

CORE LABORATORIES

Company : C & F Energy, Inc.
 Well : Fosston State 10-16
 Location : NW SE Sec 16 T7N R63W
 Co,State : Weld, Colorado

Field : Wildcat
 Formation : Lyons
 Coring Fluid : Water Base Mud
 Elevation : 4828 GL

File No.: 57122-7690
 Date : 30-Apr-1992
 API No.:
 Analysts: DF FH

CORE ANALYSIS RESULTS (HYDROSTATIC CONFINEMENT)

| SAMPLE NUMBER | DEPTH ft | NOB (800 psi) | | POROSITY (HELIUM) % | SATURATION (PORE VOLUME) OIL WATER | | GRAIN DENSITY gm/cc | DESCRIPTION |
|---|-----------------|--------------------------|----------------------------|-------------------------------|---|------|-------------------------------|-------------------------------|
| | | K _o md | K _{air} md | | % | % | | |
| Core No. 1 8632.0-8692.0 Cut 60.0' Rec. 56.5' | | | | | | | | |
| | 8632.0- 33.0 | | | | | | | Anhy -- No Analysis |
| 1 | 8633.0- 34.0 | 0.003 | 0.007 | 0.7 | 0.0 | 52.8 | 2.91 | Anhy lt gry sdy |
| 2 | 8634.0- 35.0 | 0.005 | 0.007 | 2.6 | 0.0 | 44.9 | 2.69 | Sst gry vf-f gr sl/anhy |
| 3 | 8635.0- 36.0 | 0.002 | 0.004 | 2.3 | 20.6 | 27.5 | 2.69 | Sst lt gry vf- f gr carb anhy |
| 4 | 8636.0- 37.0 | 0.003 | 0.006 | 2.1 | 32.7 | 9.3 | 2.74 | Sst gry f-m gr carb anhy |
| 5 | 8637.0- 38.0 | 1.36 | 1.73 | 12.2 | 17.8 | 8.9 | 2.60 | Sst gry vf gr carb |
| 6 | 8638.0- 39.0 | 0.270 | 0.385 | 6.6 | 12.6 | 14.0 | 2.65 | Sst gry vf gr HF |
| 7 | 8639.0- 40.0 | 0.732 | 0.917 | 8.9 | 12.0 | 22.1 | 2.64 | Sst gry vf-f gr carb |
| 8 | 8640.0- 41.0 | 1.38 | 1.70 | 7.8 | 10.7 | 21.4 | 2.66 | Sst gry vf-f gr carb anhy |
| 9 | 8641.0- 42.0 | 1.12 | 1.36 | 9.3 | 22.0 | 24.6 | 2.62 | Sst gry vf-f gr carb anhy |
| 10 | 8642.0- 43.0 | 2.32 | 2.73 | 10.0 | 14.6 | 27.2 | 2.65 | Sst gry vf gr |
| 11 | 8643.0- 44.0 | 0.339 | 0.480 | 8.4 | 15.8 | 23.7 | 2.66 | Sst gry vf gr anhy carb styl |
| | 8644.0- 45.0 | | | | | | | Sst -- No analysis by request |
| 12 | 8645.0- 46.0 | 0.209 | 0.304 | 4.8 | 13.5 | 18.0 | 2.70 | Sst gry/wh vf-f gr anhy |
| | 8646.0- 47.0 | | | | | | | Sst -- No analysis by request |
| 13 | 8647.0- 48.0 | 26.0 | 26.6 | 12.4 | 7.9 | 10.0 | 2.64 | Sst gry vf-f gr |
| | 8648.0- 49.0 | | | | | | | Sst -- No analysis by request |
| 14 | 8649.0- 50.0 | 2.79 | 3.18 | 8.7 | 8.8 | 29.4 | 2.65 | Sst gry vf-f gr |
| | 8650.0- 51.0 | | | | | | | Sst -- No analysis by request |
| 15 | 8651.0- 52.0 | 0.136 | 0.207 | 7.4 | 6.9 | 19.8 | 2.69 | Sst gry/wh vf gr anhy |
| | 8652.0- 53.0 | | | | | | | Sst -- No analysis by request |
| 16 | 8653.0- 54.0 | 0.670 | 0.852 | 8.3 | 5.2 | 41.2 | 2.68 | Sst gry/wh vf-f gr sl/anhy |



CORE LABORATORIES

Company : C & F Energy, Inc.
Well : Fosston State 10-16

Field : Wildcat
Formation : Lyons

File No.: 57122-7690
Date : 30-Apr-1992

CORE ANALYSIS RESULTS (HYDROSTATIC CONFINEMENT)

