

A7BU

Operator: United Producing Company, Inc.
 Farm: Yukon Pocahontas Coal Co., Et Al
 Well No: 9 - 1674
 Location: Buchanan County
 14,500' N. of 37°-10'
 7600' E of 82° - 00'
 Elevation: 1472.9' GR.
 Total Depth: 4802'
 Drilling Commenced: February 27, 1950
 Well Completed: July 13, 1950
 Result: Gas Well

WELL LOG

- 0 - 15 Clay - yellowish brown (10YR 6/4), micaceous - fine fragments.
- 15 - 55 Siltstone - medium gray (N5) - hard and 30% siltstone - grading into sandstone - pale yellowish brown - (10YR 6/2) - irregular sand grains - from very fine to coarse, angular, some frosted, poorly sorted - very silty when rock type is sandstone; micaceous also. Grain size increasing in sandstone toward bottom.
- 55 - 83 Siltstone - medium gray (N5) - massive, hard, carbonaceous and micaceous on bedding planes.
- 83 - 133 Sandstone - light fine gray (5Y 6/1) fine to medium angular, poorly sorted; clear quartz grains; siliceous; silty; micaceous-chlorite and muscovite; glauconite?; coal fragments at 83-93 and 107-113; interbedded with siltstone-shales 50% ± - hard, massive siltstone with occasional softer shales.
- 133 - 158 Sandstone - light gray (N7) - fine to medium, subangular, moderately sorted; silty; siliceous; micaceous; sparse coal.
- 158 - 168 Sandstone - color - as above; medium to coarse, angular and sub-angular, milky and clear quartz; moderate sorting; sparse silt; siliceous; sparse chlorite; 10% siltstone fragments.
- 168 - 205 Shale - dark gray (N3) - soft, carbonaceous.
- 205 - 236 Sandstone/Siltstone-Shale - Sandstone - as 158-168; 40% ± siltstone-shale as 83-133; some brownish gray (5YR=4/1) shale fragments; coal fragments at 205-18 at 224 on mica fragments appear, 5% dark rock fragments, chlorite, reddish fragments and iron stains.
- 236 - 248 Sandstone - light gray (N7) - fine to medium, subangular, clear quartz grains, moderately sorted; silty; siliceous; 1% fine rock fragments.
- 248 - 268 Sandstone - light olive gray (5Y 6/1) as above; not silty; 10% fine rock fragments; mica.

DEPTH
(feet)

- 268 - 345 Siltstone - medium dark gray (N4) hard, siliceous, rare fine mica; at 305 - 315 siltstone, sandy- very fine quartz grains, sparse mica.
- 345 - 357 Sandstone/Siltstone - 50% each - sandstone as 236 - 248; siltstone - dark gray - as 268 - 345; sandstone is medium to coarse.
- 357 - 412 Sandstone - as 236 - 248, sparse siltstone fragments until nearing bottom of unit - 400 - 412; has 5% siltstone fragments.
- 412 - 516 Siltstone - as 268 - 345'.
- 516 - 338 Siltstone/Sandstone - 50% each siltstone - dark gray - hard, quartzose, micaceous and sandstone light gray fine to medium, subangular clear quartz grains; siliceous; 5% brownish material - rock fragments, sparse chlorite, sparse rock fragments, some fragments of a "subgraywacke" nature.
- 538 - 550 Shale - medium dark gray to dark gray (N4-3) firm, carbonaceous, sparsely micaceous.
- 550 - 564 Siltstone/Sandstone - 60% siltstone - medium gray - as 268 - 345; sandstone as 516 - 538, micaceous; abundant brown material; locally 10% rock fragments.
- 564 - 582 Sandstone - as 516 - 538; 10% shale and siltstone fragments, chlorite and brown material - micaceous.
- 582 0 641 Sandstone/Siltstone - 50% each sandstone - as 516 - 538, micaceous siltstone - as 516 - 538; grading into sandstone toward base of unit; siltstone - abundantly micaceous.
- 641 - 687 Sandstone/Siltstone - as above; 80% sandstone; 20% siltstone.
- 687 - 692 Sandstone - very light gray (N8) - fine to medium grained, subangular clear quartz grains, moderately sorted; siliceous; silty; 5% fine rock fragments; moderately micaceous; chloritic; local feldspar.
- 692 - 750 Sandstone/Siltstone - as above; 20% siltstone - dark gray - soft; carbonaceous.
- 750 - 802 Sandstone/Siltstone - 50% sandstone as 687 - 692;; siltstone as 516 - 538; reddish brown material locally sandstone - garnet. *The 3 mentioned Red/Br. types of material are different in appearance.
- 802 - 827 Dark gray (N3) - hard, sparsley argillaceous, very sparse fine mica.
- 827 - 903 Siltstone/Sandstone - as above = 50% each; coal at 877 - 886 - mixed with sand grains, dull with plant fragments; sandstone fragments of graywacke type and with coal grading into sandstone coal at 878 - 888.
- 903 - 945 Sandstone/Siltstone - as 692 - 750; 80% sandstone - 20% siltstone, sandstone has Garner (?) granular masses: coal with deformed surfaces.

