

CORE LABORATORIES, INC.

Petroleum Reservoir Engineering

DALLAS, TEXAS

September 5, 1973

REPLY TO
8 N. W. 42ND ST.
OKLAHOMA CITY, OKLA.
73118

Northern Natural Gas Company
2223 Dodge Street
Omaha, Nebraska 68102

Attn: Mr. J. N. Hall

2-01

Subject: Core Analysis Data
Caldwell No. 1 Well
Lyons Field
Rice County, Kansas
CLI File No. 3402-7878

Gentlemen:

The Caldwell No. 1 Well was diamond cored from 3258.0 to 3480.7 feet. The cores were preserved at the well-site by a representative of Northern Natural Gas Company and transported to the Oklahoma City laboratory where the accompanying Core-Gamma Surface Log was recorded.

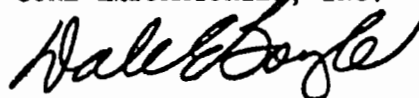
Dean-Stark cleaning--Boyle's law grain volume density balance technique was utilized in the whole-core analysis performed on each foot of the submitted core.

Permeability to air was measured in a Hassler holder reflecting two horizontal and one vertical measurement. This with other data are presented on pages one through four of this report.

We appreciate this opportunity to be of service.

Very truly yours,

CORE LABORATORIES, INC.



Dale E. Boyle
Manager, Core Analysis Services

DEB:CIM:es

- 2 cc - Addressee
- 1 cc - Northern Natural Gas Company
Attn: Mr. F. L. Holliger
Lykan Hotel
Lyons, Kansas 67554
- 1 cc - Drillers Production Co., Inc.
Attn: Mr. L. B. Stewart
480 Fourth National Bank Building
Wichita, Kansas 67202

WHOLE CORE ANALYSIS-CORE LABS/OKC
 NORTHERN NAT. GAS CO. - CALDWELL #1 * [CLI NO 3402-1878]

