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BRIEF REPORT ON STRATIGRAPHY AND GAS PRODUCTION OF THE WASHAKIE BASIN, WYOMING

Lance T. Hodges

A. STRATIGRAPHY OF THE WASHAKIE BASIN

The Washakie Basin is included as part of the Greater Green River Basin of southwestern Wyoming. It is separated from the Red Desert (Great Divide) Basin by the Wamsutter Arch, from the Sand Wash Basin by Cherokee Ridge, and from the Green River Basin proper by the Rock Springs Uplift.

Of most importance for the Western Gas Sands Project in the Washakie Basin are the lower Tertiary and Upper Cretaceous rocks. These include (in decending order):

Wasatch Formation (Eocene),
Fort Union Formation (Paleocene),
Lance Formation,
Lewis Shale,
Mesaverde Group (Almond, Ericson, Rock Springs, and Blair Formations),
and roughly Mancos Shale equivalents, either the Steele Shale or the Baxter Shale.

The Steele Shale in the eastern Washakie Basin is divided into upper and lower parts (Hale, 1961) by a prominent sandy zone (Cow Creek Sandstone). The Baxter Shale is equivalent to the Steele over the western Washakie Basin.

The Mesaverde Group in the eastern Washakie Basin can be divided into two parts (Hale, 1961): the lower part, a largely marine sequence of intertonguing sandstones and shales; and the upper part of largely continental, coal-bearing rocks. The basal sandstone of the Mesaverde here is the Deep Creek Sandstone, probably deposited under regressing marine conditions. A tongue of the Steele Shale (Espy tongue) overlies the Deep Creek Sandstone. This tongue may be the equivalent of the Black Butte tongue on the Rock Springs Uplift.

Above the Espy tongue in the eastern Washakie Basin, the Mesaverde assumes a prominent, white, cliff-forming sandstone locally known as the Hatfield Sandstone. This sandstone is considered to be a regressing marine sandstone. Above the Hatfield, the Mesaverde is continental, and is correlated with the Ericson and Almond Formations (defined on the Rock Springs Uplift).

On the western edge of the Washakie Basin and on the Rock Springs Uplift, the Mesaverde Group is divided into (ascending order) four formations:

Blair, Rock Springs, Ericson, Almond

The Blair Formation is entirely marine (Douglass and Blazzard, 1961). It loses its identity to the southeast in the Washakie Basin, where it grades into the upper part of the Baxter shale.

The Rock Springs Formation displays intertonguing of marine and non-marine deposits. There are coal bearing facies, and several marine sandstone units included in the Rock Springs Formation.

The Rock Springs Formation pinches out to the east of the Rock Springs Uplift. There has been no production yet in the Rock Springs Formation (Asquith, 1975), but deep tests into this unit are very limited in extent.

The Ericson Formation is a massive white sandstone unit in outcrop. Douglass and Blazzard (1961) consider this massive sandstone unit to represent a non-marine fluviatile environment. In subsurface, the Ericson is divided into two facies: the upper massive Ericson Ranch facies (inland facies) and the lower, carbonaceous, less massive Table Rock facies (lowland facies). A schematic relating Upper Cretaceous rocks across the Rock Springs Uplift, Washakie Basin, and the Sand Wash Basin is shown in Figure 1 (from Douglass and Blazzard, 1961).

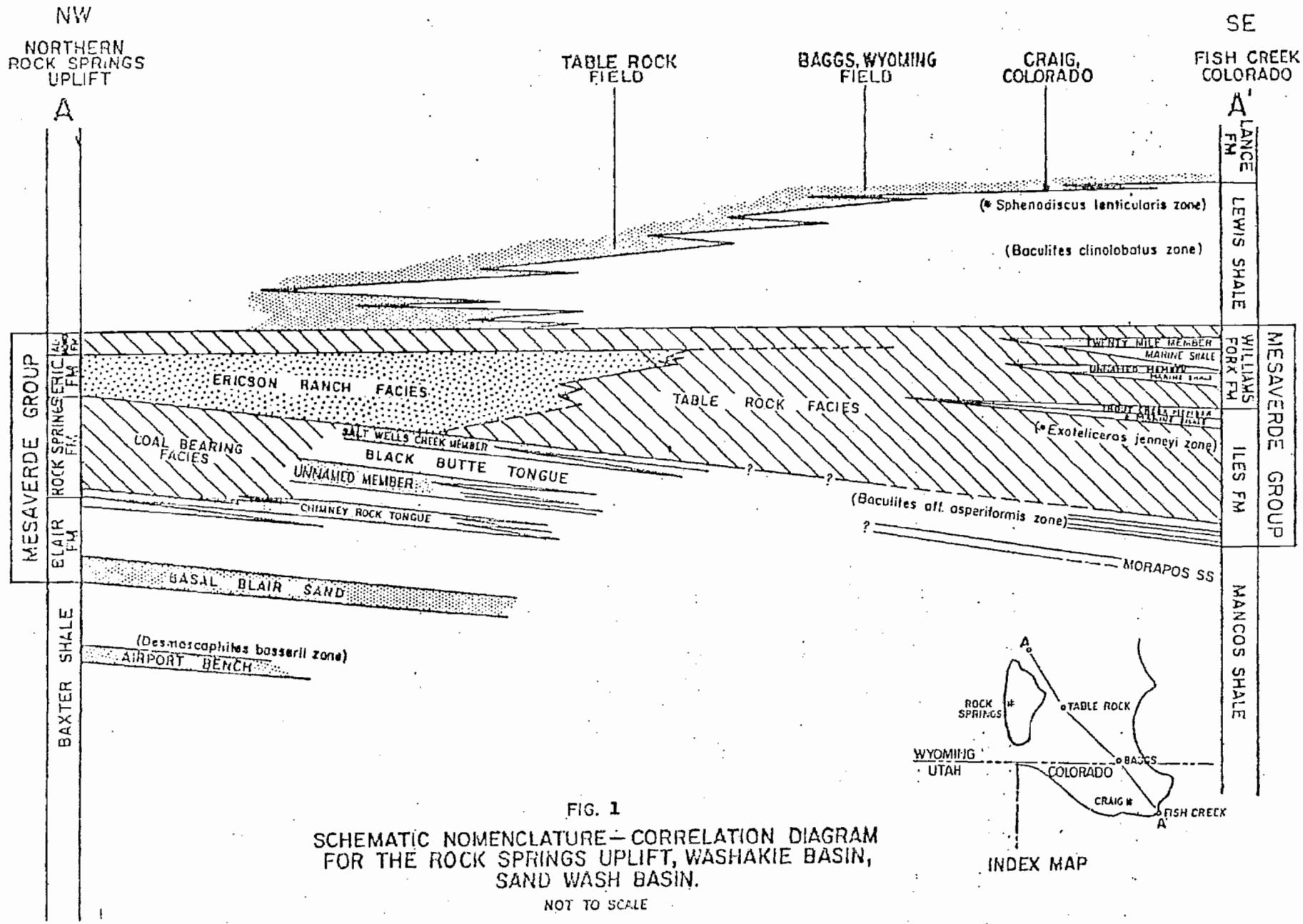


FIG. 1

SCHEMATIC NOMENCLATURE—CORRELATION DIAGRAM FOR THE ROCK SPRINGS UPLIFT, WASHAKIE BASIN, SAND WASH BASIN.

NOT TO SCALE

In the Washakie Basin, the Almond Formation may be divided into two units (Heppe, 1960). The basal unit consists of carbonaceous shale interbedded with silty sandstone and coal. The upper unit, from which most production is obtained, consists of friable, porous, salt-and-pepper sandstone. The Almond Formation is composed mainly of lowland deposits (fluvial-paludal).

