, bladed pods.

2251.5      2252.0      Core loss.

RUN NO. 186, 2252-2262' - cut and recovered 10'

2252.0      2260.3      Oil shale, light olive grey (5 Y 5/2), streaked bedding, "blebby" structure, excellent competency, several large Nahcolite pods, xln, bladed, several Nahcolite beds, brown, xln, bladed .6' at 2254.5', .5' at 2259.7', most Nahcolite pods marc lined.

2260.3      2262.0      Oil shale, light olive grey (5 Y 5/2) to olive grey (5 Y 4/1), even to irregular bedding, good to excellent competency, few Nahcolite pods.

RUN NO. 187, 2262-2272' - cut and recovered 10'

2262.0      2263.5      Oil shale, as above.

2263.5      2272.0      Oil shale and Nahcolite interbedded; oil shale tan (10 YR 6/6), even to irregular bedding, good to excellent competency, numerous medium size Nahcolite pods; Nahcolite bed, brown, transparent-translucent, opaque, micxl and xln, bladed.

RUN NO. 188, 2272-2279' - cut and recovered 7'

2272.0      2279.0      Oil shale and Nahcolite interbedded, as above.

RUN NO. 189, 2279-2282.5' - cut and recovered 3.5'

2279.0      2282.5      Oil shale and Nahcolite interbedded, as above.

RUN NO. 190, 2282.5-2292.5' - cut and recovered 10'

2282.5      2292.5      Oil shale and Nahcolite interbedded; oil shale tan (10 YR 6/6), even to irregular bedding, good to excellent competency, few medium size Nahcolite pods; Nahcolite bed, tan (10 YR 6/6), opaque, micxl, some brown, xln, bladed Nahcolite.

RUN NO. 191, 2292.5-2302.5' - cut and recovered 10'

2292.5      2301.5      Oil shale, tan (10 YR 6/6), even to irregular bedding, bedding contorted around Nahcolite pods, good to excellent competency, numerous small to medium size Nahcolite pods, brown, transparent-translucent, xln, radiating, bladed; thin micxl Nahcolite bed .3' at 2295', few thin calcareous streaks.

2301.5      2302.5      Oil shale, pale yellow brown (10 YR 6/2), even bedding, good to excellent competency, numerous small dism Nahcolite blebs, numerous small marc lined blebs and vugs.

RUN NO. 192, 2302.5-2312.5' - cut and recovered 10'

2302.5      2312.5      Oil shale, as above, numerous large Nahcolite pods, brown, xln, radiating, bladed, some streaked bedding.

RUN NO. 193, 2312.5-2322.5' - cut and recovered 10'

2312.5      2313.8      Oil shale, pale brown (5 Y R 5/2), streaked bedding, good to excellent competency.

2313.8      2317.9      Nahcolite, brown (5 YR 3/4) to grayish-black (N2) massive, micxl, very asphaltic.

2317.9      2319.8      Oil shale, tan (10 YR 6/6), even bedding, good to excellent competency, abundant dism micxl Nahcolite blebs and stringers.

2319.8      2322.5      Oil shale, tan (10 YR 6/6) and yellow-grey (5 Y 7/2), even to irregular bedding, good to excellent competency, numerous large Nahcolite pods, brown, xln, transparent-translucent, radiating, bladed, bedding contorted around Nahcolite pods.

RUN NO. 194, 2322.5-2332.5' - cut and recovered 10'

2322.5      2328.4      Oil shale, tan (10 YR 6/6) and yellow-grey 7/2), irregular bedding, good to excellent competency.

2328.4      2332.5      Oil shale, olive grey (5 Y 4/1), streaked bedding, excellent competency Nahcolite pod, brown, transparent-translucent, xln, radiating, bladed at 2331'.

RUN NO. 195, 2332.5-2342.5' - cut and recovered 10'

2332.5      2342.5      Oil shale, as above, some irregular bedding from 2339.5-2341'.

RUN NO. 196, 2342.5-2352.5' - cut and recovered 10'

2342.5      2346.3      Nahcolite, brown, transparent-translucent, xln, good competency, oil shale stringers thruout.

2346.3      2348.0      Oil shale, olive grey (5 Y 4/1), irregular bedding, good competency, numerous Nahcolite pods, brown, xln, radiating, bladed.