DEPTH FROM TO	PERMEABILITY		PORS PCT	OIL SAT	WAT SAT	BULK DENS	GRAIN DENS	COMMENTS
	VERT	HORIZI						
3258.00-59.00	<0.1	.3	.2	1.6	.0	85.0	2.69	2.72 LM S/SHY
3259.00-60.00	<0.1	.2	<0.1	1.3	.0	66.7	2.69	2.71 LM S/SHY
3260.00-61.00	<0.1	<0.1	<0.1	1.0	.0	46.2	2.69	2.71 LM
3261.00-62.00	<0.1	<0.1	<0.1	1.3	.0	45.5	2.68	2.71 LM
3262.00-63.00	<0.1	.1	<0.1	1.6	.0	47.8	2.67	2.70 LM S/SHY
3263.00-64.00	<0.1	<0.1	<0.1	1.3	.0	41.7	2.68	2.70 LM
3264.00-65.00	<0.1	<0.1	<0.1	1.2	.0	42.9	2.69	2.71 LM
3265.00-66.00	<0.1	<0.1	<0.1	1.3	.0	50.0	2.69	2.71 LM S/SHY
3266.00-67.00	<0.1	<0.1	<0.1	1.3	.0	50.0	2.69	2.71 LM S/SHY
3267.00-68.00	<0.1	<0.1	<0.1	2.8	.0	61.3	2.68	2.72 LM S/SHY
3268.00-69.00	<0.1	<0.1	<0.1	2.0	.0	44.8	2.68	2.71 LM
3269.00-70.00	<0.1	<0.1	<0.1	4.5	.0	55.6	2.65	2.73 LM S/SHY
3270.00-71.00	<0.1	<0.1	<0.1	2.6	.0	57.1	2.69	2.73 LM S/SHY
3271.00-72.00	<0.1	<0.1	<0.1	1.8	0.	49.1	2.69	2.72 LM
3272.00-73.00	<0.1	.7	.3	4.5	.0	46.9	2.65	2.72 LM S/SHY
3273.00-74.00	1.0	.6	<0.1	3.8	.0	49.1	2.65	2.71 LM S/SHY
3274.00-75.00	2.2	.2	<0.1	3.8	.0	40.7	2.67	2.73 LM
3275.00-76.00	<0.1	<0.1	<0.1	1.8	.0	46.2	2.67	2.70 LM S/SHY
3276.00-77.00	<0.1	<0.1	<0.1	2.9	.0	39.0	2.67	2.72 LM
3277.00-78.00	<0.1	<0.1	<0.1	3.1	.7	40.2	2.68	2.74 LM S/SHY
3278.00-79.00	<0.1	<0.1	<0.1	2.8	.0	43.2	2.68	2.73 LM S/SHY
3279.00-80.00	<0.1	<0.1	<0.1	2.5	.0	57.1	2.68	2.72 LM S/SHY
3280.00-81.00	<0.1	.2	.2	1.7	.0	65.0	2.68	2.71 LM
3281.00-82.00	<0.1	.4	.2	2.0	.0	66.7	2.69	2.72 LM S/SHY
3282.00-83.00	<0.1	<0.1	<0.1	1.7	.0	56.3	2.70	2.73 LM
3283.00-84.00	<0.1	<0.1	<0.1	1.5	.0	66.7	2.68	2.71 LM S/SHY
3284.00-85.00	<0.1	<0.1	<0.1	1.0	.0	44.4	2.68	2.70 LM
3285.00-86.00	<0.1	<0.1	<0.1	1.9	.0	61.1	2.67	2.70 LM S/SHY
3286.00-87.00	<0.1	<0.1	<0.1	3.5	5.7	53.7	2.67	2.73 LM S/SHY+SDY
