[redacted]

P-W

SHELL OIL COMPANY NAVAJO
SE SE 6-41N-29E APACHE CO. 18

[redacted]

COUNTY Apache AREA LEASE NO. 14-20-603-223

WELL NAME Shell Oil Company / Navajo

LOCATION SE SE SEC 6 TWP 41N RANGE 29E FOOTAGE 660' FSL 660' FEL

ELEV 5237' GR 5247' KB SPUD DATE 12-18-53 STATUS [redacted] P&A COMP. DATE 10-4-63 TOTAL DEPTH 6490'

CONTRACTOR

CASING SIZE	DEPTH	CEMENT	LINER SIZE & DEPTH
13 3/8"	907'	800 sx	
5 1/2"	5350	350 sx	
2"	4964'		

DRILLED BY ROTARY
DRILLED BY CABLE TOOL
PRODUCTIVE RESERVOIR
INITIAL PRODUCTION P&A

FORMATION TOPS	DEPTHS	SOURCE L.L.	SOURCE E.L.	REMARKS
SEE AM STRAT				

ELECTRIC LOGS	PERFORATED INTERVALS	PROD. INTERVALS
Driller's Log; Hycalog, GRN, Section Gauge, Micro; Elec, GRL-LL-LD		

SAMPLE LOG x + Am Strat
SAMPLE DESCRP.
SAMPLE NO. T 383 P [redacted]
CORE ANALYSIS x 1661
DSTs x

REMARKS Well had gas shows in Hermosa but proved non-commercial. Produced 497 Mcf gas Plugged. Well was produced for approx 30 days during summer of 54 but production was too small to be commercial. DST's and cores on Hycalog

APP. TO PLUG 10-4-64
PLUGGING REP. 10-4-64
COMP. REPORT 6-22-43

WATER WELL ACCEPTED BY

BOND CO. Federal Insurance Company BOND NO. 7915611

BOND AMT. $ 10,000 CANCELLED 7-15-64 DATE ORGANIZATION REPORT x

FILING RECEIPT 06569 LOC. PLAT x WELL BOOK x PLAT BOOK x

API NO. DATE ISSUED 11-27-53 DEDICATION SE/4 SE/4

PERMIT NUMBER 18

(over)

COUNTY Apache AREA LEASE NO. 14-20-603-223

WELL NAME Shell Oil Company Navajo

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INITIAL PRODUCTION P&A

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SEE AM STRAT				

ELECTRIC LOGS	PERFORATED INTERVALS	PROD. INTERVALS
Driller's Log; Hycalog, GRN, Section Gauge, Micro; Elec, GRL-LL-LD		

SAMPLE LOG x + Am Strat
SAMPLE DESCRP.
SAMPLE NO. T 383 P [redacted]
CORE ANALYSIS x 1661
DSTs x

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API NO. DATE ISSUED 11-27-53 DEDICATION SE/4 SE/4

PERMIT NUMBER 18

(over)

ARIZONA
APACHE COUNTY
E. BOUNDARY BUTTE

PETROLEUM INFORMATION
DENVER CASPER
ROCKY MOUNTAIN
OIL INFORMATION

Twp 41N-29E
Section 6
C SE

OPR: Shell Oil

WELL #: 1 Navajo

ELEV: 5236 Gr. (?)

*TOPS: Sample

Kayenta 160
Wingate 165
Chinle 900

LOG TOPS:

Shinarump 1585
Moenkopi 1700
Permian 1890
Hermosa 3785
Molas 5410
Elbert 5855
Undifferentiated Devonian 6155

DSTS. & CORES:

DST 4619-70, 2 hrs, light blow immediately, decreased after 40 min, rec 100' slightly G & OCM (Less than 1% oil) FP 0#, SIP (30 min) 365#. HP 2500#, DST 4670-4774, 2½ hrs, gas in 60 min too small to measure, inflammable, rec 300' slightly G & OCM, 450' gas, oil & water cut mud w/hydrogen sulfide odor; 400' gas, oil & mud cut water, FP 250-600#, SIP (1½ hrs) 1575#, HP 2650#. DST 4910-73, 15 min, packer failed gas in 13 min, (inflammable); DST 4886-4978, 2 hrs, 45 min, gas in 15 min, medium strong blow after 25 min, gauged 100 MCFPD (inflammable) rec 520' slightly G & OCM, FP 150-400#, SIP (90 min) 1625#, HP 2500#. DST 4985-5057, 1½ hrs, SIP not taken, weak blow died, rec 5' mud, FP 0#, HP 2450#; DST 4993-5108, 3 hrs, weak blow, no gas, rec 10' drlg fluid; DST 5100-5204, 3½ hrs, weak blow, gas in

SPUD: 12-13-53

COMPL: Rig released 3-25-54

TD: 6490

PB: 5418

CSG: 13-3/8" @ 909 w/800
5½" @ 5350 w/350.

PERF:

PROD. ZONE:

INIT. PROD: Temp. Suspended.

*For Electric Logs on Rocky Mountain Wells—Ask Us!

(CONTINUED.)

32 × 1

SHELL OIL #1 NAVAJO, C SE SE 6-41N-29W - APACHE CO. ARIZONA. - (CONTINUED)

2 hrs, 20 min, too small to measure, rec 80' GCM, 90' GCM [illegible] H_2S odor, 70' GCM w/ H_2S odor & trace brown oil, FP 150-225#, SIP (1½ hrs) 1250#. DST 5203-5304, 3 hrs, good blow gas in 47 min, est 66 MCFPD, rec 930' fluid 140' GCM, 340' gas, oil & water cut mud, 450' gassy muddy water w/trace of oil, est entire recovery 5% oil, FP 225-475#, SIP (1½ hrs) 1525#, HP 2700#, DST 5305-55, 2 hrs, weak blow throughout, rec 185' very slightly GC drlg fluid, FP 0-150#, SIP (30 min) 1550#, HP 2700#, Crd 5358-96½, rec 37½' ls w/thin sh & chert stringers. DST 5738-5820, 3 hrs, medium blow of air immediately, increased to strong in 3 min, gas in 21 min, gauged 50 MCFPD (inflammable) rec 275' GCM, 4005' salt water, FP 1020-1850#, SIP (90 min) 1950#, HP 3035#. DST 6014-80, 3 hrs, medium blow air in 2 min, decreased to weak, rec 3670' slightly gas & mud cut water w/trace of oil, FP 425-1625#, SIP (90 min) 2050#, HP 3150#; DST 6136-6246, 3 hrs, rec 2057' fluid of which 600' was gas & water cut mud, 1367' water, 90' gas & water cut mud, FP 175-975#, SIP (1½ hrs) 2075#, HP 3200#. PB 5418. Cleaned out to 5245. Perf 5108-60, 5177-88, 5200-40, ran tubing; swabbed dry & acid 5108-5240 w/2000; Swbd wtr w/heads of inflammable gas, reset packer, swabbed dry, plug at 5045; Perf 4884-4944, 4963-76 w/6 per ft, swabbed dry; very small amount gas w/some odor; flowed gas at decreasing rate from 1000 MCFPD, small amount of wtr & oil thru ½" ck, TP 200-810#, oil 50 gty, made 1200 MCFGPD decreased to 600 MCFPD, w/1.5 BOPD, 2.5 BWPD thru ½" ck, TP 140#, oil 46 gty, continued to flow gas at rate 380 MCFPD, about 8 BFPD cut 60-100%, 50 gty, TP 100#; Packer at 4857, swabbed; flowed wtr & gas, flowed 5 hrs, est final rate 800 MCFPD thru open 2" ck, reacidized 4884-4976 w/10,000; Swabbed acid wtr, began to flow at rate 300 MCFGPD, 12 BFPD, 95% cut thru ½" ck, TP 65#; Flowed at rate 210 MCFG w/small amount fluid 95% cut thru 1" ck, TP 95#; decreased to 110 MCFGPD, fluid 95% cut thru 1" ck, TP 30#, rate decreased to 30 MCFGPD, 5 BFPD w/trace of oil thru 1" ck, TP 15#, swabbed to bottom, rec 10 gals fluid w/trace of oil; Flowed 400 MCFGPD w/trace of fluid, TP 80#. Flowed 150 MCFGPD, 3 BF w/trace of oil, thru 1" ck, TP 30#. 5-27-54