2348.0      2352.5      Oil shale, olive grey (5 Y 4/1), streaked bedding, good to excellent competency.

RUN NO. 197, 2352.5-2362.5' - cut and recovered 10'

2352.5      2362.5      Oil shale, olive grey (5 Y 4/1) and some pale yellow-brown (10 YR 6/2), streaked bedding with even bedding from 2357-2359', irregular bedding from 2352.5-2353.9', good to excellent competency, several marc stringers, high angular Nahcolite solid fracture at 2357'.

RUN NO. 198, 2362.5-2372.5' - cut and recovered 10'

2362.5      2369.0      Oil shale, light olive grey (5 Y 6/1), even and looped bedding, very poor competency, numerous light grey (N7) streaks, numerous partings with orange (Fe) stain, grey bleb (tuf) with marc at 2366.9', partings easily broken by hand, slightly argillaceous.

2369.0      2372.5      Oil shale, brown (5 YR 3/4) to brownish-grey (5 YR 4/1), even to looped bedding, poor to fair competency, marc on some partings, few solid fractures.

RUN NO. 199, 2372.5-2382.5' - cut and recovered 10'

2372.5      2379.8      Oil shale, as above, at 2378.3' grades to oil shale tan (10 YR 6/6), even to irregular bedding, good to excellent competency, numerous asphalt and marc stringers.

2379.8      2382.5      Oil shale and Nahcolite interbedded; oil shale brown (5 YR 3/4), even bedding, good to excellent competency, Nahcolite bed, brown, transparent-translucent, xln-micxl.

RUN NO. 200, 2382.5-2392.5' - cut and recovered 10'

2382.5      2386.5      Nahcolite, brown (5 YR 3/4), massive, xln, bladed, good to excellent competency, few oil shale stringers.

2386.5      2390.4      Oil shale, yellow grey (5 Y 7/2) to tan (10 YR 6/6), even, looped and contorted bedding, fair competency, numerous Nahcolite pods, brown, xln, radiating, bladed; Nahcolite bed, brown, micxl .5' at 2386.9', some Nahcolite pods marc lined.

2390.4      2392.5      Oil shale, olive grey (5 Y 4/1), streaked bedding, good to excellent competency.

RUN NO. 201, 2392.5-2402.5' - cut and recovered 10'

2392.5        2402.5        Oil shale, as above, Nahcolite pods, brown, transparent-translucent, xln, radiating, bladed, at 2399.3', 2400.4', gas (H<sub>2</sub>S) smell and bubbling on fracture at 2399'.

RUN NO. 202, 2402.5-2412.5' - cut and recovered 10'

2402.5        2404.3        Oil shale, as above.  
 2404.3        2412.5        Oil shale, tan (10 YR 6/6), streaked bedding with some irregular bedding, good to excellent competency, very gaseous-bubbling, H<sub>2</sub>S smell, several Nahcolite beds, brown, transparent-translucent, xln, bladed .8' at 2408', .6' at 2409'; few small bubbling marc lined Nahcolite pods.

RUN NO. 203, 2412.5-2422.5' - cut and recovered 10'

2412.5        2422.5        Oil shale, brown (5 YR 3/4), light olive grey (5 Y 6/1), buff-tan (10 YR 8/2-10 YR 6/6), some greenish-grey (5 G 6/1), streaked and irregular bedding, good to excellent competency, very gaseous; small geometric (cube) blebs with white, xln, calcareous mineral, core parts on exposure to air.

RUN NO. 204, 2422.5-2432.5' - cut and recovered 10'

2422.5        2432.5        Oil shale, light olive grey (5 Y 6/1), streaked bedding, good to excellent competency; interbedded with oil shale, v col, streaked and irregular bedding, good to excellent competency, some asphalt and marc stringers.

RUN NO. 205, 2432.5-2442.5' - cut and recovered 10'

2432.5        2435.0        Oil shale, as above.  
 2435.0        2437.3        Oil shale, olive grey (5 Y 4/1), even bedding, poor to fair competency, light grey streaks common.  
 2437.3        2439.3        Oil shale, tan (10 YR 6/6), irregular bedding, good to excellent competency.  
 2439.3        2442.5        Oil shale, olive grey (5 Y 4/1), even bedding, poor to fair competency.