3287.00-88.00	<0.1	<0.1	<0.1	4.0	2.7	50.6	2.67	2.74 LM S/SHY SDY
3288.00-89.00	<0.1	<0.1	<0.1	6.1	.0	46.6	2.61	2.72 LM SDY
3289.00-90.00	<0.1	.5	.3	5.5	.0	52.4	2.60	2.69 LM S/SHY SDY
3290.00-91.00	<0.1	.6	.5	9.1	.0	40.0	2.66	2.83 DOL
3291.00-92.00	24.6	5.7	.3	7.1	0.	43.1	2.69	2.81 DOL F
3292.00-93.00	.3	.2	.1	9.5	.0	35.9	2.65	2.83 DOL
3293.00-94.00	<0.1	9.5	4.9	12.1	.0	36.4	2.59	2.81 DOL
3294.00-95.00	<0.1	1.9	.8	7.2	.0	76.9	2.56	2.69 LM SHY
3295.00-96.00	<0.1	1.6	<0.1	10.0	.0	77.5	2.53	2.70 LM SHY
3296.00-97.00	<0.1	<0.1	<0.1	10.2	.0	74.2	2.53	2.70 SLT LMY SHY
3297.00-98.00	<0.1	<0.1	<0.1	8.1	0.	75.3	2.54	2.67 SLT LMY
3298.00-99.00	<0.1	<0.1	<0.1	6.7	.0	68.3	2.52	2.63 SLT LMY SHY
3299.00- 0.	<0.1	<0.1	<0.1	9.5	.0	68.4	2.50	2.65 SH SLTY LMY
3300.00- 1.00	<0.1	<0.1	<0.1	8.6	1.2	55.1	2.67	2.82 DOL SDY
3301.00- 2.00	.3	.5	.2	11.8	1.1	43.5	2.60	2.81 DOL SDY
3302.00- 3.00	120.0	459.4	312.4	13.0	1.2	15.1	2.46	2.68 SD S/DOL
3303.00- 4.00	885.2	719.5	629.6	15.3	1.0	15.1	2.42	2.67 SD S/DOL
3304.00- 5.00	3.5	70.6	65.2	13.8	1.4	17.6	2.49	2.72 SD S/DOL
3305.00- 6.00	112.6	112.3	110.6	11.3	1.3	15.2	2.50	2.69 SD S/DOL
3306.00- 7.00	100.5	123.5	116.2	12.6	1.7	10.7	2.48	2.69 SD S/DOL
3307.00- 8.00	26.4	116.5	116.5	14.1	1.9	15.3	2.46	2.70 SD S/DOL
3308.00- 9.00	1.0	97.4	95.5	11.8	1.4	19.9	2.47	2.67 SD S/DOL
3309.00-10.00	.7	13.3	9.2	14.4	2.1	30.6	2.42	2.66 SD SLTY S/DOL
3310.00-11.00	6.5	9.8	8.4	17.4	1.3	28.1	2.36	2.65 SD SLTY
3311.00-12.00	2.4	10.1	10.1	16.1	0.	28.9	2.37	2.64 SD SLTY S/SHY
3312.00-13.00	1.9	11.8	9.1	13.4	1.3	28.3	2.43	2.65 SD SLTY
3313.00-14.00	2.8	12.6	11.0	14.4	1.1	26.4	2.41	2.65 SD SLTY S/SHY
3314.00-15.00	1.4	6.5	5.6	14.6	2.2	25.9	2.41	2.65 SD SLTY S/SHY
3315.00-16.00	<0.1	<0.1	<0.1	8.6	.0	80.9	2.52	2.66 SLT SHY SDY
3316.00-17.00	<0.1	<0.1	<0.1	6.4	.0	72.0	2.50	2.61 SLT SHY

