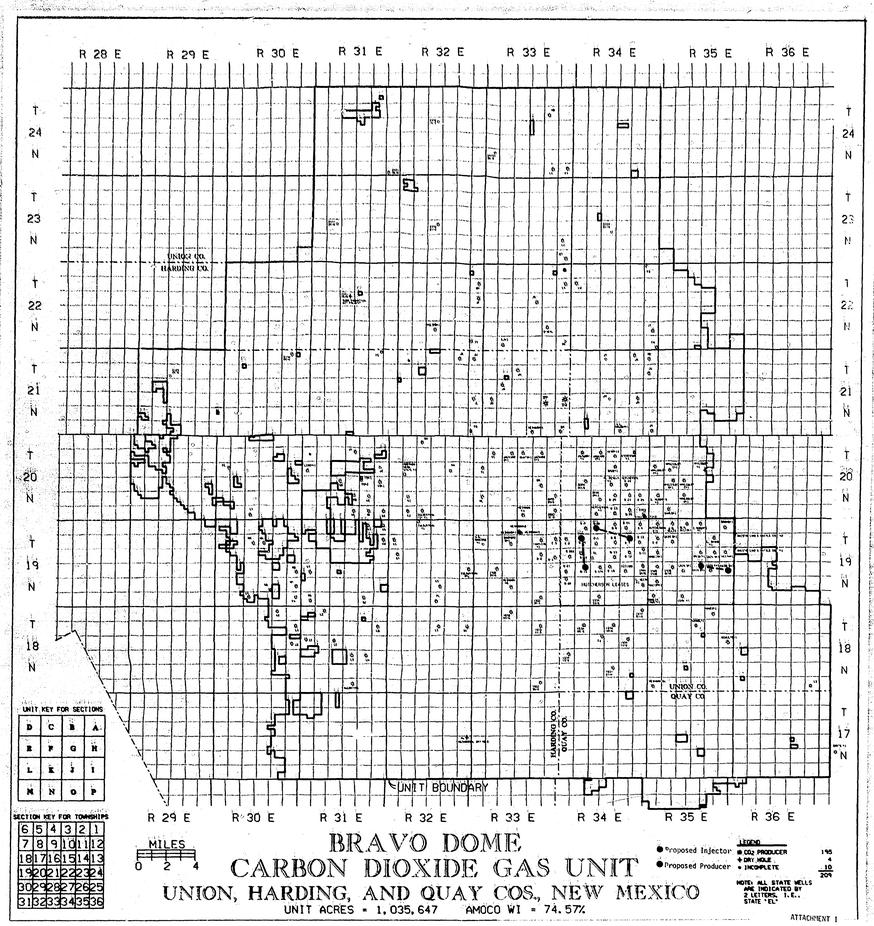
Case No.
7198

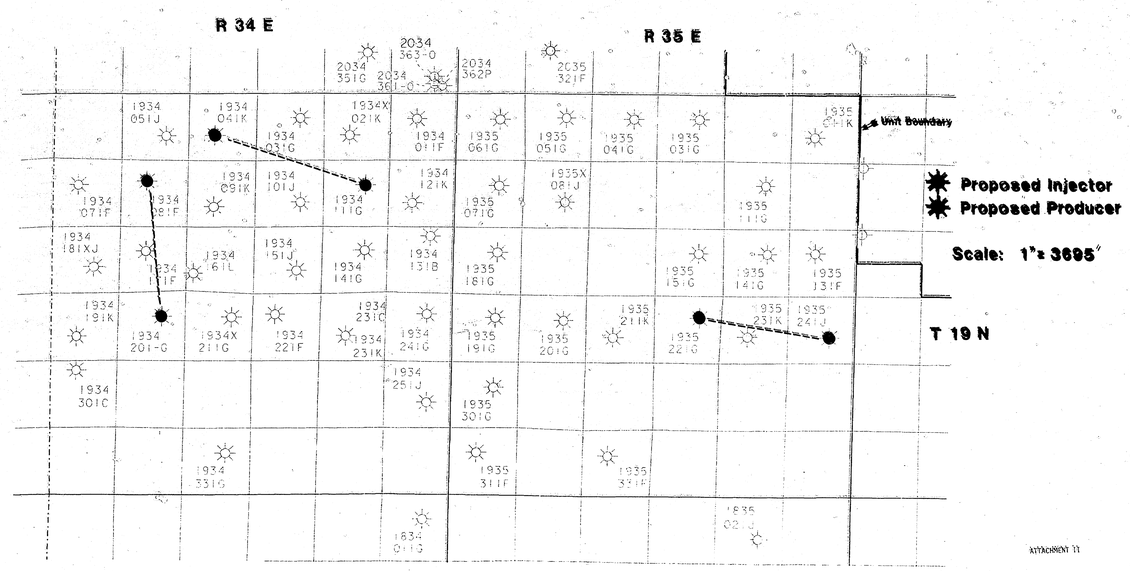
Large Exhibits



U.S.G.S. RECONNAISSANCE
BEST AVAILABLE COPY

DETAIL OF PROPOSED LONG TERM FLOW TESTS

(All Production and Injection of CO_2 is Confined to the Tubb Formation)

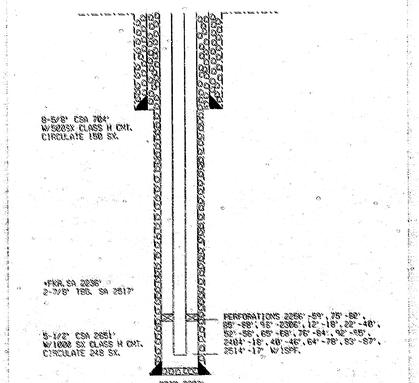


ATTACHMENT 11

BDCDU WELL NO. 1934 201G

(HUTCHERSON 'B' NO. 16)

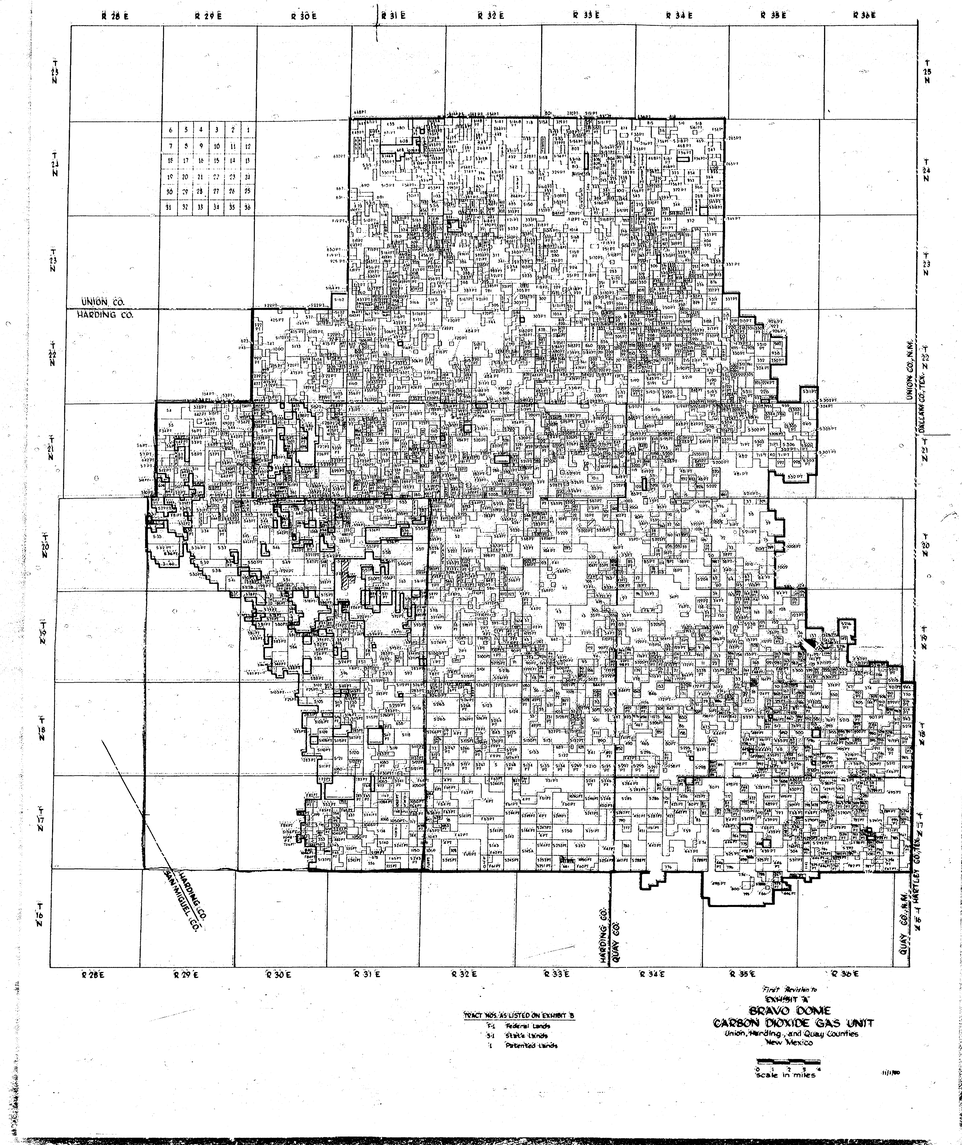
ELEV. 4903' RDB



*NOTE: FKR, XTBG SETTING DEPTHS ARE PROPOSED DEPTHS.
2-3/8" FIBERGLASS TBG. WILL BE RUN BELOW FKR AS TAILPIPE.

021-13

ATTACHMENT III - A

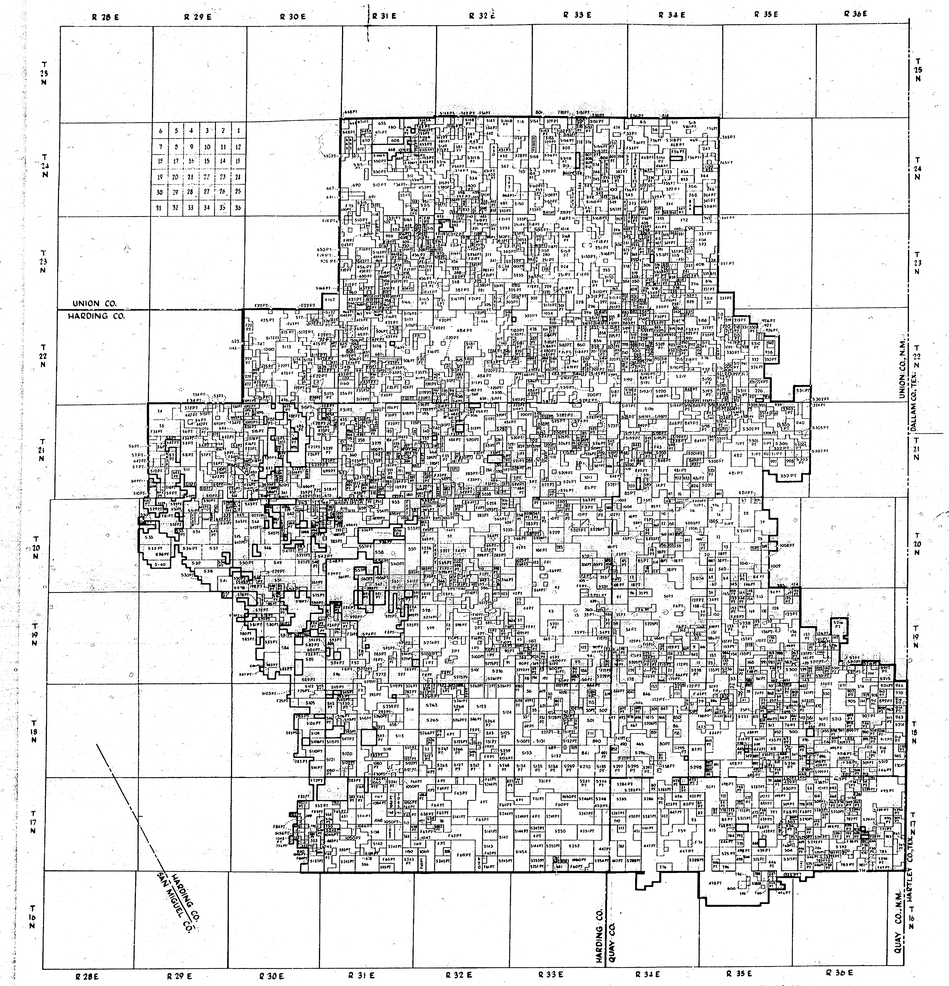


TRACT NOS. AS LISTED ON EXHIBIT B

- 36 Federal Lands
- 34 State Lands
- 1 Patented Lands

First Revision to
EXHIBIT 'A'
BRAVO DOME
CARBON DIOXIDE GAS UNIT
Union, Harding, and Quay Counties
New Mexico

Scale in miles
0 1 2 3 4



Case 9198

U.S.G.S. RECORDS
BEST AVAILABLE COPY

R 28 E | R 29 E | R 30 E | R 31 E | R 32 E | R 33 E | R 34 E | R 35 E | R 36 E

T 25 N | T 24 N | T 23 N | T 22 N | T 21 N | T

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

EZ

PASAMONTE #1

DILLARD #1

GONZALES #1

FOLING #1

O'NEAL

ZURICK #1

HERMAN #3

J.L. HAUSER #1

JACKARD #1

JACKARD #2

JACKARD

KERR #1

STEVENSON #1

SHUE #1

MYKLEBUST E #1

MYKLEBUST F #1

MYKLEBUST #1

LIBBY #1

AMERADA-HESS

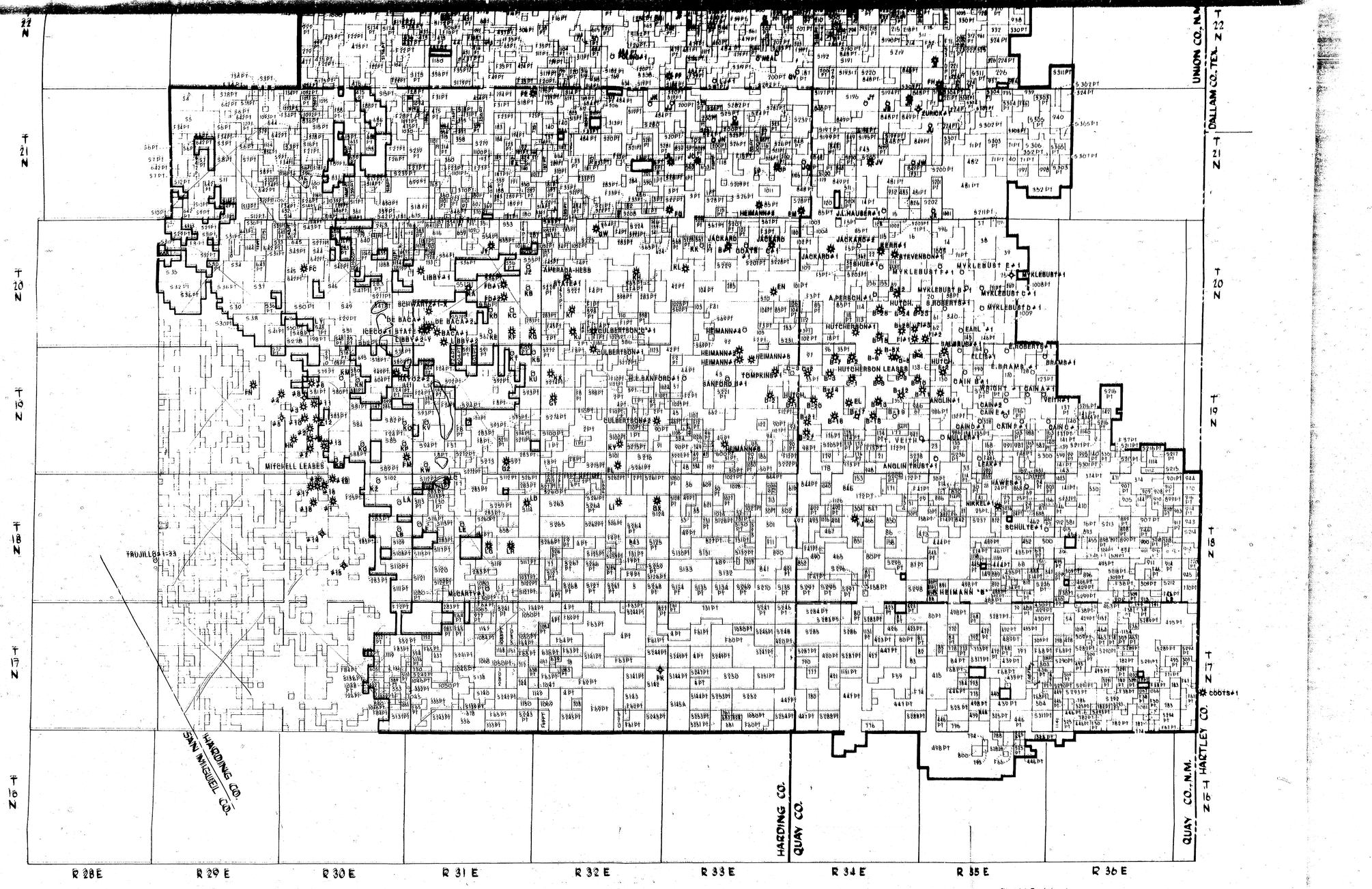
UNION CO.

HARDING CO.

UNION CO., N.M.

DALLAM CO., TEX.

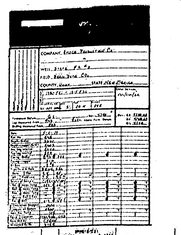
BEST AVAILABLE COPY

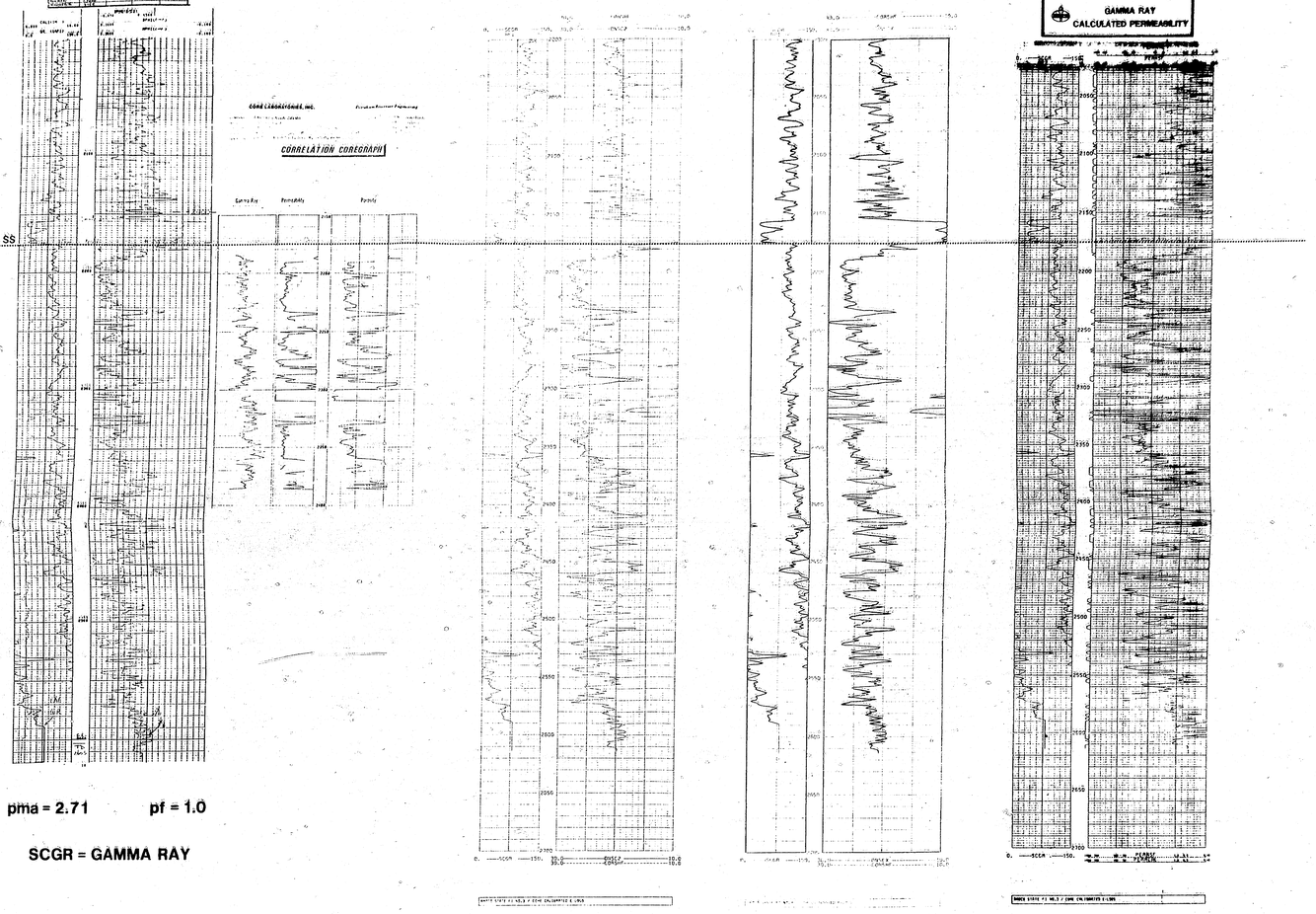

T 22 N
T 21 N
T 20 N
T 19 N
T 18 N
T 17 N
UNION CO., N.M.
DALLAM CO., TEX.
HARTLEY CO.
HARDING CO.
QUAY CO.
SAN MIGUEL CO.
R 28 E
R 29 E
R 30 E
R 31 E
R 32 E
R 33 E
R 34 E
R 35 E
R 36 E
MITCHELL LEASES
TRUJILLO #1-33
McCARTY #1
HEIMANN "B"
HUTCHERSON LEASES
ANGLIN TRUST #1
SCHULTE #1
ZURICK #1
MYKLEBUST #1
HEIMANN #1
HEIMANN #2
HEIMANN #3
HEIMANN #4
HEIMANN #5
HEIMANN #6
HEIMANN #7
HEIMANN #8
HEIMANN #9
HEIMANN #10
HEIMANN #11
HEIMANN #12
HEIMANN #13
HEIMANN #14
HEIMANN #15
HEIMANN #16
HEIMANN #17
HEIMANN #18
HEIMANN #19
HEIMANN #20
HEIMANN

CALIBRATION TECHNIQUE

AMOCO STATE FI#3

EXAMPLE:





pma = 2.71 pf = 1.0

SCGR = GAMMA RAY

LOG POROSITY
& SHIFTED CORE POROSITY

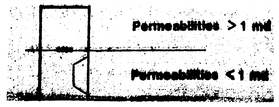
pma = 2.68 pf = 1.1

CALIBRATED POROSITY

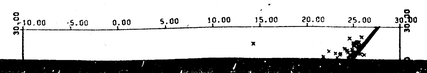
core calibrated

GAMMA RAY
CALCULATED PERMEABILITY

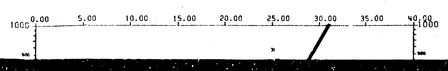
calculated permeability

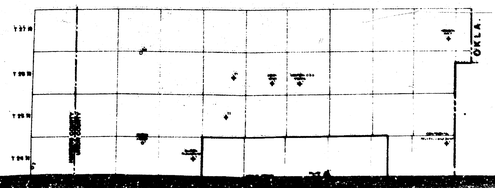


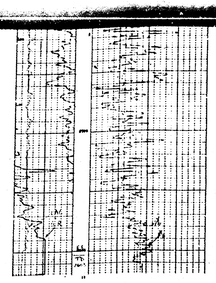
CORE POROSITY vs. DENSITY



CORE POROSITY vs. PERMEABILITY (90°)

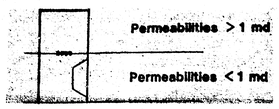


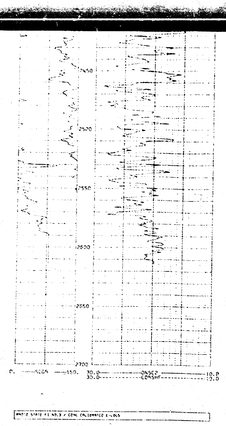




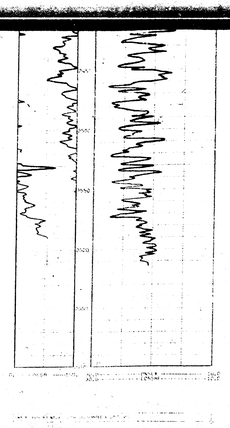
pma = 2.71 pf = 1.0

SCGR = GAMMA RAY

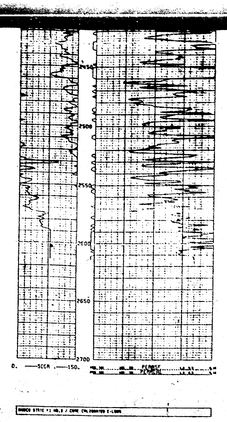




pma = 2.68 pf = 1.1

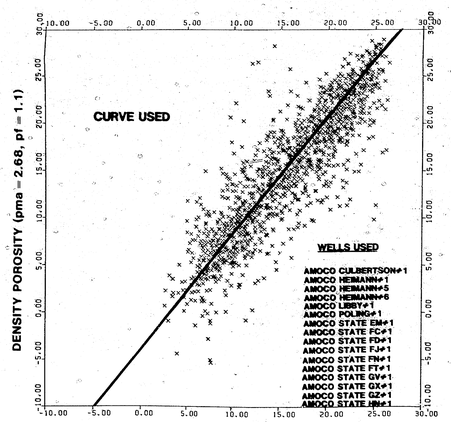


core calibrated

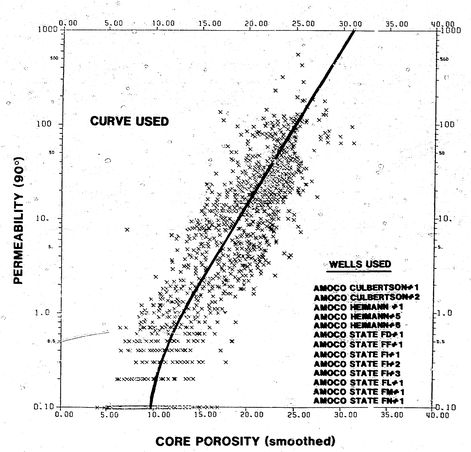


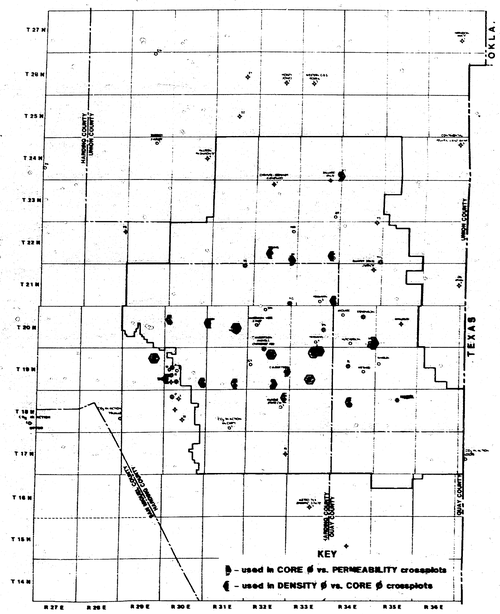
calculated permeability

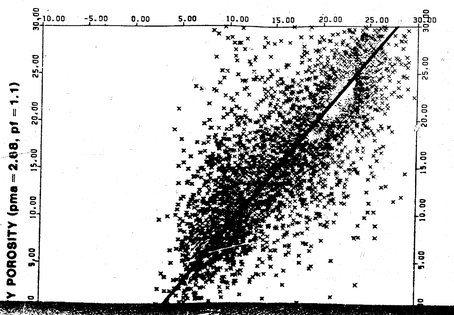
CORE POROSITY vs. DENSITY

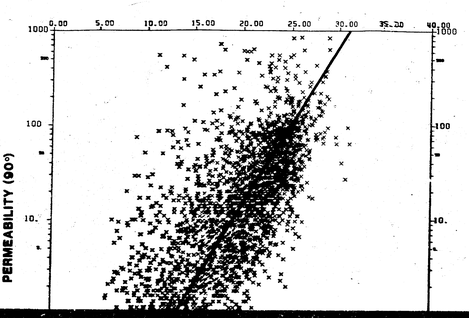


CORE POROSITY vs. PERMEABILITY (90°)







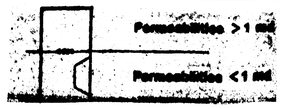


KEY

SCGR	———	Gamma Ray
PERMSF	———	Depth-shifted permeability (90°) data from core analysis
PERMCAL	———	Calculated permeability based on cross plots of smoothed core porosity vs. permeability and smoothed core porosity vs. density porosity

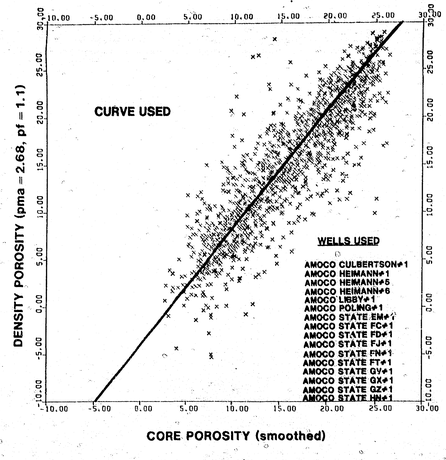
Amoco Production Company

BEST AVAILABLE COPY

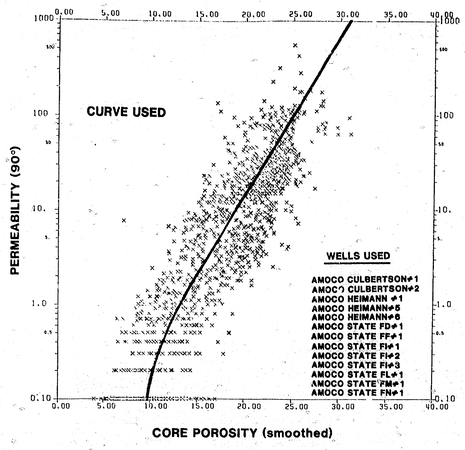


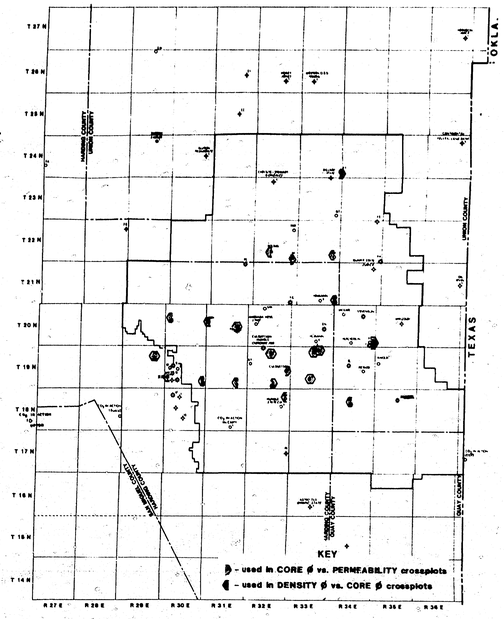
pma = 2.68 pf = 1.1 core calibrated calculated permeability

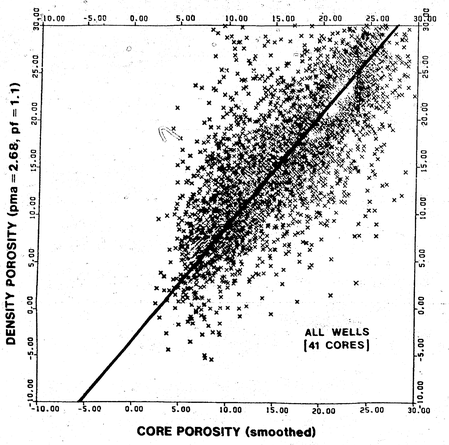
CORE POROSITY vs. DENSITY

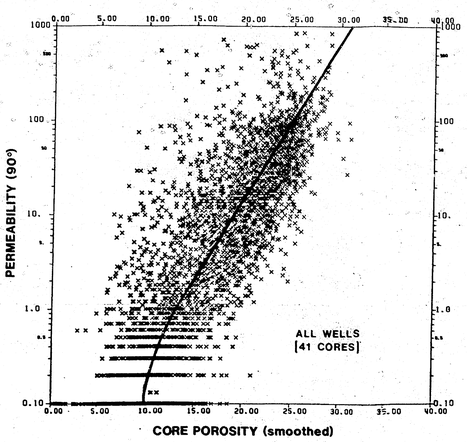


CORE POROSITY vs. PERMEABILITY (90°)









KEY		
SCGR	———	Gamma Ray
PERMSF	—·—·—	Depth-shifted permeability (90°) data from core analysis
PERMCAL	———	Calculated permeability based on cross plots of smoothed core porosity vs. permeability and smoothed core porosity vs. density porosity

BEFORE THE OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Case No. 2198 Exhibit No. 7
Submitted by Amoco
Hearing Date 3/18/81

Amoco Production Company

BRAVO DOME CO_2 GAS UNIT

Temporary Pool Rules Hearing

DENSITY LOG CALIBRATION TECHNIQUE

EXHIBIT NO. ____ DATE ____
GEOL. Bruce L May

U.S.G.S. RECORDS
BEST AVAILABLE COPY

GAMMA RAY - PERMEABILITY CROSS-SECTION

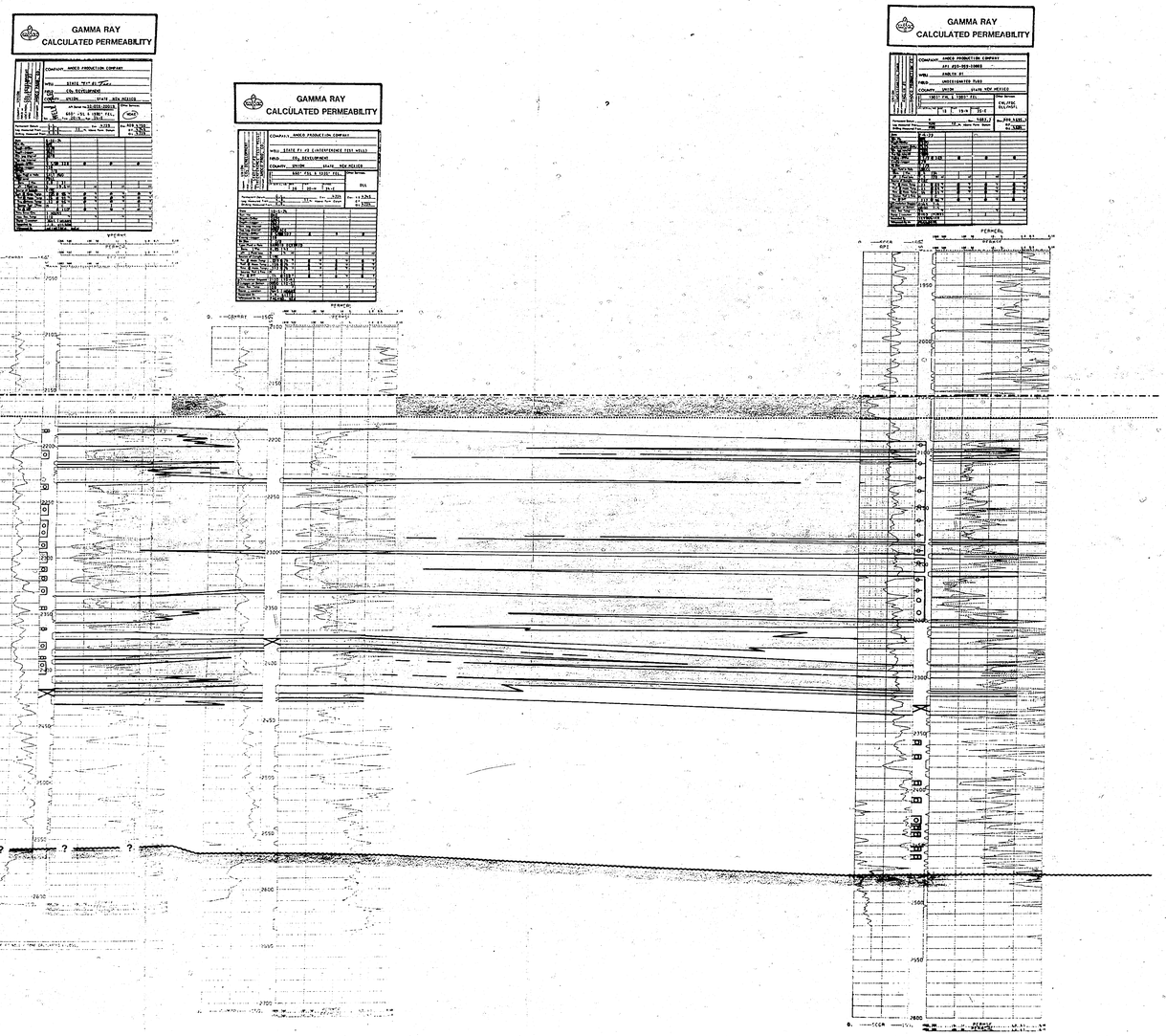
HUTCHERSON LEASE AREA

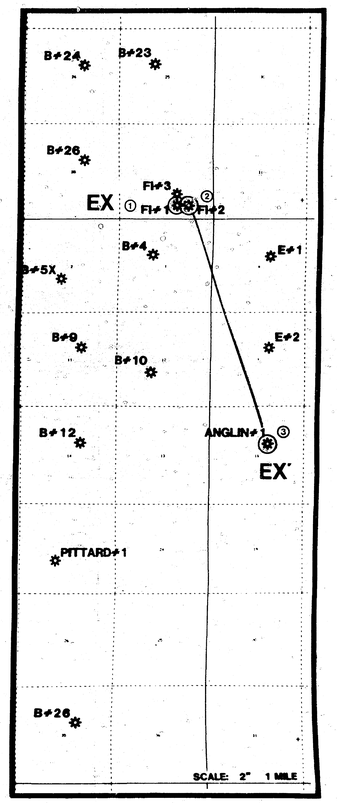
EX
NORTH

EX'
SOUTH

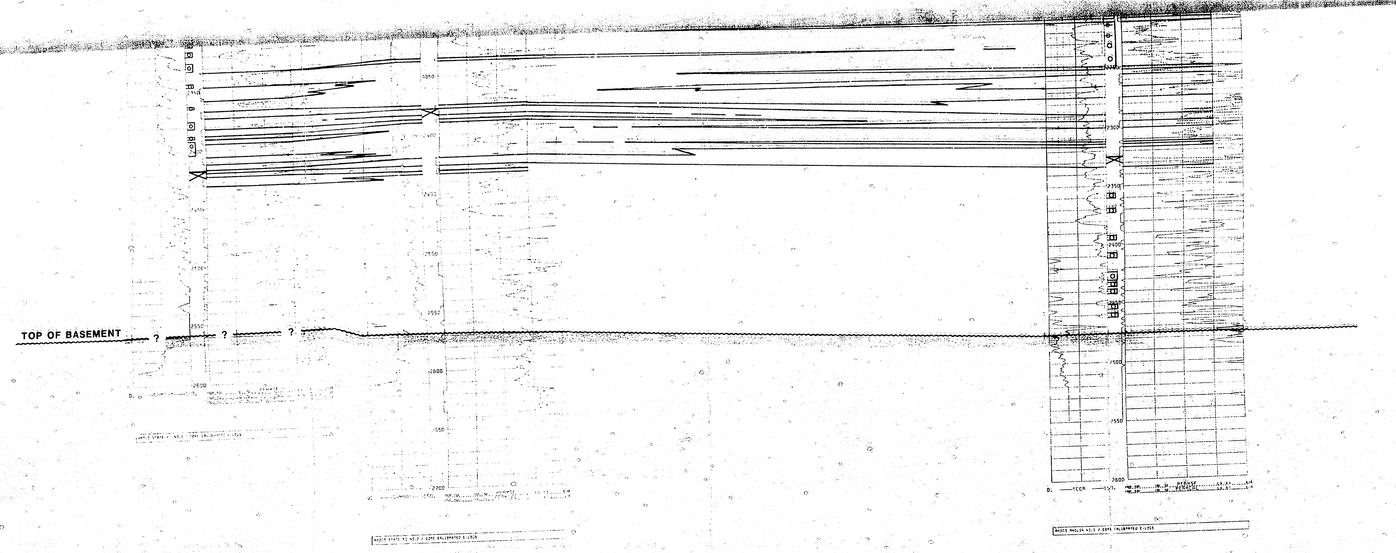
STATE FI#1 | STATE FI#2 | ANGLIN #1

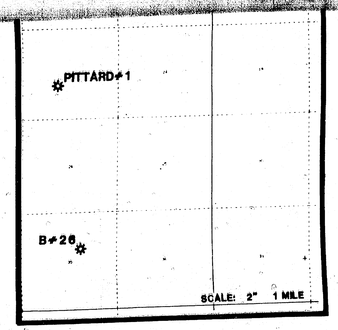
① ←660 FEET→ ② ←2.4 MILES→ ③





KEY





KEY

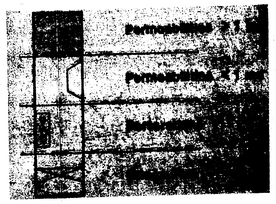
GCBR	———	Gamma Ray
PERMBF	— — —	Depth-shifted permeability (BO*) plots from core analysis
PERMBAL	———	Calculated permeability based on areal units of uniformed sand porosity vs. permeability and smoothed core porosity vs. density porosity

Amoco #1 State F1

CMP: 9-3/74
ELEV: KDB 4750 TD 2670
CASING: 8 5/8 @ 328,
4 1/2 @ 2665
PERF: 2433-36, 2460-64, 2488-91 w/2 SPF (10-18-76)
A/(2433-91) 1250 gals 7 1/2% MCA
SWB: (2433-91) 32 BW to pit.
CIBP @ 2417
PERF: 2186-88, 2204-11, 2234-38, 2252-62, 2266-81
2285-91, 2295-2304, 2308-12, 2316-20, 2326-
32, 2343-46; 2362-64, 2375-81, 2388-90, 2392-
2404 w/2 SPF (10-18-76)
A/(2186-2404) 2000 gals 7 1/2% MCA
IP: 1575 mcfgpd, FTP 150#, 48/64 choak
COMP. INT: 2186-2404
PLUGBACK DEPTH: 2417

Amoco #2 State F1

CMP: 10-1-74
ELEV: KDB 4745; TD 2625
CASING: 4 1/2 @ 2600
A/(2385-2400) 500 gals 7 1/2% MCA
SWB: light blow; water coming in
CIBP sect at 2377
IP: 2180 mcfgpd FTP 250#, natural
PLUGBACK DEPTH: 2625
COMP. INT: 2198-2369



Anglin No. 1

ELEV: 4695 KDB, TD 2520
CASING: 8 5/8" CSA 360
4 1/2" CSA 2520
PERF-TUBB: 2093, 2101, 2123, 2135, 2140, 2161, 2174
2180, 2190, 2214, 2223 W/1 JSPF
F1% 597 mcfgpd 32/64" choke TPF 65 psi,
CP 80 psi; 11 BWPD
PERF-TUBB: 2356-60, 2369-72, 2392-96, 2407-11,
2423-30, 2432-36, 2438-42, 2451-55,
2458-62, W/2 JSPF
A/4000 gal 7 1/2% FE MCA
SWB: 178 BWPPH; few water no show of gas
Set Cast Iron BP at 2325
PERF-TUBB: 2090-2100, 2102-91, 2194-2207,
2210-50, W/4 JSPF
A/4000 gal 10% Mod-101
Flw 1681 mcfgd, fine to heavy mist 48/64" choke, TPF
170 psi, CP 280 psi

Amoco Production Company

BRAVO DOME CO_2 GAS UNIT

Temporary Pool Rules Hearing

EXAMPLE

Gamma Ray - Permeability

Cross Section EX-EX'

Horizontal Scale: 1" = 1 mile

Vertical Scale: 2.5" = 100'

EXHIBIT NO. ____ DATE ____ GEOL. Bruce L May

BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Case No. 7158 Exhibit No. 8
Submitted by Amoco
Hearing Date 9/15/81

BEST AVAILABLE COPY

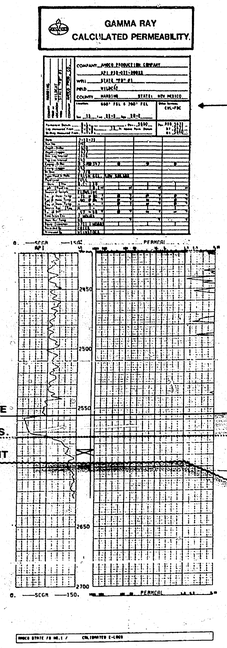
A

WEST

AMOCO #1 STATE FB

API: 30-021-20022

①

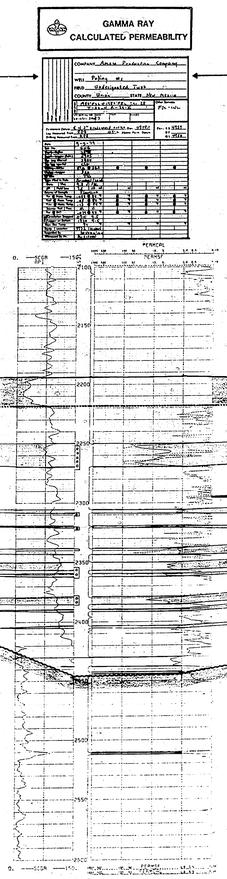


20.75 MILES

AMOCO #1 POLING

API: 30-059-20035

②

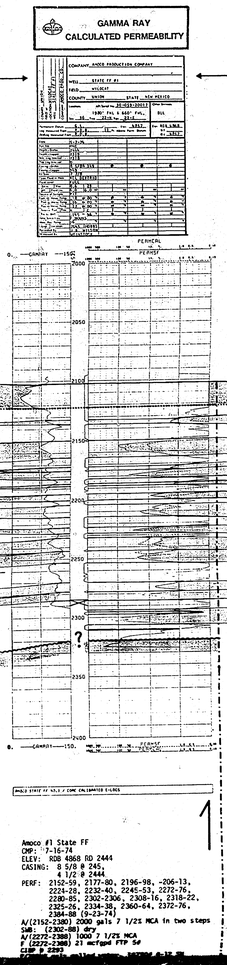


2.80 MILES

AMOCO #1 STATE FF

API: 30-059-20017

③

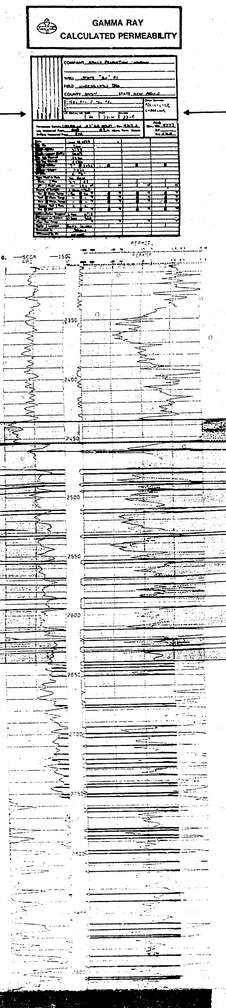


6.0 MILES

AMOCO #1 STATE GV

API: 30-059-20029

④



6.5

TOP OF CIMARRON ANHYDRITE

DATUM: TOP OF TUBB SS.

TOP OF BASEMENT

?

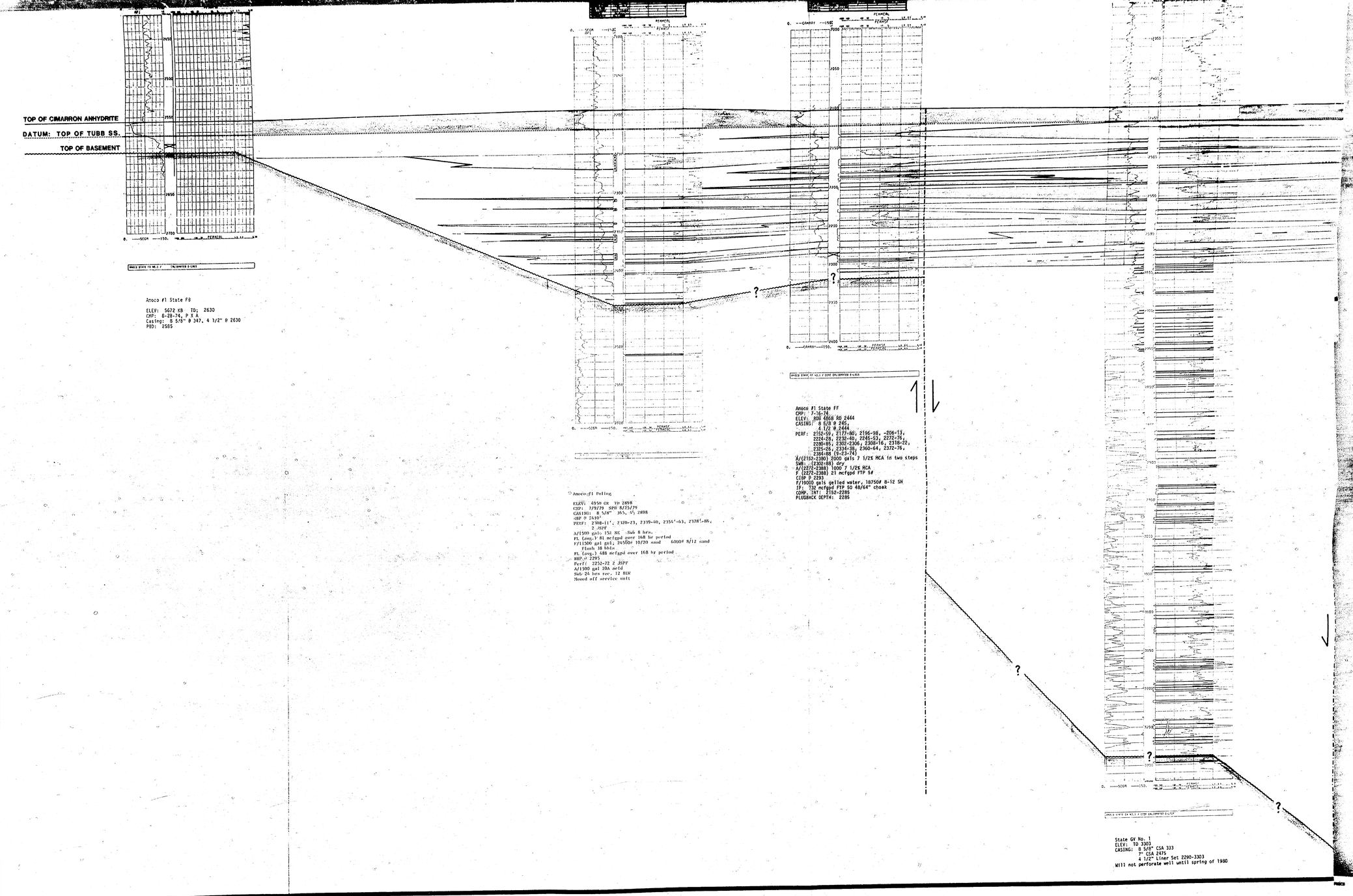
?