DEPTH
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- 945 - 963 Grayish black (N2) - quartzose, locally micaceous at 954 - 961 - coal, brilliant luster, blocky fracture, sulfur coating on some coal.
- 963 - 986 Sandstone/Siltstone - as 903 - 945; coal with plant fragments. -
- 986 - 1005 Sandstone - very light gray (N8) fine to medium, subangular, clear quartz grains, moderately well sorted, siliceous; clean; sparse rock fragments.
- 1005 - 1015 Siltstone - dark gray (N3) with sparse brownish gray (5YR 4/1) fragments - hard quartzose, local sparse mica.
- 1015 - 1032 Siltstone - medium gray = (N5) - limited fissibility, shale, very sparse fine mica.
- 1032 - 1045 Sandstone/Siltstone - 50% each - sandstone as 986 - 1005; siltstone as 1005 - 1015'.
- 1045 - 1106 Sandstone - as 986 - 1005'; 3% fine siltstone-shale fragments.
- 1106 - 1114 Sandstone - as 986 - 1005 - light olive gray (5Y 6/1) - with 25% very fine greyish red (5 R 4/2) siltstone, sandy fragments.
- 1114 - 1117 Shale - Grayish black (N2) - soft, carbonaceous; coal - brilliant luster, blocky fracture; 1 - 3% sandstone fragments.
- 1117 - 1130 Siltstone/Sandstone - 70% sandstone - light gray (N7) - fine to medium subangular clear quartz grains; moderately well sorted; siliceous; clean; and 30% siltstone - grayish black (N2) - hard, quartzose, locally - fine mica; local carbonaceous matter.
- 1130 - 1186 Sandstone- pale yellowish brown (10YR 7/2) - as above; iron stained (contamination); sparse siltstone fragments at 1160 - 10% siltstone fragments - medium dark gray (N5) - locally carbonaceous and micaceous.
- 1186 - 1200 Siltstone - medium dark gray (N5) - hard, quartzose, sparse locally restricted mica.
- 1200 - 1208 70% Siltstone - as above; 30% sandstone as ~~1117 - 1130~~'.
- 1208 - 1248 Siltstone/Sandstone - 50% each Sandstone as 1117 - 1130; and Siltstone at 1208 - 1216; light gray and from 1216 - 1248; medium dark gray,; at 1226 - 1236 - coal and coarse quartz grains.
- 1248 - 1283 Sandstone - white/very light gray (N9,8) - fine to coarse, angular and subangular clear quartz grains, moderately poor sorting; clean! ; siliceous; very sparse mica - muscovite and chlorite.
- 1283 - 1305 Sandstone - pale yellowish brown (10YR 0/2) as above - stained from iron (drill) contamination.