	---DEPTH---		---PERMEABILITY---			PORS PCT	OIL SAT	WAT SAT	BULK DENS	GRAIN DENS	COMMENTS
	FROM	TO	VERT	HORIZI	HORIZ2						
	3317.00	-18.00	<0.1	<0.1	<0.1	6.5	.0	68.9	2.48	2.58	SLT SHY
	3318.00	-19.00	2.5	4.9	1.3	12.2	1.1	54.6	2.51	2.71	SD SHY SLTY
	3319.00	-20.00	1.7	7.3	6.7	13.4	2.3	38.6	2.47	2.70	SD SHY SLTY
	3320.00	-21.00	1.8	4.9	.5	13.2	.8	40.5	2.46	2.68	SD SH LMY
	3321.00	-22.00	.5	2.6	2.6	11.2	2.7	47.5	2.53	2.72	SD SHY
	3322.00	-23.00	.4	2.5	.1	10.3	2.6	59.3	2.54	2.72	SD SHY
	3323.00	-24.00	.4	9.3	5.1	12.3	1.4	61.5	2.50	2.71	SD SHY
	3324.00	-25.00	<0.1	3.8	.3	13.6	.9	59.0	2.48	2.72	SD SHY
	3325.00	-26.00	<0.1	3.1	.9	12.8	1.1	65.0	2.50	2.72	SD SHY
	3326.00	-27.00	<0.1	.8	<0.1	9.9	.9	65.3	2.53	2.70	SD SHY
	3327.00	-28.00	<0.1	.3	<0.1	9.7	.8	67.8	2.55	2.72	SD SHY
<u>BASAL</u>	3328.00	-29.00	<0.1	.2	<0.1	8.9	.9	72.5	2.57	2.73	SD SHY
<u>SIMPSON</u>	3329.00	-30.00	<0.1	<0.1	<0.1	5.6	.9	76.5	2.68	2.78	SD V/SHY PYR
<u>SWALE</u>	3330.00	-31.00	<0.1	<0.1	<0.1	7.8	.0	69.2	2.60	2.74	SH SLTY
	3331.00	-32.00	<0.1	<0.1	<0.1	10.1	.0	76.2	2.62	2.80	SH SLTY PYR
	3332.00	-33.00	<0.1	<0.1	<0.1	11.0	.0	62.2	2.60	2.80	SH SLTY PYR
	3333.00	-34.00	<0.1	<0.1	<0.1	13.2	.0	69.8	2.55	2.79	SH SLTY PYR
	3334.00	-35.00	<0.1	<0.1	<0.1	11.3	.0	82.5	2.73	2.95	SH SLTY PYR
	3335.00	-36.00	<0.1	<0.1	<0.1	13.4	.0	64.2	2.52	2.75	SH SLTY
	3336.00	-37.00	<0.1	<0.1	<0.1	11.4	.0	65.6	2.51	2.70	SH SLTY
	3337.00	-38.00	<0.1	<0.1	<0.1	14.1	.0	61.3	2.50	2.75	SH SLTY
	3338.00	-39.00	<0.1	<0.1	<0.1	10.7	.0	62.2	2.52	2.71	SH SLTY
	3339.00	-40.00	<0.1	<0.1	<0.1	14.8	.0	67.0	2.53	2.80	SH SLTY PYR
	3340.00	-41.00	<0.1	<0.1	<0.1	14.1	.0	62.2	2.52	2.77	SH SLTY PYR
	3341.00	-42.00	<0.1	<0.1	<0.1	13.0	.0	69.8	2.52	2.75	SH SLTY
	3342.00	-43.00	<0.1	<0.1	<0.1	14.3	.0	69.0	2.52	2.77	SH SLTY PYR
	3343.00	-44.00	<0.1	<0.1	<0.1	9.8	.0	66.1	2.60	2.77	SH SLTY PYR
	3344.00	-45.00	<0.1	<0.1	<0.1	9.6	.0	68.0	2.65	2.83	SH SLTY PYR
	3345.00	-46.00	<0.1	<0.1	<0.1	9.7	.0	64.9	2.65	2.82	SH SLTY PYR