Amoco #1 State FB

ELEV: 5672 KB TD: 2630
CMP: 8-28-74, P & A
Casing: 8 5/8" @ 347, 4 1/2" @ 2630
PBD: 2585

Amoco #1 State FF
CMP: '7-16-74
ELEV: RDB 4868 RD 2444
CASING: 8 5/8 @ 245,
4 1/2 @ 2444
PERF: 2152-59, 2177-80, 2196-98, -206-13,
2224-28, 2232-40, 2245-53, 2272-76,
2280-85, 2302-2306, 2308-16, 2318-22,
2325-26, 2334-36, 2360-64, 2372-76,
2384-88 (9-23-74)
A/(2152-2380) 2000 gals 7 1/2% MCA in two steps
Swb: (2302-08) dry
A/(2272-2388) 1000 7 1/2% MCA
F (2272-2388) 21 mcfgpd FTP 5#
GWP @ 2293

BEST AVAILABLE COPY



Amoco #1 State F8

ELEV: 5672 KB TD: 2630
CMP: 8-28-74, P & A
Casing: 8 5/8" @ 347, 4 1/2" @ 2630
PBD: 2585

Amoco #1 Polling

ELEV: 4590 GR TD 2898
COPI: 7/9/79 SPBI 8/25/79
CASING: 8 5/8" 365, 4½ 2898
CBP @ 2610'
PERF: 2308-11', 2320-23, 2339-40, 2354'-63, 2378'-86, 2 JSPF
A/1500 gals 15% NE -Sub 8 hrs.
FL (avg.) 81 mcfgpd over 168 hr period
F/11500 gal gel, 24500# 10/20 sand 6000# 8/12 sand
Flush 38 bbls
FL (avg.) 488 mcfgpd over 168 hr period
RBP @ 2295
Perf 2252-72 2 JSPF
A/1500 gal 20A acid
Sub 24 hrs rec. 12 BLW
Moved off service unit

Amoco #1 State FF
CMP: 7-16-74
ELEV: 3DR 4668 RD 2444
CASING: 8 5/8 @ 245,
4 1/2 @ 2444
PERF: 2152-59, 2177-80, 2196-98, -208-13, 2224-28, 2232-40, 2245-53, 2272-76, 2280-85, 2302-2306, 2308-16, 2318-22, 2325-28, 2334-38, 2360-64, 2372-76, 2384-88 (5-23-74)
A/(2152-2380) 2000 gals 7 1/2% MCA in two steps
SWB (2302-08) dry
A/(2272-2388) 1000 7 1/2% MCA
F (2272-2388) 21 mcfgpd FTP 54
CIBP @ 2293
F/19000 gals gelled water, 18750# 8-12 SN
IP: 332 mcfgpd FTP 50 48/64" choak
COMP. INT: 2152-2285
PLUGBACK DEPTH: 2285

State GY No. 1
ELEV: TD 3303
CASING: 8 5/8" CSA 333
7" CSA 2475
4 1/2" Liner Set 2290-3303
Will not perforate well until spring of 1980

BEST AVAILABLE COPY

AMOCO #1 STATE GV

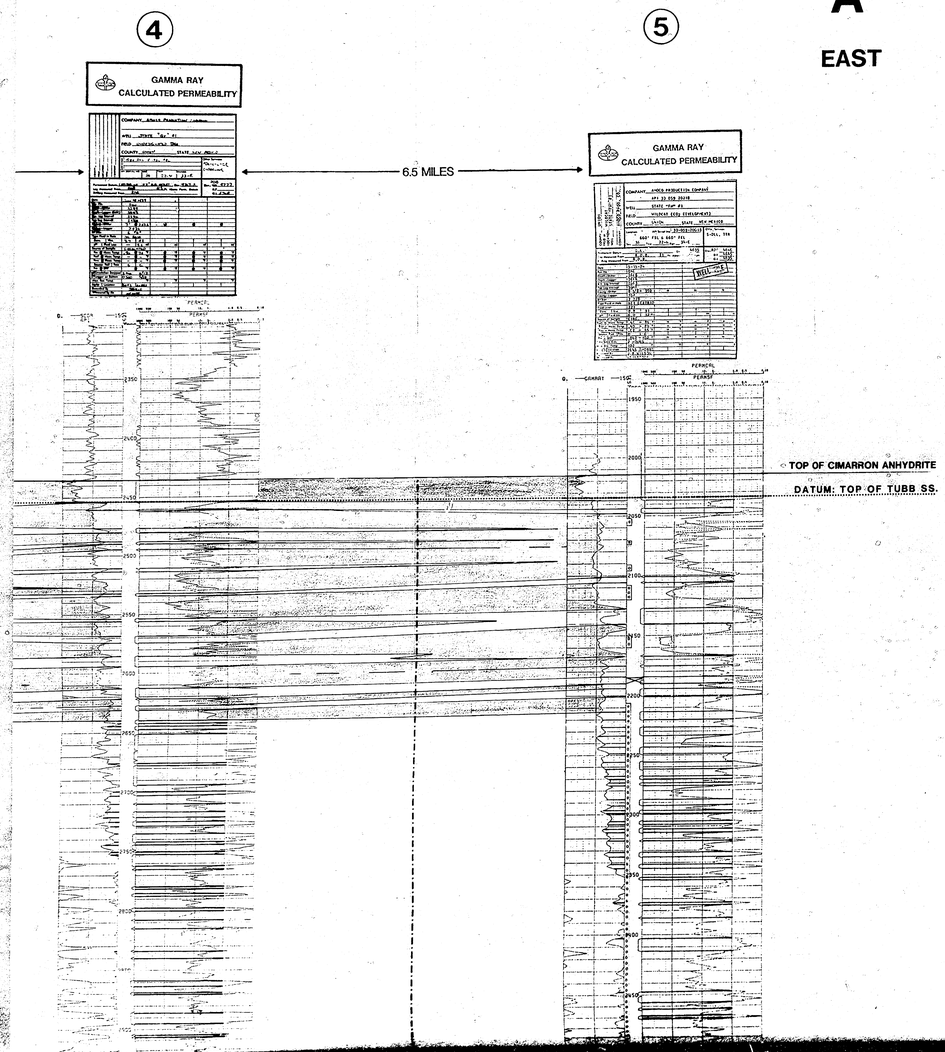
API: 30-059-20029

AMOCO #1 STATE FH

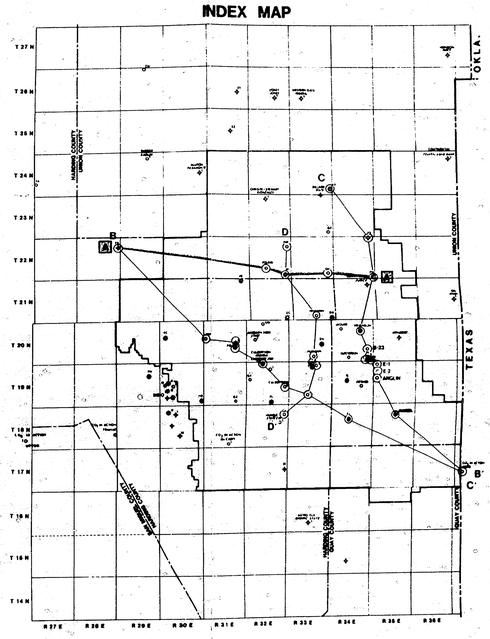
API: 30-059-20018

A′

EAST

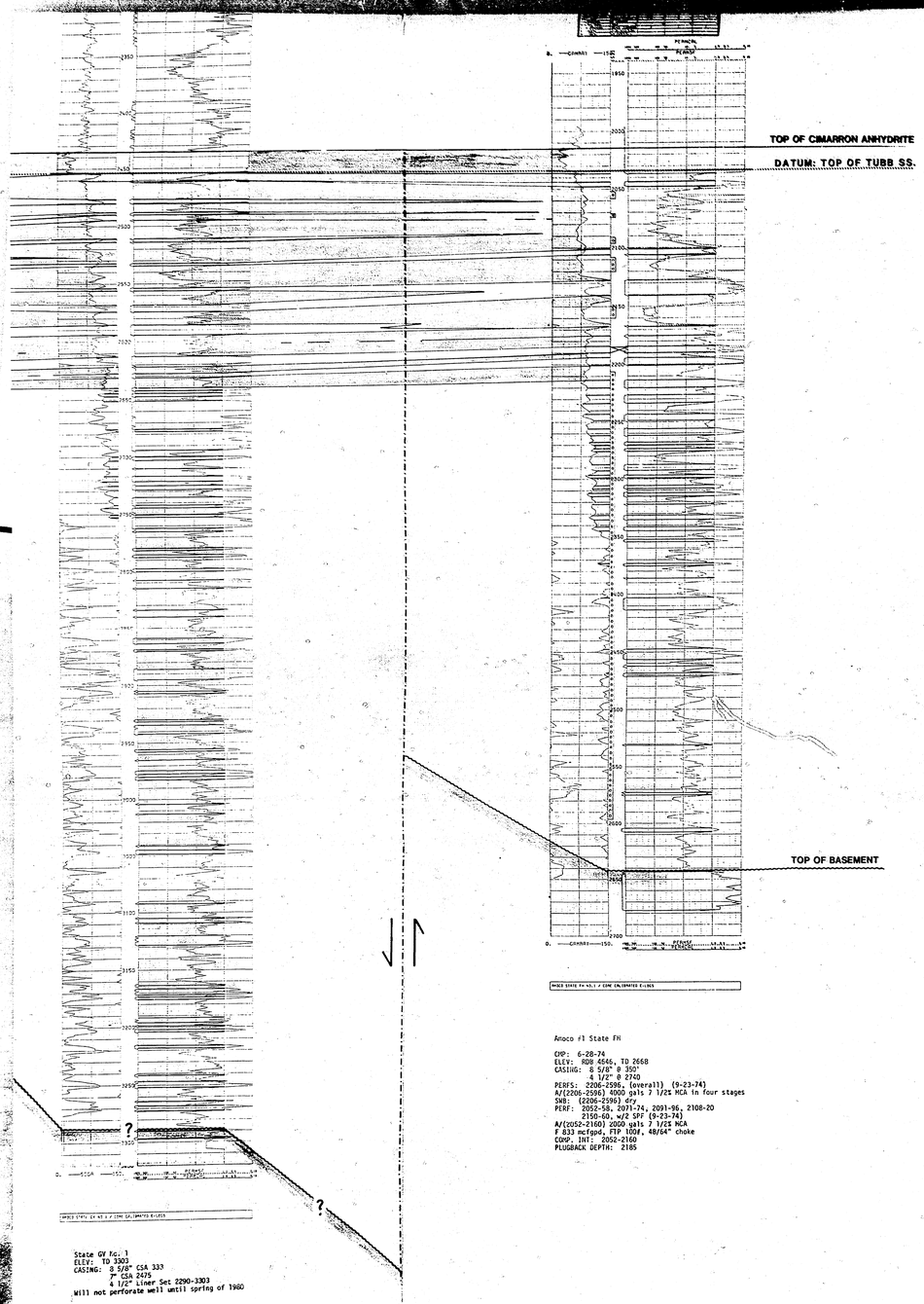


INDEX MAP



KEY

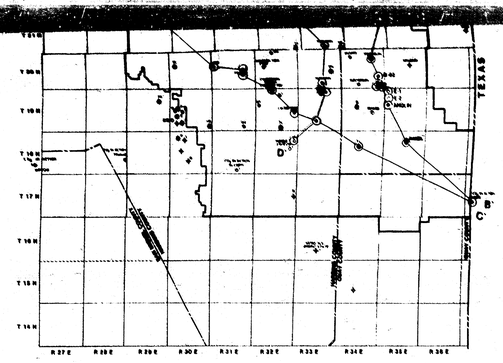
SCGR	———	Gamma Ray
PERMSF	—•—•—	Depth-shifted permeability (90°) data from core analysis
VPERMS	•••••••	Depth-shifted permeability (vertical) data from core analysis
PERMCAL	———	Calculated permeability based on cross plots of smoothed core porosity vs. permeability and smoothed core porosity vs. density porosity



State GV Xg: 1
ELEV: TD 3303'
CASING: 8 5/8" CSA 333
7" CSA 2475
4 1/2" Liner Set 2290-3303
Will not perforate well until spring of 1980

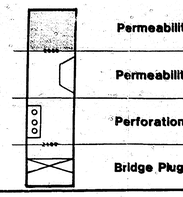
Amoco #1 State FH

CPP: 6-28-74
ELEV: RDB 4546, TD 2668
CASING: 8 5/8" @ 350'
4 1/2" @ 2240
PERFS: 2206-2596, (overall) (9-23-74)
A/(2206-2596) 4000 gals 7 1/2% MCA in four stages
SWB: (2206-2596) dry
PERF: 2052-58, 2071-74, 2091-96, 2108-20
2150-60, w/2 SPF (9-23-74)
A/(2052-2160) 2000 gals 7 1/2% MCA
F 833 mcfgpd, FTP 100#, 48/64" choke
COMP. INT: 2052-2160
PLUGBACK DEPTH: 2185



KEY

SCGR	———	Gamma Ray
PERMSF	——·——·——	Depth-shifted permeability (90°) data from core analysis
VPERMS	····· ·····	Depth-shifted permeability (vertical) data from core analysis
PERMCAL	———	Calculated permeability based on cross plots of smoothed core porosity vs. permeability and smoothed core porosity vs. density porosity



Permeabilities > 1 md

Permeabilities < 1 md

Perforations

Bridge Plug

Amoco Production Company

BRAVO DOME CO_2 GAS UNIT

Temporary Pool Rules Hearing

Gamma Ray – Permeability
Cross Section **A A'**

Horizontal Scale: 1" = 1 mile
Vertical Scale: 2.5" = 100'

EXHIBIT NO. ____ DATE ____
GEOL. Bruce L May

BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Case No. 7155 Exhibit No. 9
Submitted by: Amoco
Hearing Date: 3/18/81

U.S.G.S. RECONNAISSANCE
BEST AVAILABLE COPY

B

NORTH

AMOCO #1 STATE FB

API: 30-021-20022

AMOCO #1 LIBBY

API: 30-021-20054

AMOCO #1 STATE FD

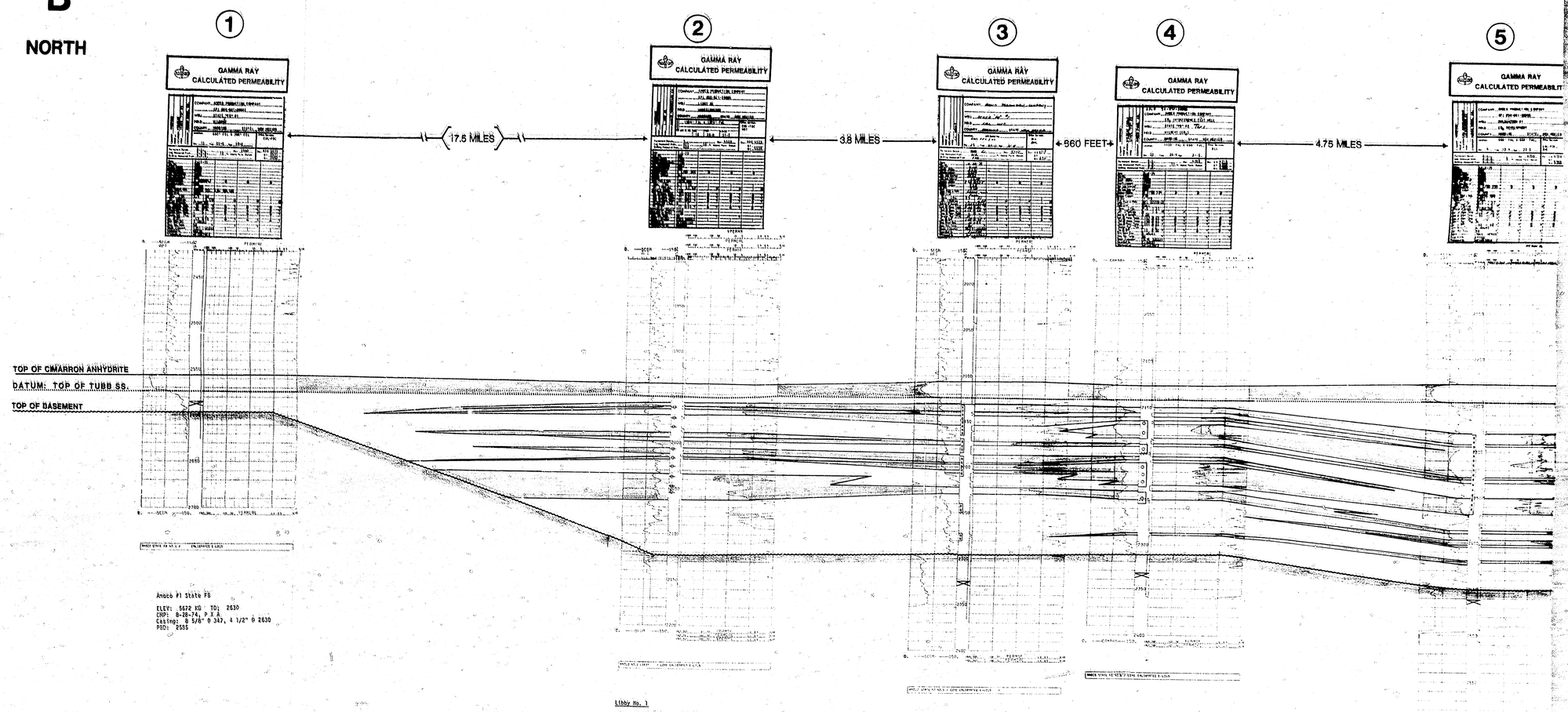
API: 30-021-20024

AMOCO #2 STATE FD

API: 30-021-60020

AMOCO #1 CULBER

API: 30-021-200



Amoco #1 State FB

ELEV: 4672 KB TD: 2630
CMP: 8-28-74, P J A
Casing: 8 5/8" @ 347, 4 1/2" @ 2630
PBD: 2585

Libby No. 1

Elev: 4529' RDB TD: 2155
Casing: 8 5/8" CSA 344
4 1/2" CSA 2155
Perf-Tubb: 1863, 1873, 1983, 2007, 2017, 2026, 2037, 2047, 2053 W/1 JSPF
A/750 gal 7 1/2% HCA Slight show gas
A/3000 gal 21/2% HCA
Flw: 167 MCFPD, 25/64" choke, TPF 25 psi, CP 58 psi
F/5880 gal 50/50 XCL wtr - CO2 29#/F 10/20 SM
Flw: 340 MCFPD wet gas, 48/64" choke, TPF 42 psi, CP 45 psi

Amoco #1 State FD

ELEV: 4719 RDB TD: 2371
CMP: 1-19-74
Casing: 8 5/8" @ 336, 4 1/2" @ 2371'
Perf - (Santa Rosa): 1126-36', 1170-76' w/2 SPF
A/(1126-76') 1000 gals
Swbd dry (1126-76), sand 1126-1178
Perf - (Tubb): 2132-65, 2169-84, 2188-2210, 2240-80, 2272-80' w/2 JSPF (8-25-75)
A/(2132-2280) 3000 gals 7 1/2% MCA
F/(2132-2280) 4000 XCL gelled water & 60000# 20-40 SN in two stebs
IP: 956 MCFPD, FTP: 115, 45/64" choke
Comp. Int: 2132-2280
PBD: 2325

Amoco #2 State FD

ELEV: 4719 RDB, TD 2360
CMP: 6- -74
Casing: 4 1/2" CSA 2352'
Perf:2164-84, 2190-2200, 2210-36, 2242-54
A/(2132-2280) 2000 gals
F/20000 gals XCL gelled water, 22500# 10-20 SN
IP 1620 MCFGPD FTP 195#
Comp. Int: 2164-2265
Plugback Depth: 2333

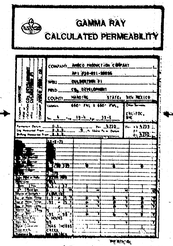
Amoco #1 Culbertson

ELEV: 4739 RDB, TD: 2367
CMP: 1-16-74
Casing: 8 5/8" @ 347, 4 1/2 @ 2367
Perfs: 2281-2368 w/2 shots overall (12
A/ (2281-2368) 2000 gals 7 1/2% MCA in tw
F/ (2281-2368) 63000 gals XCL & 60,000# 2
Swbd: (2281-2368) 54 BLW in 5 hrs
Plugback depth 2361
IP: 965 MCFGPD FTP #75, thru 48/64" choke
Comp. Int: 2281-2368
SI

AMOCO #1 CULBERTSON

API: 30-021-20026

(5)

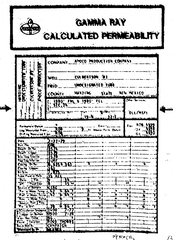


4.75 MILES

AMOCO #2 CULBERTSON

API: 30-021-20052

(6)

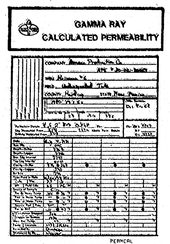


4.5 MILES

AMOCO #6 HEIMANN

API: 30-021-20053

(7)



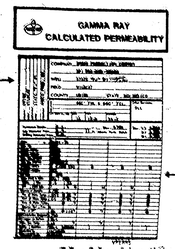
3.3 MILES

7.0 MILES

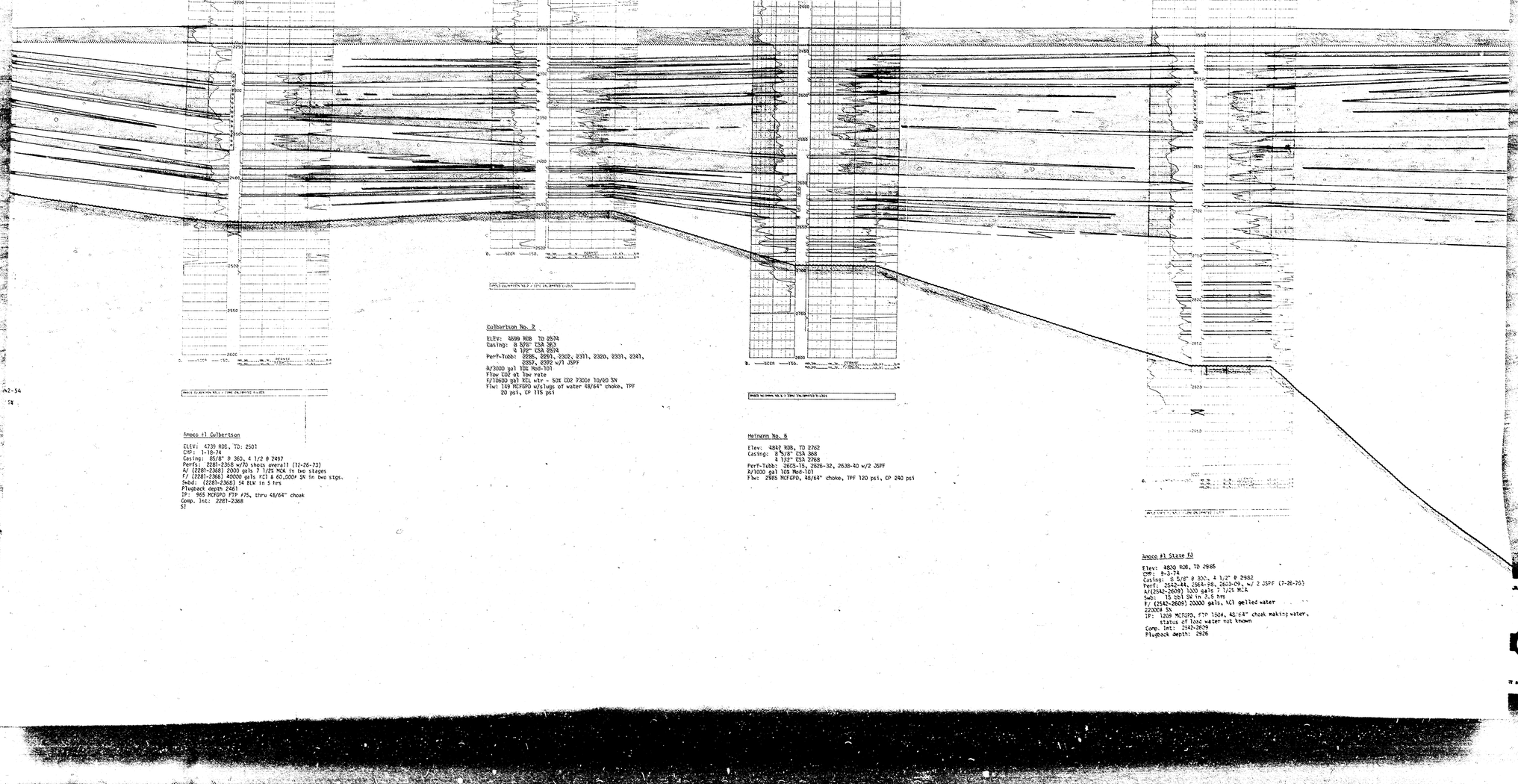
AMOCO #1 STATE FJ

API: 30-059-20020

(8)



18.1 MILES



Amoco #1 Culbertson

ELEV: 4739 RDB, TD: 2501
COMP: 1-18-74
Casing: 85/8" @ 360, 4 1/2 @ 2497
Perfs: 2281-2368 w/30 shots overall (12-26-73)
A/ (2281-2368) 2000 gals 7 1/2% MCA in two stages
F/ (2281-2368) 40000 gals KCl & 60,000# SN in two stgs.
Swbd: (2281-2368) 54 BLW in 5 hrs
Plugback depth 2461
IP: 966 MCFGPD FTP 475, thru 48/64" choak
Comp. Int: 2281-2368
SI

Culbertson No. 2

ELEV: 4699 RDB TD 2574
Casing: 8 5/8" CSA 363
4 1/2" CSA 2574
Perf-Tubb: 2285, 2291, 2302, 2311, 2320, 2331, 2341, 2357, 2392 w/1 JSPF
A/3000 gal 10% Mod-101
Flow CO2 at low rate
F/10600 gal KCL wtr - 50# CO2 7300# 10/20 SN
Flw: 149 MCFGPD w/slugs of water 48/64" choke, TPF 20 psi, CP 115 psi

Heimann No. 6

Elev: 4842 RDB, TD 2762
Casing: 8 5/8" CSA 368
4 1/2" CSA 2768
Perf-Tubb: 2605-15, 2626-32, 2638-40 w/2 JSPF
A/1000 gal 10% Mod-101
Flw: 2985 MCFGPD, 48/64" choke, TPF 120 psi, CP 240 psi

Amoco #1 State FJ

Elev: 4830 RDB, TD 2985
COMP: 9-3-74
Casing: 8 5/8" @ 330', 4 1/2" @ 2982
Perf: 2642-44, 2664-98, 2603-09, w/ 2 JSPF (7-26-76)
A/(2642-2698) 1000 gals 7 1/2% MCA
Swb: 15 BBl SW in 5.5 hrs
F/ (2642-2609) 20000 gals, KCl gelled water
220001# SN
IP: 1009 MCFGPD, FTP 1504, 48/64" choak making water, status of load water not known
Comp. Int: 2642-2609
Plugback depth: 2926

AMOCO #1 STATE FJ

API: 30-059-20020

CO2-IN-ACTION #1 COOTS

API: 42-205-00006

B′

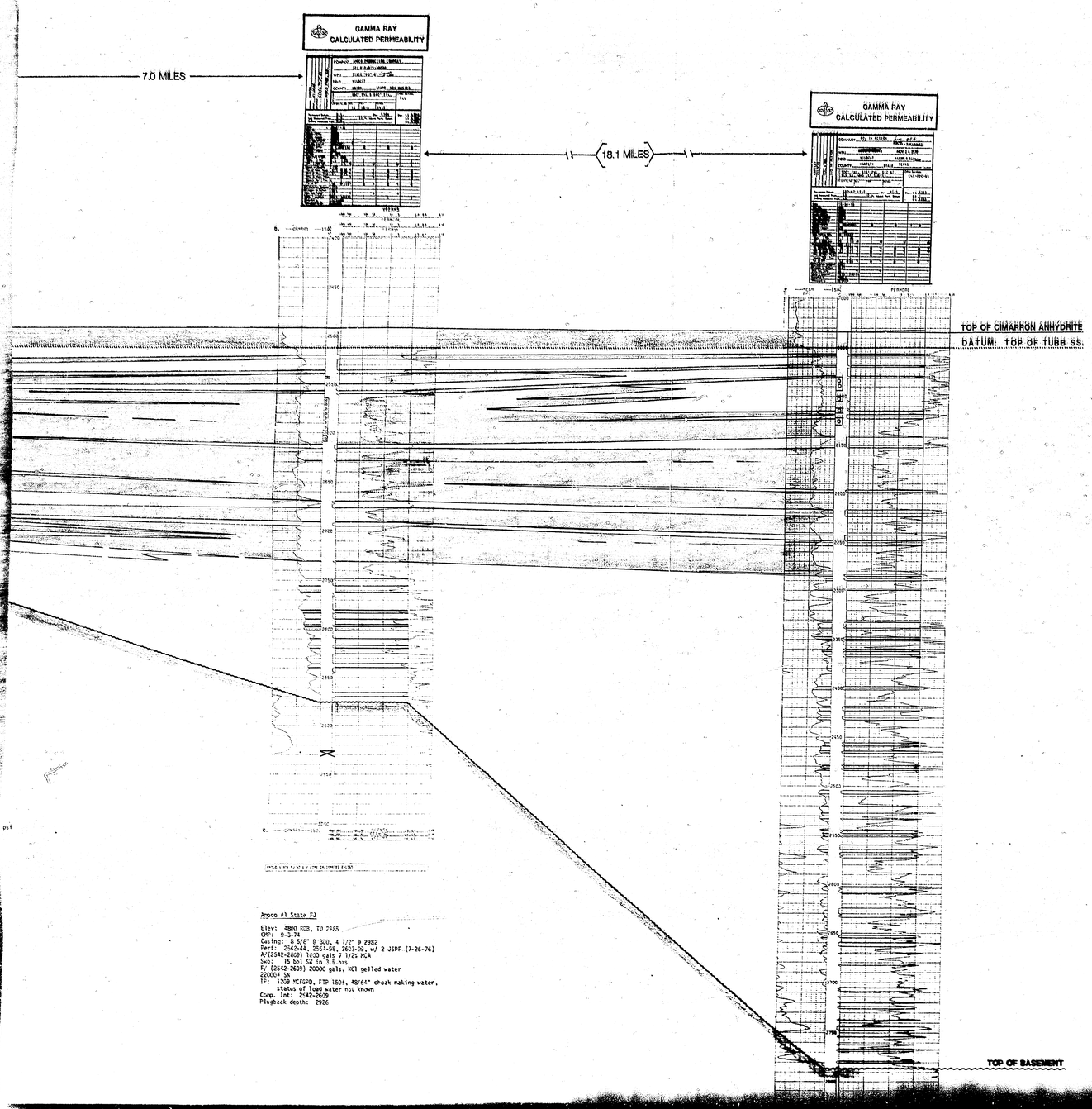
SOUTH

⑧ ⑨

7.0 MILES

18.1 MILES

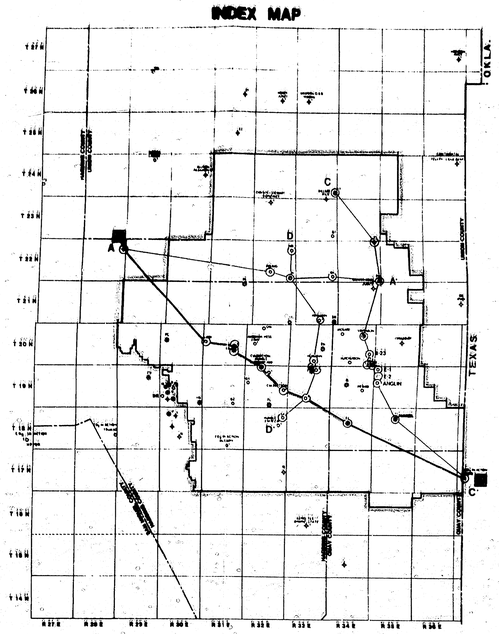
GAMMA RAY
CALCULATED PERMEABILITY



Amoco #1 State FJ

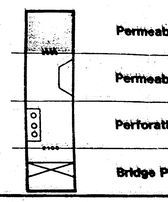
Elev: 4800 RDB, TD 2865
CMP: 9-3-74
Casing: 8 5/8" @ 320, 4 1/2" @ 2982
Perf: 2542-44, 2561-66, 2613-09, w/ 2 JSPF (7-26-76)
A/(2542-2609) 1000 gals 7 1/2% MCA
Swb: 15 bbl SW in 3.5 hrs
F/ (2542-2609) 20000 gals, XCl gelled water
220004 SA
IP: 1208 MCFGPD, FTP 150#, 48/64" choak making water,
status of load water not known
Comp. Int: 2542-2609
Plugback depth: 2926

INDEX MAP



KEY

SCGR	———	Gamma Ray
PERMSF	– · – · –	Depth-shifted permeability (90°) data from core analysis
VPERMS	•••••••	Depth-shifted permeability (vertical) data from core analysis
PERMCAL	———	Calculated permeability based on cross plots of smoothed core porosity vs. permeability and smoothed core porosity vs. density porosity



Permeabilities > 1 md

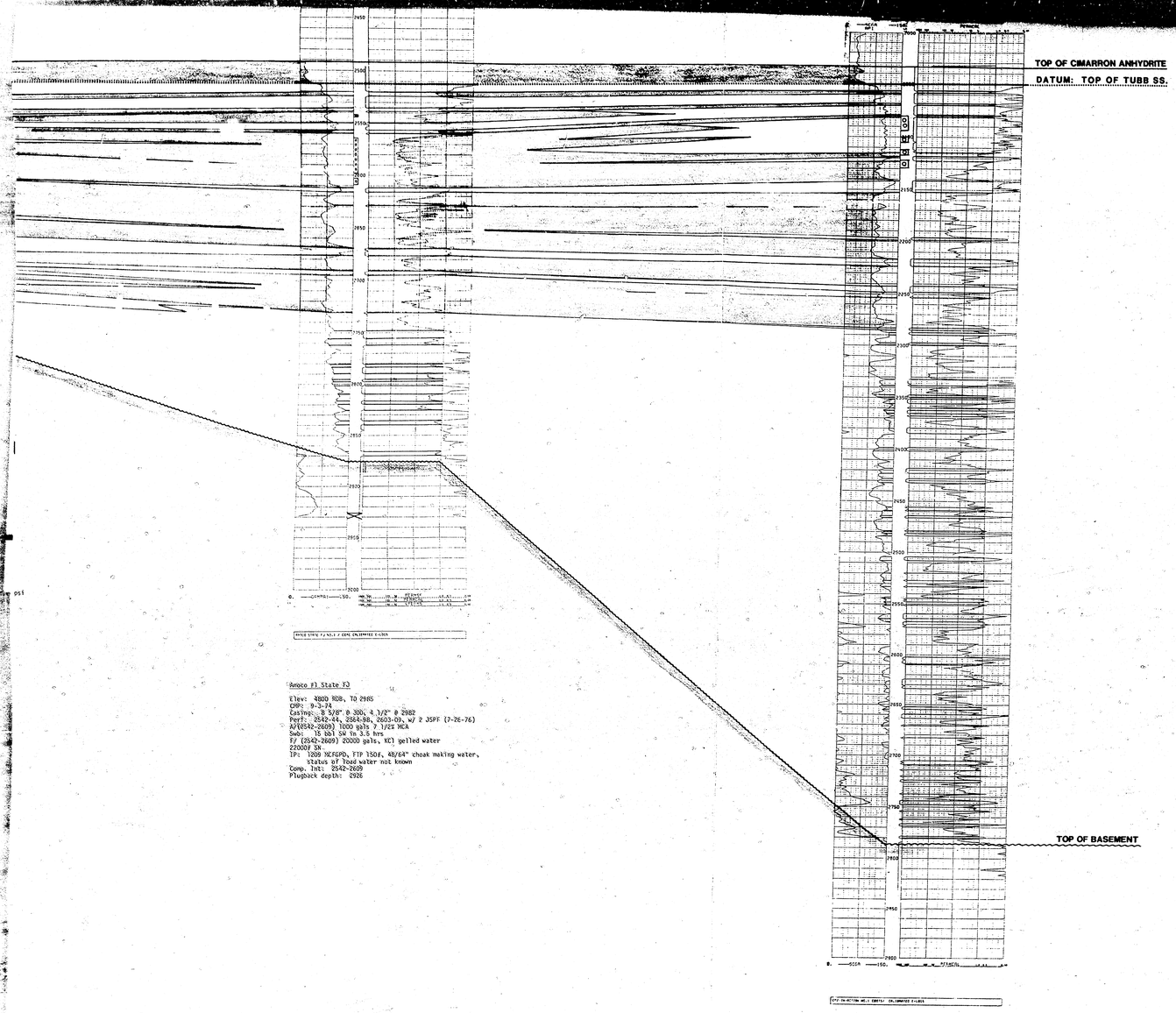
Permeabilities < 1 md

Perforations

Bridge Plug

Amoco Production Company

BRAVO DOME CO₂ GAS UNIT

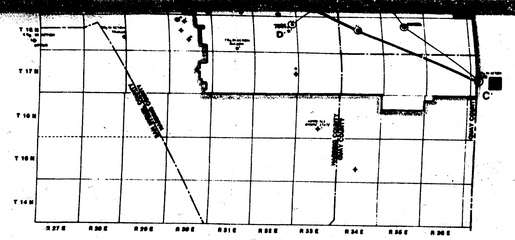


Amoco #1 State F3

Elev: 4800 RDB, TD 2985
CMP: 9-3-74
Casing: 8 5/8" @ 300, 4 1/2" @ 2982
Perf: 2542-44, 2564-98, 2603-09, w/ 2 JSPF (7-26-76)
A/(2542-2609) 1000 gals 7 1/2% HCA
Swb: 15 bbl SW in 3.5 hrs
F/ (2542-2609) 20000 gals, KCl gelled water
220000# SN
IP: 1209 MCFGPD, FTP 150#, 48/64" choak making water,
status of load water not known
Comp. Int: 2542-2609
Plugback depth: 2926

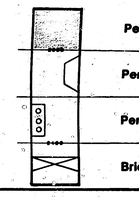
CO2 #1 Coots

Cmp: 10/29/78 TD 2825
KB
Casing: 8 5/8" @ 400
Perfs: 2080-2094, 2100-2105, 2112-2117, 2122-2139
A/ (2080-2139) 4000 gals
FL: 225 mcfgpd
F/ (2080-2139)
IP: 900 mcfgpd & 2 BWPH



KEY

SCGR	———	Gamma Ray
PERMSF	– – –	Depth-shifted permeability (90°) data from core analysis
VPERMS	•••••••	Depth-shifted permeability (vertical) data from core analysis
PERMCAL	———	Calculated permeability based on cross plots of smoothed core porosity vs. permeability and smoothed core porosity vs. density porosity



Permeabilities > 1 md

Permeabilities < 1 md

Perforations

Bridge Plug

Amoco Production Company

BRAVO DOME CO_2 GAS UNIT

Temporary Pool Rules Hearing

Gamma Ray – Permeability
Cross Section **B B'**

Horizontal Scale: 1" = 1 mile
Vertical Scale: 2.5" = 100'

EXHIBIT NO. ____ DATE
GEOL Bruce L May

1145 10
Amoco
3/15/81

C

NORTH

AMOCO #1 STATE FT

API: 30-059-20022

①

AMOCO #1 STATE FS

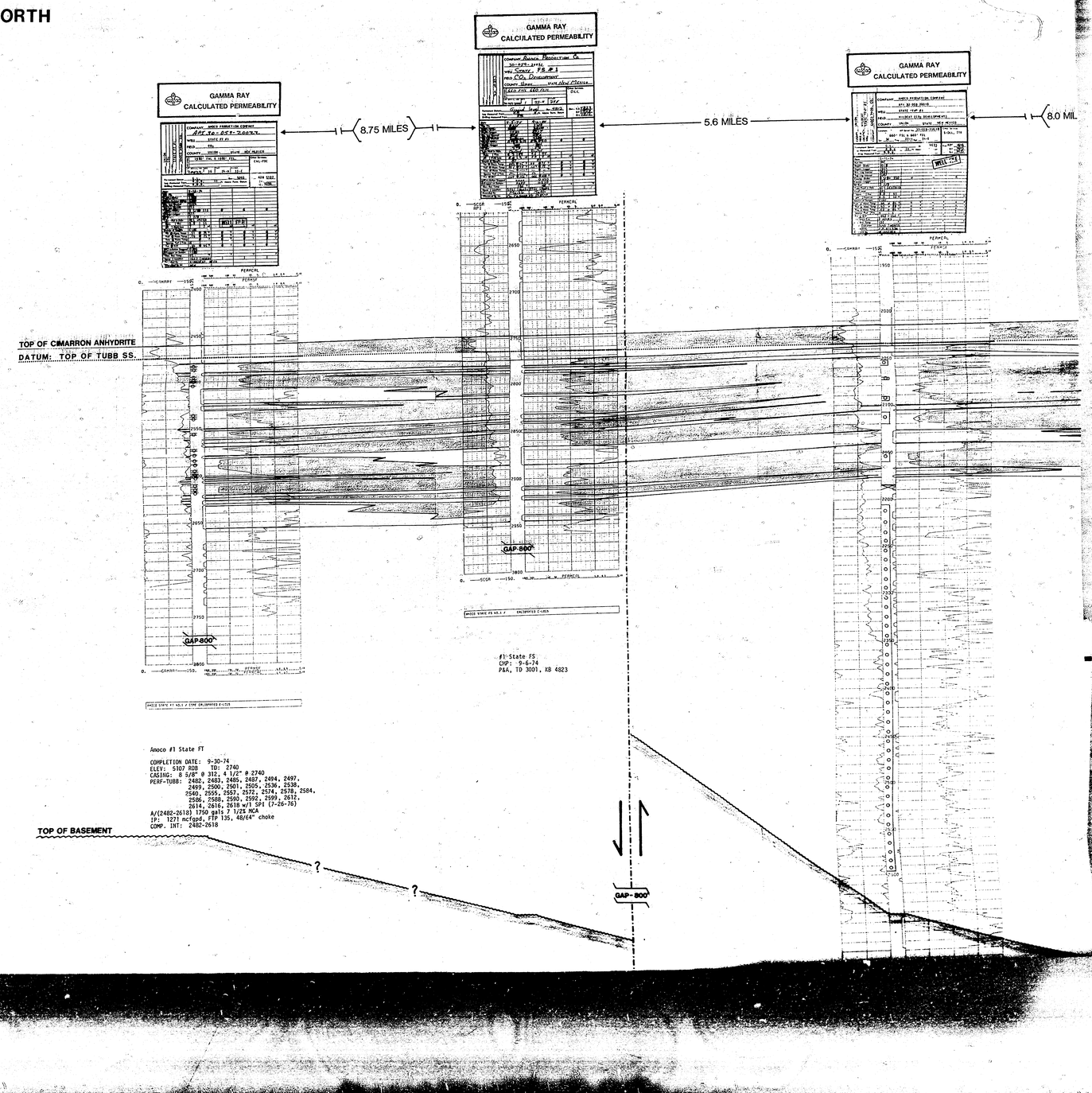
API: 30-059-20021

②

AMOCO #1 STATE FH

API: 30-059-20018

③



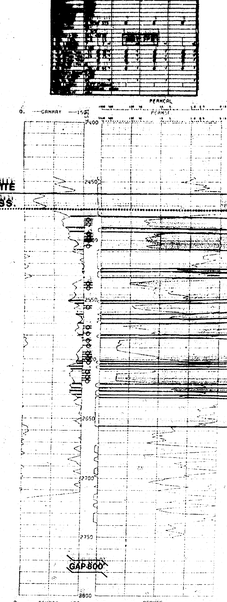
Amoco #1 State FT

COMPLETION DATE: 9-30-74
ELEV: 5107 RDB TD: 2740
CASING: 8 5/8" @ 312, 4 1/2" @ 2740
PERF-TUBB: 2482, 2483, 2485, 2487, 2494, 2497, 2499, 2500, 2501, 2505, 2536, 2538, 2540, 2555, 2557, 2572, 2574, 2578, 2584, 2586, 2588, 2593, 2592, 2599, 2612, 2614, 2616, 2618 w/1 SPI (7-26-76)
A/(2482-2618) 1750 gals 7 1/2% MCA
IP: 1271 mcfgpd, FTP 135, 48/64" choke
COMP. INT: 2482-2618

BEST AVAILABLE COPY

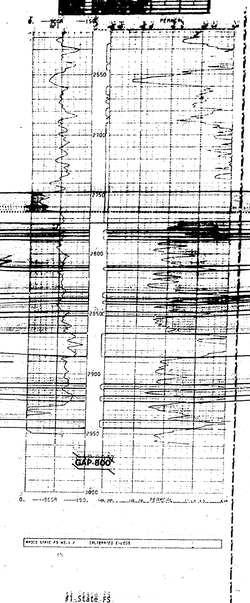
TOP OF CIMARRON ANHYDRITE

DATUM: TOP OF TUBB SS

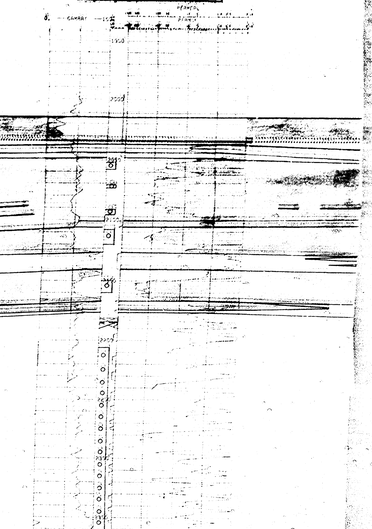


Amoco #1 State FI

COMPLETION DATE: 9-30-74
ELEV.: 3107 RDB ; TD: 2740
CASING: 8 5/8" @ 312; 4 1/2" @ 2740
PERF-TUBB: 2482; 2483; 2485; 2492; 2494, 2497; 2499, 2500, 2501; 2505, 2530, 2536, 2540, 2551, 2557, 2572, 2574; 2576, 2584, 2586, 2588, 2590, 2592, 2599, 2612, 2613, 2616, 2618 w/1 SPF (7-26-76)
A/(2482-2618) 1250 gals 7 1/2% MCA
IP: 1221 mcfgpd, FTP 135, 48/64" choke
COMP. INT: 2482-2618



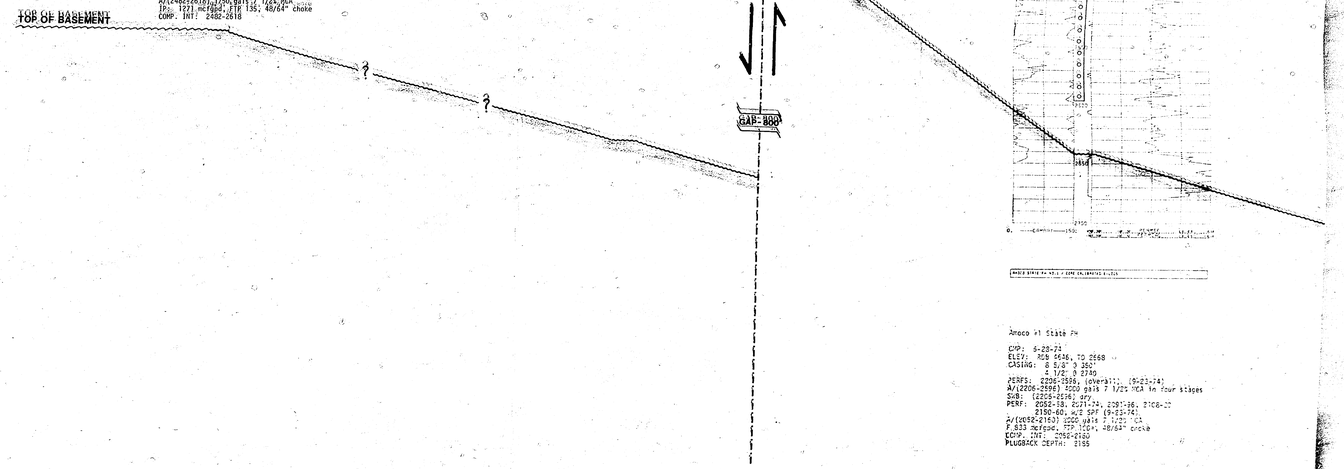
FI State #2
CIP: 9-6-74
PBA, TD 3001; KB 4023



