

Cathedral Bluffs Shale Oil Company
Well 43x-2
Lease C-b Tract
NE 1/4 of the SE 1/4 of Sec 2, T35, R97W
Rio Blanco County, Colorado

- 992.0 Core Point
- 992.0-993.6 Oil Shale, light olive brown, even bedding, good competence, low to medium grade; trace light blue grey, granular, analcitized tuff streaks; trace gilsonite streaks; trace asphalt streaks.
- 993.6-995.7 Oil Shale, medium to dark olive brown, even and streaked bedding, good to excellent competence, medium to high grade; trace medium brown, granular, asphaltic tuff streaks; trace pyrite streaks; grades to a low to medium grade from 995.0 to 995.7
- 995.7-997.1 Oil Shale, medium to dark olive brown, even with looped bedding, excellent competence, high grade; medium brown, asphaltic tuff streaks common; trace greenish grey, pyritic tuff streaks; light olive brown, low grade, oil shale streaks and stringers common; gradational contact.
- 997.1-1007.8 Oil Shale, light to medium olive brown, even bedding, good competence, low to medium grade; silty; trace medium brown, asphaltic tuff streaks; pyrite streaks and stringers common; trace greenish grey, pyritic tuff streaks; trace gilsonite streaks; a 0.2 band of light brown, slightly asphaltic, tuff at 1000.0; trace tan, marly stringers and laminae.
- 1007.8-1009.5 Oil Shale, medium to dark olive brown, streaked bedding, excellent competence, high grade; light olive brown, oil shale streaks common; trace gilsonite streaks; trace light to medium brown, asphaltic tuff streaks common; gradational contact.
- 1009.5-1015.2 Oil Shale, medium olive brown, even bedding, fair competence, medium grade; trace greenish grey, pyritic tuff streaks; trace gilsonite streaks; trace asphalt streaks; trace white, calcareous tuff streaks; a 0.2 leached nacohlite vug with associated pyrite rims, remnant bladed structure and calcite, kaolinite and pyrite filling at 1011.3, a 0.3 at 1012.9 and 1014.5.
- 1015.2-1017.4 2.2 Foot Core Loss

- 1017.4-1018.9 Oil Shale, medium olive brown, even with irregular bedding, good competence, medium grade; slightly silty; trace gilsonite streaks; trace greenish grey, pyrite streaks; a partially leached nacohlite vug with associated pyrite rims and a trace bladed structure, refilled with calcite, pyrite and detrital material from 1018.0 to 1019.0
- 1018.9-1021.7 Oil Shale, light to medium olive brown, even bedding, fair to good competence, low grade; trace gilsonite streaks; trace asphalt streaks; light greenish grey, pyrite laminae common; a 0.2 partially leached nacohlite vug, with associated pyrite rims, refilled with calcite, kaolinite, pyrite and detrital material at 1021.3 and 1021.5.
- 1021.7-1023.3 Oil Shale, medium olive brown, streaked with trace irregular and looped bedding, good to excellent competence, medium to high grade; trace gilsonite streaks; trace asphalt streaks; light olive brown, low grade, oil shale streaks and stringers common; light greenish grey, pyrite streaks and laminae common.
- 1023.3-1029.0 Oil Shale, light to medium olive brown, even with trace looped and irregular bedding, good to excellent competence, low to medium grade; trace white, calcareous tuff streaks and stringers; trace light greenish grey, pyritic tuff stringers; trace gilsonite streaks; trace asphalt streaks; a light grey brown, tuff interbedded with oil shale from 1023.3 to 1024.1; a 0.8 foot core loss from 1026.8 to 1027.6
- 1029.0-1030.7 Oil Shale, light olive brown, even with trace irregular bedding, good competence, low grade; trace light greenish grey, pyritic tuff streaks and blebs; trace white, calcareous tuff streaks; trace gilsonite streaks; several pyrite streaks and laminae.
- 1030.7-1032.8 Oil Shale, dark olive brown, wavy and irregular bedding, good competence, high grade; trace gilsonite streaks; several white, calcareous tuff streaks and stringers; light greenish grey, pyrite laminae common; a 0.05 light brown, slightly asphaltic, granular, tuff stringer at 1030.7; gradational contact.
- 1032.8-1035.0 Oil Shale, light to medium olive brown, even with trace looped bedding, fair competence, low to medium grade; light greenish grey, pyritic tuff streaks; trace asphalt streaks; trace pyrite streaks; a 0.2 core loss from 1034.8 to 1035.0

- 1035.0-1037.5 Oil Shale, light to medium olive brown, even bedding, poor competence, medium grade; pyrite streaks and laminae common; trace asphalt streaks; abundant solution fractures with kaolinite and pyrite mineralization; a 0.5 foot core loss from 1037.0 to 1037.5
- 1037.5-1042.8 Oil Shale, light to medium olive brown, even bedding, fair to good competence, low to medium grade; several light greenish grey, pyritic tuff streaks and stringers; trace white, calcareous tuff stringers; several light brown to buff, marly streaks and stringers; trace gilsonite streaks; pyritic streaks and laminae common.
- 1042.8-1046.6 Oil Shale, light to medium olive brown, even with trace looped bedding, good competence, medium grade; trace gilsonite streaks; trace asphalt streaks; trace light greenish grey, pyritic tuff streaks and blebs; a 0.1 light brown to white, slightly asphaltic, calcareous tuff band at 1046.1; medium brown, asphaltic tuff streaks and blebs common.
- 1046.6-1057.1 Oil Shale, light to medium olive brown, even with irregular bedding, good to excellent competence, low to medium grade; trace gilsonite streaks; trace white, calcareous tuff streaks and stringers; light greenish grey, pyritic tuff streaks, stringers and blebs common; light grey brown, irregular, slightly asphaltic, tuff band from 1047.7 to 1048.0; trace light brown, slightly asphaltic, tuff stringers; a 0.2 band of light to medium grey brown, slightly asphaltic, slightly pyritic, tuff with pin point calcite at 1051.4; dark olive brown, high grade; oil shale streaks, stringers and bands common from 1053.4 to 1054.3; a medium greenish brown, tuff bed with abundant dark olive brown, high grade, oil shale streaks and stringers from 1055.1 to 1056.0; interval grades to medium to high grade from 1056.0 to 1056.8
- 1057.1-1069.2 Tuff, light to medium grey brown, massive to wavy bedding, good to excellent competence, moderately calcareous, slightly hard and brittle; abundant dark olive brown, high grade, oil shale streaks, stringers and bands; tan, marly streaks common; trace pyrite streaks and stringers; trace gilsonite streaks; abundant asphalt on few scattered partings and fractures; a light to medium grey brown, low to medium grade, oil shale bed with white, calcareous tuff stringers from 1060.5 to 1061.0; a 0.3 medium olive brown, medium grade, oil shale band at 1064.6; a 0.3 golden brown to buff, marlstone band at 1065.9 and 1067.4