| SAMPLE NUMBER | DEPTH ft | NOB (800 psi) | | POROSITY (HELIUM) % | SATURATION (PORE VOLUME) | | GRAIN DENSITY gm/cc | DESCRIPTION |
|------------------|-----------------|--------------------------|----------------------------|-------------------------------|-----------------------------|------------|-------------------------------|-------------------------------|
| | | K _w md | K _{air} md | | OIL % | WATER % | | |
| 17 | 8654.0- 55.0 | | | | | | | Sst -- No analysis by request |
| | 8655.0- 56.0 | 31.2 | 32.1 | 12.4 | 6.9 | 45.1 | 2.65 | Sst gry vf-f gr |
| | 8656.0- 57.0 | | | | | | | Sst -- No analysis by request |
| 18 | 8657.0- 58.0 | 0.943 | 1.48 | 8.9 | 6.1 | 31.6 | 2.67 | Sst gry vf-f gr |
| | 8658.0- 59.0 | | | | | | | Sst -- No analysis by request |
| 19 | 8659.0- 60.0 | 0.417 | 0.571 | 7.8 | 0.0 | 44.2 | 2.67 | Sst wh vf-f gr anhy |
| | 8660.0- 61.0 | | | | | | | Sst -- No analysis by request |
| 20 | 8661.0- 62.0 | 3.01 | 3.55 | 11.1 | 0.0 | 55.4 | 2.65 | Sst lt brn vf gr |
| | 8662.0- 63.0 | | | | | | | Sst -- No analysis by request |
| 21 | 8663.0- 64.0 | 4.84 | 5.06 | 5.7 | 0.0 | 51.3 | 2.70 | Sst lt brn/gry vf- m gr anhy |
| | 8664.0- 65.0 | | | | | | | Sst -- No analysis by request |
| 22 | 8665.0- 66.0 | 57.8 | 61.7 | 12.5 | 0.0 | 79.8 | 2.68 | Sst lt brn f-m gr anhy |
| | 8666.0- 67.0 | | | | | | | Sst -- No analysis by request |
| 23 | 8667.0- 68.0 | 0.039 | 0.078 | 3.4 | 0.0 | 72.6 | 2.72 | Sst lt brn /gry f-m gr anhy |
| | 8668.0- 69.0 | | | | | | | Sst -- No analysis by request |
| 24 | 8669.0- 70.0 | 0.739 | 0.985 | 10.3 | 0.0 | 50.3 | 2.67 | Sst lt brn vf-f gr anhy |
| | 8670.0- 71.0 | | | | | | | Sst -- No analysis by request |
| 25 | 8671.0- 72.0 | 29.9 | 31.1 | 13.9 | 0.0 | 63.2 | 2.65 | Sst lt brn vf-f gr |
| | 8672.0- 73.0 | | | | | | | Sst -- No analysis by request |
| 26 | 8673.0- 74.0 | 9.15 | 9.24 | 3.7 | 0.0 | 53.1 | 2.72 | Sst lt gry f-m gr anhy |
| | 8674.0- 75.0 | | | | | | | Sst -- No analysis by request |
| 27 | 8675.0- 76.0 | 39.5 | 41.5 | 7.0 | 0.0 | 53.5 | 2.69 | Sst lt brn/gry f-m gr anhy |
| | 8676.0- 77.0 | | | | | | | Sst -- No analysis by request |
| 28 | 8677.0- 78.0 | 21.9 | 22.9 | 11.8 | 0.0 | 74.5 | 2.65 | Sst lt brn f-m gr |
| | 8678.0- 79.0 | | | | | | | Sst -- No analysis by request |
| 29 | 8679.0- 80.0 | 273. | 282. | 13.5 | 0.0 | 44.7 | 2.66 | Sst lt brn f-m gr |
| | 8680.0- 81.0 | | | | | | | Sst -- No analysis by request |
| 30 | 8681.0- 82.0 | 2.50 | 3.53 | 14.6 | 0.0 | 64.1 | 2.65 | Sst lt brn vf-f gr |

CORE LABORATORIES

Company : C & F Energy, Inc.
Well : Fosston State 10-16

Field : Wildcat
Formation : Lyons

File No.: 57122-7690
Date : 30-Apr-1992

CORE ANALYSIS RESULTS

(HYDROSTATIC CONFINEMENT)

| SAMPLE NUMBER | DEPTH ft | NOB (800 psi) | | POROSITY (HELIUM) % | SATURATION (PORE VOLUME) OIL WATER | | GRAIN DENSITY gm/cc | DESCRIPTION |
|------------------|-----------------|--------------------------|----------------------------|-------------------------------|---|------|-------------------------------|-------------------------------|
| | | K _o md | K _{air} md | | % | % | | |
| 31 | 8682.0- 83.0 | | | | | | | Sst -- No analysis by request |
| | 8683.0- 84.0 | 10.1 | 11.4 | 14.2 | 0.0 | 68.7 | 2.66 | Sst lt brn vf- f gr anhy |
| | 8684.0- 85.0 | | | | | | | Sst -- No analysis by request |
| 32 | 8685.0- 86.0 | 0.181 | 0.253 | 4.0 | 0.0 | 42.4 | 2.71 | Sst lt brn/gry f gr anhy |
| | 8686.0- 87.0 | | | | | | | Sst -- No analysis by request |
| 33 | 8687.0- 88.0 | 39.8 | 39.9 | 10.9 | 0.0 | 20.8 | 2.67 | Sst lt brn f-m gr anhy |
| | 8688.0- 88.7 | | | | | | | Sst -- No analysis by request |
| | 8688.7- 92.0 | | | | | | | Core Loss |

CORE LABORATORIES

CODE KEY - DESCRIPTIONS

| | | | | | |
|-------|----------------------------------|--------|-------------------------------------|--------|---|
| a | = Plug from full diameter sample | i | = Intergranular | SCAL | = Removed for special core analysis |
| anhy | = Anhydrite | incl | = Inclusions | sdv | = Sandy |
| AST | = Appears similar to | lam | = Laminae (Laminated) | SEM | = Scanning electron microscope analysis |
| bk | = Break | lmy | = Limy | sh | = Shale |
| bldr | = Boulder | ls | = Limestone | shy | = Moderately shaly (20-40%) |
| c | = Coarse | lv | = Large vug | sltst | = Siltstone |
| calc | = Calcite (areous) | m | = Medium | slty | = Silty |
| carb | = Carbonaceous | mi | = Mud invaded | SP | = Small plug |
| cbl | = Cobble | mic | = Micaceous | ss | = Sandstone |
| CEC | = Cation exchange capacity | mshy | = Moderately shaly (20-40%) | sshy | = Slightly Shaly (<20%) |
| cem | = Cemented | mv | = Medium vug | sty | = Stylolite (ic) |
| cgl | = Conglomerate | NA | = Not analysed by request | sulf | = Sulphur |
| cht | = Chert | NP | = No permeability measurement | sv | = Small vug |
| coal | = Coal/Coal Inclusion | NR | = Not received | tr | = Trace |
| dol | = Dolomite | ool | = Oolitic | TS | = Thin section |
| f | = Fine | OB | = Overburden | uncons | = Unconsolidated |
| fest | = Ironstone | P | = Preserved for future studies | vfrac | = Vertical fracture |
| foss | = Fossil (iferous) | pbl | = Pebble | vf | = Very fine |
| frac | = Fracture | PET | = Removed for petrographic analysis | VOB | = Vertical overburden sample |
| fri | = Friable | POA | = Portion removed for oil analysis | vshy | = Very shaly (>40%) |
| glauc | = Glauconite (ic) | ppv | = Pinpoint Vug | VSP | = Vertical small plug |
| grnl | = Granule | PSA | = Particle size analysis | vug | = Vuggy (ular) |
| gyp | = Gypsum | pyr | = Pyrite (ic) | ws | = Water sand |
| hfrac | = Horizontal fracture | pyrbit | = Pyrobitumen | XRD | = X-ray diffraction |
| hal | = Halite (Salt) | SA | = Sieve Analysis | | |