Amoco #1 State #4

CIP: 6-28-74
ELEV.: RDB 4036, TD 2668
CASING: 8 5/8" @ 350'
4 1/2" @ 2700
PERFS: 2296-2586, (downhill) (9-23-74)
A/(2206-2596) 5000 gals 7 1/2% HCA in four stages
SWB: (2255-2596) dry
PERF: 2052-58, 2071-74, 2091-96, 2108-22
2190-60, w/2 SPF (9-23-76)
A/(2052-2153) 2250 gals 7 1/2% CA
F.833 Decrease, FTP 1104, 48/64" choke
COMP. INT: 2052-2160
PLUGBACK DEPTH: 2155

TOP OF BASEMENT



AMOCO #1 STATE FH

API: 30-059-20018

AMOCO #1 STEVENSON

API: 30-059-20016

HUTCHERSON B#23

API: 30-059-20067

AMOCO #1 STATE FI

API: 30-059-20019

AMOCO #2 STATE FI

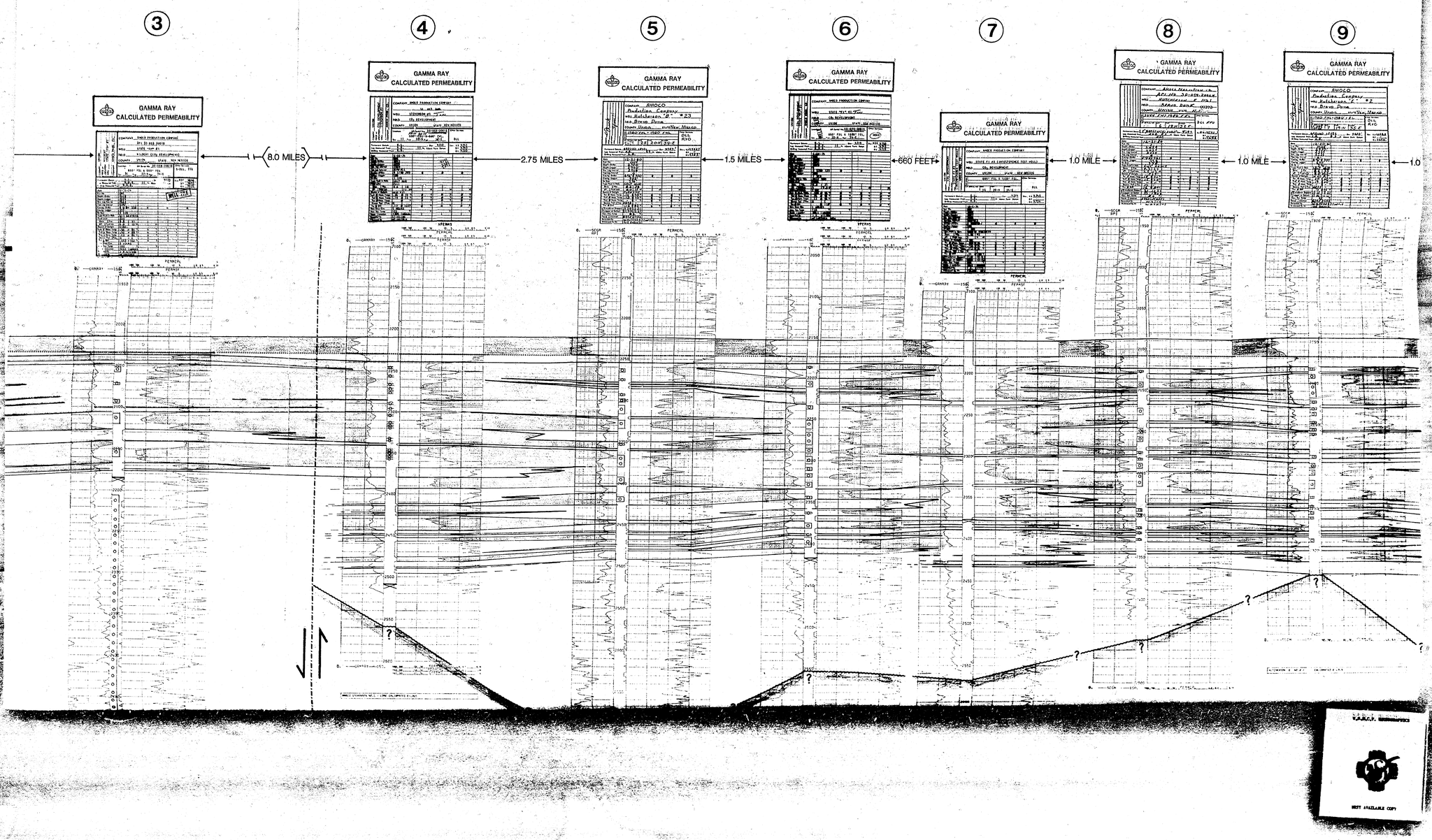
API: 30-059-99800

AMOCO HUTCHERSON E#1

API: 30-059-20064

AMOCO HUTCHERSON E#2

API: 30-059-20065



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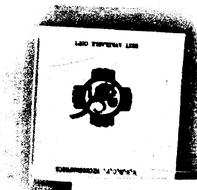
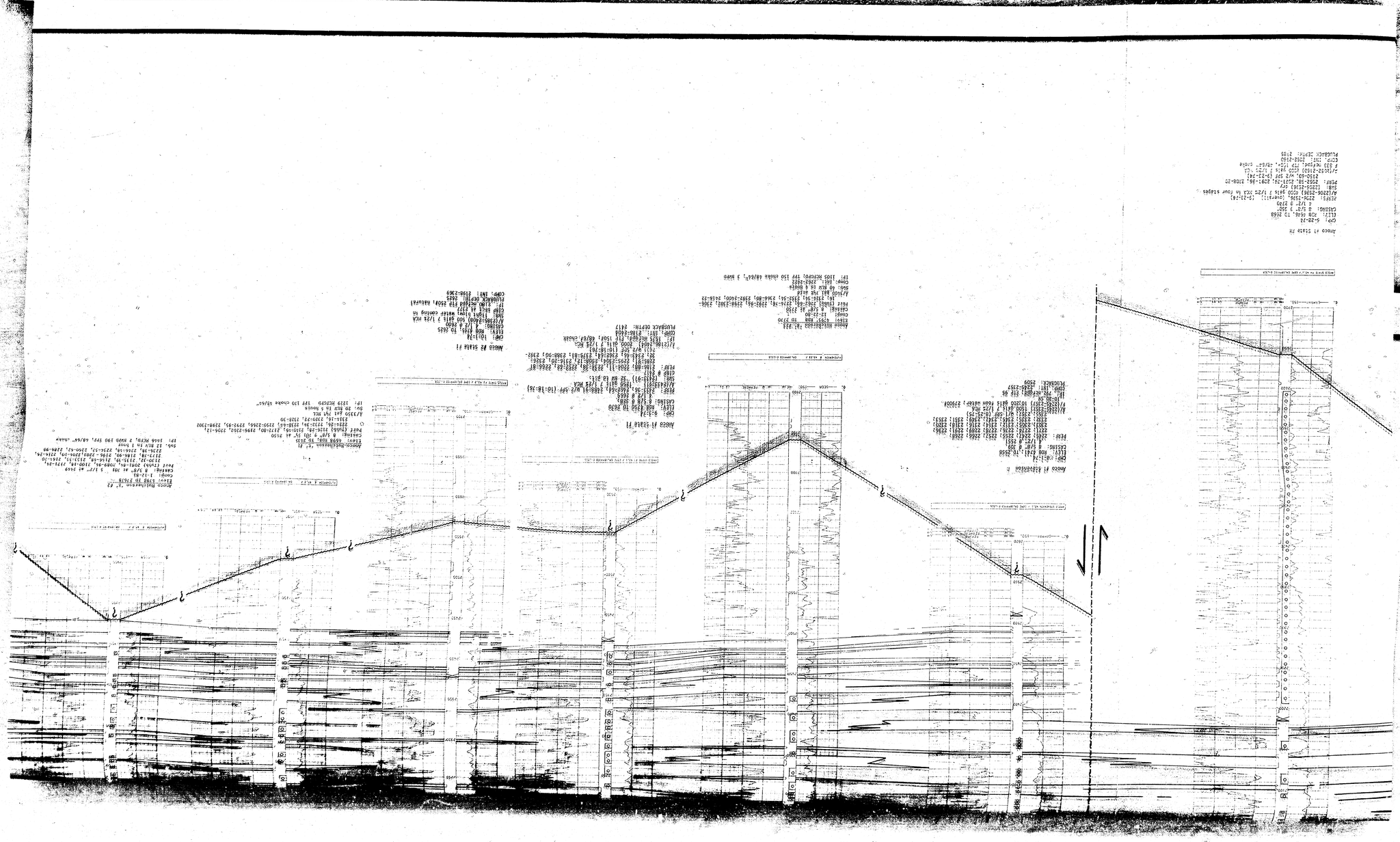




AMOCO

HERSON E#1

0-059-20064

HUTCHERSON E#2

API: 30-059-20065

AMOCO #1 ANGLIN

API: 30-059-20028

AMOCO #1 NIKKEL

API: 30-059-20014

CO2-IN-ACTION #1 COOTS

API: 42-205-00006

C′

SOUTH

8

9

10

11

12

GAMMA RAY
CALCULATED PERMEABILITY

1.0 MILE

1.0 MILE

6.0 MILES

13.0 MILES

TOP OF CIMARRON ANHYDRITE

DATUM: TOP OF TUBB SS.

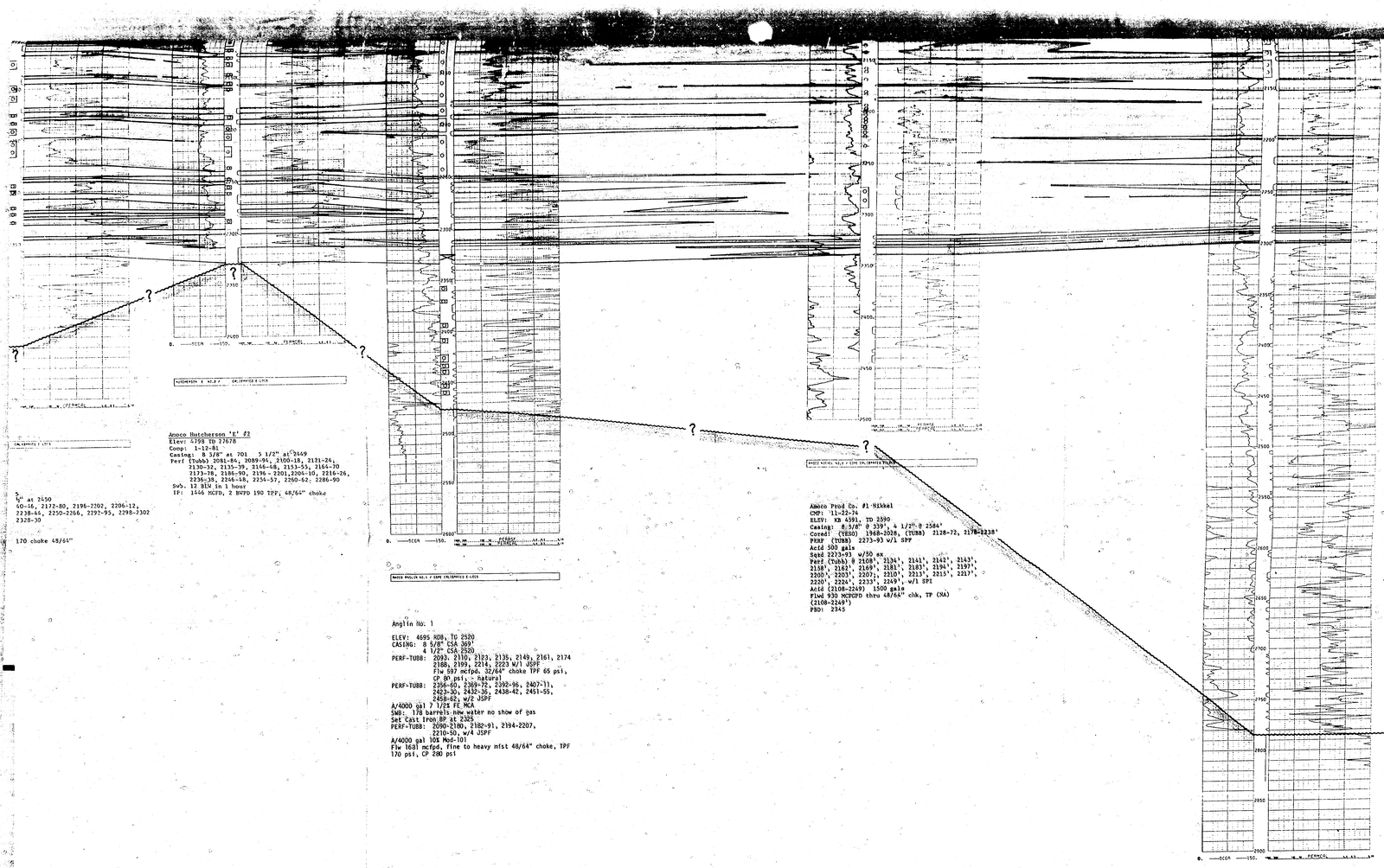
SCGR

PERMSF

VPERMS

PERMCAL

BEST AVAILABLE COPY


SCGR
150.
2500
2600
2700
2800
2900
3000
3100
3200
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3600
3700
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3900
4000
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5900
6000
6100
6200
6300
6400

AMOCO #1 NIKKEL

API: 30-059-20014

(11)

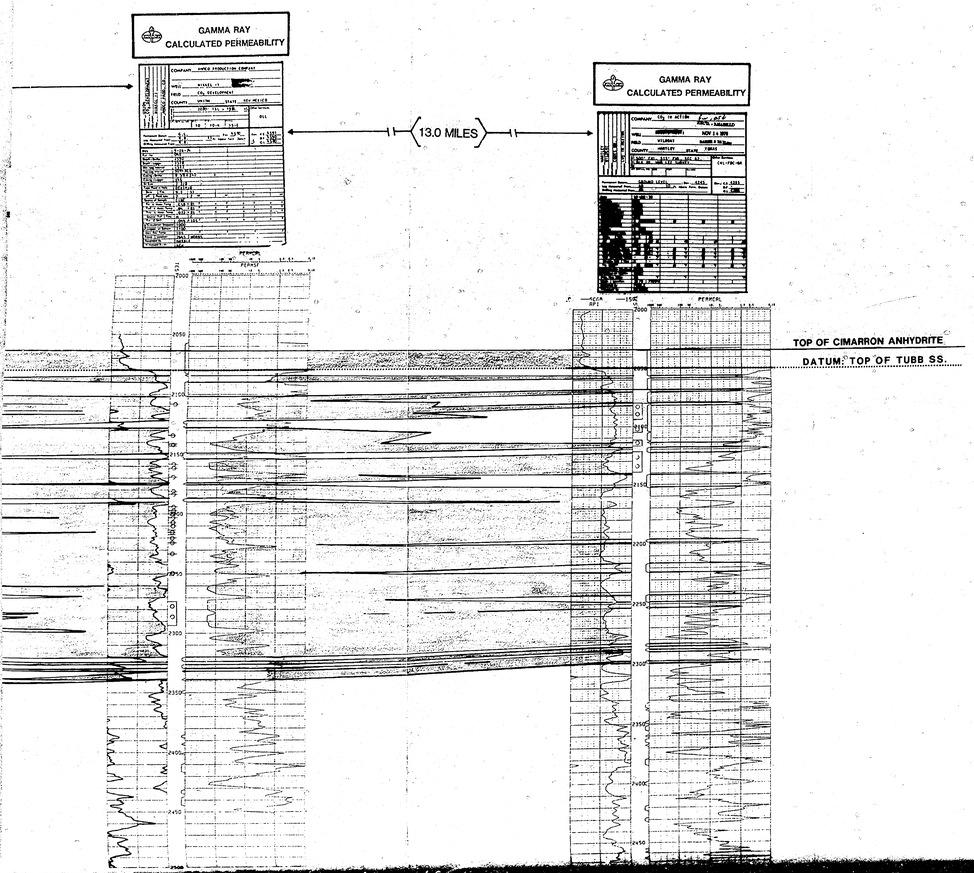
CO2-IN-ACTION #1 COOTS

API: 42-205-00006

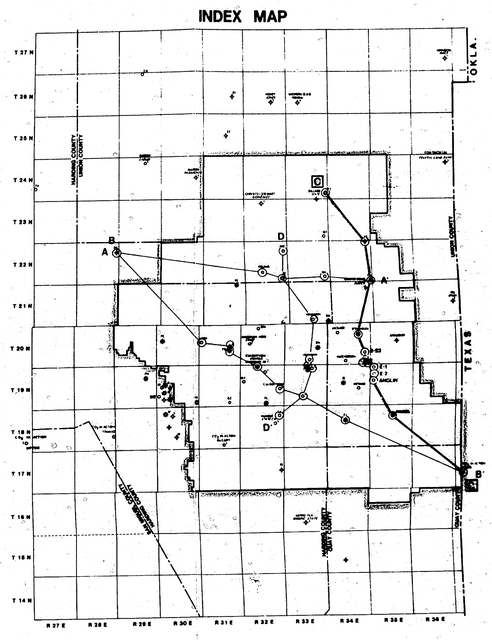
(12)

C′

SOUTH

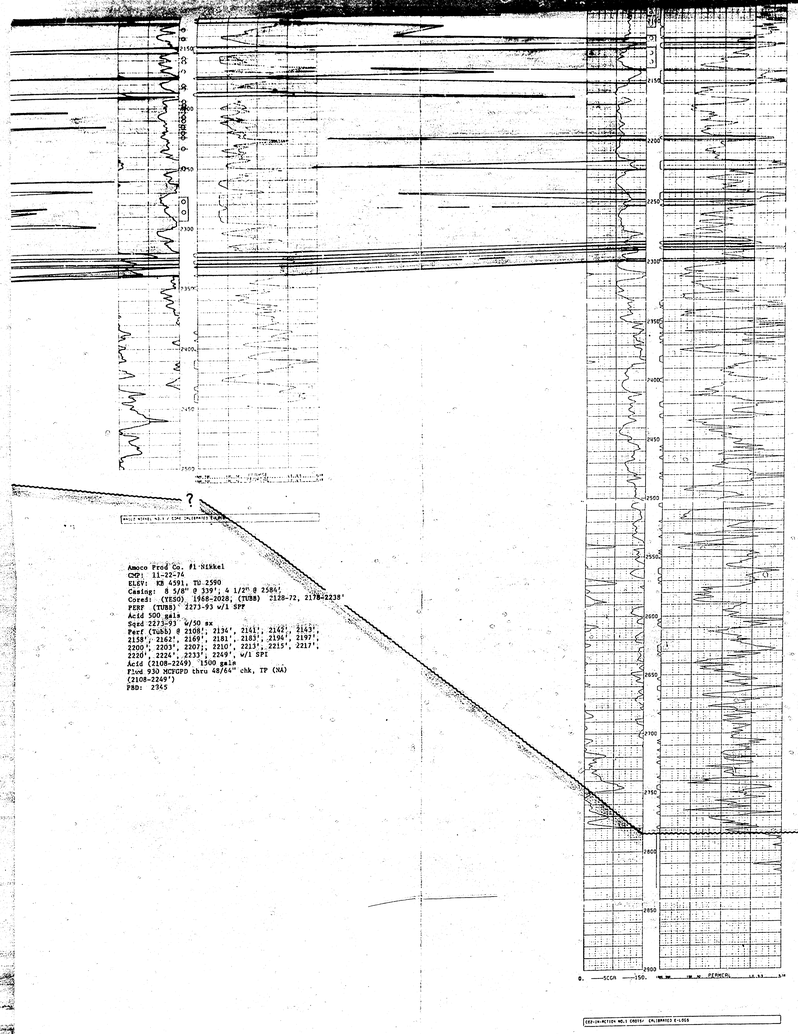


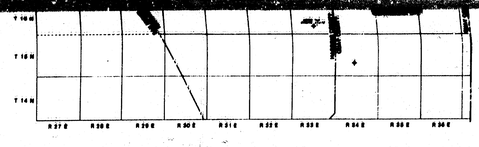
INDEX MAP



KEY

SCGR	———	Gamma Ray
PERMSF	—·—·—	Depth-shifted permeability (90°) data from core analysis
VPERMS	•••••••	Depth-shifted permeability (vertical) data from core analysis
PERMCAL	———	Calculated permeability based on cross plots of smoothed core porosity vs. permeability and smoothed





KEY

SCGR	———	Gamma Ray
PERMSF	–•–•–	Depth-shifted permeability (90°) data from core analysis
VPERMS	•••••••	Depth-shifted permeability (vertical) data from core analysis
PERMCAL	———	Calculated permeability based on cross plots of smoothed core porosity vs. permeability and smoothed core porosity vs. density porosity

Permeabilities > 1 md

Permeabilities < 1 md

Perforations

Bridge Plug

Amoco Production Company

BRAVO DOME CO_2 GAS UNIT

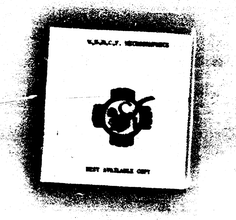
Temporary Pool Rules Hearing

Gamma Ray – Permeability
Cross Section **C C'**

Horizontal Scale: 1" = 1 mile
Vertical Scale: 2.5" = 100'

EXHIBIT NO. ____ DATE ____
GEOL. Bruce L May

BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Case No. 778 Exhibit No. 11
Submitted by Amoco
Hearing Date 3/15/81



D

NORTH

AMOCO #1 STATE HM

API: 30-059-20032

①

AMOCO #1 STATE FF

API: 30-059-20017

②

AMOCO # 3 HEIMANN

API: 30-021-20057

③

AMOCO #4 HEIMANN

API: 30-021-20046

④

AMOCO #

API: 30-0

⑤

4.0 MILES

7.3 MILES

5.6 MILES

1.0 MILE

GAMMA RAY
CALCULATED PERMEABILITY

TOP OF CIMARRON ANHYDRITE

DATUM: TOP OF TUBB SS.

Amoco #1 State FF
CMP: 7-16-74
ELEV: RDB 4968 RD 2444
CASING: 8 5/8 @ 245;
5 1/2 @ 2444
PERF: 2152-59, 2177-80, 2196-98, -206-13,
2224-28, 2232-40, 2245-53, 2272-76,
2280-85, 2302-2306, 2325-16, 2318-22,
2325-26, 2334-38, 2360-64, 2372-76,
2384-88 (9-23-74)
A/(2152-2380) 2000 gals 7 1/2% MCA in two steps
SWB: (2302-08) dry
A/(2272-2388) 1000 7 1/2% MCA
F (2272-2388) 21 mcfgpd FTP 5#
CIBP @ 2293
F/19000 gals gelled water, 18750# 8-12 SN
IP: 732 mcfgpd FTP 50 48/64" choak
COMP. INT: 2152-2285
PLUGBACK DEPTH: 2285

Heimann No. 3

ELEV: 5077 RDB, TD 3775
CASING: 8 5/8" CSA 370'
4 1/2" CSA 2771
PERF-TUBB: 2615-25, 2639-48, 2651-64, 2672-81
2686-94, 2695-98, 2704-08 w/2 JSPF
A/3000 gal 10% MOD-101
Flw 1367 mcfpd, 48/64" choke TPF 160 psi, CP-260 psi

Heimann No. 4

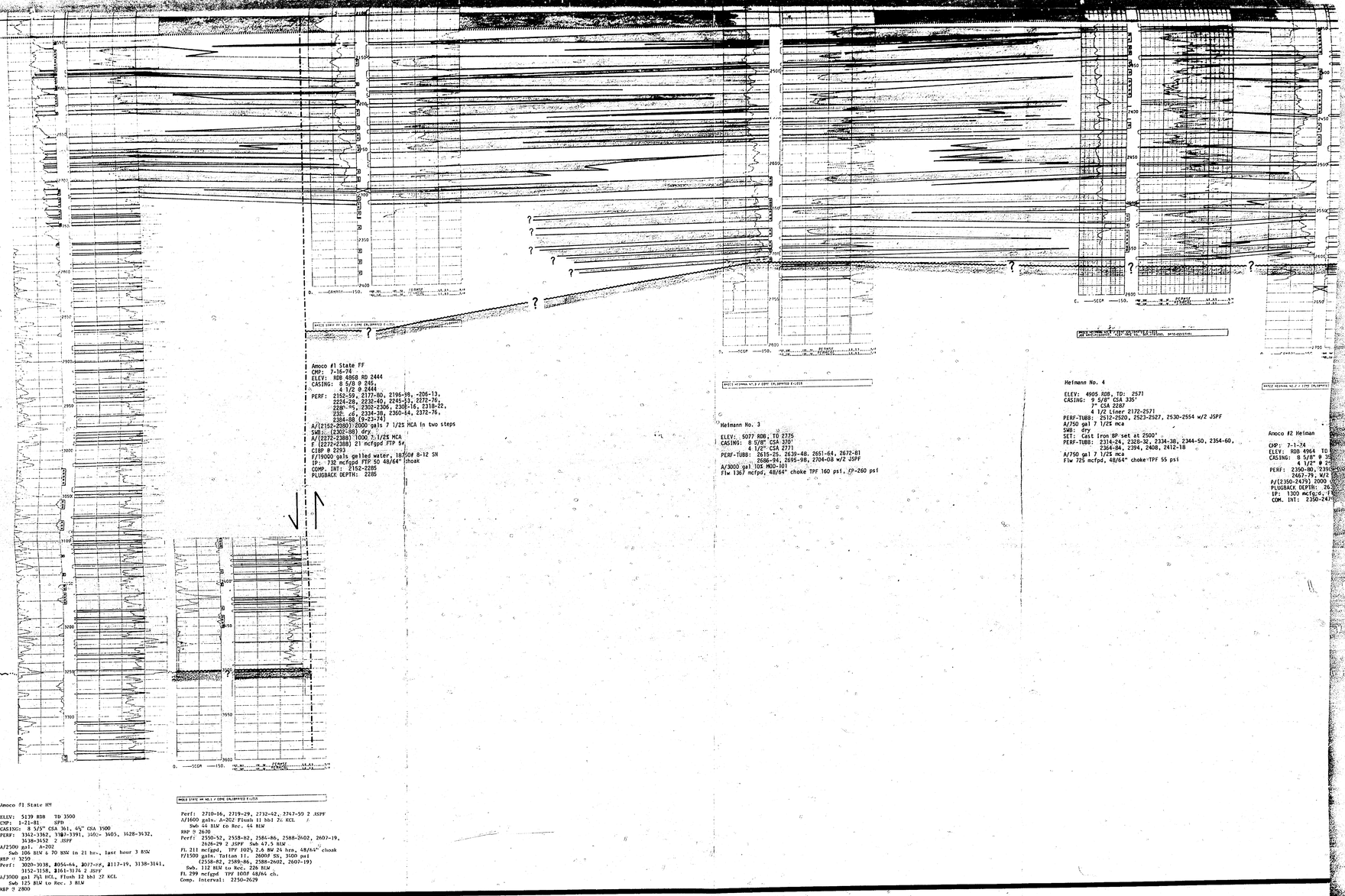
ELEV: 4905 RDB, TD: 2571
CASING: 9 5/8" CSA 335'
7" CSA 2287
4 1/2 Liner 2122-2571
PERF-TUBB: 2512-2520, 2523-2527, 2530-2554 w/2 JSPF
A/750 gal 7 1/2% mca
SWB: dry
SET: Cast Iron BP set at 2500'
PERF-TUBB: 2314-24, 2328-32, 2334-38, 2344-50, 2354-60,
2364-84, 2394, 2408, 2412-18
A/750 gal 7 7 1/2% mca
Flw 725 mcfpd, 48/64" choke TPF 55 psi

Amoco #2 Heiman
CMP: 7-1-74
ELEV: RDB 4964 TD
CASING: 8 5/8" 9 3
5 1/2" @ 2
PERF: 2300-80, 23
2467-79, W/2
A/(2350-2479) 2000
PLUGBACK DEPTH: 23
IP: 1300 mcfg, 4
COM. INT: 2350-24

BEST AVAILABLE COPY

TOP OF CIMARRON ANHYDRITE

DATUM: TOP OF TUBB SS.



TOP OF BASEMENT

Amoco #1 State FF
CMP: 7-16-74
ELEV: RDB 4868 RD 2444
CASING: 8 5/8 @ 245,
4 1/2 @ 2444
PERF: 2152-59, 2177-80, 2196-98, -206-13, 2254-28, 2232-40, 2245-53, 2272-76, 2288-95, 2302-2306, 2308-16, 2318-22, 2321 cd, 2334-38, 2360-64, 2372-76, 2384-88 (9-23-74)
A/(2152-2380) 2000 gals 7 1/2% MCA in two steps
SWB in (2302-98) dry
A/(2272-2388) 1000 7.1/2% MCA
F (2272-2388) 21 mcfgpd FTP 5#,
CIBP @ 2293
F/19000 gals gelled water, 18750# 8-12 SN
IP: 732 mcfgpd FTP 50 48/64" choak
COMP. INT: 2152-2285
PLUGBACK DEPTH: 2285

Helmann No. 3

ELEV: 5077 RDB, TD 2775
CASING: 8 5/8" CSA 370'
4 1/2" CSA 2771
PERF-TUBB: 2615-25, 2639-48, 2651-64, 2672-81
2686-94, 2695-98, 2704-08 w/2 JSPF
A/3000 gal 10% MOD-101
Flw 1367 mcfpd, 48/64" choke TPF 160 psi, FP-260 psi

Helmann No. 4

ELEV: 4905 RDB, TD: 2571
CASING: 9 5/8" CSA 335'
7" CSA 2287
4 1/2 Liner 2172-2571
PERF-TUBB: 2512-2520, 2523-2527, 2530-2554 w/2 JSPF
A/750 gal 7 1/2% mca
SWB: dry
SET: Cast iron BP set at 2500'
PERF-TUBB: 2314-24, 2328-32, 2334-38, 2344-50, 2354-60, 2364-84, 2394, 2408, 2412-18
A/750 gal 7 1/2% mca
Flw 725 mcfpd, 48/64" choke TPF 55 psi

Amoco #2 Helman

CMP: 7-1-74
ELEV: RDB 4964 TD
CASING: 8 5/8" @ 35
4 1/2" @ 25
PERF: 2350-80, 2390-
2467-79, W/2 J
A/(2350-2479) 2000
PLUGBACK DEPTH: 26
IP: 1300 mcfg;o; f
COM. INT: 2350-247

Amoco #1 State HM

ELEV: 5139 RDB TD 3500
CMP: 1-21-81 SPD
CASING: 8 5/8" CSA 361, 4½" CSA 3500
PERF: 3362-3382, 3387-3391, 3402- 3405, 3428-3432, 3438-3452 2 JSPF
A/2500 gal. A-202
Swb 106 BLW & 70 BSW in 21 hrs., last hour 3 BSW
RBP @ 3250
Perf: 3020-3038, 3054-64, 3077-79, 3117-19, 3138-3141, 3152-3158, 3161-3174 2 JSPF
A/3000 gal 7½% HCL, Flush 12 bbl 2% KCL
Swb 125 BLW to Rec. 3 BLW
RBP @ 2800

Perf: 2710-16, 2719-29, 2732-42, 2747-50 2 JSPF
A/1600 gals. A-202 Flush 11 bbl 2% KCL
Swb 44 BLW to Rec. 44 BLW
RBP @ 2620
Perf: 2550-52, 2558-82, 2584-86, 2588-2602, 2607-19, 2626-29 2 JSPF Swb 47.5 BLW
Fl 211 mcfgpd, TPF 1025 2.6 BW 24 hrs, 48/64" choak
F/1500 gals. Tatlon II, 2600# SD, 3500 psi (2558-82, 2589-86, 2588-2602, 2607-19)
Swb. 112 BLW to Rec. 226 BLW
Fl 299 mcfgpd TPF 1000# 48/64 ch.
Comp. Interval: 2250-2629

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AMOCO #4 HEIMANN

API: 30-021-20046

AMOCO #2 HEIMANN

API: 30-021-60019

AMOCO #5 HEIMANN

API: 30-021-20047

AMOCO #6 HEIMANN

API: 30-021-20053

AMOCO #1 STATE GX

API: 30-021-20050

D'

SOUTH

④ ⑤ ⑥ ⑦ ⑧

1.0 MILE

937 FEET

4.25 MILES

4.0 MILES

GAMMA RAY CALCULATED PERMEABILITY

GAMMA RAY CALCULATED FERMEABILITY

TOP OF CIMARRON ANHYDRITE

DATUM: TOP OF TUBB SS.

TOP OF BASEMENT

Heimann No. 4

ELEV: 4905 RDB, TD: 2571
CASING: 9 5/8" CSA 335'
7" CSA 2287
4 1/2 Liner 2172-2571
PERF-TUBB: 2512-2520, 2523-2527, 2530-2554 w/2 JSPF
A/750 gal 7 1/2% mca
SWB: dry
SET: Cast iron BP set at 2500'
PERF-TUBB: 2314-24, 2328-32, 2334-38, 2344-50, 2354-60, 2364-84, 2394, 2408, 2412-18
A/750 gal 7 1/2% mca
Flw 725 mcfpd, 48/64" choke TPF 55 psi

Amoco #2 Heiman

CMP: 7-1-74
ELEV: RDB 4964 TD 2660
CASING: 8 5/8" @ 358
4 1/2" @ 2635
PERF: 2350-80, 2396-2407, 2419-44, 2455-64, 2467-79, W/2 JSPF (7-26-76)
A/(2350-2479) 2000 gals 7 1/2% MCA in 3 stages
PLUGBACK DEPTH: 2635
IP: 1380 mcfpd, 0 BW, 11psi, 48/64" choke

Heimann No. 5

ELEV: 4969 RDB, TD: 2649
CASING: 8 5/8" CSA 324
4 1/2" CSA 2644

PERF-TUBB: 2362-66, 2372-76, 2380-86, 2389-93, 2396-2404, 2416-36, 2456-76

A/1400 gal 7 1/2% HCA
Flw 600 mcfpd, 22/64" choke TPF 186 psi

Heimann No. 6

Elev: 4847 RDB, TD 2702
Casing: 8 5/8" CSA 368
4 1/2" CSA 2768
Perf-Tubb: 2605-15, 2626-32, 2638-40 w/2 JSPF
A/1000 gal 10% Mod-101
Flw: 2985 MCF-GPD, 48/64" choke, TPF 120 psi, CP 240 psi

State GX No. 1

ELEV: 4733 RDB, TD 2720
CASING: 8 5/8" CSA 372

INDE

K

SCGR — Gamma

PERMSF — Depth-s data fro

VPERMS ····· Depth-s (vertical

PERMCAL — Calculate cross pk porosity core por

Permea

Permea

Perfor

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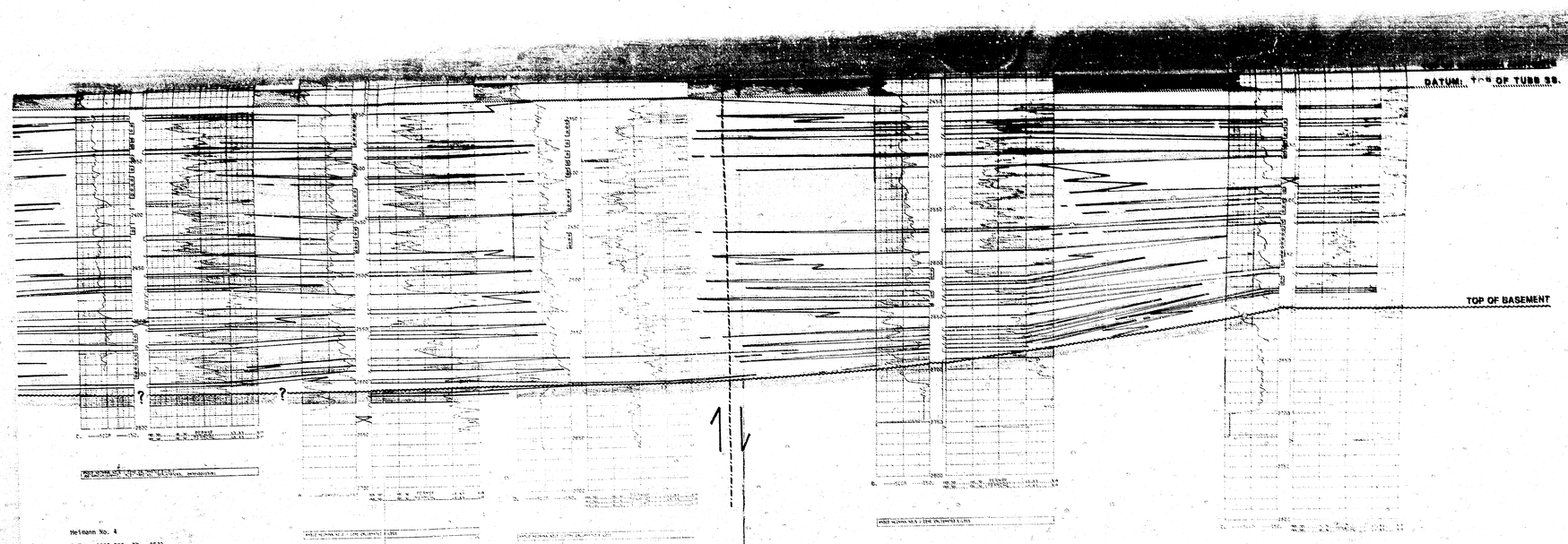
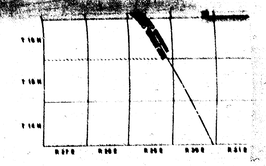
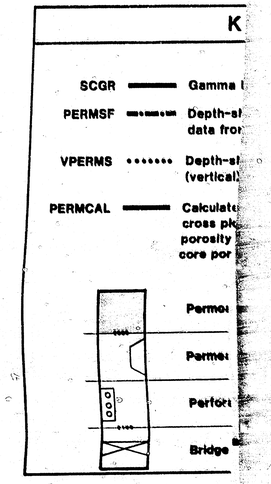






Heimann No. 4

ELEV: 4905 RDB, TD: 2571
CASING: 8 5/8" CSA 335'
7" CSA 2287
4 1/2 Liner 2172-2571
PERF-TUBB: 2512-2500, 2523-2527, 2530-2554 w/2 JSPF
A/05D gal 7 1/2% mca
SWB: dry
SET: Cast Iron BP set at 2500'
PERF-TUBB: 2314-24, 2328-32, 2334-38, 2344-50, 2354-60, 2364-84, 2394, 2408, 2412-18
A/750 gal 7 1/2% mca
Flw 725 mcfpd, 48/64" choke TPF 55 psi

Amoco #2 Heimah

CMP: 7-1-72
ELEV: RDB 4964 TD 2660'
CASING: 8 5/8" @ 396
4 1/2" @ 2525
PERF: 2350-80, 2396-2407, 2419-44, 2455-64, 2467-79, W/2 JSPF (7-20-76)
A/(2350-2479) 2000 gals 7 1/2% MCA in 3 stages
PLUGBACK DEPTH: 2633
IP: 1300 mcfg/d, FTP 110#, 48/64" choke
COM. INT: 2350-2479

Heimann No. 5

ELEV: 4869 RDB, TD: 2649
CASING: 8 5/8" CSA 324
4 1/2", CSA 2644

PERF-TUBB: 2382-86, 2392-96, 2398-98, 2389-93, 2396-2401, 2416-36, 2456-70
AF1420 gal 7 1/2% MCA
Flw 600 mcfpd, 32/64" choke TPF 184 psi

Heimann No. 6

Elev: 4847 RDB, TD 2762
Casing: 8 5/8" CSA 368
4 1/2" CSA 2760
Perf-tubb: 2605-15, 2626-32, 2638-48 w/2 JSPF
A/1000 gal 10% Mod-101
Flw: 2985 MCFGPD, 48/64" choke, TPF 120 psi, CP 240 psi

State GX No. 1

ELEV: 4833 RDB, TD 2720
CASING: 8 5/8" CSA 333
4 1/2" CSA
PERF-TUBB: 2458-94, 2489-2513, 2518-22, 2524-62, 2570-78
4/2 JSPF
A/8000 gal 10% Mod-101
SWB: 9 hrs recovered 21 BW w/slight show gas-93 barrels new water recovered
SET: CIBP at 2480
PERF-TUBB: 2426-32, 2434-44, 2446-54, 2456-62
A/1000 gal 10% Mod-101
FLW: 348 mcfpd wet gas, 48/64" choke, TPF 15 psi, CP 40 psi

U.S.G.S. RECORDS
BEST AVAILABLE COPY

AMOCO #6 HEIMANN

API: 30-021-20053

AMOCO #1 STATE GX

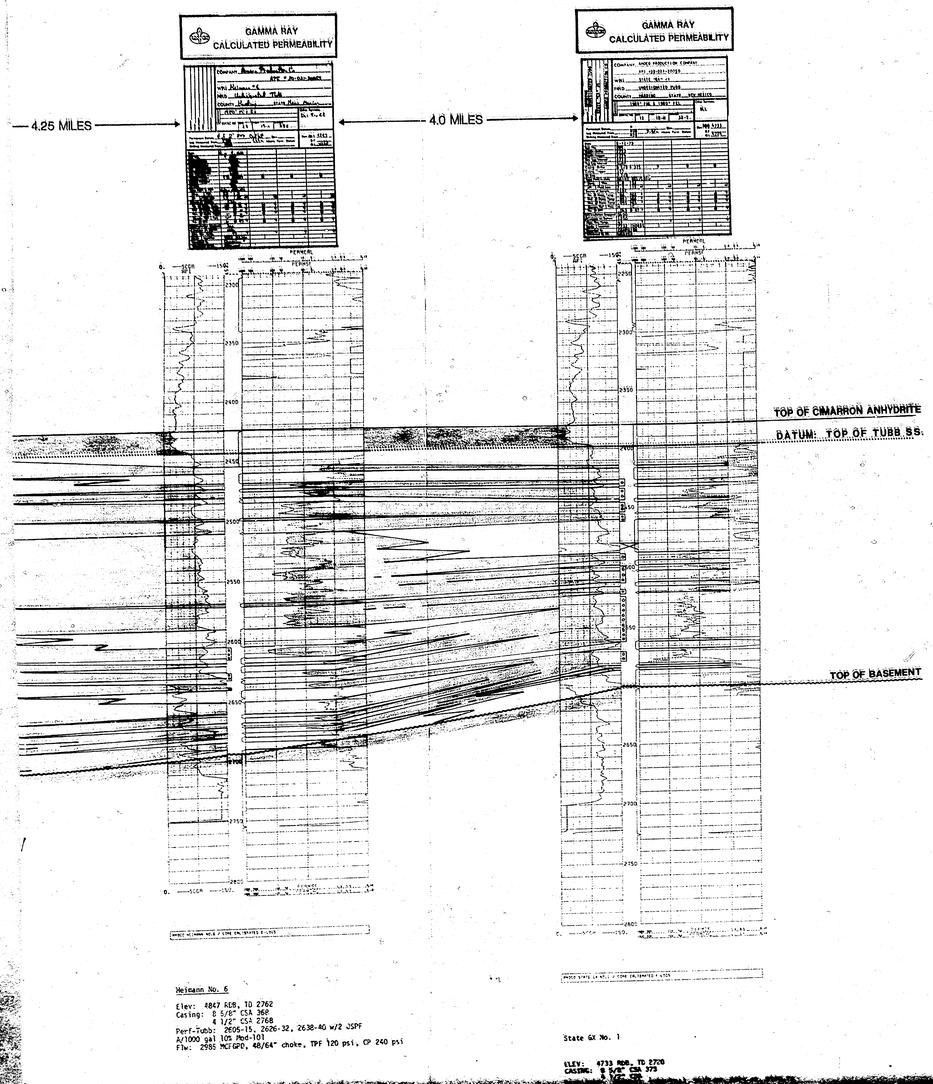
API: 30-021-20050

D'

SOUTH

⑦ ⑧

4.25 MILES — 4.0 MILES



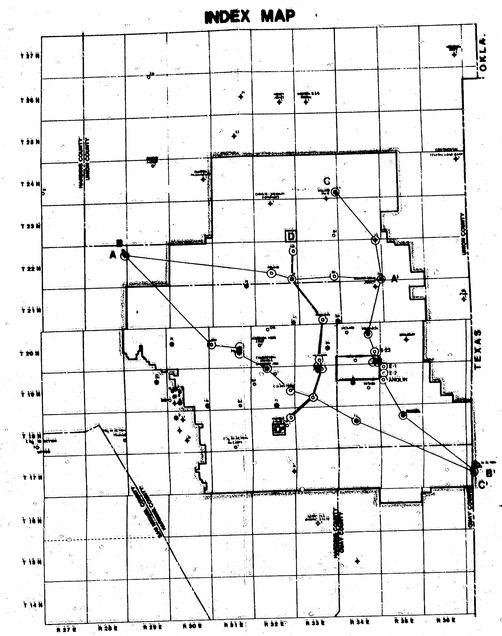
Heimann No. 6

Elev: 4867 KEB, TD 2762
Casing: 8 5/8" CSA 368
4 1/2" CSA 2768
Perf-Tubb: 2605-15, 2626-32, 2638-40 w/2 JSPF
A/1000 gal 105 Mod-101
Flw: 2985 MCFGPD, 48/64" choke, TPF 120 psi, CP 240 psi

State GX No. 1

ELEV: 4733 KBR, TD 2720
CASING: 8 5/8" CSA 373
5 1/2" CSA

INDEX MAP



KEY

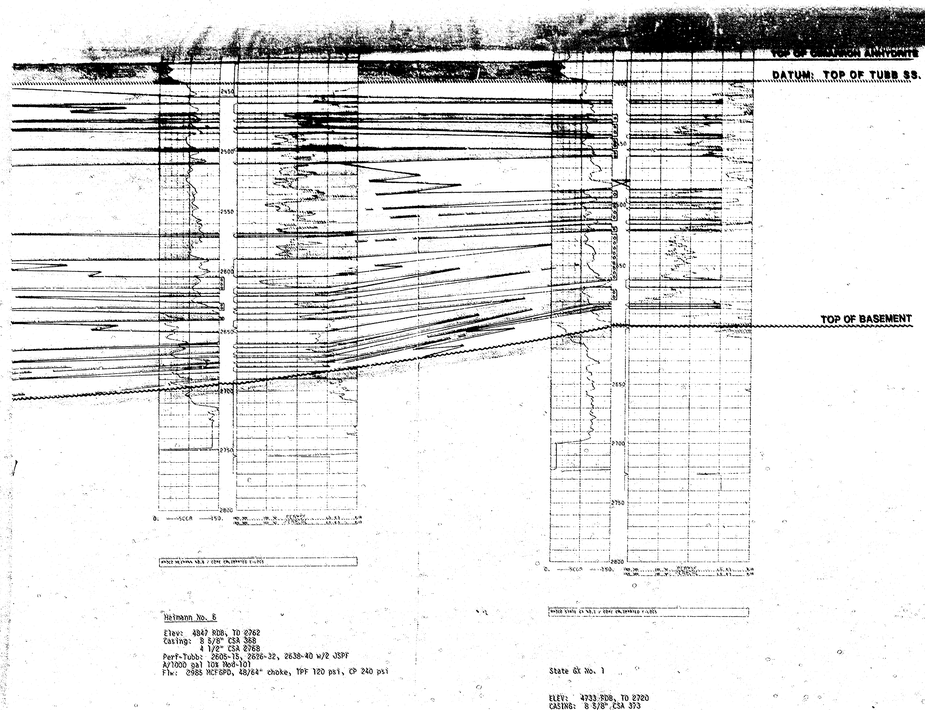
SCGR	———	Gamma Ray
PERMSF	—•—•—	Depth-shifted permeability (90°) data from core analysis
VPERMS	•••••••	Depth-shifted permeability (vertical) data from core analysis
PERMCAL	———	Calculated permeability based on cross plots of smoothed core porosity vs. permeability and smoothed core porosity vs. density porosity

Permeabilities > 1 md

Permeabilities < 1 md

Perforations

U.S.G.S. DEPOSITORY
BEST AVAILABLE COPY

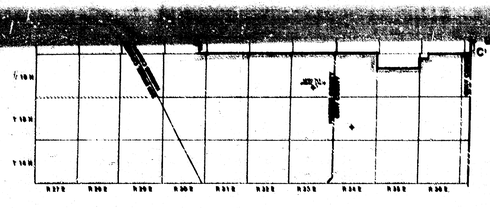


Hahmann No. 8

Elev: 4847 RDB, TD 0762
Casing: 8 5/8" CSA 368
4 1/2" CSA 0768
Perf-Tubb: 2605-15, 2626-32, 2638-40 w/2 JSPF
A/1000 gal 10% Mod-101
Flw: 0985 MCFGPD, 48/64" choke, TPF 120 psi, CP 240 psi

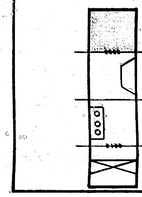
State 6X No. 1

ELEV: 4733 RDB, TD 0720
CASING: 8 5/8" CSA 373
4 1/2" CSA
PERF-TUBB: 2489-94, 2499-2513, 2518-22, 2524-62, 2570-78
W/2 JSPF
A/2000 gal 10% Mod-101
SWB: 9 hrs recovered 21 BWW w/slight show gas-99 barrels
new water recovered
SET: CIBP at 2480
PERF-TUBB: 2426-32, 2434-44, 2446-54, 2456-62
A/1000 gal 10% Mod-101
FLW: 349 mcfpd wet gas, 48/64" choke, TPF 15 psi, CP 40 psi



