

Open-File Report 90-01

**Mesaverde Cross Sections in the
Piceance Basin, Colorado:
Index to Published Sections and New Sections
at Plateau and White River Fields**

*** Explanation to Index Map and References ***

Compiled by
Carol M. Tremain and Sue H. Cannon

Part A. Index map and references for 46 published cross sections of the Mesaverde Group in the Piceance Basin

Part B. Seven cross sections showing possible Mesaverde fluvial sandstone correlations and coal beds at Plateau and White River gas fields

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Colorado Geological Survey
Division of Minerals and Geology
Department of Natural Resources
Denver, Colorado
1994

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3. White River Dome North-South Section (Sec. 20, T2N, R96W to Sec. 32, T2N, R96W)
4. White River Dome East-West Section (Sec. 31, T2N, R96W to Sec. 28, T2N, R96W)
5. Plateau Field North-South Section (Sec. 17, T10S, R96W to Sec. 29, T10S, R96W)
6. Plateau Field North-South Section (Sec. 16, T10S, R96W to Sec. 27, T10S, R96W)
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EXPLANATION

Enclosed Sections—The seven new sections, list of published sections, and index map of sections (Plate 1) were compiled with funding from a 1989 U.S. Department of Energy contract DE-AC01-88FE61683 and edited with funding from Gas Research Institute Contract no. 5091-214-2261. The Colorado Geological Survey (CGS) sections together with the index map and reference list of additional sections are being open-filed to assist geologists in the search for coalbed methane or tight gas in the Mesaverde Formation of the Piceance Basin.

Plates 2–8, sections over White River Dome in the northern Piceance Basin and Plateau Field in the southern Piceance Basin, were to have been published in a DOE report entitled *Technical and Economic Evaluation of Low Permeability Sandstones within the Mesaverde Group, Piceance Basin, Colorado*. The White River Dome sections are at a

vertical scale of 1 in. = 200 ft, cover the Ohio Creek to Rollins/Trout Creek Sandstone interval, and use porosity logs where available. The Plateau Field sections are also at a vertical scale of 1 in. = 200 ft and cover the upper Mesa-verde to top of Corcoran Sandstone interval. Logs used are predominantly spontaneous potential-resistivity (gamma ray-neutron logs were used for better sandstone and coal correlations, where available, but were not depicted on the cross sections). Both the White River Dome and Plateau sections indicate coal seams and include possible Mesaverde sandstone correlations and drillstem tests, producing intervals, and initial production rates in Mesaverde sandstones.

The list of sections—sections previously published by the U.S.G.S., R.M.A.G., etc.—are listed below and located on the index map, Plate 1 along with the enclosed sections.

LIST OF SECTIONS ON PLATE 1

Index Map No.	Reference	Location (sec., T, R)	Section
1	Chancellor & Johnson, 1988	29, T2S, 98W—34, T6S, 94W	Figure 1
2	Dunrud, 1989a	20, T13S, 92W—11, T13S, 89W	Section A-A'
3	Dunrud, 1989a	7, T13S, 89W—23, T13S, 89W	Section B-B'
4	Dunrud, 1989a	7, T11S, 90W—22, T14S, 90W	Section C-C'
5	Dunrud, 1989a	3, T11S, 90W—10, T14S, 90W	Section D-D'
6	Dunrud, 1989a	17, T10S, 89W—35, T14S, 89W	Section E-E'
7	Dunrud, 1989a	8, T12S, 92W—33, T10S, 89W	Section F-F'
8	Dunrud, 1989b	34, T13S, 96W—19, T13S, 92W	Section A-F
9	Dunrud, 1989b	34, T13S, 96W—34, T11S, 94W	Section A-B
10	Dunrud, 1989b	12, T13S, 94W—34, T11S, 94W	Section C-B
11	Dunrud, 1989b	16, T13S, 93W—8, T12S, 92W	Section D-E
12	Ellis, Freeman & Donnel, 1988	14, T7S, 95W—8, T10S, 89W	Section A-A'
13	Ellis, Freeman & Donnel, 1988	15, T8S, 96W—34, T8S, 89W	Section B-B'
14	Ellis, Freeman & Donnel, 1988	17, T10S, 95W—8, T10S, 89W	Section C-C'
15	Ellis, Freeman & Donnel, 1988	2, T13S, 95W—36, T6S, 93W	Section D-D'
16	Ellis, Freeman & Donnel, 1988	6, T11S, 91W—20, T6S, 90W	Section E-E'
17	Ellis & Kelso, 1987	17, T7S, 101W—5, T8S, 97W	Plate A
18	Ellis & Kelso, 1987	T7S, 103W—31, T7S, 95W	Plate B
19	Fender & Murray, 1978	22, T7S, 91W—11, T12S, 90W	Plate 2, A-A'
20	Fender & Murray, 1978	8, T9S, 99W—27, T11S, 90W	Plate 3, B-B'
21	Gunter, 1962	29, T8S, 100W—17, T12S, 89W	Plate 1
22	Irwin, 1977	26, T10N, 87W—27, T10S, 96W	Figure 15
23	Irwin, 1977	34, T9S, 25E—27, T1N, 95W	Figure 16
24	Johnson, 1979a	24, T2S, 98W—29, T2N, 99W	Section A-A'
25	Johnson, 1979b	34, T8S, 99W—24, T2S, 98W	Section B-B'
26	Johnson, 1979c	T2&3S, 100W—8, T2S, 95W	Section C-C'
27	Johnson, 1989a	28, T9S, 23E—21, T2S, 95W	Section B-B'
28	Johnson, 1989b	7, T6S, 93W—11, T12S, 90W	Plate 1, D-D'
29	Johnson, 1989b	20, T4N, 97W—7, T6S, 100W	Plate 1, E-E'
30	Johnson, 1989b	7, T6S, 100W—8, T12S, 92W	Plate 1, F-F'

Index Map No.	Reference	Location (sec., T, R)	Section
31	Johnson, Grancia & Dessenberger, 1979a	30, T9S, 96W—29, T10S, 93W	Section A–A'
32	Johnson, Granica, & Dessenberger, 1979b	30, T9S, R96W—12, T7S, R93W	Section B–B'
33	Johnson, Granica & Dessenberger, 1979c	30, T11S, R95W—22, T8S, R92W	Section C–C'
34	Johnson & Johnson, 1991	T4S, R7W (UT)—T5S, R80W (CO)	Section A–A'
35	Johnson & Johnson, 1991	16, T4S, R9W (UT)—7, T2S, R91W (CO)	Section B–B'
36	McFall et al., 1986	20, T4N, R97W—11, T7S, R97W	Section A–A'
37	McFall et al., 1986	28, T3S, R101W—28, T1N, R94W	Section B–B'
38	McFall et al., 1986	30, T3N, R97W—36, T6S, R93W	Section C–C'
39	McFall et al., 1986	26, T11S, R97W—16, T6S, R90W	Section D–D'
40	McFall et al., 1986	11, T7S, R97W—9, T12S, R90W	Section A'–A'
41	McFall et al., 1986	36, T6S, R93W—9, T12S, R90W	Section C'–A'
42	Millison, 1962	14, T9S, R93W—8, T9S, R92W	Page 43, X–Y–Z
43	Nuccio & Johnson, 1989	23, T6S, R97W—32, T7S, R89W	Plate 1
44	Seccombe et al., 1986	20, T9S, R94W—6, T10S, R94W	Page 21, A–A'
45	Tremain, 1982	17, T2N, R94W—17, T12S, R89W	Plate 3
46	Wiman et al., 1984	36, T9S, R95W—29, T9S, R94W	Page 37, B–B'
A	Haas, 1991	17–29, T10S, R96W	Plate 2, Section A–A'
B	Haas, 1991	16–27, T10S, R96W	Plate 3, Section B–B'
C	Haas, 1991	19–22, T10S, R96W	Plate 4, Section C–C'
D	Haas, 1991	30–27, T10S, R96W	Plate 5, Section D–D'
E	Haas, 1991	30–31, R2N, R96W	Plate 6, Section A–A'
F	Haas, 1991	20–32, R2N, R96W	Plate 7, Section B–B'
G	Haas, 1991	31–28, R2N, R96W	Plate 8, Section C–C''