CORE LABORATORIES

Company : C & F Energy, Inc.
Well : Fosston State 10-16

Field : Wildcat
Formation : Lyons

File No.: 57122-7690
Date : 30-Apr-1992

ANALYTICAL PROCEDURES AND QUALITY ASSURANCE

HANDLING & CLEANING

Core Transportation : Core Laboratories Personnel
Solvent : Toluene
Extraction Equipment : Centrifuge
Extraction Time : 12 Hours
Drying Equipment : Dry Oven
Drying Time : 24 Hours
Drying Temperature : 210F

ANALYSIS

Grain volume measured by Boyle's Law in a matrix cup using He
Bulk volume by Archimedes Principle
Fluid saturations by retort
Permeabilities measured on 1 in. diameter drilled plugs
Core Gamma Spectral

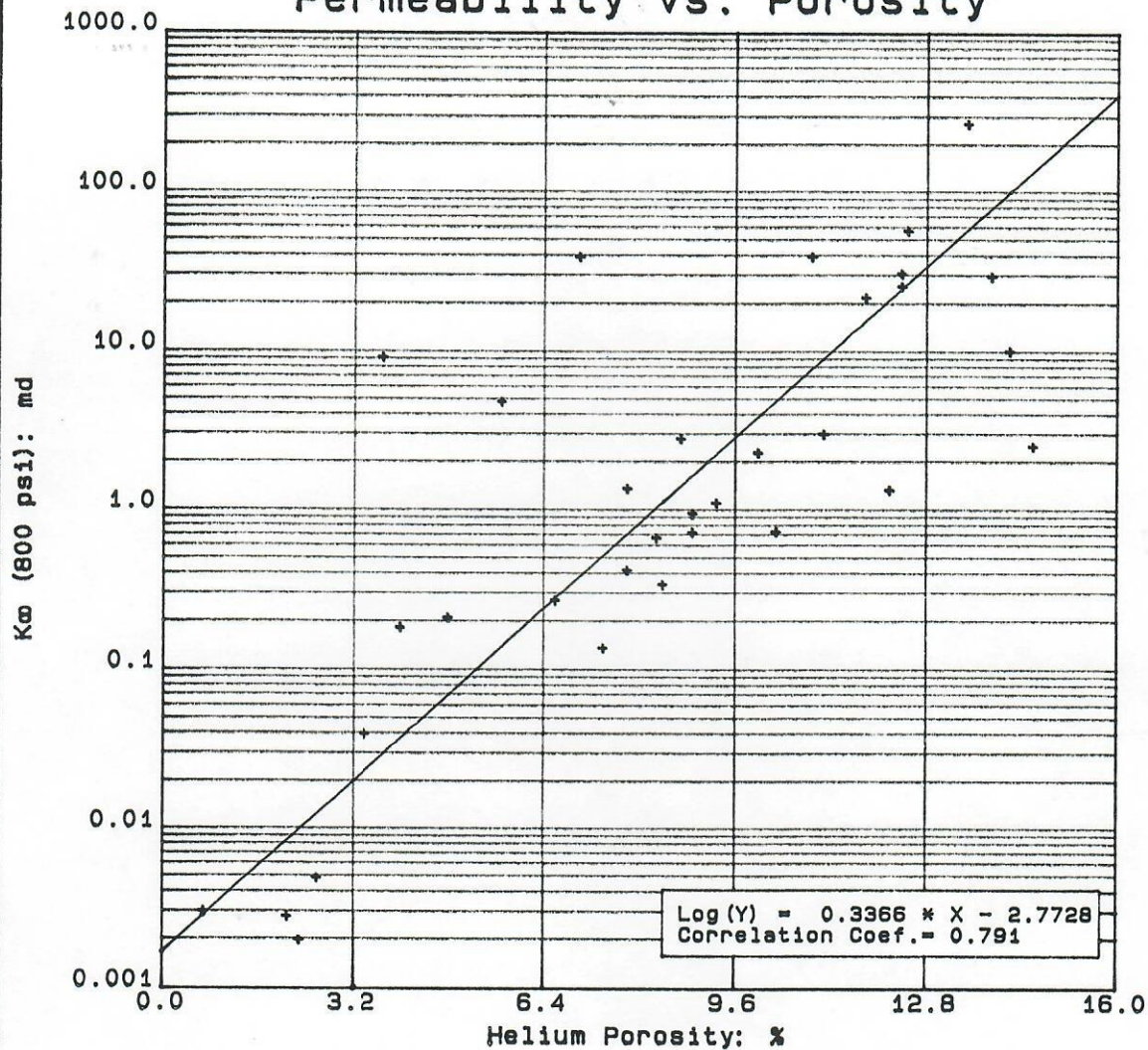
REMARKS

The core was brought to our Casper, Wyoming facility by Core Lab., personnel. The entire interval was then run on the Spectral Gamma Logger. Then fluid saturation samples were taken and plugs were drilled in the specified areas. After cleaning, the plugs were then run in the Autoporosimeter for the grain volume and grain density. They were then ran in the CMS-300 for measurement of Klinkenberg permeability. The plugs were then bulked by Archimedes principle and porosities then calculated.