DEPTH
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- 1305 - 1315 Sandstone/Siltstone - 50% each - sandstone - as 1248 - 1283; siltstone - medium gray - hard, with local carbonaceous plant matter; coal - brilliant luster, blocky fracture; sparse deformed underclay fragments; grayish red siltstone fragments.
- 1315 - 1331 Sandstone - light gray (N7) - fine to medium, subangular clear quartz grains, moderately sorted; siliceous; 10% fine rock fragments, rose quartz grain; sparse amounts coarse sized smoky quartz grains; garnet (red granular masses); micas.
- 1331 - 1360 Sandstone/Siltstone - 50% each - sandstone - as above; fine to coarse; areas of smoky quartz (coarse sized) grains; sparse garnet masses; siltstone - dark gray (N3) - soft, carbonaceous; coal with plant fragments.
- 1360 - 1380 Sandstone - as 1315 - 1331; silty (crushed siltstone).
- 1380 - 1407 Siltstone - medium dark gray (N4) - massive, with Sigularia fragments on bedding planes, disturbed bedding; some fragments siltstone increasing in hardness toward quartzose.
- 1407 - 1450 Siltstone/Sandstone - 30% each; siltstone medium gray grading into mixed sandstone types; sandstone generally as 1315 - 1331, grading into coarse and finer grained areas, garnet masses again.
- 1450 - 1460 Sandstone/Coal - sandstone as above - (fine to coarse, subangular, moderately poor sorting; siliceous); coal-brilliant luster, blocky fracture.
- 1460 - 1480 Sandstone/Siltstone - 50% sandstone - as above; micas; fine rock fragments; 50% siltstone - as 1380 - 1407; coal and plant fragments.
- 1480 - 1515 Sandstone - light olive gray (5Y 6/1); fine to medium, subangular, poor sorting, clear quartz grains; siliceous; micaceous; fine rock fragments; siltstone from 40% \pm - siltstone - medium light gray (N6) - soft.
- 5115 - 1525 Medium gray (N5) - soft to firm.
- 1525 - 1530 Sandstone/Siltstone - siltstone as above and sandstone as 1480 - 1515'.
- 5130 - 1547 Sandstone - light gray (N7) - fine to medium, subangular, moderately well sorted; siliceous; clean; 10% \pm fine siltstone fragments - as above and some grayish red; micas - muscovite, chlorite; locally feldspathic.
- 1547 - 1557 Siltstone - medium dark gray (N4) - hard quartzose, locally micaceous.
- 1557 - 1580 Sandstone-Siltstone - 50% each sandstone - as 1530 - 1547; siltstone as 1547 - 1557'.
- 1580 - 1777 Sandstone - as 1530 - 1547; moderate sorting; some local areas with smoky quartz grains; at 1705', sandstone is cleaner, sparse siltstone is cleaner sparse siltstone fragments at 1744 - 1753' siltstone/sandstone - siltstone? contamination.

DEPTH
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- 1777 - 1786 Siltstone - grayish black (N2) - soft, carbonaceous, reddish granular masses, 10 - 20% \pm sandstone fragments - as above and also with reddish masses and particles (hematite).
- 1786 - 1793 Siltstone/Sandstone - siltstone - as above, with grayish red, and medium gray fragments also; 20% \pm sandstone as 1580 - 1777.
- 1793 - 1800 Siltstone - medium gray (N5) hard, quartzose, sparse mica, very fine.
- 1800 - 1808 Siltstone - light brownish gray (5YR 6/1 and medium gray (N5) - soft (Lt. br. gr.) and hard, quartzose for M. Gr. type.
- 1808 - 1823 Siltstone, calc. - medium gray, grayish red (10R 4/2), greenish gray (5YR 4/1) - 50% grayish red; 50% other siltstone's, hard, moderate amounts fine mica, calcareous.
- 1823 - 1851 Siltstone - medium gray (N5) - hard.
- 1851 - 1868 Sandstone/Siltstone - 50% siltstone - as above and 50% siltstone - white (N9) - very fine grained, subangular, well sorted clear quartz grains, siliceous; clean.
- 1868 - 1881 Shale - dark gray (N3) - soft, carbonaceous.
- 1881 - 1885 Siltstone/Sandstone - 80% sandstone - as 1851 - 1868' - grading into light gray with rare, very fine shale fragments and 20% siltstone's grays, greenish gray, greenish gray with fine black particles - moderately firm to soft.
- 1885 - 1889 Sandstone - sandstone - as 1851 - 1868; 20% shale as 1868 - 1881.
- 1889 - 1960 Sandstone/Siltstone - as 1885 - 1889; siltstone - medium gray (N5) soft, and medium dark gray - hard, quartzose, carbonaceous and sparsely micaceous.
- 1960 - 2106 Siltstone - as above; 2030 - 2070 locally carbonaceous and dark gray.
- 2106 - 2113 Siltstone/Sandstone - 80% siltstone - shale - siltstone medium dark gray (N4) as above, grading into dark gray shale - soft, carbonaceous and 20% \pm siltstone - as 1851 - 1868.
- 2113 - 2160 Siltstone - medium dark gray (N4) - hard, quartzose; at 2120 to 40 - various grays, some sandstone fragments.
- 2160 - 2195 Shale - medium dark gray (N4) - soft, carbonaceous.
- 2195 - 2199 Siltstones - mixed grays light to medium dark gray - hard, quartzose to soft, carbonaceous; calcareous.
- 2199 - 2206 Siltstone-Sandstone - 50% siltstone - grading from above types into dark gray (N3) shale and 50% sandstone - very light gray (N8) to white - very fine to fine grained, subangular clear quartz grains, moderately sorted; siliceous.