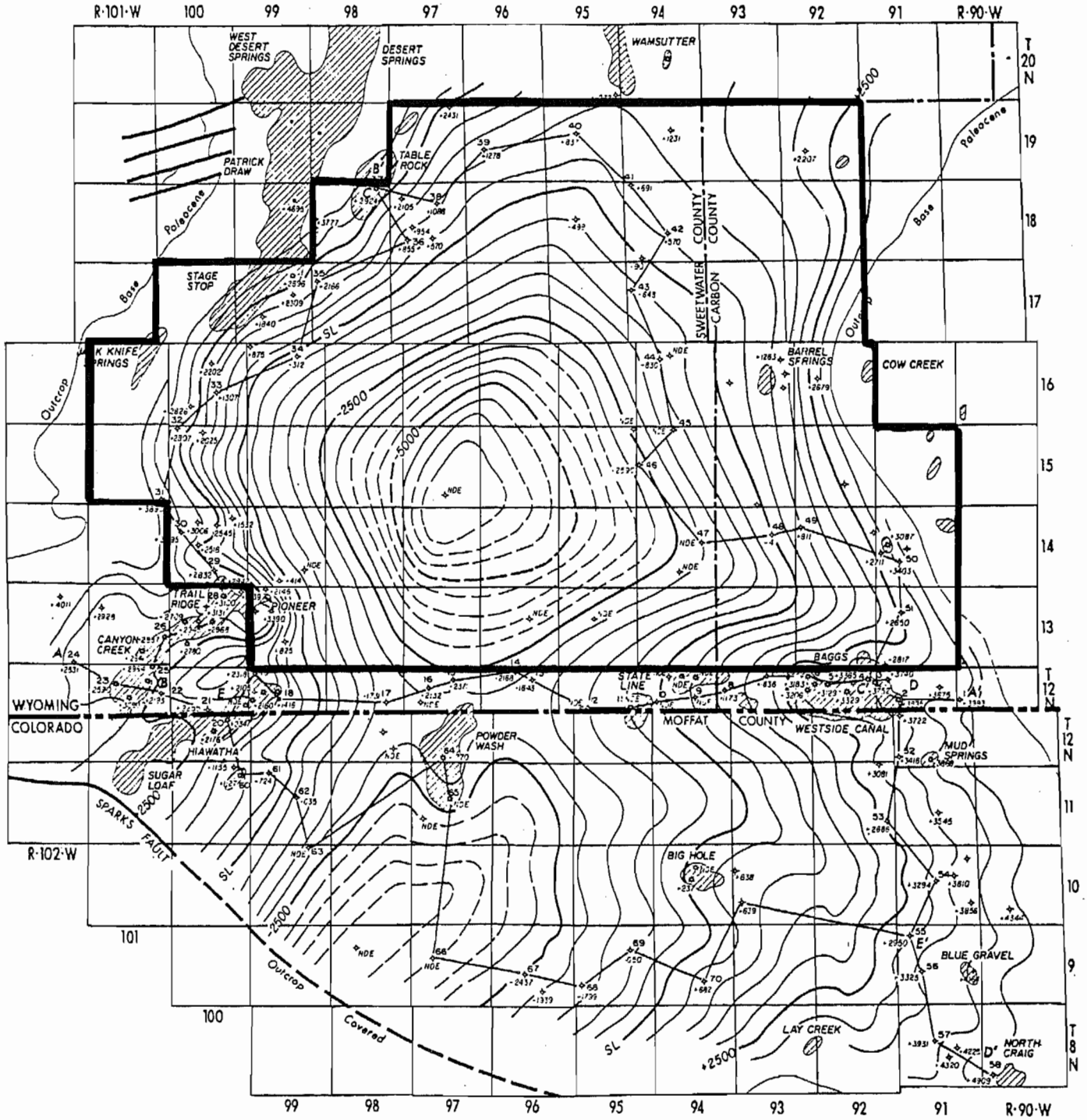
Production of oil and gas from the Almond Formation is from stratigraphic traps in sandstones deposited during a local regression or pause in the overall transgression of the Lewis sea (Asquith, 1975).

No comprehensive regional subsurface study of the Tertiary in the Washakie Basin has been published (McDonald, 1975). There is some production from Paleocene Fort Union Formation sandstones. Depositional environments in the Fort Union are fluvial and paludal. There is also some production from the Eocene Wasatch Formation, but none as yet (McDonald, 1975) from the overlying Eocene Green River Formation. A map showing structure contours at the base of the Paleocene (top of the Cretaceous) is shown in Figure 2. Also indicated is an outline of the Washakie Basin.

B. GAS PRODUCTION IN THE WASHAKIE BASIN

1. Production History and Summary

Gas production (Asquith, 1975) began in 1926 at Hiawatha in the Wasatch Formation in the southwest Washakie Basin. First significant production of gas in the Mesaverde was in the Ericson Formation in 1941 at Canyon Creek in the southwest Washakie Basin. Major fields have since been discovered at Table Rock (1946), Trail and Desert Springs (1958), and Patrick Draw (1959). Cumulative production (Asquith, 1975) from significant Lewis and Mesaverde fields in the area is over 50 million barrels of oil and 675 billion cubic feet of gas. Most of the oil and about half of the gas have been produced from the Almond Formation.. The remaining half of the gas has been produced in roughly equal amounts from the Lewis and Ericson Formations. Rocks lower in the Mesaverde Group have yielded only small quantities of oil and gas.



STRUCTURE ON BASE OF PALEOCENE

CONTOUR INTERVAL: 500'

SAND WASH & WASHAKIE BASINS

COLORADO & WYOMING

OIL AND GAS PRODUCTION

Fig. 2 — Structure contoured on base of Paleocene.

Recent activity in the basin has been slow and sporadic. Reasons for this are probably regulations on the price of gas, excessive drilling depths, and the fact that traps tend to be stratigraphically, rather than structurally, controlled. Most of the producing fields at present are concentrated at the rim of the basin, leaving the deeper parts of the basin relatively unexplored.

2. Cumulative Field Production

The area used for the Washakie Basin proper in this report for gas production data and frac size data is given below. Gas fields up on the rim are not included.

T13N	R91 - 99W
T14N	R91 - 100W
T15N	R91 - 101W
T16N	R92 - 101W
T17N	R92 - 100W
T18N	R92 - 98W
T19N	R92 - 97W

Cumulative gas production (in MMCF) to the end of 1977 was obtained from the Wyoming Oil and Gas Commission. Twenty-three fields are listed in Table 1. Nine fields have cumulative production of over 1,000 MMCF each. These nine are ranked according to production. Table Rock Field located in T18 - 19S, R97 - 98W has the largest cumulative production, 165,000 MMCF. Table 1 was compiled from the Wyoming Oil and Gas Commission's 1977 Oil and Gas Statistics. The map of Figure 3 gives an outline of the Washakie Basin using the area indicated above. The nine largest fields are shown on the map, and their production rank indicated by number.

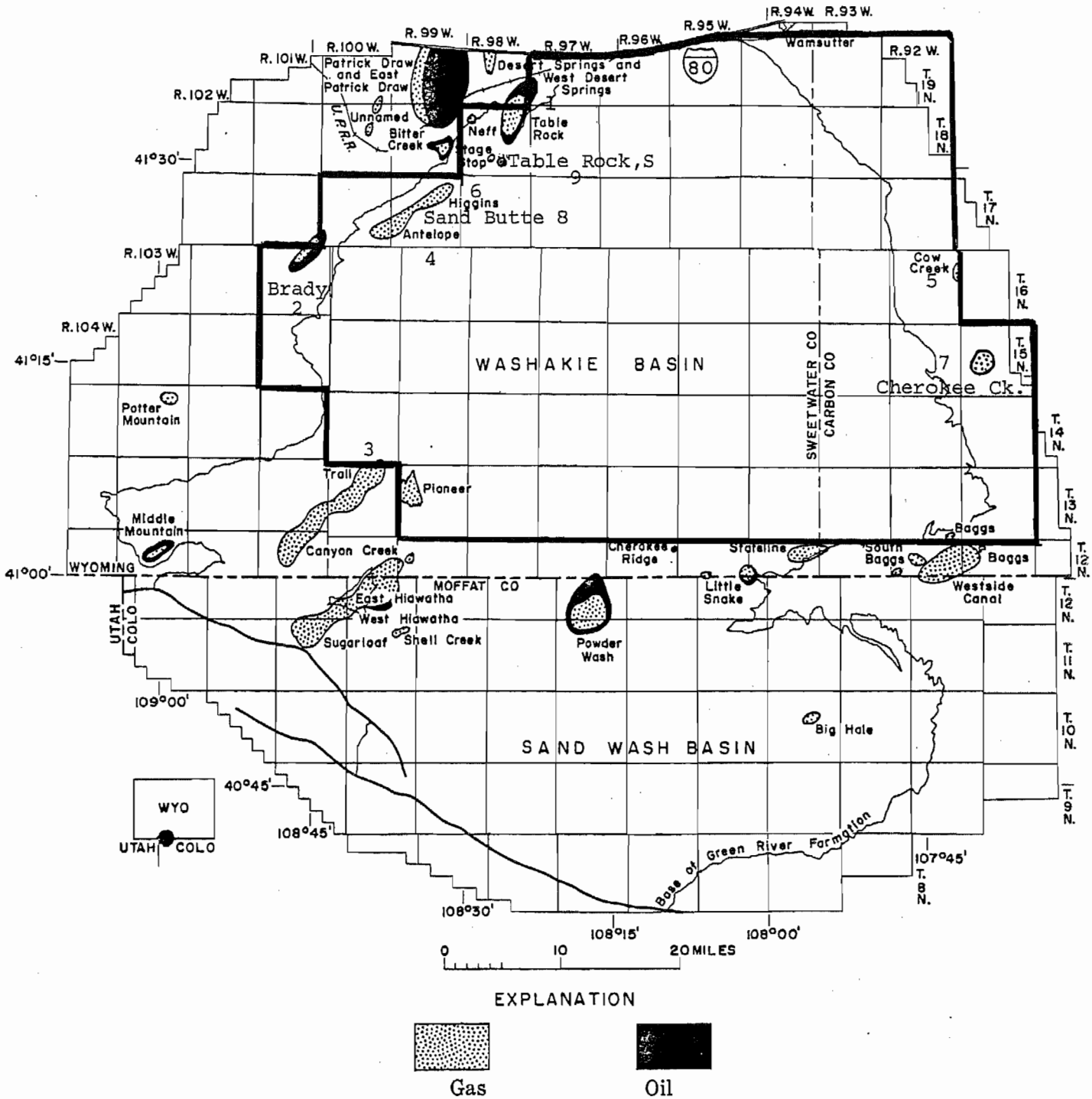


Figure 3. Oil and gas fields in the Washakie Basin, Wyoming, and Sand Wash Basin, Colorado.