The core was then slabbed and shipped to the requested parties.

This concluded our involvement in this project.

Permeability vs. Porosity



C & F Energy Inc.

Fosston State 10-16

Wildcat

Weld County, Colorado

Lyons Fm. (8632.0-8688.7 feet)

Core No. 1

Core Laboratories

30-Apr-1992

- LEGEND -

Lyons

CORE LABORATORIES

Company : C & F Energy, Inc.
Well : Fosston State 10-16

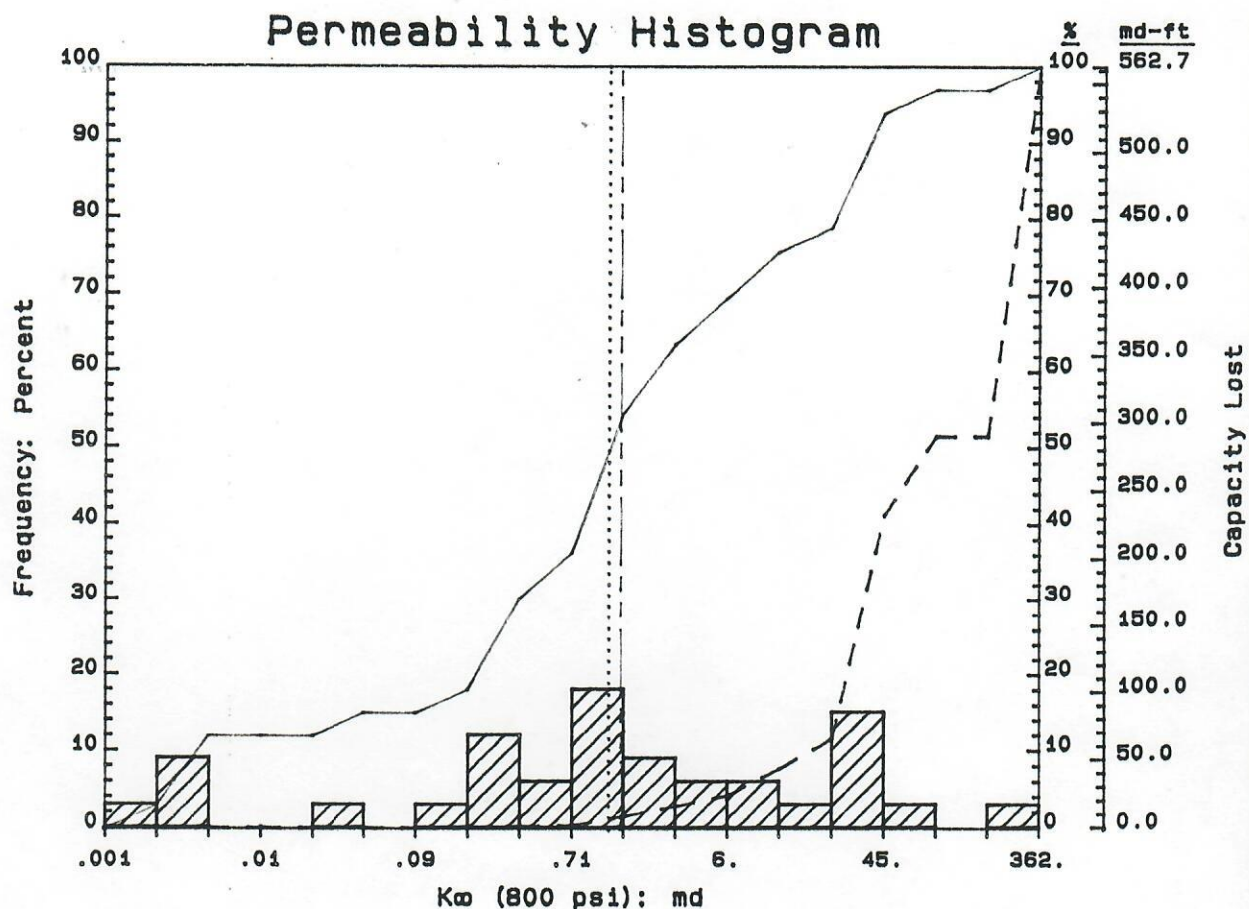
Field : Wildcat
Formation : LYONS

File No.: 57122-7690
Date : 30-Apr-1992

TABLE I

SUMMARY OF CORE DATA

| ZONE AND CUTOFF DATA | | CHARACTERISTICS REMAINING AFTER CUTOFFS | | | |
|----------------------------|----------------------|---|------------------|------------------------------------|-----------------------------|
| ZONE: | | ZONE: | | PERMEABILITY: | |
| Identification ----- | Lyons | Number of Samples ----- | 33 | Flow Capacity ----- | 562.7 md-ft |
| Top Depth ----- | 8630.0 ft | Thickness Represented - | 33.0 ft | Arithmetic Average ---- | 17.1 md |
| Bottom Depth ----- | 8692.0 ft | POROSITY: | | Geometric Average ----- | 1.16 md |
| Number of Samples ----- | 33 | | | Harmonic Average ----- | 0.023 md |
| DATA TYPE: | | | | Minimum ----- | 0.002 md |
| Porosity ----- | (HELIUM) | Storage Capacity ----- | 278.2 ϕ -ft | Maximum ----- | 273. md |
| Permeability ----- | K ∞ (800 psi) | Arithmetic Average ---- | 8.4 % | Median ----- | 1.36 md |
| CUTOFFS: | | Minimum ----- | 0.7 % | Standard Dev. (Geom) -- | K $\cdot 10^{\pm 1.314}$ md |