RUN NO. 206, 2442.5-2452.5' - cut and recovered 10'

2442.5        2444.5        Oil shale, as above.  
 2444.5        2449.0        Oil shale, olive grey (5 Y 4/1) to light brown (5 YR 6/4), even to looped bedding, numerous offset beds, poor to fair competency, numerous hairline fractures.  
 2449.0        2452.5        Oil shale, tan (10 YR 6/6), irregular bedding, good to excellent competency, numerous asphalt stringers.

RUN NO. 207, 2452.5-2462.5' - cut and recovered 10'

2452.5        2457.0        Oil shale, light olive grey (5 Y 5/2) to tan (10 YR 6/6), streaked bedding with some irregular bedding, good to excellent competency, several asphalt with associated marc stringers, some small calcareous blebs.  
 2457.0        2462.5        Oil shale, olive grey (5 Y 4/1), even bedding with slightly looped bedding, poor competency, sev. hairline fractures, numerous non-mineral partings, numerous tuff stringers, several gilsonite stringers.

RUN NO. 208, 2462.5-2472.5' - cut 10' and recovered 9'

2462.5	2464.9	Oil shale, brownish-grey (5 YR 4/1), even bedding, poor competency.
2464.9	2468.8	Oil shale, tan (10 YR 6/6), irregular and streaked bedding, good competency.
2468.8	2471.5	Oil shale, brownish-grey (5 YR 4/1) to medium dark grey (N4), even bedding, very poor competency, "poker chip" partings, argillaceous; Top of Garden Gulch at 2468.8'.
2471.5	2472.5	Core loss.

RUN NO. 209, 2472.5-2481.5' - cut and recovered 9'

2472.5	2477.1	Oil shale, as above, several medium angular fractures with orange asphalt resin on surface.
2477.1	2481.5	Oil shale, olive grey (5 Y 4/1) to medium grey (N5), even bedding, very poor competency, "poker chip" partings, carb. material on some partings.

RUN NO. 210, 2481.5-2491.5' - cut and recovered 10'

2481.5	2484.5	Oil shale, medium grey (N5), even bedding, very poor competency, argillaceous.
2484.5	2491.5	Oil shale, olive grey (5 Y 4/1) to medium grey (N5), even bedding with slightly looped bedding, very poor competency, slightly argillaceous.

RUN NO. 211, 2491.5-2501.5' - cut and recovered 10'

2491.5	2498.5	Oil shale, as above.
2498.5	2501.5	Oil shale, medium dark grey (N4) to dark grey (N3), even bedding, very poor competency, few gilsonite stringers.

RUN NO. 212, 2501.5-2511.5' - cut and recovered 10'

2501.5	2504.7	Oil shale, pale yellow brown (10 YR 6/2) to light olive grey (5 Y 6/1), even bedding, very poor competency, black partings with no minerals.
2504.7	2508.7	Oil shale, brown (5 YR 3/4) to dark grey (N3), even bedding, very poor competency, some looped bedding, black partings with no minerals.
2508.7	2511.5	Oil shale, pale yellow brown (10 YR 6/2), even bedding, very poor competency; tuff bed, grey, massive, granulated .2' at 2509.9'; bent stringers, green-grey at 2512.3', few high angular fractures with no minerals on surface, few hairline solid fractures, partings with no minerals.

RUN NO. 213, 2511.5-2521.5' - cut and recovered 10'

2511.5	2521.5	Oil shale, as above, numerous calcite stringers from 2514.3-2516'; few tuff stringers thruout.
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RUN NO. 214, 2521.5-2531.5' - cut and recovered 10'

2521.5	2528.5	Oil shale, olive grey (5 Y 4/1) to medium dark grey (N4), even, streaked and looped bedding, poor competency, some gilsonite stringers, tuf pod at 2524.7'.
2528.5	2531.5	Oil shale, medium dark grey (N4) to dark grey (N3), even bedding, very poor competency, medium angular fractures with yellow, flaky mineral on surface at 2530.5'.

RUN NO. 215, 2531.5-2541.5' - cut and recovered 10'

2531.5          2541.5      Oil shale, as above.