C. RECENT WELL FRACTURES IN THE WASHAKIE BASIN

Frac size statistics were taken from wells listed in the Petroleum Information (PI) reports for the full year, January 1978 through December 1978. There were 27 wells fractured in the Washakie Basin (outlined in Figure 3) during the calendar year of 1978. There were also 14 wells listed as completed which were not fractured. Figure 4 (4 pages) is a compilation of the 27 fractured wells, taken from the Petroleum Information reports. Figure 5 (2 pages) is a compilation of the 14 wells not fractured, also taken from the Petroleum Information reports. Table 2 is a summary taken from the data of Figure 4, and shows the frac fluid and proppant amounts, and the measured gas flows after fracture. Flow potential (IPF) values are given unless otherwise indicated.

The actual frac size of 2 of the 27 fracs is not indicated. Nine of the 27 wells had multiple fracs. These multiple fracs were totaled for each such well in Table 2. The average frac size for the well:

141,150 gal of fluid (24 wells)
203,910 lb of proppant (25 wells)

Out of the 25 wells with proppant amounts given, 11 wells had frac jobs in excess of 200,000 lb. The largest frac during the year was 505,176 gal of emulsion and 620,000 lb of proppant (580,000 lb sand, 40,000 lb sintered bauxite). This was a CIG Exploration well, 1-28 Haystack Unit, located at Section 28, T17N, R96W, and fractured in the Mesaverde. Flow rates of interest on this well:

Maximum flow before frac:	497 MCFG/D		
After fracture:	12/14/77:	IPF = 789 MCFG/D,	IPCAOF = 890 MCF/D
	2/17/78	F = 1,000 MCFG/D	
	6/ 8/78	F = 1,200 MCFG/D	

Three of the 27 fractured wells were listed as drilled and abandoned (D&A) after fracturing. Out of 23 fractured wells indicating gas flow, 8 had IPF (or IPCAOF) values of at least 1,000 MCFG/D. The fractured well with highest IPF (5,800 MCFD/D) was fractured with 256,000 lb of sand.

However, two wells with frac sizes over 200,000 lb of sand were abandoned.

Out of the 14 completed unfractured wells in the Washakie Basin, 9 were D&A. Of the 5 producing wells, 4 potentialed (IPF) over 1,000 MCFG/D. One of these had an IPF of 6,188 MCFG/D.

D. REFERENCES

Asquith, D.O., 1975, Petroleum Potential of Deeper Lewis and Mesaverde Sandstones in the Red Desert, Washakie and Sand Wash Basins, Wyoming and Colorado, Rocky Mountain Association of Geologists, Symposium, p. 159-162.

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Hale, L. A., 1961, Late Cretaceous (Montanan) Stratigraphy, Eastern Washakie Basin, Carbon County, Wyoming, Wyoming Geological Association Guidebook, 16th Field Conference, p. 129-137.

Heppe, W. C., 1960, A Brief Summary of the Stratigraphy of the Almond and Lewis Formations of the Washakie Basin, Sweetwater County, Wyoming, Wyoming Geological Association Guidebook, 15th Field Conference, p. 147-151.

McDonald, R. E., 1975, Structure, Correlation and Depositional Environments of the Tertiary, Sand Wash and Washakie Basins, Colorado and Wyoming, Rocky Mountain Association of Geologists, Symposium, p. 175-184.

Miller, F. X., 1977, Biostratigraphic Correlation of the Mesaverde Group in Southwestern Wyoming and Northwestern Colorado, Rocky Mountain Association of Geologists, Symposium, p. 117-137.

Smith, J. H., 1961, A Summary of Stratigraphy and Paleontology, Upper Colorado and Montanan Groups, Southcentral Wyoming, Northeastern Utah, and Northwestern Colorado, Wyoming Geological Association Guidebook, 16th Field Conference, p. 101-112.

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Hale, L. A., 1961, Late Cretaceous (Montanan) Stratigraphy, Eastern Washakie Basin, Carbon County, Wyoming, Wyoming Geological Association Guidebook, 16th Field Conference, p. 129-137.

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Miller, F. X., 1977, Biostratigraphic Correlation of the Mesaverde Group in Southwestern Wyoming and Northwestern Colorado, Rocky Mountain Association of Geologists, Symposium, p. 117-137.

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Wyoming Oil and Gas Conservation Commission, 1977, Wyoming Oil and Gas Statistics: Casper, Wyoming.

TABLE 1

CUMULATIVE GAS PRODUCTION
WASHAKIE BASIN FIELDS

(end of 1977)

FIELD	LOCATION T/R	CUMULATIVE GAS PRODUCTION, MMCF	RANK
ANTELOPE	17N/99W	17,104	4
BARREL SPRINGS	16N/93W	101	
BLUE GAP	15N/92W	963	
BRADY	16N/101W	51,752	2
BROWNING	14N/91W	693	
BROWN'S HILL	14-16N/89-91W	23	
CHEROKEE CREEK	15N/91W	1,798	7
COW CREEK	16N/92W	12,869	5
CRESTON	19N/92W	SI	
DESERT FLATS	19N/95W	50	
ECHO SPRINGS	19N/93W	49	
HIGGINS	17N/99W	3,398	6
NEFF	18N/98W	33	
RED LAKES	18N/94W	114	
ROBBERS GULCH	14N/91W	3	
ROBIN	19N/97W	231	
SALAZAR	16N/95W	103	
SAND BUTTE	17N/99W	1,665	8

(continued)

TABLE 1
Page 2

FIELD	LOCATION T/R	CUMULATIVE GAS PRODUCTION, MMCF	RANK
TABLE ROCK	18-19N/97-98W	165,143	1
TABLE ROCK, S	18N/98W	1,008	9
TIPTON	19N/97W	64	
TRAIL	13-14N/100W	46,597	3
WILD ROSE	17-18N/94W	603	

TABLE 2

WASHAKIE BASIN FRAC SIZES
1978

FLUID (gal)		PROPPANT (lb)		IPF VALUE GAS FLOW (MCFG/D)
84,000		162,000		755
108,000		200,000		332
25,000 87,000	112,000	41,250 116,800	158,050	1,782
53,000		105,000		1,149
505,176		580,000 sd 40,000 bauxite	620,000	789 IPF 890 IPCAOF
85,500 238,000	323,500	165,000 374,500	539,500	994
55,000		105,000		1,650
Sd. Emul.		Sd. Emul.		4,600 IPCAOF
161,090		290,000		361
87,500 91,000	178,500	120,000 133,250	253,250	877
235,000		360,000		N.A.
124,656		228,114		431
110,000		170,000		796
72,000		148,000		580
49,700 40,000	89,700	57,000 70,000	127,000	53

Table 2 Continued

FLUID (gal)		PROPPANT (lb)		IPF VALUE GAS FLOW (MCFG/D)
185,440		243,400		D&A
Oil		44,625		220 IPP
33,222 40,300 26,500 24,108 24,108 26,226	174,464	33,000 30,000 18,000 18,000 18,000 20,000	137,000	850
20,000		22,000		1,043
188,000		256,000		5,800
22,500 30,000	52,500	33,500 63,670	97,170	668
12,000 34,440	46,400	30,000 50,400	80,400	D&A
82,000		166,000		115 IPP
114,660 50,000	164,660	214,200 100,000	314,200	D&A
Sd H_2O 96,300		Sd H_2O 54,500		3,412 IPCAOF
110,000 96,500 44,000	250,500	200,500 148,100 62,500	411,100	970
12,000		30,000		1,000

Figure 4. Wells Fractured in the Washakie Basin in 1978

SINCLAIR OIL 3-1 FAIR-FEDERAL, sw ne 3-14n-92w, 1327 fnl 1387 fel. BLUE GAP 14n-92w DG
9000 Mesaverde test. Pl Base Map WB-17A. API 49-007-20375.
FR 11/22/77. Spud 3/19/78. 9 5/8 @ 1014 w/985, 4½ @ 10,000 w/800. El: 6520 KB.
Log Tops: Mesaverde 7696, Ericson 8190, Rock Springs 9679, Hatfield 9813, Espy 9992. No cores or tests. 10,000 TD. PB 9780. Perf 7715, 7717, 7757, 7759, 7765, 7767, 7883-88, 7897-7900, 7965-67, 8094-96, 8335-40, 8346-56, 9148-50, 9169-73, 9224-29, 9253-69. Fract w/84,000 gal gel, 162,000 sd. Comp 7/22/78. IPF 755 MCFGPD, 43 BCPD, gty 56. Prod Zone: Mesaverde 7715-9269 (gross).