KEY

SCGR	———	Gamma Ray
PERMSF	– – –	Depth-shifted permeability (90°) data from core analysis
VPERMS	•••••••	Depth-shifted permeability (vertical) data from core analysis
PERMCAL	———	Calculated permeability based on cross plots of smoothed core porosity vs. permeability and smoothed core porosity vs. density porosity



Permeabilities > 1 md

Permeabilities < 1 md

Perforations

Bridge Plug

Amoco Production Company

BRAVO DOME CO_2 GAS UNIT

Temporary Pool Rules Hearing

Gamma Ray – Permeability
Cross Section **D D'**

Horizontal Scale: 1"= 1 mile
Vertical Scale: 2.5" = 100'

EXHIBIT NO. ____ DATE ____
GEOL. Bruce L May

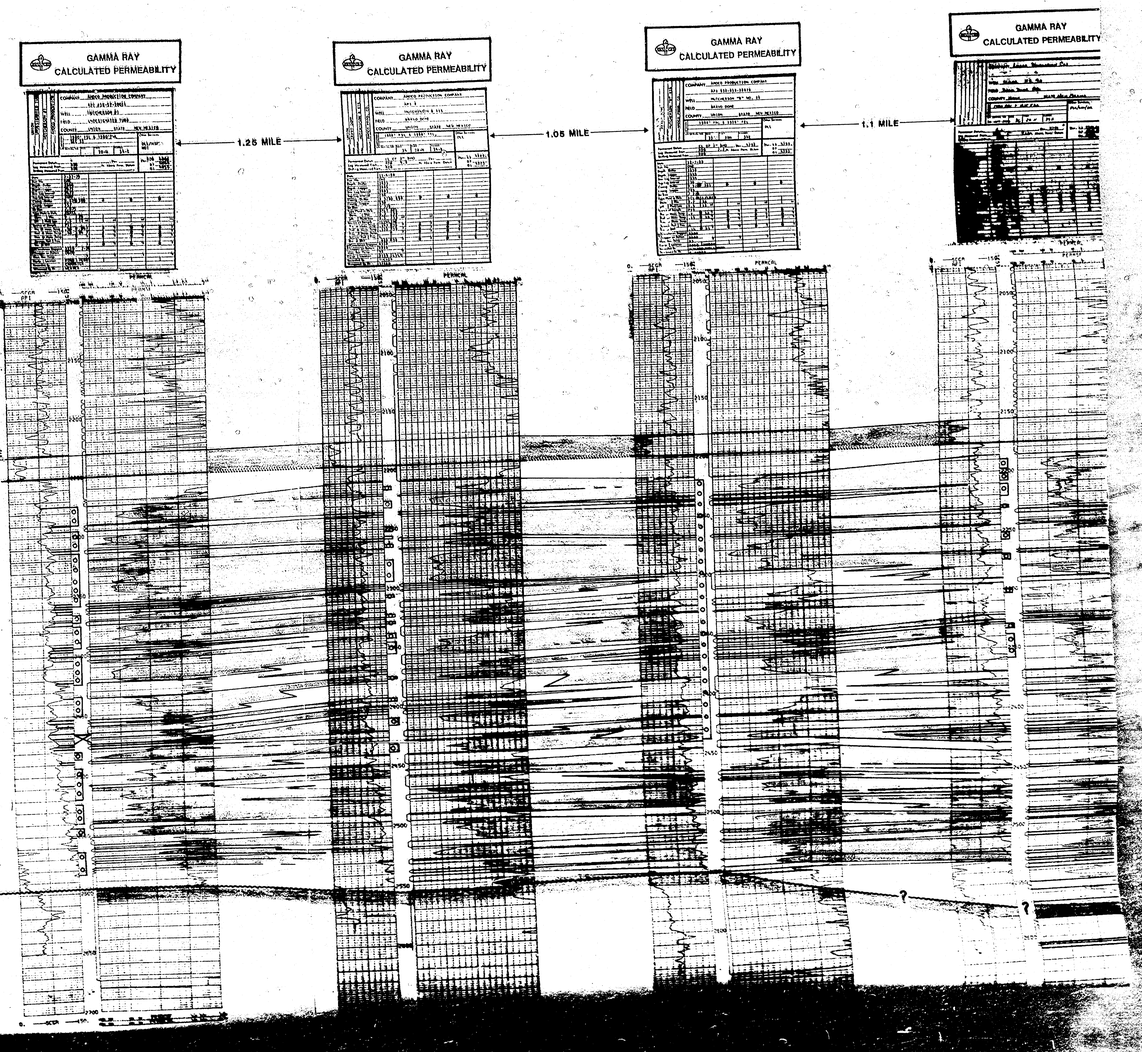
BEFORE THE
OIL CONSERVATION COMMISSION
SANTA FE, NEW MEXICO
Case No. 7159 Exhibit No. 12
Submitted by: Amoco
Hearing Date: 3/15/81

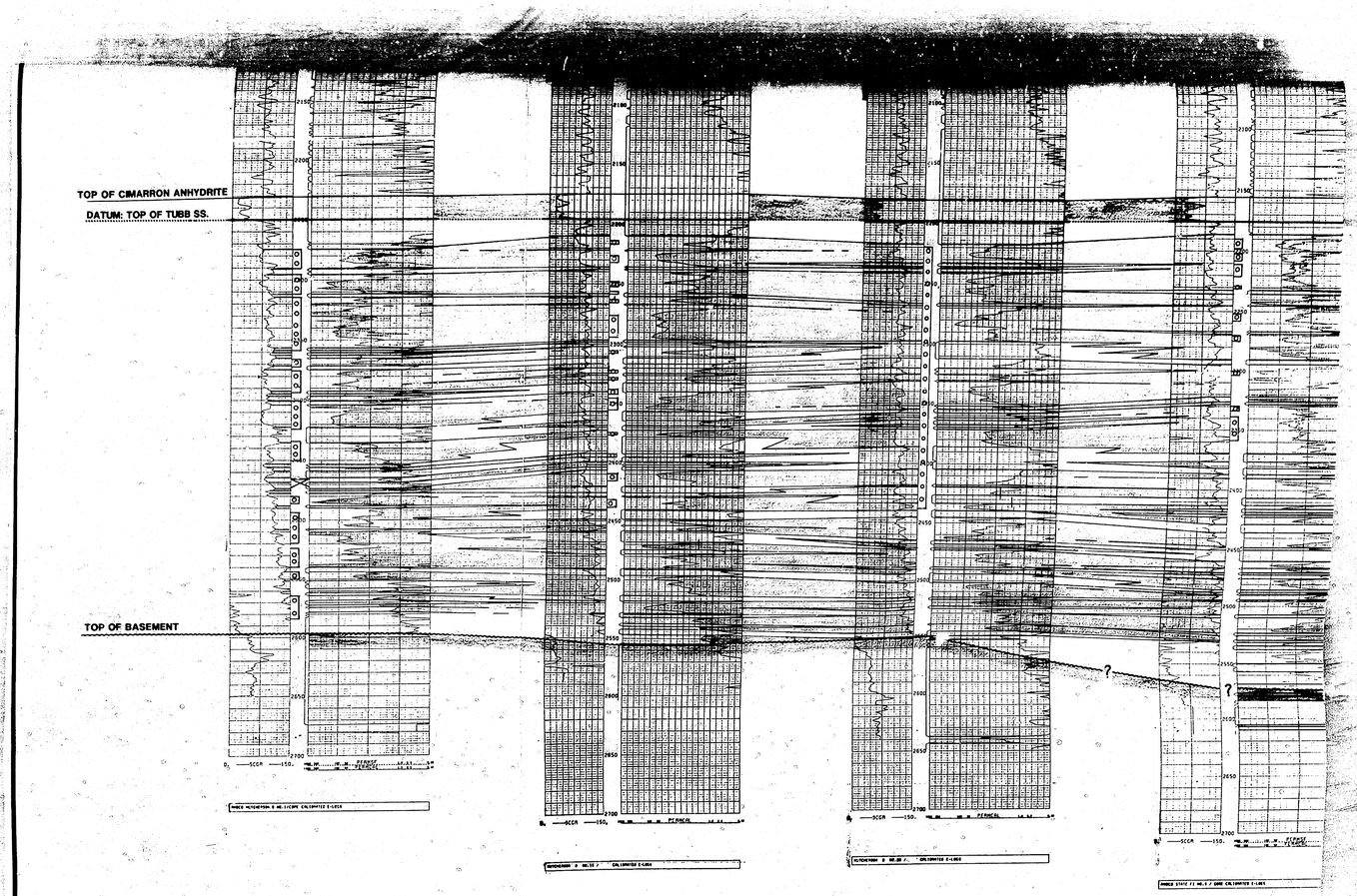
U.S.G.S. RECORDS
BEST AVAILABLE COPY

E

WEST

AMOCO	AMOCO	AMOCO	AMOCO
HUTCHERSON 'B'#1	HUTCHERSON 'B'#15	HUTCHERSON 'B'#26	STATE FI# 3
API: 30-059-20031	API: 30-059-20053	API: 30-059-20070	API: 30-059-200
ELEV 4865' KB	ELEV 4810' KB	ELEV 4800' KB	ELEV 4750' KB
1	2	3	4





Hutcherson No. 1

ELEV: 4865 RDB, TD: 2670
CASING: 8 5/8" CSA 360
4 1/2" CSA 2670
PERF-TUBB: 2480-86, 2494-2520, 2524-40, 2544-50, 2564-80 w/2 JSPF

A/3000 gal Mod-101
Flw 781 mcfpd, 48/64" choke, TPF 72 psi, CP 174 psi
SET: Retreival BP at 2465
PERF-TUBB: 2274-90, 2295-2312, 2314-58, 2366-72, 2375-93, 2400-2424, 2434-2450 w/4 JSPF
A/4000 gal 10% Mod-101
FLW: 848 mcfpd wet gas, 48/64" choke, TPF 100 psi, CP 190 psi

Amoco Hutcherson 'B' 15
Elev: 4810 RDB TD 2606
Casing: 8 5/8" at 700, 5½" at 2581
Perf (Tubb) 2216-18, 2226-32, 2248-52, 2256-58, 2263-65, 2276-94, 2306-08, 2322-24, 2328-30, 2345-55, 2375-77, 2393-95, 2410-18, 2430-38
A/83 bbl 7½% HCl
IP: 1300 MCFGPD, TPF 185, 48/64" choke

Amoco Hutcherson 'B' #26
Elev: 4800 RDB, TD 2645
Comp: 12-12-81
Casing: 8 5/8" at 701', 5½" at 2647
Perf (Tubb) 2220-2438, 1 SPF

IP: 1340 MCFD, 8 BWPD, 150 TPF 48/64" choke

State EE No. 3

ELEV: 4749 RDB, TD: 2600
CASING: 8 6/8" CSA 322
4 1/2" CSA 2600
PERF-TUBB: 2190-98, 2202-08, 2211-21, 2
2271-75, 2300-2304, 2330-3
A/1300 gal 7 1/2% MCA
Well flowed COF - Rate not available
Shut - In for Interference test

U.S.G.S. RECONNAISSANCE
BEST AVAILABLE COPY

MOCO	AMOCO	AMOCO	AMOCO
RSON 'B'#26	STATE FI# 3	STATE FI#2	HUTCHERSON 'E'#1
-059-20070	API: 30-059-20026	API: 30-059-99800	API: 30-059-20064
4800' KB	ELEV 4750' KB	ELEV 4750' KB	ELEV 4698' KB
3	4	5	6

1.1 MILE

937 FEET

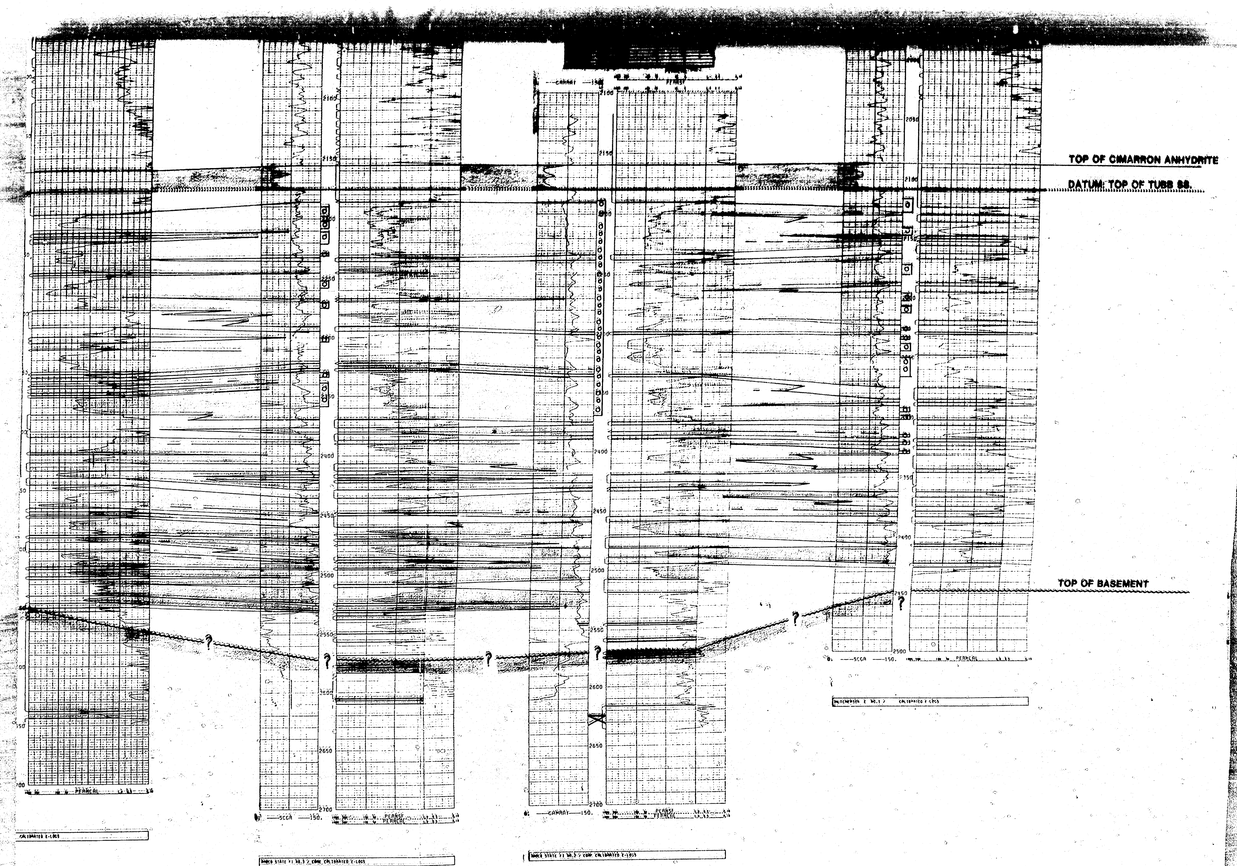
1 MILE

TOP OF CIMARRON ANHYDRITE

DATUM: TOP OF TUBB SS.

TOP OF BASEMENT

BEST AVAILABLE COPY



'A' #26
TD 2645

at 701', 5½" at 2647
-2438, 1 SPF

.8 BWPD, 150 TPF 48/64" choke

State EE No. 3

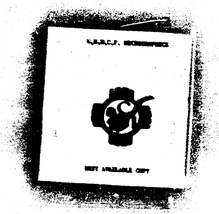
ELEV: 4798 RDB, TD: 2600
CASING: 8 5/8" CSA 322
4 1/2" CSA 2600
PERF-TUBB: 2190-99, 2202-08, 2211-21, 2229-31, 2252-58, 2271-75, 2294, 2300-2304, 2330-34, 2339-59, w/ 2 JSPF

A/1500 gal 7½ HCA
Well Flowed CO2 - Rate not available
Shut - In for Interference test

Amoco #2 State F1

Comp: 10-1-74
ELEV: RDB 4745, TD 2625
CASING: 8 1/8 @ 2600
A/(2198-2408) 500 gals 7 1/2% HCA
SWB: light blow, water coming in
CIBP set at 2377
IP: 2100 mcfgpd FTP 250#, natural
PLUGBACK DEPTH: 2625
COMP. INT: 2198-2369

Amoco Hutcherson 'B' #1
Elev: 4698 RDB, TD 2435
Casing: 8 5/8" @ 301 w/ at 2450
Perf (Tubb) 2126-28, 2140-46, 2172-80, 2196-2202, 2206-12, 2224-26, 2232-34, 2238-46, 2250-2266, 2292-95, 2298-2302 2314-16, 2320-21, 2328-30
A/3350 gal 7½% HCL
Sw. 20 BLW in 4 hours
IP: 1229 MCFGPD TPF 170 choke 48/64"



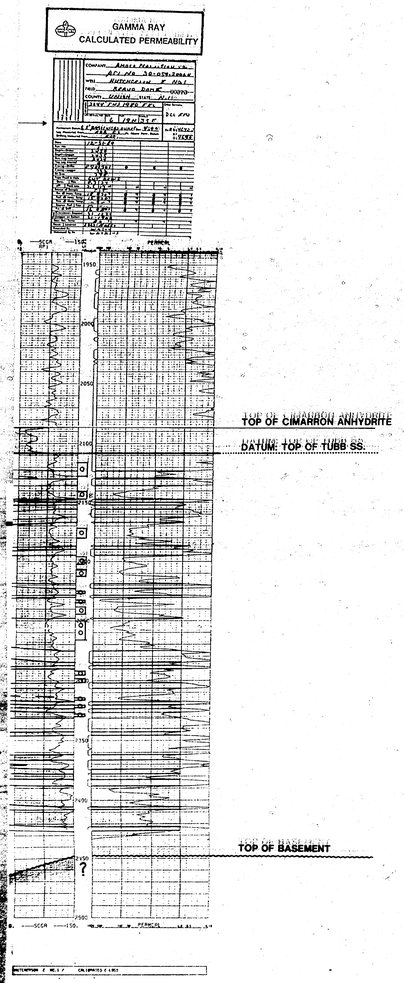
AMOCO

HUTCHERSON 'E'#1

API: 30-059-20064

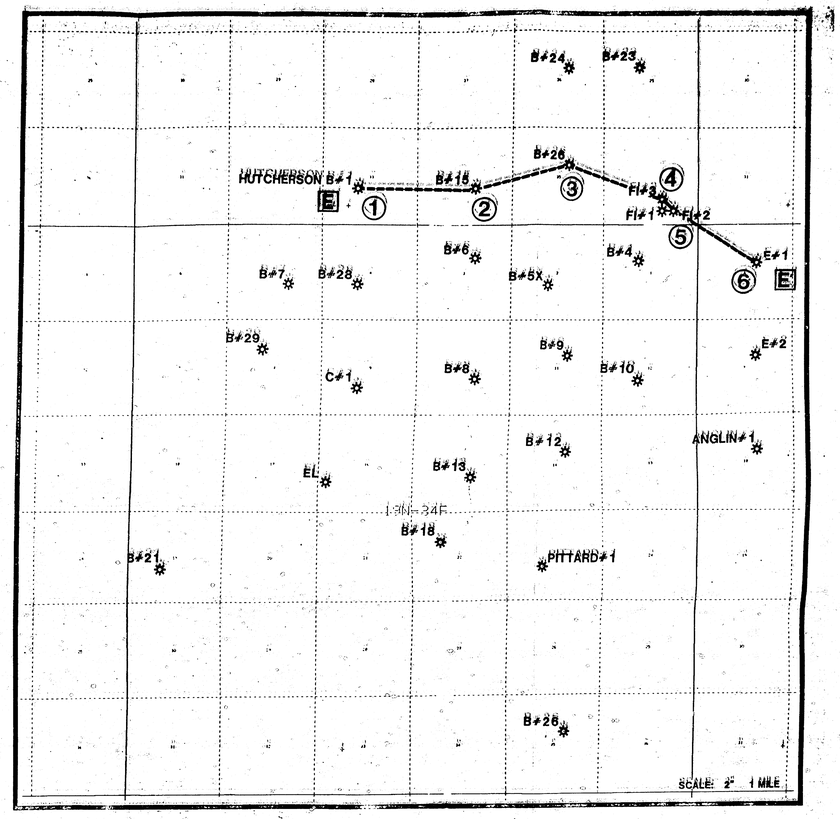
ELEV 4698' KB

(6)



E'

EAST

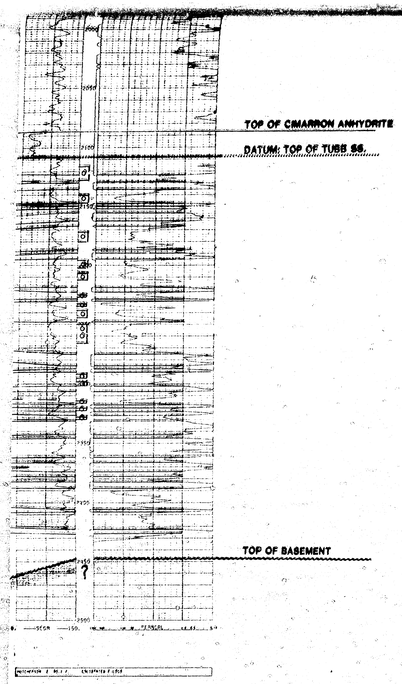


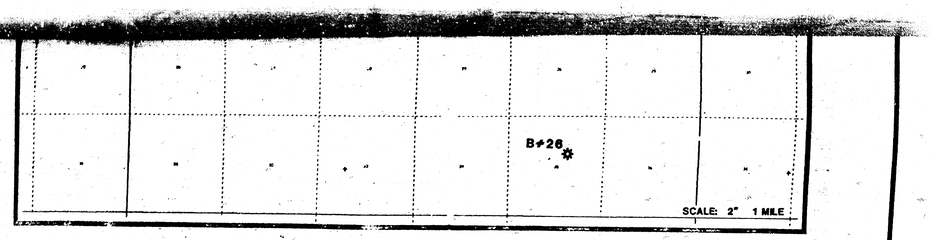
KEY

SCGR	———	Gamma Ray
PERMSF	– – –	Depth-shifted permeability (90°) data from core analysis
VPERMS	.....	Depth-shifted permeability (vertical) data from core analysis
PERMCAL	———	Calculated permeability based on cross plots of smoothed core porosity vs. permeability and smoothed core porosity vs. density porosity

Permeabilities >1 md

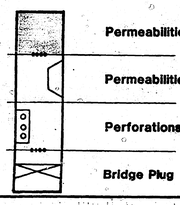
Permeabilities <1 md





KEY

SCGR	———	Gamma Ray
PERMSF	—•—•—	Depth-shifted permeability (90°) data from core analysis
VPERMS	•••••••	Depth-shifted permeability (vertical) data from core analysis
PERMCAL	———	Calculated permeability based on cross plots of smoothed core porosity vs. permeability and smoothed core porosity vs. density porosity



Permeabilities > 1 md

Permeabilities < 1 md

Perforations

Bridge Plug

Amoco Hutcherson 'B' #1
Elev: 4598 KDB, TD 2635
Casing: 8 5/8" @ 701 3½" at 2650
Perf (Tubb) 2126-28, 2140-46, 2172-80, 2196-2202, 2206-12, 2224-26, 2232-34, 2238-44, 2250-2266, 2292-95, 2298-2302 2314-16, 2320-22, 2328-30
A/3350 gal 7½% HCL
Sv. 20 BLW in 4 hours
IP: 1229 MCFGPD TPF 170 choke 48/64"

Amoco Production Company

BRAVO DOME CO_2 GAS UNIT

Temporary Pool Rules Hearing

Gamma Ray – Permeability

Cross Section **E-E**

Horizontal Scale: 1"= 1 mile

Vertical Scale: 2.5" = 100'

EXHIBIT NO. ____ DATE ____

GEOL. Bruce L May

BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Case No. 7158 Exhibit No. 13
Submitted by Amoco
Hearing Date 3/18/81

F

WEST

AMOCO	AMOCO	AMOCO	AMOCO	AMOCO	AMOCO
HUTCHERSON 'B'#7	HUTCHERSON 'B'#28	HUTCHERSON 'B'#6	HUTCHERSON 'B'#5X	HUTCHERSON 'B'#4	HUTCHERSON 'E'#1
API: 30-059-20050	API: 30-059-20079	API: 30-059-20049	API: 30-059-20074	API: 30-059-20047	API: 30-059-20064
ELEV 4923' KB	ELEV 4894' KB	ELEV 4831' KB	ELEV 4794' KB	ELEV 4794' KB	ELEV 4698' KB
①	②	③	④	⑤	⑥

GAMMA RAY CALCULATED PERMEABILITY

0.8 MILE — 1.25 MILE — 0.7 MILE — 1.2 MILE — 1.25 MILE

TOP CIMARRON ANHYDRITE

DATUM: TOP OF TUBB SS.

TOP OF BASEMENT

Amoco Hutcherson 'B' 7
Elev: 4923 KDB, TD 2650
Comp:
Casing: 8 5/8" at 310', 5½" at 2650
Perf (Tubb) 2298-2302, 2307-22, 2336-38, 2347-49, 2362-72
2376-84, 2420-24, 2438-42, 2458-62
A/4000 gal 7½% HCl
IP: 1395 MCFGPD TPF 185 64/64" choke
Comp. Int: 2298-2462

Amoco Hutcherson 'B' #28
Elev: 4795 KDB TD 2608
Comp:
Casing: 8 5/8" at 714 5½" at 2648
Perf (Tubb) 2280-2300, 2326-30, 2352-70, 2374-82, 2414-35
2452-54, 2468-80, 2497-2500, 2508-17, 2526-33
IP: 1174 MCFD, 180 TPF, 48/64" choke

Amoco Hutcherson 'B' #6
Elev: 4831' KDB, TD 2576
Comp: 11-30-80
Casing: 8 5/8" at 700, 5½" at 2595
Perf (Tubb) 2226-30, 2243-47, 2258-61, 2270-76, 2290-2303,
2313-2325, 2330-41, 2346-51, 2365-75, 2387-90, 2414-16,
2424-35, 2455-66
A/4174 gal 7½% HCl
IP: 1013 MCFGPD, FTP 140, 48/64" choke
Comp. Int: 2226-2466

Amoco Hutcherson 5X
Elev: 4794 KDB, TD 2571
Comp: 11-13-80
Casing: 8 5/8" at 700', 5 1/2" at 2630'
Perf (Tubb) 2198-2209, 2212-29, 2246-62, 2265-92, 2295-2307,
2318-23, 2338-60, 2365-74, 2386-2405, 2407-11, 2480-33
A/(115)-(2960) 153 bbl 7½% HCl in two stages.
IP: 1121 MCFD, FTP 155, 48/64 choke
Comp. Int: 2198-2433

Amoco Hutcherson 'B' 4
Elev: 4794 TD 2601
Comp: 12-10-80
Casing: 8 5/8" at 713, 5½" at 2616
Perf (Tubb) 2172-76, 2178-82, 2192-94, 2226-33, 2244-56, 2258-60,
2264-76, 2282-86, 2304-08, 2320-25, 2346-52, 2368-72
A/4000 gal 7½% HCl
IP: 1216 MCFD, FTP 160, 48/64" choke
Comp. Int: 2172-2372

Amoco Hutcherson 'E' #1
Elev: 4698 KDB, TD 2435
Casing: 8 5/8" @ 701 5½" at 2430
Perf (Tubb) 2126-78, 2140-45, 2172-80, 2196-2202, 2206-12,
2224-26, 2232-34, 2238-44, 2250-2266, 2292-95, 2298-2302
2314-16, 2320-22, 2328-30
A/3350 gal 7½% HCL
Pw. 20 BLW in 4 hours
IP: 1229 MCFGPD TPF 170 choke 48/64"

T AVAILABLE COPY

AMOCO

HUTCHERSON 'E'#1

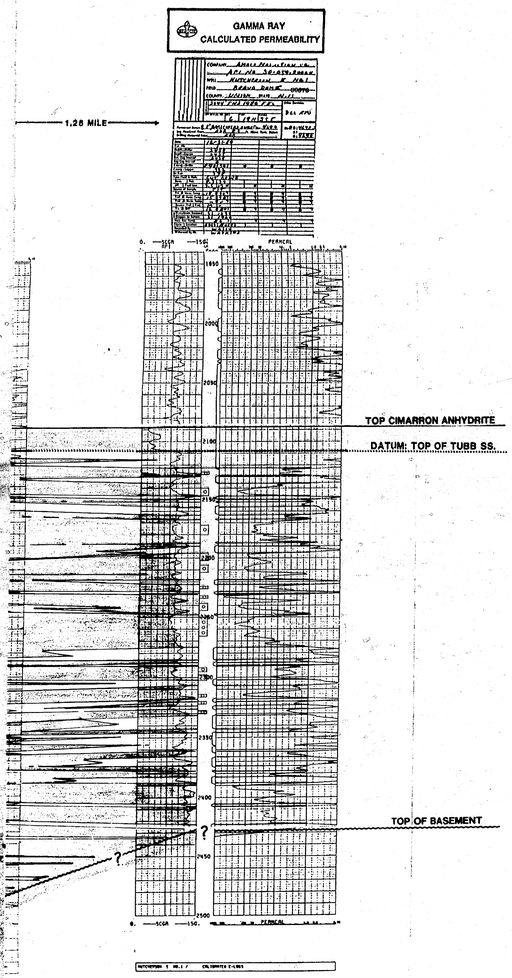
API: 30-059-20064

ELEV 4698' KB

F'

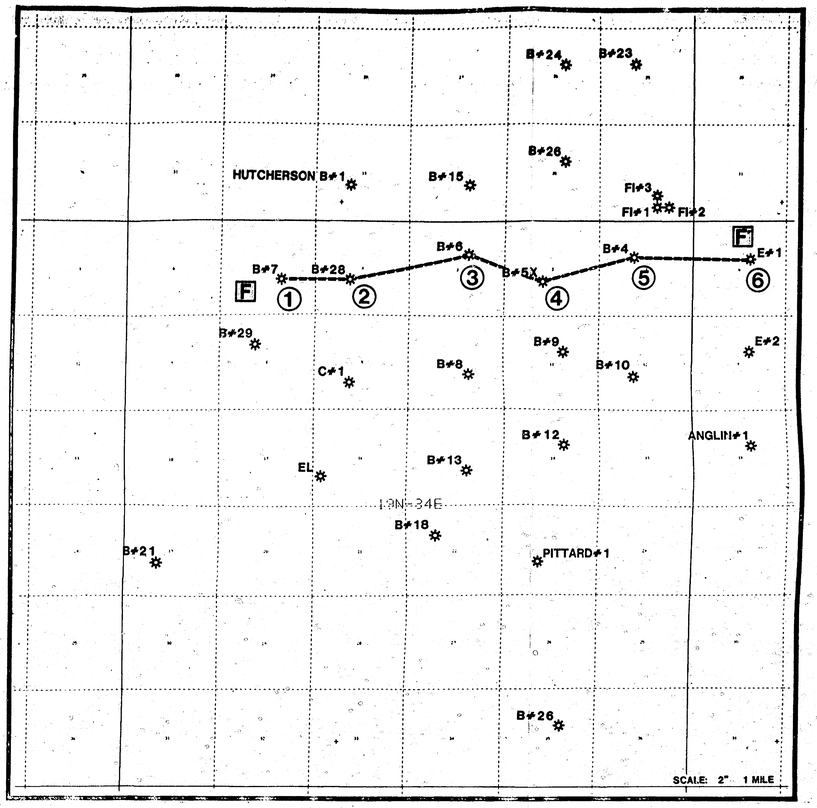
EAST

⑥



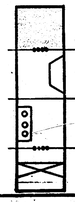
Amoco Hutcherson 'E' #1
Elev: 4698 KDB, TD 2435
Casing: 8 5/8" @ 701 5½" at 2450
Perf (Tubb) 2126-28, 2140-45, 2172-80, 2196-2202, 2206-12,
2224-26, 2232-34, 2238-44, 2250-2266, 2292-93, 2298-2302
2314-16, 2320-22, 2328-30
A/3350 gal 7½% HCL
Re. 20 BLW in 4 hours
IP: 1229 MCFGD TPP 170 choke 48/64"

2264-56, 2258-60,
, 2366-72



KEY

SCGR	———	Gamma Ray
PERMSF	—•—•—	Depth-shifted permeability (90°) data from core analysis
VPERMS	•••••••	Depth-shifted permeability (vertical) data from core analysis
PERMCAL	———	Calculated permeability based on cross plots of smoothed core porosity vs. permeability and smoothed core porosity vs. density porosity

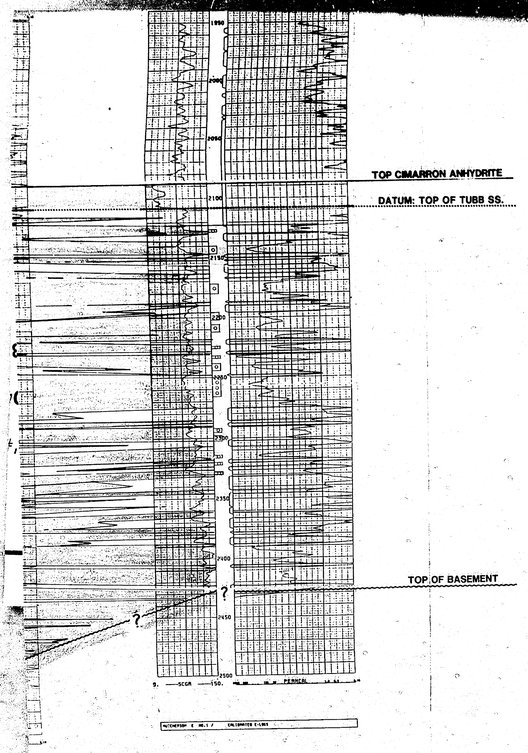


Permeabilities > 1 md

Permeabilities < 1 md

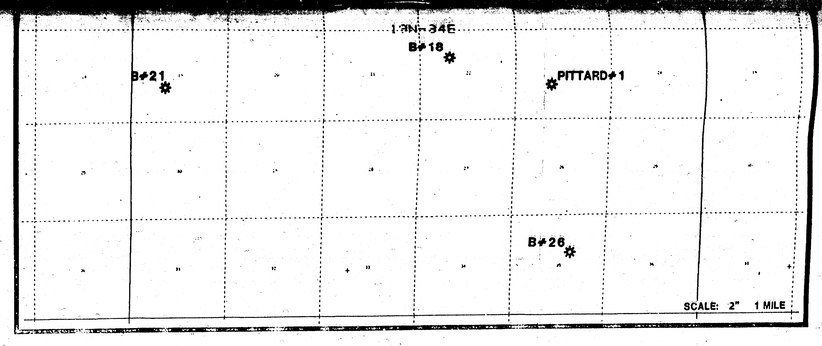
Perforations

Bridge Plug



Amoco Hutcherson 'E' #1
Elev: 4698 RDB, TD 2435
Csg: 8 5/8" @ 701 sx at 2450
Perf (Tubb) 2126-28, 2140-46, 2172-80, 2196-2202, 2206-12, 2224-26, 2232-36, 2238-44, 2250-2266, 2292-95, 2298-2302 2314-16, 2320-22, 2328-30
A/3350 gal 7½ HCL
Sw. 20 BLW in 4 hours
IP: 1229 MCFGPD TFP 170 choke 48/64"

2264-56, 2258-60,
, 2366-72



KEY

SCGR	———	Gamma Ray
PERMSF	—•—•—	Depth-shifted permeability (90°) data from core analysis
VPERMS	•••••••	Depth-shifted permeability (vertical) data from core analysis
PERMCAL	———	Calculated permeability based on cross plots of smoothed core porosity vs. permeability and smoothed core porosity vs. density porosity

Permeabilities > 1 md

Permeabilities < 1 md

Perforations

Bridge Plug

Amoco Production Company

BRAVO DOME CO_2 GAS UNIT

Temporary Pool Rules Hearing

Gamma Ray – Permeability
Cross Section **F-F'**

Horizontal Scale: 1"= 1 mile
Vertical Scale: 2.5" = 100'

EXHIBIT NO. ____ DATE
GEOL. Bruce L. May

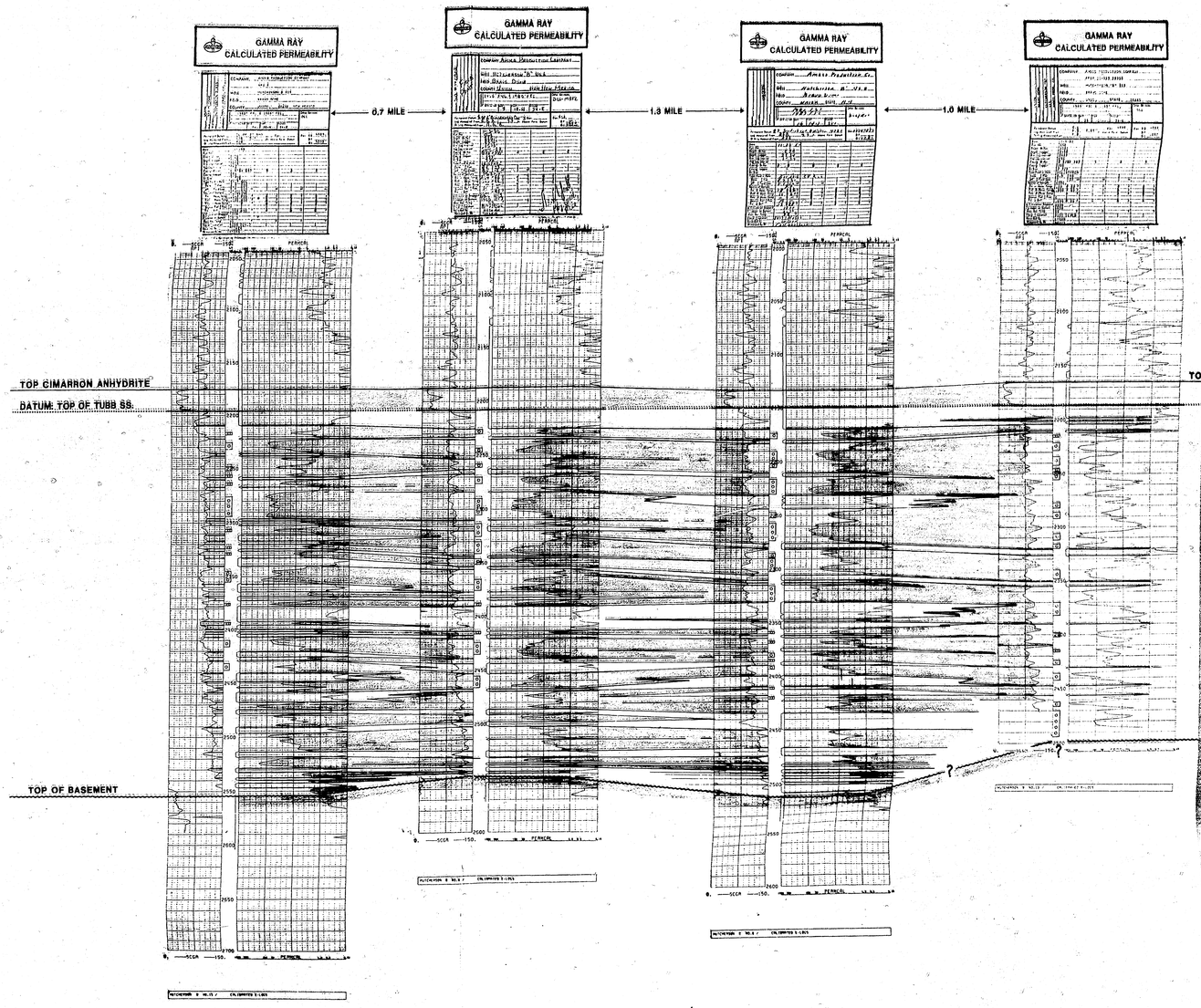
BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Case No. 7158 Exhibit No. 14
Submitted by
Hearing Date 3/18/81

BEST AVAILABLE COPY

G

NORTH

AMOCO	AMOCO	AMOCO	AMOCO
HUTCHERSON 'B'#15	HUTCHERSON 'B'#6	HUTCHERSON 'B'#8	HUTCHERSON 'B'#13
API: 30-059-20053	API: 30-059-20049	API: 30-059-20054	API: 30-059-20056
ELEV 4810' KB	ELEV 4831' KB	ELEV 4788' KB	ELEV 4808' KB
(1)	(2)	(3)	(4)



Amoco Hutcherson 'B' #15
Elev: 4810 KDB TD 2606
Casing: 8 5/8" at 700, 5½" at 2581
Perf (Tubb) 2216-18, 2226-32, 2248-52, 2256-58, 2263-65, 2276-94, 2306-08, 2322-24, 2328-30, 2345-55, 2375-77, 2393-95, 2410-16, 2432-38
A/83 bbl 7½% HCl
IP: 1300 MCFGPD, TPF 185, 48/64" choke

Amoco Hutcherson 'B' #6
Elev: 4831' KDB, TD 2576
Comp: 11-30-80
Casing: 8 5/8" at 700, 5½" at 2393
Perf (Tubb) 2276-80, 2243-47, 2238-61, 2270-76, 2290-2305, 2313-2325, 2330-41, 2368-51, 2365-75, 2387-90, 2414-16, 2424-30, 2433-46
A/4174 gal 7½% HCl
IP: 1083 MCFGPD, FTP 140, 48/64" choke
Comp. Int: 2226-2466

Amoco Hutcherson 'B' #8
Elev: 4790 KDB TD 2540
Comp: 12-30-80
Casing: 8 5/8" at 711, 5½" at 2558
Perf (Tubb) 2173-78, 2190-99, 2202-05, 2216-30, 2247-52, 2257-73, 2283-98, 2290-2302, 2313-30, 2358-60, 2367-69, 2378-82, 2384-86, 2390-93, 2410-12, 2419-21
IP: 1373 MCFD, TPF 205, 48/64" choke
Comp. Int: 2090-2552
A/3400 gal 7½% HCl

Amoco Hutcherson 'B' #13
Elev: KDB 4808' TD 2495
Comp: 2-3-81
Casing: 8 5/8" at 700 5½" at 2480
Perf (Tubb) 2286-92, 2308-12, 2340-48, 2360-72, 2438-42,
Perf (Tubb) 2214-18, 2221-28, 2234-42, 2243-48, 2250-53, 2267-72, 2316-20, 2398-2402, 2414-16, 2424-28, 2462-66, 2470-94, 10 JSPF
A/4000 gal 7½% HCl
Flw 1507 MCF and 5 BLW in 23 hrs., TPF 195, CPC 300 psi, 48

U.S.G.S.
BEST AVAILABLE COPY

AMOCO

'B'#8

HUTCHERSON 'B'#13

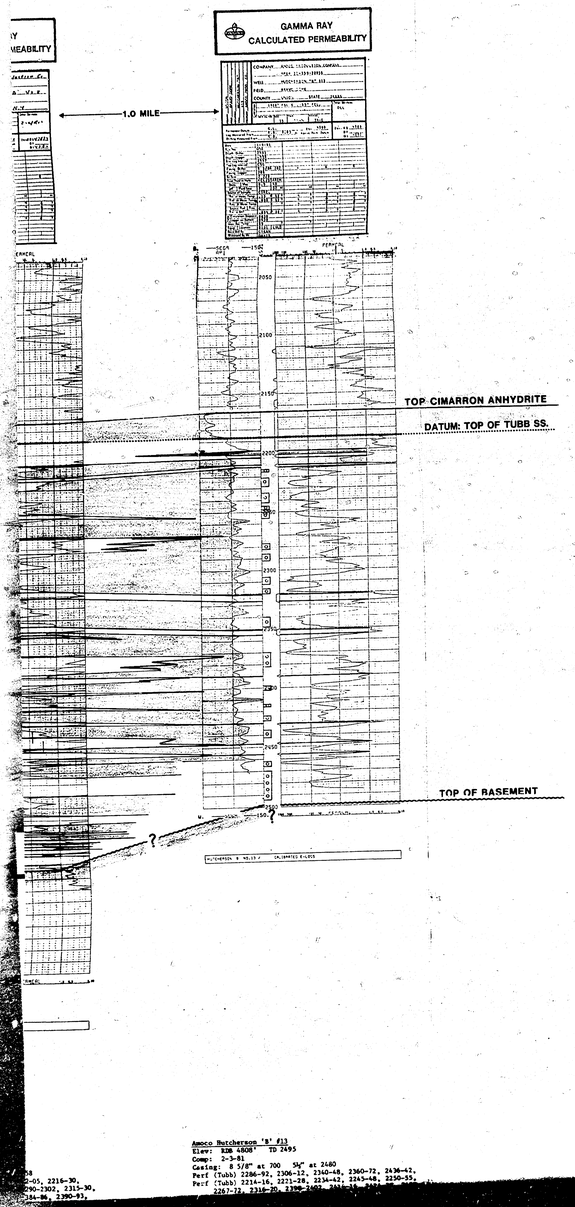
20054

API: 30-059-20056

KB

ELEV 4808' KB

④

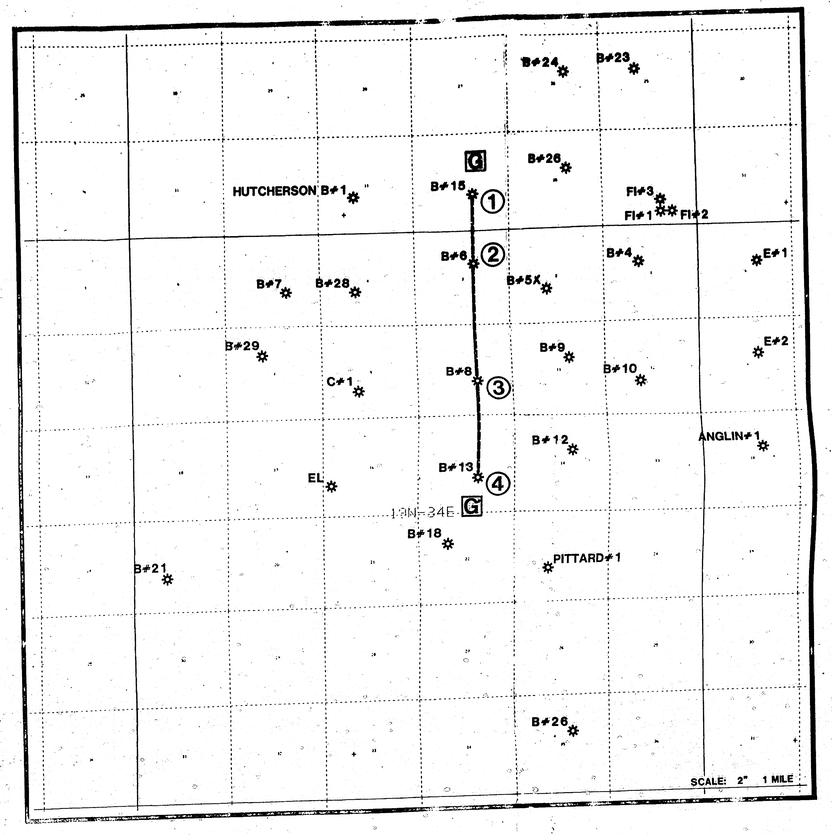


Amoco Hutcherson 'B' #13
Elev: KB 4808' TD 2495
Comp: 2-5-51
Casing: 8 5/8" at 700 5½" at 2480
Perf (Tubb) 2286-92, 2306-12, 2340-48, 2360-72, 2436-42,
Perf (Tubb) 2214-16, 2221-28, 2234-42, 2245-48, 2250-55,
2267-72, 2310-20, 2390-2402,

-05, 2216-30,
390-2402, 2315-30,
34-38, 2290-93.

