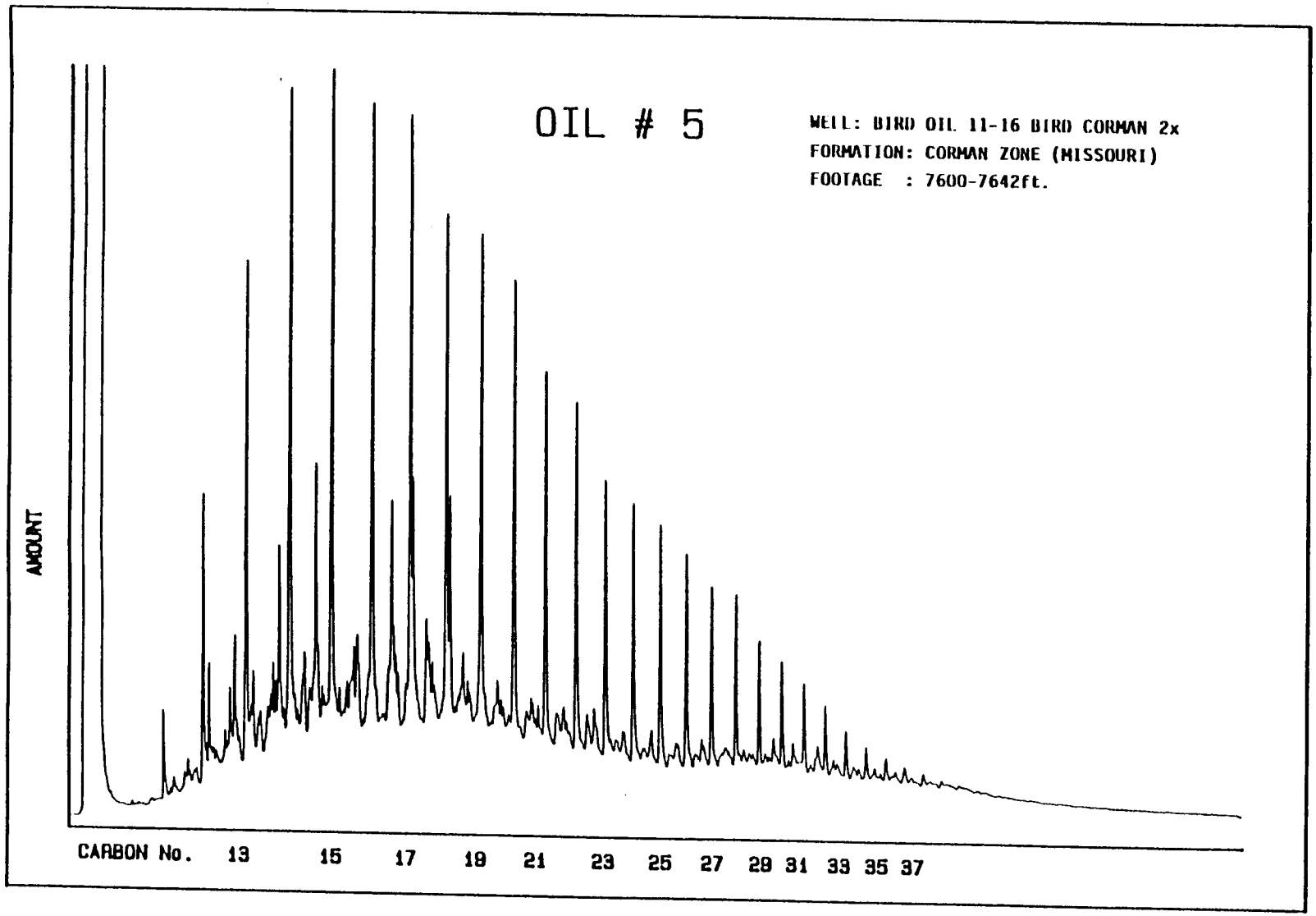

OIL # 5
WELL: BIRD OIL 11-16 BIRD CORMAN 2x
FORMATION: CORMAN ZONE (MISSOURI)
FOOTAGE : 7600-7642ft.
AMOUNT
CARBON No. 13 15 17 19 21 23 25 27 29 31 33 35 37

