

CORE ANALYSIS

UNITED FUEL GAS COMPANY

WELL NO. 9509-T

WAYNE COUNTY, WEST VIRGINIA

PERMIT NO. 1549

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WAYNE COUNTY, WEST VIRGINIA
PERMIT NO. 1549

Tulsa, Oklahoma
July 31, 1969

F. C. Berger
Charleston

cc:

O. E. Harris, Evansville
R. E. Williams, Bexley
J. R. Price, Paintsville
T. E. Branham, Paintsville
R. B. Rosene, Tulsa

CORE ANALYSIS FOR UNITED FUEL GAS CO., WELL NO. 9509-T

Cores and logs were submitted from the above well for analysis and stimulation recommendations. The cores were analyzed and the laboratory report is attached.

History

This is a test well in the Butler District of Wayne County, West Virginia. Core Samples were taken from the Corniferous section through the Big Six sand. Natural production from this zone tested at 33 mcfd.

The nearest producing well is believed to be the U. F. G. Co. 9474 which is about five miles away. This well was fractured using a spearhead of 2000 gallons of Super X followed by 640 bbls of waterfrac with 20,000 lbs of 20-40 sand. The well went from about 100 mcfd natural to 250 mcfd after fracturing.

Core Description

Eleven samples of the core were received and analyzed. Pictures were taken of each sample and are included in the laboratory report. The location of each sample is marked on a Xerox copy of the log correcting the driller's depths shown on the core to the log depth.

The upper section, samples 1 through 5, grade from a sandy dolomite to nearly pure dolomite. Solubilities range from 45% to 98%. Sample 2 is a thinly laminated shaley sand and dolomite. The lower section seems to be primarily dolomite with increasing amounts of calcite. Sample 6 contains considerable sand having a solubility of only 27.5%. Sample 7 is predominantly calcite. Sample 11 is thought to be representative of the Big Six sand. An examination of the acidized residue revealed a fine grained, unsorted, fragmented sandstone.

Log Analysis

Grain density determinations were made and it was found that the average grain density was 2.79 grams/cc. Using a bulk density of 2.79 as zero porosity, the log would indicate very low porosity for the zone. A thin zone of from 6 to 8%

porosity can be seen at 3428 to 3432. Another zone from 3466 to 3477 appears to have from 3 to 6% porosity. Another porosity streak appears at 3438. Since there is a change in lithology here, the grain density is probably close to 2.68. Sample 11 is representative of this zone, and the core analysis indicates a porosity of 4.4%.

The zone from 3466 to 3477 is thought by Jack Wilson to correlate with the zone producing in Well No. 9474.

Recommendations

The analysis was discussed by telephone with Jim Weakley and Jack Wilson. Although the porosity is low, the section indicates a rock pressure of 1400 psi. Since this is a test well, they are interested in attempting to stimulate this section. Although the initial flow is only 33 mcfd, with the relatively good pressure, there is a possibility that a fractured or vuggy porosity development could exist that is not indicated by either the logs or core analysis.

We would suggest the following perforating program:

<u>Zone</u>	<u>Perf</u>
3426-3434	16
3466-3477	22
3496-3500	8

Break down the section with 2000 gallons of Super X acid. Inject 20,000 gallons of 5% Acidfrac 20 with 20,000 lbs of 10-20 mesh sand. Drop a diverting agent and follow with an additional 20,000 gallons of 5% acidfrac 20 and 20,000 lbs of sand. A foaming agent, F52, should be used at a concentration of $\frac{1}{2}$ gal per 1000 gal frac fluid.

The 5% acidfrac (20 lbs J111 and 16 lbs J84 per 1000 gal) was chosen for the following reasons: First, because of the high solubility, considerable etching will occur which will increase the fracture conductivity. The leak-off fluid will provide increased flow channels into the fracture system. Secondly, as the acid spends, calcium chloride will form which will tend to control any clay problems by minimizing clay migration. Thirdly, the carbon dioxide evolved by the acid will greatly aid in more rapid cleanup.

The diverting stage can be accomplished using either ball sealers or a particulated diverting agent, J182. If good seating of ball sealers has been experienced in this area, then dropping a number of balls equal to $\frac{1}{2}$ the number of perforations should provide adequate diversion.

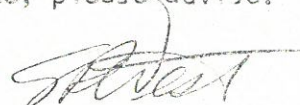
F. C. Berger
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July 31, 1969

A new diverting agent, J182, is available which provides superior diversion where small splits in the pipe, due to perforating, prevent adequate control with ball sealers. The amount of material required is $2\frac{1}{2}$ lbs per gallon of frac fluid.

Three allisons should provide approximately 25 BPM injection rate which should be adequate for this job. If we can be of further assistance, please advise.