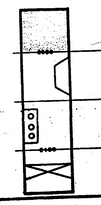
G'

SOUTH



KEY

SCGR	———	Gamma Ray
PERMSF	—•—•—	Depth-shifted permeability (90°) data from core analysis
VPERMS	•••••••	Depth-shifted permeability (vertical) data from core analysis
PERMCAL	———	Calculated permeability based on cross plots of smoothed core porosity vs. permeability and smoothed core porosity vs. density porosity

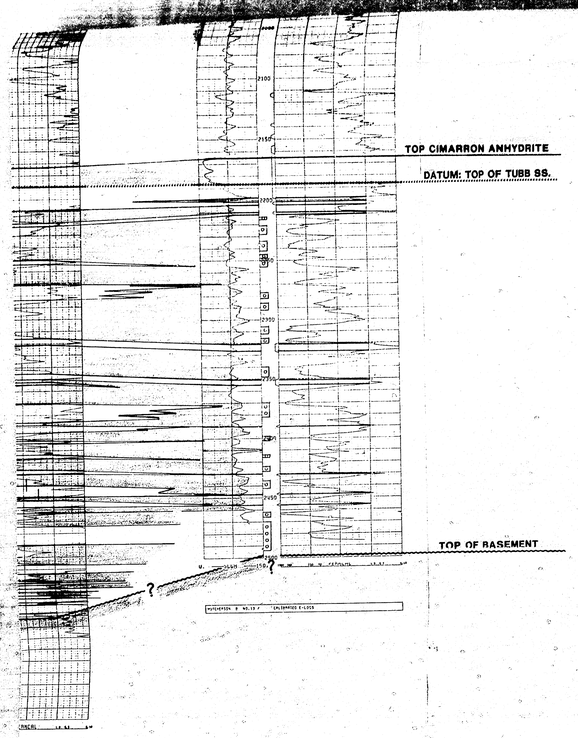


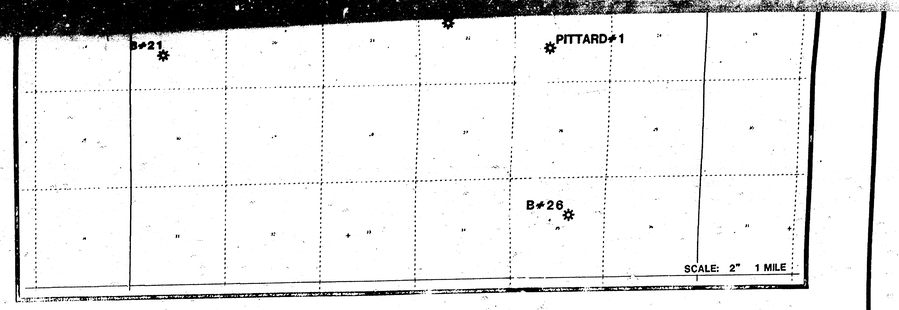
Permeabilities > 1 md

Permeabilities < 1 md

Perforations

Bridge Plug





KEY

SCGR	———	Gamma Ray
PERMSF	–·–·–	Depth-shifted permeability (90°) data from core analysis
VPERMS	•••••••	Depth-shifted permeability (vertical) data from core analysis
PERMCAL	———	Calculated permeability based on cross plots of smoothed core porosity vs. permeability and smoothed core porosity vs. density porosity

Permeabilities > 1 md

Permeabilities < 1 md

Perforations

Bridge Plug

58
2-05, 2216-30,
290-2302, 2315-30,
384-86, 2390-93,
choke

Amoco Hutcherson 'B' #13
Elev: RDB 4808' TD 2495
Comp: 2-3-81
Casing: 8 5/8" at 700 5½" at 2680
Perf (Tubb) 2286-92, 2306-12, 2340-48, 2360-72, 2436-42,
Perf (Tubb) 2214-16, 2221-28, 2234-42, 2245-48, 2250-55,
2267-72, 2316-20, 2398-2402, 2414-16, 2424-28, 2462-66,
2470-94, 10 JSPF
A/4000 gal 7½% HCl
Flw 1107 MCF and 5 BLW in 23 hrs., TPF 195, CPC 300 psi, 48/64" choke

Amoco Production Company

BRAVO DOME CO_2 GAS UNIT

Temporary Pool Rules Hearing

Gamma Ray – Permeability
Cross Section **G-G'**

Horizontal Scale: 1": 1 mile
Vertical Scale: 2.5" = 100'

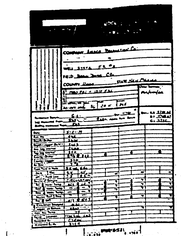
EXHIBIT NO. ____ DATE
GEOL. Bruce L May

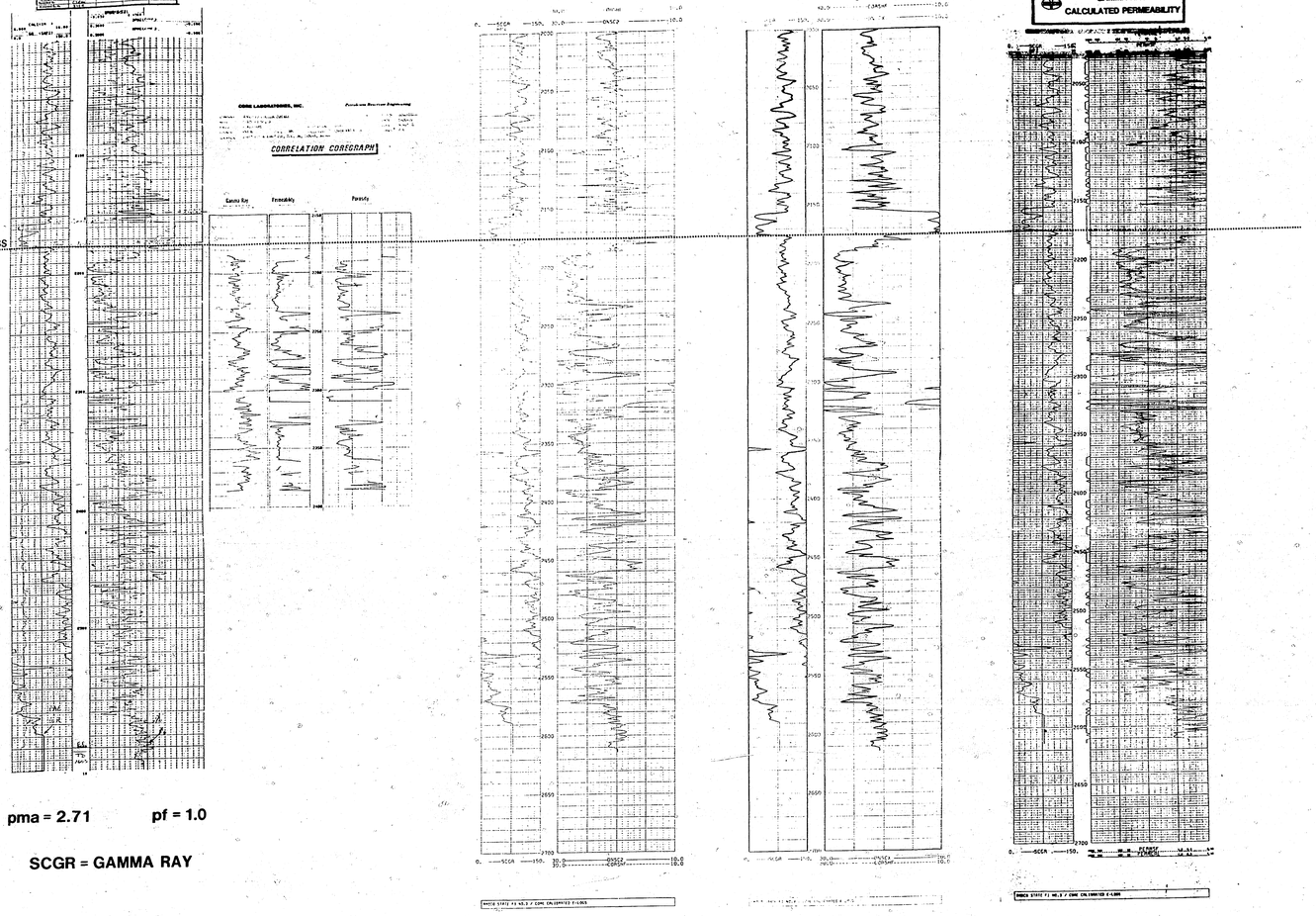
BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Case No. 7198 Exhibit No. 15
Submitted by Amoco
Hearing Date 3/18/81

AMOCO STATE FI#3

CALIBRATION TECHNIQUE

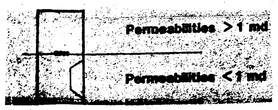
EXAMPLE:





pma = 2.71 pf = 1.0

SCGR = GAMMA RAY

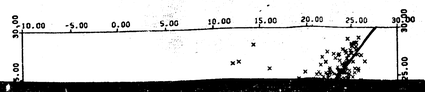


pma = 2.68 pf = 1.1

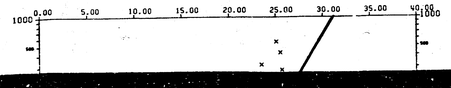
core calibrated

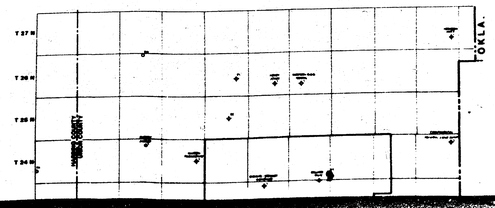
calculated permeability

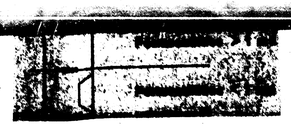
CORE POROSITY vs. DENSITY



CORE POROSITY vs. PERMEABILITY (90°)

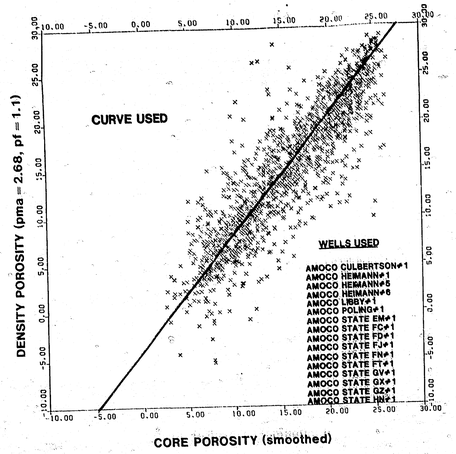




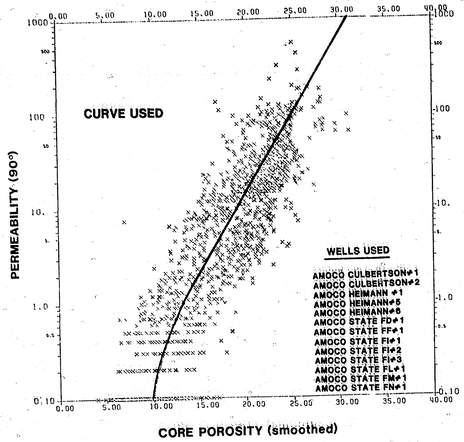


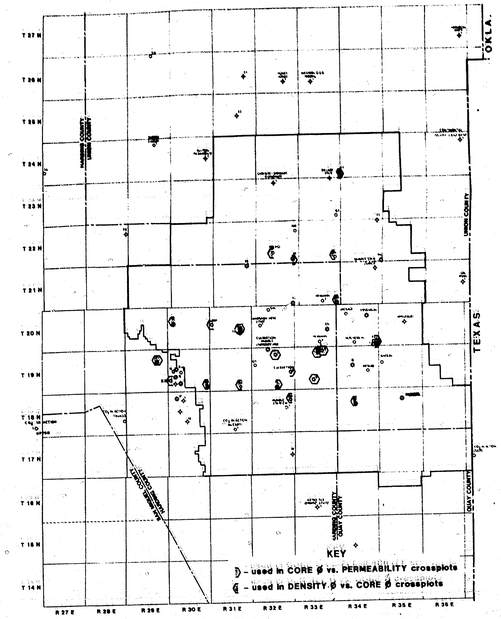
pma = 2.68 pf = 1.1 core calibrated calculated permeability

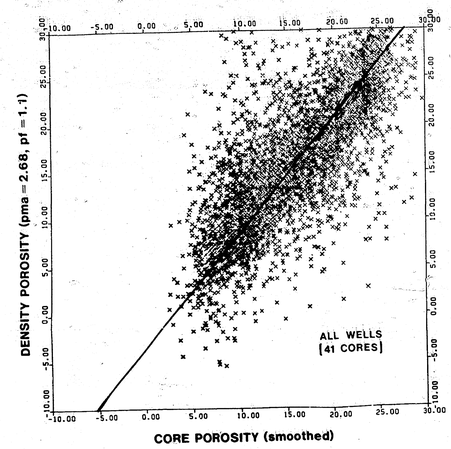
CORE POROSITY vs. DENSITY

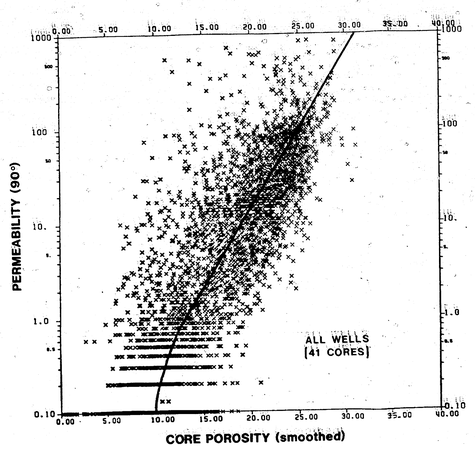


CORE POROSITY vs. PERMEABILITY (90°)









KEY

SCGR	———	Gamma Ray
PERMSF	—·—·—	Depth-shifted permeability (90°) data from core analysis
PERMCAL	———	Calculated permeability based on cross plots of smoothed core porosity vs. permeability and smoothed core porosity vs. density porosity

Amoco Production Company

BRAVO DOME CO_2 GAS UNIT

Temporary Pool Rules Hearing

DENSITY LOG CALIBRATION TECHNIQUE

EXHIBIT NO. ____ DATE GEOL. Bruce L May

BEFORE THE OIL CONSERVATION COMMISSION Santa Fe, New Mexico
Case No. 7198 Exhibit No. 7
Submitted by Amoco
Hearing Date 3/25/81

W.S.M.C.F. MICROGRAPHICS
BEST AVAILABLE COPY

C

NORTH

AMOCO #1 STATE FT

API: 30-059-20022

①

AMOCO #1 STATE FS

API: 30-059-20021

②

AMOCO #1 STATE FH

API: 30-059-20018

③

AMOCO #1 STEVENSON

API: 30-059-20016

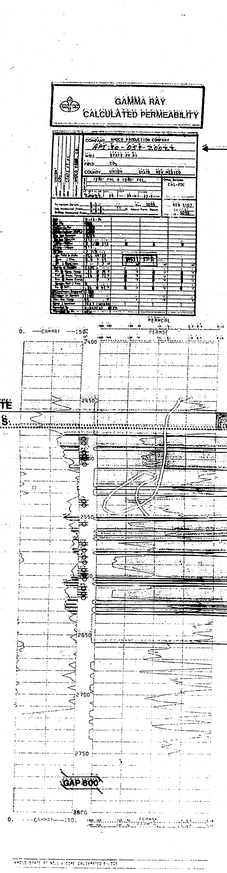
④

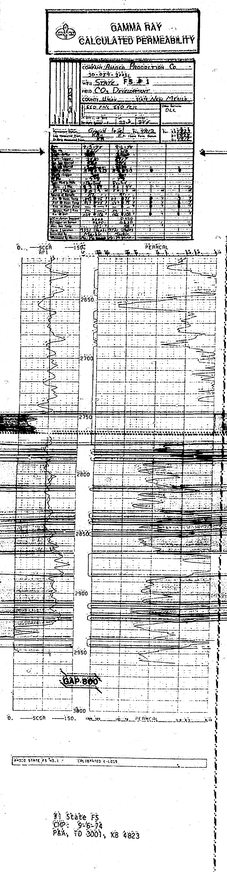
8.75 MILES

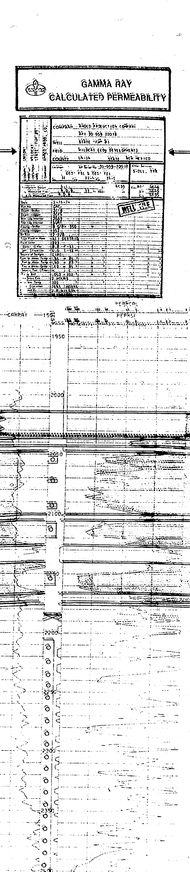
5.6 MILES

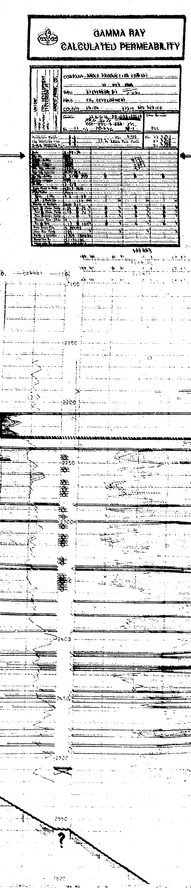
8.0 MILES

2.75 MILES









TOP OF CIMARRON ANHYDRITE

DATUM: TOP OF TUBB SS.

TOP OF BASEMENT

?

?

?

?

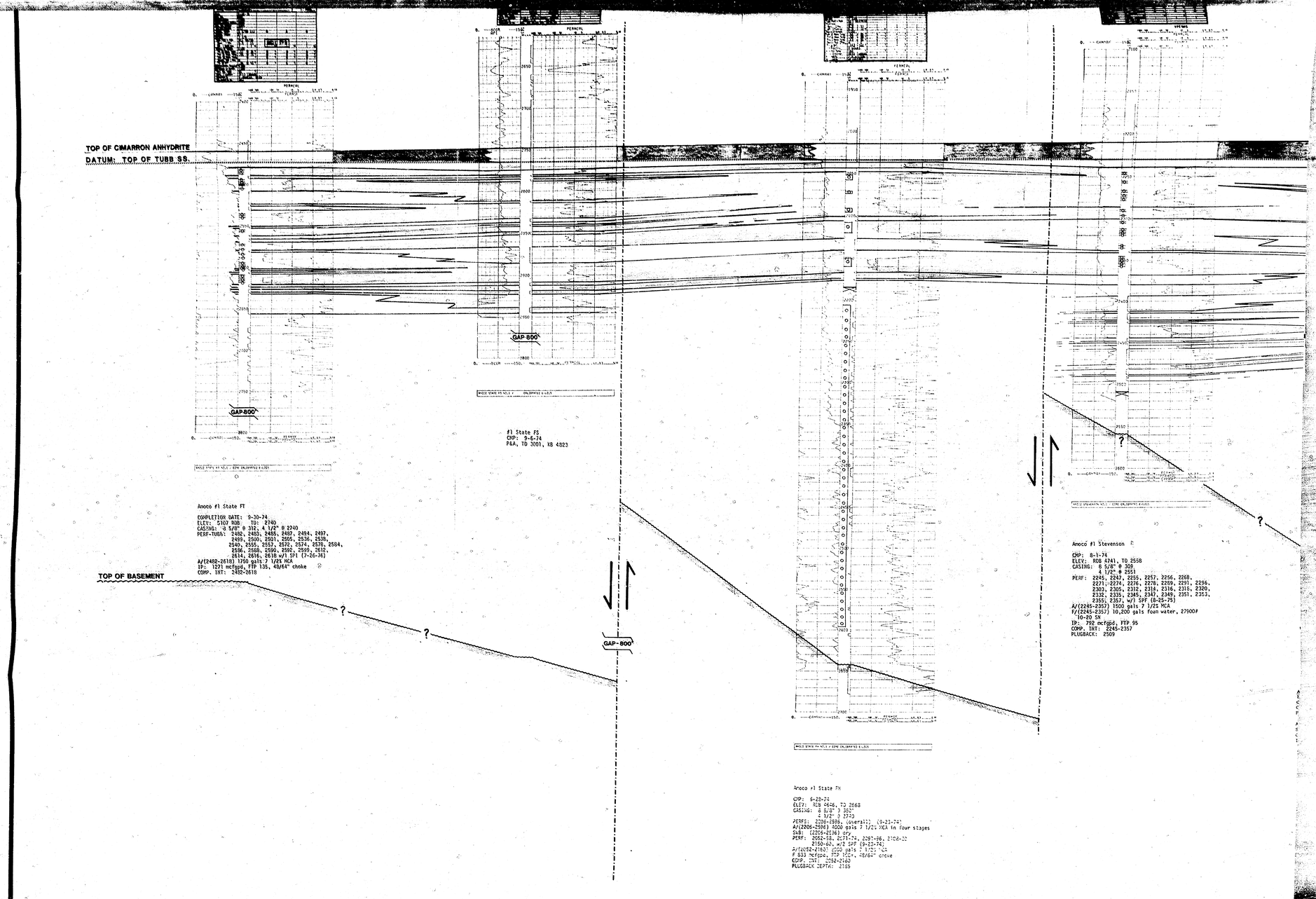
Anoco #1 State FT

COMPLETION DATE: 9-30-74
ELEV: 5107 RDB TD: 2740
CASING: 8 5/8" @ 312, 4 1/2" @ 2730
PERF-TUBB: 2482, 2483, 2485, 2487, 2494, 2497, 2499, 2500, 2501, 2505, 2536, 2538, 2540, 2555, 2557, 2572, 2574, 2576, 2584, 2586, 2588, 2590, 2592, 2599, 2612, 2614, 2616, 2618 w/1 SPF (7-26-76)
A/(2482-2618) 1750 gals 7 1/2% MCA
IP: 1277 mcfgpd, FTP 135, 48/64" choke
COMP. INT: 2482-2618

#1 State FS
COMP: 9-6-74
PBA, TD 3001, KB 4823

Anoco #1 Stevenson

COMP: 8-1-74
ELEV: KDB 4741, TD 2558
CASING: 8 5/8" @ 309
4 1/2" @ 2551
PERF: 2345, 2347, 2350, 2357, 2296, 2308, 2311, 2324, 2331, 2335, 2339, 2341, 2296, 2303, 2305, 2312, 2314, 2316, 2317, 2320, 2324, 2325, 2340, 2341, 2345, 2357, 2361, 2365, 2367, w/1 SPF (8-25-76)
A/(2345-2357) 1500 gals 7 1/2% MCA
F/(2345-2357) 10,200 gals foam water, 270#20 sd
10-20 SN
IP: 745 mcfgpd, FTP 95
COMP. INT: 2345-2357
PLUGBACK: 2505



Anoco #1 State FT

COMPLETION DATE: 9-30-74
ELEV: 5107 RDB TD: 2740
CASING: 8 5/8" @ 312, 4 1/2" @ 2740
PERF-TUBB: 2482, 2483, 2485, 2487, 2494, 2497, 2499, 2500, 2501, 2505, 2536, 2538, 2540, 2555, 2557, 2572, 2574, 2578, 2584, 2586, 2588, 2590, 2592, 2599, 2612, 2614, 2616, 2618 w/1 SPF (7-26-76)
A/(2482-2618) 1750 gals 7 1/2% MCA
IP: 1271 mcfgpd, FTP 135, 48/64" choke
COMP. INT: 2482-2618

#1 State FS
CMP: 9-6-74
P&A, TD 3001, KB 4823

Anoco #1 Stevenson F

CMP: 8-1-74
ELEV: RDB 4741, TD 2558
CASING: 6 5/8" @ 309
4 1/2" @ 2551
PERF: 2245, 2247, 2255, 2257, 2256, 2268, 2271, 2276, 2276, 2278, 2289, 2291, 2296, 2303, 2305, 2312, 2314, 2316, 2315, 2320, 2332, 2335, 2345, 2342, 2349, 2351, 2353, 2355, 2357, w/1 SPF (8-25-75)
A/(2245-2357) 1500 gals 7 1/2% MCA
F/(2245-2357) 10,200 gals foam water, 27500# 10-20 SN
IP: 792 mcfgpd, FTP 95
COMP. INT: 2245-2357
PLUGBACK: 2509

Anoco #1 State FH

CMP: 9-28-74
ELEV: RDB 4646, TD 2668
CASING: 8 5/8" @ 357
4 1/2" @ 2723
PERF: 2206-2598, (Overall) (9-23-74)
A/(2206-2598) 2000 gals 7 1/2% MCA in four stages
SAB: (2206-2126) SPF
PERF: 2062-58, 2171-72, 2191-96, 2108-22
2150-60, w/2 SPF (9-23-74)
A/(2052-2163) 2500 gals 7 1/2% MCA
F 633 mcfgpd, FTP 315#, 48/64" choke
COMP. INT: 2058-2163
PLUGBACK DEPTH: 2195

A.R.M.A.C.F. MICROGRAPHICS
BEST AVAILABLE COPY

AMOCO #1 STEVENSON	HUTCHERSON B#23	AMOCO #1 STATE FI	AMOCO #2 STATE FI	AMOCO HUTCHERSON E#1	AMOCO HUTCHERSON E#2
API: 30-059-20016	API: 30-059-20067	API: 30-059-20019	API: 30-059-99800	API: 30-059-20064	API: 30-059-20065
4	5	6	7	8	9

S

2.75 MILES

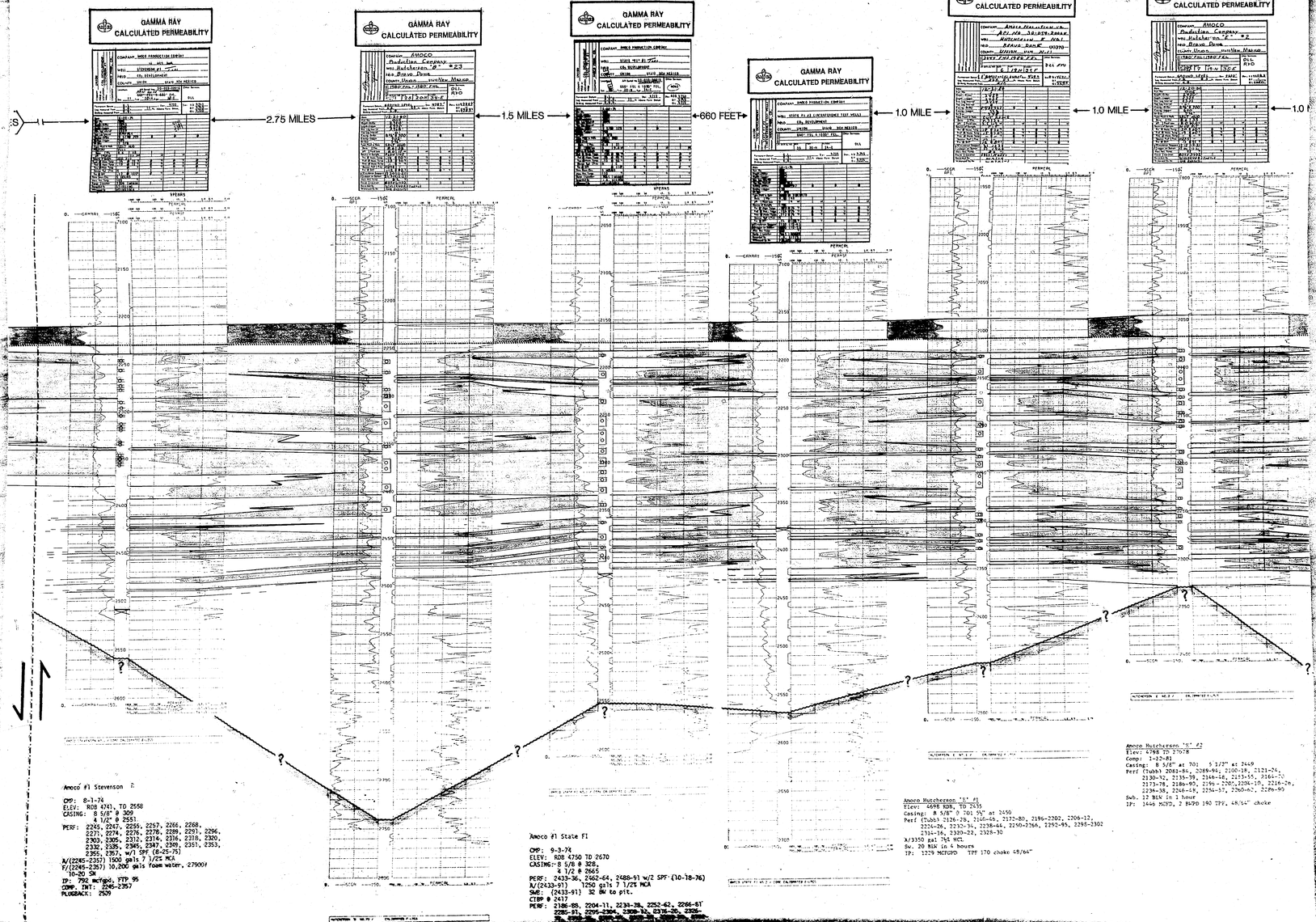
1.5 MILES

660 FEET

1.0 MILE

1.0 MILE

1.0 M



Amoco #1 Stevenson

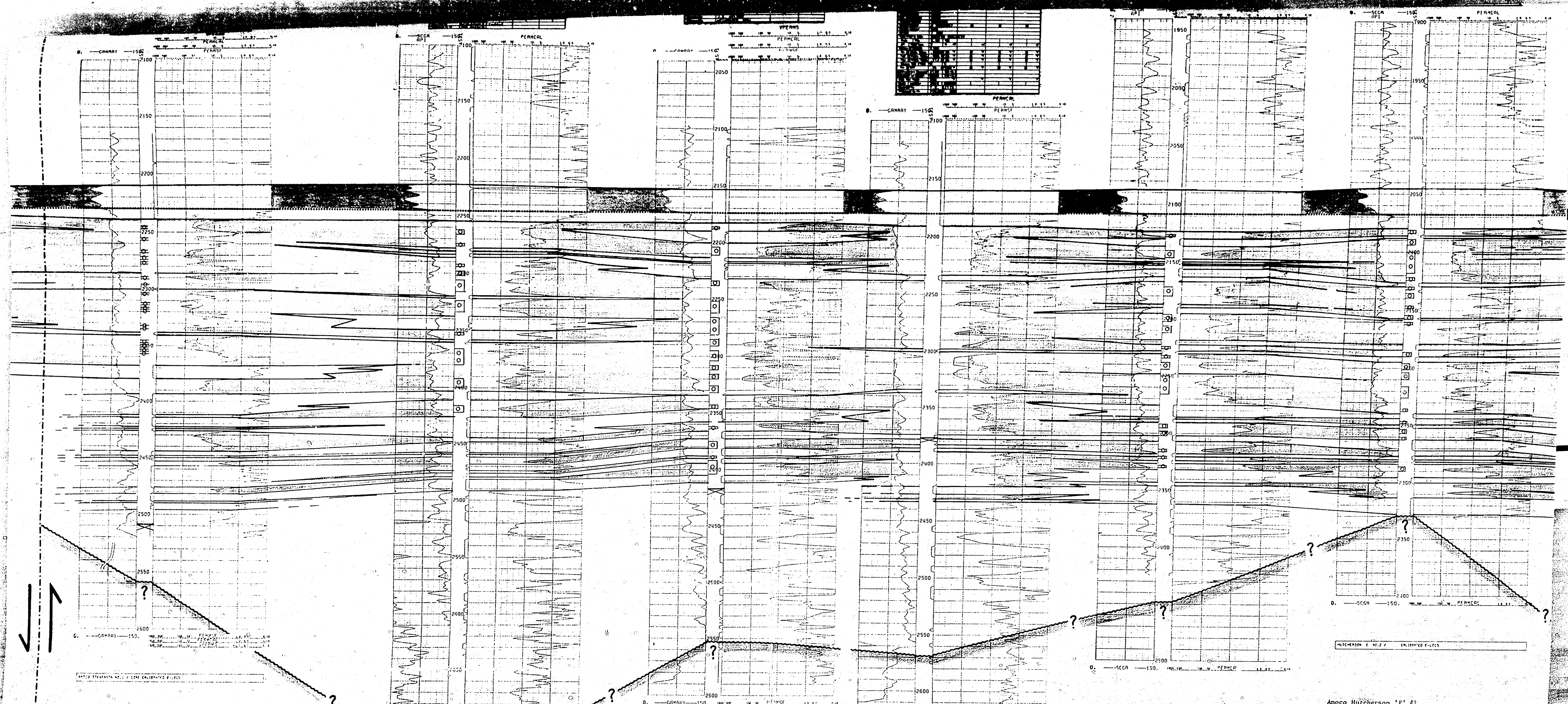
SPD: 8-1-74
ELEV: RDB 4741, TD 2558
CASING: 8 5/8" @ 309
4 1/2" @ 2551
PERF: 2245, 2247, 2255, 2257, 2266, 2268, 2271, 2274, 2276, 2278, 2289, 2291, 2296, 2303, 2305, 2312, 2314, 2316, 2318, 2320, 2332, 2335, 2345, 2347, 2349, 2351, 2353, 2355, 2357, w/1 SPF (8-25-75)
A/(2245-2357) 1500 gals 7 1/2% MCA
F/(2245-2357) 10,200 gals foam water, 27900# 10-20 SN
IP: 792 mcfgpd, FTP 95
COMP. INT.: 2246-2357
PLUGBACK: 2509

Amoco #1 State FI

SPD: 9-3-74
ELEV: RDB 4750 TD 2670
CASING: 8 5/8 @ 328
4 1/2 @ 2665
PERF: 2433-36, 2462-64, 2488-91 w/2 SPF (10-18-76)
A/(2433-91) 1250 gals 7 1/2% MCA
SWB: (2433-91) 32 BW to pit.
CIBP @ 2417
PERF: 2186-88, 2204-11, 2233-38, 2252-62, 2266-81, 2285-91, 2295-2304, 2308-13, 2316-20, 2326-28, 2332-36

Amoco Hutcherson "E" #1
Elev: 4698 RDB, TD 2435
Casing: 8 5/8" @ 301 5½" at 2450
Perf (Tubb) 2126-28, 2146-48, 2172-80, 2196-2202, 2206-12, 2224-26, 2233-34, 2238-44, 2250-2366, 2292-95, 2296-2302 2314-16, 2320-22, 2328-30
A/3350 gal 15% HCL
Sw. 20 BLW in 4 hours
IP: 1229 MCFGPD TPF 170 choke 48/64"

Amoco Hutcherson "E" #2
Elev: 4798 TD 27678
Comp: 1-25-81
Casing: 8 5/8" at 701 5 1/2" at 2449
Perf (Tubb) 2082-84, 2089-94, 2100-18, 2121-24, 2130-32, 2135-39, 2146-48, 2153-55, 2164-72, 2173-78, 2184-95, 2196-2200, 2204-10, 2214-26, 2236-38, 2246-48, 2254-57, 2260-62, 2296-98
Swb. 12 BLW in 1 hour
IP: 1646 MCFD, 2 BWPD 190 TPF, 48/64" choke



Amoco #1 Stevenson F

CMP: 8-1-74
ELEV: RDB 4741, TD 2558
CASING: 8 5/8" @ 309
4 1/2" @ 2551
PERF: 2245, 2247, 2255, 2257, 2266, 2268, 2271, 2274, 2276, 2278, 2289, 2291, 2296, 2303, 2305, 2312, 2314, 2316, 2318, 2320, 2332, 2335, 2345, 2347, 2349, 2351, 2353, 2355, 2357, w/1 SPF (8-25-75)
A/(2245-2357) 1500 gals 7 1/2% MCA
F/(2245-2357) 10,200 gals foam water, 27900# 10-20 SN
IP: 792 mcfgpd, FTP 95
COMP. INT: 2245-2357
PLUGBACK: 2509

Amoco Hutcherson 'B' #23
Elev: 4795' RDB TD 2770
Comp: 12-22-80
Casing: 8 5/8" at 2750
Perf (Tubb) 2262-66, 2274-76, 2292-94, 2298-2302, 2306-16, 2324-34, 2352-54, 2366-80, 2392-2400, 2416-22
A/3400 gal 7½% acid
Swb. 40 BLW in 4 hours
Comp. Int: 2262-2422
IP: 1105 MCFGPD, TPF 150 choke 48/64", 3 BWPD

Amoco #1 State FI

CMP: 9-3-74
ELEV: RDB 4750 TD 2670
CASING: 8 5/8 @ 328,
4 1/2 @ 2665
PERF: 2433-36, 2462-64, 2488-91 w/2 SPF (10-18-76)
A/(2433-91) 1250 gals 7 1/2% MCA
SWB: (2433-91) 32 BW to pit.
CIBP @ 2417
PERF: 2186-88, 2204-11, 2234-38, 2252-62, 2266-81 2285-91, 2295-2304, 2308-12, 2316-20, 2326-32, 2343-46, 2362-64, 2375-81, 2388-90, 2392-2404 w/2 SPF (10-18-76)
A/(2186-2404) 2000 gals 7 1/2% MCA
IP: 1575 mcfgpd, FTP 150#, 48/64 choak
COMP. INT: 2186-2404
PLUGBACK DEPTH: 2417

Amoco #2 State FI

CMP: 10-1-74
ELEV: RDB 4745, TD 2625
CASING: 4 1/2 @ 2600
A/(2385-2408) 500 gals 7 1/2% MCA
SWB: light blow, water coming in
CIBP sect at 2377
IP: 2180 mcfgpd FTP 250#, natural
PLUGBACK DEPTH: 2625
COMP. INT: 2198-2369

Amoco Hutcherson 'E' #1
Elev: 4698 RDB, TD 2435
Casing: 8 5/8" @ 701 5½" at 2450
Perf (Tubb) 2126-28, 2140-46, 2172-80, 2196-2202, 2206-12, 2224-26, 2232-34, 2238-44, 2250-2266, 2292-95, 2298-2302 2314-16, 2320-22, 2328-30
A/3350 gal 7½% HCL
Sw. 20 BLW in 4 hours
IP: 1229 MCFGPD TPF 170 choke 48/64"

Amoco Hutcherson 'E' #2
Elev: 4798 TD 27678
Comp: 1-12-81
Casing: 8 5/8" at 701 5 1/2" at 2449
Perf (Tubb) 2081-84, 2089-94, 2100-18, 2121-24, 2130-32, 2135-39, 2146-48, 2153-55, 2164-70 2173-78, 2186-90, 2196 - 2201, 2204-10, 2216-26, 2236-38, 2246-48, 2254-57, 2260-62, 2286-90
Swb. 12 BLW in 1 hour
IP: 1446 MCFD, 2 BWPD 190 TPF, 48/64" choke

W.R.M.C.F. MICROGRAPHICS

BEST AVAILABLE COPY

AMOCO

ERSON E#1

-059-20064

HUTCHERSON E#2

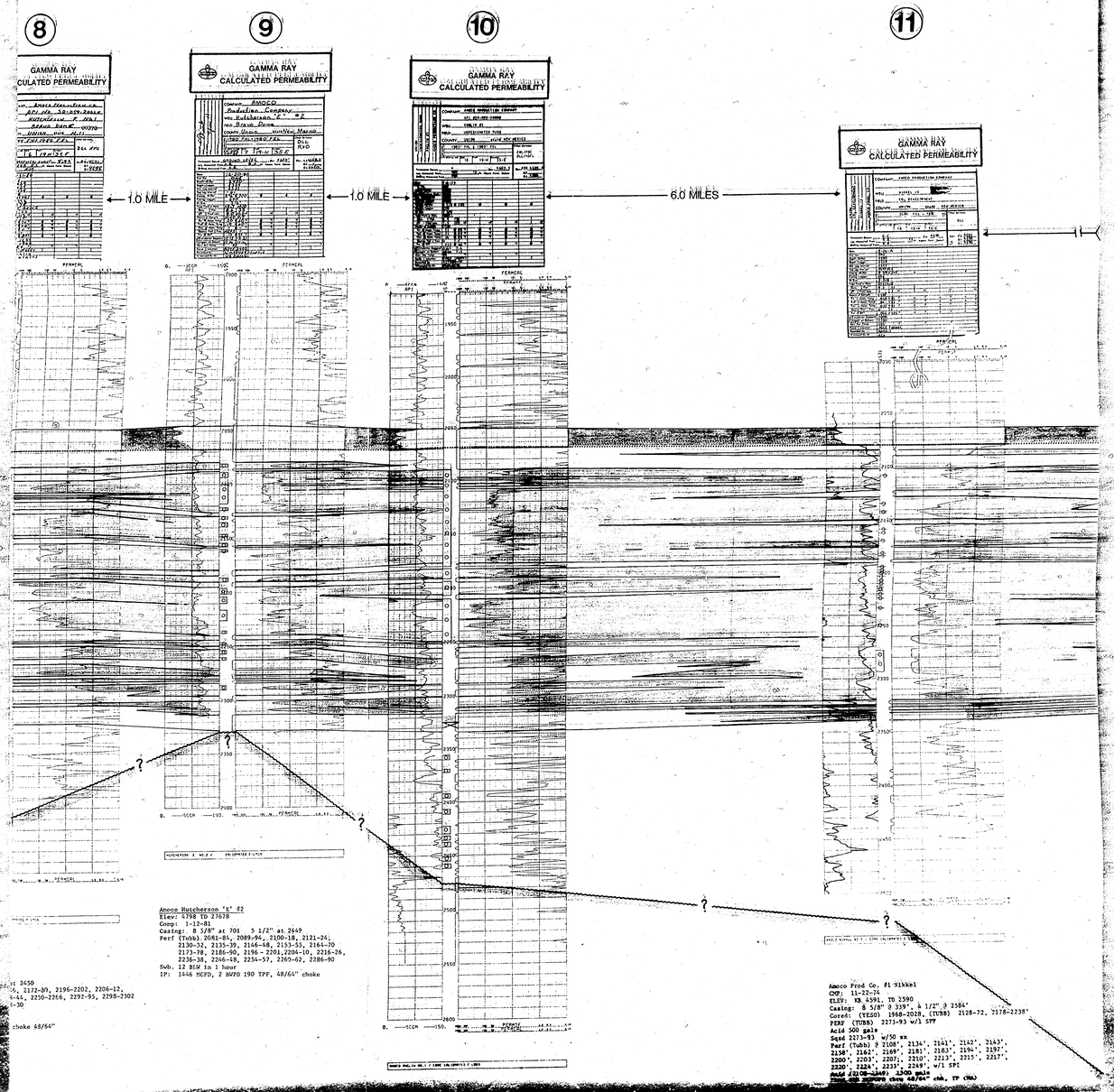
API: 30-059-20065

AMOCO #1 ANGLIN

API: 30-059-20028

AMOCO #1 NIKKEL

API: 30-059-20014



Amoco Hutcherson 'E' #2
Elev: 6798 TD 27678
Comp: 1-12-81
Casing: 8 5/8" at 701 5 1/2" at 2649
Perf (Tubb) 2081-84, 2089-94, 2100-18, 2121-24,
2130-32, 2135-39, 2146-48, 2153-53, 2161-70
2173-78, 2186-90, 2196 - 2201,2206-10, 2216-26,
2236-38, 2246-48, 2254-57, 2269-62, 2286-90
Swb. 12 BLW in 1 hour
IP: 1646 MCFD, 2 BWPD 190 TPF, 48/64" choke

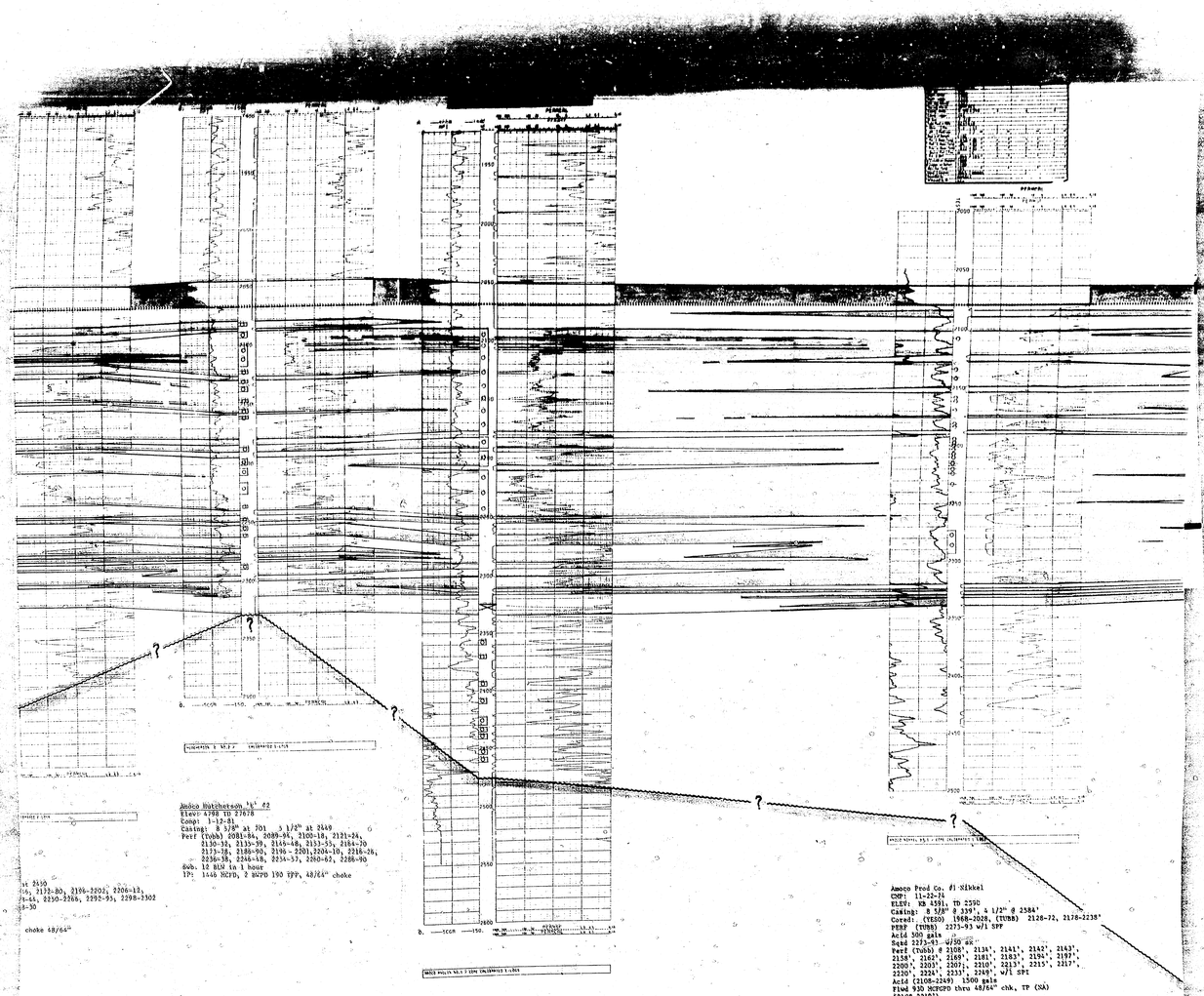
...t 2650
...6, 2172-80, 2196-2202, 2206-12,
...4-46, 2250-2266, 2292-95, 2298-2302
...t-30

...choke 68/64"

Amoco Frod Co. #1 Nikkel
COMP: 11-23-74
ELEV: KB 4591, TD 2590
Casing: 8 5/8" @ 339', & 1/2" @ 2584'
Cored: (YESO) 1968-2028, (TUBB) 2128-72, 2178-2238'
PERF (TUBB) 2273-93 w/1 SPF
Acid 500 gals
Sqzd 2273-93 w/50 sx
Perf (Tubb) @ 2108', 2134', 2141', 2142', 2143',
2150', 2162', 2189', 2191', 2193', 2194', 2197',
2200', 2203', 2207', 2210', 2213', 2215', 2217',
2220', 2224', 2233', 2249', w/1 SPF
Acid (2108-2249) 1500 gals
Frac 20# Borate Gels, 68/64" chk, TP (BA)

V.S.U.C.P. Archives

BEST AVAILABLE COPY



Amoco Hutcherson 'A' #2
Elev: 4798 KB 27678
Comp: 1-13-81
Casing: 8 5/8" at 701 ; 1/2" at 2449
Perf (Tubb) 2081-84, 2089-94, 2100-18, 2121-24,
2130-36, 2135-39, 2149-48, 2153-55, 2184-20
2173-78, 2186-90, 2196 - 2201,2204-10, 2216-26,
2236-38, 2246-48, 2254-57, 2260-62, 2288-90
6wb. 12 BLW in 1 hour
IP: 1446 MCFD, 2 BOPD 190 FPP, 48/64" choke

st 2410
-16, 2172-80, 2186-2202, 2206-12,
-44, 2250-2266, 2292-95, 2298-2302
8-30

choke 48/64"

Amoco Prod Co. #1 Nikkel
CMP: 11-22-74
ELEV: KB 4391, TD 2590
Casing: 8 5/8" @ 339', 4 1/2" @ 2584'
Cored: (YESO) 1968-2028, (TUBB) 2128-72, 2178-2238'
PERF (TUBB) 2273-93 w/1 SPF
Acid 500 gals
Sqzd 2273-93 w/50 sx
Perf (Tubb) @ 2108', 2134', 2141', 2142', 2143',
2158', 2162', 2169', 2181', 2183', 2194', 2197',
2200', 2203', 2207', 2210', 2213', 2215', 2217',
2220', 2224', 2233', 2249', w/1 SPF
Acid (2108-2249) 1500 gals
Flwd 930 MCFGPD thru 48/64" chk, TP (SA)
(2108-2249')
PBD: 2345

Anglin No. 1

ELEV: 4695 KDB, TD 2520
CASING: 8 5/8" CSA 369'
4 1/2" CSA 2520
PERF-TUBB: 2093, 2110, 2123, 2135, 2149, 2161, 2174
2180, 2191, 2214, 2223 W/1 JSPF.
Flw 597 mcfpd, 32/64" choke TPF 65 psi,
CP 80 psi, + natural
PERF-TUBB: 2356-80, 2389-92, 2392-98, 2407-11,
2423-30, 2432-36, 2438-42, 2451-55,
2458-62, w/2 JSPF
A/4000 gal 7 1/2% FE MCA
SWB: 178 barrels new water no show of gas
Set Cast Iron BP at 2325
PERF-TUBB: 2090-2100, 2102-91, 2194-2207,
2210-50, w/4 JSPF
A/4000 gal 10% Mod-101
Flw 1681 mcfpd, fine to heavy mist 48/64" choke, TPF
170 psi, CP 280 psi