	3346.00	-47.00	<0.1	<0.1	<0.1	11.4	.0	65.8	2.60	2.80	SH SLTY PYR
	3347.00	-48.00	<0.1	<0.1	<0.1	12.1	.0	64.7	2.52	2.72	SH SLTY
<u>ARBuckle</u>	3348.00	-49.00	<0.1	<0.1	<0.1	10.4	.0	67.4	2.56	2.74	SH SLTY
	3349.00	-50.00	<0.1	.4	.3	4.9	.0	43.6	2.75	2.84	DOL
	3350.00	-51.00	<0.1	7.7	.6	7.1	.0	34.1	2.70	2.83	DOL S/VGY
	3351.00	-52.00	<0.1	2.8	2.2	4.1	0.	48.4	2.74	2.82	DOL
	3352.00	-53.00	.2	71.4	61.7	7.8	.0	36.1	2.69	2.83	DOL VGY
	3353.00	-54.00	8.1	14.0	12.1	11.1	1.7	38.6	2.61	2.81	DOL S/VGY
	3354.00	-55.00	<0.1	1.9	.7	9.7	1.3	43.6	2.66	2.83	DOL S/VGY
	3355.00	-56.00	3.6	33.2	19.2	13.1	1.4	28.3	2.59	2.83	DOL VGY
	3356.00	-57.00	1.7	20.5	19.2	6.5	1.9	32.3	2.71	2.82	DOL S/VGY
	3357.00	-58.00	107.9	132.8	121.2	17.5	.5	19.4	2.51	2.83	DOL
	3358.00	-59.00	6.3	182.0	147.9	15.4	.4	16.9	2.54	2.81	DOL VGY
	3359.00	-60.00	61.9	330.9	271.3	16.1	2.3	23.9	2.53	2.83	DOL VGY
	3360.00	-61.00	.6	21.3	17.4	6.7	2.4	24.5	2.70	2.82	DOL S/VGY
	3361.00	-62.00	2.1	27.5	18.3	7.5	2.4	18.0	2.69	2.83	DOL S/VGY
	3362.00	-63.00	51.9	1333.8	1048.0	20.1	1.1	16.9	2.45	2.81	DOL
	3363.00	-64.00	.2	146.5	22.9	9.7	1.0	27.5	2.65	2.83	DOL VGY
	3364.00	-65.00	4.1	11.7	10.0	11.4	1.1	30.9	2.61	2.82	DOL
	3365.00	-66.00	<0.1	*	<0.1	8.5	2.0	58.6	2.66	2.82	DOL SHY
	3366.00	-67.00	<0.1	1.4	.8	11.0	1.3	65.9	2.61	2.80	DOL SHY
	3367.00	-68.00	<0.1	2.1	1.3	13.2	2.0	56.0	2.58	2.83	DOL S/SHY
	3368.00	-69.00	2.1	34.2	28.2	12.6	1.6	26.0	2.59	2.82	DOL S/VGY
	3369.00	-70.00	2.0	35.7	31.5	12.6	2.1	21.8	2.57	2.80	DOL S/SHY
	3370.00	-71.00	92.4	*	153.5	12.4	2.0	19.0	2.60	2.83	DOL SHY
	3371.00	-72.00	.3	175.3	60.5	8.3	1.2	21.0	2.67	2.82	DOL VGY F
	3372.00	-73.00	.1	2.4	1.9	5.4	3.4	20.0	2.73	2.83	DOL S/SHY
	3373.00	-74.00	.1	5.5	4.0	5.4	3.6	27.3	2.73	2.83	DOL S/SHY
	3374.00	-75.00	1.8	50.7	43.7	10.9	.8	20.9	2.62	2.81	DOL S/CHT
	3375.00	-76.00	1.1	56.7	49.7	8.3	2.3	19.2	2.68	2.83	DOL VGY
	3376.00	-77.00	1.6	379.1	48.0	6.0	1.2	29.3	2.72	2.83	DOL S/VGY