- 1069.2-1073.8 Oil Shale, medium olive brown, even with looped bedding, poor to fair competence, medium grade; trace gilsonite streaks; trace light blue grey, granular, analcitized tuff streaks; trace pyrite stringers and laminae; few scattered medium brown, granular, asphaltic tuff stringers; trace white, calcareous tuff stringers and blebs; light tan to buff, marly bed from 1073.1 to 1073.8
- 1073.8-1076.9 Oil Shale, medium to dark olive brown, streaked with even and looped bedding, fair competence, medium to high grade; trace tan, marly streaks; trace medium brown, asphaltic tuff streaks and blebs; trace gilsonite streaks; trace asphalt streaks and blebs.
- 1076.9-1079.5 2.6 Foot Core Loss.
- 1079.5-1084.7 Oil Shale, medium olive brown, even with streaked and looped bedding, good competence, medium grade; trace white, calcareous tuff streaks; trace gilsonite streaks; trace asphalt streaks and stringers; abundant light brown, slightly asphaltic, tuff stringers and bands from 1082.0 to 1082.9; a 0.1 light greenish grey, pyritic tuff stringer at 1083.2.
- 1084.7-1095.1 Oil Shale, light to medium olive brown, even bedding, good to excellent competence, low to medium grade; asphalt streaks and stringers common; trace pyrite streaks; medium brown, asphaltic tuff streaks and bands common; trace white, calcareous tuff streaks and blebs; trace gilsonite streaks; a 0.05 light blue grey, granular, analcitized, tuff bed from 1090.5 to 1091.1; gradational contact.
- 1095.1-1097.4 Oil Shale, medium to dark olive brown, even bedding, good competence, medium to high grade; trace gilsonite streaks; trace white, calcareous tuff streaks; trace medium brown, asphaltic tuff streaks.
- 1097.4-1099.0 Tuff, medium grey brown, massive to wavy bedding, moderately hard and brittle, excellent competence; abundant light and medium olive brown, oil shale stringers and bands; trace gilsonite streaks; trace white, calcareous streaks.
- 1099.0-1110.9 Oil Shale, medium olive brown, even with trace streaked and looped bedding, fair competence, medium grade; white, calcareous tuff streaks and stringers common; trace medium brown, asphaltic tuff streaks; trace gilsonite streaks; trace asphalt streaks; a 0.3 band of white, calcareous tuff at 1105.1; gradational contact.

- 1110.9-1121.8 Oil Shale, light to medium olive brown, even bedding, poor to fair competence, low to medium grade; abundant white, calcareous tuff streaks and stringers; medium brown, asphaltic tuff streaks common; trace gilsonite streaks; trace asphalt streaks.
- 1121.8-1126.0 4.2 Foot core loss.
- 1126.0-1128.1 Oil Shale, medium olive brown, even bedding, fair to good competence, low to medium grade; trace gilsonite streaks; trace dark brown, asphaltic tuff streaks and stringers; trace asphalt streaks; gradational contact.
- 1128.1-1134.5 Oil Shale, light to medium olive brown, even bedding, fair to good competence, low to medium grade; trace gilsonite streaks; trace asphalt streaks; trace white, calcareous tuff streaks, stringers and blebs; a 0.4 core loss from 1133.2 to 1133.6 with trace evidence of leached nacohlite vugs at 1133.2; gradational contact.
- 1134.5-1142.5 Oil Shale, medium to dark olive brown, even with looped and irregular bedding, poor to fair competence, medium to high grade; dark brown, asphaltic tuff streaks common; trace tan, marly streaks and blebs; trace gilsonite streaks; trace asphalt streaks; trace pyrite streaks.
- 1142.5-1146.0 Oil Shale, light to medium olive brown, even and irregular bedding, poor to fair competence, low to medium grade; trace pyrite streaks; trace dark olive brown, high grade, oil shale stringers and laminae; trace gilsonite streaks; highly solution fractured with evidence of collapsed leached nacohlite with pyrite, calcite and kaolinite mineralization.
- 1146.0-1151.7 Oil Shale, medium olive brown, even with looped bedding, good competence, medium grade; dark brown, asphaltic tuff stringers and streaks common; trace pyrite laminae; trace gilsonite streaks; trace greenish grey, pyritic tuff streaks; trace white, calcareous tuff streaks and stringers.
- 1151.7-1157.6 Tuff, light grey brown to buff, massive to wavy bedding, excellent competence, slightly calcareous, moderately hard and brittle; dark olive brown and light olive brown, oil shale streaks and stringers common; trace gilsonite and asphalt streaks; trace pyrite streaks; several scattered 0.05 leached nacohlite vugs with associated pyrite rims, and remnant bladed structure from 1155.7 to 1157.2; a 1.2 foot core loss from 1153.8 to 1155.0.