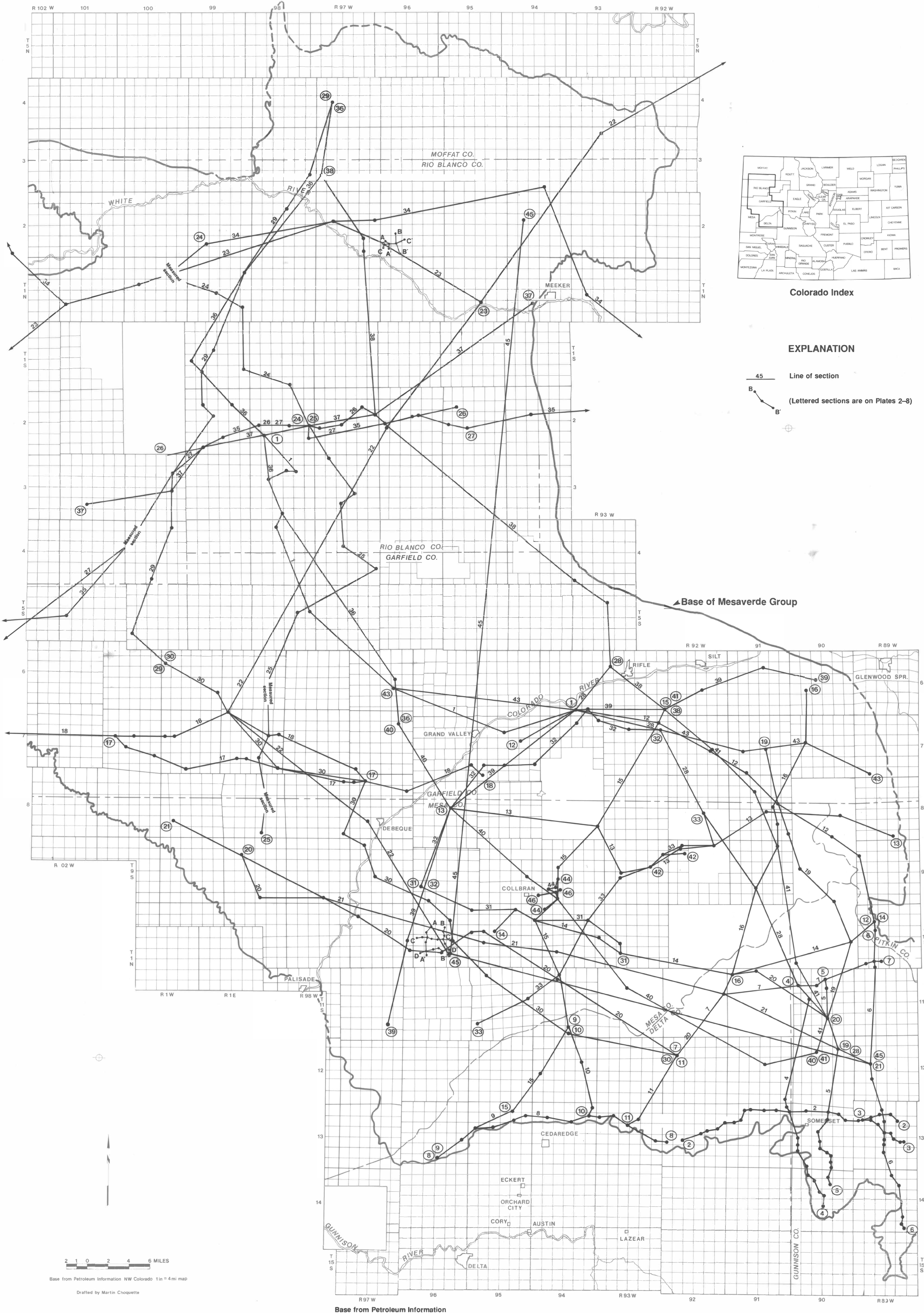
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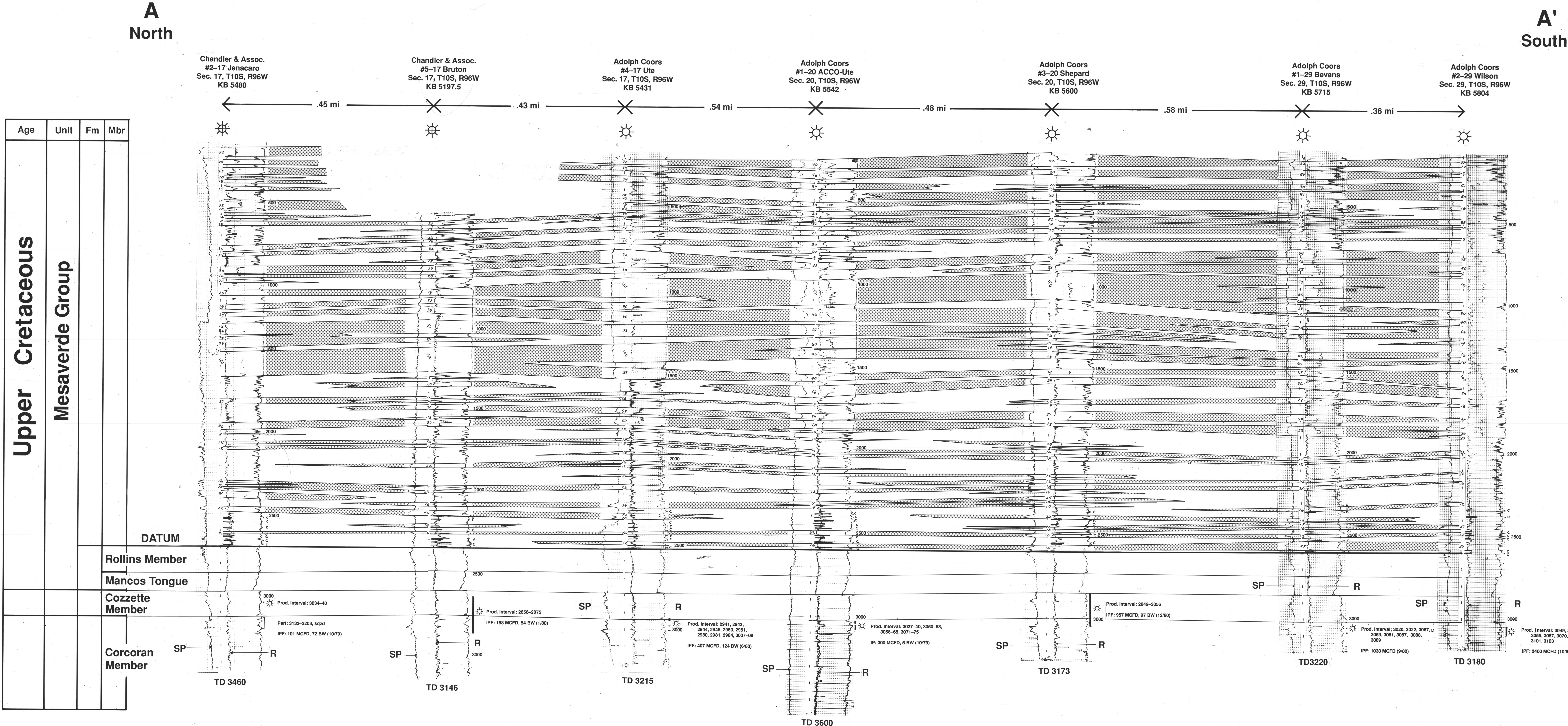
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Mesaverde Cross Sections in the Piceance Basin, Colorado
Index to Published Sections and New Sections at Plateau and White River Fields

By Carol M. Tremain and Susan H. Cannon

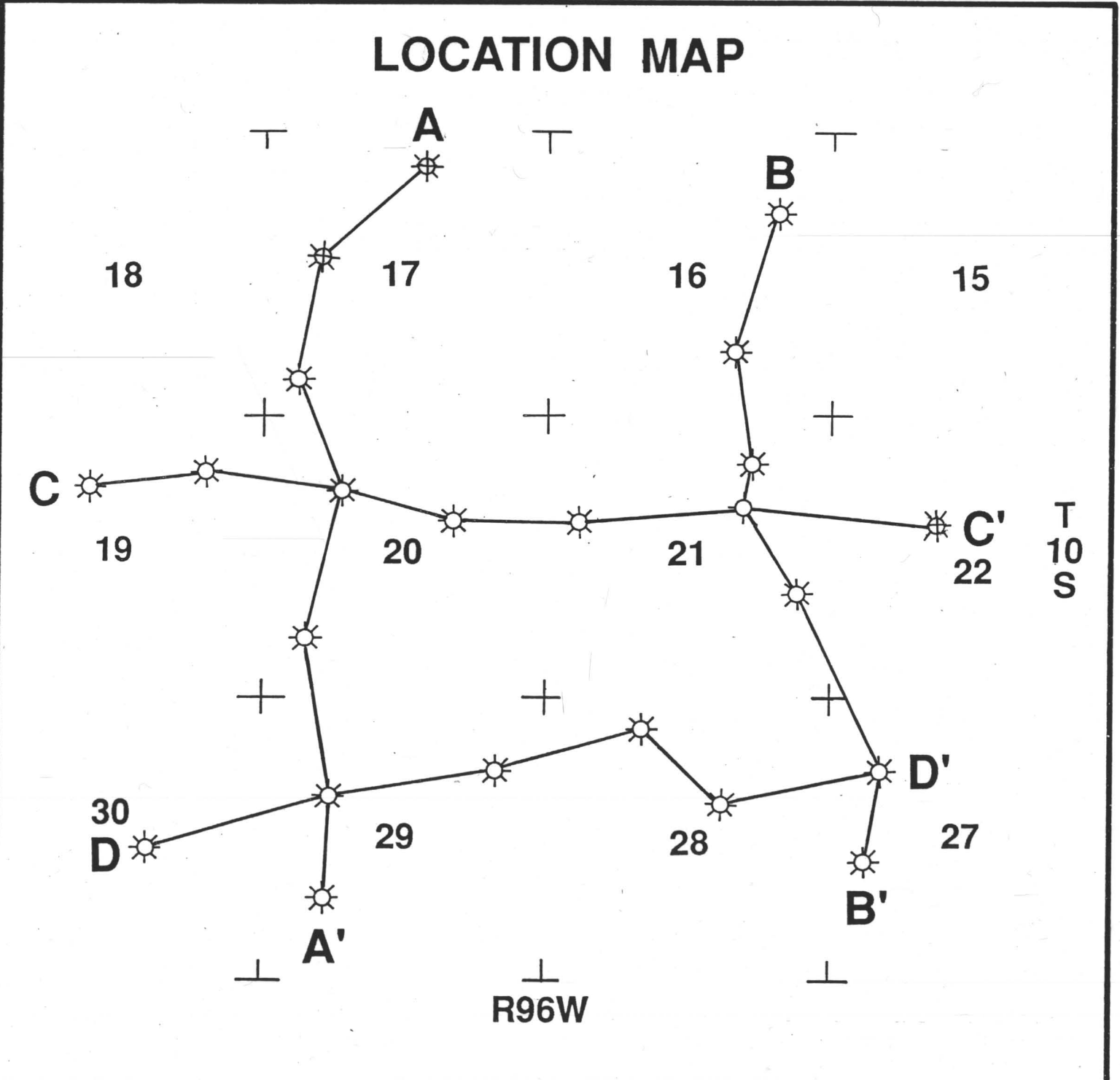
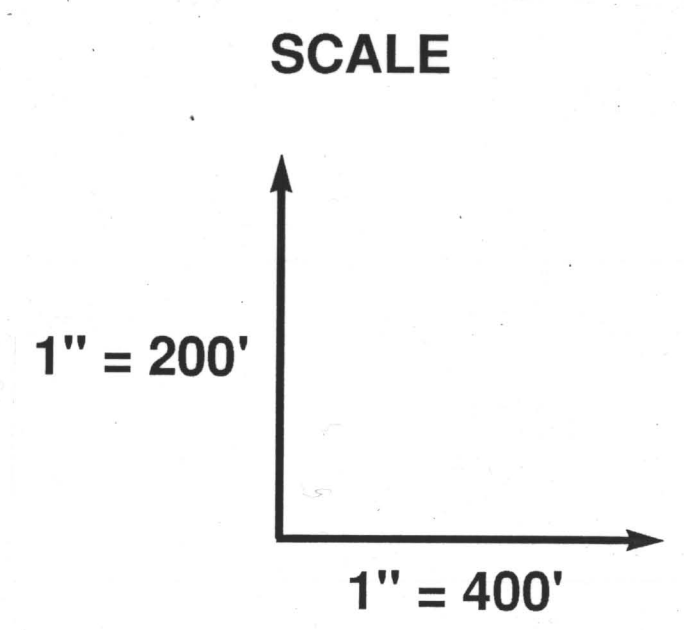