DEPTH
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2206 - 2246	Siltstone - medium gray (N5) - as 2113 - 2160.
2246 - 2258	Siltstone/Shale 50% each - sandstone - as 2199 - 2206 and shale - dark gray - soft, carbonaceous; coal laminae with plant imprints - <u>Sigularia</u> / Local calcarioussness.
2258 - 2260	Shale - as above; disturbed bedding shicken-slides.
2260 - 2360	Sandstone/Shale - as 2246 - 2258; roughly 50% of each, at each interval.
2360 - 2394	Limestones, argillaceous - medium gray (N5) - silty, fine grained, probably a transitional area (siltstone, calcareous/ limestone, argillaceous); calcite fragments; fossil fragments. <u>Crinoids, Brachiopods.</u>
2394 - 2396	Sandstone/Siltstone (?contamination) as 2246 - 2258.
2398 - 2421	Siltstone Grayish red (10YR 4/2) - soft, no bedding.
2421 - 2462	Siltstone's - 80% \pm <u>grayish red and 20% grayish black</u> siltstone's grading into shales.
2462 - 2470	Siltstone/Sandstone - 50% each - medium gray and siltstone's as above; siltstones - medium gray - fine gaained, subangular well sorted to moderately well sorted; siliceous; hard; clean.
2470 - 2515	Sandstone/Siltstone - 60% \pm <u>light gray</u> (N7) - fine to medium, subangular, moderate sorting of clear quartz grains; siliceous; locally fine rock fragments; 40% \pm siltstone's medium gray, grayish red - soft locally carbonaceous.
2515 - 2534	Siltstone/Shale/Sandstone - as above, 60% siltstone's and siltstone's are mainly grayish red; and grading into shales.
2534 - 2546	Siltstone/Sandstone - as above; siltstone is mainly medium to medium dark gray.
2546 - 2566	50% each, dark gray (N3) and grayish red (1 or 4/2) - soft, very argillaceous, finely micaceous; carbonaceous.
2566 - 2598	Siltstone, sandy - grayish red (10 R 4/2) - siltstone grading into very fine silty sandstone, micaceous; and 10 - 20% \pm of gray siltstone shales --soft to moderately firm, finely micaceous.
2598 - 2629	as 2546 - 2566.

DEPTH
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- 2629 - 2641 Sandstone - very light gray (N8) - fine to medium, subangular clear quartz grains, moderate sorting; siliceous; brittle; sparse rock fragments, sparse mica - chlorite; 30% \pm medium gray siltstone grading into fine grained siltstone.
- 2641 - 2647 Sandstone - as above with 20% \pm siltstone's.
- 2647 - 2685 Sandstone/Siltstone - 50% sandstone and siltstone; siltstone is medium dark gray (N4) - hard to firm, sandy to carbonaceous.
- 2685 - 2703 Sandstone/Siltstone; calc. - as above; calcareous.
- 2703 - 2707 Sandstone/Shale - 70% shale - medium dark gray - as 2647 - 2685'; and 30% sandstone as 2629 - 2641'.
- 2707 - 2713 Siltstone's - gray, grayish red, greenish gray (5GY 6/1), - siltstone's grading into subgraywacke type sandstone's.
- 2713 - 2730 Sandstone - as 2647 - 2685'; 30% mixed siltstone's - grays - grayish red - soft.
- 2730 - 2750 Sandstone - as above; 15% siltstone's - shale medium dark gray - soft to firm.
- 2750 - 2753
5 Sandstone/Siltstone, calc. 50% each - siltstone - dark gray (N3) - moderately firm, carbonaceous, calcareous, Ostracods; Sandstone - as 2629 - 2641'.
- 2753 - 2779 Siltstone's/calc. - medium to dark gray, grayish red, greenish gray, dusky yellow (5Y 6/4) - calcareous, moderately firm, sandstone fragments.
- 2779 - 2810 Siltstone - medium gray (N5) - firm, carbonaceous, local sandy areas with very sparse mica; not calcareous.
- 2810 - 2826 Sandstone/Shale - 50% sandstone - as 2629 - 2641, 50% shale - medium dark gray (N3) - soft to moderately firm, fossil imprint.
- 2826 - 2859 Siltstone's - as 2753 - 2779'.
- 2859 - 2878 No sample.
- 2878 - 2891 Sandstone/Siltstone - as 2810 - 2826; siltstone instead of shale.
- 2891 - 2911 Siltstone - medium gray (N5) - massive firm.
- 2911 - 2996 Sandstone/Siltstone - as 2810 - 2826; siltstone instead of shale.