OILS

OIL	% VOL.	% SAT.	% AROM.	% NSO.	% ASPH.	S/A
21	*	52.3	34.6	8.5	4.6	1.51
22	*	27.4	13.4	36.8	22.4	2.04
23	*	32.3	32.0	13.4	22.3	1.01
24	*	40.3	27.0	19.3	13.4	1.49
25	*	49.8	33.5	7.7	9.0	1.49
26	*	33.0	18.0	8.7	40.3	1.83

Key

*** = Not Determined**

[redacted]

% AROM.	% NSO.	% ASPH.	S/A
34.6	8.5	4.6	1.51
13.4	36.8	22.4	
32.0	13.4	[illegible]	2.04

OILS

OIL	% VOL.	% SAT.	% AROM.	% NSO.	% ASPH.	S/A
21	*	52.3	34.6	8.5	4.6	1.51
22	*	27.4	13.4	36.8	22.4	2.04
23	*	32.3	32.0	13.4	22.3	1.01
24	*	40.3	27.0	19.3	13.4	1.49
25	*	49.8	33.5	7.7	9.0	1.49
26	*	33.0	18.0	8.7	40.3	1.83

Key

* = Not Determined
Sat + Arom + NSO + Asph normalized to 100%

Nickel and Vanadium contents of oils

Oil No.	Ni (ppm)	V (ppm)	Ni/V
2	6.2	14.1	0.4
4	24.6	2.4	10.3
5	4.1	5.7	0.7
7	10.1	51.6	0.2
9	14.8	49.2	0.3
10	9.8	23.8	0.4
11	10.8	28.9	0.4
12	7.2	34.9	0.2
13	10.2	36.2	0.3
15	18.7	10.0	1.9
16	15.8	23.8	0.7
17	15.0	54.1	0.3
18	<0.8	0.3	----
19	10.6	37.5	0.3
20	12.6	2.8	4.5

5 = BIRD 11-16°-2X BIRD CORMAN

OILS

	OIL	Pr/Ph	Pr/17	17/26	18/19
	1	1.23	0.83	7.08	1.00
	2	1.50	0.50	5.21	1.03
	3	1.61	0.54	6.13	1.03
	4	1.48	0.46	5.21	1.07
BIRD OIL 11-16-2X BIRD-CORMAN	5	1.13	0.41	2.88	1.04
	6	1.60	0.40	5.88	1.04
	7	1.46	0.95	3.08	1.25
	8	0.97	0.80	3.07	1.14
	9	1.59	0.72	4.51	1.05
	10	1.67	0.43	4.54	1.07
	11	1.62	0.41	5.26	1.06
	12	1.40	0.75	3.33	0.94
	13	1.55	0.51	4.07	1.06
	14	1.56	0.44	4.72	0.96
	15	1.54	0.52	10.10	1.18
	16	1.60	0.50	5.15	1.03
	17	1.58	0.46	5.89	1.04
	18	1.22	1.07	7.42	1.07
	19	1.73	0.54	5.41	0.97
	20	1.11	0.93	4.15	1.02

continued...

OILS

OIL	Pr/Ph	Pr/17	17/26	18/19
21	1.55	0.40	6.46	1.07
22	0.74	0.66	3.24	0.98
23	1.18	0.62	3.51	0.91
24	1.39	0.69	4.94	0.82
25	1.47	0.91	4.80	0.84
26	1.53	0.51	2.97	1.01

OILS

	OIL	BB/aa	20S/20R	22S/22R	%27	%28	%29
	1	1.95	0.78	1.63	40	22	38
	4	1.49	1.00	1.44	45	21	34
BIRD OIL 11-16-2X BIRD-CORMAN	5	1.55	0.71	1.33	38	30	32
	8	1.56	1.07	1.33	42	20	38
	9	1.42	0.86	1.47	42	19	39
	11	1.03	0.96	1.41	41	22	37
	12	1.40	0.95	1.42	43	21	36
	15	1.35	0.97	1.40	47	17	36
	16	1.68	0.94	1.13	41	24	35
	17	1.68	0.86	1.43	54	43	43
	18	1.70	1.00	1.38	44	18	38
	19	1.50	1.00	1.36	49	26	25
	20	1.63	0.96	1.43	54	43	43
	22	1.71	1.15	*	39	31	30
	24	1.69	1.02	1.33	44	20	36
	25	1.58	1.10	1.38	43	18	39
	26	1.61	1.10	1.20	41	20	39

Key

* = Not calculated

OILS

OIL	DELTA 13Csat	DELTA 13Carom
1	-28.8	-28.5
2	-30.1	-29.3
3	-30.3	-29.7
4	-30.1	-29.3
Bird Oil 11-16-2X Bird-Corman 5	-28.9	-28.1
6	-30.2	-29.2
7	-30.3	-29.8
8	-30.3	-29.8
9	-30.5	-30.0
10	-30.5	-29.8
11	-30.4	-29.5
12	-30.2	-29.5
13	-30.6	-29.8
14	-30.3	*
15	-30.1	-30.1
16	-30.5	-29.5
17	-30.7	-30.2
18	-28.5	-27.6
19	-30.5	-30.2
20	-28.2	-27.4

continued...