RUN NO. 216, 2541.5-2551.5' - cut and recovered 10'

2541.5          2551.5      Oil shale, brownish grey (5 YR 4/1) to medium grey (N5), even bedding, very poor competency, argillaceous, calcite stringers at 2542.7', tuff stringers, grey, granular, at 2543.1', partings, smooth, green-grey and dark grey with no minerals, few partings with gilsonite fish fossils, few partings with pyrite fish fossils.

RUN NO. 217, 2551.5-2560.5' - cut and recovered 9'

2551.5          2552.9      Oil shale, as above, numerous thin gilsonite stringers, alternate tuff, blue-grey and white, granular, wavy bedding .4' at 2552.2'.  
 2552.9          2556.5      Oil shale, medium grey (N5), even bedding, very poor competency, numerous gilsonite stringers, core parts easily by hand, gilsonite fish fossils on partings, few pyrite blebs.  
 2556.5          2558.8      Oil shale, brownish grey (5 YR 4/1), even with some looped bedding, very poor competency, gilsonite blebs "eyes" from 2558-2558.8'.  
 2558.8          2560.5      Oil shale, medium grey (N5), even bedding, very poor competency, numerous gilsonite stringers.

RUN NO. 218, 2560.5-2570.5' - cut and recovered 10'

2560.5          2570.5      Oil shale, as above, few gilsonite blebs at 2566' and 2566' and from 2567-2568'; tuff, light grey, irregular bedding, altered, ganular .2' at 2568', few medium-low angular fractures scattered thruout.

RUN NO. 219, 2570.5-2580.5' - cut and recovered 10'

2570.5          2580.5      Oil shale, as above, numerous low angular fractures with slickensides, very argillaceous.

RUN NO. 220, 2580.5-2590.5' - cut and recovered 10'

2580.5          2590.5      Oil shale, brownish grey (5 YR 4/1), even bedding, very poor competency few medium angular fractures with slickensides, fair dism pyrite thruout, numerous medium-high angular fractures from 2589.2-2590.5'.

RUN NO. 221, 2590.5-2600.5' - cut and recovered 10'

2590.5          2600.5      Oil shale, brownish grey (5 YR 4/1) to greyish red (5 R 4/2), even bedding, poor competency, numerous marc stringers, tuff stringers with marc at 2594.3', gilsonite fossils on partings; thin tuff, grey, granular .1' at 2599.5'.

RUN NO. 222, 2600.5-2610.5' 0 cut and recovered 10'

2600.5          2602.5      Oil shale, as above.  
 2602.0          2610.5      Oil shale, brownish grey (5 YR 4/1) to medium dark grey (N4), even with streaked bedding from 2604.1-2606', very poor competency, argillaceous, numerous tuff blebs thruout, few gilsonite blebs, few marc blebs. Orange Marker at 2602'.

RUN NO. 223, 2610.5-2620.5' - cut and recovered 10'

2610.5          2620.5          Oil shale, as above, numerous medium-high angular fractures with slickensides, very argillaceous.

RUN NO. 224, 2620.5-2630.5' - cut and recovered 10'

2620.5          2630.5          Oil shale, as above, numerous fractures in core upon exposure to air, very argillaceous.

RUN NO. 225, 2630.5-2640.5' - cut and recovered 10'

2630.5          2634.3          Oil shale, as above, some gilsonite on partings.  
2634.3          2640.5          Oil shale, brownish grey (5 YR 4/1), even bedding, very poor to poor competency, some olive grey partings with gilsonite fossils.

RUN NO. 226, 2640.5-2650.5' - cut and recovered 10'

2640.5          2650.5          Oil shale, as above, few low-medium angular fractures with slickensides, few gilsonite blebs; thin tuff, light grey, granular .1' at 2641.7', abundant gilsonite streaks from 2647.5-2650.5'.

RUN NO. 227, 2650.5-2656.8' - cut and recovered 6.3'

2650.5          2656.8          Oil shale, as above.

RUN NO. 228, 2656.8-2666.8' - cut and recovered 10'

2656.8          2666.8          Oil shale, brownish grey (5 YR 4/1), even bedding, poor competency, several medium angular fractures with slickensides and pyrite on surface.

RUN NO. 229, 2666.8-2670' - cut and recovered 3.2'

2666.8          2670.0          Oil shale, as above.

TD 2670'.