DEPTH
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- 2996 - 3017 Siltstone - light gray (N7) - soft to firm with some moderate bedding structures; 1 - 32 grayish red siltstone and some variegated mottled fragments.
- 3017 - 3035 Siltstone - medium dark gray (N4) - hard, moderate bedding structures very sparse mica, sparsley (?) calcareous.
- 3035 - 3061 Siltstone - medium gray (N5) - soft, very sparse mica, locally carbonaceous.
- 3061 - 3075 Siltstone/Sandstone - 80% siltstone - medium dark gray - sandy and micaceous; 20% \pm sandstone - light gray (N7) - fine to medium, subangular, poorly sorted; siliceous; clean to subgraywacke type with abundant silt/rock fragments; greenish gray (5 GY 6/1) - siltstone fragments.
- 3075 - 3085 Sandstone - very light gray (N8) - fine to medium, subangular clear quartz grains; moderately well sorted; siliceous; clean 5% fine dark gray shale fragments - soft well rounded, flattened.
- 3085 - 3100 Sandstone - as above; 40% shale - as above.
- 3100 - 3115 Sandstone - as 3075 - 3085; silty from 3100' to 3106 and 40% shale fragments from 3106 - 3115'.
- 3115 - 3124 Siltstone - medium dark gray to dark gray (N4-3) - (badly iron stained), hard, quartzose, micaceous and locally sandy to and sparse soft shale fragments, and sandstone fragments as 3075 - 3085'.
- 3124 - 3145 Siltstones - as above; light gray also; 10 - 20% \pm sandstone fragments - as 3061 - 3075'.
- 3145 - 3174 Siltstone, calc. = dark gray (N3) - soft, calcareous, carbonaceous, locally micaceous, locally with reddish rounded grains included; pyrite; thin black limestone interbedded with siltstone.
- 3174 - 3184 Mixed siltstone's - dark gray as 3145 - 3174 and as 3115 - 3124; sparse lime fragments - brownish gray - micritic; also siltstone, calc with reddish grains.
- 3184 - 3224 Siltstone - light to medium gray (N 7 \pm 5) firm.
- 3224 - 3241 Siltstone/Sandstone - medium dark gray (N4) - hard, argillaceous to finely sandy grading to sandstone - of a subgraywacke type - light gray - (N7) fine to medium, some coarse, subangular, poorly sorted; siliceous; carbonaceous material; siltstone fragments of various amounts.
- 3214 - 3263 Sandstone/Siltstone - as above; 70% \pm sandstone.
- 3263 - 3350 Siltstone - medium gray (N5) - hard, massive with sparse fragments that are abundant in granules.