- 1157.3-1170.4 Oil Shale, light to medium olive brown, even with trace streaked bedding, good competence, low to medium grade; white, calcareous tuff streaks and stringers common; trace gilsonite streaks; trace pyrite streaks; trace greenish grey, pyritic tuff streaks; trace tan, marly streaks and blebs; trace solution fractures with evidence of collapsed leached nacohlite with calcite and pyrite mineralization; gradational contact.
- 1170.4-1179.5 Oil Shale, medium olive brown, even with trace looped bedding, good to excellent competence, medium grade; dark olive brown, high grade, oil shale stringers and laminae common; tan, marly stringers, laminae and bands common; trace gilsonite and asphalt streaks; trace medium brown, asphaltic tuff streaks and blebs; trace white, calcareous tuff streaks; several 0.05 leached nacohlite vugs, with associated pyrite rims and remnant bladed structure from 1172.8 to 1173.9; gradational contact.
- 1179.5-1183.7 Oil Shale, light to medium olive brown, even and irregular bedding, poor to fair competence, low grade; trace asphalt streaks; trace white, calcareous tuff streaks; trace white, calcareous tuff streaks; abundant solution fractures with collapsed leached nacohlite, and calcite, pyrite and kaolinite mineralization; a 0.2 light grey brown, tuff band at 1183.5; core grades to a medium grade from 1188.0 to 1183.5.
- 1183.7-1200.8 Oil Shale, light to medium olive brown, even bedding, fair competence, low to medium grade; white, calcareous tuff streaks, stringers and blebs common; several light greenish grey, pyrite streaks and laminae; trace light blue grey, granular, analcitized tuff stringers; trace gilsonite streaks; trace medium brown, asphaltic tuff streaks and stringers; solution fracture and solution breccia zones with evidence of collapsed leached nacohlite with calcite, pyrite and kaolinite mineralization from 1193.6 to 1194.5.
- 1200.8-1207.3 Oil Shale, medium olive brown, even with looped and irregular bedding, fair competence, medium to high grade; trace gilsonite streaks; trace dark brown, asphaltic tuff streaks, stringers and blebs; trace tan, marly streaks; few closed partings well cemented with calcite.
- 1207.3-1209.8 Oil Shale, light to medium olive brown to light grey brown, even with irregular bedding, fair competence, low to medium grade; greenish grey, pyrite stringers and laminae common; trace light greenish grey, pyritic tuff stringers; trace gilsonite streaks; trace white, calcareous tuff streaks.

- 1209.8-1210.9 Oil Shale, dark olive brown to black, irregular with streaked bedding, fair competence, high to very high grade; pyrite streaks and laminae common; trace gilsonite streaks; trace light brown, slightly asphaltic, tuff streaks.
- 1210.9-1212.9 Oil Shale, medium olive brown, even and irregular bedding, excellent competence, medium grade; medium brown, asphaltic tuff streaks, stringers and blebs common; trace asphalt streaks; pyrite streaks and laminae common.
- 1212.9-1214.6 Oil Shale, light to medium olive brown, even and irregular bedding, good competence, low to medium grade; medium brown, granular, asphaltic tuff streaks and blebs common; trace white, calcareous tuff streaks; light greenish grey, pyritic laminae common.
- 1214.6-1219.5 Oil Shale, medium olive brown, even and irregular bedding, good to excellent competence, medium grade; several medium brown, granular, asphaltic tuff streaks and blebs; trace asphalt streaks; pyrite laminae common.
- 1219.5-1225.1 Oil Shale, light to medium olive brown to light grey brown, irregular bedding, fair to good competence, low to medium grade; several brown, asphalt streaks; trace gilsonite streaks; several dark olive brown, high grade, oil shale streaks, stringers and bands; a 0.2 partially leached nacohlite vug, with remnant bladed structure and associated pyrite rims, refilled with calcite, kaolinite, and detrital material at 1220.4, several scattered 0.05 similar leached nacohlite vugs.
- 1225.1-1226.1 Oil Shale, medium to dark olive brown, irregular and wavy bedding, poor to fair competence, medium to high grade; trace gilsonite streaks; several dark brown, asphalt streaks, stringers and blebs; greenish grey, pyrite streaks and laminae common; trace dark brown, asphaltic tuff streaks; trace white, calcareous tuff streaks.
- 1226.1-1229.7 Oil Shale, light to medium olive brown, even with trace irregular bedding, good to excellent competence, low to medium grade; trace gilsonite streaks; light greenish grey, pyrite laminae common; trace light brown, slightly asphaltic, tuff stringers; trace white, calcareous tuff streaks.

- 1229.7-1231.3 Oil Shale, dark olive brown, irregular with trace looped bedding, good to excellent competence, medium to high grade; several gilsonite streaks; dark brown, asphalt streaks common; light brown, slightly asphaltic, tuff streaks and stringers common; trace gilsonite streaks; trace light greenish grey, pyrite laminae.
- 1231.3-1237.0 Oil Shale, light to medium olive brown, irregular with even bedding, good competence, low to medium grade; trace tan to buff, slightly marly streaks and stringers; trace medium brown, granular, asphaltic tuff streaks and stringers; trace gilsonite and asphalt streaks; trace light greenish grey, pyritic laminae; a highly solution fractured zone, well cemented with calcite and kaolinite with evidence of collapsed leached nacohlite from 1234.5 to 1235.0.
- 1237.0-1238.8 Oil Shale, medium to dark olive brown, even with trace irregular bedding, fair competence, medium to high grade; several dark brown, granular, asphaltic tuff stringers; trace greenish grey, pyritic tuff stringers and streaks; trace gilsonite and asphalt streaks; trace buff to white, slightly calcareous, tuff stringers; a 0.05 light blue grey, granular, analcitized, tuff stringer at 1238.2.
- 1238.8-1240.8 Oil Shale, light to medium olive brown, even bedding, fair competence, low to medium grade; trace gilsonite streaks; several white, calcareous tuff streaks and stringers; light greenish grey, pyrite laminae common; trace medium brown, asphaltic tuff stringers.
- 1240.8-1259.0 18.2 foot core loss due to drillers mislatch and trying to over core.
- 1259.0-1264.5 Oil Shale, marly, light olive brown to light grey brown, even with looped bedding, fair competence, very low grade; abundant pyrite stringers and laminae; trace medium olive brown, medium grade, oil shale streaks and laminae; trace gilsonite streaks; trace light blue grey, granular, analcitized, tuff streaks; trace white, calcareous tuff streaks; a 0.2 band of light brown, asphaltic tuff at 1262.0.
- 1264.5-1267.0 Oil Shale, dark olive brown, even with looped bedding, fair competence, high grade; trace tan, marly stringers and laminae; trace pyrite streaks and laminae; trace gilsonite streaks; a 0.3 band of light to medium brown, asphaltic tuff at 1264.8; several scattered 0.05 medium brown, asphaltic tuff stringers; light brown, slightly asphaltic, tuff with numerous pyrite streaks and dark olive brown, oil shale stringers from 1265.9 to 1266.4; gradational contact.