U.S.G.S. RECORDS

BEST AVAILABLE COPY

AMOCO #1 ANGLIN

API: 30-059-20028

⑩

AMOCO #1 NIKKEL

API: 30-059-20014

⑪

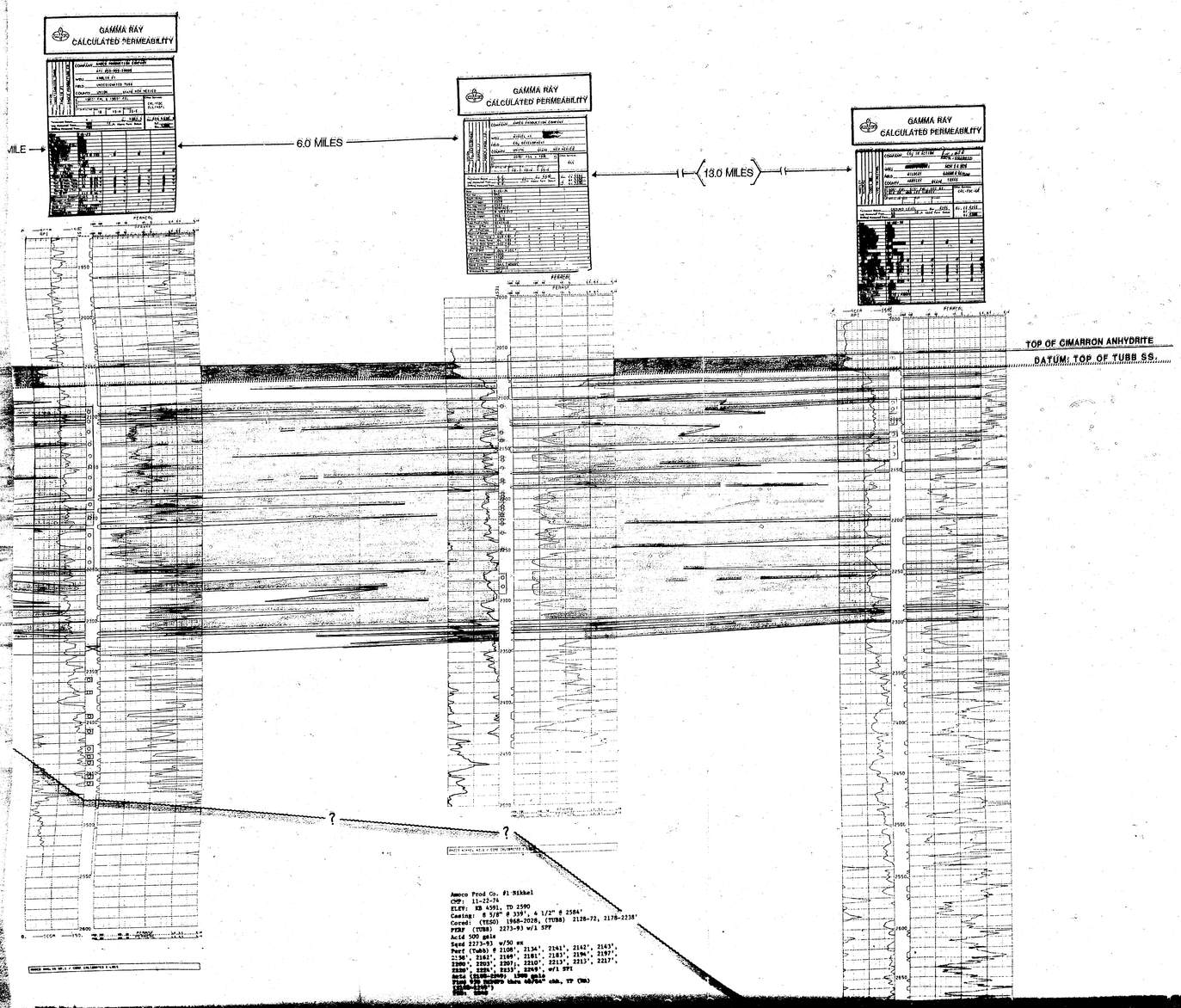
CO2-IN-ACTION #1 COOTS

API: 42-205-00006

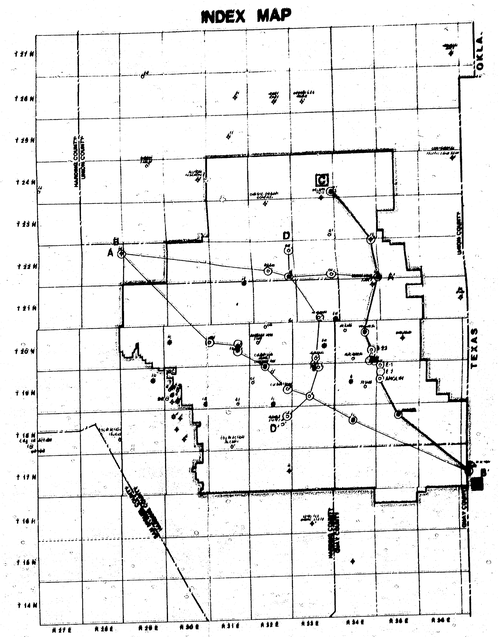
⑫

C′

SOUTH

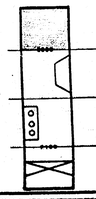


INDEX MAP



KEY

SCGR	———	Gamma Ray
PERMSF	—•—•—	Depth-shifted permeability (90°) data from core analysis
VPERMS	•••••••	Depth-shifted permeability (vertical) data from core analysis
PERMCAL	———	Calculated permeability based on cross plots of smoothed core porosity vs. permeability and smoothed core porosity vs. density porosity



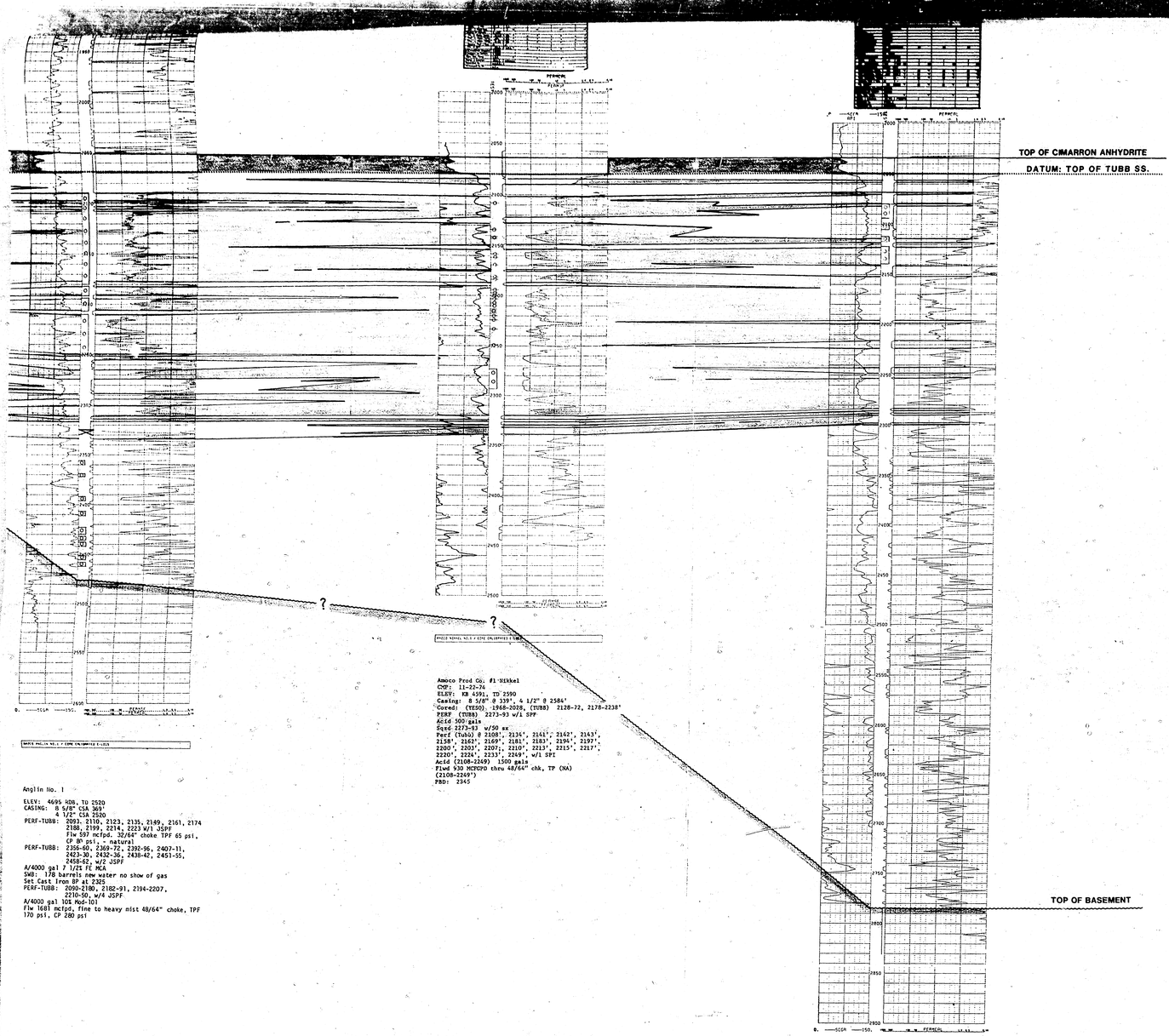
Permeabilities > 1 md

Permeabilities < 1 md

Perforations

Bridge Plug

BEST AVAILABLE COPY



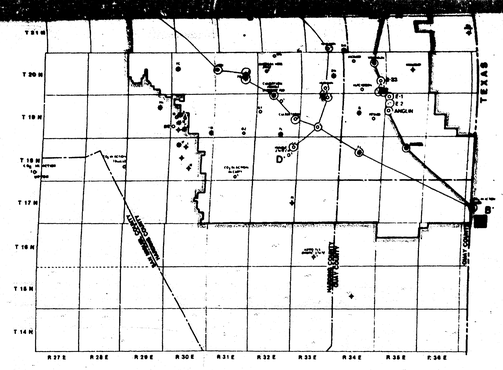
Anglin No. 1

ELEV: 4695 RDB, TD 2520
CASING: 8 5/8" CSA 369'
4 1/2" CSA 2520
PERF-TUBB: 2093, 2110, 2123, 2135, 2149, 2161, 2174
2188, 2199, 2214, 2223 W/1 JSPF
Flw 597 mcfpd, 32/64" choke TPF 65 psi,
CP 80 psi, natural
PERF-TUBB: 2336-60, 2369-72, 2392-96, 2407-11,
2423-30, 2432-36, 2438-42, 2451-55,
2458-62, w/2 JSPF
A/4000 gal 7 1/2% FE MCA
SWB: 178 barrels new water no show of gas
Set Cast Iron BP at 2325
PERF-TUBB: 2080-2180, 2182-91, 2194-2207,
2210-50, w/4 JSPF
A/4000 gal 10% Mod-101
Flw 1681 mcfpd, fine to heavy mist 48/64" choke, TPF
170 psi, CP 280 psi

Amoco Prod Co. #1-Nikkel
CMP: 11-22-76
ELEV: KB 4591, TD 2590
Casing: 8 5/8" @ 339', 4 1/2" @ 2584'
Cored: (TESO) 1968-2008, (TUBB) 2128-72, 2178-2238'
PERF (TUBB) 2273-93 w/1 SPF
Acid 500 gals
Sqzd 2273-93 w/50 sx
Perf (Tubb) @ 2108', 2134', 2141', 2142', 2143',
2158', 2167', 2169', 2181', 2183', 2194', 2197',
2200', 2203', 2207', 2210', 2213', 2215', 2217',
2220', 2224', 2233', 2249', w/1 SPF
Acid (2108-2249) 1500 gals
Flwd 930 MCFGPD thru 48/64" chk, TP (NA)
(2108-2249')
PBD: 2345

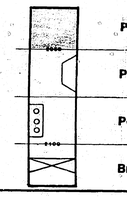
CO2 #1 Coots

Cmp: 10/29/78 . TD 2825
KB
Casing: 8 5/8" @ 400
Perfs: 2080-2094, 2100-2105, 2112-2117, 2122-2139
A/ (2080-2139) 4000 gals
FL: 225 mcfgpd
F/ (2080-2139)
IP: 900 mcfgpd & 2 BWPH



KEY

SCGR	———	Gamma Ray
PERMSF	—·—·—	Depth-shifted permeability (90°) data from core analysis
VPERMS	•••••••	Depth-shifted permeability (vertical) data from core analysis
PERMCAL	———	Calculated permeability based on cross plots of smoothed core porosity vs. permeability and smoothed core porosity vs. density porosity



Permeabilities > 1 md

Permeabilities < 1 md

Perforations

Bridge Plug

Amoco Production Company

BRAVO DOME CO_2 GAS UNIT

Temporary Pool Rules Hearing

Gamma Ray – Permeability
Cross Section C C'

Horizontal Scale: 1" = 1 mile
Vertical Scale: 2.5" = 100'

EXHIBIT NO. ____ DATE ____
GEOL. Bruce L May

BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Case No. 7198 Exhibit No. 11
Submitted by Amoco
Hearing Date 3/15/81

BEST AVAILABLE COPY

B

NORTH

AMOCO #1 STATE FB

API: 30-021-20022

AMOCO #1 LIBBY

API: 30-021-20054

AMOCO #1 STATE FD

API: 30-021-20024

AMOCO #2 STATE FD

API: 30-021-60020

AMOCO #1 CULB

API: 30-021-2

① ② ③ ④ ⑤

17.5 MILES

3.8 MILES

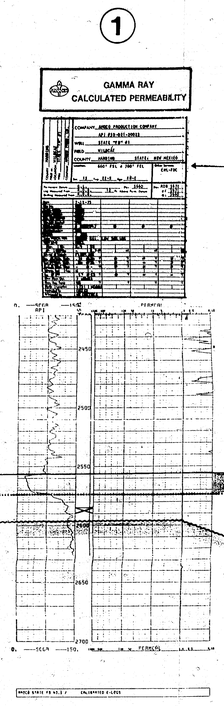
660 FEET

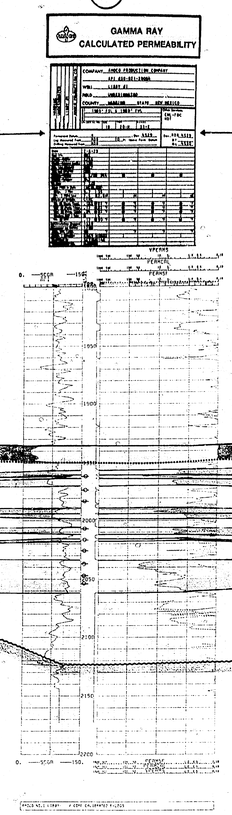
4.75 MILES

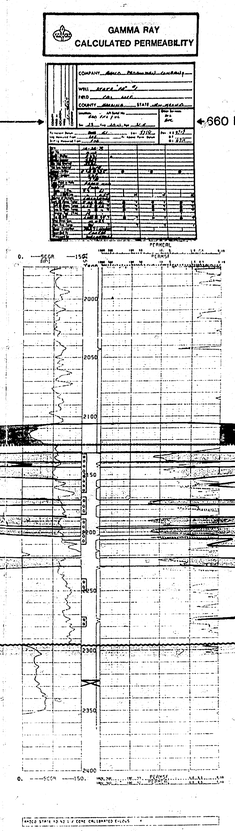
TOP OF CIMARRON ANHYDRITE

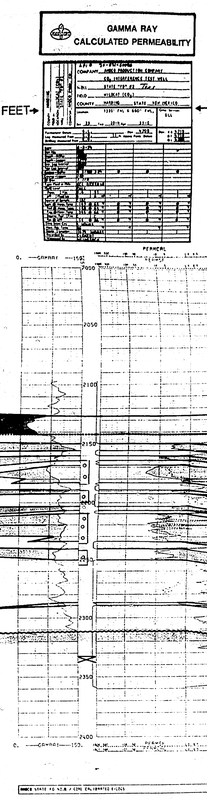
DATUM: TOP OF TUBB SS.

TOP OF BASEMENT









Amoco #1 State FB

ELEV: 5672 KB TD: 2630
CMP: 8-28-74, P A A
Casing: 8 5/8" @ 347, 4 1/2" @ 2610
PBD: 2585

Libby No. 1

Elev: 4529' RDB TD: 2155
Casing: 8 5/8" CSA 344
4 1/2" CSA 2155
Perf-Tubb: 1983, 1973, 1983, 2007, 2017, 2026, 2037, 2047, 2054 W/1 JSPF
A/750 gal 7 1/2% HCA Slight show gas
A/3000 gal 71/2% HCA
FLW: 167 MCFPD, 25/64" choke, TPF 25 psi, CP 58 psi
F/5800 gal 50/50 KCL wtr - CO2 29#/gf 10/20 SN
Flw: 340 MCFPD wet gas, 48/64" choke, TPF 42 psi, CP 45 psi

Amoco #1 State FD

ELEV: 4719 RDB TD: 2371
CMP: 1-19-74
Casing: 8 5/8" @ 336, 4 1/2" @ 2371'
Perf - (Santa Rosa): 1126-36', 1170-76' w/2 SPF
A/(1126-76') 1000 gals
Swbd dry (1126-76), sqzd 1126-1176
Perf - (Tubb): 2132-65, 2169-84, 2188-2210, 2240-60, 2272-80' w/2 JSPF (8-25-75)
A/(2132-2280) 3000 gals 7 1/2% MCA
F/(2132-2280) 4000 RCL gelled water & 60000# 20-40 SN in two steps
IP: 956 MCFPD FTP: 115, 45/64"-choke
Comp. Int: 2132-2280
PBD: 2325

Amoco #2 State FD

ELEV: 4719 RDB, TD 2360
CMP: 6- -74
Casing: 4 1/2" CSA 2352'
Perf:2164-84, 2190-2200, 2210-36, 2242-54
A/(2132-2280) 2000 gals
F/20000 gals KCl gelled water, 22500# 10-20 SN
IP 1620 MCFGPD FTP 195#
Comp. Int: 2164-2265
Plugback Depth: 2333

Amoco #1 Culbertson

ELEV: 4739 RDB, TD: 2601
CMP: 1-16-74
Casing: 8 5/8" @ 363, 4 1/2 @ 749
Perfs: 2281-2368 &770 shots over
A/ (2281-2368) 2100 gals 7 1/2% M
F/ (2281-2368) 40000 gals KCl & 6
Swbd: (2281-2368) 64 BLW in 5 hrs
Plugback depth 2461
IP: 965 MCFGPD FTP #75, thru 48
Comp. Int: 2281-2368
SI

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20

AMOCO #1 CULBERTSON

API: 30-021-20026

AMOCO #2 CULBERTSON

API: 30-021-20052

AMOCO #6 HEIMANN

API: 30-021-20053

AMOCO #1 STATE FJ

API: 30-059-20020

TY

4.75 MILES

4.5 MILES

3.3 MILES

7.0 MILES

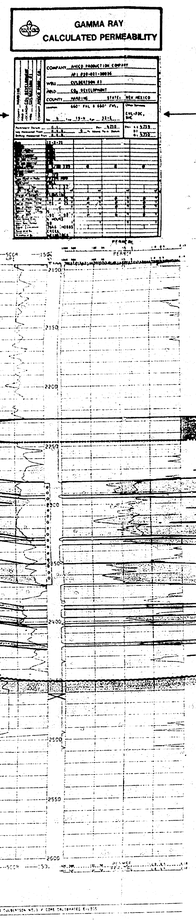
18.1 MILES

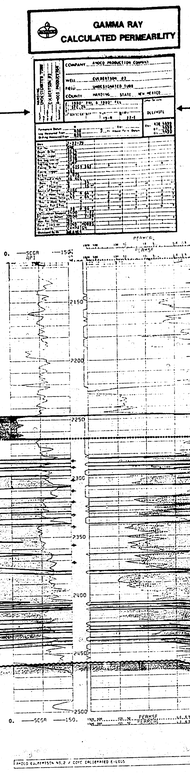
5

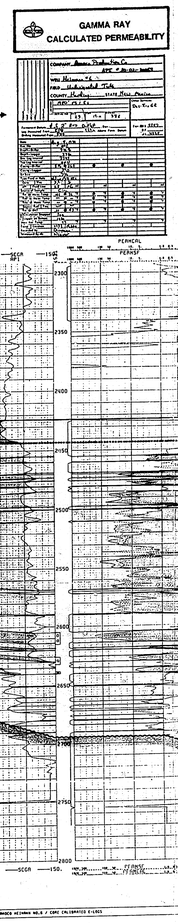
6

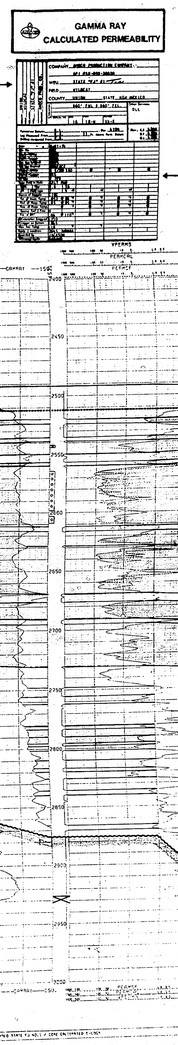
7

8









36, 2242-54

10-20 SN

Amoco #1 Culbertson

ELEV: 4739 RDB, TD: 2501
CMP: 1-18-74
Casing: 8 5/8" @ 369, 4 1/2 @ 2497
Perfs: 2281-2368 w/70 shots overall (12-26-73)
A/ (2281-2368) 2000 gals 7 1/2% HCA in two stages
F/ (2281-2368) 40000 gals FC1 & 60,000# SN in two stgs.
Swbd: (2281-2368) 54 BLW in 5 hrs
Plugback depth 2461
IP: 965 MCFGPD FTP #75, thru 48/64" choak
Comp. Int: 2281-2368
SI

Culbertson No. 2

ELEV: 4699 RDB TD 2574
Casing: 8 5/8" CSA 363
4 1/2" CSA 2574
Perf-Tubb: 2285, 2291, 2302, 2311, 2320, 2331, 2341, 2357, 2372 w/1 JSPF
A/3000 gal 10% Mod-101
Flow CO2 at low rate
F/10600 gal KCL wtr - 501 CO2 7300# 10/20 SN
Flw: 149 MCFGPD w/slugs of water 48/64" choke, TPF 20 psi, CP 115 psi

Heimann No. 6

Elev: 4847 RDB, TD 2762
Casing: 8 5/8" CSA 368
4 1/2" CSA 2768
Perf-Tubb: 2605-15, 2626-32, 2638-40 w/2 JSPF
A/1000 gal 10% Mod-101
Flw: 2985 MCFGPD, 48/64" choke, TPF 120 psi, CP 240 psi

Amoco #1 State FJ

Elev: 4800 RDB, TD 2985
CMP: 9-3-74
Casing: 8 5/8" @ 300, 4 1/2" @ 2962
Perf: 2542-48, 2564-98, 2603-09, w/ 2 JSPF (7-26-76)
A/(2542-2609) 1000 gals 7 1/2% MCA
(5 Bbl) SW in 3.5 hrs
F/ (2542-2609) 20000 gals, KCl gelled water
22000# SN
IP: 1209 MCFGPD, FTP 150#, 48/64" choak making water,
status of load water not known
Comp. Int: 2542-2609
Plugback depth: 2926

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NN

53

AMOCO #1 STATE FJ

API: 30-059-20020

8

CO2-IN-ACTION #1 COOTS

API: 42-205-00006

9

B′

SOUTH

GAMMA RAY
CALCULATED PERMEABILITY

7.0 MILES

18.1 MILES

GAMMA RAY
CALCULATED PERMEABILITY

TOP OF CIMARRON ANHYDRITE

DATUM: TOP OF TUBB SS.

INDEX MAP

OKLA.

TEXAS

HARDING COUNTY

UNION COUNTY

KEY

SCGR	———	Gamma Ray
PERMSF	—·—·—	Depth-shifted permeability (90°) data from core analysis
VPERMS	•••••••	Depth-shifted permeability (vertical) data from core analysis
PERMCAL	———	Calculated permeability based on cross plots of smoothed core porosity vs. permeability and smoothed core porosity vs. density porosity

Permeabilities > 1 md

Permeabilities < 1 md

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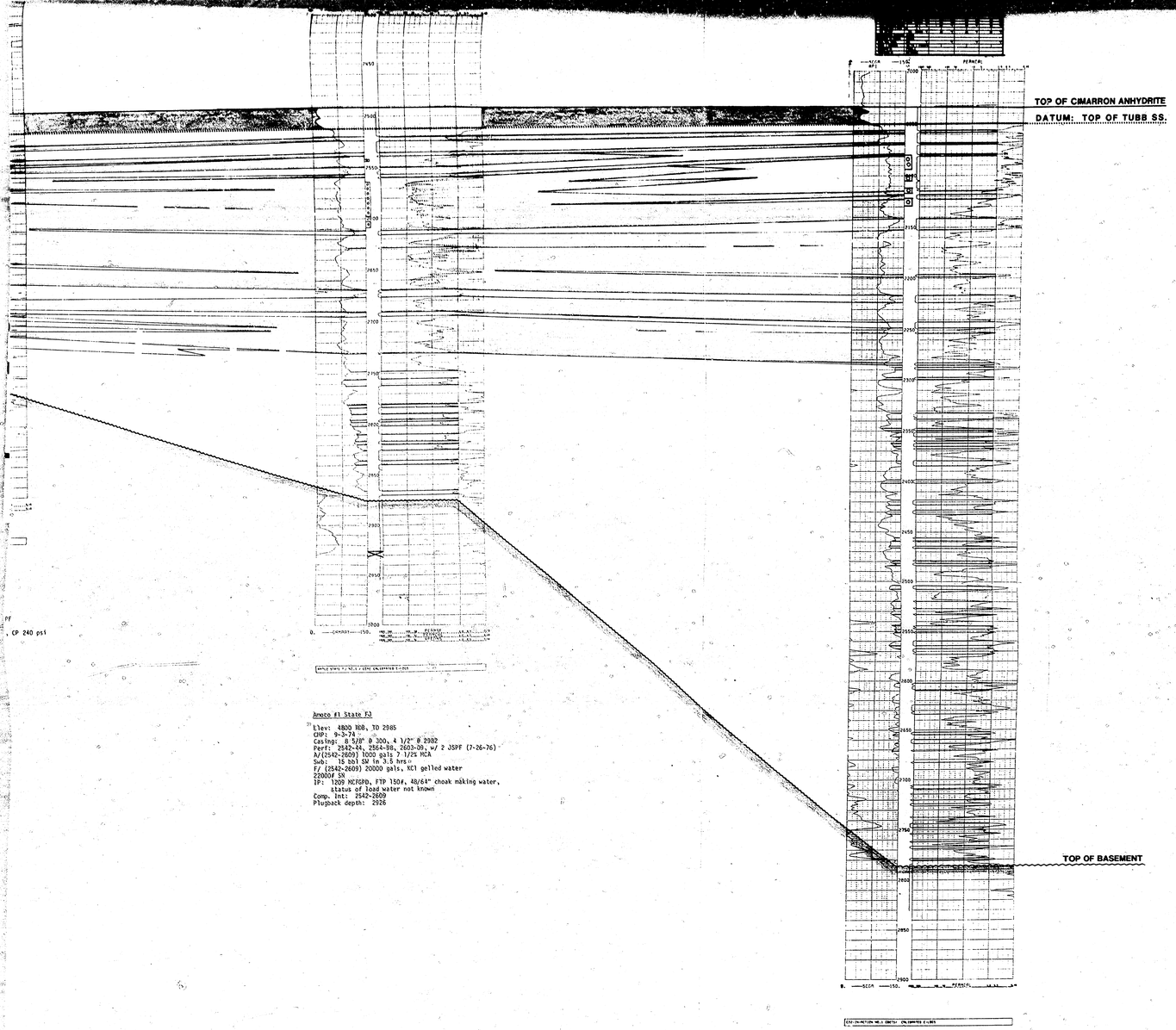
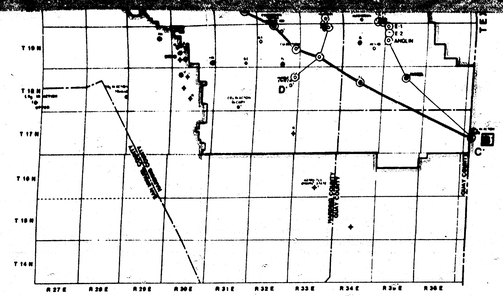


Amoco #1 State F3

Elev: 4800 RKB, TD 2985
CMP: 9-3-74
Casing: 8 5/8" @ 300, 4 1/2" @ 2982
Perf: 2542-44, 2564-98, 2603-09, w/ 2 JSPF (7-26-76)
A/(2542-2609) 1000 gals 7 1/2% MCA
Swb: 15 bbl SW in 3.5 hrs
F/ (2542-2609) 20000 gals, KCl gelled water
220OOF SN
IP: 1209 MCFGPD, FTP 150#, 48/64" choak making water,
status of load water not known
Comp. Int: 2542-2609
Plugback depth: 2926

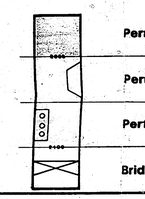
CO2 #1 Coots

Cmp: 10/29/78 TD 2825
KB
Casing: 8 5/8" @ 400
Perfs: 2080-2094, 2100-2105, 2112-2117, 2122-2139
A/ (2080-2139) 4000 gals
FL: 225 mcfgpd
F/ (2080-2139)
IP: 900 mcfgpd & 2 BWPH



KEY

SCGR	———	Gamma Ray
PERMSF	—·—·—	Depth-shifted permeability (90°) data from core analysis
VPERMS	•••••••	Depth-shifted permeability (vertical) data from core analysis
PERMCAL	———	Calculated permeability based on cross plots of smoothed core porosity vs. permeability and smoothed core porosity vs. density porosity



Permeabilities > 1 md

Permeabilities < 1 md

Perforations

Bridge Plug

Amoco Production Company

BRAVO DOME CO_2 GAS UNIT

Temporary Pool Rules Hearing

Gamma Ray – Permeability
Cross Section **B B'**

Horizontal Scale: 1" = 1 mile
Vertical Scale: 2.5" = 100'

EXHIBIT NO. ____

DATE ____
GEOL. Bruce L May

BEFORE THE
OIL CONSERVATION COMMISSION
SANTA FE, NEW MEXICO
Case No. 7198 Exhibit No. 10
Submitted by Amoco
Hearing Date 3/18/81

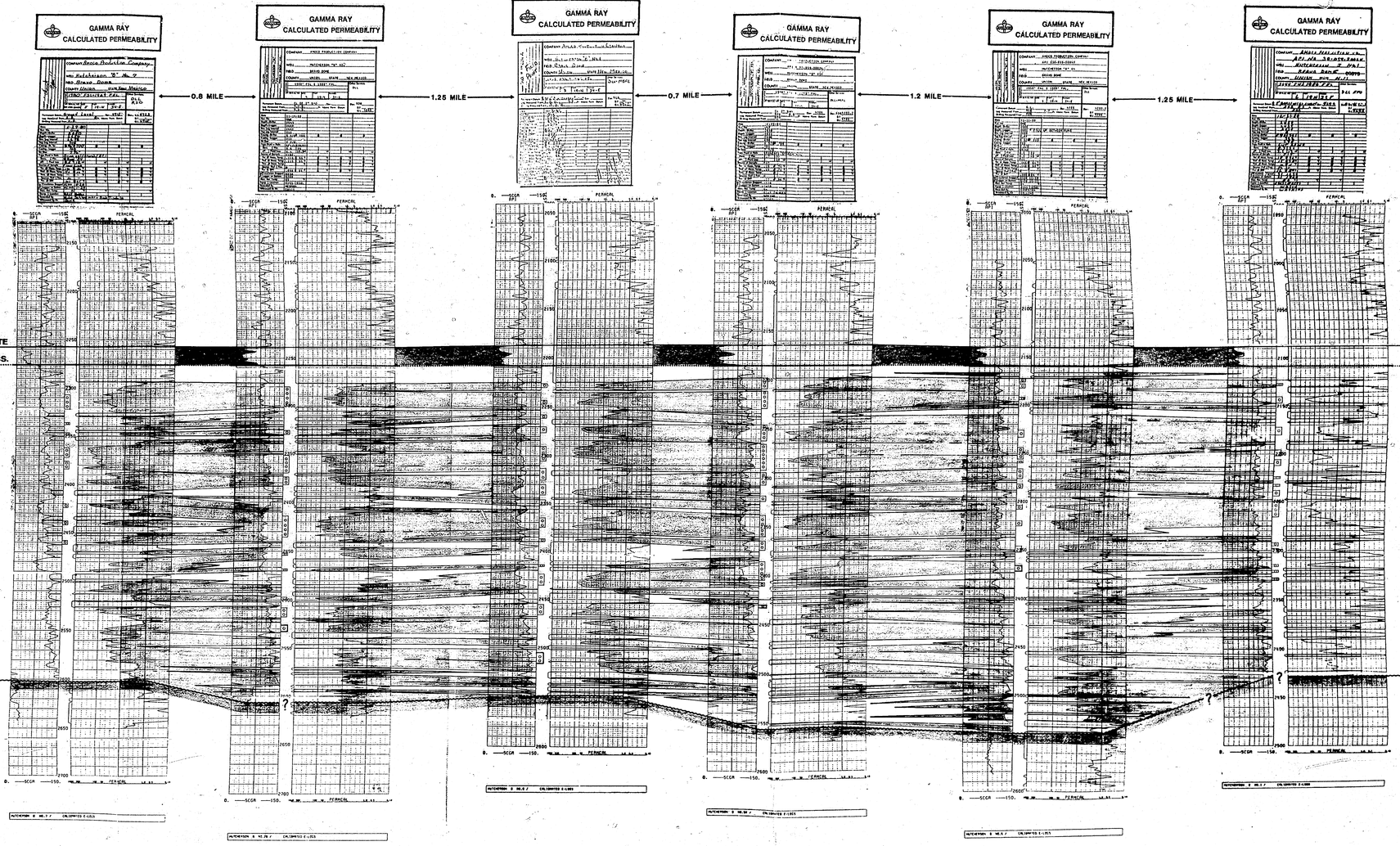
BEST AVAILABLE COPY

F

WEST

AMOCO	AMOCO	AMOCO	AMOCO	AMOCO	AMOCO
HUTCHERSON 'B'#7	HUTCHERSON 'B'#28	HUTCHERSON 'B'#6	HUTCHERSON 'B'#5X	HUTCHERSON 'B'#4	HUTCHERSON 'E'#1
API: 30-059-20050	API: 30-059-20079	API: 30-059-20049	API: 30-059-20074	API: 30-059-20047	API: 30-059-20064
ELEV 4923' KB	ELEV 4894' KB	ELEV 4831' KB	ELEV 4794' KB	ELEV 4794' KB	ELEV 4698' KB
①	②	③	④	⑤	⑥

0.8 MILE — 1.25 MILE — 0.7 MILE — 1.2 MILE — 1.25 MILE



Amoco Hutcherson 'B' 7
Elev: 4923 KDB, TD 2650
Comp:
Casing: 8 5/8" at 710', 5½" at 2650
Perf (Tubb) 2298-2302, 2307-22, 2336-38, 2347-49, 2362-72
2376-84, 2430-34, 2438-42, 2458-62
A/4000 gal 7½% HCl
IP: 1395 MCFGPD TPF 185 84/64" choke
Comp. Int: 2298-2462

Amoco Hutcherson 'B' #28
Elev: 4895 KDB TD 2608
Comp:
Casing: 8 5/8" at 716 5½" at 2648
Perf (Tubb) 2280-2300, 2326-30, 2352-70, 2374-82, 2414-35
2452-54, 2468-70, 2497-2500, 2508-17, 2526-33
IP: 1174 MCFD, 180 TPF, 48/64" choke

Amoco Hutcherson 'B' #6
Elev: 4831' KDB, TD 2576
Comp: 11-30-80
Casing: 8 5/8" at 700, 5½" at 2585
Perf (Tubb) 2226-30, 2243-47, 2258-61, 2270-76, 2290-2305,
2313-2325, 2330-41, 2346-51, 2365-75, 2387-90, 2414-16,
2424-35, 2455-66
A/4174 gal 7½% HCl
IP: 1083 MCFGPD, FTP 140, 48/64" choke
Comp. Int: 2226-2466

Amoco Hutcherson 5X
Elev: 4794 KDB, TD 2571
Comp: 11-13-80
Casing: 8 5/8" at 760', 5 1/2" at 2630'
Perf (Tubb) 2198-2209, 2212-29, 2246-62, 2265-92, 2295-2307,
2318-23, 2338-60, 2363-74, 2386-2405, 2607-11, 2380-33
A/(2151-2360) 153 bbl 7½% HCl in two stages.
IP: 1121 MCFD, FTP 155, 48/64" choke
Comp. Int: 2198-2431

Amoco Hutcherson 'B' 4
Elev: 4794 TD 2601
Comp: 12-10-80
Casing: 8 5/8" at 713, 5½" at 2615
Perf (Tubb) 2172-76, 2178-82, 2192-94, 2226-33, 2244-56, 2258-60,
2266-76, 2282-86, 2304-08, 2320-25, 2346-52, 2366-72
A/4000 gal 7½% HCl
IP: 1216 MCFD, FTP 160, 48/64" choke
Comp. Int: 2172-2372

Amoco Hutcherson 'E' #1
Elev: 4698 KDB, TD 2435
Casing: 8 5/8" @ 701 5½" at 2450
Perf (Tubb) 2128-28, 2140-45, 2172-80, 2196-2202, 2206-12,
2224-26, 2232-36, 2238-44, 2250-2266, 2291-95, 2298-2302
2314-18, 2320-22, 2328-30
A/3350 gal 7½% HCL
Bo. 20 BLW in 4 hours
IP: 1229 MCFGPD TPF 170 choke 48/64"

U.S.G.S. RECORDS
BEST AVAILABLE COPY

AMOCO

#4 HUTCHERSON 'E'#1

47 API: 30-059-20064

ELEV 4698' KB

⑥

GAMMA RAY
CALCULATED PERMEABILITY

1.25 MILE

TOP CIMARRON ANHYDRITE

DATUM: TOP OF TUBB SS.

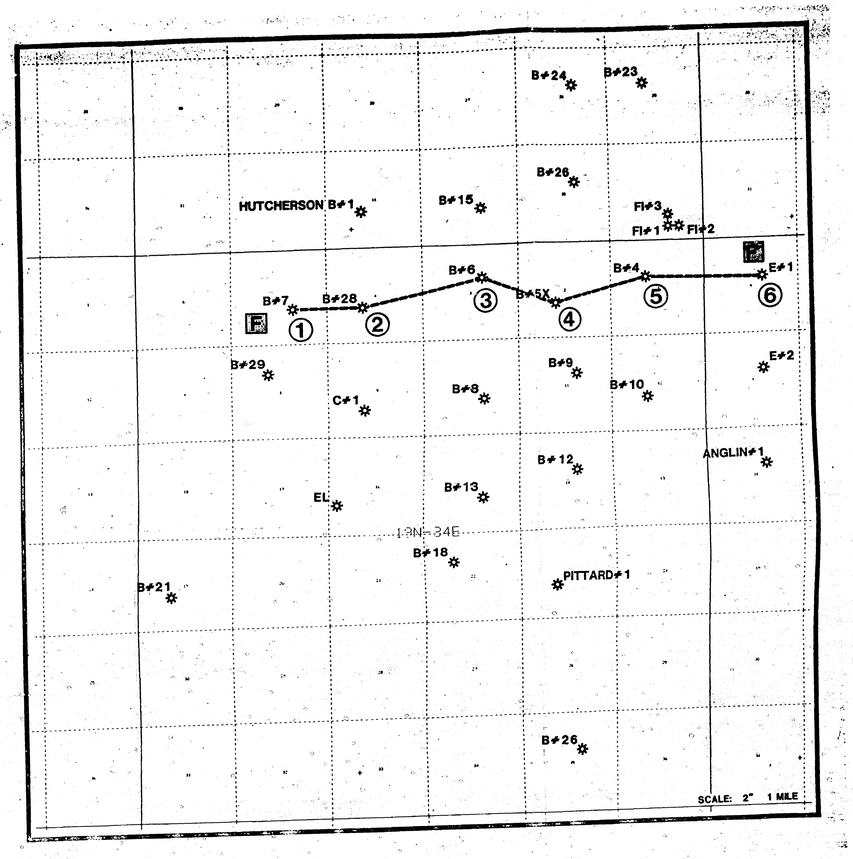
TOP OF BASEMENT

3, 2244-56, 2258-60,
-52, 2366-72

Amoco Hutcherson 'E' #1
Elev: 4698 KBM, TD 2435
Casing: 8 5/8" @ 701 5½" at 2450
Perf (Tubb) 2126-28, 2140-46, 2172-80, 2196-2202, 2206-12, 2224-26, 2232-34, 2238-44, 2250-2266, 2292-95, 2298-2302 2314-16, 2320-22, 2328-30
A/3350 gal 7½ HCL
Sw. 20 BLW in 4 hours
IP: 1229 MCFGPD TFP 170 choke 48/64"

F'

EAST



KEY

SCGR	———	Gamma Ray
PERMSF	—·—·—	Depth-shifted permeability (90^{o}) data from core analysis
VPERMS	•••••••	Depth-shifted permeability (vertical) data from core analysis
PERMCAL	———	Calculated permeability based on cross plots of smoothed core porosity vs. permeability and smoothed core porosity vs. density porosity

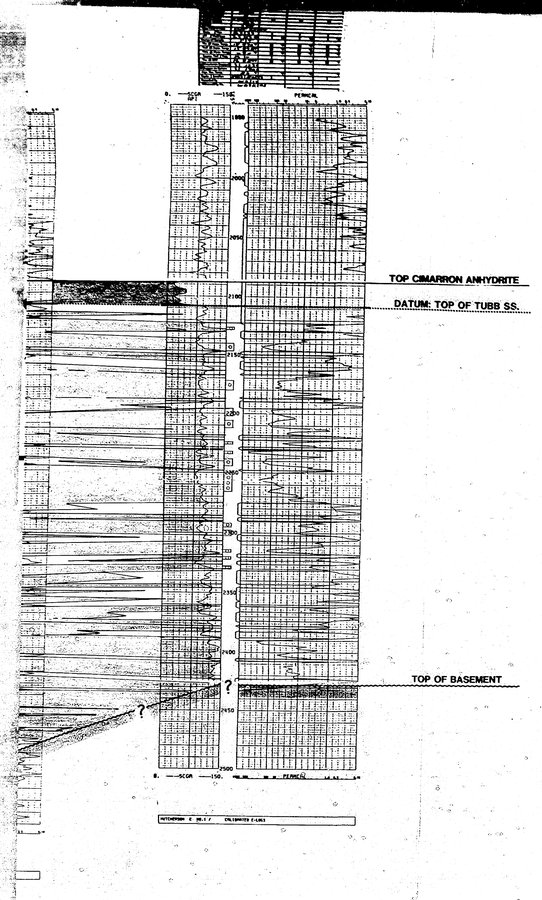
Permeabilities > 1 md

Permeabilities < 1 md

Perforations

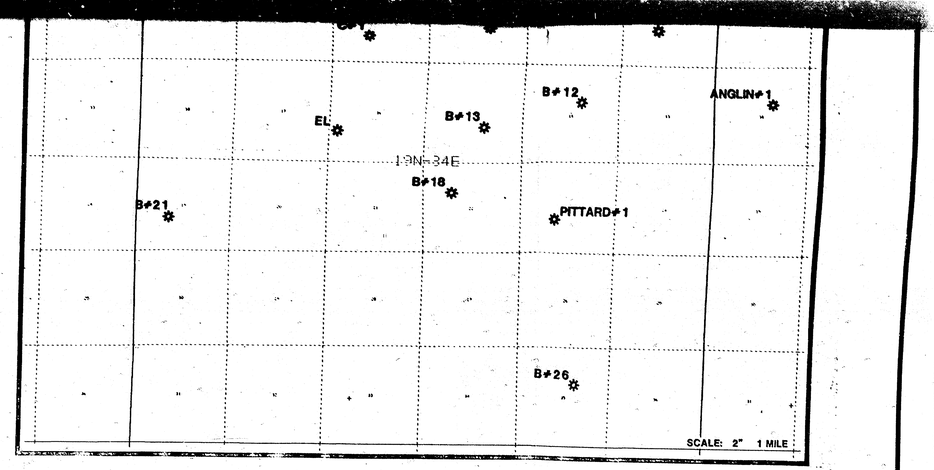
Bridge Plug

V.P.I.S.C. RECORDS
BEST AVAILABLE COPY



Amoco Hutcherson 'E' #1
Elev: 4698 RDB, TD 2435
Casing: 8 5/8" @ 701 5½" at 2450
Perf (Tubb) 2126-28, 2140-55, 2172-80, 2196-2202, 2206-12, 2224-26, 2232-34, 2238-44, 2250-2266, 2292-93, 2298-2302 2314-16, 2320-22, 2328-30
A/3550 gal 7½% HCL
Sw. 20 BLW in 4 hours
IP: 1229 MCFGPD TPF 170 choke 48/64"

3, 2244-56, 2258-60,
-52, 2366-72



KEY

SCGR — Gamma Ray

PERMSF — Depth-shifted permeability (90°) data from core analysis

VPERMS — Depth-shifted permeability (vertical) data from core analysis

PERMCAL — Calculated permeability based on cross plots of smoothed core porosity vs. permeability and smoothed core porosity vs. density porosity

Permeabilities > 1 md

Permeabilities < 1 md

Perforations

Bridge Plug

Amoco Production Company

BRAVO DOME CO_2 GAS UNIT

Temporary Pool Rules Hearing

Gamma Ray – Permeability
Cross Section **F-F'**

Horizontal Scale: 1"= 1 mile
Vertical Scale: 2.5" = 100'

EXHIBIT NO. ____ DATE ____
GEOL. Bruce L May

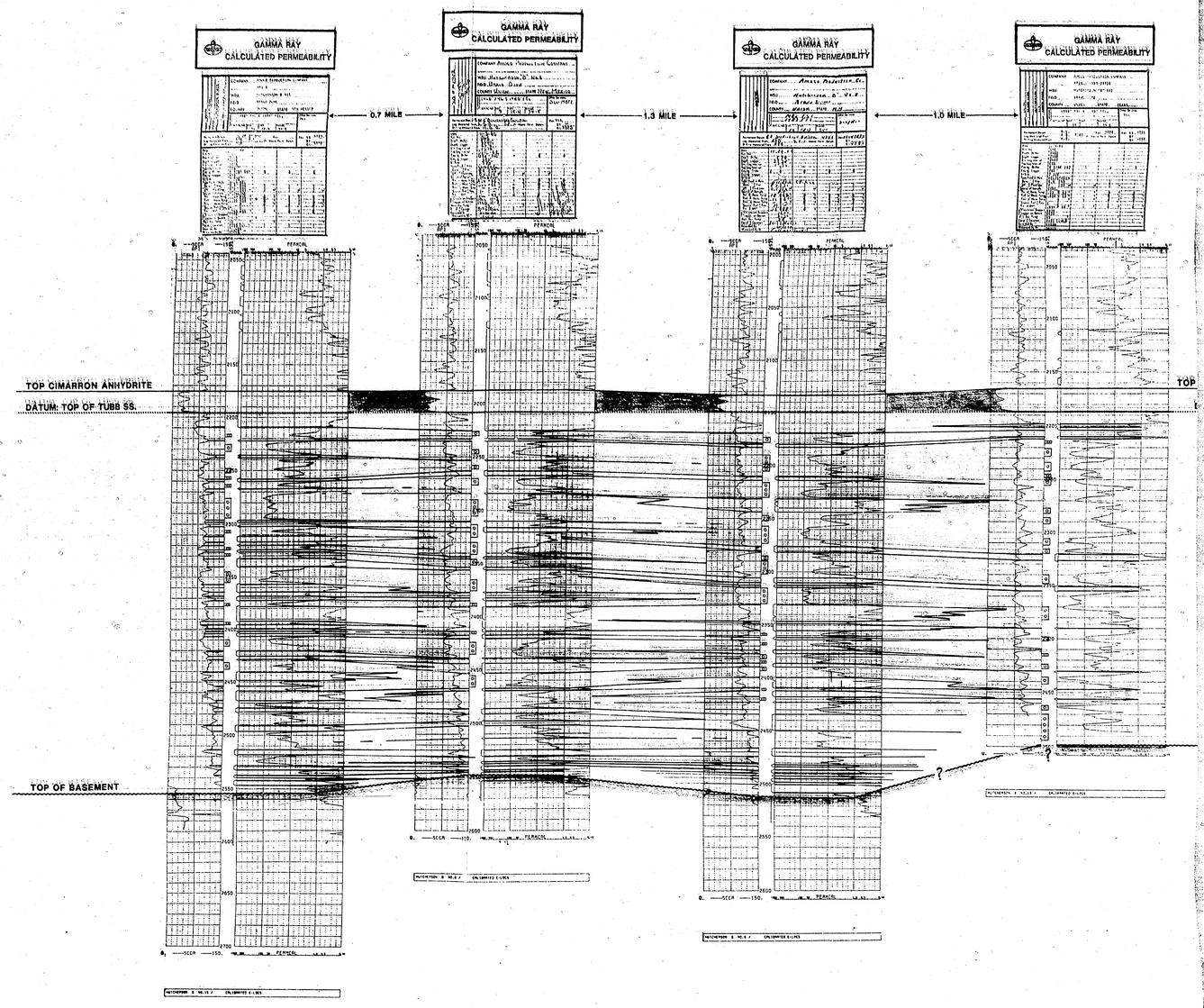
BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Case No. 7498 Exhibit No. 14
Submitted by: Amoco
Hearing Date: 7/18/81

U.S.G.S. RECONNAISSANCE
BEST AVAILABLE COPY

G

NORTH

AMOCO	AMOCO	AMOCO	AMOCO
HUTCHERSON 'B'#15	HUTCHERSON 'B'#6	HUTCHERSON 'B'#8	HUTCHERSON 'B'#13
API: 30-059-20053	API: 30-059-20049	API: 30-059-20054	API: 30-059-20056
ELEV 4810' KB	ELEV 4831' KB	ELEV 4788' KB	ELEV 4808' KB
(1)	(2)	(3)	(4)



Amoco Hutcherson 'B' 15
Elev: 4810 KDB TD 2606
Casing: 8 5/8" at 700, 5½" at 2581
Perf (Tubb) 2216-18, 2226-32, 2248-52, 2256-58, 2263-65, 2276-94, 2306-08, 2322-24, 2328-30, 2345-55, 2375-77, 2393-95, 2410-18, 2432-38
A/83 bbl 7½ HCl
IP: 1500 MCFGPD, TPF 185, 48/64" choke