| Porosity (Minimum) ----- | 0.0 % | Maximum ----- | 14.6 % | HETEROGENEITY (Permeability): | |
| Porosity (Maximum) ----- | 100.0 % | Median ----- | 8.7 % | Dykstra-Parsons Var. -- | 0.926 |
| Permeability (Minimum) --- | 0.0000 md | Standard Deviation ---- | ± 3.9 % | Lorenz Coefficient ---- | 0.770 |
| Permeability (Maximum) --- | 100000. md | GRAIN DENSITY: | | AVERAGE SATURATIONS (Pore Volume): | |
| Water Saturation (Maximum) | 100.0 % | Arithmetic Average ---- | 2.68 gm/cc | Oil ----- | 5.6 % |
| Oil Saturation (Minimum) - | 0.0 % | Minimum ----- | 2.60 gm/cc | Water ----- | 41.5 % |
| Grain Density (Minimum) -- | 2.00 gm/cc | Maximum ----- | 2.91 gm/cc | | |
| Grain Density (Maximum) -- | 3.00 gm/cc | Median ----- | 2.67 gm/cc | | |
| Lithology Excluded ----- | NONE | Standard Deviation ---- | ± 0.05 gm/cc | | |



C & F Energy Inc.
 Fosston State 10-16
 Wildcat
 Weld County, Colorado
 Lyons Fm. (8632.0-8688.7 feet)
 Core No. 1

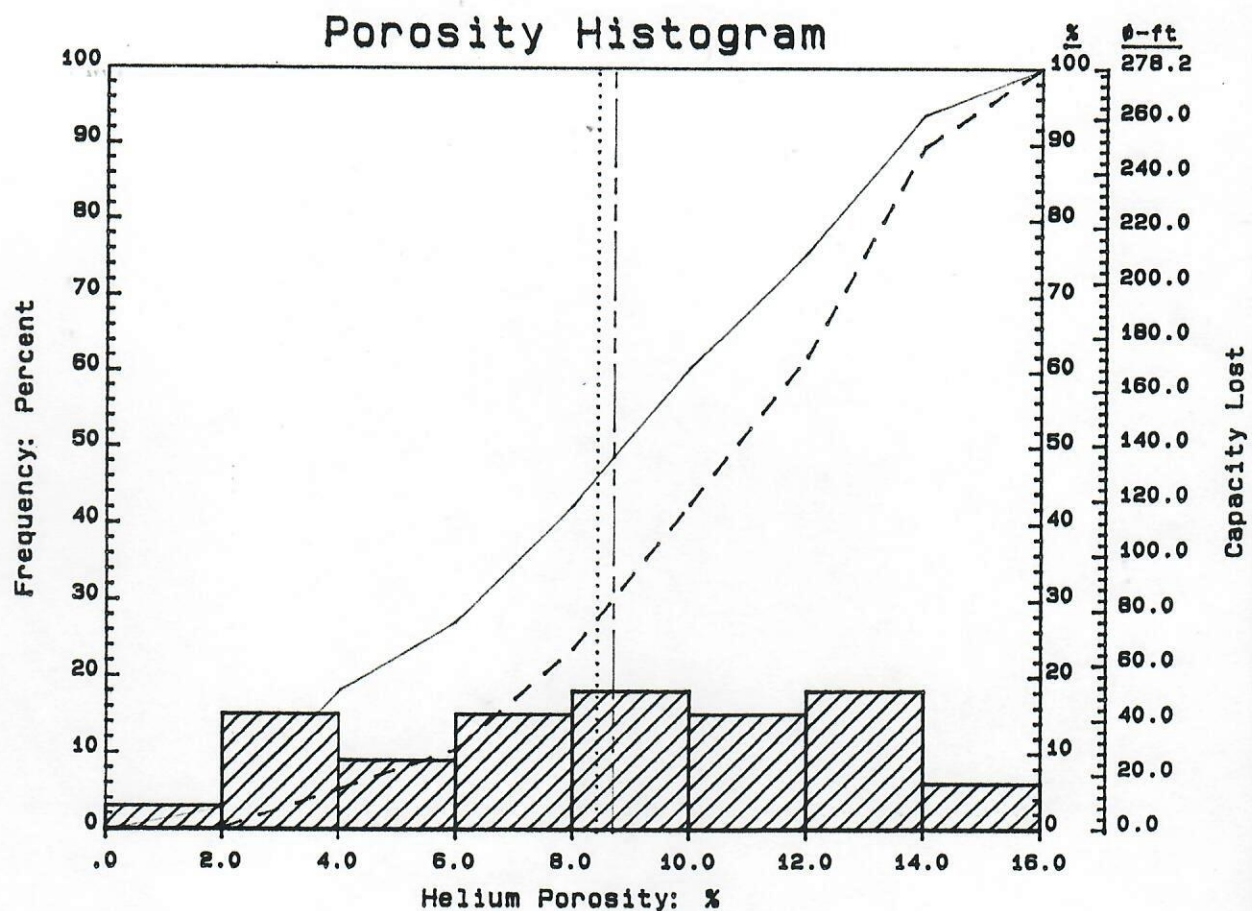
Core Laboratories

30-Apr-1992

- LEGEND -

- Median Value (1.36)
- Geom. Average (1.16)
- Cumulative Frequency
- Cumulative Capacity Lost

33 Samples



| | |
|--|--------------------|
| <p>C & F Energy Inc. Fosston State 10-16 Wildcat Weld County, Colorado Lyons Fm. (8632.0-8688.7 feet) Core No. 1</p> | |
| <p>Core Laboratories</p> | <p>30-Apr-1992</p> |

- LEGEND -

- Median Value (8.7)
- Arith. Average (8.4)
- Cumulative Frequency
- Cumulative Capacity Lost

33 Samples

Correlation Coregraph

C & F Energy Inc.