EXPLANATION

- Gas well
- Perforated or open hole interval producing gas
- Gas show from DST
- Coal
- Sandstone
- Sandstone thickness in feet

Note: Log curves include Gamma Ray (GR), Spontaneous Potential (SP), and Resistivity (R). Although not shown on the sections, Gamma Ray-Neutron and Density logs were used where available for better sandstone and coal identification.



COLORADO GEOLOGICAL SURVEY

CORRELATION OF MESAVERDE SANDSTONES
PLATEAU FIELD
SOUTHERN PICEANCE BASIN

STRATIGRAPHIC CROSS-SECTION A-A'

INTERPRETATION BY: C. TREMAIN	DATE: 2/15/90	DRAFTED BY: C. BRCHAN	REVISIONS:	MAP NO.:
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B
North

B'
South

Chandler & Assoc.
#8-16 Woodring
Sec. 16, T10S, R96W
KB 5471

Chandler & Assoc.
#15-16 Woodring
Sec. 16, T10S, R96W
KB 5358

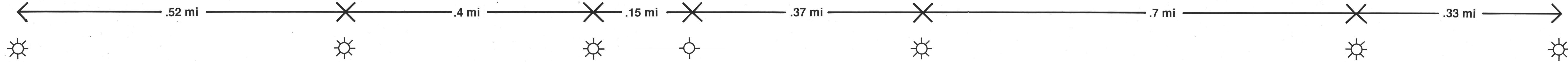
Norris Oil
#21-3 Nichols
Sec. 21, T10S, R96W
KB 5496

Gasco, Inc.
#1 Gasco-Nichols
Sec. 21, T10S, R96W
KB 5572.6

Norris Oil
#21-2 Federal
Sec. 21, T10S, R96W
KB 5816

S. Hammonds & Blanco Oil
#27-1 U.S. Moran
Sec. 27, T10S, R96W
KB 5741

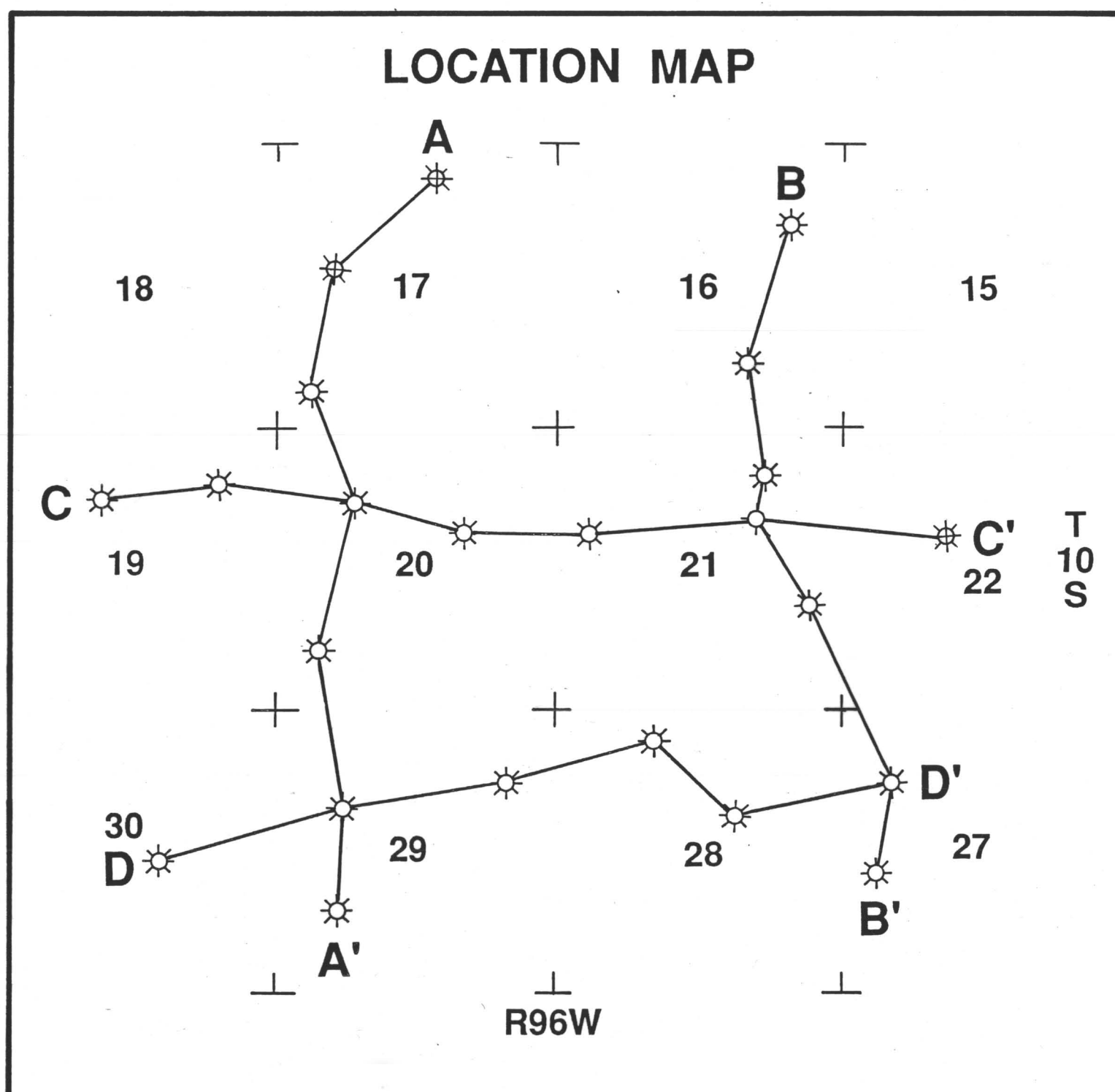
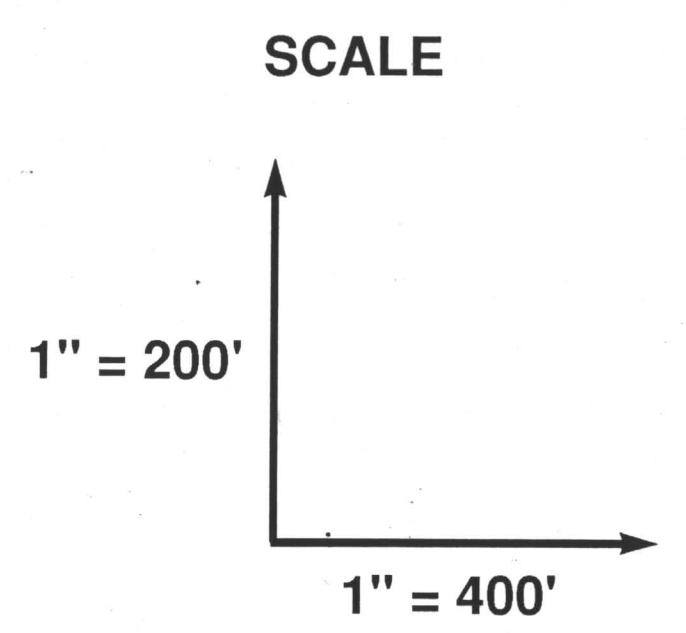
Gasco
#27-2 Moran
Sec. 27, T10S, R96W
KB 5985



