

A31BU

OPERATOR: United Producing Company, Inc.
FARM: Yukon Pocahontas Coal Co., et al
WELL NO. 2-1466
LOCATION: Buchanan County
200' S of 37°-10'
13,800' E of 82°-05'
ELEVATION: 1751' GR.
TOTAL DEPTH: 5100'
DRILLING COMMENCED: November 13, 1947
WELL COMPLETED: July 4, 1948
RESULT: Gas Well

WELL LOG

DEPTH
(feet)

- 79-83 Sandstone - light gray (N7), medium to coarse grained, moderately sorted, subangular, clear and milky quartz grains; siliceous, slightly chloritic; moderate amount carbonaceous matter; 25% coal fragment and siltstone to "graywacke" type sandstone fragments, dark gray (N3) (? glauconitic).
- 83-89 (Refer back to D. G. Bowen's log)
- 89-94 Sandstone - light olive gray (5Y 6/1) (sample as a whole appears this color; individual grains are "white" with yellowish stains); fine to medium grained, moderate sorting, subrounded and subangular, clear and milky quartz grains; siliceous; mica, muscovite and fuchite; 25%± shale to siltstone, dark gray (N3); Coal - vitrine.
- 94-100 As above.
- 100-105 Sandstone - medium dark gray (N4), very fine to fine, poorly sorted "graywacke" type; siliceous, hard, grading into Siltstone - sandy; both sandstone and siltstone locally micaceous and carbonaceous - stems; sparse brownish gray (5YR 4/1) siltstone with pyrite.
- 105-110 Sandstone - medium gray (N5), fine grained to very fine grained, poorly sorted, subangular clear quartz grains; quartzose with clay cement; graywacke type - 20% very fine grained black material; and siltstone - medium dark gray (N4), massive, hard.
- 110-138 See Bowen
- 110-127 10% siltstone-sandstone fragments, medium to medium dark gray.
- 127-133 "Clean" quartzose grains; 5% shale, carbonaceous and laminated coal; local feldspar, mica and calcareous cement in some sandstone fragments.
- 133-138 Better cemented; grain size predominantly medium sized, 10% fine rock fragments; coal.

DEPTH
(feet)

138-145	Shale - medium dark gray and brownish gray, hard and 20% sandstone - as 110 - general description.
145-150	Sandstone/Shale - about 70% Shale - as above; 30%± Sandstone - light gray (N7), fine to medium, moderately to poorly sorted, subangular with some subrounded; siliceous; 10% very fine-grained, black mineral fragments; mica; sparse fragments coal.
150-155	As above; sparse siderite.
155-174	Sandstone - light gray (N7), medium to fine grained, subangular, clear and white quartz grains, moderately sorted; siliceous; moderately micaceous, chloritic and glauconitic; sparse coal shale fragments.
174-179	As above; coarse grained, some angular.
179-200	No Sample.
200-212	As above; back to fine to medium grained, clean, subangular; friable; 20% fine shale fragments.
212-219	As 200-212; 10% fine rock fragments; mica; feldspar.
219-225	As 155-174; 20% shale, medium gray, micaceous.
225-236	As above.
236-243	As above; 10% fine shale; micas.
243-263	As 236-243.
263-283	As 200-212; less than 5% very fine rock shale fragments; calcareous.
283-293	See Bowen (30% dark gray sandstone).
293-300	Siltstone - dark gray (N3), massive, hard, silty to sandy, locally carbonaceous.
300-309	Sandstone/Shale - 50%± sandstone, dark gray to light gray (N3 - N7), medium grained, poorly sorted, subangular quartz grains; siliceous; and <u>Shale</u> - dark gray (N3), firm, silty.
309-332	Shale - as 300-309.
332-340	Sandstone/Shale - 50% each, as 300-309; sandstone is light gray; siderite.
340-346	Shale - as 300-309.
346-424	<u>Sandstone - light gray (N7), fine to medium, moderately sorted, angular and subangular, clear quartz grains; siliceous; friable; 10%± fine shale fragments; micas.</u>