D. R. Wieland



S. R. West

DRW:SRW/cae

Tulsa, Oklahoma
July 28, 1969

TL No. 48825

ANALYSES OF CORES

FOR

UNITED FUEL

M. H. Poe
Chemist

Distribution: F. C. Berger (originator) (3)
D1 - District Engineer (2), Field lab
Tulsa - File, D. R. Wieland, C. L. Wendorff

<u>Sample Depth</u> <u>(feet)</u>	<u>Air Permeability (md)</u>		<u>Porosity</u> <u>(%)</u>
	<u>Horizontal</u>	<u>Vertical</u>	
3418½	Less than 0.01	Less than 0.01	1.5 and 0.8
3434½	1.83	Less than 0.01	5.4 and 4.6
3454½	Less than 0.01	Less than 0.01	0.3 and 0.6
3458½	Less than 0.01	Less than 0.01	1.0 and 1.6
3476	Less than 0.01	Less than 0.01	2.0 and 1.4
3482	Less than 0.01	Less than 0.01	1.7 and 1.7
3497½	Less than 0.01	Less than 0.01	3.0 and 2.1
3502½	Less than 0.01	0.99	1.9 and 1.4
3506½	Less than 0.01	Less than 0.01	4.6 and 4.2

Formation Hardness

Hardness measurements were made by placing a 1/16 inch diameter spherical tip on a water wet section of core. An increasing load was applied and the depth of penetration was recorded. Dowell has a hardness classification system employing four ranges of hardness. These are soft, medium hard, hard and very hard.

<u>Sample Depth</u> <u>(feet)</u>	<u>Hardness</u> <u>Classification</u>
3366½	Very Hard
3377½	Hard
3418½	Hard
3434½	Hard
3454½	Very Hard
3458½	Very Hard
3476	Very Hard
3482	Hard
3497½	Very Hard
3502½	Very Hard
3507½	Very Hard

Grain Density

The grain density was determined by placing 50 gram sample of formation in a Le Chateiler flask filled to the zero mark with kerosene. The sample was crushed to pass through a 60 mesh screen and be retained on a 100 mesh screen. The volume of fluid displaced by the sample was measured. The grain density was calculated from the equation

$$D = \frac{\text{wt of sample}}{\text{vol of fluid displaced}}$$

<u>Sample Depth</u> <u>(feet)</u>	<u>Grain Density</u> <u>(gms/cc)</u>
3377½	2.79
3476	2.79
3502½	2.79

X-ray Diffraction Analysis

<u>Sample Depth</u> <u>(feet)</u>	<u>Major</u> <u>(25-100%)</u>	<u>Minor</u> <u>(10-30%)</u>	<u>Low</u> <u>(less than 15%)</u>
3377½	Dolomite	Quartz	Illite, Feldspars
3476	Calcite	Dolomite	
3502½	Dolomite	--	Calcite, Quartz, Pyrite

Optical Emission Spectrographic Analysis

<u>Sample Depth</u> <u>(feet)</u>	<u>Major</u> <u>(10-100%)</u>	<u>Minor</u> <u>(1-10%)</u>
3377½	Calcium, Magnesium	Silicon, Iron (low)
3476	Calcium	Magnesium, Silicon, Iron (low)
3502½	Calcium, Magnesium, Iron	Silicon

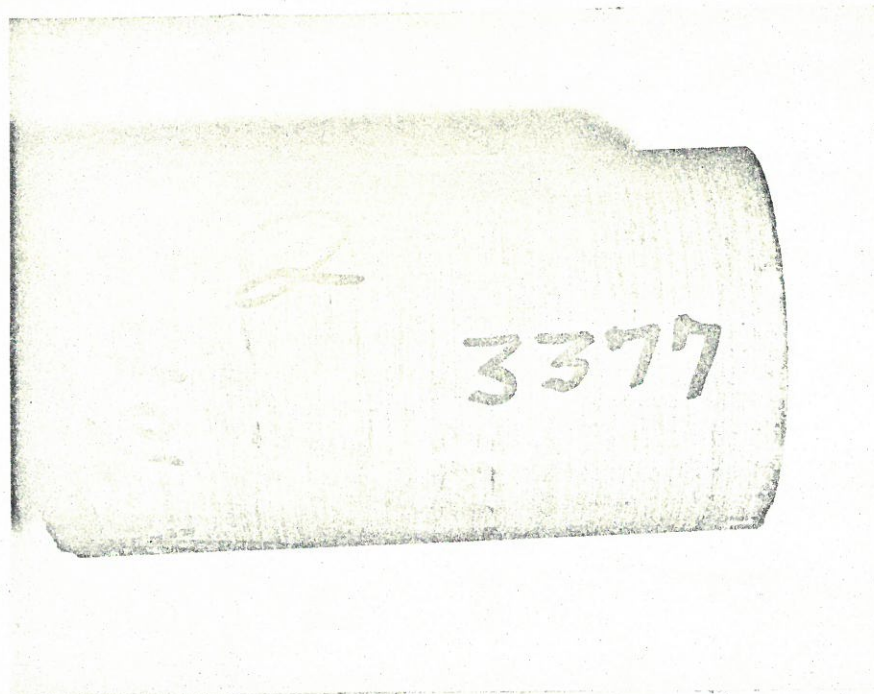
Analysts: G. H. Merkle, Chemist
 D. A. Wood, Technician
 H. I. Payne, Technician
 T. Davis, Technician