CIG EXPL 6-14-92 BLUE GAP II, ne sw 6-14n-92w, 1989 fsl 1846 fwl. BLUE GAP 14n-92w DG
11,000 Mesaverde test. Contr: Garnett. Pl Base Map WB-17A. API 49-007-20218.
FR 12/11/74. Spud 3/4/75. 9 5/8 @ 2530 w/1230, 7 @ 9098 w/265, 4½ @ 11,890 w/500. El: 6686 KB.
Log Tops: Fort Union 2702, Lance 5660, Fox Hill 6440. No cores. DST 8015-8147 (misrun). 11,898 TD. PB 11,846. Perf 9208, 9316, 9346, 9354, 9360, 9386, 9400-01, 9417, 9508, 9527, 9535, 9551, 9552, 9587, 9588, 9591, 9592, 9597, 9598, 9601, 9602, 9604, 9605, 9625, 9628, 9652, 9655, 9658, 9683, 9690, 9694, 9695 w/2 pf. Fract w/108,000 gal wtr, 200,000 sd. Comp 3/8/76. IPF 332 MCFGPD, 4 BCPD. Prod Zone: Mesaverde 9208-9730 (gross). Dropped from report 10/16/75

GETTY OIL 1 SW ROBBERS GULCH, c ne 27-14n-92w, 1320 fnl 1319 fel, irreg sec. UNNAMED 14n-92w WFD
9500 Mesaverde test. Pl Base Map WB-17A. API 49-007-20355.
FR 9/26/77. Spud 11/4/77. 9 5/8 @ 1020 w/600, 5½ @ 9480 w/484. El: 6599 KB.
Log Tops: Lance 4806, Fox Hills 5814, Lewis 5926, Mesaverde 8310. No cores. DST 7013-7101, op 10, SI 60, op 60, SI 70, rec 376 SWCM, FP 291-228, 282-276, SIP 427-361, HP 3497-3497. DST 8560-93 (misrun). DST 8828-8923, op 15, SI 77, op 61, SI 60, GTS in 80 min (no gauge), rec 2055 SGC swtr, 600 GCM, FP 337-547, 646-1213, SIP 4457-3998, HP 4511-4427. 9500 TD. PB 9268. Perf 8312-16, 8744-49, 8856-62, 8866-69, 8956. Fract w/25,000 gal gel wtr, 41,250 sd. Perf 8960, 8991-9023, 9037-47. Fract w/87,000 gal gel wtr, 116,800 sd. Comp 5/1/78. IPF 1782 MCFGPD. Prod Zone: Mesaverde 8310-9047. (MESAVERDE DISCOVERY - NEW FIELD).

WILLIAM MOSS PROPERTIES 9-12-14-93 FEDERAL, sw ne 12-14n-93w, 1929 fnl 1980 fel. BLUE GAP 14n-93w DG
10,300 Mesaverde test. Contr: Signal. Pl Base Map WB-17A. API 49-007-20319.
FR 3/4/77. Spud 10/25/77. 9 5/8 @ 1094 w/600, 7 @ 9161 w/275, 4½ @ 10,410 w/450. El: 6827 KB.
Log Tops: Almond 9524, Ericson 10,020. No cores or tests. 10,410 TD. PB 10,006. Perf 9592, 9594, 9597, 9734, 9736, 9838, 9841, 9843, 9889, 9891, 9894, 9896, 9899, 9904, 9906, 9992, 9993 w/2 pf. Fract w/53,000 gal wtr, 105,000 sd. Perf 10,024, 10,027, 10,034, 10,040, 10,045, 10,048, 10,052. Comp 3/2/78. IPF 1149 MCFGPD, 6 BC, 44 BWPD. Prod Zone: Mesaverde 9592-9993 (gross).

CIG EXPL 1-28 HAYSTACK UNIT, se ne 28-14n-96w, 2447 fnl 1316 fel. UNNAMED 14n-96w WFD
15,700 Mesaverde test. Contr: Noble. Pl Base Map WB-17A. API 49-037-20947.
FR 3/21/77. Spud 2/28/77. 13 3/8 @ 3005 w/1985, 7 @ 14,915 w/1014, 5 lnr @ 14,613-16,248 w/225. El: 6554 KB.
Log Tops: Fox Hills 13,340, Lewis 13,488, Mesaverde 15,453. No cores. DST 10,954-11,040, op 15, SI 60, op 60, SI 120, GTS in 30 min @ 12 MCFPD, GTS in 50 min @ 14 MCFPD, rec 210 GCM, 2031 GCW cush, FP 872-897, 897-922, SIP 1495-1271, HP 5720-5783. DST 12,930-12,993, op 15, SI 30, op 60, SI 90, rec 2000 gas, 5000 GCW cush, 270 HGCM, FP 2649-2564, SIP 4943-5832, HP 6335-6167. 16,250 TD. PB 16,148. Perf 15,457-15,463, 15,467-15,470, 15,479-15,489, 15,491-15,497 w/1 pf. Acidized w/4000 gal. Perf 15,681-15,684, 15,693-15,696, 15,650-15,653, 15,645-15,648, 15-772-15,778 w/1 pf. Acidized w/ 8000 gal. Perf 15,935-15,941, 15,974-15,977, 15,982-15,985, 16,012-16,015, 16,021-16,024, 16,139-16,149, 16,145-16,148 w/1 pf. Acidized w/5000 gal. Fract w/12,028 ~~gal~~ bbls. emul, 620,000 sd. Comp 2/15/78. IPF 789 MCFGPD, 92 BWPD. Prod Zone: Mesaverde 15,457-16,148 (gross). (MESAVERDE DISCOVERY-NEW FIELD).

CIG EXPL 8-15-92 C I G E, ne sw 18-15n-92w, 1982 fsl 1774 fwl. UNNAMED 15n-92w
11,000 Mesaverde test. Contr: Montgomery. Pl Base Map WB-17A. API 49-007-20215.
FR 11/18/74. Spud 1/19/75. 9 5/8 @ 1485 w/825, 7 @ 8576 w/1195, 4½ @ 11,020 w/420. El: 6690 KB.
Log Tops: Fort Union 2100, Lance 5150, Lewis 5740, Mesaverde 8290. No cores. DST 10,300-10,346 op 10, rec 2120 GCM, 2030 wtr cush, SIP 5493-5601, HP 5262-5262. 11,020 TD. PB 10,897. Perf 8877-8879, 8882-8884, 8918-8922, 8926-8983, 8985-8988, 8992-9362, 9364-9366, 9368-9381, 9383-9385, 9402-9405, 9406-9408. Fract w/85,500 gal wtr, 165,000 sd. Perf 9951-9981, 10,267-10,272, 10,278-10,282, 10,317-10,344, 10,347-10,376, 10,423-10,427, 10,430-10,703, 10,705-10,706, 10,707-10,709, 10,717-10,721, 10,723-10,725, 10,742-10,744, 10,745-10,746, 10,748. Sdemulfract. Fract w/238,000 gal wtr, 374,500 sd. Comp 2/24/76. IPF 40 BO, 994 MCFGPD, 16/64 ck. Prod zone: Mesaverde 8877-9408 (gross). (MESAVERDE DISCOVERY-NEW FIELD). Dropped from report 3/18/76.

WILLIAM MOSS PROPERTIES 11 FEDERAL, nw se 19-15n-92w, 1980 fsl 1700 fel. BLUE GAP 15n-92w
9600 Mesaverde test. Contr: Signal. Pl Base Map WB-17A. API 49-007-20377.
FR 12/6/77. Spud 12/23/77. 9 5/8 @ 1006, 5½ @ 9600 w/400. El: 6689 KB.
Log Tops: Mesaverde 8628. No cores or tests. 9610 TD. Perf 8728, 8730, 8732, 8972, 8976, 8979, 8980, 8982, 8986, 8987, 9040, 9043, 9045, 9048, 9050, 9052, 9057, 9059, 9063, 9065 w/2 pf. Fract w/55 gal gel, 105,000 sd. Comp 4/12/78. IPF 1650 MCFGPD, 11 BC, 5 BWPD, 24/64 ck. Prod Zone: Mesaverde 8728-9065 (gross).
55,000

Figure 4. Continued

SINCLAIR OIL 22-1 HAMILTON-FEDERAL, c se 22-15n-92w, 1320 fsl 1320 fel. BLUE GAP 15n-92w DG
8200 Mesaverde test. PI Base Map WB-17A. API 49-007-20345.
FR 7/29/77. Spud 9/15/77. 9 5/8 @ 1030 w/810, 4½ @ 8298 w/400. El: 6548 KB.
Log Tops: Almond 7412, Ericson 7897. No cores or tests. 8300 TD. PB 8252. Perf 7453, 7455, 7459, 7462, 7539, 7649, 7653, 7655, 7662, 7670, 7672, 7677, 7680, 7684, 7698, 7702, 7704, 7792, 7795, 7810, 7811, 7818, 7878, 7879, 7882, 7884, 8067, 8069, 8072, 8073, 8127, 8130 w/2 pf. Sdemulfract. Comp 11/10/77. IPCAOF 4600 MCFGPD, gty 56. Prod Zone: Mesaverde 7453-8130 (gross).