OILS

OIL	DELTA 13Csat	DELTA 13Carom
21	-30.2	*
22	-28.3	-27.9
24	-29.7	-29.4
25	-30.2	-29.9

Key

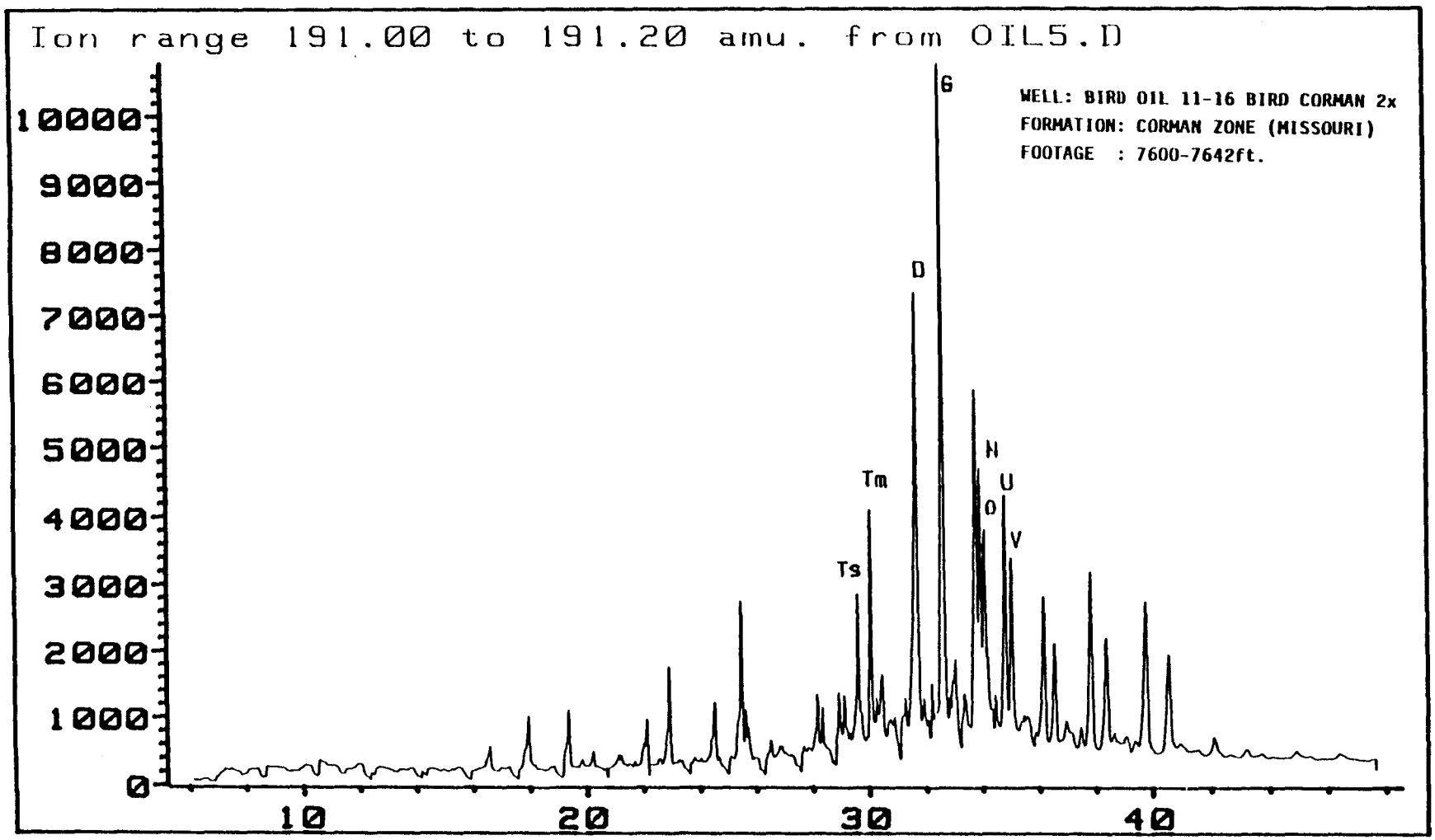
* = Not Analyzed

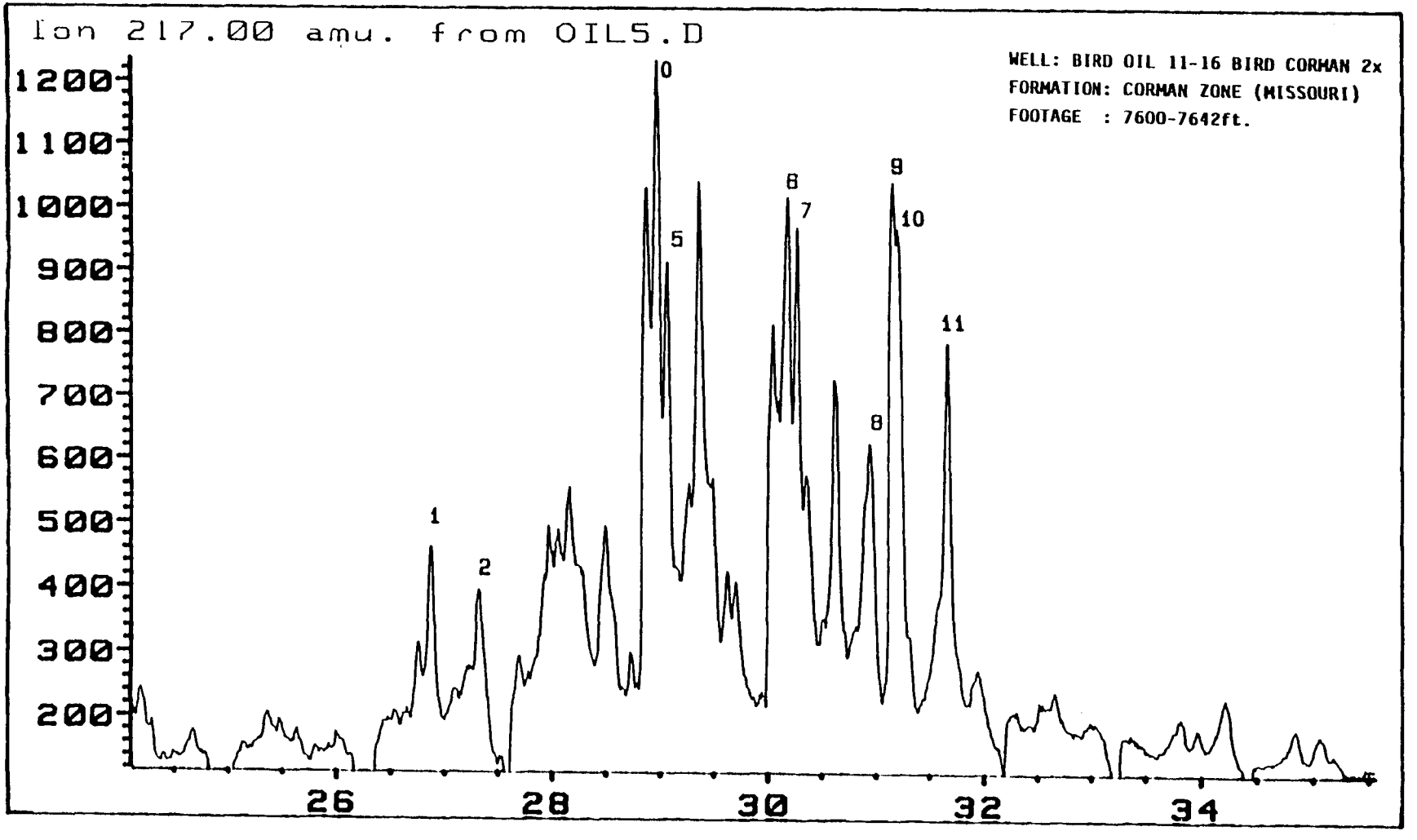
OILS

OIL	% VOL.	% SAT.	% AROM.	% NSO.	% ASPH.	S/A
1	58.3	59.1	29.2	6.9	4.8	2.02
2	15.0	56.9	21.0	15.6	6.5	2.71
3	13.0	55.1	26.3	8.2	10.3	2.09
4	13.9	57.9	23.7	12.1	6.3	2.44
5	20.6	52.4	27.1	17.1	3.4	1.93
6	25.9	59.3	23.2	16.3	1.2	2.56
7	18.0	42.3	33.9	12.8	11.0	1.25
8	33.8	44.4	29.0	11.2	15.4	1.53
9	7.1	39.3	25.7	22.6	12.4	1.53
10	22.7	56.7	17.6	22.3	3.4	3.21
11	22.6	51.0	26.2	15.6	7.2	1.95
12	14.1	52.8	23.3	17.5	6.4	2.27
13	30.2	44.7	24.8	24.1	6.4	1.80
14	*	29.0	19.6	5.8	45.6	1.48
15	1.6	47.7	26.9	10.8	14.5	1.48
16	22.6	68.9	24.6	4.7	1.8	2.82
17	29.4	51.3	23.0	18.5	7.2	2.23
18	30.1	54.8	35.9	8.5	0.8	1.52
19	25.8	54.5	25.3	14.9	5.3	2.16
20	20.7	56.9	26.3	14.1	2.7	2.16

Bird Oil
11-16-2X
Bird-Corman

continued...


Ion range 191.00 to 191.20 amu. from OIL5.D
WELL: BIRD OIL 11-16 BIRD CORMAN 2x
FORMATION: CORMAN ZONE (MISSOURI)
FOOTAGE : 7600-7642ft.
10000
9000
8000
7000
6000
5000
4000
3000
2000
1000
0
10
20
30
40
Ts
Tm
D
G
O
N
U
V


Ion 217.00 amu. from OIL5.D