MHP
 M. H. Poe
 Chemist

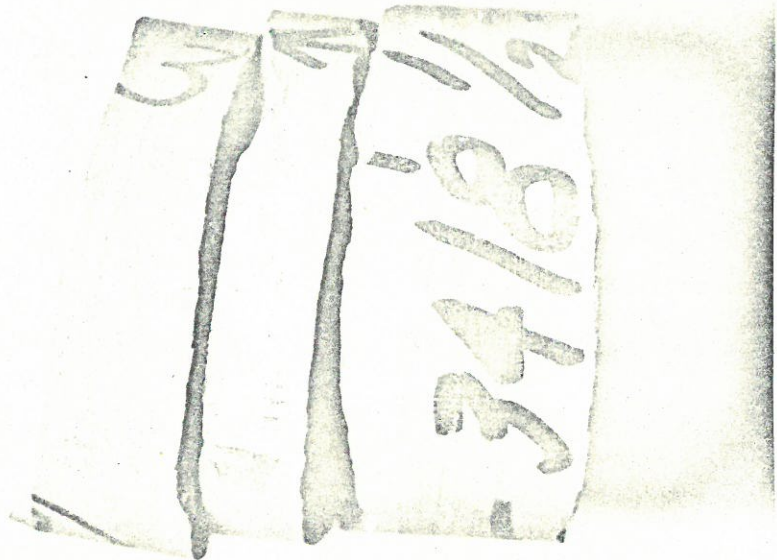
MHP/cae



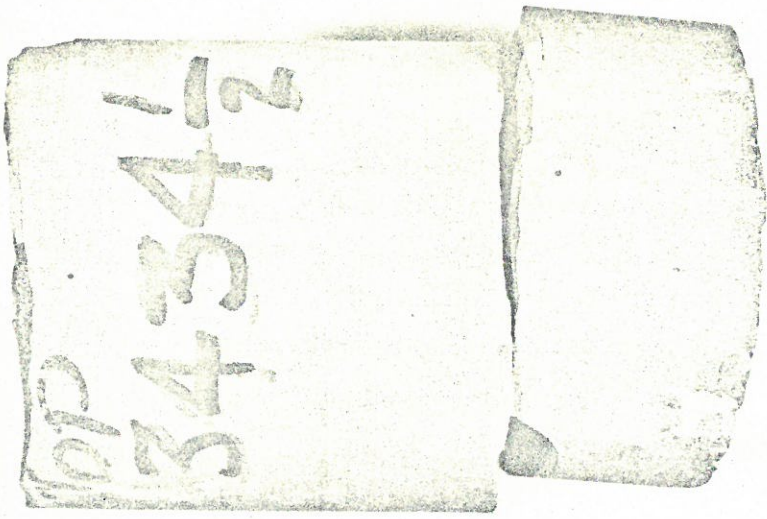
(Cores From 3366 feet)



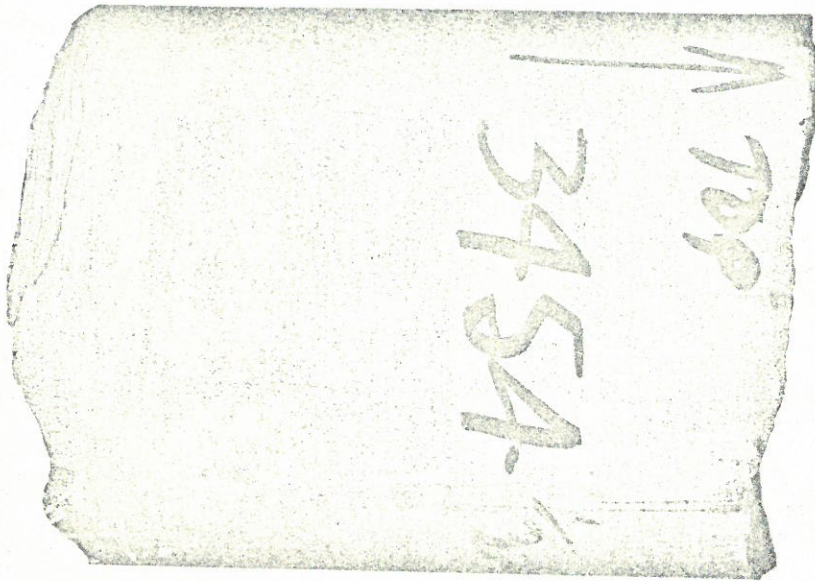
(Core From 3377 feet)



(Core From 3418½ Feet)



(Core From 3434½ Feet)

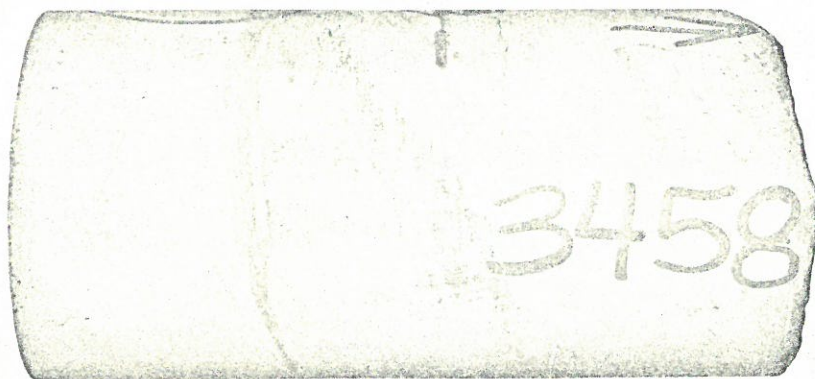


(Core From 3454 Feet)