DEPTH
(feet)

- At 374-380 Light brownish gray, with locally calcareous areas, and interstitial carbonaceous material.
- At 380-390 30% large shale fragments, siderite.
- At 408-414 Moderate amount coarse to very coarse grained, angular fragments; some appear freshly broken conglomerate.
- 424-455 Shale - dark gray (N3); pyritic.
- 455-467 Shale/Sandstone - approximately 50% each; Shale as 424-455; Sandstone as 346-424, siliceous, not friable, micaceous.
- 467-475 As 455-467.
- 475-484 As above.
- 484-493 Sandstone - light gray (N7), fine to medium grained, subangular, moderate sorting, quartzose, hard; 10% very fine shale/mica fragments; grading locally into brownish gray (5YR 4/1) sub-graywacke type; and 20% Shale - dark gray (N3), soft, carbonaceous; Coal - high luster, conchoidal and some blocky fracture.
- 493-506 Sandstone - as above.
- 506-525 Shale - dark gray (N3), some silty; 1% brownish gray (5YR 4/1).
- 525-533 Shale - as above, grading into siltstone and sandstone - of same color; Sandstone - fine grained, quartzose, "dirty" or "graywacke" type; entire sample is sparsely micaceous.
- 533-540 Shale - dark gray (N3), silty, locally micaceous.
- 540-574 Shale - as above; fragments brownish gray (5YR 4/1) and Sandstone - medium light gray, very fine to fine grained, quartzose - "dirty", interbedded with shale.
- 574-581 Shale - as above.
- 581-592 Sandstone - medium gray (N5), fine to medium grained, subangular with sparse subrounded quartz grains, poorly sorted; 35% quartzose cement; friable; abundant fine shale/mica fragments, and 30% Shale - as above; coal.
- 592-620 As 581-592; no coal after 600-610.
- 620-632 Shale as 533-540.
- 632-650 Sandstone/Shale - 50% each - Sandstone as 581-592 and Shale as 533-540, becoming highly micaceous at 644-650; carbonaceous and fossiliferous material on bedding surfaces.

DEPTH
(feet)

- 650-690 Shale - medium dark gray (N4), part silty; micaceous; Siltstone - as 581-592; scattered fragments at 663-670.
- 690-702 Shale - as above.
- 702-716 Shale/Sandstone - 50% each, as 650-690.
- 716-726 Siltstone/Sandstone/Shale - intergrading zone; Siltstone (medium dark gray (N4), hard, micaceous) grading into "dirty" subgray-wacke sandstone; also Sandstone as 581-592 and sparse shale fragments.
- 726-736 Siltstone/Sandstone - 50% siltstone, as above; 50% sandstone, as 581-592.
- 736-743 Sandstone/Siltstone - Definitions as above; some fragments siltstone showing grading of siltstone into graywacke - 20%; 80% sandstone.
- 743-770 As above;
At 750-756 Coal.
At 760-769 Sparse siltstone, micaceous on bedding surfaces.
- 770-775 Sandstone - as 581-592; coal.
- 775-806 Shale - as 690-702;
At 775-796 Sparse sandstone fragments.
At 800-806 Sparse sandstone fragments.
- 806-814 Siltstone - medium dark gray (N4), sandy, silty, and carbonaceous material on bedding surfaces; locally micaceous also; grading into "graywacke" sandstone; sparse fragments of sandstone - medium dark gray, fine grained, poorly sorted, quartzose.
- 814-827 As above.
- 827-833 Siltstone - as above.
- 833-852 As above, micaceous at 842-852.
- 852-866 Siltstone - 75% siltstone, as above; shale - medium dark gray (N5), silty and dark gray (N3), micaceous, carbonaceous; coal.
- 866-874 Shale/Sandstone - shale - dark gray micaceous; sandstone - dark gray to light gray, fine grained, subangular, poorly sorted, siliceous; micaceous; sparsely and locally carbonaceous.
- 874-890 Shale - medium gray, silty, micaceous with sandstone fragments as 866-874.