EXPLANATION

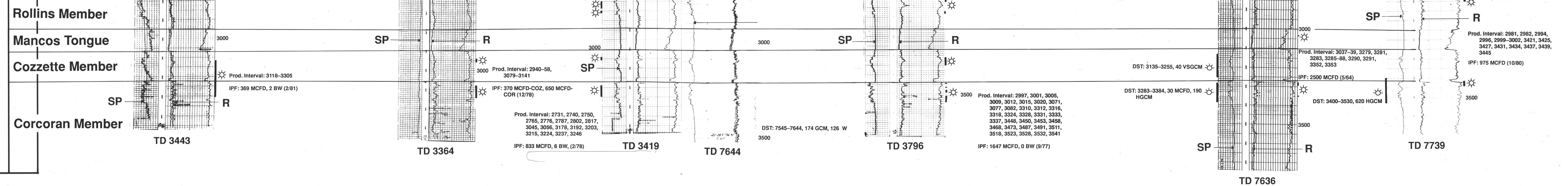
- Gas well
- Perforated or open hole interval producing gas
- Gas show from DST
- Coal
- Sandstone
- Sandstone thickness in feet

Note: Log curves include Gamma Ray (GR), Spontaneous Potential (SP), and Resistivity (R). Although not shown on the sections, Gamma Ray-Neutron and Density logs were used where available for better sandstone and coal identification.



Age	Unit	Fm	Mbr
Upper Cretaceous	Mesaverde Group		

DATUM

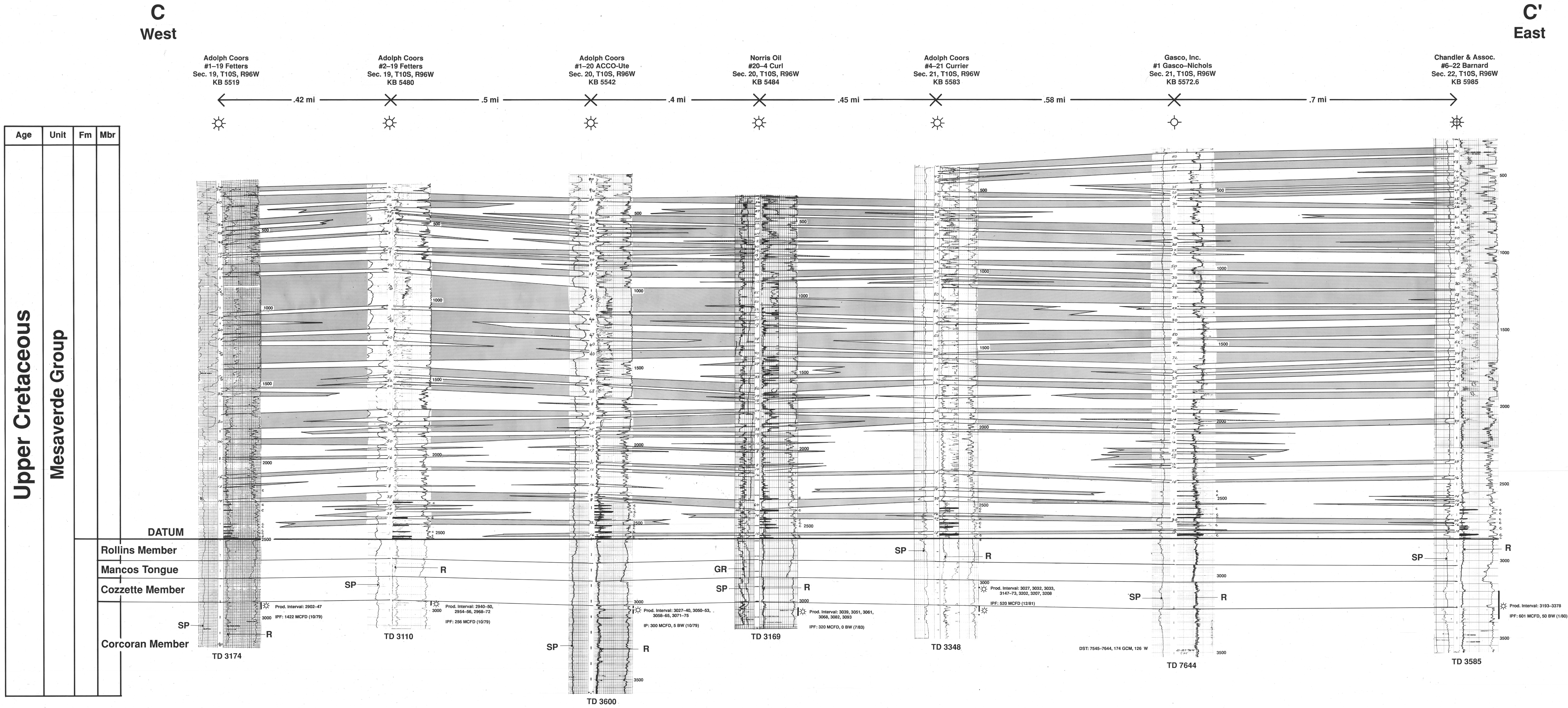


COLORADO GEOLOGICAL SURVEY

CORRELATION OF MESAVERDE SANDSTONES PLATEAU FIELD SOUTHERN PICEANCE BASIN

STRATIGRAPHIC CROSS-SECTION B—B'

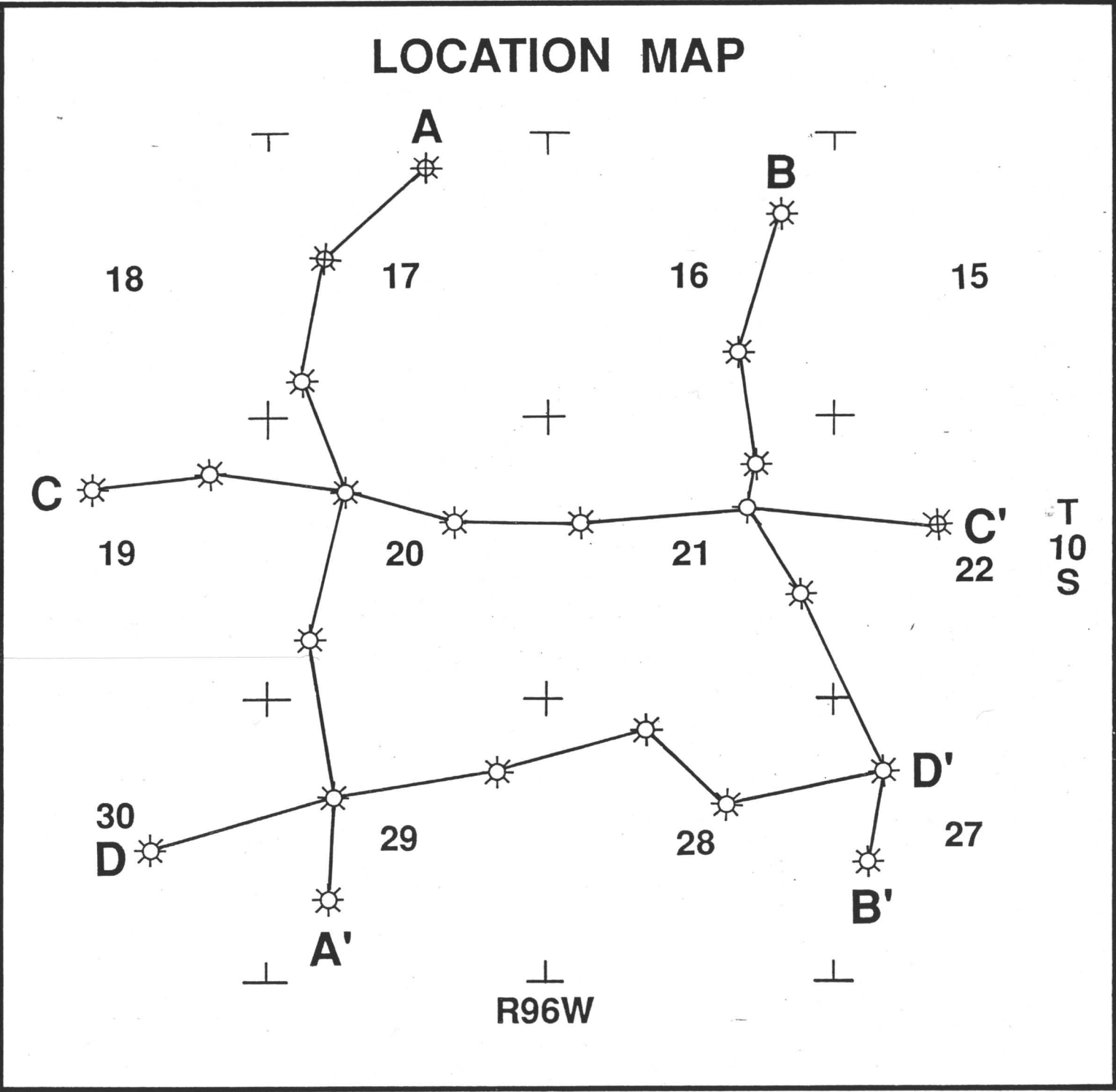
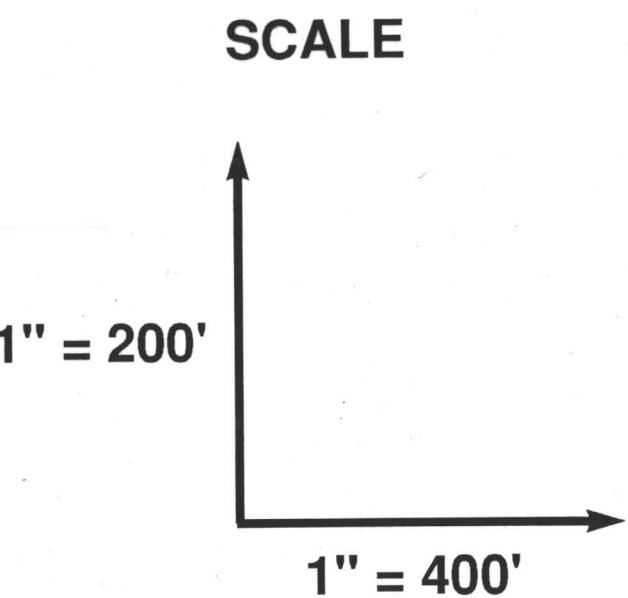
INTERPRETATION BY: C. TREMAIN DATE: 2/15/90 DRAFTED BY: C. BRCHAN REVISIONS: MAP NO:



EXPLANATION

- Gas well
- Perforated or open hole interval producing gas
- Gas show from DST
- Coal
- Sandstone
- Sandstone thickness in feet

Note: Log curves include Gamma Ray (GR), Spontaneous Potential (SP), and Resistivity (R). Although not shown on the sections, Gamma Ray-Neutron and Density logs were used where available for better sandstone and coal identification.



COLORADO GEOLOGICAL SURVEY

CORRELATION OF MESAVERDE SANDSTONES PLATEAU FIELD SOUTHERN PICEAN BASIN

STRATIGRAPHIC CROSS-SECTION C—C'

INTERPRETATION BY: C. TREMAIN
DATE: 2/15/90
DRAFTED BY: C. BRCHAN
REVISIONS:
MAP NO:

D'
East

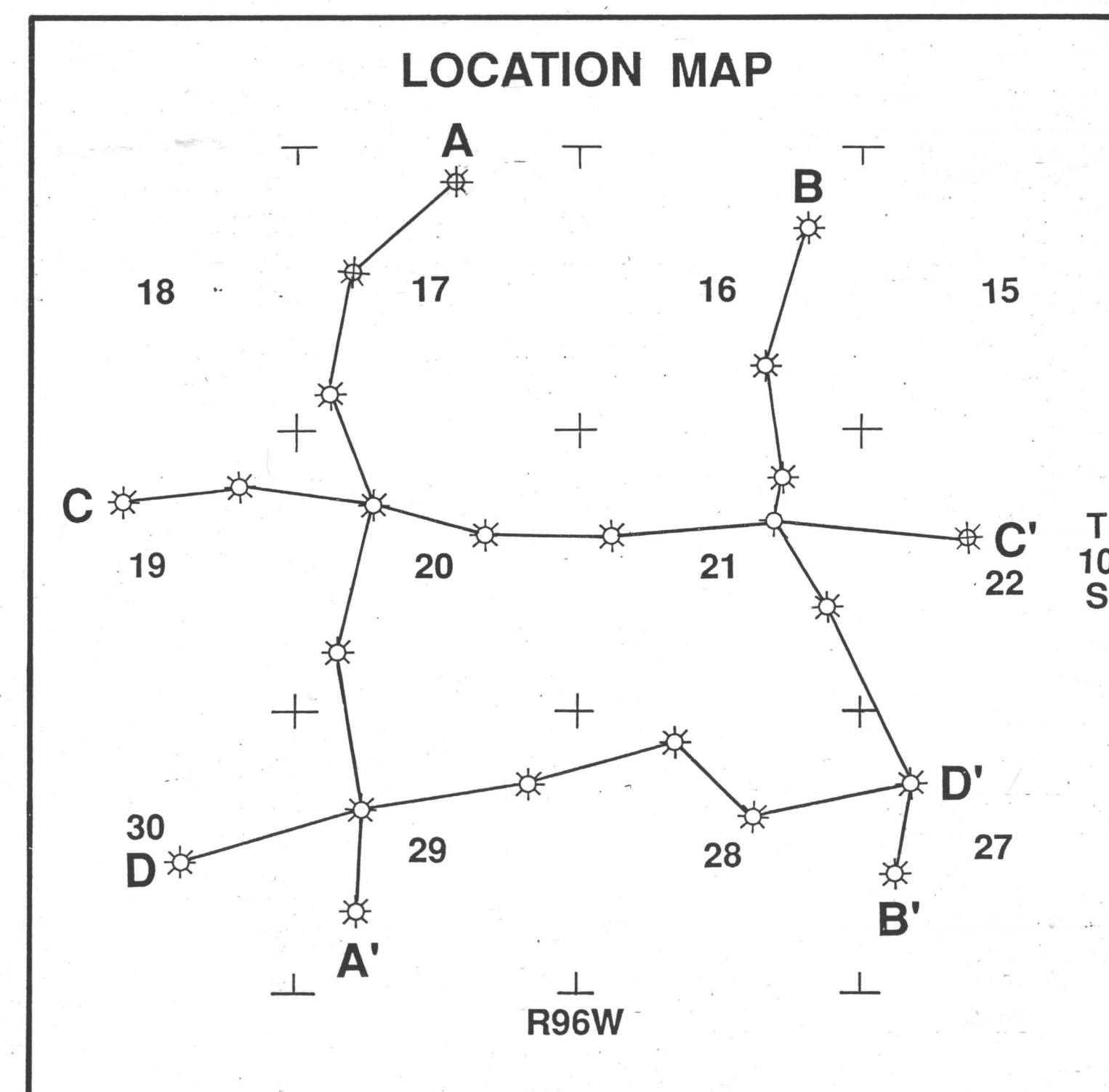
S. Hammonds & Blanco Oil
#27-1 U.S. Moran
Sec. 27, T10S, R96W
KB 5741

A number line from 0 to 1 with tick marks at intervals of 0.1. The segments are labeled with their lengths: 0 to 0.1 is .1, 0.1 to 0.2 is .1, 0.2 to 0.3 is .1, 0.3 to 0.4 is .1, 0.4 to 0.5 is .1, 0.5 to 0.6 is .1, 0.6 to 0.7 is .1, 0.7 to 0.8 is .1, 0.8 to 0.9 is .1, and 0.9 to 1.0 is .1. There are 'X' marks at 0.2, 0.4, 0.6, 0.8, and 1.0.

	Gas well
	Perforated or open hole interval producing gas
	Gas show from DST
	Coal
	Sandstone
	Sandstone thickness in feet

SCALE

LOCATION MAP



COLORADO GEOLOGICAL SURVEY

**CORRELATION OF MESAVERDE
SANDSTONES
PLATEAU FIELD
SOUTHERN PICEANCE BASIN**

STRATIGRAPHIC
CROSS-SECTION D—D'

INTERPRETATION BY:	DATE:	DRAFTED BY:	REVISIONS:	MAP NO:
C. TREMAIN	2/15/90	C. BRCHAN		

Age	Unit	Fm	Mbr
Upper Cretaceous	Mesaverde Group		

DATUM

Rollins Member

Mancos Tongue

**Cozzetti
Member**

**Corcoran
Member**

G

3

TD 769

Perf: 7561, 7563, 7581, 7590, 7591, 7603, 7616, 7617, 7619, 7621, 7623, PB to 7500

Prod. Interval: 7251-57, 7279-80, 7285-87, 7293-95

IP: 1673 MCFD (6/82)

TD 32

Prod. Interval: 3020, 3022,
3059, 3061, 3087, 3089

IPF: 1030 MCFD (9/80)

TD 320

Prod. Interval: 3078, 3088, 3099, 3104, 3111

IPF: 130 MC/FD, 0 BW (7/83)