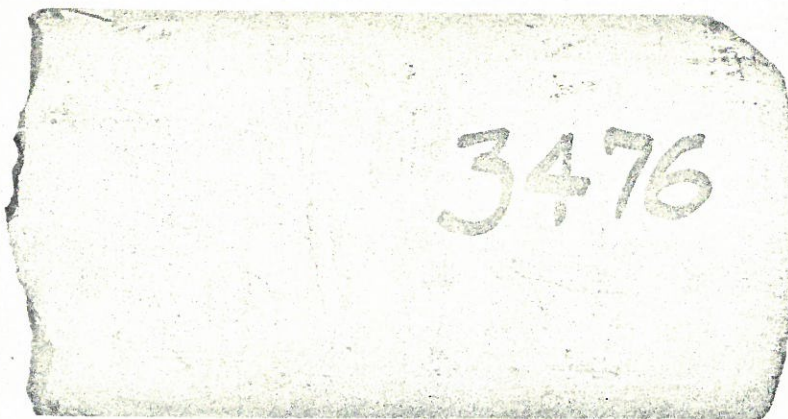


(Core From 4358 Feet)

3458



(Core From 3458 Feet)



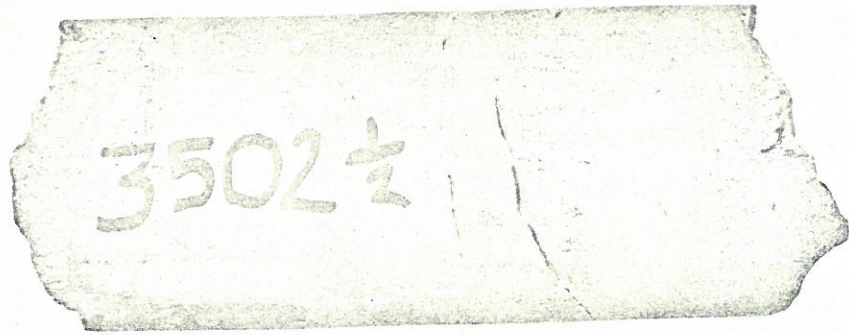
(Core From 3476 Feet)



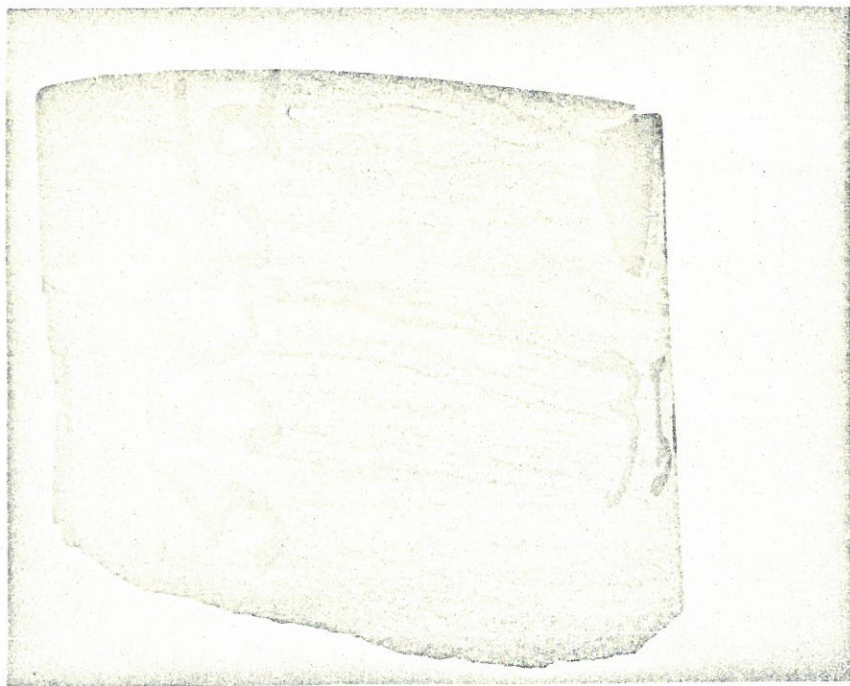
(Core From 3482 Feet)



(Core From 3498½)



(Core From 3502½ Feet)