---DEPTH---	-----PERMEABILITY-----		PORS	OIL	WAT	BULK	GRAIN	COMMENTS	
	FROM	TO							
3377.00-78.00	4.9	7.2	6.6	5.0	1.9	20.8	2.75	2.84	DOL VGY
3378.00-79.00	197.1	380.3	261.8	7.3	1.3	20.2	2.71	2.84	DOL
3379.00-80.00	3.4	56.9	33.5	11.6	1.8	19.2	2.63	2.84	DOL S/VGY
3380.00-81.00	42.1	254.0	77.8	15.5	1.2	20.2	2.54	2.83	DOL VGY
3381.00-82.00	17.6	*	72.4	8.6	2.2	33.3	2.67	2.83	DOL VGY
3382.00-83.00	7.8	41.8	24.8	5.9	2.6	37.0	2.72	2.83	DOL VGY
3383.00-84.00	.7	4.1	1.5	12.9	.2	49.6	2.61	2.85	DOL S/SHY VGY
3384.00-85.00	1.8	17.8	2.1	13.0	1.8	36.8	2.60	2.84	DOL S/SHY
3385.00-86.00	.6	8.9	5.1	7.5	2.0	43.1	2.68	2.82	DOL
3386.00-87.00	7.5	1508.2	1371.1	9.6	1.2	34.3	2.66	2.84	DOL VGY
3387.00-88.00	20.4	48.8	34.2	8.5	1.4	26.8	2.68	2.83	DOL VGY
3388.00-89.00	2.2	69.5	36.0	18.6	1.0	32.2	2.50	2.84	DOL S/SHY VGY
3389.00-90.00	2.3	2.6	.5	5.5	2.2	53.7	2.72	2.82	DOL
3390.00-91.00	3.0	32.3	22.1	14.0	1.6	40.2	2.58	2.83	DOL
3391.00-92.00	<0.1	.3	<0.1	8.8	1.4	53.5	2.66	2.82	DOL
3392.00-93.00	2.1	10.2	6.7	14.6	2.0	32.9	2.57	2.84	DOL VGY
3393.00-94.00	9.8	9.8	.8	7.8	2.0	38.8	2.69	2.83	DOL S/SHY VGY
3394.00-95.00	<0.1	5.3	3.5	8.2	1.8	24.7	2.67	2.82	DOL VGY
3395.00-96.00	.1	3.4	1.2	9.1	1.7	34.0	2.66	2.82	DOL S/SHY VGY
3396.00-97.00	10.3	67.0	58.0	18.4	4.1	26.2	2.49	2.83	DOL
3397.00-98.00	82.0	102.2	89.7	17.8	3.3	29.1	2.51	2.84	DOL
3398.00-99.00	1.8	29.2	17.5	10.6	1.7	34.1	2.63	2.82	DOL VGY F
3399.00- 0.	79.4	2152.9	57.3	10.3	1.1	33.2	2.65	2.83	DOL VGY-LGE
3400.00- 1.00	512.4	1598.0	1398.2	24.6	1.4	42.4	2.38	2.83	DOL VGY
3401.00- 2.00	35.9	222.1	184.5	15.1	2.0	38.3	2.55	2.83	DOL S/VGY
3402.00- 3.00	.2	.6	.5	6.8	4.3	52.4	2.71	2.83	DOL S/SHY
3403.00- 4.00	9.6	28.4	23.1	7.3	2.1	45.0	2.69	2.83	DOL S/VGY
3404.00- 5.00	2.6	7.9	4.6	14.0	.9	53.5	2.57	2.82	DOL VGY
3405.00- 6.00	2.5	4.4	4.2	13.3	1.0	62.4	2.59	2.83	DOL S/SHY