SINCLAIR OIL 23-1 HAMILTON-FEDERAL, se se 23-15n-92w, 1133 fsl 1148 fel. BLUE GAP 15n-92w DG
9500 Mesaverde test. PI Base Map WB-17A. API 49-007-20373.
FR 11/22/77. Spud 1/5/78. 9 5/8 @ 988 w/530, 4½ @ 9442 w/1000. El: 6530 KB.
Log Tops: Mesaverde 6794, Ericson 7280, Hatfield 8894, Cherokee Creek 9284, Deep Creek 9404. No cores or tests.
9450 TD. PB 8650. Perf 6801, 6804, 6807, 6820, 6826, 7022, 7024, 7258, 7260, 7452, 7455, 7522, 7524, 7616, 7620, 7624.
Fract w/130,000 gal emul, 289,000 sd. Perf 8690, 8693, 8697, 8790, 8793, 8964, 8970, 8981, 8984,9285, 9287, 9289 w/1 pf.
Fract w/62,000 gal emul, 148,500 sd. Comp 6/22/78. IPCAOF 5100 MCFGPD, gty 54. Prod Zone: Mesaverde 6801-7624 (gross).

SINCLAIR OIL 26-1 HAMILTON-FEDERAL, c se 26-15n-92w, 1320 fsl 1320 fel. BLUE GAP 15n-92w DG
8100 Mesaverde test. PI Base Map WB-17A. API 49-007-20352.
FR 9/12/77. Spud 10/4/77. 9 5/8 @ 1026 w/700, 4½ @ 8050 w/450. El: 6556 KB.
Log Tops: Almond 7135, Ericson 7627. No cores or tests. 8050 TD. PB 7800. Perf 7178, 7223, 7266, 7267, 7303, 7304, 7323, 7324, 7326, 7337, 7339, 7380, 7381, 7423, 7425, 7427, 7450, 7508, 7509, 7534, 7536, 7538 w/2 pf.
Sdemulfract. Comp 1/12/78. IPCAOF 850 MCFGPD. Prod Zone: Mesaverde 7178-7538 (gross).

SINCLAIR OIL 27-1 HAMILTON-FEDERAL, nw se 27-15n-92w, 1323 fsl 1324 fel. BLUE GAP 15n-92w DG
10,100 Mesaverde test. PI Base Map WB-17A. API 49-007-20378.
FR 12/5/77.
10,100 TD. Perf 7813-8333. Fract w/~~16,109~~ 161,090 gal emul, 290,000 sd. Comp 8/31/78. IPF 361 MCFGPD, 6 BC, 576 BWPD. Prod Zone: Mesaverde 7813-8333 (gross). Will be reissued when data available.

TEXAS O&G 1 WINDMILL DRAW, nw se 14-15n-94w, 2120 fsl 2120 fel. UNNAMED 15n-94w WFD
12,000 ft test. Contr: Thomson. PI Base Map WB-17A. API 49-037-21071.
FR 8/18/77. Spud 9/1/77. 9 5/8 @ 1515 w/820, 7 @ 10,376 w/475, 4½ inr @ 10,025-12,524. El: 6928 KB.
Log Tops: Fort Union 6125, Lance 8188, Fox Hills 8812, Lewis 9126, Almond 11,551, Ericson 11,830. No cores. DST 9159-9297, op 30, SI 60, op 60, SI 120, rec 30 mud, FP 52-49, 70-46, SIP 123-455, HP 4537-4488. DST 9821-75, op 30, SI 60, op 90, SI 120, GTS in 6 min @ 29 MCFPD, GTS in 60 min @ 13 MCFPD, rec 595 mud, FP 866-436, 239-166, SIP 2754-2418, HP 4837-4771. DST 10,860-11,012, op 40, SI 60, op 60, SI 120, GTS in 100 min (no gauge), rec 1300 SGCM, FP 208-331, 477-508, SIP 724-1003, HP 5338-5316. DST 11,567-11,604, op 31, SI 99, op 61, SI 125, GTS in 2 min @ 16 MCFPD GTS in 60 min tstm, rec 200 SG&WCM, 2218 HGC mdy wtr, FP 136-296, 483-818, SIP 2175-2415, HP 6054-6012. 12,575 TD. PB 11,800. Perf 8744, 8746, 8750-57. Acidized w/2000 gal. Fract w/87,500 gal emul, 120,000 sd. Perf 11,556-11,606 w/2 pf. Fract w/ 91,000 gal emul, 133,250 sd. Perf 11,868-11,874 w/2 pf. Acidized w/1500 gal. Perf 12,068-12,091, 12,142-12,147, 12,147-12,152 w/2 pf. Acidized w/500 bbls. Comp 9/5/78. IPF 877 MCFGPD. Prod Zone: Almond 11,556-11,606, Lance 8744-57 (gross, non-producing). (ALMOND DISCOVERY - NEW FIELD)

KEMMERER COAL 14-1 BARREL SPRINGS UNIT, sw se 14-16n-93w, 660 fsl 1987 fel. BARREL SPRINGS 16n-93w DG
9150 Mesaverde test. Contr: Exeter. PI Base Map WB-17A. API 49-007-20228.
FR 4/1/75. Spud 4/2/75. 9 5/8 @ 321 w/350, 5½ @ 9223 w/350. El: 6545 KB.
Log Tops: Wasatch surf, Fort Union 2885, Lance 5268, Fox Hills 5944, Lewis 6672, Mesaverde 8534. No cores. DST 8535-8614, op 14, SI 57, op 90, SI 240, GTS in 20 min (no gauge), GTS in 110 min @ 44 MCFPD, FP 120-59, SIP 3441-3741, (no other details available). DST 8725-8855, op 15, SI 60, op 85, SI 120, GTS in 7 min (no gauge), GTS in 145 min @ 76 MCFPD, rec 180 HGCM, SIP 3307-3580, HP 4318-4285 (no other details available). 9346 TD. Perf 8543-49, 8570-74, 8602-05, 8790-96, 8822-30, 8839-43, 8888-93, 9012-22, 9035-50, 9061-64, 9097-9103, 9111-13, 9137-42, 9145-51 w/1 pf. Fract w/235,000 gal wtr, 360,000 sd. Comp 5/4/75 as SIGW. IPF (not available). Prod Zone: Mesaverde 8543-9151 (gross). Dropped from report 10/16/75.

AMOCO PROD 2 SALAZAR UNIT, se nw 11-16n-95w, 1985 fnl 1971 fwl. SALAZAR 16n-95w WOE
12,700 Mesaverde test. Contr: Manning. PI Base Map WB-17A. API 49-037-20985.
FR 4/26/77. Spud 6/19/77. 8 5/8 @ 2490 w/1500, 5½ @ 12,687 w/950. El: 6860 Gr.
Log Tops: Lewis 11,000, Almond 12,087. No cores or tests. 12,700 TD. PB 12,506. Perf 12,150-12,160, 12,308-12,320.
Acidized w/123 bbls. Fract w/2968 bbls gel, 228,114 sd. Comp 7/31/78. IPF 431 MCFGPD, 8 BWPD, 32/64 ck. Prod Zone: Almond 12,150-12,320 (gross). (ALMOND EXTENSION - SALAZAR FIELD).

Figure 4. Continued

SMOKEY OIL 2-12 KING RESOURCES-FEDERAL, c sw 12-16n-98w, 1323 fsl 1310 fwl, irreg sec. UNNAMED WFD
13,300 Mesaverde test. Contr: True. Pl Base Map WB-16A. API 49-037-21229. 16n-98w
FR 5/5/78. Spud 6/1/78. 10 3/4 @ 1500 w/1450, 5½ @ 13,828 w/400. El: 7041 Gr.
Log Tops: Almond 12,868, Ericson 13,316. No cores. DST 12,890-13,025, op 60, SI 60, op 95, SI 150, rec 6009 HGCM, 2340 GC mdy wtr cush, FP 1733-1930, 2215-2783, SIP 2280-3136, HP 6455-6367. 13,828 TD. PB 13,580. Perf 13,206-13,223, 13,228-13,233, 13,376-13,386, 13,390-13,396. Fract w/110,000 gal gel, 170,000 sd. Comp 10/31/78. IPF 796 MCFGPD, 130 BWPD. Prod Zone: Mesaverde 13,206-13,396 (gross). (MESAVERDE DISCOVERY-NEW FIELD).

SINCLAIR OIL 1-18 FEDERAL, sw sw 18-17n-93w, 1152 fsl 1156 fwl. WILDROSE DG
10,400 Mesaverde test. Contr: Pease. Pl Base Map WB-17A. API 49-007-20363. 17n-93w
FR 10/14/77. El: 6611 Gr.
10,384 TD. PB 10,310. Perf 9429-10,219. Fract w/72,000 gal gel, 148,000 sd. Comp 8/16/78. IPF 580 MCFGPD, 8 BC, 19 BWPD. Prod Zone: Mesaverde 9429-10,219 (gross). Will be reissued when data available.