- 1267.0-1271.3 Oil Shale, medium olive brown, even with looped bedding, good competence, medium grade; trace tan, marly stringers and laminae; trace pyrite stringers and laminae; trace gilsonite streaks; trace dark brown, asphaltic tuff streaks and stringers; a 1.1 foot core loss from 1267.9 to 1269.0.
- 1271.3-1273.3 Oil Shale, dark olive brown to black, even and looped bedding, good competence, very high grade; trace tan, marly stringers and laminae; trace light blue grey, granular, analcitized, tuff streaks and blebs; trace medium brown, asphaltic, tuff streaks and stringers; gradational contact.
- 1273.3-1275.1 Oil Shale, medium to dark olive brown, even with trace looped and irregular bedding, good to excellent competence, high grade; dark brown, asphaltic tuff streaks, stringers, and bands common; trace gilsonite streaks; a 0.2 foot core loss from 1274.8 to 1275.0.
- 1275.1-1281.4 Oil Shale, light olive brown, even bedding, good competence, low grade; trace pyrite streaks and laminae; trace medium olive brown, medium grade, oil shale stringers and laminae; trace gilsonite streaks and blebs.
- 1281.4-1285.4 Oil Shale, medium olive brown to medium grey brown, even with trace looped bedding, good competence, low to medium grade; pyrite stringers and laminae common, trace gilsonite streaks; trace light brown, slightly asphaltic, tuff streaks; trace tan, marly stringers and laminae.
- 1285.4-1286.0 Tuff, medium brownish grey, massive, slightly calcareous, moderately hard and brittle; trace tan, marly stringers; trace greenish grey, pyrite streaks.
MAHOGANY MARKER BED.
- 1286.0-1287.0 1.0 foot of core removed for gas test.
- 1287.0-1290.2 Oil Shale, medium olive brown to medium grey brown, even with trace streaked and looped bedding, fair competence, low to medium grade; trace white, calcareous tuff streaks; trace pyrite streaks and laminae; trace asphalt streaks; trace gilsonite streaks.
- 1290.2-1290.6 0.4 foot core loss.
- 1290.6-1291.0 Oil Shale, medium olive brown, even with trace looped bedding, good competence, medium grade; trace tan, marly stringers and laminae; trace greenish grey, pyrite laminae; dark olive brown, high grade, oil shale stringers and laminae common.

- 1291.0-1292.0 Oil Shale, dark mahogany brown to black, even with trace looped bedding, good to excellent competence, high to very high grade; trace gilsonite streaks; trace dark brown to black, asphaltic tuff streaks; abundant tan, marly laminae from 1293.7 to 1293.9.
- 1292.0-1293.6 Oil Shale, medium and dark olive brown, even with looped bedding, excellent competence, medium grade; trace gilsonite streaks; light olive brown, low grade, oil shale stringers and laminae common; trace greenish grey, pyritic tuff streaks; gradational contact.
- 1293.6-1296.6 Oil Shale, light to medium olive brown, even with looped bedding, good to excellent competence, low to medium grade; abundant dark brown, asphaltic tuff streaks, stringers, and blebs; dark olive brown, high grade, oil shale streaks and laminae common; trace gilsonite streaks; trace pyrite streaks and laminae.
- 1296.6-1299.4 Oil Shale, dark mahogany brown to black, streaked and even bedding, excellent competence, high to very high grade; light olive brown, low grade, oil shale streaks, stringers and laminae common; asphalt streaks common; trace light brown, and dark brown, asphaltic tuff streaks; a 0.05 dark brown to black, granular, asphaltic tuff nodule at 1297.5; a 0.05 light tan to buff, slightly asphaltic, tuff stringer at 1298.6.
- 1299.4-1305.0 Oil Shale, dark olive brown to dark mahogany brown, streaked with even bedding, good competence, high grade; tan, marly streaks, stringers, and laminae common; trace gilsonite streaks; trace medium and dark brown, asphaltic tuff streaks and blebs; a 0.3 band of medium olive brown, medium grade, oil shale at 1299.4
- 1305.0-1311.4 Oil Shale, dark mahogany brown to black, even and streaked with trace looped and irregular bedding, good competence, very high grade; several dark brown, granular, asphaltic tuff streaks, stringers and blebs; trace greenish grey, pyrite laminae; trace tan, marly streaks; a 0.2 band of medium olive brown, medium grade, oil shale at 1307.6.
- 1311.4-1313.5 Oil Shale, dark olive brown, even with trace irregular bedding, fair to good competence, high grade; trace asphalt streaks; trace gilsonite streaks; trace white, calcareous tuff streaks; trace tan, marly streaks and stringers; greenish grey, pyrite laminae common.