Fosston State 10-16

Wildcat

Weld County, Colorado

Lyons Fm. (8632.0-8688.7 feet)

Core No. 1

Core Laboratories

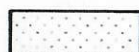
30-Apr-1992

Vertical Scale
5.00 in = 100.0 ft

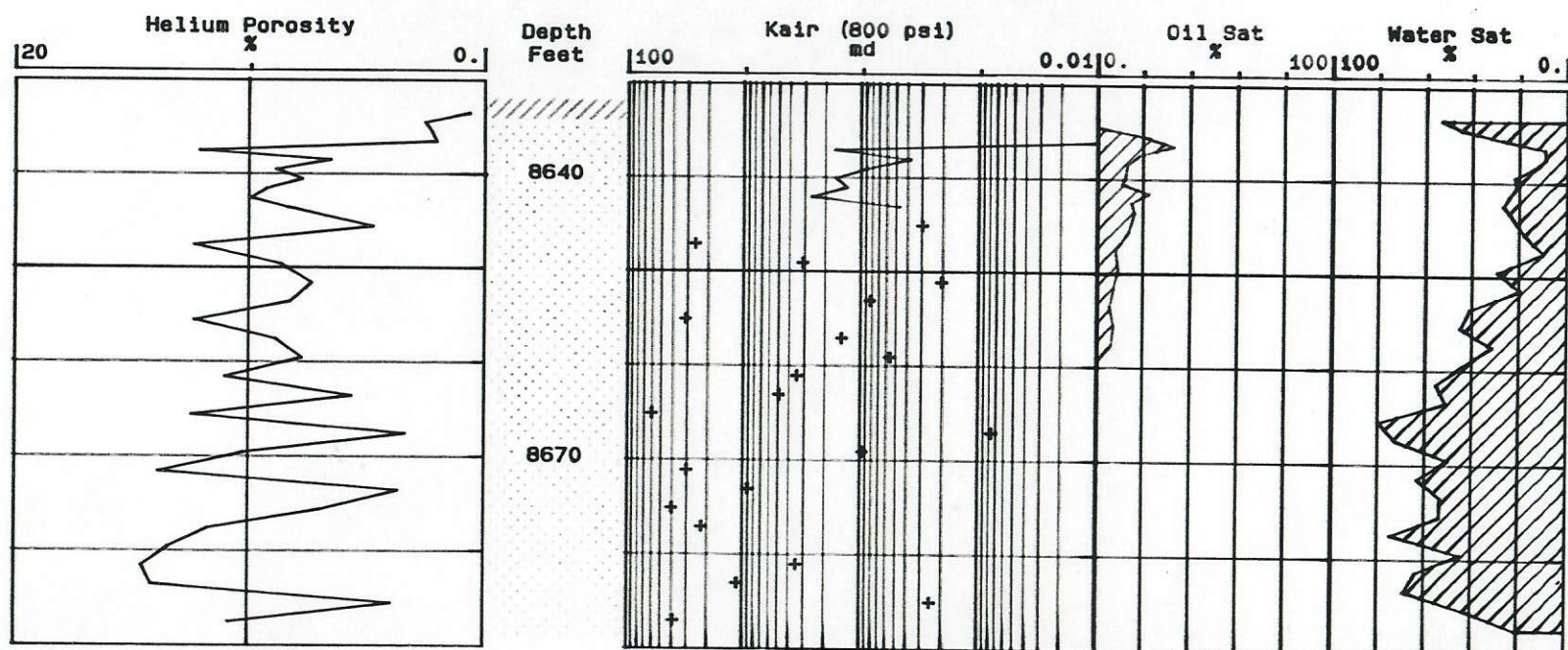
- Lithology Legend -



Anhydrite



Sandstone



CORE LAB SPECTRAL GAMMA-RAY PLOT

C & F Energy Inc.

Fosston State 10-16

Wildcat

Weld County, Colorado

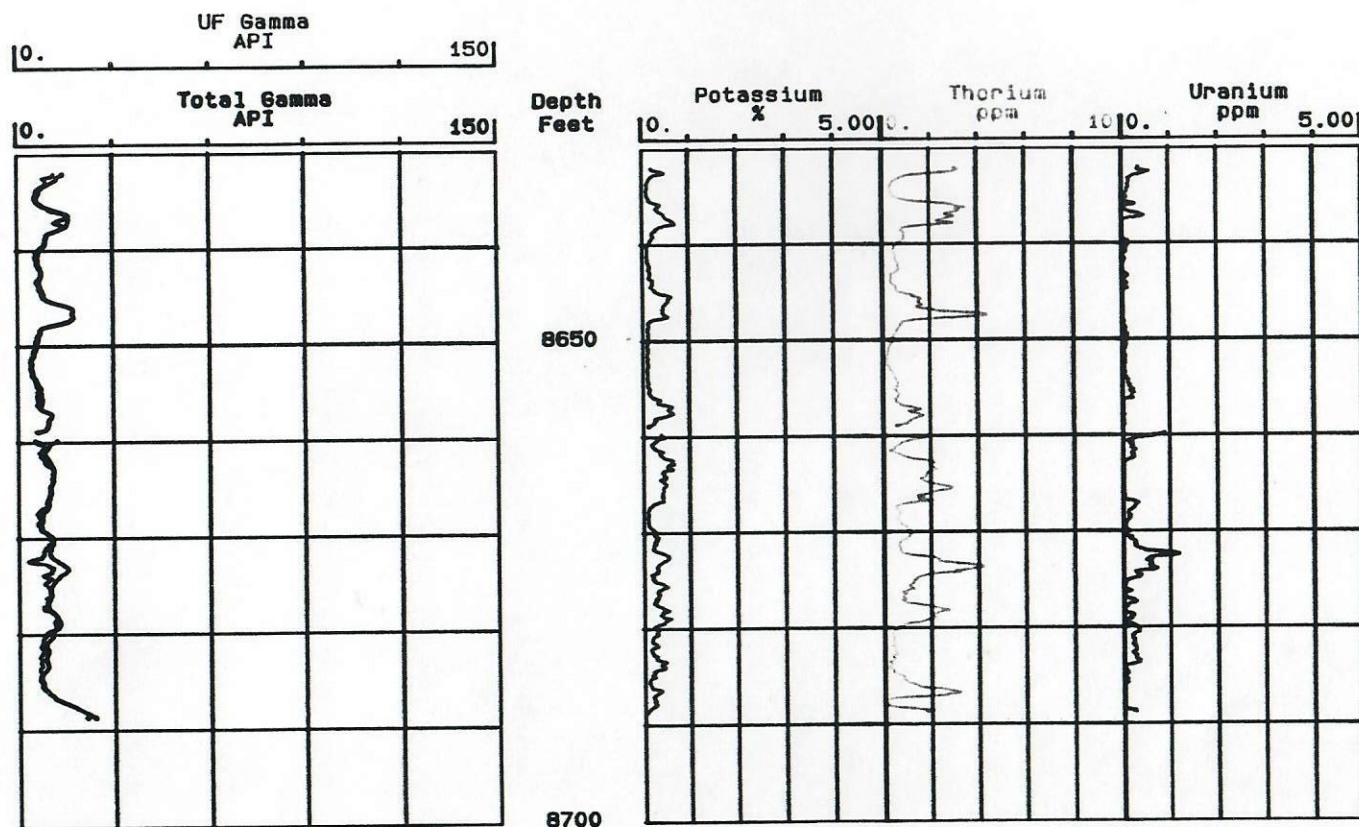
Lyons Fm. (8632.0-8688.7 feet)