16

STATE LAND DEPARTMENT
STATE OF ARIZONA

Form O & G 52

Form Prescribed Under Oil and Gas Conservation Act of 1951
WELL COMPLETION REPORT
(File in Duplicate)

Operator Shell Oil Company Field Wildcat
Street 33 Richards Street Pool Hermosa
City Salt Lake City, State Utah County Salt Lake
Lease Name Tribal Lands Well No. 1 Acres in ~~Unit~~ Lease 2342
Location Apache County 660' N and 660' W from S.E. corner
Sec. 6 Twp. 41 N Rge. 29 E
Elevation DF 5246' GR 5237' Electric Log Run (Last run) March 5, 19 54
Number of Crude Oil Producing Wells on this Lease, including this well None
Has Authorization to Transport Oil or Gas from Well, Form O&G 57 been Filed? No

OFFICIAL COMPLETION GAUGE

Date Final Test Commenced March 24 19 54 Hour 1:AM. Date Test Completed March 24 19 54 Hour 5:00PM
Length of Test 16 Hours ---- Minutes
For Flowing Well: for details see attached. *For Pumping Well:
Flowing pressure on Tbg. ____ lbs./sq.in. Length of stroke used ____ inches
Flowing pressure on csg. ____ lbs./sq.in. Number of strokes per min. ____
Size tbg. 2" in. No. ft. run 4964' Size of working barrel ____ inches
Size choke ____ in. Type choke ____ Size tubing. ____ in. No. ft. run ____
Length ____ in. Shut in pressure ____
If flowing well, was this well flowed for the entire duration of this test without the use of swab or other artificial flow device? ____ If jetted, used ____ cu. ft. gas per bbl. oil. Result of this test (bbls. net oil per 24 hours). (100% tank tables).
Gas-oil ratio of this well is ____ cu. ft. of gas per bbl. of oil.
Per cent water produced during this test ____.
Gravity of oil produced during this test (Corrected to A. P. I. 60°F.)
Name of Pipe Line or other carrier None
If perforated: No. Shots 6 p/ft. From see below To ____ Date Perforated 3-12,15-54
Date well Spudded December 18, 19 53. Date Well ~~completed~~ shut in March 24, 19 54
Top Pay 4884' Ft. Total depth of well 6490' Ft.

CASING LINER AND TUBING RECORD

String	Size	Wt./Ft.	Name and Type	Amount Ft. In.	Depth Set at	Perforated From	To
Surface	13 3/8"	48#	A. O. Smith	907'	907'		
Production	5 1/2"	17	J-55	5350'	5350'	4884'	4944'
Production	2"	4.70#	J-55	4964'		4963'	4976'
						5108'	5160'
						5177'	5188'
						5200'	5240'

CEMENT AND TESTING RECORD

Size of Hole	String	Where Cement Placed	No. Sacks of Cement	Method Used	Pressure Applied in Testing	Hardness of Cement Drilled	Type of Cement
17 1/2"	Surface	907'	800	Displacement	700 psi	hard	Construction
9" & 8 3/4"	Production	5350'	350	Displacement	1100 psi	hard	Construction

CHEMICAL OR SHOOTING RECORD BEFORE COMPLETION

Size	Chemical or	Quantity	Date	Depth From	To
See attached *					

Well Suspended March 24, 1954

AFFIDAVIT

I, A. L. Brown, being first duly sworn on oath state that I have knowledge of the facts and matter herein set forth and that the same are true and correct.