- 1313.5-1316.4 Oil Shale, light to medium olive brown, even with trace irregular bedding, good competence, medium grade; dark olive brown, high grade, oil shale stringers and laminae common; trace pyrite streaks; trace gilsonite streaks; medium brown, asphaltic tuff streaks and stringers common; a 0.2 band of dark olive brown, high grade, oil shale at 1315.8; gradational contact.
- 1316.4-1318.3 Oil Shale, dark mahogany brown to black, streaked with irregular bedding, good competence, high to very high grade; medium olive brown, medium grade, oil shale streaks, stringers and blebs common; trace gilsonite streaks; trace light brown and dark brown to black, asphaltic tuff streaks and blebs.
- 1318.3-1322.9 Oil Shale, medium olive brown, even with trace looped bedding, good competence, medium grade; trace pyrite stringers and laminae; trace dark olive brown, high grade, oil shale stringers and laminae; trace medium to dark brown, asphaltic tuff streaks and blebs; trace gilsonite streaks.
- 1322.9-1328.8 Oil Shale, medium and dark olive brown banded, even with trace streaked bedding, good to excellent competence, medium to high grade; light olive brown, low grade, oil shale streaks and stringers common; trace gilsonite streaks and blebs; asphalt streaks and stringers common; dark brown, asphaltic tuff with evidence of bubbling core from 1325.1 to 1325.6 and from 1328.0 to 1328.4; a 0.2 band with abundant white, kaolinitic tuff streaks and stringers at 1327.5.
- 1328.8-1337.4 Oil Shale, medium olive brown, even with trace looped and irregular bedding, good to excellent competence, medium grade; greenish grey, pyrite stringers and laminae common; trace dark brown, asphaltic tuff streaks; few scattered dark grey and brassy, irregular, pyrite stringers and blebs; trace tan, marly streaks, stringers, blebs and laminae; trace dark olive brown, high grade, oil shale stringers and laminae; gradational contact.
- 1337.4-1338.7 Oil Shale, light olive brown, even with looped bedding, poor competence, low grade; pyrite stringers and laminae common; trace light brown, asphaltic tuff streaks; bed is highly solution fractured with evidence of leached nacohlite vugs with calcite, kaolinite and pyrite mineralization; gradational contact.

- 1338.7-1341.3 Oil Shale, dark olive brown, streaked bedding, fair to good competence, high grade; trace gilsonite streaks; trace tan, marly streaks; trace dark brown, asphaltic tuff streaks and blebs.
- 1341.3-1346.4 Oil Shale, medium olive brown, even with trace looped bedding, fair competence, medium grade; pyrite stringers and laminae common; trace asphalt streaks; trace dark olive brown, high grade, oil shale stringers and laminae; trace gilsonite streaks and blebs; a 0.9 foot core loss from 1345.1 to 1346.0; gradational contact.
- 1346.4-1349.4 Oil Shale, medium to dark olive brown, streaked bedding, good to excellent competence, medium to high grade; dark brown, asphaltic tuff streaks and blebs common; trace tan, marly streaks and blebs; trace gilsonite streaks.
- 1349.4-1356.7 Oil Shale, light and medium olive brown banded, even with trace looped and irregular bedding, good competence, medium grade; medium brown, asphaltic tuff stringers and blebs common; trace asphalt and gilsonite streaks; trace dark grey and brassy, irregular, pyrite stringers; several scattered 0.05 leached nacohlite vugs, with associated pyrite rims and remnant bladed structure; a 0.2 core loss from 1354.8 to 1355.0; gradational contact.
- 1356.7-1361.2 Oil Shale, medium to dark olive brown, streaked bedding, good competence, medium to high grade; asphalt streaks common; trace tan, marly streaks and blebs; trace gilsonite streaks; competence grades to poor because of solution breccia zone from 1359.8 to 1361.2; gradational contact.
- 1361.2-1368.4 Oil Shale, light to medium olive brown, even with trace looped and irregular bedding, poor to fair competence, low to medium grade; trace gilsonite streaks; trace pyrite stringers and laminae; trace greenish grey, pyritic tuff streaks and blebs; trace dark olive brown, high grade, oil shale stringers and laminae; abundant solution fractures and solution breccias with evidence of collapsed leached nacohlite with pyrite, kaolinite, and calcite mineralization.
- 1368.4-1370.7 Oil Shale, medium to dark olive brown, even with trace streaked and looped bedding, fair competence, medium to high grade; trace medium brown, asphaltic tuff streaks and blebs; trace tan, marly streaks; trace greenish grey, pyritic tuff streaks; trace gilsonite streaks; a 0.3 band of dark olive brown to black, very high grade, oil shale at 1368.4; gradational contact.

- 1370.7-1372.9 Oil Shale, light olive brown, even with irregular bedding, fair competence, low grade; pyrite stringers and laminae common; trace gilsonite streaks; several scattered 0.05 leached nacohlite vugs, with associated pyrite rims and remnant bladed structure; abundant solution fractures, well cemented with calcite.
- 1372.9-1375.0 2.1 foot core loss.
- 1375.0-1379.2 Oil Shale, medium olive brown, streaked with trace even bedding, poor to fair competence, medium grade; dark brown, asphaltic tuff streaks and blebs common; trace gilsonite streaks; trace greenish grey, pyritic tuff streaks and blebs; trace tan, marly streaks and blebs; abundant solution breccias from 1378.2 to 1379.2.
- 1379.2-1381.8 2.8 foot core loss.
- 1381.8-1383.5 Oil Shale, medium to dark olive brown, streaked with even bedding, fair competence, high grade; trace tan, marly streaks and blebs; dark brown, asphaltic tuff streaks and blebs; trace gilsonite streaks and blebs; trace pyrite stringers and laminae.
- 1383.5-1385.4 Oil Shale, light and medium olive brown banded, even with looped bedding, good competence, medium grade; dark olive brown, high grade; oil shale stringers and laminae common; trace tan, marly stringers and blebs; trace pyrite stringers and laminae.
- 1385.4-1389.7 Oil Shale, light olive brown, even with irregular bedding, poor competence, low grade; pyrite stringers and laminae common; trace gilsonite streaks; trace asphalt streaks; tan, marly stringers and laminae common; few scattered 0.05 leached nacohlite vugs, with associated pyrite rims and remnant bladed structure.
- 1389.7-1390.9 Oil Shale, dark olive brown, even, inclined at 30 degrees with trace looped bedding, good competence, high grade; trace light olive brown, low grade, oil shale stringers and laminae; trace dark brown, asphaltic tuff streaks; trace gilsonite streaks; gradational contact.
- 1390.9-1392.8 Oil Shale, medium olive brown, even with trace irregular bedding, good competence, medium grade; pyrite stringers and laminae common; trace dark brown, asphaltic tuff streaks and blebs; trace gilsonite streaks; gradational contact.