DEPTH (feet)	
890-895	Sandstone/Siltstone, micaceous/Shale, carbonaceous - 40% sandstone - medium light gray (N6), fine to medium with occasional coarse grains, subangular, clear quartz grains, unusually poorly sorted; siliceous; micaceous, 10%± fine to coarse rock fragments; and 50% Siltstone - medium dark gray (N4), hard, coarse-grained, micaceous; and 10% Shale - dark gray (N3), soft, carbonaceous.
895-914	Sandstone - as above; fine to medium only; some chloritic material.
914-1027	Sandstone/Siltstone - as 890-895; disturbed bedding, carbonaceous in fine laminate; at 957-963, coal; at 971-979, coal; siltstone percentage increases at 924-933 to 70%± at 742-748.
1027-1117	Sandstone - very light gray (N8), fine to coarse, subangular to subrounded, poorly sorted; siliceous; sparse green material; occasional mica/shale fragments; at 1036-1045 - 15%± siltstone and at 1112-1119; at 1076-1077 - coal.
1119-1125	Shale - dark gray (N3), soft, carbonaceous, pyritic; Coal - irregular fracture, high luster; some sandstone fragments.
1125-1132	Shale/Siltstone - Shale - as above; Siltstone - medium light gray, sandy, micaceous with thin laminae of "white" sandstone and grading into sandstone locally.
1132-1147	Shale/Siltstone - as above; coal at 1140-1147.
1147-1155	Shale/Siltstone - as above; coal fragments.
1155-1162	Siltstone-Shale/Sandstone - Siltstone grading into shale - as 1125-1132 and 40% sandstone; Sandstone - very light gray (N8), fine grained, subangular to subrounded, poorly sorted; quartzose; feldspathic.
1162-1172	As above.
1172-1190	Sandstone - as 1155-1162; sparse rock fragments; sparse coal; slight green material.
1190-1280	Siltstone - medium dark gray (N4), silty, micaceous. At 1214-1220 Coal; sandstone fragments. At 1241-1247 Sandstone fragments. At 1247-1252 Sandstone fragments. At 1269-1280 Coal - bright and dull with irregular fracture and 20% shale - dark gray (N3), silty.
1280-1363	Sandstone - light gray (N7), fine to medium, subangular, clear quartz grains; moderately poor sorting; siliceous; chloritic; micaceous; slight glauconite; coal at 1311-1318; scattered shale at 1353-1363.

OWNER: United Producing Company, Inc.

2-1466

DEPTH
(feet)

1363-1393 Siltstone - medium gray (N5), quartzose, finely micaceous, grading into sandstone as 1280-1363.

1393-1402 Siltstone/Sandstone - Refer to M. Miller's log.

1402-1444 Sandstone - Refer to M. Miller's log.

1444-1463 Sandstone.

1463-1501 Shale.

1501-1534 Sandstone.

1534-1572 Shale.

2000-2026 Shales - medium gray (N5), firm, silty, finely sandy and grayish red (5R 4/2); soft, calcareous, finely micaceous; sparse local areas of carbonaceous matter.

2026-2041 Shale, not calcareous - 80%± grayish red shale and 20%± grayish green to medium gray siltstones which grade into sandstone of same colors; sandstones are very fine to fine grained graywacke type, siliceous, hard; rock material is very fine - much of it is green; very sparse light gray shale with local carbonaceous areas.

2041-2050 As above.

2050-2060 Shale/Siltstone-Sandstone - interbedded - 50%± shales - grayish red with some very light gray (N8), soft, with an abundance of black and brown churned rootlets, carbonaceous fragments and staining; Siltstone to Sandstone - medium light gray and greenish gray, fine grained, subangular, quartzose; with grains? of clear yellow-orange color (siderite?).