Amoco Hutcherson 'B' #6
Elev: 4831' KDB, TD 2576
Comp: 11-30-80
Casing: 8 5/8" at 700, 5½" at 2595
Perf (Tubb) 2226-30, 2243-47, 2258-61, 2270-76, 2290-2305, 2313-2325, 2330-41, 2346-51, 2365-75, 2387-90, 2414-16, 2424-35, 2435-66
A/4174 gal 7½ HCl
IP: 1083 MCFGPD, FTP 140, 48/64" choke
Comp. Tot: 2226-2466

Amoco Hutcherson 'B' #8
Elev: 4790 KDB TD 2560
Comp: 12-30-80
Casing: 8 5/8" at 711, 5½" at 2558
Perf (Tubb) 2173-78, 2190-99, 2202-05, 2216-30, 2242-52, 2257-73, 2282-89, 2290-2302, 2313-30, 2358-66, 2367-69, 2378-82, 2384-86, 2390-93, 2410-12, 2418-32
IP: 1335 MCFGPD, FTP 205, 48/64" choke
Comp. Int: 2173-2532
Acidize w/ 4000 gal 7½ HCl

Amoco Hutcherson 'B' #13
Elev: KDB 4808' TD 2495
Comp: 2-3-81
Casing: 8 5/8" at 700 5½" at 2480
Perf (Tubb) 2286-92, 2306-12, 2340-48, 2360-72, 2436-42,
Perf (Tubb) 2214-16, 2221-28, 2234-42, 2245-48, 2250-55, 2267-72, 2336-38, 2398-2402, 2414-16, 2424-28, 2462-66, 2470-74, 10 JSPF
A/4000 gal 7½ HCl
Flw 1367 MCF and 5 BW in 23 hrs., TPF 199, CPF 300 psi, 48/64

W.R.D.C.P. RECORDS
BEST AVAILABLE COPY

G'
SOUTH

AMOCO

'B'#8

HUTCHERSON 'B'#13

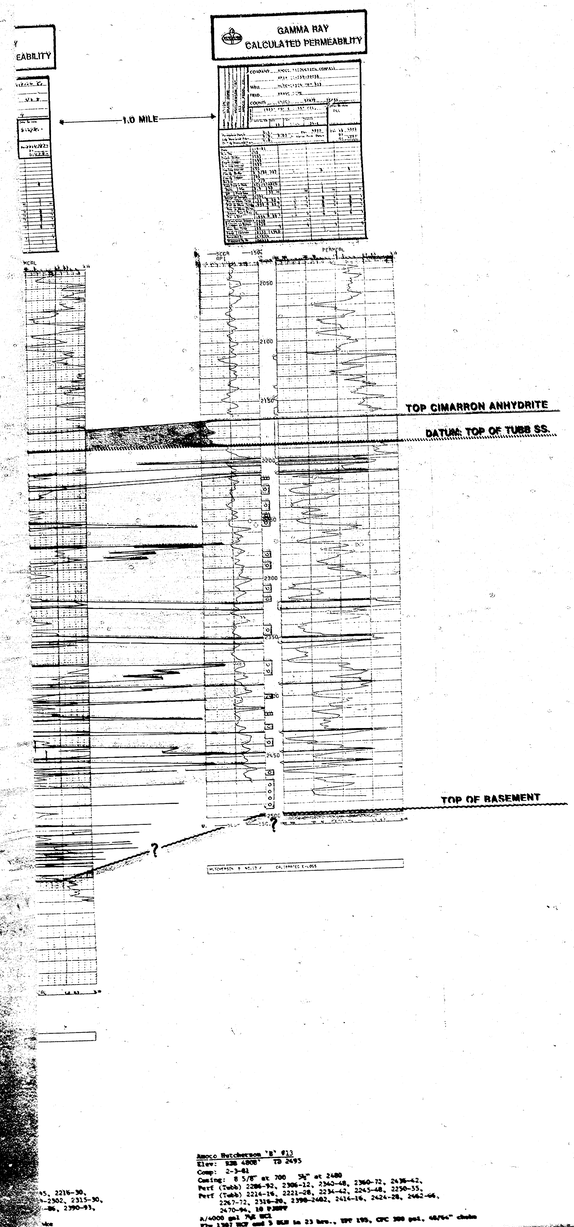
20054

API: 30-059-20056

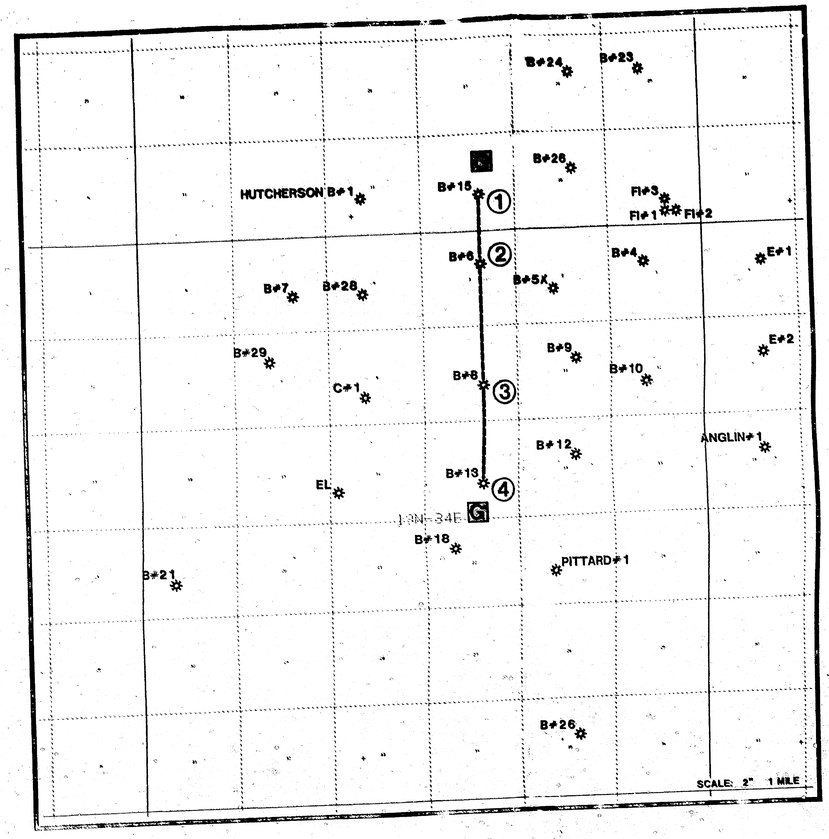
' KB

ELEV 4808' KB

④

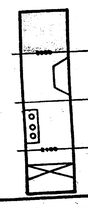


Amoco Hutcherson 'B' #13
Elev: KB 4808' TD 2695
Comp: 2-3-81
Casing: 8 5/8" at 700 sx at 2480
Perf (Tubb) 2286-92, 2306-12, 2342-48, 2360-72, 2438-42,
Perf (Tubb) 2214-18, 2221-28, 2234-42, 2243-48, 2250-55,
226?-72, 2318-28, 2390-2402, 2414-16, 2424-28, 2462-66,
2470-84, 10 PSPF
A/4000 gal 7½% HCL
Flw 1387 MCF and 5 BLW in 23 hrs., SIP 195, CPC 300 psi, 48/64" choke



KEY

SCGR	———	Gamma Ray
PERMSF	—•—•—	Depth-shifted permeability (90°) data from core analysis
VPERMS	•••••••	Depth-shifted permeability (vertical) data from core analysis
PERMCAL	———	Calculated permeability based on cross plots of smoothed core porosity vs. permeability and smoothed core porosity vs. density porosity



Permeabilities >1 md

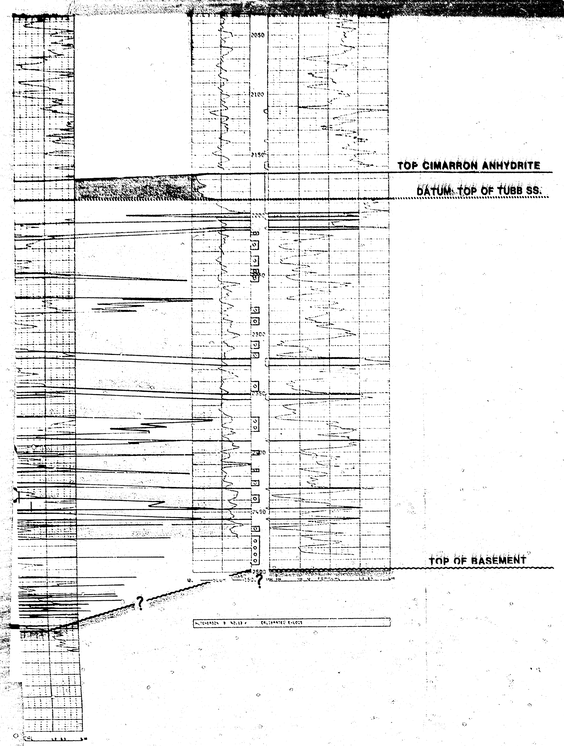
Permeabilities <1 md

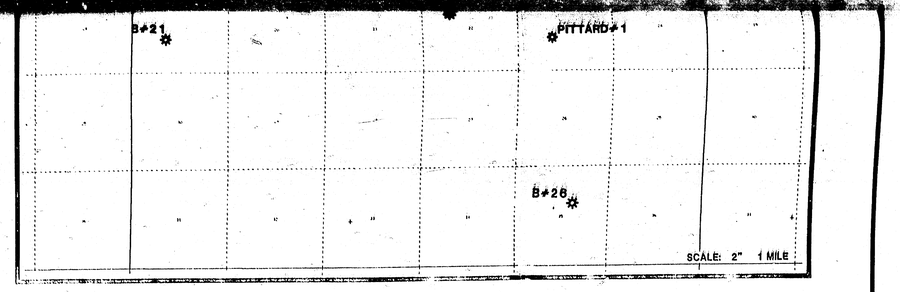
Perforations

Bridge Plug

Amoco Production Company

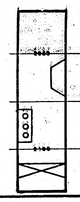
BRAVO DOME CO_2 GAS UNIT





KEY

SCGR	———	Gamma Ray
PERMSF	—•—•—	Depth-shifted permeability (90°) data from core analysis
VPERMS	•••••••	Depth-shifted permeability (vertical) data from core analysis
PERMCAL	———	Calculated permeability based on cross plots of smoothed core porosity vs. permeability and smoothed core porosity vs. density porosity



Permeabilities > 1 md

Permeabilities < 1 md

Perforations

Bridge Plug

Amoco Production Company

BRAVO DOME CO_2 GAS UNIT

Temporary Pool Rules Hearing

Gamma Ray -- Permeability

Cross Section **G-G'**

Horizontal Scale: 1": 1 mile

Vertical Scale: 2.5" = 100'

EXHIBIT NO. ____ DATE ____

GEOL. Bruce L May

BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Case No. 7158 Exhibit No. 15
Submitted by Amoco
Hearing Date 3/18/81

Amoco Ratcherson 'B' #13
Elev: RDB 4808' TD 2495
Comp: 2-3-81
Casing: 8 5/8" at 300 5½" at 2480
Perf (Tubb) 2286-92, 2306-12, 2360-68, 2360-72, 2436-42,
Perf (Tubb) 2214-16, 2221-28, 2234-42, 2245-48, 2250-55,
2262-72, 2316-20, 2398-2402, 2414-16, 2424-28, 2462-66,
2470-94, 10 PJSPF
A/4000 gal 7½% HCl
Flw 1307 MCF and 5 BLW in 23 hrs., TPF 195, CPC 300 psi, 48/64" choke

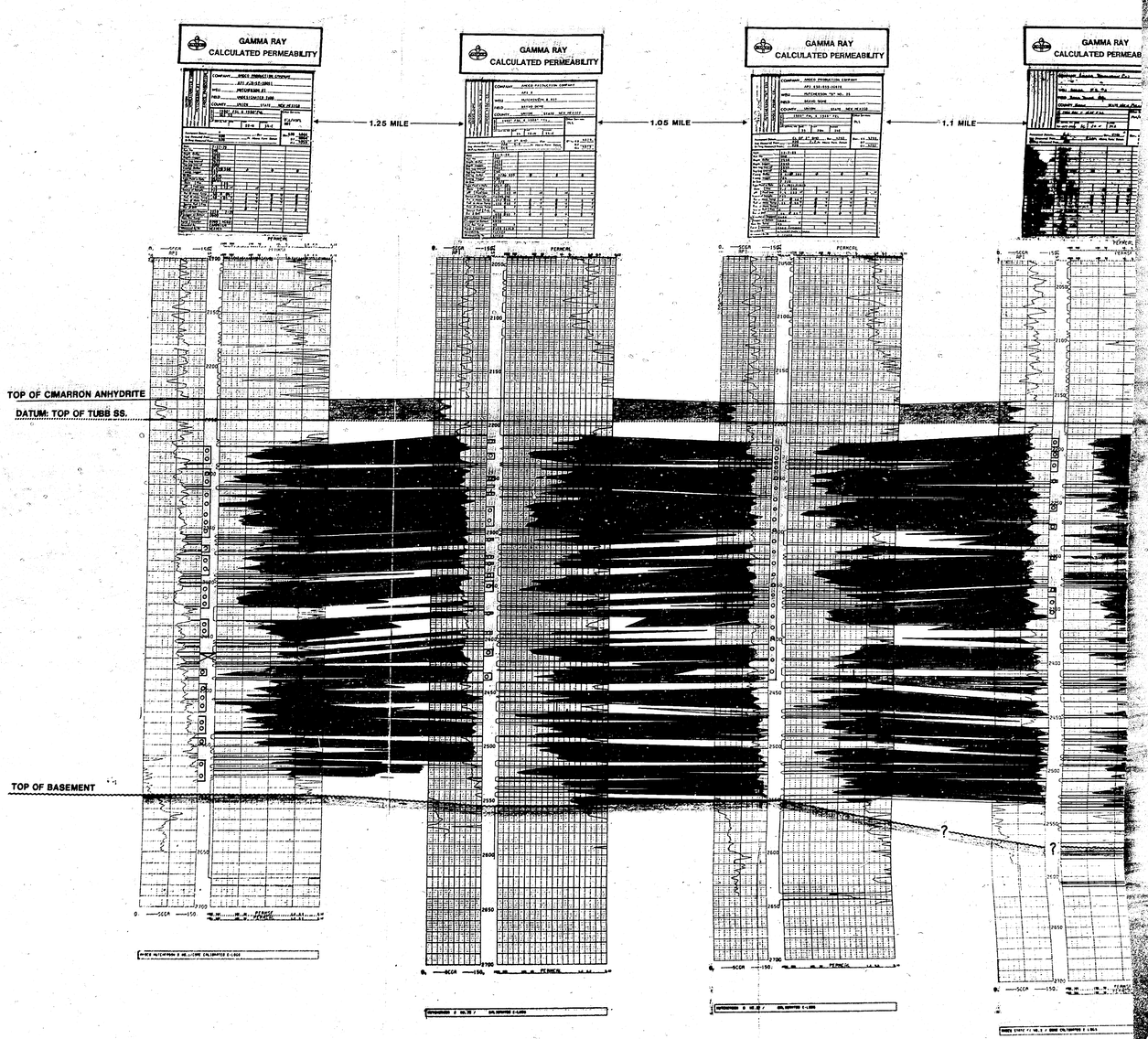
...5, 2214-30,
...-2302, 2315-30,
...-86, 2390-93,
...ke

U.S.B.L.M. RECORDS
BEST AVAILABLE COPY

E

WEST

AMOCO	AMOCO	AMOCO	AMOCO
HUTCHERSON 'B'#1	HUTCHERSON 'B'#15	HUTCHERSON 'B'#26	STATE FI#
API: 30-059-20031	API: 30-059-20053	API: 30-059-20070	API: 30-059-20
ELEV 4865' KB	ELEV 4810' KB	ELEV 4800' KB	ELEV 4750' K
①	②	③	④



Hutcherson No. 1

ELEV: 4865 KDB, TD: 2670
CASING: 8 5/8" CSA 360
4 1/2" CSA 2670
PERF-TUBB: 2480-86, 2494-2500, 2524-40, 2544-50, 2564-80 w/2 JSPF

A/3000 gal Mod-101
Flw 781 mcfpd, 48/64" choke, TPF 72 psi, CP 174 psi
SET: Retrevial BP at 2465
PERF-TUBB: 2274-90, 2295-2312, 2314-58, 2366-72, 2375-93, 2400-2424, 2434-2480 w/4 JSPF

A/4000 gal 10% Mod-101
Flt: 848 mcfpd wet gas, 48/64" choke, TPF 100 psi, CP 190 psi

Amoco Hutcherson 'B' 15
Elev: 4810 KDB, TD 2606
Casing: 8 5/8" at 700, 5½" at 2591
Perf (Tubb) 2216-18, 2226-32, 2248-52, 2256-58, 2263-65, 2276-94, 2306-08, 2322-24, 2328-30, 2345-55, 2375-77, 2391-95, 2410-18, 2432-38
A/83 bbl 7½% MCA
IP: 1300 MCFGPD, TPF 185, 48/64" choke

Amoco Hutcherson 'B' #26
Elev: 4800 KDB, TD 2645
Comp: 11-1-81
Casing: 8 5/8" at 701', 5½" at 2647
Perf (Tubb) 2220-2438, 1 SPF

IP: 1340 MCFD, 8 BWPD, 150 TPF 48/64" choke

State Fl No. 3

ELEV: 4700 KDB, TD: 2600
CASING: 8 5/8" CSA 352
4 1/2" CSA 2599
PERF-TUBB: 2190-96, 2202-08, 2211-[illegible]
2271- 76, 2300-2304, 233[illegible]
A/1200 gal 7 1/2% MCA
Well Flowed CO2 - Rate not available
Shut - in For Interference test

V.R.U.C.F. MICROGRAPHICS
BEST AVAILABLE COPY

AMOCO

:HERSON 'B'#26

30-059-20070

.EV 4800' KB

AMOCO

STATE FI# 3

API: 30-059-20026

ELEV 4750' KB

AMOCO

STATE FI#2

API: 30-059-99800

ELEV 4750' KB

AMOCO

HUTCHERSON 'E'#1

API: 30-059-20064

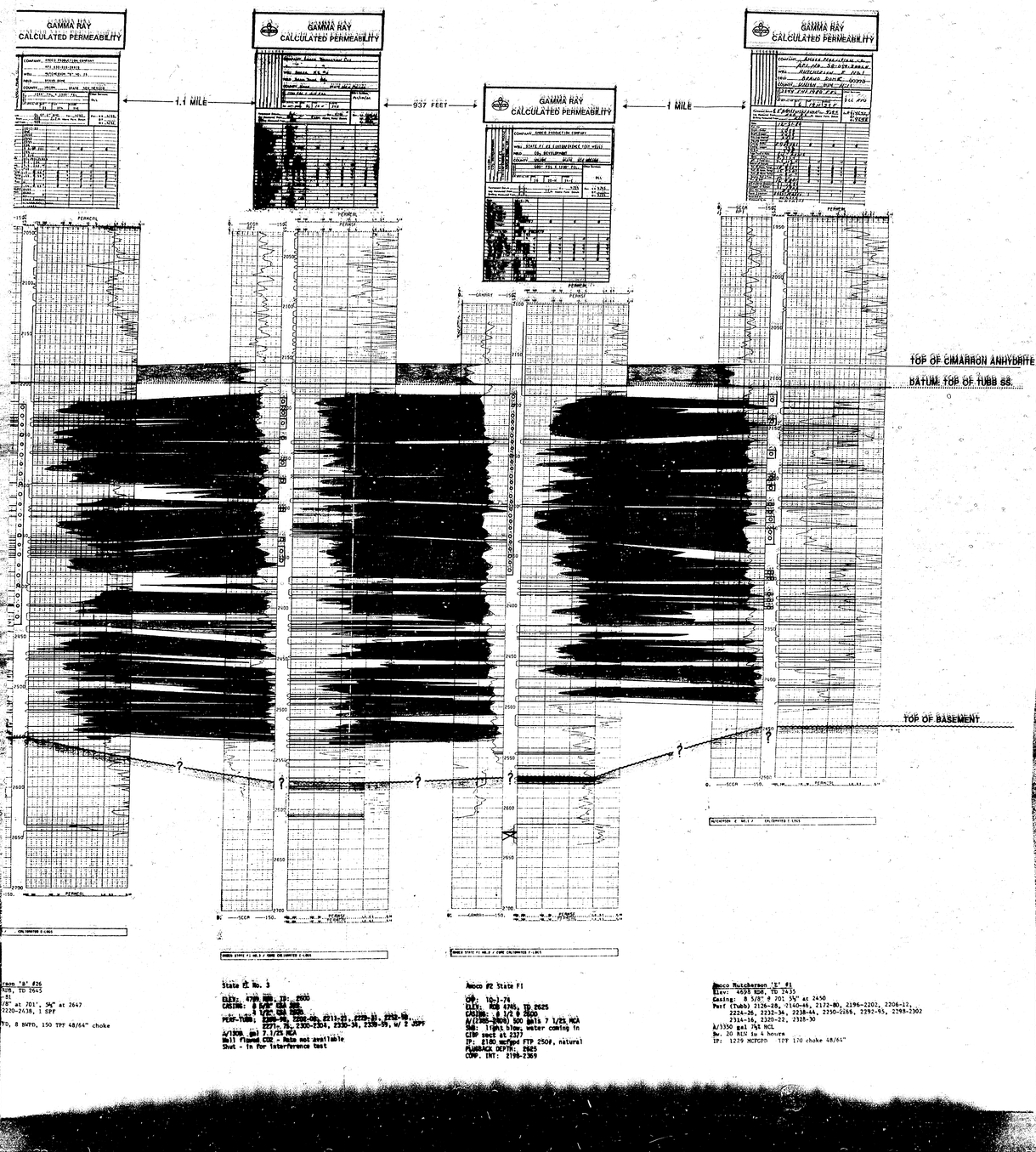
ELEV 4698' KB

3

4

5

6



son 'B' #26
KDB, TD 2645
-81
78" at 701', 54" at 2647
2270-2638, 1 SPF

TD, 8 BWPD, 150 TPF 48/64" choke

State Fl No. 3

ELEV: 4799 RDB, TD: 2600
CASING: 8 5/8" @ 304 RDB
4 1/2" @ 2600
PERF-TUBB: 2268-90, 2296-98, 2311-21, 2328-38, 2352-58, 2371-75, 2380-2404, 2330-34, 2388-99, w/ 2 JSPF
A/1500 gal 7.1/2% MCA
Well Flowed CO2 - Rate not available
Shut - In for Interference Test

Amoco #2 State Fl

CO: 10-1-74
ELEV: RDB 4745, TD 2625
CASING: 8 5/8 @ 2500
A/(2300-2400) 500 gals 7 1/2% MCA
SWB: light blow, water coming in
CIBP set at 2377
IP: 2160 mcfgpd FTP 2500, natural
PLUGBACK DEPTH: 2625
COMP. INT: 2198-2369

Amoco Hutcherson 'E' #1
Elev: 4698 KDB, TD 2433
Casing: 8 5/8" @ 701 5½" at 2450
Perf (Tubb) 2126-28, 2140-46, 2172-80, 2196-2201, 2206-12, 2224-28, 2232-34, 2238-44, 2250-2268, 2292-95, 2298-2302 2314-16, 2320-22, 2328-30
A/3350 gal 7½ HCL
Sw. 20 BLW in 4 hours
IP: 1229 MCFGPD TFP 170 choke 48/64"

W.P.&L.C.P. RECORDS

BEST AVAILABLE COPY

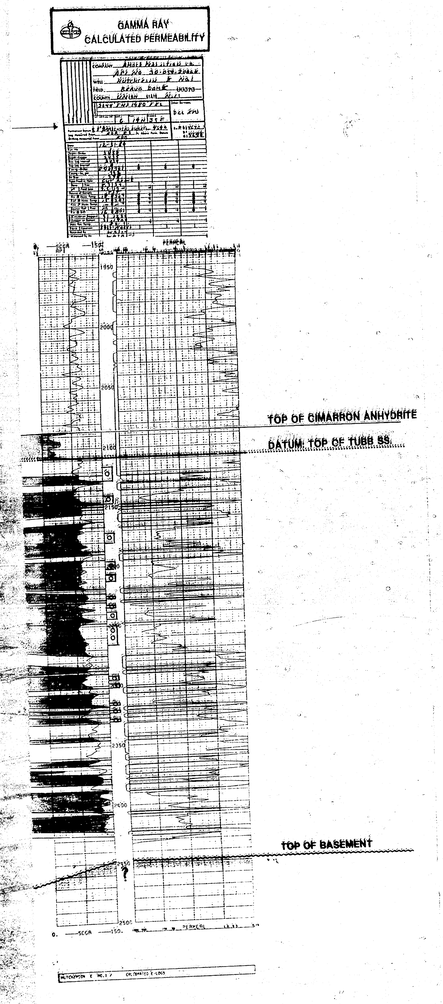
AMOCO

HUTCHERSON 'E'#1

API: 30-059-20064

ELEV 4698' KB

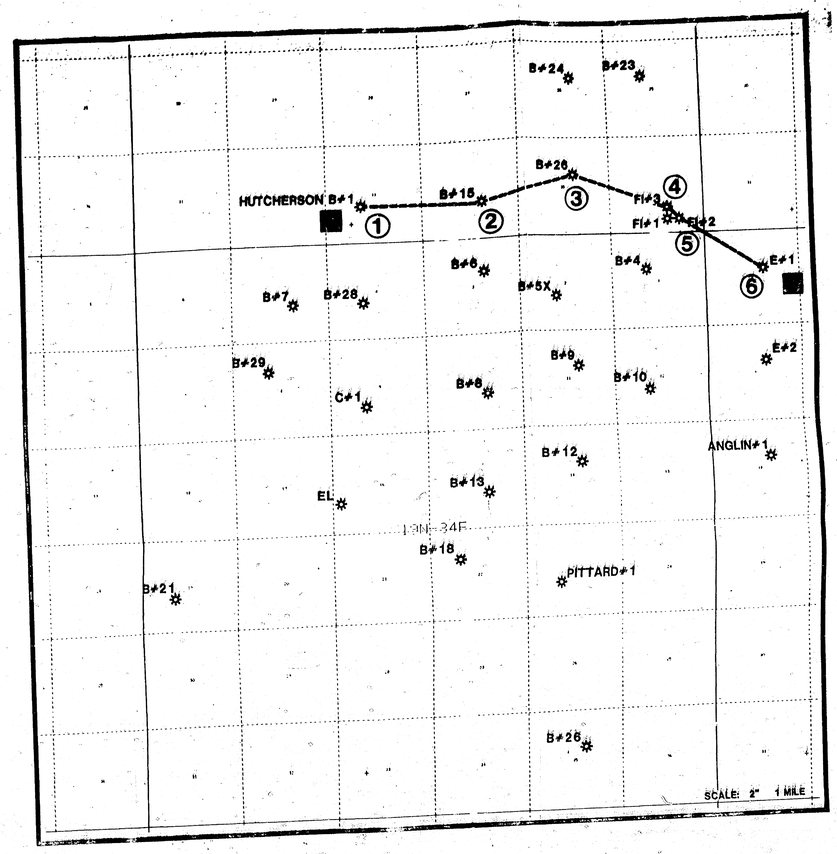
6



Amoco Hutcherson 'E' #1
Elev: 4698 KDB, TD 2435
Casing: 8 5/8" @ 701 5½" @ 2450
Perf (Tubb) 2126-28, 2160-68, 2172-80, 2196-2202, 2206-12, 2224-28, 2232-34, 2238-44, 2250-2266, 2292-95, 2298-2302 2314-16, 2320-22, 2328-30
w/3350 gal 7½ HCl
Sw. 20 BLW in 4 hours
IP: 1226 MCFGPD TFP 170 choke 48/64"

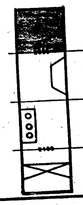
E′

EAST



KEY

SCGR	———	Gamma Ray
PERMSF	—·—·—	Depth-shifted permeability (90°) data from core analysis
VPERMS	·····	Depth-shifted permeability (vertical) data from core analysis
PERMCAL	———	Calculated permeability based on cross plots of smoothed core porosity vs. permeability and smoothed core porosity vs. density porosity



Permeabilities > 1 md

Permeabilities < 1 md

Perforations

Bridge Plug

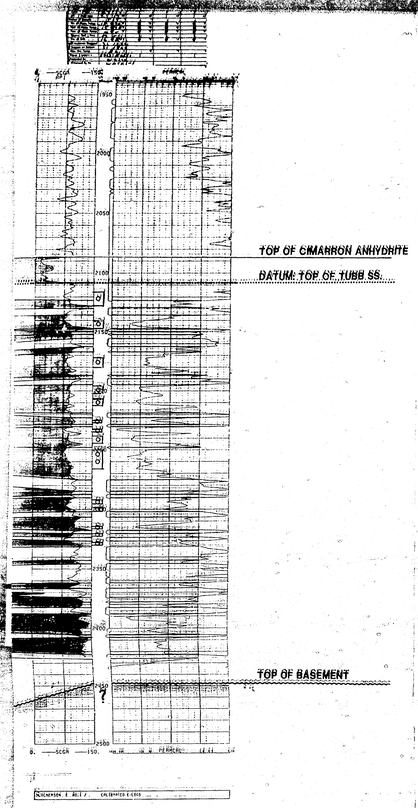
Amoco Production Company

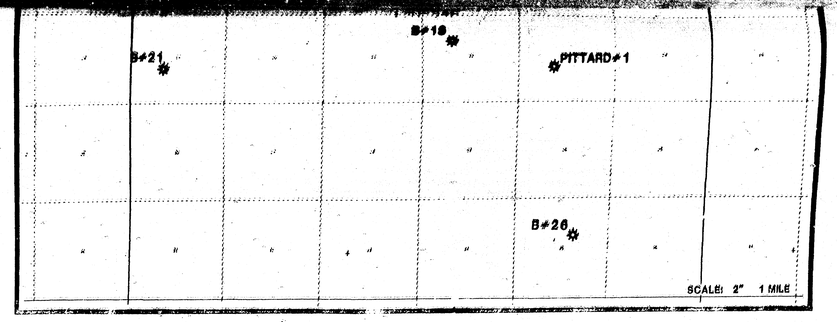
BRAVO DOME CO_2 GAS UNIT

Temporary Pool Rules Hearing

Gamma Ray – Permeability

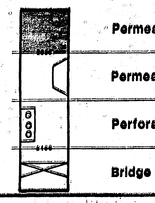
Cross Section **E-E**





KEY

SCGR	———	Gamma Ray
PERMSF	– – –	Depth-shifted permeability (90°) data from core analysis
VPERMS	•••••••	Depth-shifted permeability (vertical) data from core analysis
PERMCAL	———	Calculated permeability based on cross plots of smoothed core porosity vs. permeability and smoothed core porosity vs. density porosity



Permeabilities > 1 md

Permeabilities < 1 md

Perforations

Bridge Plug

Amoco Hutcherson 1st #1
Elev: 4698 RDB; TD 2435
Casing: 8 5/8" @ 701 5½" at 2450
Perf (Tubb) 2126-28, 2140-46, 2172-80, 2196-2202, 2206-12, 2214-26, 2232-34, 2238-44, 2250-2268; 2292-95, 2298-2302 2314-16; 2320-22, 2328-30
A/3350 gal 7½% HCL
Sw. 20 BLW in 4 hours
IP: 1229 MCFGPD TPF 170 choke 48/64"

Amoco Production Company

BRAVO DOME CO_2 GAS UNIT

Temporary Pool Rules Hearing

Gamma Ray – Permeability
Cross Section **E-E**

Horizontal Scale: 1"= 1 mile
Vertical Scale: 2.5" = 100'

EXHIBIT NO. _____ DATE _____
GEOL. Bruce L May

PEHOE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Case No. 7139 Exhibit No. 13
Submitted by Amoco
Hearing Date 3/15/61

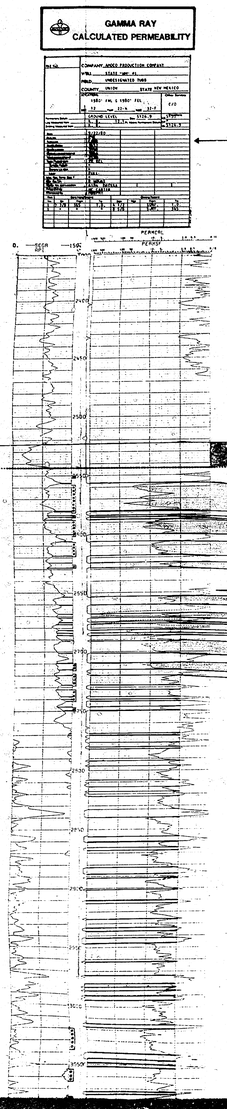
D

NORTH

AMOCO #1 STATE HM

API: 30-059-20032

①

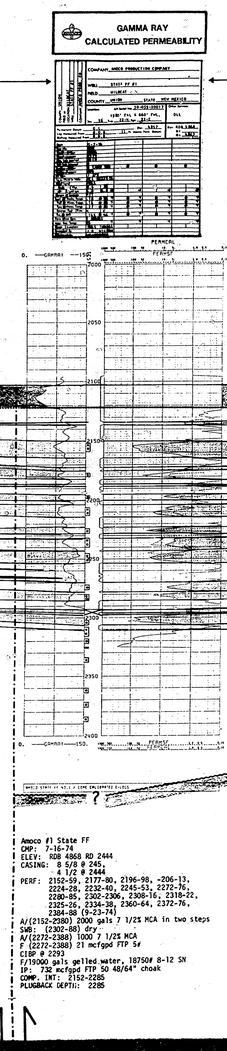


4.0 MILES

AMOCO #1 STATE FF

API: 30-059-20017

②

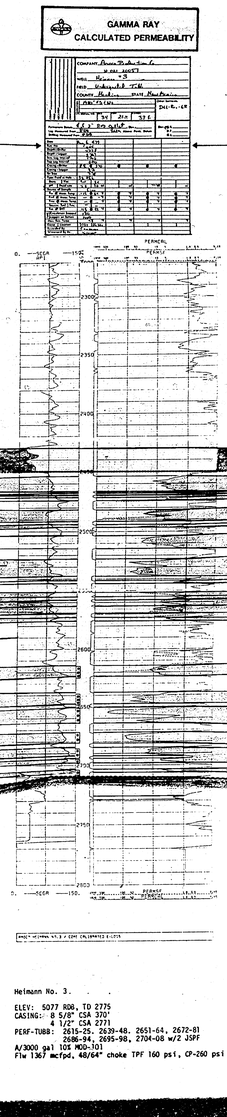


7.3 MILES

AMOCO # 3 HEIMANN

API: 30-021-20057

③

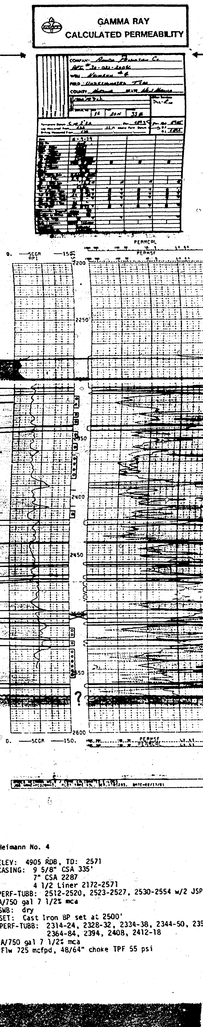


5.6 MILES

AMOCO #4 HEIMANN

API: 30-021-20046

④



1.0 MILE

AMOC

API: 3

TOP OF CIMARRON ANHYDRITE

DATUM: TOP OF TUBB SS.

Amoco #1 State FF
CMP: 7-16-74
ELEV: RDB 4868 RD 2444
CASING: 8 5/8 @ 245,
4 1/2 @ 2444
PERF: 2152-59, 2177-80, 2196-98, -206-13,
2224-28, 2232-40, 2245-53, 2272-76,
2280-85, 2302-2306, 2308-16, 2318-22,
2325-26, 2334-38, 2360-64, 2372-76,
2384-88 (9-23-74)
A/(2152-2198) 2000 gals 7 1/2% MCA in two steps
SWB: (2302-88) dry
A/(2272-2388) 1000 7 1/2% MCA
F (2272-2388) 21 mcfgpd FTP 5#
CIBP @ 2293
F/19000 gals gelled water, 18750# 8-12 SN
IP: 732 mcfgpd FTP 50 48/64" choak
COMP. INT: 2152-2285
PLUGBACK DEPTH: 2285

Helmann No. 3.

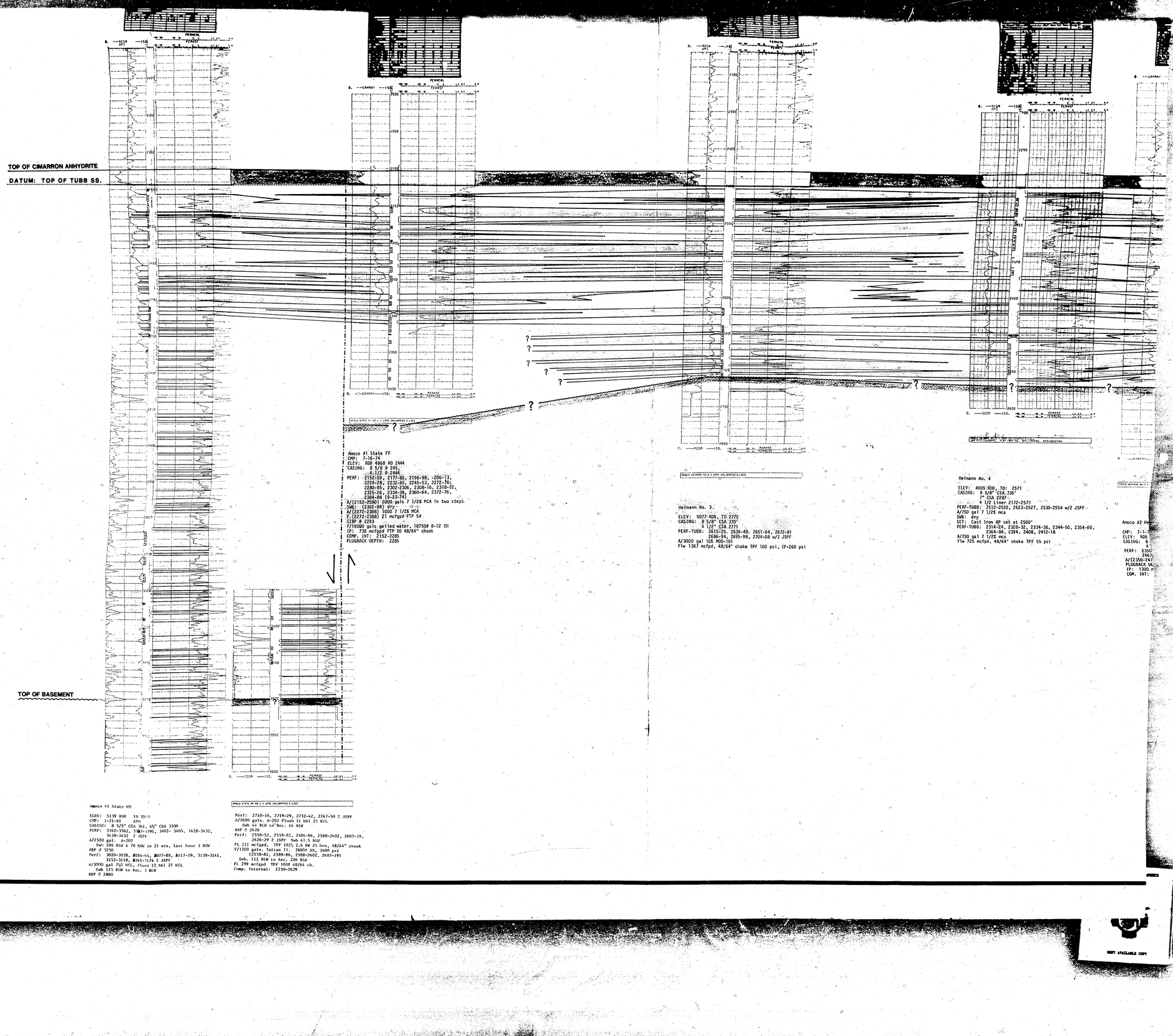
ELEV: 5077 RDB, TD 2775
CASING: 8 5/8" CSA 370'
4 1/2" CSA 2771
PERF-TUBB: 2615-25, 2639-48, 2651-64, 2672-81
2686-94, 2695-98, 2704-08 w/2 JSPF
A/3000 gal 10% MOD-101
Flw 1367 mcfpd, 48/64" choke TPF 160 psi, CP-260 psi

Helmann No. 4

ELEV: 4905 RDB, TD: 2571
CASING: 9 5/8" CSA 335'
7" CSA 2287
4 1/2 Liner 2172-2571
PERF-TUBB: 2512-2520, 2523-2527, 2530-2554 w/2 JSPF
A/750 gal 7 1/2% mca
SWB: dry
SET: Cast iron BP set at 2500'
PERF-TUBB: 2314-24, 2328-32, 2334-38, 2344-50, 2354-60,
2364-84, 2394, 2408, 2412-18
A/750 gal 7 1/2% mca
Flw 725 mcfpd, 48/64" choke TPF 55 psi

Amoco #2 He

CMP: 7-1-7
ELEV: RDB
CASING: 8
4
PERF: 235
246
A/(2350-24
PLUGBACK De
IP: 1300
COMP. INT.



Amoco #1 State FF
CMP: 7-16-74
ELEV: RDB 4868 RD 2444
CASING: 8 5/8 @ 245,
4 1/2 @ 2444
PERF: 2152-59, 2177-80, 2196-98, -206-13, 2224-28, 2232-40, 2245-53, 2272-76, 2280-85, 2302-2306, 2308-16, 2318-22, 2325-28, 2334-38, 2360-64, 2372-76, 2384-88 (0-23-74)
A/(2152-2388) 2000 gals 7 1/2% MCA in two steps
SWB: (2302-08) dry
A/(2272-2388) 1000 7 1/2% MCA
F (2272-2388) 21 mcfgpd FTP 5#
CIBP @ 2293
F/19000 gals gelled water, 18750# 8-12 SN
IP: 738 mcfgpd FTP 50 48/64" choak
COMP. INT: 2152-2285
PLUGBACK DEPTH: 2285

Amoco #1 State MM

ELEV: 5139 RDB TD 3550
CMP: 1-21-81 SPD
CASING: 8 5/8" CSG Wt, 45# CSA 3500
PERF: 3342-3362, 3387-1391, 3402- 3405, 3428-3432, 3438-3452 2 JSPF
A/2500 gal. A-202
Swb 106 BLW & 70 BSW in 21 hrs, last hour 3 BSW
RBP @ 3250
Perf: 3020-3038, 3054-44, 3077-88, 3117-19, 3138-3141, 3152-3158, 3161-3174 2 JSPF
A/3000 gal 7½% HCL, Flush 12 bbl 2% KCL
Swb 125 BLW to Rec. 3 BLW
RBP @ 2800

Perf: 2710-16, 2719-29, 2732-42, 2747-50 2 JSPF
A/1600 gals. A-202 Flush 11 bbl 2% KCL
Swb 44 BLW to Rec. 44 BLW
RBP @ 2670
Perf: 2550-52, 2558-82, 2584-86, 2588-2602, 2607-19, 2626-29 2 JSPF Swb 47.5 BLW
FL 211 mcfgpd, TPF 102% 2.6 BW 24 hrs, 48/64" choak
F/1500 gals. Tatan 11, 2600# SX, 3400 psi (2558-82, 2589-86, 2588-2602, 2607-19)
Swb. 112 BLW to Rec. 226 BLW
FL 299 mcfgpd TPF 100# 48/64 ch.
Comp. Interval: 2250-2629

Heimann No. 3.