DAVIS OIL 1 NORTH FORK-FEDERAL, c sw 14-17n-97w, 1320 fsl 1320 fwl. UNNAMED WFD
12,500 Mesaverde test. Contr: Brinkerhoff. Pl Base Map WB-17A. API 49-037-20790. 17n-97w
FR 3/17/76. Spud 3/31/76. 9 5/8 @ 515 w/275, 5½ @ 13,548 w/750. El: 6994 KB.
Log Tops: Wasatch surf, Fort Union 6440, Lance 8930, Lewis 9445, Almond 11,526, Ericson 12,270. No cores or tests. 13,560 TD. PB 9250. Perf 9204, 9205, 9206, 9207, 9208, 9209, 9210, 9214, 9215, 9216 w/1 pf. Acidized w/6800 gal. Fract w/49,700 gal gel, 57,000 sd. Perf 11,523, 11,524, 11,525, 11,526, 11,528, 11,542, 11,543, 11,544, 11,545, 11,546, 11,554, 11,555, 11,556, 11,557, 11,567, 11,571, 11,573, 11,575, 11,581, 11,582, 11,586, 11,587, 11,590, 11,591, 11,594, 11,600, 11,602, 11,603, 11,605 w/1 pf. Acidized w/5000 gal. Perf 11,662, 11,664, 11,667, 11,669, 11,672, 11,701, 11,704, 11,705, 11,706, 11,709, 11,711, 11,716 w/1 pf. Acidized w/2000 gal. Perf 11,801, 11,803, 11,805, 11,808, 11,809, 11,810 w/1 pf. Acidized w/2000 gal. Perf 11,996, 12,000, 12,003, 12,006, 12,008, 12,032, 12,034, 12,036, 12,040, 12,062, 12,064, 12,068, 12,070, 12,074, 12,076, 12,078 w/1 pf. Perf 12,134, 12,136, 12,138-12,150, 12,152, 12,154, 12,164, 12,166, 12,168 w/1 pf. Fract w/40,000 gal wtr, 70,000 sd. Perf 12,342, 12,344, 12,347 w/1 pf. Perf 13,261, 13,263, 13,280, 13,282, 13, 284, 13,286, 13,288, 13,290, 13,304, 13,306, 13,308, 13,388, 13,390, 13,392, 13,393, 13,397. Comp 4/3/78. IPF 53 MCFGPD, 16/64 ck. Prod Zone: Lance 9204-16 (gross). (LANCE DISCOVERY-NEW FIELD). Dropped from report 8/25/77.

AMOCO PROD 1 CHAMPLIN 440 AMOCO-A, nw nw 11-17n-98w, 1319 fnl 1319 fwl. WILDCAT WF
9100 Mesaverde test. Contr: Manning. Pl Base Map WB-6A. API 49-037-20957. 17n-98w
FR 3/23/77. Spud 7/19/77. 8 5/8 @ 1486 w/1300, 5½ @ 9249 w/730. El: 7032 Gr.
Log Tops: Almond 8586, Ericson 9030. Crd 8590-8650, rec 17 sd, vfg, 43 sh. No tests. 9250 TD. Perf 8658-84, 8720-30, 8760-66 w/2 pf. Acidized w/4200 gal. Perf 8896-8906, 8922-27 w/2 pf. Acidized w/950 gal. Perf 9040-56 w/2 pf. Acidized w/1710 gal. Fract w/185,440 gal emul, 243,400 sd. Comp 7/28/78. D&A.

KENNETH LUFF 2-23 AMOCO-CHAMPLIN, c se 23-17n-100w, 1320 fsl 1320 fel. ANTELOPE DG
6100 Almond test. Contr: Signal. Pl Base Map WB-16A. API 49-037-21059. 17n-100w
FR 7/28/77. Spud 8/4/77. 9 5/8 @ 219 w/101, 4½ @ 5720 w/260. El: 7536 KB.
Log Tops: Green River surf, Lance 3785, Fox Hills 4270, Lewis 4515, Almond 5610. No cores. DST 5620-5750 (misrun), op 15, SI 120, op 45, SI 180, rec 20 mud (no other details available). 5750 TD. PB 5677. Perf 5619-30 w/1 pf. Oilfract w/44,625 sd. Comp 4/27/78. IPP 220 MCFGPD, 12 BWPD. Prod Zone: Almond 5619-30.

KEMMERER COAL CO 21-1 CRESTON, ne se 21-18n-92w, 1391 fsl 1294 fel. CRESTON DG
10,800 Mesaverde test. Contr: True. Pl Base Map WB-17A. API 49-007-20347. 18n-92w
FR 8/10/77. Spud 8/17/77. 10 3/4 @ 1044 w/460, 5½ @ 10,911 w/850. El: 6918 KB.
Log Tops: Wasatch surf, Fort Union 1367, Lance 4790, Lewis 5846, Almond 8155, Ericson 8458, Table Rock 8962, Rock Springs 10,122, Hatfield 10,216, Espy 10,406, Cherokee Creek 10,590, Deep Creek 10,738. No cores or tests. 10,926 TD. PB 10,284. Perf 8618-26 w/2 pf. Sqzd. Perf 8664-67 w/2 pf. F 290 MCFGPD. Sqzd. Perf 8664-74 w/2 pf. Fract w/33,222 gal emul, 33,000 sd. Perf 9796-9810 w/2 pf. Sqzd. Re-perf 9796-9810. Acidized w/2000 gal. F 400 MCFGPD. Perf 9905-16 w/2 pf. Acidized w/2000 gal. Fract w/40,300 gal emul, 30,000 sd. Perf 10,010-10,016 w/2 pf. Acidized w/3650 gal. Fract w/26,500 gal emul, 18,000 sd. Perf 10,176-10,182 w/2 pf. Acidized w/2000 gal. Fract w/24,108 gal emul, 18,000 sd. Perf 10,610-10,616 w/2 pf. Acidized w/4000 gal. Fract w/24,108 gal emul, 18,000 sd. Perf 10,610-10,616 w/2 pf. Acidized w/4000 gal. Fract w/26,226 gal emul, 20,000 sd. Comp 9/10/78. IPF 850 MCFGPD, 20 BC, 20 BWPD. Prod Zone: Mesaverde 8664-10,182 (gross).

MICHIGAN-WISCONSIN PIPE LINE 1-27 CRESTON-NOSE, nw se 27-18n-92w, 1410 fsl 1438 fel. UNNAMED WOE
10,600 Steele test. Contr: True. Pl Base Map WB-17A. API 49-007-20331. 18n-92w
FR 6/16/77. Spud 6/26/77. 9 5/8 @ 1513 w/600, 5½ @ 10,338 w/950. El: 6914 KB.
10,346 TD. PB 10,290. Perf 7788-92, 7803-12, 7822-28. Fract w/20,000 gal wtr, 22,000 sd. Comp 1/21/78. IPF 1043 MCFGPD, 24/64 ck. Prod Zone: Mesaverde 7788-7828 (gross). (MESAVERDE EXTENSION - UNNAMED FIELD). Will be reissued when data available.

Figure 4. Continued

MARATHON OIL 1-2 STANDARD DRAW-FEDERAL, ne sw 2-18n-93w, 1510 fsl 1510 fel. STANDARD DRAW 18n-93w WFD
9640 Mesaverde test. Contr: Bomac. Pl Base Map WB-17A. API 49-007-20366.
FR 10/21/77. Spud 11/16/77. El: 6813 Gr.
Crd 8633-75 (no desc available). Crd 8675-8735 (no desc available). 9644 TD. Perf 8671-80, 8818-28, 9054-63, 9089-9108. Fract w/188,000 gal emul, 256,000 sd. Comp 6/30/78. IPF 5800 MCFGPD, 5/16/ck. Prod Zone: Almond 8671-9108 (gross). (ALMOND DISCOVERY-STANDARD FIELD). Will be reissued when data available.

WILLIAM MOSS PROPERTIES 20-18-93 FEDERAL, c sw 20-18n-93w, 1349 fsl 1349 fwl, irreg sec. UNNAMED 18n-93w WFD
10,000 Mesaverde test. Contr: Signal. Pl Base Map WB-17A. API 49-007-20365.
FR 10/28/77. Spud 1/29/78. 9 5/8 @ 1053 w/500, 7 @ 8912 w/250, 4½ @ 9939 w/325. El: 6702 Gr.
Log Top: Mesaverde 8980. No cores. DST 8915-9468, op 5, SI 60, op 90, SI 120, GTS @ 501 MCFPD, rec 1140 GCM, (no other details available). 9939 TD. PB 9445. Perf 8983-9445 w/1 pf. Acidized w/3000 gal. Perf 9492-9507. Acidized w/10,000 gal. Fract w/22,500 gal wtr, 33,500 sd. Perf 9718-32. Acidized w/2000 gal. Fract w/30,000 gal wtr, 63,670 sd. Comp 8/4/78. IPF 668 MCFGPD, 12 BC, 27 BWPD. Prod Zone: Mesaverde 8983-9445 (gross). (MESAVERDE DISCOVERY-NEW FIELD).