A. L. Brown
Representative of Company

Subscribed and sworn to before me this 22nd day of June 1954
Salt Lake County, ~~Ariz.~~ Utah
My Commission expires: 2-8-58

Mary J. Rhis
Notary Public

* Two copies of the drilling reports and the Hycalog reports are attached.

B18 14

RECEIVED
JUN 24 1954
STATE LAND
DEPT.

5811

PLUGGING RECORD

Operator	Address
Shell Oil Company	P. O. Box 1200, Farmington, N.M.

Name of Lease	Well No.	Field & Reservoir	
East Boundary Butte 5	1	East Boundary Butte	Hermosa

Location of Well	Sec-Twp-Rge or Block & Survey	County
660' from South line & 660' from East line	6,T41N, R29E, G&SRM	Apache

Application to drill this well was filed in name of	Has this well ever produced oil or gas	Character of well at completion (initial production): Oil (bbls/day)	Gas (MCF/day)	Dry?
Shell Oil Company	Yes for the drlg. of nearby wells		150	

Date plugged:	Total depth	Amount well producing when plugged: Oil (bbls/day)	Gas (MCF/day)	Water (bbls./day)
10-9-63	6490	None	None	None

Name of each formation containing oil or gas. Indicate which formation open to well-bore at time of plugging	Fluid content of each formation	Depth interval of each formation	Size, kind & depth of plugs used Indicate zones squeeze cemented, giving amount cement.
Lower Hermosa (open)	Gas	4884-4976	40 Sx. cmt. on top of packer & squeezed w/ a bradenhead to force cmt, to perfs. 10 sx. at surface

CASING RECORD

Size pipe	Put in well (ft.)	Pulled out (ft.)	Left in well (ft.)	Give depth and method of parting casing (shot, ripped etc)	Packers and shoes
13-3/8	909	None	909		
5-1/2	5350	None	5350		

Was well filled with mud-laden fluid, according to regulations?	Indicate deepest formation containing fresh water.
Well was filled with water	No water flows encountered during drilling

NAMES AND ADDRESSES OF ADJACENT LEASE OPERATORS OR OWNERS OF THE SURFACE

Name	Address	Direction from this well:
Navajo Tribe	Window Rock, Arizona	

In addition to other information required on this form, if this well was plugged back for use as a fresh water well, give all pertinent details of plugging operations to base of fresh water sand, perforated interval to fresh water sand, name and address of surface owner, and attach letter from surface owner authorizing completion of this well as a water well and agreeing to assume full liability for any subsequent plugging which might be required.

Use reverse side for additional detail
File this form in duplicate with the State of Arizona Oil & Gas Conservation Commission

CERTIFICATE: I, the undersigned, under the penalty of perjury, state that I am the Division Production Superintendent of the Shell Oil Company (company), and that I am authorized by said company to make this report; and that this report was prepared under my supervision and direction and that the facts stated therein are true, correct and complete to the best of my knowledge.

Verbal approval from Mr. J. K. Petty (Arizona O.& G.C.C.) to J. Q. Huckins per telephone conversation 10-4-63.

Date

Signature Joe E. Dozier, Jr.

STATE OF ARIZONA OIL & GAS CONSERVATION COMMISSION

Plugging Record File two copies

Form No. P-15

B18

1

File

Form 9-331 b
(April 1952)

	G		
			X

(SUBMIT IN TRIPLICATE)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

Budget Bureau No. 42-R359.4.
Approval expires 12-31-60.