WELL: BIRD OIL 11-16 BIRD CORMAN 2x
FORMATION: CORMAN ZONE (MISSOURI)
FOOTAGE : 7600-7642ft.
1200
1100
1000
900
800
700
600
500
400
300
200
26
28
30
32
34
1
2
0
5
6
7
8
9
10
11

Baroid a Halliburton Company

Report No: AS-
Project No:

303-436-1935

Date:

Mark Snyman

TEST OF A SUBMITTED SAMPLE

Sample Information

Sample: Core Sample: Corman Dolomite from USGS Library

B 998

Operator: Burlington Resources

Location: Well #11-2X, Bird, Sioux County, Nebraska

Tests/Results

Mineralogical composition and SEM examination were requested.

X-ray diffraction analysis indicates the sample is primarily dolomite (approximately 75 percent by bomb calcimeter), with illite and chlorite (23 percent and 2 percent, respectively, by x-ray diffraction semi-quantitative analysis).

Examination by scanning electron microscopy indicates the sample is an extremely indurated dolomite with illite and chlorite clay material. Photomicrographs A through D are of a fractured surface showing dolomite crystals and clay material. The clay material is found both intimately mixed with the dolomite crystals and as "rivulets" of clay deposits. These probably correspond to channels within the dolomite material through which water has flowed allowing the clay material to be deposited.

Test results were transmitted to Distribution on November 18, 1998.

minor swelling characteristics
Anhydrite-nodules were in the piece. supplied to Baroid-
ϕ + K

Tested by: _____
R. Uresti

Approved by: _____
M. Vackar

Tom Shumate, Manager
Technical Support Laboratories
281-374-5690

Distribution B. Coles, D. Vesely, J. Thorstad

Baroid, a Halliburton Company

Report No: AS-
Project No:

Date:

TEST OF A SUBMITTED SAMPLE

Sample Information

Sample: Core fragments from three wells

Operator: Burlington Resources, Sioux County, Nebraska

Location:

Tests/Results

Mineralogical composition of each core was requested. X-ray diffraction semi-quantitative analysis gives the following results.

	Laucomer, 7583.5'	Corman, 7735'	Valley View Farms, 7904'
Dolomite, %	87 *	87 *	91 *
Quartz, %	2	2	2
Anhydrite, %	2	1	–
Illite, %	9	9	7
Chlorite, %	–	1	–

* determined by calcimeter

Results were e-mailed to distribution on November 30, 1998.

Tested by: _____
M. Vackar

Approved by: _____
T. Shumate

Tom Shumate, Manager
Technical Support Laboratories