TD 3600

DST: 3315-97, 1700 GCM

TD 7636

A
North

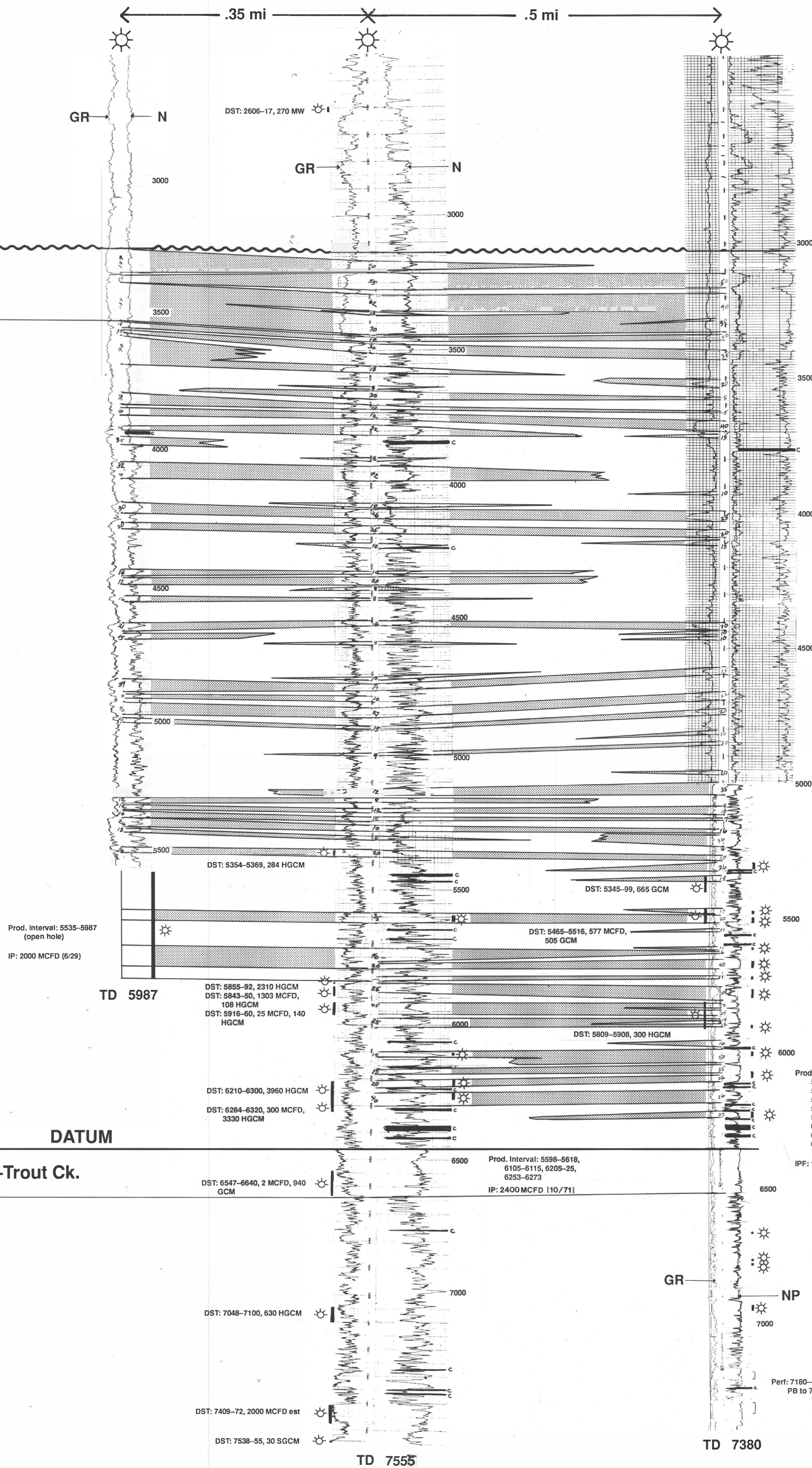
A'
South

Fuel Resources Development
#1 Potter
Sec. 30, T2N, R96W
GL 6000

Frontier Refining
#3 Govt.-037933
Sec. 30, T2N, R96W
KB 5904

Fuelco
Federal # 1
Sec. 31, T2N, R96W
KB 5858

Age	Unit	Fm	Mbr
Tertiary		Ft. Union Fm.	
Upper Cretaceous	Mesaverde Group	Williams Fork Formation	Ohio Cr.
		Rollins-Trout Ck.	
		Illes Formation	

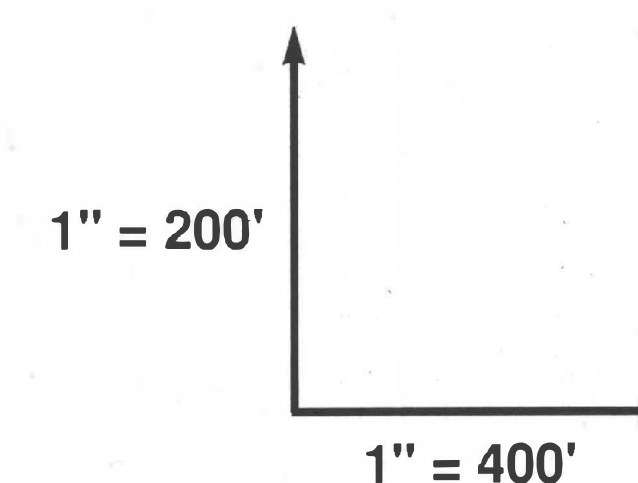


EXPLANATION

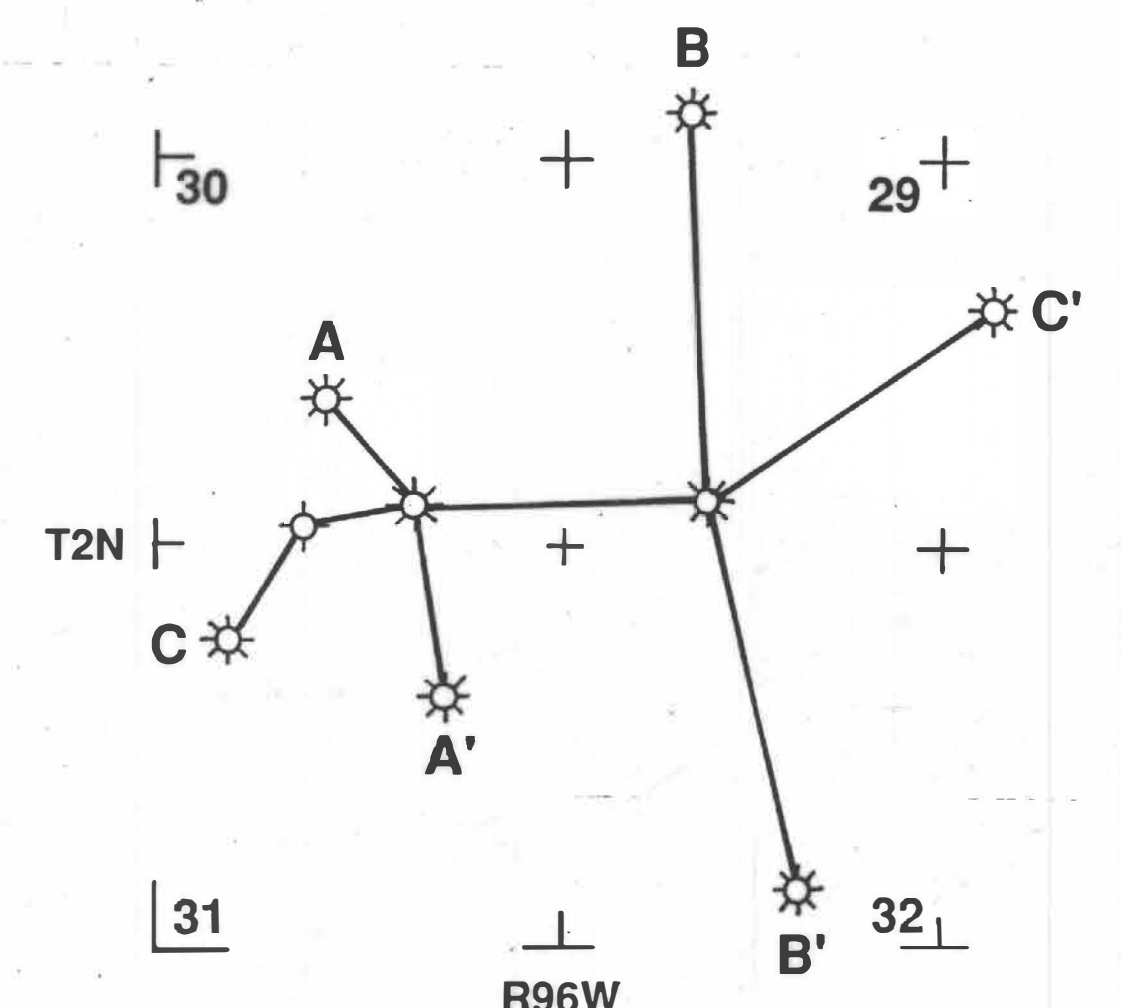
- Gas well
- Perforated or open hole interval producing gas
- Gas show from DST
- Coal
- Sandstone
- Sandstone thickness in feet

Note: Log curves include Gamma Ray (GR), Neutron (N), Neutron Porosity (NP), Bulk Density (BD), Density Porosity (DP), Spontaneous Potential (SP), and Resistivity (R). Gamma Ray-Neutron logs were used where available for better sandstone and coal identification.

SCALE



LOCATION MAP



COLORADO GEOLOGICAL SURVEY

CORRELATION OF WILLIAMS FORK
SANDSTONES
WHITE RIVER DOME
NORTHERN PICEANCE BASIN

STRATIGRAPHIC CROSS-SECTION A—A'