Indian Agency Navajo

Allottee Tribal Lands

Lease No. 14-20-603-223

SUNDRY NOTICES AND REPORTS ON WELLS

NOTICE OF INTENTION TO DRILL		SUBSEQUENT REPORT OF WATER SHUT-OFF	
NOTICE OF INTENTION TO CHANGE PLANS		SUBSEQUENT REPORT OF SHOOTING OR ACIDIZING	
NOTICE OF INTENTION TO TEST WATER SHUT-OFF		SUBSEQUENT REPORT OF ALTERING CASING	
NOTICE OF INTENTION TO REDRILL OR REPAIR WELL		SUBSEQUENT REPORT OF REDRILLING OR REPAIR	
NOTICE OF INTENTION TO SHOOT OR ACIDIZE		SUBSEQUENT REPORT OF ABANDONMENT	X
NOTICE OF INTENTION TO PULL OR ALTER CASING		SUPPLEMENTARY WELL HISTORY	
NOTICE OF INTENTION TO ABANDON WELL			

(INDICATE ABOVE BY CHECK MARK NATURE OF REPORT, NOTICE, OR OTHER DATA)

October 11, 1963

East Boundary Butte Well No. 1 is located 660 ft. from {N/S} line and 660 ft. from {E/W} line of sec. 6

SE/4 SE/4 6 (¼ Sec. and Sec. No.) 41 N. (Twp.) 29 E. (Range) G&S.R.B.&M. (Meridian)

East Boundary Butte (Field) Apache (County or Subdivision) Arizona (State or Territory)

The elevation of the kelly bushing above sea level is 5048.3 ft.

DETAILS OF WORK

(State names of and expected depths to objective sands; show sizes, weights, and lengths of proposed casings; indicate mudding jobs, cementing points, and all other important proposed work)

10-9-63
Abandonment Work:
Killed well with water. Installed B.O.P.E. Ran McCullough chemical cutter and cut tubing above packer at 4851'. Pumped 40 sacks cement to top of packer and applied braden head squeeze to force cement to perfs. Pulled tubing to 80' and spotted 10 sacks cement to surface. Pulled tubing and installed marker.

Verbal approval from Mr. Rudy Baier (U.S.G.S.) to J. Q. Hankins per telephone conversation 10-4-63.

Verbal approval from Mr. Petty (Arizona O.G.C.C.) to J. Q. Hankins per telephone conversation 10-4-63.

I understand that this plan of work must receive approval in writing by the Geological Survey before operations may be commenced.

Company Shell Oil Company

Address Post Office Box 1200
Farmington, New Mexico

Original signed by
J. E. DOZIER JR.

By Joe E. Dozier, Jr.

Title Division Production Superintendent

B18

U. S. GOVERNMENT PRINTING OFFICE 16—84376-8

APPLICATION TO ABANDON AND PLUG

FIELD East Boundary Butte

OPERATOR Shell Oil Company ADDRESS P. O. Box 1200, Farmington, N.M.

LEASE East Boundary Butte 5 WELL NO. 1 COUNTY Apache

SURVEY S. & G.R.M. SECTION 6 DRILLING PERMIT NO.

LOCATION 660' from South line and 660' from East line Section 6, T. 41 N., R. 29 E., G. & S.R.M.

TYPE OF WELL Gas (Oil, Gas or Dry Hole) TOTAL DEPTH 6490 PB 5245

ALLOWABLE (If Assigned)

LAST PRODUCTION TEST OIL (Bbls.) WATER (Bbls.)

GAS 473 (MCF) DATE OF TEST Sept. 1960

PRODUCING HORIZON Lower Hermosa PRODUCING FROM 4884 TO 5240

1. COMPLETE CASING RECORD 13-3/8", 48#, @ 907 with 800 sacks
5-1/2" 17# @ 5350 with 350 sacks

2. FULL DETAILS OF PROPOSED PLAN OF WORK Kill well with water. Install B.O.P.E. Cut tubing off just above packer with McCullough's Chemical cutter. Pump 40 sacks cement to top of packer and apply bradenhead. Squeeze to force cement to perforations. Pull tubing to 80' and spot 10 sacks cement. Pull tubing and install marker with Shell Oil Company, East Boundary Butte No. 1, SE/4 SE/4 Section 16, T. 41 N., R. 29 E., S. & G.R.M., Apache County, Arizona.