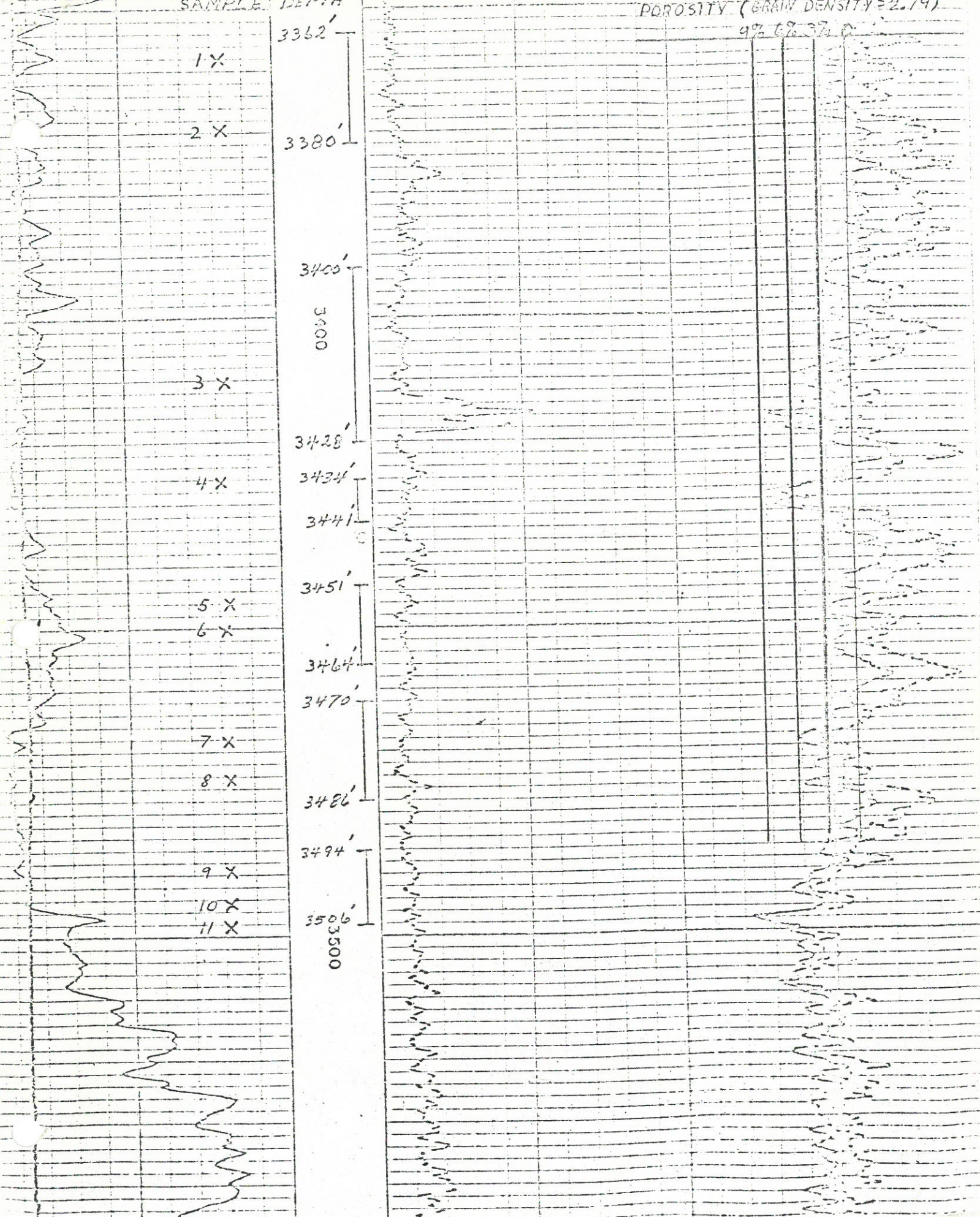


(Core From 3506½ Feet)

SAMPLE DEPTH

POROSITY (GRAIN DENSITY = 2.79)

4% 6% 3% 0



WELL NO. 9509-T

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CORE of Corniferous and Big Six
COUNTY Wayne, West Virginia *Permit # 1549*

DEPTHS: FROM 3344 TO 3379

SAND SAMPLE ANALYSIS BY: Pete Hopkins

Started coring 3350' drillers meas. 3344' 3 1/2" pipe tally.

3338-
39-
40-
41-
42-
43-45
45-47
47-50
50-51
3351
3353
3354
3356
3357
3358
3361
3365
3368-
3369-

FROM	TO	
3344	3346	Dolomite medium gray dense, with black shale, horizontal streaks.
3346	3347	Dolomite medium gray, mottled, fine grained.
3347	3348	Dolomite, medium gray, finely granular.
3348	3349	Dolomite medium gray to light gray, nottled finely granular with much anhydrite.
3349	3350	Dolomite medium gray to light gray with dark gray shale streaks.
3350	3351	Dolomite light gray to dark gray very shaley at 3351'.
3351	3353	Dolomite medium gray, bonded with medium to dark gray shale.
3353	3355	Dolomite light gray, fine grained with black shale partings.
3355	3358	Dolomite, light gray with occassional shale streaks.
3358	3359	Dolomite medium gray brown, varicolored, with anhydrite.
3359	3361	Dolomite light gray, mottled, traces of anhydrite and some black shale partings, trace of healed fractures.
3361	3362	Dolomite light gray, fine grained with dark gray shale bands.
3362	3364	Dolomite, medium gray, varicolored, mottled trace of anhydrite, finely granular, trace of healed horizontal fractures.
3364	3365	Dolomite, light gray.
3365	3366	Dolomite, medium gray to medium gray brown, trace of fracture porosity at 3366'.
3366	3369	Dolomite, medium gray brown with occassional shale partings.
3369	3373	Dolomite, light gray, finely granular with med. gray shale partings.
3373	3376	Dolomite, medium gray, with shale partings.
3376	3377	Dolomite as above with vertical fracture (pencil line, irregular, healed with black shale).
3377	3379	Dolomite, medium gray, finely granular, with shale partings.