3406.00- 7.00	182.8	1642.7	1505.8	17.5	.7	37.9	2.50	2.82	DOL VGY
3407.00- 8.00	4.1	6.0	6.0	6.1	2.5	45.8	2.71	2.82	DOL
3408.00- 9.00	2.2	28.6	4.9	11.5	.9	49.6	2.62	2.83	DOL CHT
3409.00-10.00	1.0	1.1	.8	4.3	2.1	46.8	2.76	2.84	DOL VGY
3410.00-11.00	7.0	19.9	19.9	4.1	.7	62.2	2.73	2.80	DOL
3411.00-12.00	.2	.3	<0.1	7.5	1.5	59.0	2.70	2.84	DOL S/VGY
3412.00-13.00	1.3	815.9	244.8	3.8	1.5	62.3	2.75	2.82	DOL CHT F
3413.00-14.00	3.2	2.8	1.1	3.8	2.6	51.1	2.76	2.83	DOL CHT
3414.00-15.00	.3	3.4	3.3	11.7	2.5	41.5	2.62	2.83	DOL CHT
3415.00-16.00	.2	33.2	.6	3.7	2.1	48.3	2.77	2.84	DOL VGY
3416.00-17.00	<0.1	1.0	<0.1	3.2	2.8	45.2	2.78	2.83	DOL VGY
3417.00-18.00	2.0	1.5	1.5	14.9	1.2	41.7	2.54	2.81	DOL
3418.00-19.00	.1	1.8	1.7	14.0	3.6	38.3	2.58	2.84	DOL
3419.00-20.00	1.0	6.1	2.3	11.0	3.7	46.0	2.62	2.83	DOL SHY
3420.00-21.00	2.6	8.3	3.6	14.0	2.8	48.6	2.55	2.80	DOL VGY
3421.00-22.00	9.4	46.4	31.7	15.4	2.9	38.2	2.55	2.83	DOL S/SHY
3422.00-23.00	5.6	11.9	7.6	9.9	1.2	36.7	2.62	2.79	DOL S/SHY CHT
3423.00-24.00	60.4	240.7	192.9	11.3	2.2	30.8	2.61	2.81	DOL CHT VGY
3424.00-25.00	24.4	57.2	29.9	12.7	2.4	44.4	2.57	2.80	DOL CHT VGY
3425.00-26.00	<0.1	10.7	1.8	12.8	2.0	36.8	2.59	2.82	DOL S/CHT+VGY
3426.00-27.00	.3	15.2	8.5	10.9	1.2	32.3	2.64	2.84	DOL
3427.00-28.00	5.1	9.4	6.1	6.8	2.0	26.8	2.72	2.84	DOL VGY
3428.00-29.00	1.0	44.2	15.2	8.5	2.7	39.1	2.67	2.83	DOL S/VGY
3429.00-30.00	3.5	40.8	20.7	10.8	3.2	37.0	2.63	2.83	DOL S/VGY
3430.00-31.00	<0.1	.8	.8	3.5	3.1	36.7	2.75	2.81	DOL S/VGY
3431.00-32.00	<0.1	13.1	1.2	2.6	4.9	41.7	2.78	2.83	DOL S/VGY
3432.00-33.00	.2	17.7	3.5	5.0	2.1	56.4	2.74	2.83	DOL S/VGY
3433.00-34.00	.9	9.2	7.3	8.8	2.0	44.1	2.67	2.83	DOL SHY
3434.00-35.00	.4	3.8	1.9	6.6	3.6	33.8	2.70	2.83	DOL VGY
3435.00-36.00	1.2	333.4	53.8	5.5	3.6	42.3	2.72	2.82	DOL VGY
3436.00-37.00	3.9	48.5	28.8	7.2	2.4	36.0	2.69	2.82	DOL VGY