INTERPRETATION BY:	DATE:	DRAFTED BY:	REVISIONS:	MAP NO:
C. TREMAIN	12/19/89	C. BRCHAN		

B
North

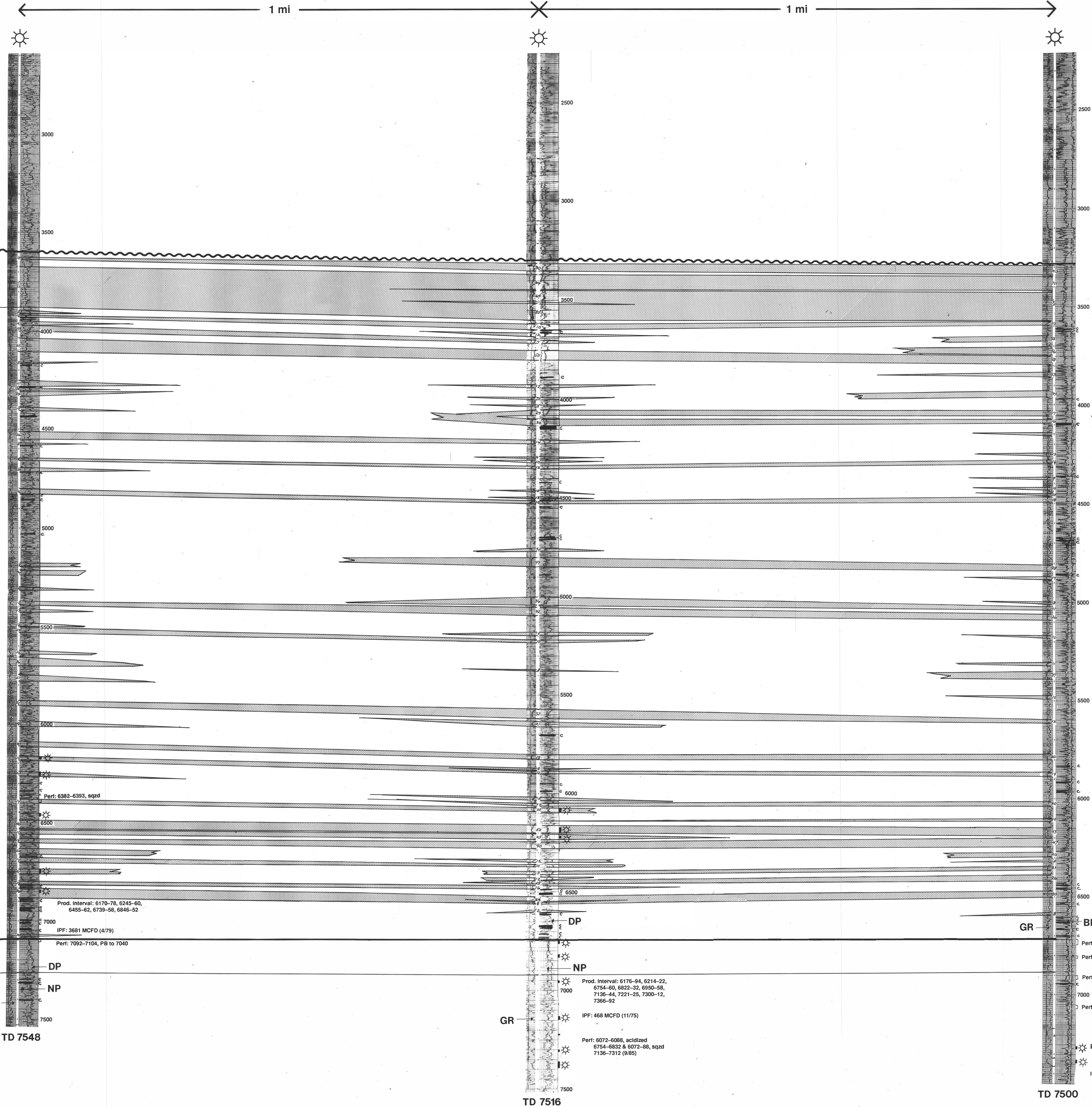
B'
South

Fuelco
Federal Unit #6-M
Sec. 20, T2N, R96W
KB 6021

Fuel Resources Development
#3 White River Dome Unit
Sec. 29, T2N, R96W
KB 5982

Fuel Resources Development
Unit #2M
Sec. 32, T2N, R96W
KB 5834

Age	Unit	Fm	Mbr
Tertiary		Ft. Union Fm.	
Upper Cretaceous	Mesaverde Group	Williams Fork Formation	Ohio Ct. ?
Iles Formation			

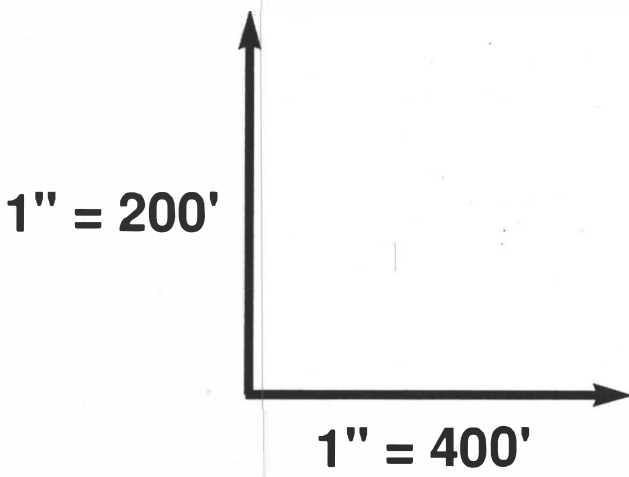


EXPLANATION

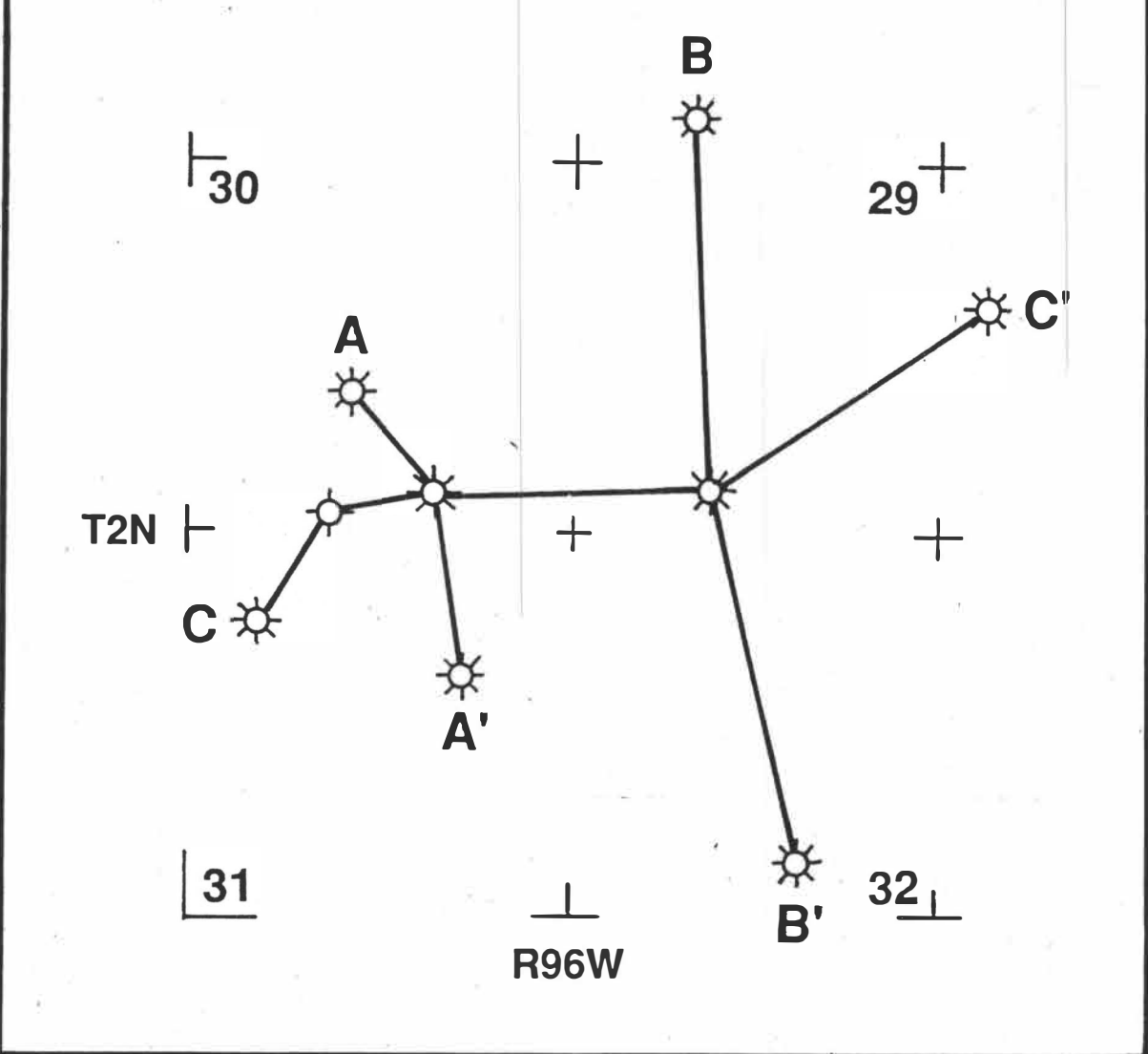
- Gas well
- Perforated or open hole interval producing gas
- Gas show from DST
- Coal
- Sandstone
- Sandstone thickness in feet

Note: Log curves include Gamma Ray (GR), Neutron (N), Neutron Porosity (NP), Bulk Density (BD), Density Porosity (DP), Spontaneous Potential (SP), and Resistivity (R). Gamma Ray-Neutron logs were used where available for better sandstone and coal identification.