WELL NO. 9509-TPAGE 2COUNTY Wayne, West VirginiaDEPTHS: FROM 3379 TO 3444SAND SAMPLE ANALYSIS BY: Pete Hopkins

	FROM	TO	
3371	3379	3380	Dolomite, medium gray mottled with black shale partings.
	3380	3382	Dolomite, light gray, finely granular with black shale partings.
3374	*3382	3387	Dolomite, medium gray, succrosic and sandy with traces of horizontal fracture porosity zones.
3379	3387	3390	Dolomite, medium gray, mottled with black shale partings.
	3390	3392	Dolomite, light gray, mottled in part, trace of black shale partings.
	3392	3393	Dolomite, medium gray brown, mottled and finely granular.
	3394	3395 $\frac{1}{2}$	RUN NO. 2 - 3394-3444 Recovered 50 feet. Dolomite, medium gray, very shaley with tan dolomite laminations calcareous.
Top Ls. 3387 $\frac{1}{2}$	3395 $\frac{1}{2}$	3397	Limestone, trace dolomite, laminated, bleeding gas. - <i>Pete Hopkins HAS THIS SECTION.</i>
	3397	3399	Limestone, medium gray, shaley and dolomitic.
	3399	3401	Limestone, light gray to tan, dolomitic, laminated.
	3401	3403	Limestone, light gray, dolomitic becoming more shaley.
	3403	3409 $\frac{1}{2}$	Limestone, light gray, shaley
	3409 $\frac{1}{2}$	3410 $\frac{1}{2}$	Limestone, light to medium gray, with heavy trace of fracture porosity, partly open.
	3410 $\frac{1}{2}$	3415	Limestone, light to medium gray, shaley dense.
	3415	3419	Limestone, light to medium gray, shaley, dense with trace of fracture porosity at 3418 $\frac{1}{2}$ '
	3419	3424	Limestone, light to medium gray shaley with traces of fracture porosity.
3416-22	*3424	3430	Limestone, medium gray, dolomitic and sandy.
22-30	*3430	3438	Limestone as above.
3430-36	3438	3444	Limestone, light to medium gray, dolomitic with occassional horizontal black shale partings. (3-4 per foot).

WELL NO. 9509-T

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COUNTY Wayne, West Virginia

DEPTHS: FROM 3444 TO 3498

SAND SAMPLE ANALYSIS BY: Pete Hopkins

RUN NO. 3 3444-3494 Recovered 49 feet 7 inches.

FROM	TO	
3444	3449	Limestone, medium gray, dolomitic with much dark gray shale.
3449	3463	Limestone, light to medium gray, dolomitic with abundance of black, horizontal shale partings.
3463	3464	Limestone, medium gray, dolomitic and shaley with vugular (Approx 1" diameter) filled with calcite and dolomite. $\frac{1}{4}$ inch opening.
3456 3464	3469	Limestone, medium gray, finely grainular dolomitic, much dark gray shale partings.
3461-64	3472	Limestone as above.
3364-66	3474	Limestone, light to medium gray, dolomitic, with trace of tan, sublithographic limestone. At 3473' 1 inch by 2 inches partially filled with calcite crystals opening $\frac{3}{4}$ in diameter with two smaller openings.
66-68	3476	Limestone, medium gray, dolomitic, argillaceous with occassional horizontal fractures, healed with shale. * Show oil at 3476- horizontal fracture, very fine line.-Oil leashed from core upon exposure to sun rays.
3468-71	3479	Limestone, medium gray, dolomitic with occassional horizontal fracture.
3471-74	3482	Limestone, light gray, <u>sandy</u> in part.
74-75	3483	Limestone, tan, finely granular to sublithographic, trace of intergranular porosity. *Show of oil.
	3490	Limestone, light gray, dolomitic, shaley, with inclusions of tan limestone as above.
3482-86	3494	Limestone, light to medium gray, with occassional black shale partings. CORE NO. 4. Cone from 3494 to 3529 $\frac{1}{2}$ drlg. meas. Coned 35 $\frac{1}{2}$ feet 3530 $\frac{1}{2}$ cone meas. Recovered 36 $\frac{1}{2}$ feet
	3496	Limestone, medium gray, dense, shaley.
	3497	Limestone, light gray, dense, shaley partly dolomitic.
*	3498	Limestone as above with fracture and vugular porosity filled with calcite.