2060-2065 Sandstone/Siltstone/Shale - Sandstone, as above; and siltstones are medium gray shale - 35%± as above.

2065-2074 Sandstone - "White" (N8.5) - very fine to fine grained, well sorted, subangular, clear quartz grains; siliceous; slightly feldspathic - friable; 20% fine siltstone-shale - medium gray fragments.

2074-2084 Sandstone/Siltstone - 50% sandstone, as above; siltstone - as above.

2084-2097 Siltstone - medium light gray, hard; some light gray, dark gray and brownish gray siltstone fragments.

DEPTH
(feet)

- 2097-2104 As above.
- 2104-2110 Sandstone/Siltstone - siltstone, as above; sandstone, as below.
- 2110-2205 Sandstone - very light gray (N8), fine grained to very fine grained, subangular, moderately well sorted, siliceous, feldspathic; 10-20%± fine siltstone fragments at 2121-2169, laminations of coaly material (also surface debris)
- 2205-2371 Shale/Siltstone - See Williamson.
- 2371-2380 Siltstone/Sandstone - 60% siltstone, medium dark gray, hard, pyritic and 40% sandstone, medium light gray (N6), medium to very fine, subangular to subrounded, moderate to well sorted (in very fine fragments); siliceous to clay? cement; 1-3% dark material in some fragments.
- 2380-2404 As above.
- 2404-2414 Siltstone - as above; underclay and coal (contamination?).
- 2414-2425 Sandstone/Siltstone - 70% sandstone, as above; 30% siltstone - shale, as above.
- 2425-2432 Limestone/Shale/Sandstone - 50%± limestone - light olive gray (5Y 6/1), light gray (N7), medium light gray (N6), finely clastic, iron stained, calcite crystalline fragments; and sandstone; shale fragments as above.
- 2432-2435 Sandstone/Shale - 50% shale - dark gray, soft; 50% sandstone - "white," fine grained, subangular to subrounded, moderately well sorted, clay and calcareous cement, 90% siliceous, traces of very fine dark material.
- 2435-2580 As above, badly iron (drill filings) stained.
- 2580-2585 Shale, calcareous - medium dark gray (N4), massive, slightly micaceous; Limestone - medium dark gray, light gray, clastic to micritic with some coarsely crystalline calcite; fossil fragments.
- 2585-2592 Limestone - as above; ostracods, crinoids.
- 2592-2603 Shale - as 2580-2585.
- 2603-2611 Limestone - as 2580-2585; brachiopod.
- 2611-2645 As above.
- 2645-2655 Shale - medium dark gray (N5) and grayish red (5R 4/2), silty to sandy; limestone fragments.

DEPTH
(feet)

2655-2692 Shale - grayish red, as above; micaceous.

2692-2702 As above; traces of gray shales.

2702-2720 Siltstone - medium gray, hard and

2720-2753 Sandstone - very light gray (N8), very fine grained, subangular to subrounded, moderately well sorted; siliceous; clay cement; micaceous; abundant black, dark and reddish very fine particles; and some fragments that are poorly sorted; calcareous cement; and poorly sorted green and black minerals.

2753-2759 Shales - as Williamson.

2759-2768 As 2753-2759.

2768-2795 As 2753-2759.

2795-2800 Shale/Siltstone - Shale - grayish red, soft, micaceous and siltstone - medium dark gray (N4), calcareous, micaceous.

2800-2812 As above.

2812-2822 As above; 80% shale; siltstone highly micaceous.

2822-2833 As Williamson.

2833-2841 As 2822-2833; gray siltstones are calcareous.

2841-3079 All entries as Williamson.

3079-3300 Also as Williamson.

3300-3400 Also as Williamson.

3400-5100 Also as Williamson.

J. K. Polzin