SCALE



LOCATION MAP

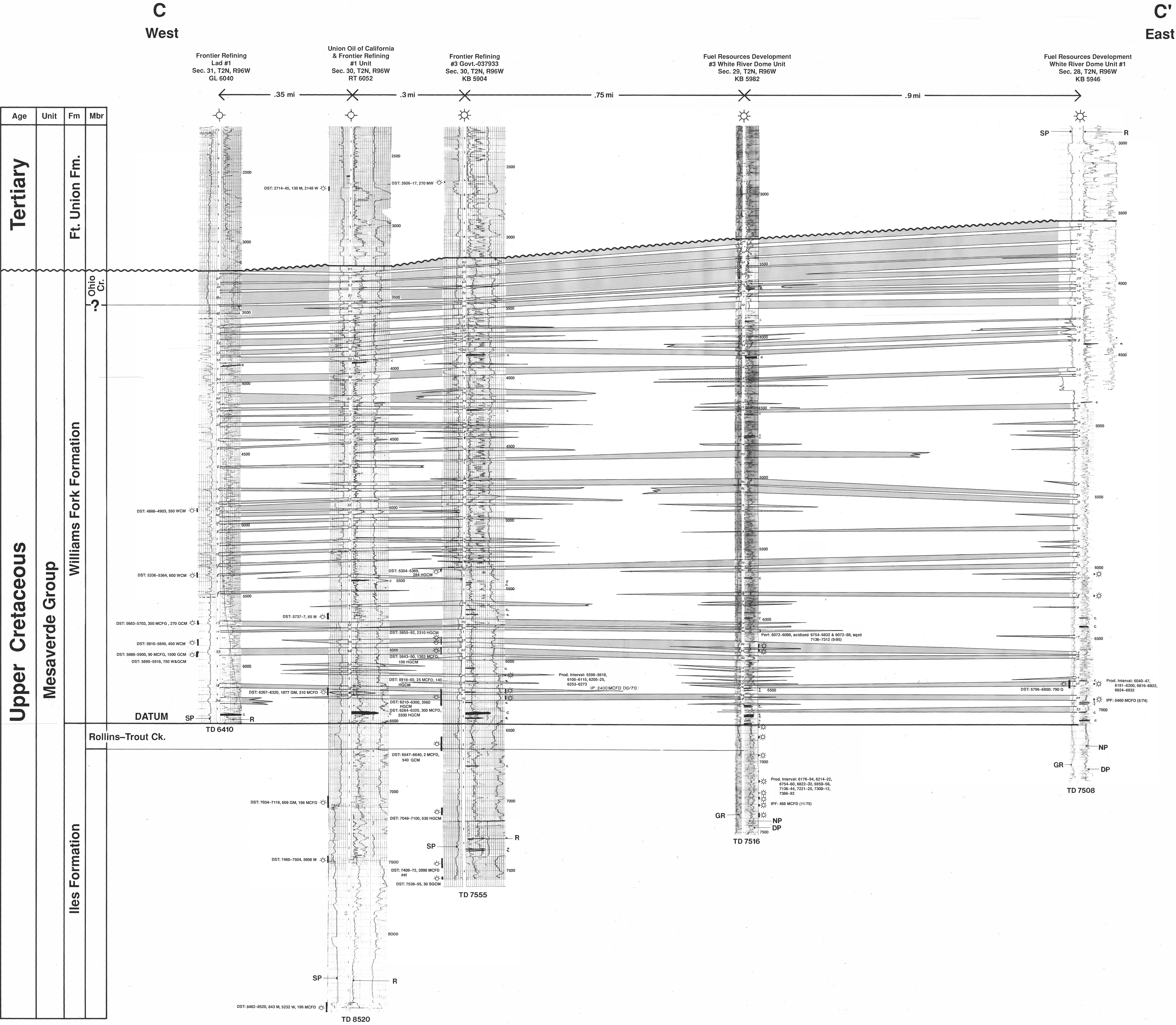


COLORADO GEOLOGICAL SURVEY

**CORRELATION OF WILLIAMS FORK SANDSTONES
WHITE RIVER DOME
NORTHERN PICEANCE BASIN**

STRATIGRAPHIC CROSS-SECTION B-B'

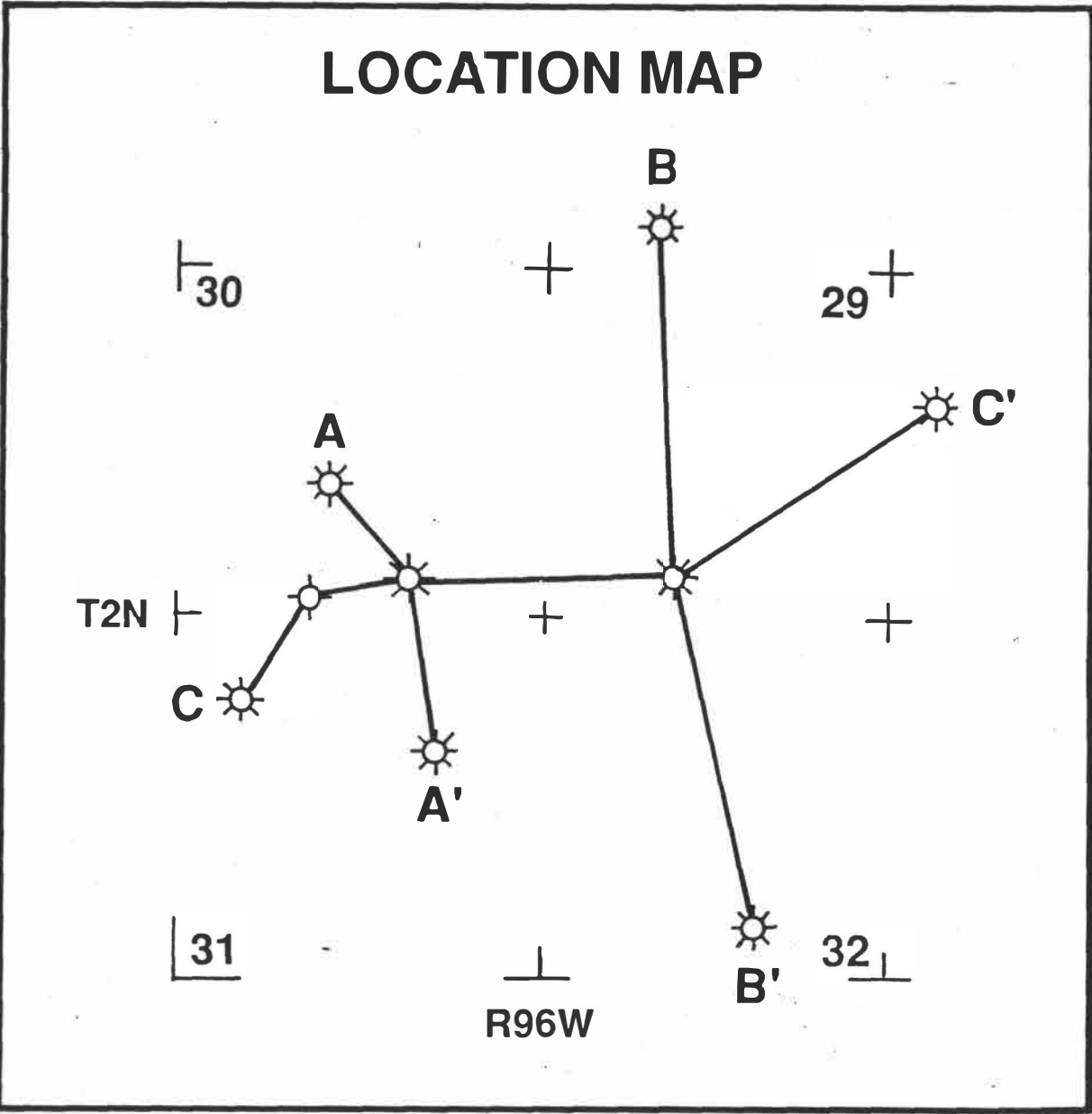
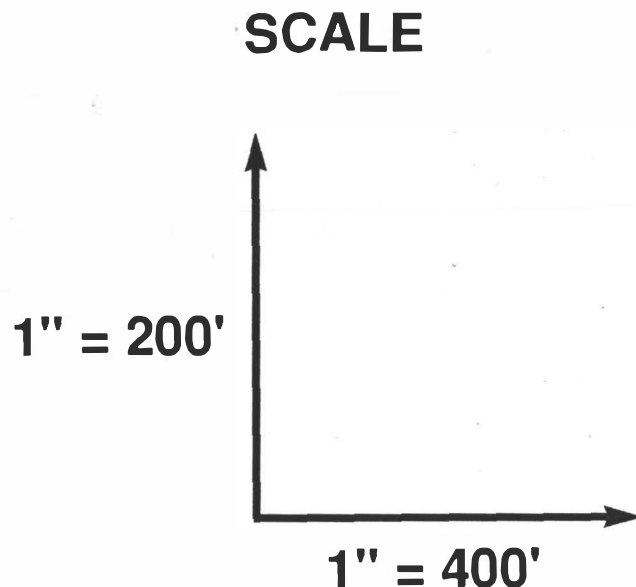
INTERPRETATION BY:	DATE:	DRAFTED BY:	REVISIONS:	MAP NO:
C. TREMAIN	2/15/90	C. BRCHAN		



EXPLANATION

- Gas well
- Perforated or open hole interval producing gas
- Gas show from DST
- Coal
- Sandstone
- Sandstone thickness in feet

Note: Log curves include Gamma Ray (GR), Neutron (N), Neutron Porosity (NP), Bulk Density (BD), Density Porosity (DP), Spontaneous Potential (SP), and Resistivity (R). Gamma Ray-Neutron logs were used where available for better sandstone and coal identification.



COLORADO GEOLOGICAL SURVEY				
CORRELATION OF WILLIAMS FORK SANDSTONES WHITE RIVER DOME NORTHERN PICEANCE BASIN				
STRATIGRAPHIC CROSS-SECTION C—C'				
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C. TREMAIN	2/15/90	C. BRCHAN		