---DEPTH---	FROM	TO	---PERMEABILITY---			PORS	OIL	WAT	BULK	GRAIN	COMMENTS
			VERT	HORIZ1	HORIZ2						
3437.00-38.00	<0.1	72.2	30.2	7.3	1.4	48.2	2.69	2.82	DOL	VGY	
3438.00-39.00	.9	34.7	21.0	5.4	2.3	36.7	2.74	2.84	DOL	VGY	
3439.00-40.00	.1	136.8	11.8	3.0	2.2	56.6	2.78	2.83	DOL	CHT	
3440.00-41.00	.6	14.9	14.4	7.5	5.8	45.9	2.70	2.84	DOL		
3441.00-42.00	1.0	*	3.7	15.2	4.0	39.0	2.54	2.81	DOL	SHY CHT	
3442.00-43.00	5.9	97.0	93.2	15.8	2.5	44.3	2.54	2.83	DOL	S/CHT VGY	
3443.00-44.00	16.4	63.9	62.8	17.8	2.6	54.7	2.50	2.83	DOL		
3444.00-45.00	.7	2.0	1.3	11.4	4.7	48.5	2.63	2.84	DOL	CHT VGY	
3445.00-46.00	3.7	25.8	23.6	8.6	3.6	38.6	2.60	2.75	DOL	V/CHT VGY	
3446.00-47.00	5.9	128.7	20.5	12.6	2.6	56.2	2.54	2.76	DOL	V/CHT VGY	
3447.00-48.00	3.2	7.1	3.7	10.4	2.7	40.4	2.62	2.81	DOL	CHT VGY	
3448.00-49.00	6.1	29.2	24.0	11.6	2.2	41.3	2.62	2.83	DOL		
3449.00-50.00	.2	.5	.4	4.9	2.4	59.2	2.73	2.82	DOL		
3450.00-51.00	<0.1	.3	<0.1	1.8	2.8	61.9	2.79	2.83	DOL		
3451.00-52.00	11.7	64.0	60.8	16.7	1.1	44.4	2.53	2.83	DOL	VGY	
3452.00-53.00	16.3	32.0	28.1	9.8	7.2	33.2	2.65	2.83	DOL	CHT VGY	
3453.00-54.00	5.7	96.0	74.0	12.9	4.7	42.5	2.59	2.83	DOL	VGY	
3454.00-55.00	7.4	24.0	18.0	18.6	1.8	33.6	2.48	2.82	DOL	VGY	
3455.00-56.00	7.5	52.6	35.1	15.2	1.0	42.9	2.55	2.82	DOL	VGY	
3456.00-57.00	1.1	149.7	30.9	7.8	1.5	36.9	2.69	2.84	DOL	VGY	
3457.00-58.00	.3	2.4	1.5	12.4	5.0	47.9	2.58	2.81	DOL	S/SHY	
3458.00-59.00	52.0	68.3	51.9	16.4	2.4	39.2	2.53	2.83	DOL	CHT VGY	
3459.00-60.00	18.7	15.3	13.7	11.7	3.6	46.1	2.62	2.84	DOL	S/CHT VGY	
3460.00-61.00	10.1	61.9	51.3	12.2	3.8	42.9	2.60	2.82	DOL	S/CHT VGY	
3461.00-62.00	671.6	533.4	342.9	25.6	2.0	50.4	2.35	2.82	DOL	S/CHT VGY	
3462.00-63.00	69.9	183.1	96.0	14.0	2.7	45.5	2.57	2.83	DOL	SHY VGY	
3463.00-64.00	175.6	414.5	99.0	12.2	1.8	47.2	2.51	2.72	DOL	V/CHT VGY	
3464.00-65.00	25.0	3857.3	109.9	8.3	2.6	55.6	2.58	2.73	DOL	V/CHT VGY	
3465.00-66.00	.8	2016.4	1680.3	9.5	1.5	44.8	2.58	2.75	DOL	V/CHT VGY	
3466.00-67.00	34.1	104.7	34.2	7.1	2.2	43.3	2.71	2.84	DOL	VGY	
3467.00-68.00	240.8	2071.7	621.5	7.2	1.7	44.5	2.69	2.83	DOL	VGY	
3468.00-69.00	5.1	7.5	2.7	5.8	2.7	58.1	2.73	2.83	DOL	CHT VGY	
3469.00-70.00	1.4	41.6	30.6	3.5	2.2	58.5	2.77	2.83	DOL	VGY	
3470.00-71.00	10.9	22.5	<0.1	3.2	2.9	67.5	2.77	2.83	DOL	CHT VGY	
3471.00-72.00	10.6	2358.7	643.3	10.4	2.6	48.6	2.65	2.84	DOL	CHT VGY	
3472.00-73.00	62.7	17.8	2.0	11.4	2.7	56.8	2.58	2.79	DOL	BREC VGY	
3473.00-74.00	17.4	126.6	89.4	16.3	2.1	57.1	2.51	2.80	DOL	CHT VGY F	
3474.00-75.00	33.9	102.0	25.9	8.5	3.1	41.6	2.68	2.84	DOL	BREC F	
3475.00-76.00	3.5	2.3	.7	13.8	2.4	54.6	2.57	2.82	DOL	CHT VGY	
3476.00-77.00	2.2	21.5	15.6	11.2	2.2	53.3	2.61	2.81	DOL	BREC	
3477.00-78.00	6.0	2.3	1.0	6.0	3.7	48.4	2.71	2.82	DOL	BREC VGY	
3478.00-79.00	.8	1.2	.9	5.3	.9	63.8	2.72	2.81	DOL	BREC	
3479.00-80.00	9.4	19.4	16.1	12.6	3.1	40.9	2.59	2.82	DOL	BREC	
3480.00-80.70	<0.1	*	21.8	15.7	4.3	39.8	2.52	2.80	DOL	BREC	

Northern Natural Gas #1 Caldwell, Rice Co., 02-20S-08W

DEPTH (FT)	AGE	FORM	LITH	TOC %	S1 KG/TN	S2 KG/TN	S3 KG/TN	HI	O1	TMAX C	TR	S1+S2 KG/TN
3279.5	ORD	SMPS	SH	0.56	0.16	5.01	0.12	894	22	432	0.03	5.17
3333	ORD	SMPS	SH	0.33	0.01	0.33	0.39	101	119	424	0.03	0.34
3334.5	ORD	SMPS	SH	0.77	0.08	1.18	0.12	154	15	421	0.06	1.26
3336	ORD	SMPS	SH	1.07	0.12	1.99	0.15	186	14	420	0.06	2.11
3338	ORD	SMPS	SH	0.38	0.04	0.62	0.10	164	25	422	0.06	0.68
3343.8	ORD	SMPS	SH	0.23	0.01	0.16	0.10	68	44	416	0.06	0.17