Core No. 1

Core Laboratories

30-Apr-1992

Vertical Scale
5.00 in = 100.0 ft



RECEIVED

MAR 30 1992

OGCC FORM 2
Rev. 10/86STATE OF COLORADO
OIL AND GAS CONSERVATION COMMISSION
DEPARTMENT OF NATURAL RESOURCES

COLO. OIL & GAS CONS. COMM.

C

APPLICATION
FOR PERMIT TO DRILL, DEEPEN, OR RE-ENTER AND OPERATE1a TYPE OF WORK DRILL ☒ DEEPEN ☐ RE-ENTER ☐

b TYPE OF WELL

OIL
WELL ☒GAS
WELL ☐

OTHER

SINGLE
ZONE ☒MULTIPLE
ZONE ☐

2. OPERATOR: C & F Energy, Inc.

ADDRESS: P.O. Box 658

CITY: June Lake STATE: CA

ZIP: 93529

3. PHONE NO.

(619)

648-7545

5. LEASE DESIGNATION AND SERIAL NO.

State 88/5180-S

6. IF INDIAN, ALLOTTEE OR TRIBE NAME

7. UNIT AGREEMENT NAME

8. FARM OR LEASE NAME

C & F Energy, Inc. Fosston/Stat.

9. WELL NO.
10-16

10. FIELD AND POOL OR WILDCAT

Wildcat

11. QTR. QTR. SEC. T.R. AND MERIDIAN

NWSE-16-7N-63W, 6th P.M.

4. LOCATION OF WELL. (Report location clearly and in accordance with any State requirements)

At surface 1980 FEL, 1980 FSL (NWSE)

At proposed Prod. zone

same

13. DISTANCE, IF LESS THAN 200 FT. FROM ANY OCCUPIED BLDG. PUBLIC ROAD, ABOVE GROUND UTILITY LINE OR RAILROAD (SHOW FOOTAGES ON SURVEY PLAT)

n/a

12. COUNTY

Weld

14. DISTANCE FROM PROPOSED LOCATION TO NEAREST PROPERTY OR LEASE LINE, FT.
(Also to nearest drlg. line, if any)

1980'

15. NO. OF ACRES IN LEASE

640

16. NO. OF ACRES AND/OR DRILLING UNIT ASSIGNED TO THIS WELL

40

17. DISTANCE FROM PROPOSED LOCATION TO NEAREST WELL DRILLING COMPLETED OR APPLIED FOR, ON THIS LEASE, FT.

n/a

18. PROPOSED DEPTH

8,700

19. OBJECTIVE FORMATION

Lyons

20. ELEVATIONS (Show whether GR or KB)

4828' GR

21. DRILLING CONTRACTOR

Exeter Northern

PHONE NO.

861-0181

22. APPROX. DATE WORK WILL START

April 21, 1992

23. PROPOSED CASING AND CEMENTING PROGRAM

| SIZE OF HOLE | SIZE OF CASING | WEIGHT PER FOOT | SETTING DEPTH | QUANTITY OF CEMENT |
|------------------|----------------|-------------------|---------------|--------------------|
| see reverse side | | 530' of 8" 9" 11" | | |
| | | Required | | |

24. IS SURFACE OWNER ALSO THE MINERAL OWNER? YES ☒ NO ☐If NOT surface bond must be on file or copy of surface agreement must be furnished.
If irrigated land, surface bond of \$5000 is required.

PLEASE FILL IN APPROPRIATE CODES:

OPER. NO. 12460

DRLR NO. 28410

FIELD NO. 99999

LEASE NO.

FORM CD. GRNHN

*DESCRIBE LEASE BY QTR. QTR. SEC. TOWNSHIP. RNC.

Township 7 North, Range 63 West, 6th P.M.
Section 16: All

25. PRINT William G. Crews Phone 659-7710 (Denver Metro)

SIGNED [Signature] TITLE Attorney-in-Fact DATE March 26, 1992

This space for Federal or State Use.