DEPTH
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- 3350 - 3372 Siltstone, calcareous/limestone, argillaceous - interbedded - dark gray to grayish black (N3-2 "coarse grained" siltstone's with pyrite grains, fossil plant fragments, very fine quartz grains and limestone silty to intraclastic, fossiliferous; calcite.
- 3372 - 3397 Siltstone's, calc. medium to dark gray (N5-3) soft, locally carbonaceous locally very fine mica; some local thin interbedded limestone layers fossiliferous.
- 3397 - 3475 Siltstone, calc. - light to medium gray (N7-5) as above (3372-3397) in general description; non-calcareous gray siltstone interbedded with grayish black limestone, silty and with siltstone, calcareous; limestone and siltstone's with plant debris as well as marine fossil fragments; pink dolomite crystal-line fragment; coal balls with granular pyrite masses within and those found within the intraclastic limestone; thin, lightly fissile dark gray shales with Sigularia fragments.
- 3475 - 3495 No samples.
- 3495 - 3590 Limestone, silty - dark gray to grayish black (N3 - N2) micritic, silty, intraclastic fragment of limestone fragments; siltstone calc -lag contamination; some light grayish brown (5Y R 6/1) fragments, calcite/dolomite fragments.
- 3590 - 3629 Limestone, silty - grayish black and medium light gray (N2-N6) - crypto-grained; silty; with intraclasts, fossil fragments, worn shale fragments and pilloidal fragments some micrograined, unfossilized limestone dark brownish black (5YR 2/1).
- 3629 - 3650 Limestone, silty - medium gray and light gray (N5 and N7) - fine grained, yet still silty with crystalline areas; sparse fossils.
- 3650 - 3700 Limestone - as 3629 - 3650, not silty; light gray limestone is moderately fossiliferous: medium gray sparsely (?) pelloidal 50% ± each type limestone.
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- 3700 - 3753 Limestone - as above.
- 3753 - 3800 Limestone - as above; 50% as 3629 - 3650' medium gray/light gray and 50% light olive gray (5Y 6/1) interclastic fragments - limestone's oolites, crystalline fragments, in micritic matrix.
- 3800 - 3856 Limestone - 50% light olive gray - as 3753 - 3800 and 50 % medium gray - micritic "sugery" in appearance.
- 3856 - 3900 Limestone - as above.
- 3900 - 3954 Limestone - medium gray and light gray - micritic and sparsley oolitic.
- 3954 - 3998 As 3900 - 3954; moderately politic in medium gray and moderately fossiliferous in light gray limestone; crystalline fragments.
- 4000 - 4052 Limestone - dark gray (N3), micritic, sparsley silty; some fragments of light gray, light brownish gray - also micritic; non-fossiliferous.

DEPTH
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- 4052 - 4108 Limestone - 80% dark gray - as above; 20% \pm light to medium gray - (N7-5) - micritic, sparse areas of white crystalline calcite.
- 4108 - 4114 Limestone - 50% each - as above.
- 4114 - 4125 Siltstones - 50% grayish red (5R 4/2) - soft, occasionally very finely gritty; and 50% medium light gray (N6) - sandy - very fine quartz grains; brittle, grading into a sandstone, silty - also very fine grained; pyrite; fine green fragments - clear to opaque.
- 4125 - 4170 Siltstone - medium gray (N5) - hard, massive, quartzose; sparse grayish black and grayish red fragments.
- 4170 - 4181 Siltstone/Sandstone - 80% siltstone - medium gray (N5) - hard, very finely sandy (quartz grains) grading into 20% \pm sandstone - light gray (N7) - very fine grained, subangular, well sorted; siliceous; sparse to moderate very fine black particles.
- 4181 - 4260 Sandstone - as in 4170 - 4181; 10% \pm dark gray shale and siltstone (as above) fragments throughout interval, very fine to fine at 4220 - 4260'.
- 4260 - 4292 Sandstone - Siltstone - 50% sandstone as 4170 - 4181; very fine to fine, 50% siltstone - medium dark gray (N4) - hard, quartzose grading into a sandstone, same color, description as 4170 - 4181'.
- 4292 - 4361 Sandstone/Siltstone - as above; 60% \pm sandstone; 40% siltstone.
- 4361 - 4398 50% Shales/50% Siltstone - shale dark gray (N3) - soft, fissile, moderate fine mica and shale, grayish red (5R 4/2) soft with rounded fragments of dark gray included within; siltstone medium gray-siliceous.
- 4398 - 4476 Siltstone/Shale - siltstone - medium gray, grading into sandstone - as 4361 - 4398; 10% siltstone is grayish red (5R 3/2).
- 4476 - 4500 Siltstone - medium dark gray (N4) - hard; massive, quartzose.
- 4500 - 4550 Siltstone - as 4476 - 4500'.
- 4550 - 4592 As above.
- 4695 - 4712 Shale - grayish black (N2) - soft, sandy, fissile, carbonaceous, local pyrite, sparse local mica, disturbed bedding and plant fossils.
- 4712 - 4760
7412 - 4760 Sandstone/Siltstone-Shale - 80% shale as above, some grading into siltstone's with 20% sandstone - white (N9) - very fine, angular to subangular, clear quartz grains, moderately well sorted; siliceous; hard to brittle; very fine ripple of laminae of mica.
- 4760 - 4783 Siltstone - medium gray (N5) - massive, argillaceous.