WELL NO. 9509-T

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COUNTY Wayne, West Virginia

DEPTHS: FROM 3498 TO 3574

SAND SAMPLE ANALYSIS BY: Pete Hopkins

	FROM	TO	
90-94	3498	3502	Limestone, light to med gray, dolomitic shaley.
	3502	3503	Limestone, light to medium grau, dolomitic shaley with horizontal fractures and vugular partially filled with calcite.
95-98	3503	3506	Limestone, medium gray, dolomitic shaley. 3504 $\frac{1}{2}$ large vugular partially filled with calcite crystals. Becoming silty at 3506'. (3498)
98-3503	3506	3511	Limestone, light gray to buff, silty with occassional horizontal, black shale partings.
03-07	3511	3515	Limestone, light gray to buff, silty, dolomitic with numerous (12 per foot) horizontal black shale partings.
07-10	3515	3518	Limestone, light gray, very silty and with black shale partings.
10-20	3518	3528	Limestone, light to medium gray, dolomitic and very shaley.
3520 top siltst.	3528	3530	Siltstone, light gray, very calcareous with occassional black shale partings.
			RUN NO. 5. Cored 3530 $\frac{1}{2}$ to 3574' Recovered 45 feet of core.
	3530	3532	Siltstone, light gray, calcareous, with occassional black shale partings.
	3532	3534	Siltstone, light gray to medium gray, calcareous and very shaley.
3526 top sh	3534	3540	Shale, medium gray.
	3540	3574 (3566 E.L.)	Shale - predominately red with some gray shale.

OILFIELD RESEARCH, INC.

1204 FIRST AVENUE • EVANSVILLE, INDIANA 47710 • TELEPHONE 424-2907 (DAY OR NIGHT)

WALDO, OHIO

October 30, 1975

Columbia Gas Transmission Corp.
P. O. Box 1273
Charleston, West Virginia 25325

IN RE: Caldwell Colton Mineral Lease
Well No. 20289-T
Wayne County, West Virginia

ATTN: Mr. Sherwood Spencer


Gentlemen:

The Corniferous formation was diamond cored in the subject well. Twenty samples representing 26.8 feet from the interval 3840.0 - 3866.8 feet were analyzed in our Ohio laboratory. These samples were analyzed using whole core techniques and the enclosed tabulation presents the results.

It should be noted that the measured permeability of certain samples was due to horizontal fractures and/or to weak bedding planes. Weighed averages for specific portions of the core are given on the enclosed tabulation. If there are any questions regarding these laboratory measurements, please call at your convenience.

Very truly yours,

OILFIELD RESEARCH, INC.


Marlin F. Krieg

MFK:csr

6C: Addressee



C O R E A N A L Y S I S



OILFIELD RESEARCH, INC.

WHOLE CORE ANALYSIS REPORT

Company Columbia Gas Transmission Corp. Elevation 768 GL File No. 75010035
 Lease Caldwell Colton Mineral Well 20289-T Formation Corniferous Date Cored _____
 Field _____ Drig. Fluid _____ Date Report 10/30/75
 County Wayne State W. Va. Type Of Core Diamond Permit No. _____
 Location _____ Remarks Sampled by Client

LITHOLOGICAL ABBREVIATIONS

SAND-SD	DOLOMITE-DOL	ANHYDRITE-ANHY	SANDY-SOY	FINE-FN	CRYSTALLINE-XLN	BROWN-BRN	FRACTURED-FRAC	SLIGHTLY-SL/
SHALE-SH	CHERT-CH	CONGLOMERATE-CONG	SHALEY-SHY	MEDIUM-MED	GRAIN-GRN	GRAY-GY	LAMINATION-LAM	VERY-V/
LIME-LM	GYPSUM-GYP	FOSSILIFEROUS-FOSS	LIMEY-LMY	COARSE-CSE	GRANULAR-GRNL	VUGGY-VGY	STYLOLITIC-STY	WITH-W/

SAMPLE NUMBER	DEPTH FEET	PERMEABILITY MILLIDARCS		POROSITY PERCENT	LITHOLOGY AND REMARKS
		HORIZONTAL			
		MAX.	90°		

BASAL CORNIFEROUS

Bulk Wet Density

Sample No.	Depth (ft)	Permeability (Max)	Permeability (90°)	Porosity (%)	Bulk Wet Density	Remarks	
1	3840.0-41.0	32.	31.	0.19	4.2	2.80	Horz frags & vugs
2	3841.0-42.2	33.	25.	0.19	4.0	2.74	" " "
3	3842.2-43.8	<i>gas</i> 2.7	2.2	0.27	3.8	2.78	" " "
4	3843.8-45.0	19.	17.	0.14	4.4	2.76	Horz frags & bedding pl.
5	3845.0-46.3	12.	6.0	0.13	3.2	2.79	" "
6	3846.3-47.8	14.	11.	0.15	3.0	2.81	" "
7	3847.8-49.0	14.	9.0	<0.10	2.4	2.87	" "
8	3849.0-50.5	<0.10	<0.10	<0.10	1.8	2.87	
9	3850.5-52.2	<0.10	<0.10	<0.10	1.1	2.72	
10	3852.2-53.9	<0.10	<0.10	<0.10	1.1	2.79	
11	3853.9-55.2	<0.10	<0.10	<0.10	1.7	2.76	
12	3855.2-56.8	5.4	1.5	0.10	2.4	2.72	Horz. frags & bedding pl.
13	3856.8-58.3	19.	16.	<0.10	3.5	2.69	" " " "
14	3858.3-59.8	29.	29.	<0.10	4.4	2.69	" " " "
15	3859.8-60.8	<i>gas</i> 27.	24.	0.22	5.4	2.61	" " " "
16	3860.8-62.0	29.	24.	<0.10	3.2	2.67	" " " "
17	3862.0-63.3	<0.10	<0.10	<0.10	2.9	2.71	
18	3863.3-65.0	<0.10	<0.10	<0.10	1.8	2.67	
19	3865.0-66.4	<0.10	<0.10	<0.10	2.3	2.69	
20	3866.4-66.8	<0.10	<0.10	<0.10	2.5	2.69	