- 1392.8-1395.0 Oil Shale, light olive brown, even with irregular bedding, fair competence, low grade; trace gilsonite streaks; trace asphalt streaks; trace white, calcareous tuff streaks and blebs; abundant solution fractures with evidence of collapsed leached nacohlite with pyrite, calcite, and kaolinite mineralization; several scattered 0.05 leached nacohlite vugs, with associated pyrite rims and remnant bladed structure.
- 1395.0-1398.0 Oil Shale, medium olive brown to medium grey brown, even and irregular bedding, poor competence, low to medium grade; trace gilsonite streaks; trace pyrite stringers and laminae; trace tan, marly stringers and bands; bed is highly solution fractured and solution brecciated with evidence of collapsed leached nacohlite with calcite and pyrite mineralization.
- 1398.0-1404.2 Oil Shale, dark olive brown, even with looped and irregular bedding, good to excellent competence, high grade; trace tan, marly stringers and laminae; trace gilsonite streaks; trace dark grey and brassy, irregular pyrite stringers and blebs; abundant dark brown, asphaltic tuff stringers from 1399.3 to 1400.0; gradational contact.
- 1402.4-1411.5 Oil Shale, medium olive brown, even with streaked bedding, good to excellent competence, medium grade; medium and dark brown, asphaltic tuff stringers and bands common; trace gilsonite streaks; trace pyrite streaks and laminae; tan, marly streaks, stringers, and laminae common from 1404.3 to 1405.6; gradational contact.
- 1411.5-1414.0 Oil Shale, light olive brown, even with irregular bedding, poor competence, low grade; trace gilsonite streaks; trace asphalt streaks; dark brown, asphalt tuff streaks and stringers common; bed is highly solution fractured and solution brecciated with evidence of collapsed leached nacohlite with calcite and pyrite mineralization.
- 1414.0-1423.4 Oil Shale, medium to dark olive brown, even and irregular bedding, poor competence, medium grade; trace gilsonite streaks and blebs; trace dark brown, asphaltic tuff streaks; several scattered 0.05 and 0.1 leached nacohlite vugs with associated pyrite rims and remnant bladed structure; several scattered 0.1 bands of pinpoint calcite.

- 1423.4-1427.4 Oil Shale, light olive brown, even with irregular bedding, fair competence, low grade; pinpoint calcite common; trace dark olive brown, high grade, oil shale streaks and stringers; trace pyrite stringers and laminae; abundant solution fractures and partings with calcite and pyrite mineralization.
- 1427.4-1435.0 7.6 foot core loss
- 1435.0-1436.0 1.0 foot core removed for gas test.
- 1436.0-1445.9 Marlstone, light to medium grey brown, even with looped and irregular bedding, poor competence, trace kerogen; pyrite stringers and laminae common; trace medium brown, medium grade, oil shale streaks, stringers and laminae; trace dark grey and brassy, irregular pyrite stringers and blebs; highly solution fractured with evidence of collapsed leached nacohlite with calcite, pyrite and kaolinite mineralization; very soft and argillaceous; a 1.0 foot core loss from 1441.2 to 1442.2.
- 1445.9-1449.8 Oil Shale, medium to dark olive brown, streaked with trace even and offset bedding, good competence, medium to high grade; trace gilsonite streaks; trace tan, marly streaks and blebs; several dark brown, asphaltic tuff streaks and stringers; trace asphalt streaks; few scattered 0.05 leached nacohlite vugs with associated pyrite rims and remnant bladed structure.
- 1449.8-1455.9 Oil Shale, light olive brown, even and looped bedding, poor to fair competence, very low to low grade; pyrite streaks and stringers common; trace gilsonite streaks; trace asphalt streaks; tan, marly streaks and stringers common; trace light greenish grey, pyritic tuff streaks and stringers.
- 1455.9-1457.6 Oil Shale, medium olive brown, streaked bedding, good competence, medium to high grade; tan, marly streaks common; dark olive brown, high grade, oil shale streaks common; trace gilsonite streaks; trace greenish grey, pyritic tuff streaks and blebs; trace asphalt streaks; dark brown, asphaltic tuff streaks common.
- 1457.6-1459.4 Oil Shale, medium and dark olive brown, irregular bedding, fair competence, high grade; trace tan, marly stringers; trace gilsonite streaks; trace greenish grey, pyritic tuff streaks and blebs; asphalt streaks common; trace dark brown, asphaltic tuff streaks and blebs.

- 1459.4-1464.2 Oil Shale, light olive brown to light greenish grey, even with looped and irregular bedding, fair to good competence, very low to low grade; slightly marly; pyrite streaks, stringers and laminae common; tan to buff, marly stringers and laminae common; few scattered dark grey and brassy, irregular pyrite stringers and blebs; a tan to buff, marlstone band from 1461.4 to 1461.8; a white to buff, marlstone band with abundant pyrite stringers from 1463.7 to 1464.0.
- 1464.2-1466.7 Oil Shale, light to medium olive brown, even with streaked and looped bedding, poor to fair competence, medium grade; pyrite streaks, stringers and laminae common; trace gilsonite streaks; trace medium brown, asphaltic tuff streaks; tan, marly stringers and laminae common; gradational contact.
- 1466.7-1473.0 Oil Shale, light olive brown to light grey brown, even with irregular bedding, poor competence, very low grade; tan, marly stringers and laminae common; abundant pyrite stringers and laminae; a zone of highly solution fractured and solution brecciated rock with evidence of collapsed leached nacohlite with pyrite, kaolinite and calcite mineralization.
- 1473.0-1477.7 Oil Shale, light olive brown, even with trace looped bedding, good competence, low grade; pyrite streaks, stringers, and laminae common; tan, marly stringers and laminae common; trace asphalt streaks; trace gilsonite streaks; trace medium brown, asphaltic tuff streaks and blebs; gradational contact.
- 1477.7-1479.8 Oil Shale, dark olive brown, even and streaked bedding, excellent competence, high grade; dark brown to black, asphaltic tuff stringers and blebs common; asphalt streaks common; trace gilsonite streaks; trace light olive brown, low grade, oil shale stringers and laminae.
- 1479.8-1482.0 Oil Shale, medium olive brown, even with trace looped bedding, good competence, medium grade; trace gilsonite streaks and blebs; trace medium brown, asphaltic tuff streaks; trace pyrite streaks and laminae; a 0.1 band of golden brown, marlstone at 1479.8.
- 1482.0-1484.3 2.3 foot core loss.
- 1484.3-1488.4 Oil Shale, light to medium olive brown, streaked with even and irregular bedding, fair competence, low to medium grade; tan, marly streaks and laminae common; trace asphalt streaks; trace gilsonite streaks; trace dark brown, asphaltic tuff streaks and blebs; several 0.05 and 0.1 leached nacohlite vugs with associated pyrite rims and bladed structure.