TEXACO INC 15 DELANEY RIM UNIT, ne nw 20-18n-97w, 712 fnl 1872 fwl. TABLE ROCK 18n-97w D
8375 Mesaverde test. Contr: Signal. Pl Base Map WB-16A. API 49-037-21073.
FR 8/22/77. Spud 10/13/77. 8 5/8 @ 303 w/125, 5½ @ 8433 w/365. El: 7100 KB.
8434 TD. Perf 7806-12, 7832-39, 7862-66, 7901-18 w/2 pf. Fract w/12,000 gal emul, 30,000 sd. Perf 8316-33, 8337-47 w/2 pf. Fract w/820 ~~gals~~ emul, 50,400 sd. Comp 2/27/78. D&A. Will be reissued when data available.

HOUSTON OIL & MINERALS 13X-10 FEDERAL, nw sw 10-18n-98w, 1980 fsl 820 fwl. TABLE ROCK 18n-98w D
6800 ft test. Contr: Signal. Pl Base Map WB-16A. API 49-037-21165.
FR 1/13/78. Spud 4/7/78. 8 5/8 @ 535 w/375, 5½ @ 6805 w/360. El: 7163 KB.
Log Tops: Wasatch surf, Lewis 5220, Almond 6604. No cores. DST (strd) 6600-6800, op 15, SI 60, op 60, SI 120, rec 550 HGCM, FP 168-169, 171-280, SIP 1525-1619, HP 3228-3178. 6805 TD. PB 6759. Perf 6609-11, 6613-15, 6681, 6683, 6691-93, 6695, 6697, 6700 w/1 pf. Fract w/82,000 gal emul, 166,000 sd. Comp 8/5/78. IPP 61 BO, 7 BW, 115 MCFGPD, gty 40. Prod Zone: Almond 6609-6700 (gross).

AMOCO PROD 1 FILLMORE CREEK W 1 UNIT, nw sw 1-19n-92w, 1491 fsl 1273 fwl. WILDCAT 19n-92w WF
11,550 Mesaverde test. Pl Base Map WB-17A. API 49-007-20273.
FR 3/24/76. Spud 4/22/78. 9 5/8 @ 1525 w/900, 5½ @ 11,645 w/1600. El: 7021 KB.
Log Tops: Lewis 8410, Mesaverde 9110. Crd 10,071-10,132, rec 61 sd, vf-fg. DST 8380-8410, op 10, SI 60, op 61, SI 124, GTS in 11 min @ 78 MCFPD, GTS in 56 min @ 101 MCFPD, rec 510 GCW cush, 90 GCM, FP 256-141, 116-154, SIP 141-3522, HP 4118-4118. DST 9112-69, op 10, SI 64, op 62, SI 128, rec 25 SGCM, 2036 wtr cush, FP 930-943, 943-951, SIP 943-3780, HP 4567-4567. DST 9558-9701, op 10, SI 60, op 60, SI 60, GTS in 36 min tstm, GTS in 60 min @ 30 MCFPD, rec 2029 wtr cush, 216 SGCM, FP 880-867, 867-880, SIP 867-1199, HP 4809-4772. 11,655 TD. Perf 8460-92, 8492-8570. Acidized w/1600 gal. Fract w/2730 bbls emul, 214,200 sd. Perf 10,070-10,097 w/2 pf. Acidized w/32 bbls. Fract w/50,000 gal gel, 100,000 sd. Comp 6/3/78. D&A. Dropped from report 2/17/77.

MARATHON OIL 1-2 MARATHON-FEDERAL, n½ se 2-19n-93w, 1420 fsl 1320 fel. ECHO SPRINGS 19n-93w DG
11,700 Mesaverde test. Contr: Westburne. Pl Base Map WB-17A. API 49-007-20302.
FR 11/15/76. Spud 12/14/76. 5½ @ 1700. El: 7010 Gr.
Log Tops: Lewis 7664, Almond 9475. Crd 9468-9519 (no desc available). Crd 11,294-11,331, rec 37 sh, ss. Crd 11,331-11,369, rec 38 sh, ss, coal. No tests. 11,700 TD. PB 11,350. Perf 9477-90, 9495-9509, Sdwtrfract. F 45 MCFGPD. Perf 11,444-11,452. Fract w/96,630 gal wtr, 54,500 sd. F 1125 MCFGPD. Comp 12/30/77. IPCAOF 3412 MCFGPD. Prod Zone: Almond. Dropped from report 10/20/77. Will be reissued when data available.

MARATHON OIL 1-23 TIERNEY 11 UNIT, c sw 23-19n-94w, 1234 fsl 1306 fwl, irreg sec. TIERNEY 19n-94w DG
11,250 Mesaverde test. Contr: Westburne. Pl Base Map WB-17A. API 49-037-20980.
FR 6/15/77. Spud 10/22/77. 9 5/8 1510 w/1800, 7 @ 11,249 w/650. El: 6677 Gr.
Log Tops: Lance 5674, Lewis 7216, Mesaverde 9424, Ericson 10,164, Rock Springs 10,866. Crd 9473-79, rec 4 (no desc available). Crd 9479-9527, rec 31 sh, interbedded, 15 ss, vfg. Crd 9846-74, rec 20 sh, 3 ss, hard, 3 ss, vfg. Crd 9874-92, rec 14 ss, vfg, 2 sh. Crd 10,848-10,908, rec 17 ss, vfg, 43 sh. No tests. 11,250 TD. PB 9721. Perf 9446-50. Sqzd. Perf 9455-59, 9464-68, 9546-54, 9585-87, 9651-63, 9665-68. Fract w/110,000 gal emul, 200,500 sd. Perf 9689-98, 9705-09. Sqzd. Perf 9791-9803, 9915-31. Fract w/96,500 gal, 148,100 sd. Sqzd. Perf 10,400-10,404. Sqzd. Perf 11,145-11,155, 11,198-11,202. Fract w/44,000 gal emul, 62,500 sd. Comp 7/12/78. IPF 970 MCFGPD, 16/64 ck. Prod Zone: Mesaverde 9455-9668 (gross).

TEXACO 35 UNIT, nw ne 29-19n-97w, 900 fnl 2150 fel. TABLE ROCK 19n-97w DG
7450 Lewis test. Contr: Signal. Pl Base Map WB-16A. API 49-037-21145.
FR 12/8/77. Spud 2/3/78. 8 5/8 @ 271 w/235, 5½ @ 7450 w/300. El: 7005 Gr.
7450 TD. Perf 7285-7303 w/2 pf. Acidized w/500 gal. Fract w/12,000 gal emul, 30,000 sd. Comp 3/15/78. IPF 1000 MCFGPD. Prod Zone: Almond 7285-7303. Will be reissued when data available.

Figure 5. Completed Wells not Fractured in the Washakie Basin in 1978

HADSON OHIO OIL 1-18 FEDERAL, ne sw 18-14n-91w, 1980 fsl 1980 fwl. — ROBERTS GULCH 14n-91w — D
8000 Mesaverde test. Pl Base Map WB-17A. API 49-007-20351.
FR 8/30/78. Spud 5/1/78. 8 5/8 @ 400. El: 6402 KB.
7906 TD. Comp 5/11/78. D&A. Will be reissued when data available.

JERRY CHAMBERS 1-20 SCHEGGS DRAW-FEDERAL, se se 20-15n-101w, 578 fsl 808 fel. — WILDCAT 15n-101w — WF
5650 Blair test. Contr: Chandler. Pl Base Map WB-16A. API 49-037-21231.
FR 5/8/78. Spud 6/23/78. 9 5/8 @ 618 w/350. El: 6964 Gr.
6000 TD. Comp 7/16/78. D&A. Will be reissued when data available.

W E SAUER 1 READING-FEDERAL, sw se 1-16n-92w, 660 fsl 1984 fel. — COW CREEK 16n-92w — D
4300 Morapos test. Contr: Prairie. Pl Base Map WB-17A. API 49-007-60027.
FR 12/8/77. Spud 4/10/78. 8 5/8 @ 324 w/175. El: 6678 KB.
Log Tops: Morapos 4120. No cores. DST 4118-65 (misrun). DST 4118-65, op 30, SI 60, op 32, SI 119, rec 180 O&GCM, 50 O&GCMW, FP 75-100, 128-163, SIP 1586-1640, HP 2405-2400. 4165 TD. Comp 4/28/78. D&A.

KEMMERER COAL 14-2 UNIT, se nw 14-16n-93w, 1982 fnl 1979 fwl. — BARREL SPRINGS 16n-93w — DG
11,200 Mesaverde test. Pl Base Map WB-17A. API 49-007-20325.
FR 5/19/77. Spud 5/25/77. 10 3/4 @ 507, 5½ @ 11,123. El: 6541 Gr.
11,135 TD. Comp 12/22/77. IPF 1352 MCFGPD, 24/64 ck. Prod Zone: Mesaverde 9155-11,050. Will be reissued when data available.