ELEV: 5077 RDB, TD 2775
CASING: 8 5/8" CSA 370'
4 1/2" CSA 2771
PERF-TUBB: 2615-25, 2639-48, 2651-64, 2672-81 2686-94, 2695-98, 2704-08 w/2 JSPF
A/3000 gal 10% MOD-101
Flw 1367 mcfpd, 48/64" choke TPF 160 psi, CP-260 psi

Heimann No. 4

ELEV: 4905/RDB, TD: 2571
CASING: 5 5/8" CSA 335'
7" CSA 2287
4 1/2 Liner 2172-2571
PERF-TUBB: 2512-2520, 2523-2527, 2530-2554 w/2 JSPF
A/750 gal 7 1/2% mca
SWB: dry
SET: Cast Iron BP set at 2500'
PERF-TUBB: 2314-24, 2328-32, 2334-38, 2344-50, 2354-60, 2364-84, 2394, 2408, 2412-18
A/750 gal 7 1/2% mca
Flw 725 mcfpd, 48/64" choke TPF 55 psi

Amoco #2 He

CMP: 7-1-
ELEV: RDB
CASING: 8
4
PERF: 2350
2467
A/(2350-247
PLUGBACK DE
IP: 1300 m
COM. INT:

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AMOCO #4 HEIMANN

API: 30-021-20046

④

AMOCO #2 HEIMANN

API: 30-021-60019

⑤

AMOCO #5 HEIMANN

API: 30-021-20047

⑥

AMOCO #6 HEIMANN

API: 30-021-20053

⑦

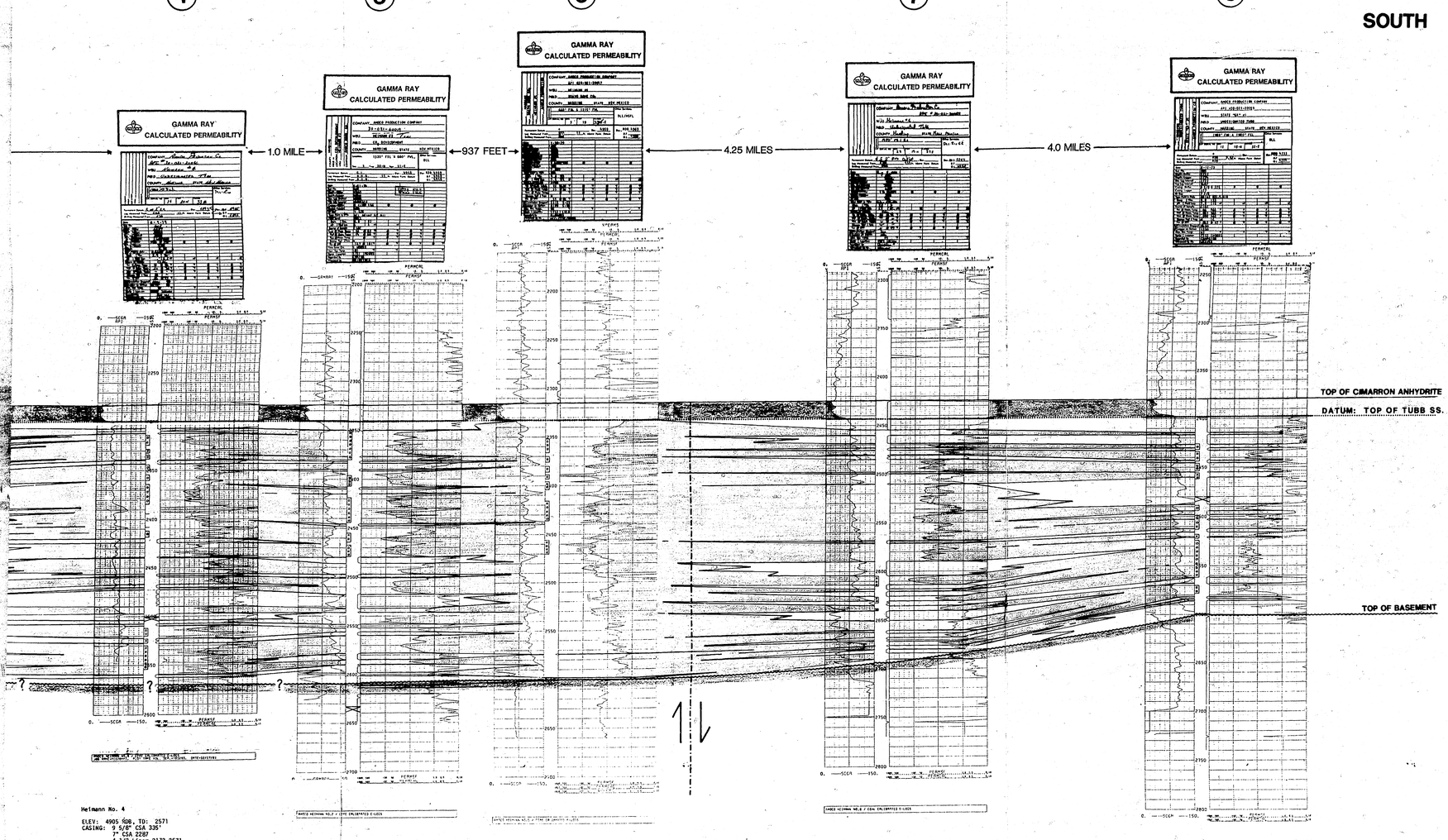
AMOCO #1 STATE GX

API: 30-021-20050

⑧

D'

SOUTH



Heimann No. 4

ELEV: 4905 RDB, TD: 2571
CASING: 9 5/8" CSA 335'
7" CSA 2287
4 1/2 Liner 2172-2571
PERF-TUBB: 2512-2520, 2523-2527, 2530-2554 w/2 JSPF
A/750 gal 7 1/2% mca
SWB: dry
SET: Cast Iron BP set at 2500'
PERF-TUBB: 2314-24, 2328-38, 2334-38, 2344-50, 2354-60, 2364-84, 2394, 2408, 2412-18
A/750 gal 7 1/2% mca
Flw 725 mcfpd, 48/64" choke TPF 55 psi

Amoco #2 Heiman

CMP: 7-1-74
ELEV: KDB 4964 TD 2660
CASING: 8 5/8" @ 356
4 1/2" @ 2635
PERF: 2350-80, 2396-2407, 2419-44, 2455-64, 2467-79, W/2 JSPF (7-26-76)
A/(2350-2479) 2000 gals 7 1/2% MCA in 3 stages
PLUGBACK DEPTH: 2633
IP: 1300 mcfg.d, FTP 110#, 48/64" choke
COM. INT: 2350-2479

Heimann No. 5

ELEV: 4969 RDB, TD: 2649
CASING: 8 5/8" CSA 324
4 1/2" CSA 2644

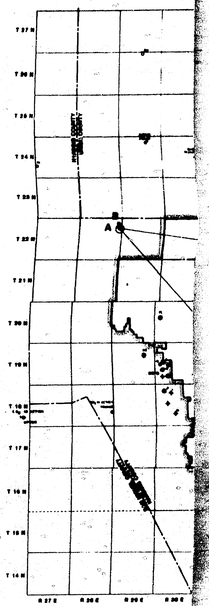
PERF-TUBB: 2352-66, 2370-76, 2380-86, 2389-93, 2396-2404, 2416-36, 2456-70
A/1400 gal 7 1/2% HCA
Flw 600 mcfpd, 22/64" choke TPF 184 psi

Heimann No. 6

Elev: 4847 RDB, TD 2762
Casing: 8 5/8" CSA 368
4 1/2" CSA 2768
Perf-Tubb: 2605-15, 2626-32, 2638-40 w/2 JSPF
A/1000 gal 10% Mod-101
Flw: 2985 MCFGPD, 48/64" choke, TPF 120 psi, CP 240 psi

State GX No. 1

ELEV: 4733 RDB, TD 2770
CASING: 8 5/8" CSA 373
4 1/2" CSA
PERF-TUBB: 2489-94, 2499-2513, 2518-22, 2524-62, 2570-78 W/2 JSPF
A/2000 gal 10% Mod-101
SWB: 9 hrs recovered 21 BNW w/slight show gas-99 barrels new water recovered
SET: CIBP at 2480
PERF-TUBB: 2426-32, 2434-44, 2446-54, 2456-62
A/1000 gal 10% Mod-101
FLW: 349 mcfpd wet gas, 48/64" choke, TPF 15 psi, CP 40 psi



SCGR — Ga
PERMSF — De
da
VPERMS — De
(v
PERMCAL — Ca
cr
po
co
P
P
P
B

BEST AVAILABLE COPY

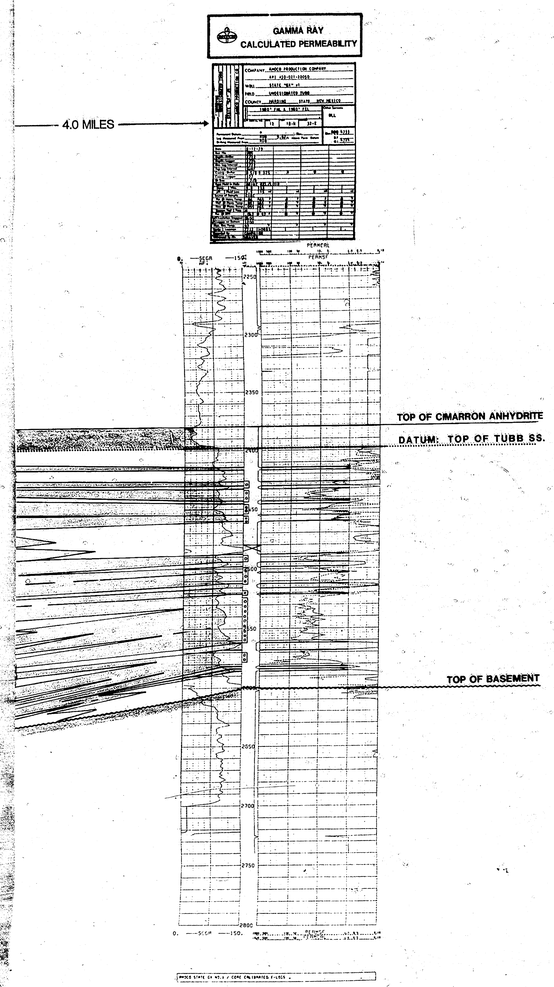
AMOCO #1 STATE GX

API: 30-021-20050

D'

⑧

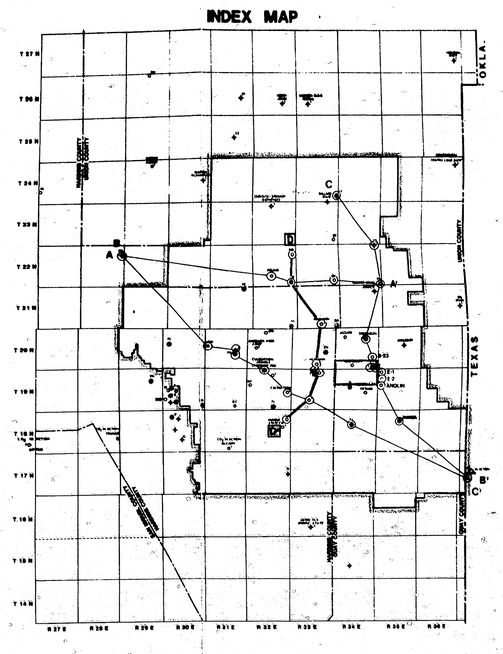
SOUTH



State GX No. 1

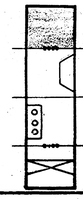
ELEV: 4733 RDB, TD 2720
CASING: 8 5/8" CSA 373
5 1/2" CSA
PERF-TUBB: 2489-94, 2499-2513, 2518-22, 2524-62, 2570-78
W/2 JSPF
A/2000 gal 10% Mod-101
SWB: 9 hrs recovered 21 BNW w/slight show gas-99 barrels
new water recovered
SET: CIBP at 2480
PERF-TUBB: 2426-32, 2434-44, 2446-54, 2456-62
A/1000 gal 10% Mod-101
FLW: 349 mcfpd wet gas, 48/64" choke, TPF 15 psi, CP 40 psi

INDEX MAP



KEY

SCGR	———	Gamma Ray
PERMSF	—•—•—	Depth-shifted permeability (90°) data from core analysis
VPERMS	•••••••	Depth-shifted permeability (vertical) data from core analysis
PERMCAL	———	Calculated permeability based on cross plots of smoothed core porosity vs. permeability and smoothed core porosity vs. density porosity

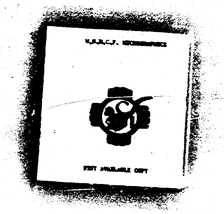


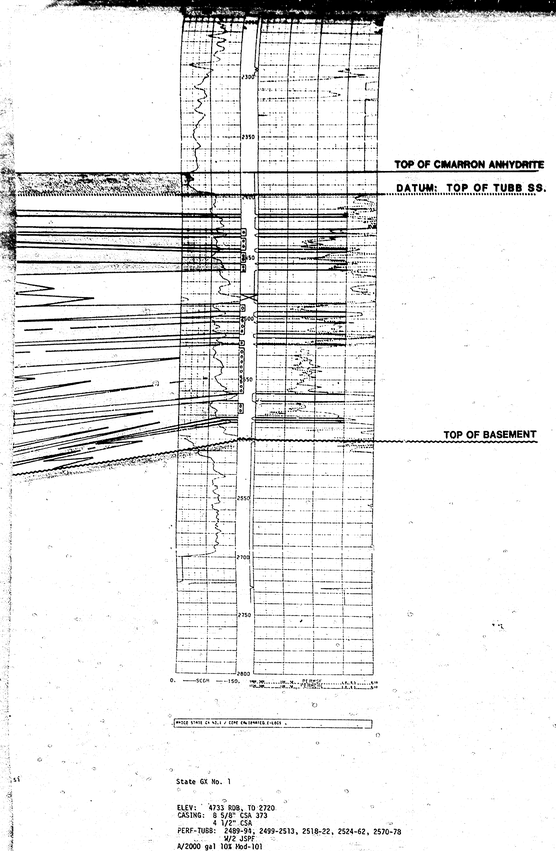
Permeabilities > 1 md

Permeabilities < 1 md

Perforations

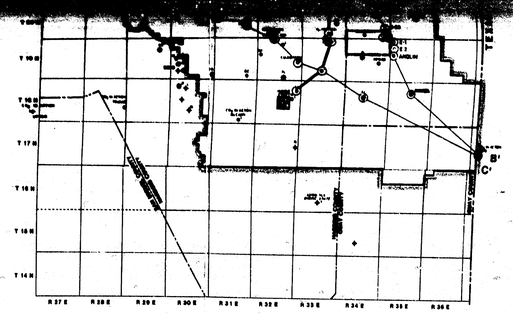
Bridge Plug





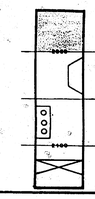
State GX No. 1

ELEV: 4733 RDB, TD 2720
CASING: 8 5/8" CSA 373
4 1/2" CSA
PERF-TUBB: 2489-91, 2499-2513, 2518-22, 2524-62, 2570-78
W/2 JSPF
A/2000 gal 10% Mod-101
SWB: 9 hrs recovered 21 BNW w/slight show gas-99 barrels new water recovered
SET: CIBP at 2480
PERF-TUBB: 2426-32, 2434-44, 2446-54, 2456-62
A/1000 gal 10% Mod-101
FLW: 349 mcfpd wet gas, 48/64" choke, TPF 15 psi, CP 40 psi



KEY

SCGR	———	Gamma Ray
PERMSF	—·—·—	Depth-shifted permeability (90°) data from core analysis
VPERMS	•••••••	Depth-shifted permeability (vertical) data from core analysis
PERMCAL	———	Calculated permeability based on cross plots of smoothed core porosity vs. permeability and smoothed core porosity vs. density porosity



Permeabilities > 1 md

Permeabilities < 1 md

Perforations

Bridge Plug

Amoco Production Company

BRAVO DOME CO_2 GAS UNIT

Temporary Pool Rules Hearing

Gamma Ray – Permeability
Cross Section **D D'**

Horizontal Scale: 1": 1 mile
Vertical Scale: 2.5" = 100'

EXHIBIT NO. _____ DATE _____
GEOL. Bruce L. May

BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Case No. 7155 Exhibit No. 12
Submitted by Amoco
Hearing Date 7/18/81

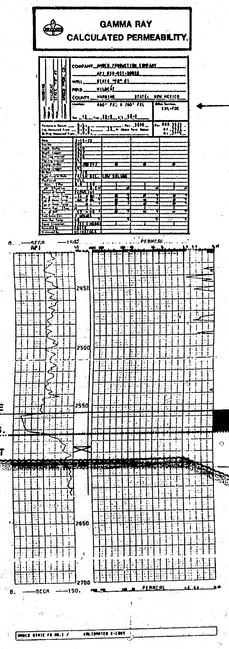
A

WEST

AMOCO #1 STATE FB

API: 30-021-20022

①



TOP OF CIMARRON ANHYDRITE

DATUM: TOP OF TUBB SS.

TOP OF BASEMENT

Amoco #1 State FB

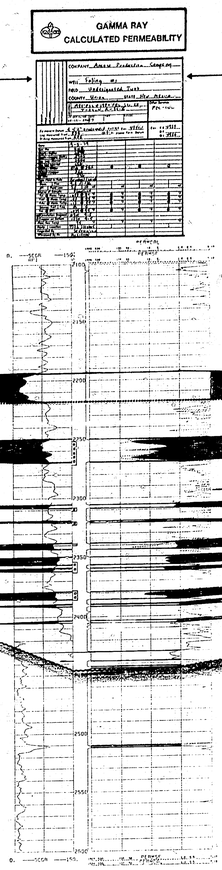
ELEV: 5672 KB TD: 2630
CMP: 8-28-74, P X A
Casing: 8 5/8" @ 347, 4 1/2" @ 2630
PBD: 2585

20.75 MILES

AMOCO #1 POLING

API: 30-059-20035

②



Amoco #1 Poling

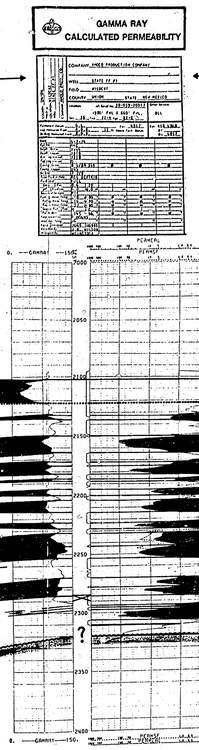
ELEV: 4950 GR TD 2890
CMP: 7/9/79 SPD 8/23/79
CASING: 8 5/8" 365, 4½ 2898
cmt'd 2610'
PERF: 2398-11', 2420-23, 2439-40, 2354'-63, 2378'-86, 2 JSPF
A/1500 gal. 15% SE Swb 8 hrs.
FL (avg.) 81 mcfgpd over 168 hr period
F/11500 gal gel, 24500# 10/20 sand 6000# 8/12 sand
Flush 38 bbls
FL (avg.) 688 mcfgpd over 168 hr period
RBP @ 2295'
Perf: 2252-72 2 JSPF
A/1500 gal 20A acid
Swb 24 hrs rec. 12 BLW
Moved off service unit

2.80 MILES

AMOCO #1 STATE FF

API: 30-059-20017

③



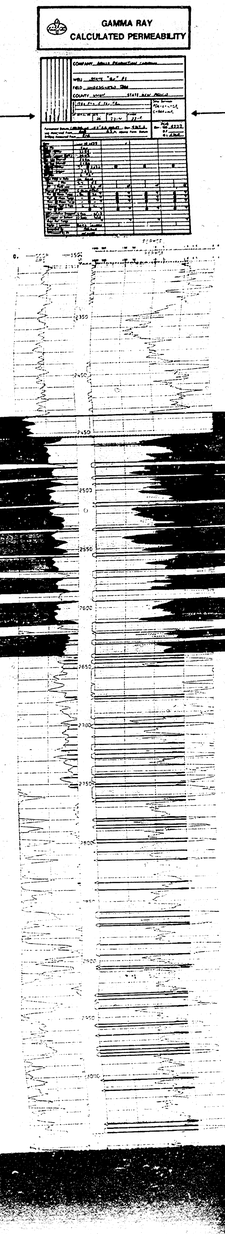
Amoco #1 State FF
CMP: 7-16-74
ELEV: KDB 4868 RD 2444
CASING: 8 5/8 @ 245,
4 1/2 @ 2444
PERF: 2152-59, 2177-80, 2196-98, -206-13, 2224-28, 2232-40, 2245-53, 2272-76, 2280-85, 2302-2306, 2308-16, 2318-22, 2325-26, 2334-38, 2360-64, 2372-76, 2384-88 (9-23-74)
A/(2152-2380) 2000 gals 7 1/2% MCA in two steps
SWD: (2302-88) dry
A/(2272-2388) 1000 7 1/2% MCA
F (2272-2388) 21 mcfgpd FTP 5#
CIBP @ 2293
F/19000 gals gelled water, 38750# 8-12 SN
IP: 732 mcfgpd FTP 50 48/64" choak
COMP. INT: 2152-2285
PLUGBACK DEPTH: 2285

6.0 MILES

AMOCO #1 STATE GV

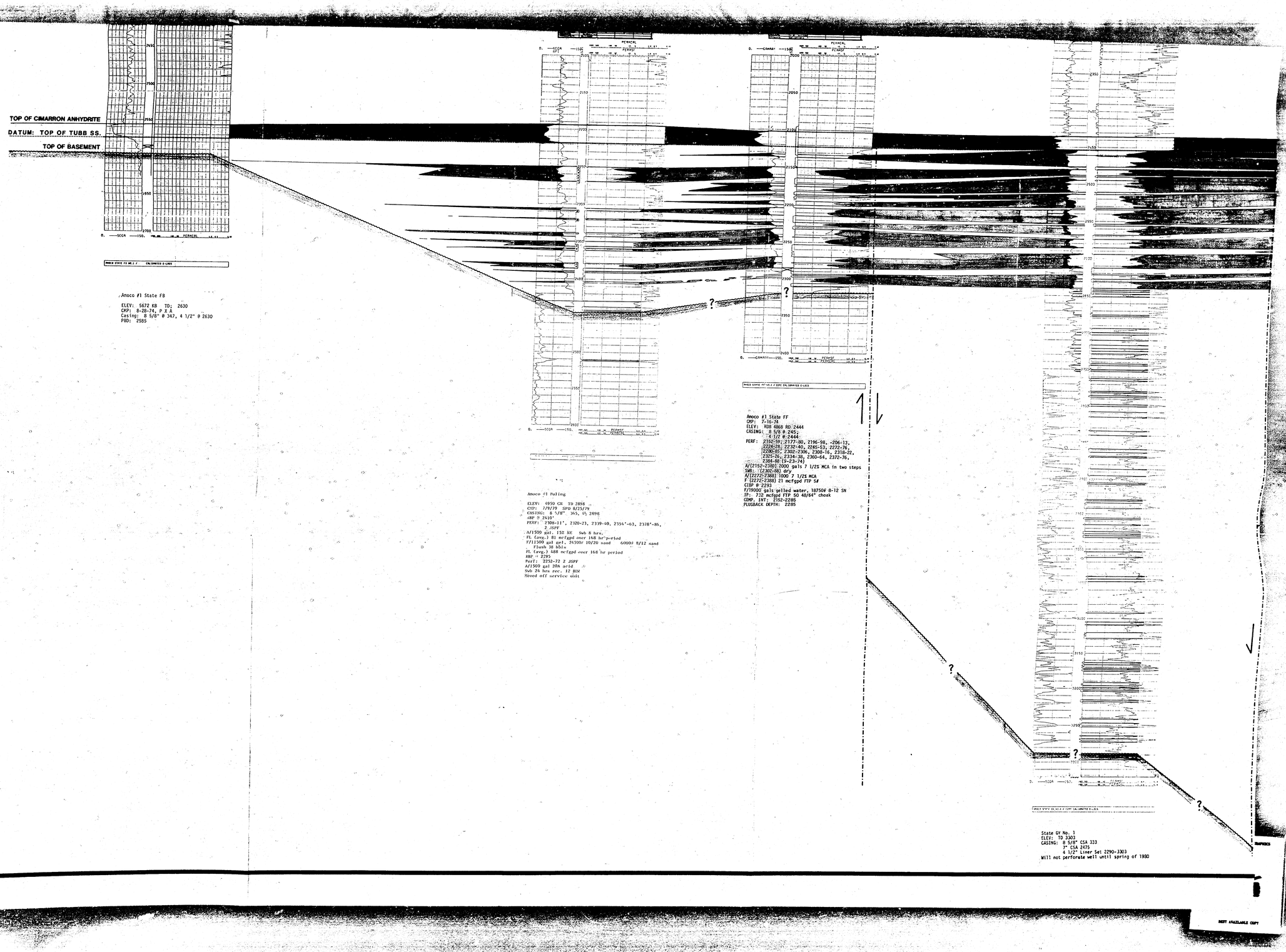
API: 30-059-20029

④



6.5

BEST AVAILABLE COPY



Amoco #1 State FB

ELEV: 5672 KB TD: 2630
CMP: 8-28-74, P X A
Casing: 8 5/8" @ 347, 4 1/2" @ 2630
PBD: 2585

Amoco #1 Poling

ELEV: 6959 GR TD 2898
COP: 7/9/79 SPD 8/15/79
CASING: 8 5/8" 365, 4½ 2898
CBP @ 2410'
PERF: 2306-11', 2320-23, 2339-40, 2356'-63, 2378'-86, 2 JSPF
A/1500 gal. 15% NE Swb 8 hrs.
Fl. (avg.) 81 mcfgpd over 168 hr period
F/11500 gal gel, 24500# 10/20 sand 6000# 8/12 sand
Flush 38 bbls.
Fl. (avg.) 488 mcfgpd over 168 hr period
RBP @ 2295
Perf: 2252-72 2 JSPF
A/1500 gal 20A acid
Swb 24 hrs rec. 12 BLW
Moved off service unit

Amoco #1 State FF
COP: 7-16-74
ELEV: RDB 4868 RD 2444
CASING: 8 5/8 @ 245;
4 1/2 @ 2444
PERF: 2152-59;2177-80, 2196-98, -206-13, 2224-28, 2232-40, 2245-53, 2272-76, 2280-85; 2302-2306, 2308-16, 2318-22, 2325-26, 2334-36, 2360-64, 2372-76, 2384-88 (9-23-74)
A/(2152-2310) 7000 gals 7 1/2% MCA in two steps
Swb: (2302-08) dry
A/(2272-2388) 1000 7 1/2% MCA
F (2272-2388) 21 mcfgpd FTP 54
CIBP @ 2293
F/19000 gals gelled water, 18750# 8-12 SN
IP: 732 mcfgpd FTP 50 48/64" choak
COMP. INT: 2152-2285
PLUGBACK DEPTH: 2285

State GV No. 1
ELEV: TD 3303
CASING: 8 5/8" CSA 333
7" CSA 2475
4 1/2" Liner Set 2290-3303
Will not perforate well until spring of 1980

BEST AVAILABLE COPY

AMOCO #1 STATE GV

API: 30-059-20029

AMOCO #1 STATE FH

API: 30-059-20018

A′

EAST

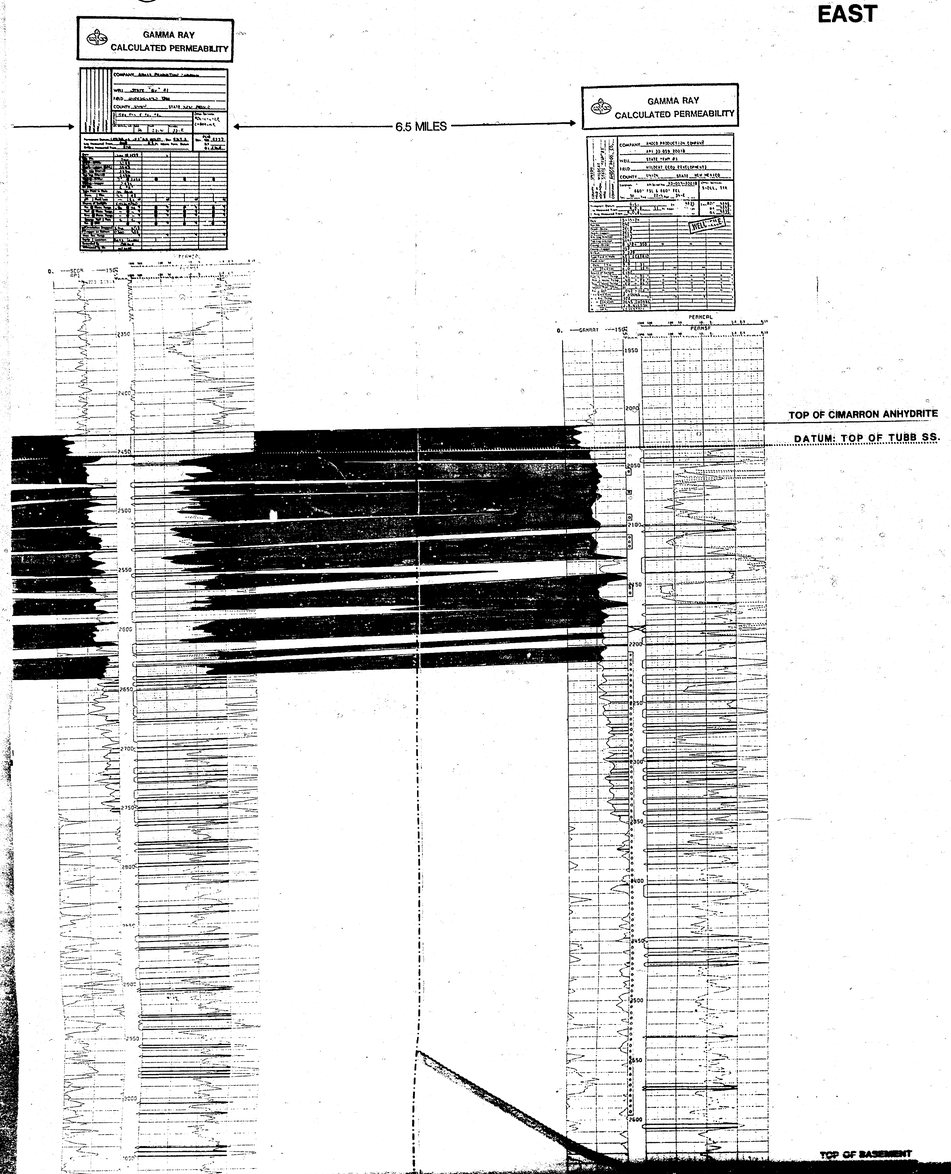
④

⑤

GAMMA RAY
CALCULATED PERMEABILITY

6.5 MILES

GAMMA RAY
CALCULATED PERMEABILITY

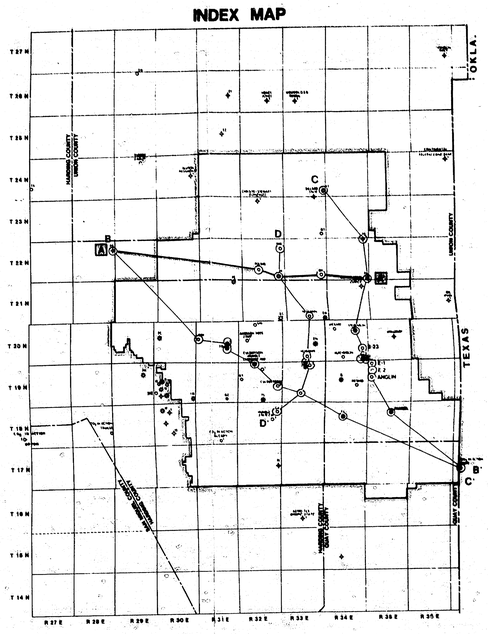


TOP OF CIMARRON ANHYDRITE

DATUM: TOP OF TUBB SS.

TOP OF BASEMENT

INDEX MAP



KEY

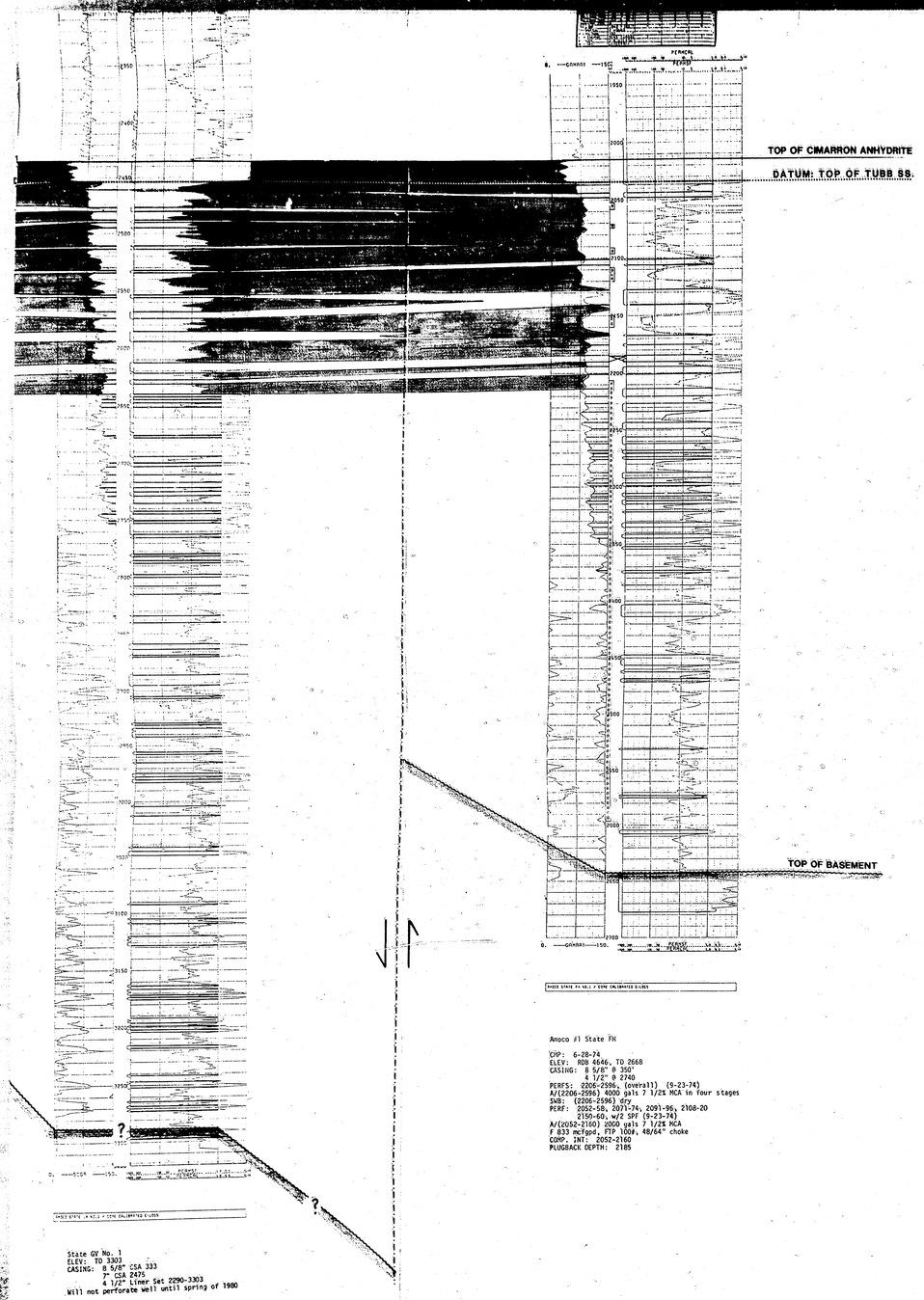
SCGR	———	Gamma Ray
PERMSF	—•—•—	Depth-shifted permeability (90°) data from core analysis
VPERMS	•••••••	Depth-shifted permeability (vertical) data from core analysis
PERMCAL	———	Calculated permeability based on cross plots of smoothed core porosity vs. permeability and smoothed core porosity vs. density porosity

Permeabilities > 1 md

Permeabilities < 1 md

Perforations

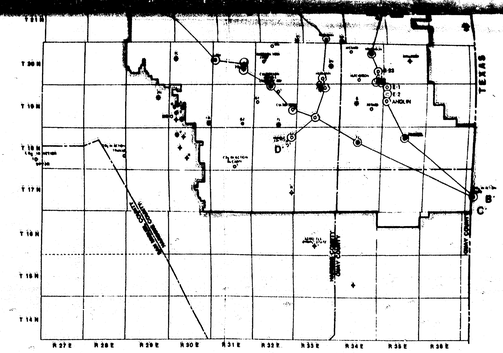
Bridge Plug



State GY No. 1
ELEV: TD 3303
CASING: 8 5/8" CSA 333
7" CSA 2475
4 1/2" Liner Set 2290-3303
Will not perforate well until spring of 1980

Amoco #1 State FH

CHP: 6-28-74
ELEV: KDB 4646, TD 2668
CASING: 8 5/8" @ 350'
4 1/2" @ 2740
PERFS: 2206-2596, (overall) (9-23-74)
A/(2206-2596) 4000 gals 7 1/2% MCA in four stages
SWB: (2206-2596) dry
PERF: 2052-58, 2071-74, 2091-96, 2108-20
2150-60, w/2 SPF (9-23-74)
A/(2052-2160) 2000 gals 7 1/2% MCA
F 833 mcfgpd, FTP 100#, 48/64" choke
COMP. INT: 2052-2160
PLUGBACK DEPTH: 2185



KEY

SCGR	———	Gamma Ray
PERMSF	—•—•—	Depth-shifted permeability (90°) data from core analysis
VPERMS	•••••••	Depth-shifted permeability (vertical) data from core analysis
PERMCAL	———	Calculated permeability based on cross plots of smoothed core porosity vs. permeability and smoothed core porosity vs. density porosity

Permeabilities > 1 md

Permeabilities < 1 md

Perforations

Bridge Plug

Amoco Production Company

BRAVO DOME CO_2 GAS UNIT

Temporary Pool Rules Hearing

Gamma Ray – Permeability
Cross Section **A A'**

Horizontal Scale: 1" = 1 mile
Vertical Scale: 2.5" = 100'

EXHIBIT NO. ____ DATE ____
GEOL. Bruce L May

BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Case No. 7178 Exhibit No. 9
Submitted by Amoco
Hearing Date 8/19/81

GAMMA RAY - PERMEABILITY CROSS-SECTION

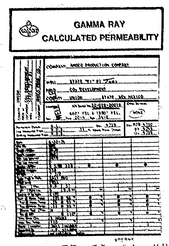
HUTCHERSON LEASE AREA

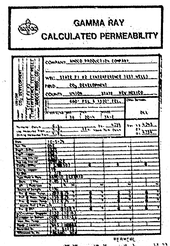
EX
NORTH

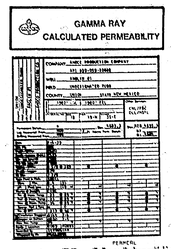
EX'
SOUTH

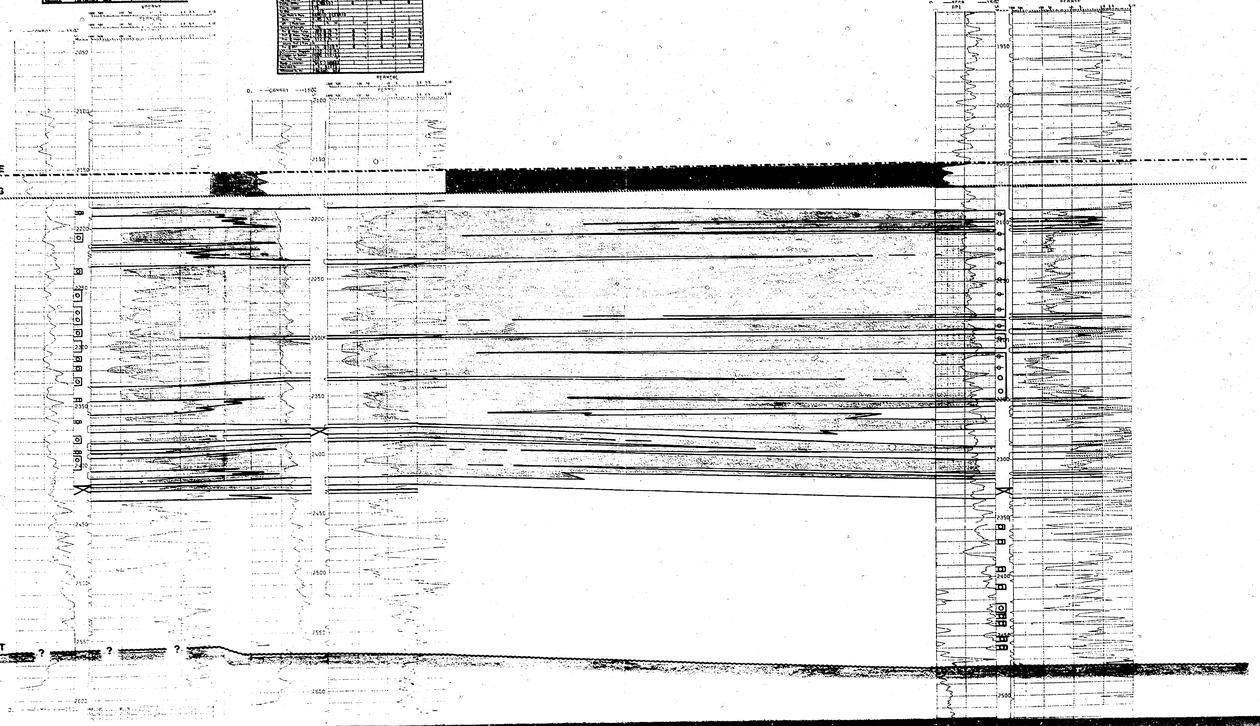
STATE FI#1 — STATE FI#2 — ANGLIN #1

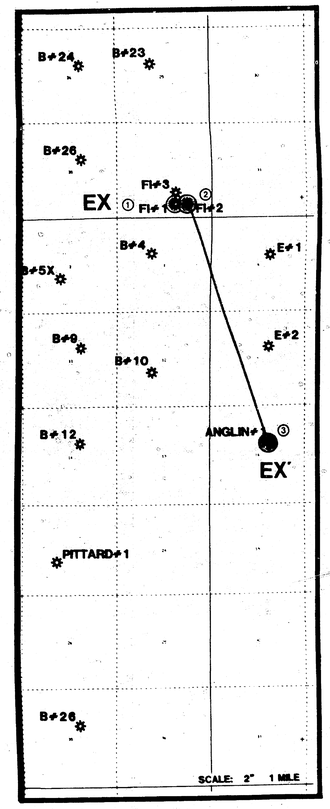
① ←660 FEET→ ② ←2.4 MILES→ ③



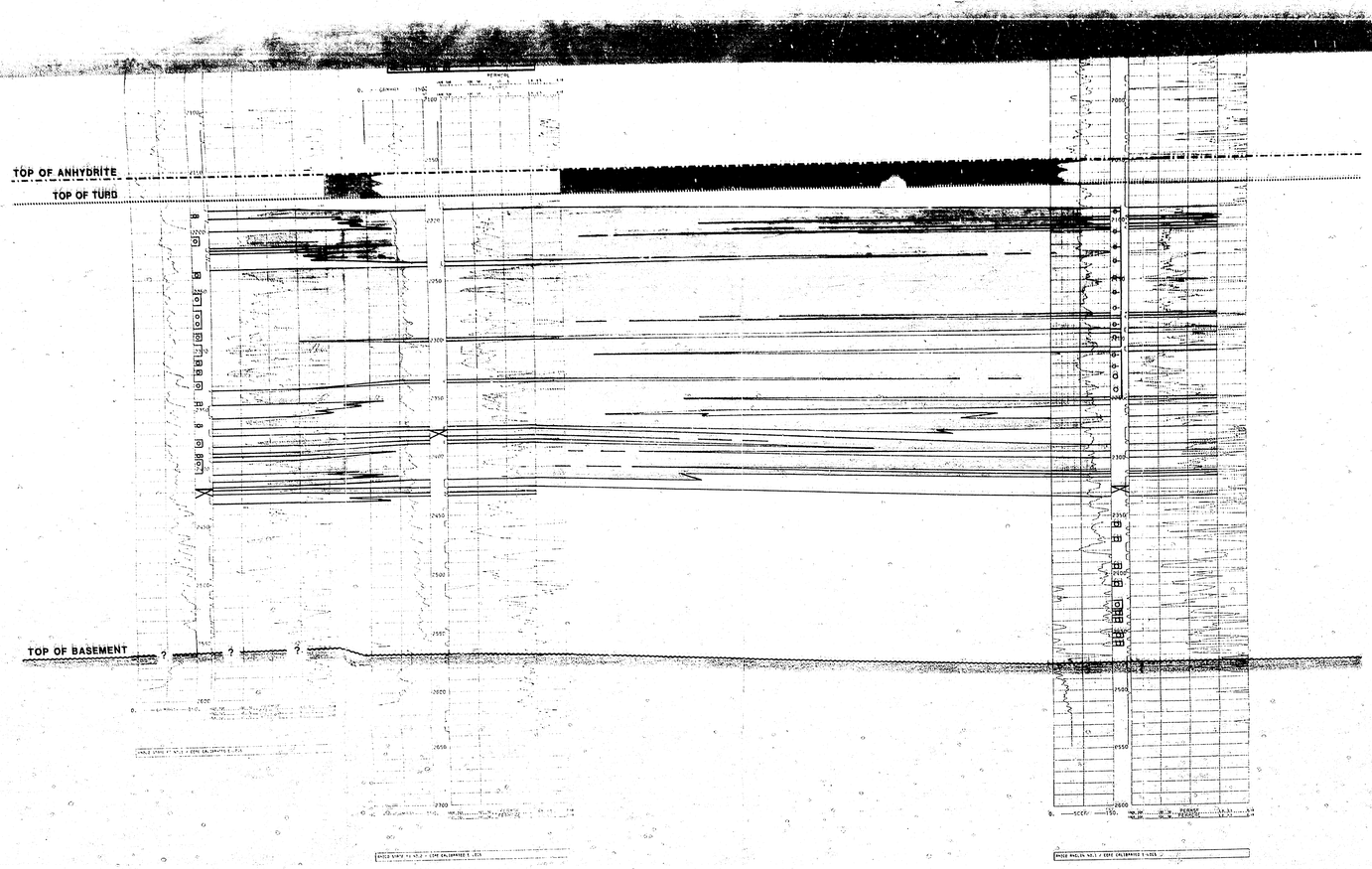


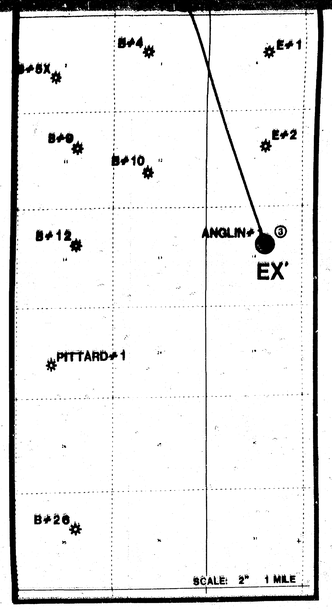






KEY





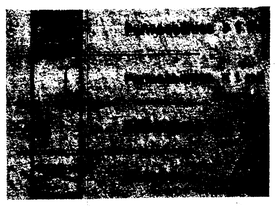
KEY

Amoco #1 State F1

SPD: 5-3-54
ELEV: KDB 3760 TD 2670
CASING: 8 5/8 @ 328
4 1/2 @ 2665
PERF: 2433-36, 2462-64, 2488-91 w/2 SPF (10-18-76)
A/(2433-91) 1250 gals 7 1/2% MCA
SWB: (2433-91) 32 BW to pit.
CIBP @ 2417
PERF: 2186-88, 2204-11, 2234-38, 2252-62, 2266-81
2285-91, 2295-2304, 2306-12, 2316-20, 2326-
32, 2383-86, 2362-64, 2375-81, 2388-90, 2392-
2404 w/2 SPF (10-18-76)
A/(2186-2404) 2000 gals 7 1/2% MCA
IP: 1575 mcfgpd, FTP 150#, 48/64 choak
COMP. INT.: 2186-2404
PLUGBACK DEPTH: 2417

Amoco #2 State F1

SPD: 10-1-74
ELEV: KDB 3745; TD 2625
CASING: 8 1/2 @ 2600
A/(2380-2408) 500 gals 7 1/2% MCA
SWB: light blow, water coming in
CIBP sect #4 2377
IP: 2180 mcfgpd FTP 250#, natural
PLUGBACK DEPTH: 2625
COMP. INT: 2198-2369



Anglin No. 1

ELEV: 4691 KDB; TD 2520
CASING: 8 5/8" CSA 369
4 1/2" CSA 2520
PERF-TUBB: 2093, 2110, 2123, 2135, 2140, 2161, 2174
2188, 2195, 2214, 2223 W/1 USPF
Flw 597 McfPd, 32/64" choke TPP 65 psi,
CP 80 psi - natural
PERF-TUBB: 2356-60, 2369-72, 2392-96, 2407-11,
2423-30, 2432-36, 2438-42, 2451-55,
2458-62, W/1 USPF
A/4000 gal 7 1/2% FE MCA
SWB: 178 barrels new water No show of gas
Set Cast Iron BP at 2325
PERF-TUBB: 2090-2100, 2182-91, 2194-2207,
2210-50, W/4 USPF
A/4000 Gal 10% Mod-101
Flw 168. mcfpd, Fine to heavy mist 48/64" choke, TPP
170 psi, CP 280 psi

Amoco Production Company

BRAVO DOME CO_2 GAS UNIT

Temporary Pool Rules Hearing

EXAMPLE
Gamma Ray – Permeability
Cross Section **EX-EX'**

Horizontal Scale: 1" = 1 mile
Vertical Scale: 2.5" = 100'

EXHIBIT NO. ____ DATE ____
GEOL. Bruce L May

BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Case No. 2158 Exhibit No. 8
Submitted by Amoco
Hearing Date 3/15/51

R 28 E | R 29 E | R 30 E | R 31 E | R 32 E | R 33 E | R 34 E | R 35 E | R 36 E

T 25 N

T 24 N

6	5	4	3	2	1
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18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

T 23 N

T 22 N

T 21 N

T 20

EZ

PASAMONTE

DILLARD

O'NEAL

ZURICK

MACKARD

STEVENSON

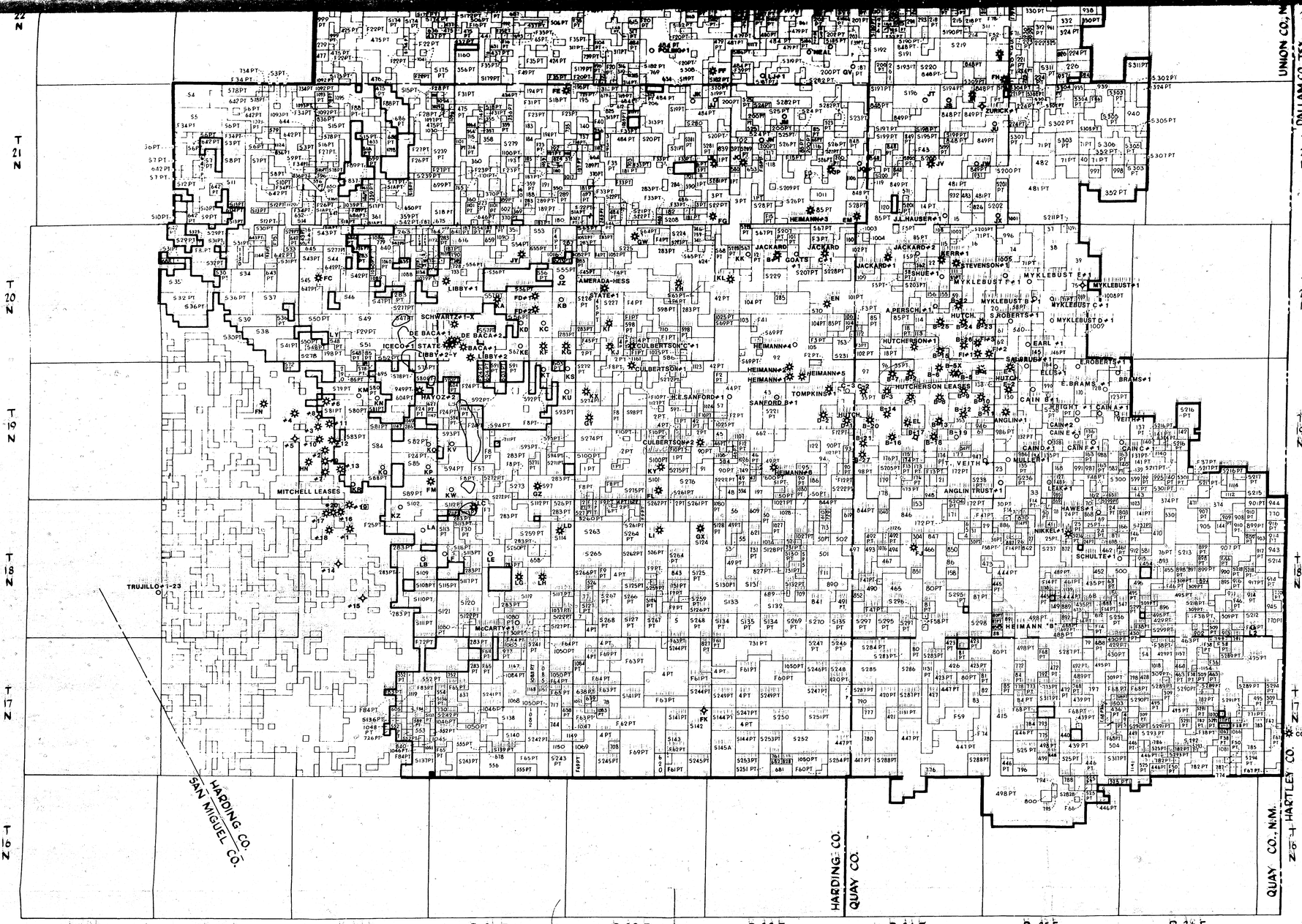
MYKLEBUST

UNION CO.

HARDING CO.

UNION CO., N.M.

DALLAM CO., TEX.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UNION CO., N.M.
DALLAM CO., TEX.
HARDING CO.
SAN MIGUEL CO.
QUAY CO.
HARTLEY CO.
QUAY CO., N.M.
TRUJILLO #1-23
McCARTY #1
MITCHELL LEASES
SCHULTE #1
HEIMANN #3
HEIMANN #4
HEIMANN #5
HEIMANN #6
HEIMANN "B"
ANGLIN TRUST #1
HUTCHERSON LEASES
SANFORD B #1
TOMPKINS #1
CULBERTSON #1
CULBERTSON C #1
CULBERTSON #2
H.E.SANFORD #1
HAYOZ #2
DE BACA #1
DE BACA #2
DE BACA #3
SCHWARTZ #1-X
ICECO #1
STATE #1
LIBBY #1
LIBBY #2
LIBBY #2-Y
AMERADA-HESS
JACKARD #1
JACKARD #2
JACKARD #3
GOATS #1
JERN #1
STEVENSON #1
J.HAUBER #1
A.PERSCH #1
MYKLEBUST #1
MYKLEBUST A #1
MYKLEBUST B #1
MYKLEBUST C #1
MYKLEBUST D #1
MYKLEBUST E #1
S.ROBERTS #1
HUTCH.
SHUE #1
ZURICK #1
O'NEAL
COOTS #1
E.ROBERTS #1
E.BRAMS #1
BRAMS #1
EARL #1
ELLIS #1
CAIN A #1
CAIN B #1
CAIN C #1
CAIN D #1
CAIN E #1
CAIN F #1
CAIN #2
ANGLIN #1
NULLER #1
VEITH #1
LEAK #1
HAWES #1
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