- 1488.4-1491.1 Oil Shale, light olive brown, even bedding, poor to fair competence, low grade; pyrite streaks, stringers and laminae common; asphalt streaks common; trace gilsonite streaks.
- 1491.1-1500.4 Oil Shale, medium olive brown, streaked with trace looped and irregular bedding, good competence, medium grade; tan, marly streaks, stringers and blebs common; trace gilsonite streaks; trace asphalt streaks; trace dark brown, asphaltic tuff streaks and blebs; a 0.2 leached nacohlite vug with associated pyrite rims and remnant bladed structure at 1492.7 and 1493.6; a 0.3 at 1493.0; a 0.4 foot core loss from 1494.6 to 1495.0.
- 1500.4-1509.9 Oil Shale, light olive brown, streaked and irregular bedding, fair competence, low grade; tan, marly stringers and laminae common; asphalt streaks common; trace dark grey and brassy, irregular, pyrite stringers and blebs; trace gilsonite streaks.
- 1509.9-1511.4 Oil Shale, medium olive brown, even with trace looped bedding, good to excellent competence, medium to high grade; trace dark brown, asphaltic tuff stringers; asphalt streaks and stringers common; trace pyrite stringers and laminae; trace gilsonite streaks; gradational contact.
- 1511.4-1516.7 Oil Shale, light to medium olive brown, even with trace irregular bedding, fair competence, low to medium grade; tan, marly streaks, stringers and laminae common; pyrite stringers and laminae common; several scattered 0.05 leached nacohlite vugs with associated pyrite rims and remnant bladed structure; a 1.1 foot core loss from 1513.9 to 1515.0.
- 1516.7-1519.8 Oil Shale, dark olive brown, streaked with irregular bedding, poor to fair competence, high grade; light olive brown, low grade, oil shale streaks common; asphalt streaks common; trace gilsonite streaks; trace tan, marly streaks and blebs; a 0.4 leached nacohlite vug with associated pyrite rims and remnant bladed structure at 1517.1.
- 1519.8-1528.9 Oil Shale, medium olive brown, even and irregular bedding, good competence, medium grade; dark grey and brassy, irregular, pyrite stringers common; asphalt streaks and stringers common; trace tan, marly streaks and blebs; trace gilsonite streaks; core grades to a low grade from 1525.9 to 1526.7; a 1.4 foot core loss from 1524.0 to 1525.4.

- 1528.9-1531.8 Oil Shale, dark olive brown, streaked bedding, good competence, high grade; several tan, marly streaks and blebs; dark brown, asphaltic streaks common; trace gilsonite streaks; trace light greenish grey, pyritic tuff streaks; trace dark brown, asphaltic tuff streaks and blebs; gradational contact.
- 1531.8-1535.5 Oil Shale, light olive brown to buff, even with trace looped bedding, poor to fair competence; very low grade; abundant light greenish grey, pyritic tuff streaks and stringers; trace white, calcite streaks; pyrite stringers and laminae common; bed is highly solution fractured with evidence of collapsed leached nacohlite with pyrite mineralization.
- 1535.5-1537.6 Oil Shale, dark olive brown, even with trace looped bedding, good competence, high grade; trace tan, marly stringers and laminae; trace gilsonite streaks; trace medium brown, asphaltic tuff streaks; trace asphalt streaks; driller induced rubble and cuttings with some evidence of leached nacohlite vugs with associated pyrite rims and remnant bladed structure from 1536.5 to 1537.6.
- 1537.6-1553.5 15.9 foot core loss, due to mismatch.
- 1553.5-1555.3 Oil Shale, medium olive brown, even bedding, fair competence, medium grade; greenish grey, pyritic tuff streaks and stringers common; several asphalt streaks and stringers; trace tan, marly streaks.
- 1555.3-1557.2 Oil Shale, light olive brown to buff, even with irregular bedding, poor to fair competence, low grade; several buff, marly stringers and bands; light greenish grey, pyritic tuff streaks and blebs common; a 0.1 light grey brown to buff, claystone band at 1556.4.
- 1557.2-1559.5 Oil Shale, medium olive brown, even with trace irregular bedding, fair competence, medium grade; white, calcareous tuff streaks common; trace gilsonite streaks; trace asphalt streaks; trace pyrite streaks and laminae; several scattered 0.05 leached nacohlite vugs with associated pyrite rims and remnant bladed structures.
- 1559.5-1561.3 Oil Shale, dark olive brown to black, even bedding, fair to good competence, high to very high grade; trace dark brown, asphaltic tuff streaks and stringers; trace gilsonite streaks; trace asphalt streaks; trace white, calcareous tuff streaks; pyrite laminae common; a 1.0 foot core removed for gas test from 1560.3 to 1561.3.