LADD PET 1-4-64 FEDERAL, nw ne 4-16n-94w, 660 fnl 1980 fel. — UNNAMED 16n-94w — WFD
12,000 ft test. Pl Base Map WB-17A. API 49-037-20728.
FR 11/14/75. Spud 12/16/75. 9 5/8 @ 2996 w/1050, 5½ @ 11,616 w/525. El: 6852 KB.
Log Tops: Lewis 8238, Mesaverde 10,666, Ericson 11,150. No cores. DST (strd) 3860-4090, op 15, SI 90, op 60, SI 90, rec 400 fluid, 3200 GCW, FP 471-1058, 1159-1591, SIP 1614-1631, HP 2097-2041. DST (strd) (misrun) 3910-4010, op 30, SI 30, op 30, SI 30, rec 2980 GCMW, FP 391-1031, 1081-1343, SIP 1649-1657, HP 2069-2067. DST (strd) 4020-91, op 15, SI 90, op 60, SI 90, rec 913 mdy wtr, FP 76-202, 231-417, SIP 1713-1693, HP 2254-2146. 11,616 TD. PB 11,586. Perf 7800, 8500, 9560. Sqzd. Perf 10,794, 10,890, 10,933, 11,013, 11,018, 11,052, 11,060, 11,179, 11,187, 11,194, 11,202, 11,212, 11,217, 11,239, 11,248, 11,257, 11,379, 11,383 w/1 pf. Acidized w/4000 gal. Comp 3/17/76. IPF 210 MCFGPD, 168 BW, 10 BCPD, gty 55. Prod Zone: Mesaverde 10,794-11,060 (gross).

SMOKEY OIL 4-32 BLUEWATER-FEDERAL, c se 32-16n-98w, 1322 fsl 1511 fel. — ALKALINE CREEK 16n-98w — WO
13,600 Mesaverde test. Contr: True. Pl Base Map WB-16A. API 49-037-21194.
FR 3/9/78. Spud 8/11/78. 10 3/4 @ 1497 w/1630, 5½ @ 13,718 w/1800. El: 7212 KB.
DST 12,062-12,094, op 60, SI 60, op 90, SI 180, rec 3000 GCW cush, 1805 cond CM, 3 cond, FP 1232-1293, 1395-1273, SIP 4850-4539, HP 6400-6221. DST 13,149-13,212, op 60, SI 60, op 120, SI 180, rec 3510 GC wtr cush, 190 mud, FP 1753-1750, SIP 5622-7798, HP 7681-7524. 13,718 TD. Comp 10/24/78. D&A. Will be reissued when data available.

AMOCO PROD 2 UNIT, c sw 23-16n-99w, 1195 fsl 1169 fwl, irreg sec. — BITTER CREEK 16n-99w — D
12,100 Mesaverde test. Contr: True. Pl Base Map WB-16A. API 49-037-21265.
FR 7/18/78. Spud 9/27/78. 9 5/8 @ 2492 w/1200. El: 7297 Gr.
No logs run. No tops picked. No cores or tests. 2492 TD. Comp 10/5/78. D&A.

AMOCO PROD 1 CHAMPLIN 226 AMOCO-B, c sw 9-17n-93w, 1324 fsl 1323 fwl, irreg sec. — WILDCAT 17n-93w — DG
9525 Mesaverde test. Contr: Kenai. Pl Base Map WB-17A. API 49-007-20369.
FR 11/2/77. Spud 4/24/78. 9 5/8 @ 2487 w/1200, 7 @ 8806 w/640, 4 lnr @ 8473-9704 w/225. El: 6720 KB.
Log Top: Mesaverde 8994. Crd 8959-83, rec 23 sh. No tests. 9707 TD. PB 9684. Perf 8994-9025 w/2 pf. Comp 8/28/78. IPF 6188 MCFGPD, 18/64 ck. Prod Zone: Mesaverde 8994-9025.

Figure 5. Continued

AMOCO PROD 1 CHAMPLIN 444 AMOCO-A, c sw 17-17n-93w, 1377 fsl 1315 fwl, irreg sec. WILD ROSE DG
10,175 Mesaverde test. Contr: Manning. Pl Base Map WB-17A. API 49-007-20315. 17n-93w
FR 2/17/77. Spud 3/12/77. 13 3/8 @ 213 w/250, 9 5/8 @ 2636 w/800, 5½ @ 9150 w/600, 3½ lnr @ 8851-10,200 w/150.
El: 6607 KB.
DST 8442-8560 (misrun). DST 8442-8560, op 10, SI 60, op 62, SI 60, rec 824 wtr cush, 2601 mud, 1105 wtr cush, FP 667-821, 792-1602, SIP 4065-3991, HP 4164-4130. 10,200 TD. PB 9930. Perf 9168-9200. Acidized w/2000 gal . Comp 3/15/78. IPF 2460 MCFGPD, 25 BC, 7541 BWPD, 48/64 ck. Prod Zone: Mesaverde 9168-9200. Will be reissued when data available.

LADD PET 1-30-74 FEDERAL, sw ne 30-17n-94w, 1986 fnl 1990 fel. WILDCAT WF
11,750 test. Contr: True. Pl Base Map WB-17A. API 49-037-20733. 17n-94w
FR 8/20/75. Spud 9/13/75. 10 3/4 @ 1230, 5½ @ 11,874. El: 6753 KB.
Log Top: Mesaverde 11,011. 11,880 TD. Comp 3/4/76. Temp abnd. Dropped from report 2/8/76. Will be reissued when data available.

TEXAS O&G 1 FEDERAL-R, sw sw 8-17n-99w, 1276 fsl 1128 fwl ANTELOPE DG
5700 Mesaverde test. Contr: Chandler. Pl Base Map WB-16A. API 49-037-21238. 17n-99w
FR 3/30/78. Spud 5/24/78. 9 5/8 @ 519 w/275, 4½ @ 5655 w/225. El: 6981 Gr.
Log Tops: Lewis 4040, Almond 5258, Ericson 5608. No cores. DST 5265-91 (misrun). DST 5265-91, op 30, SI 60, rec 210 mud, 440 GCM, 60 SO&GCM, FP 223-322, 371-396, SIP 1811-1727, HP 2636-2572. 5655 TD. Perf 5262-64, 5267-69, 5322-24, 5327-29, 5330-35. Comp 7/1/78. IPF 1400 MCFGPD (natural), 3/4 ck. Prod Zone: Almond 5262-5335 (gross).

AMOCO PROD 1 CHAMPLIN 534 AMOCO-A, c sw 31-18n-96w, 1304 fsl 1314 fwl, irreg sec. WILDCAT WF
11,410 Mesaverde test. Contr: Manning. Pl Base Map WB-17A. API 49-037-21055. 18n-96w
FR 7/22/77. Spud 10/15/77. 9 5/8 @ 2969 w/1500, 5½ @ 11,802 w/525. El: 7027 Gr.
Log Top: Almond 10,940. Crd 10,969-11,029, rec 21 ss. DST 10,368-10,426, op 10, SI 60, op 90, SI 180, (no pipe rec available), FP 1392-1405, 1392-1392, SIP 1405-1392, HP 5034-5034. 11,802 TD. Perf 10,400-10,430. Swbd 10 MCFGPD, 35 BW/8 hrs. Perf 10,968-11,006, 11,012-11,050 w/2 pf. Acidized w/3780 gal, F 20 MCFGPD. Perf 11,500-11,524. Acidized w/1848 gal, F 10 MCFGPD. Comp 10/4/78. D&A. Will be reissued when data available.

AMOCO PROD 1 CHAMPLIN 257 AMOCO-A, c nw 11-19n-96w, 1320 fnl 1295 fwl, irreg sec. SHELL CREEK WO
9200 Mesaverde test. Contr: Dreiling. Pl Base Map WB-17A. API 49-037-21138. 19n-96w
FR 11/21/77. Spud 3/15/78. 9 5/8 @ 2490 w/700. El: 6783 Gr.
Log Tops: Almond 9040, Mesaverde 9500. Crd 9120-61, rec 2 sh, 3 sd, 23 ss & sh 12 ss, sh. Crd 9161-93, rec 31 sh, 12 sh, 4 ss, sh, 6 sh. Crd 9193-9220, rec 27 (no desc). DST 9230-9508, op 10, SI 60, op 60, SI 180, rec 2300 wtr cush, 279 GCM, FP 1140-1153, SIP 1191-1241, HP 4933-4933. 9508 TD. Comp 5/5/78. D&A.

AMOCO PROD 1 CHAMPLIN 568 AMOCO-A, c sw 1-19n-97w, 1320 fsl 1320 fwl. TIPTON D
8375 Mesaverde test. Contr: Kenai. Pl Base Map WB-16A. API 49-037-21124. 19n-97w
FR 11/7/77. Spud 1/10/78. 5½ @ 8472 w/600. El: 6941 Gr.
8500 TD. Perf 7888-7906, 7924-30 w/2 pf. Acidized w/57 bbls. Perf 8318-36. F 10 MCFGPD. Comp 10/2/78. D&A. Will be reissued when data available.