AVERAGES

3840.0-49.0	17.	13.	0.16	3.6	2.79	(9.0')
3855.2-62.0	21.	18.	<0.10	3.7	2.68	(6.8')

*calcite
dolomite
quartz*

*2.71
2.85
2.65*



this - 800' off - 6181 *Wayne 1581*
Wayne 465
DOWELL DIVISION OF THE DOW CHEMICAL COMPANY

LABORATORY REPORT

Columbia Gas Transmission
 Caldwell-Cotton Mineral 20,2⁹T
 Wayne, West Virginia

DATE: 11/6/75

LAB LOCATION: Newark

TYPE OF SAMPLE: Core

LAB NO. EL 4605

DESCRIPTION: There were 2^o samples from 3840' to 3867' S. NO. 44364

Analysis of the sample to determine solubility in 15X was requested.

Acid Solubility Tests

The solubility of the samples was determined by the gravimetric method. This method determines the maximum solubility of the sample in excess acid. The difference between the 15X and Mud Acid solubilities represents the approximate silicate content in the sample.

<u>Sample Depth(ft)</u>	<u>Percent Soluble in 15X</u>	<u>Mud Acid</u>
3840	94.6	-
3841	95.2	95.7
3842	95.1	-
3843 <i>gas zone</i>	98.0	-
3844	89.9	90.3
3845	93.9	95.4
3846	95.5	-
3847	99.3	-
3848	94.1	-
3849	89.3	91.2
3850	81.9	83.0
3851	64.4	66.7
3852	57.1	62.1
3853	79.4	83.2
3854	66.0	70.3
3855	54.3	57.5
3856	68.9	71.1
3857	76.9	78.8
3858 <i>gas ?</i>	58.8	60.9
3859	56.4	57.7

DISTRIBUTION:

J. L. Norton, G. P. Boland, S. J. Siers, L. C. Taylor, C. M. Stout,
 F. C. Berger and Tulsa Lab.

Columbia Gas Transmission
Lab No. EL 4605
Page 2
November 6, 1975

<u>Sample Depth (ft)</u>	<u>Percent Soluble in 15X</u>	<u>Mud Acid</u>
3860	26.2	28.5
3861	44.4	46.3
3862	19.2	23.0
3863	31.2	40.9
3864	23.6	27.4
3865	16.1	28.1
3866	34.2	40.1
3867	40.7	44.4

There were small pockets of crystalline CaCO₃ at depths 3848, 3849, 3855 and 3856.

J. A. Bieberbach

J. A. Bieberbach

JAB/mk

DOWELL

3 BOXES

OILFIELD RESEARCH, INC.

WHOLE CORE DATA SHEET

COMPANY COLUMBIA GAS TRANS ELEVATION _____ DATE CORED _____
 LEASE CALDWELL - COSTON AUCRONS WELL 20,289-T FORMATION BASAL CORNIFEROS DATE REPORT _____
 FIELD _____ DRIG. FLUID _____
 COUNTY WAYNE STATE W. VA TYPE OF CORE 3 1/2 DIA
 LOCATION _____ REMARKS _____

BULK WET
DENSITY

SAMPLE NUMBER	DEPTH FEET	PERMEABILITY		POROSITY %	RESIDUAL LIQUID SATURATION % PORE SPACE		CORE DESCRIPTION	
		HORIZONTAL	VERTICAL		OIL	WATER		
		MAX.	90°					
1	3840-4110	32	31	119	4.2		2.80	HORIZ FR - 4105
2	4212	33	25	119	4.0		2.79	" "
3	4318	2.2	2.7	127	3.8		2.78	" "
4	4510	19	17	114	4.4		2.76	" BEDDING PLACES
5	4623	12	6.0	113	3.2		2.79	" "
6	4768	14	11	115	3.0		2.81	" "
7	4910	18	9.0	101	2.4		2.87	" "
8	5015	10.1	10.1	10.1	1.8		2.87	
9	5212	10.1	10.1	10.1	1.1		2.72	
10	5319	10.1	10.1	10.1	1.1		2.79	
11	5512	10.1	10.1	10.1	1.7		2.76	
12	5618	3.4	1.5	10	2.9		2.72	HORIZ FR & BEDDING PLACES
13	5813	19	16	107	3.5		2.69	" "
14	5918	29	29	107	4.4		2.69	" "
15	6018	27	24	132	5.4		2.61	" "
16	6210	29	24	10.1	3.2		3.67	" "
17	6313	10.1	10.1	10.1	2.9		2.71	
18	6510	10.1	10.1	10.1	1.8		2.67	
19	6614	10.1	10.1	10.1	2.3		2.69	
20	6675	10.1	10.1	10.1	2.5		2.69	