- 1561.3-1564.8 Oil Shale, medium olive brown, irregular with even bedding, poor to fair competence, medium grade; bed is highly solution fractured with collapsed leached nacohlite and pyrite and asphalt mineralization; core grades to very low to low grade with abundant clay mineralization from 1563.7 to 1564.8.
- 1564.8-1568.2 Oil Shale, medium to dark olive brown, streaked bedding, good competence, medium to high grade; abundant tan, marly streaks and blebs; trace dark brown, asphaltic tuff stringers and blebs; trace white, kaolinitic tuff streaks and stringers; light olive brown, low grade oil shale bed from 1566.5 to 1567.1; a 0.7 foot core loss from 1567.5 to 1568.2.
- 1568.2-1570.1 Oil Shale, dark olive brown, streaked bedding, good competence, high to very high grade; several tan, marly streaks and blebs; trace gilsonite streaks; trace asphalt streaks; dark greenish grey, pyrite streaks and laminae common; trace dark brown, asphaltic tuff streaks and blebs.
- 1570.1-1575.0 4.9 foot core loss.
- 1575.0-1577.0 Oil Shale, light to medium olive brown and medium grey brown interbedded, even bedding, poor to fair competence, low grade; trace greenish grey, pyritic tuff streaks and stringers; trace gilsonite streaks; trace asphalt streaks; trace medium brown, granular, asphaltic tuff streaks and stringers; several greenish grey, pyrite laminae and streaks; trace white, calcareous streaks and pinpoint calcite.
- 1577.0-1582.0 Oil Shale, medium grey brown, even with trace irregular bedding, poor to fair competence, very low to low grade; abundant pyrite streaks and laminae; trace tan, marly streaks; trace asphalt streaks; trace medium brown, medium grade, oil shale streaks and stringers; trace light greenish grey, pyritic tuff stringers; 1.5 foot core loss from 1580.0 to 1581.5.
- 1582.0-1583.5 Oil Shale, medium to dark olive brown to medium grey brown, even with looped and irregular bedding, good to excellent competence, medium to high grade; several scattered zones of white pinpoint calcite; greenish grey, pyrite laminae common; trace tan, marly stringers and laminae; trace gilsonite streaks; trace asphalt streaks; trace white, calcite streaks.

- 1583.5-1587.0 Oil Shale, light to medium olive brown, even and irregular bedding, fair competence, medium grade; bed is highly solution fractured and brecciated with evidence of collapsed leached nacohlite and leached nacohlite vugs with pyrite and asphalt mineralization; greenish grey, pyritic tuff streaks and stringers common; trace white, calcite streaks; trace tan, marly streaks and stringers; trace greenish grey, pyrite laminae; trace medium brown, asphaltic tuff stringers.
- 1587.0-1591.0 4.0 foot core loss.
- 1591.0-1597.0 Oil Shale, medium olive brown, even bedding, some inclined at 15 degrees, poor competence, medium grade; greenish grey, pyrite laminae and streaks common; trace tan to buff, marly streaks; trace gilsonite streaks; trace asphalt streaks; trace light greenish grey, pyritic tuff streaks and stringers; a 0.9 foot core loss from 1596.1 to 1597.0.
- 1597.0-1601.4 Oil Shale, medium olive brown, even with trace irregular bedding, fair competence, medium to high grade; trace gilsonite streaks; trace asphalt streaks; greenish grey, pyritic tuff stringers; bed is highly solution fractured with calcite, kaolinite, and pyrite mineralization.
- 1601.4-1605.0 3.4 foot core loss.
- 1605.0-1606.4 Oil Shale, light to medium olive brown, even with trace looped bedding, fair competence, low to medium grade; dark olive brown, high grade, oil shale stringers and laminae common; trace pinpoint calcite; trace gilsonite streaks; trace asphalt streaks.
- 1606.4-1610.9 Oil Shale, marly, light olive brown and buff, irregular with trace even bedding, fair to good competence, very low grade; trace dark olive brown, high grade, oil shale stringers; tan, marly stringers and bands common; trace asphalt streaks; trace gilsonite streaks; trace medium brown, asphaltic tuff streaks and stringers; evidence of bubbling core.
- 1610.9-1618.0 Oil Shale, light olive brown, even, streaked and looped bedding, good competence, low to medium grade; abundant pyrite streaks, stringers and laminae; trace gilsonite streaks; tan, marly stringers and laminae common; trace asphalt streaks; trace offset bedding from 1617.0 to 1617.8.

- 1618.0-1620.3 Oil Shale, medium olive brown, even with looped and irregular bedding, good to excellent competence, medium grade; pyrite stringers and laminae common; pinpoint calcite common; trace asphalt streaks and stringers; trace tan, marly streaks; trace greenish grey, pyritic tuff streaks.
- 1620.3-1624.7 Marlstone, light grey brown to buff, even and irregular bedding, poor competence, trace kerogen; pinpoint calcite common; pyrite stringers and laminae common; trace dark olive brown, high grade, oil shale stringers and laminae; trace asphalt streaks; bed is highly solution fractured with calcite and pyrite mineralization.
- 1624.7-1626.9 Oil Shale, light to medium grey brown, even with trace streaked and looped bedding, fair competence, very low to low grade; slightly marly; pyrite streaks, stringers, and laminae common; tan, marly streaks and stringers common; trace gilsonite streaks and stringers; some evidence of leached nacohlite vugs with associated pyrite rims and remnant bladed structure in solution fracture zone from 1626.0 to 1626.7.
- 1626.9-1633.5 Oil Shale, marly, light grey brown to buff, even, streaked and irregular bedding, poor to fair competence, very low grade; pinpoint calcite common; abundant tan, marly stringers, streaks, and laminae; pyrite streaks and stringers common; trace gilsonite streaks; trace asphalt streaks.
- 1633.5-1636.0 Oil Shale, light olive brown to light grey brown, even with streaked and looped bedding, good competence, very low to low grade; pyrite streaks, stringers and laminae common; tan and grey, marly stringers and laminae common; trace gilsonite streaks and blebs; trace asphalt streaks.
- 1636.0 TOTAL DEPTH