PERMIT NO. 92-338 APPROVAL DATE APR 3 1992 EXPIRATION DATE AUG 1 1992

APPROVED BY Dennis R. Becknell TITLE Director DATE APR 3 1992

CONDITIONS OF APPROVAL, IF ANY.

Increase of surface casing depth to 530' discussed with Mr. Crews on 3/31/92.
Comply with Order A-1-3. 209 See Instructions On Reverse Side

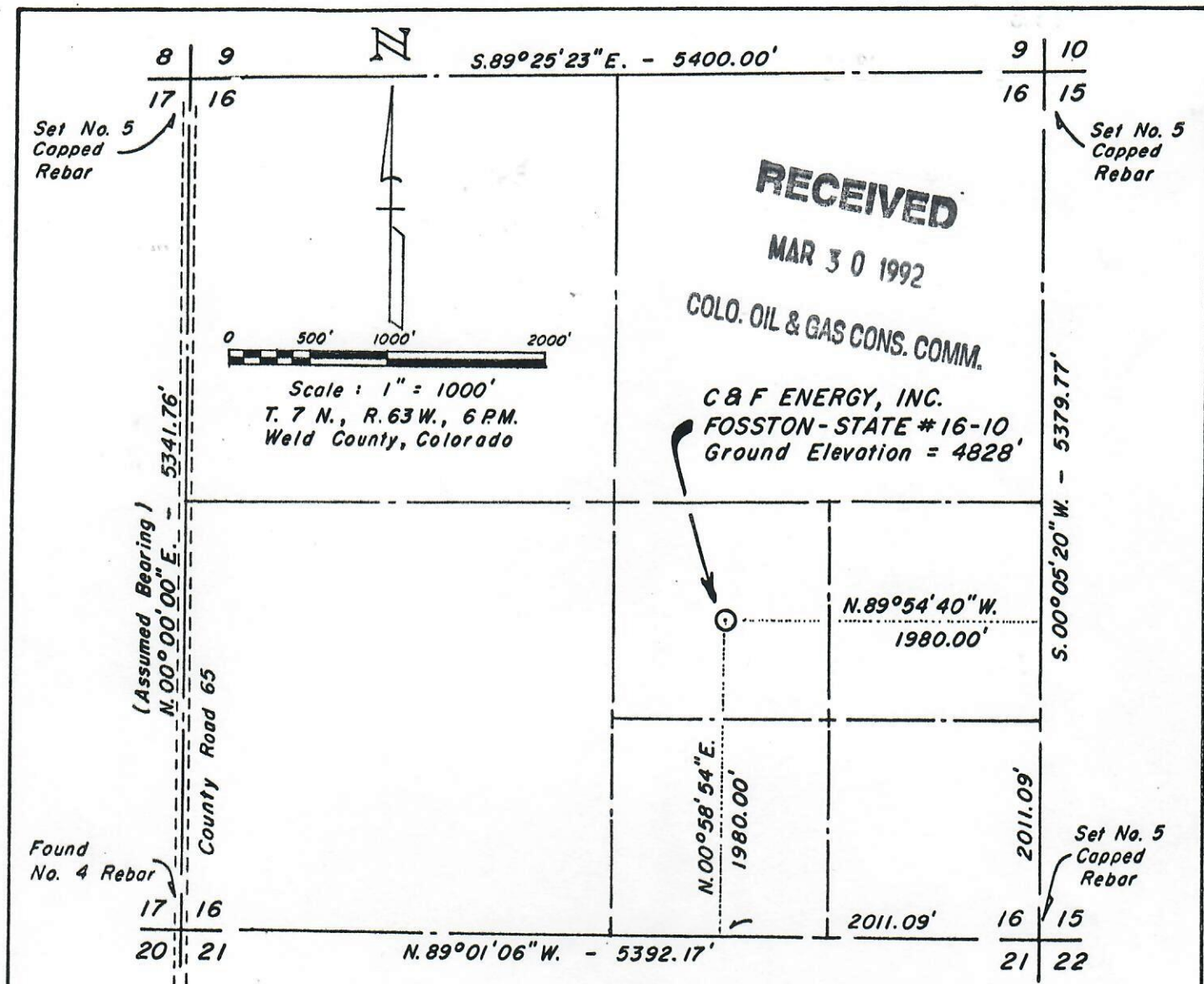
A.P.I. NUMBER

05 123 15685

Proposed Casing & Cementing Program
C & F Energy, Inc. Fosston/State 10-16

| Hole Size | Casing Size | Weight/Ft. | Setting Depth | Cement |
|-----------|-------------|------------|-----------------|--------|
| 12 1/2 | 8 5/8 | 24# | 300 <i>530'</i> | 200 sx |
| 7 7/8 | 5 1/2 | 15.5# J | 6000 | 250 sx |
| | | 17# J | 7500 | |
| | | 20# N | 8700 | |

A.P.I. NUMBER
02 123 15682



DESCRIPTION

The accompanying plat is an accurate representation of the survey performed to locate the proposed C & F Energy, Inc., Fosston - State # 16-10 well. Said well is located in the NW 1/4 SE 1/4 Section 16, T. 7 N., R. 63 W., 6th P.M., Weld County, Colorado, and is located 1980.00 feet north of the south line and 1980.00 feet west of the east line of the SE 1/4 of said Section 16 at right angles to the said south and east lines. The ground elevation at said well location is 4828 feet based on a USGS spot elevation of 4789 feet as shown on the 7.5 minute 1972 Cornish Quadrangle Map at the Southwest Corner of said Section 16.

Kenneth R. Alles

Kenneth R. Alles, PLS 9644

March 24, 1992

Date

| Revision | Date | ALLES AND ASSOCIATES, INC. 2605 West 19th Street Road Greeley, Colorado 80631 | C & F ENERGY, INC. Post Office Box 658 June Lake, CA 93529 |
|----------|------|---|--|
| | | | |
| | | | |
| | | | |