If well is to be abandoned, does proposed work conform with requirements of Rule 202? If not, outline proposed procedure above.

DATE COMMENCING OPERATIONS 10-9-63

NAME OF PERSON DOING WORK V. Malquist ADDRESS P. O. Box 1200, Farmington, N.M.

CORRESPONDENCE SHOULD BE SENT TO

NAME Joe E. Dozier, Jr.

TITLE Division Production Superintendent

Date Approved Oct 8, 1964

STATE OF ARIZONA OIL & GAS CONSERVATION COMMISSION

STATE OF ARIZONA
OIL & GAS CONSERVATION COMMISSION
Application to Abandon and Plug
Form No. 15A File 2 Copies

B18

Form 15A

32 × 8

Form 9-331 b
(April 1952)

			X

(SUBMIT IN TRIPLICATE)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

Budget Bureau No. 42-R359.4.
Approval expires 12-31-60.

Indian Agency Navajo

Allottee Tribal Lands

Lease No. 14-20-603-223

SUNDRY NOTICES AND REPORTS ON WELLS

NOTICE OF INTENTION TO DRILL		SUBSEQUENT REPORT OF WATER SHUT-OFF	
NOTICE OF INTENTION TO CHANGE PLANS		SUBSEQUENT REPORT OF SHOOTING OR ACIDIZING	
NOTICE OF INTENTION TO TEST WATER SHUT-OFF		SUBSEQUENT REPORT OF ALTERING CASING	
NOTICE OF INTENTION TO REDRILL OR REPAIR WELL		SUBSEQUENT REPORT OF REDRILLING OR REPAIR	
NOTICE OF INTENTION TO SHOOT OR ACIDIZE		SUBSEQUENT REPORT OF ABANDONMENT	
NOTICE OF INTENTION TO PULL OR ALTER CASING		SUPPLEMENTARY WELL HISTORY	
NOTICE OF INTENTION TO ABANDON WELL	X		

(INDICATE ABOVE BY CHECK MARK NATURE OF REPORT, NOTICE, OR OTHER DATA)

October 1, 19 63

Well No. East Boundary Butte No. 1 is located 660 ft. from {N/S} line and 660 ft. from {E/W} line of sec. 6

SE/4 SE/4 (¼ Sec. and Sec. No.) 41N (Twp.) 29E (Range) G. & S.R.M. (Meridian)

East Boundary Butte (Field) Apache (County or Subdivision) Arizona (State or Territory)

The elevation of the ~~derrick floor~~ Kelly Bushing above sea level is 5248.25 ft.

DETAILS OF WORK

(State names of and expected depths to objective sands; show sizes, weights, and lengths of proposed casings; indicate mudding jobs, cementing points, and all other important proposed work)

Status: TD 6490', PBTD 5245', Csg. 13-3/8" @ 909, 8-1/2" @ 5350;
Perfs: 4894-4944, 4963-70, 5108-60, 77-88, 5200-40', Packer @ 4851'

Proposed Work:

1. Kill well with water.
2. Install BOPE.
3. Cut tubing off just above packer with McCullough's chemical cutter.
4. Pump 40 sacks cement to top of packer and apply braidenhead squeeze to force cement to perforations.
5. Pull tubing to 80' and spot 10 sacks cement.
6. Pull tubing and install marker with Shell Oil Company, East Boundary Butte No. 1, SE/4 SE/4 Section 6, T. 41 N., R. 29 E., G. & S.R.M., Apache Co., Arizona.

Reason for Abandonment: Production tests indicate gas rate non-commercial.

I understand that this plan of work must receive approval in writing by the Geological Survey before operations may be commenced.

Company Shell Oil Company

Address P. O. Box 1200
Farmington, N. M.

Original signed by
J. E. DOZIER JR.
By Joe E. Dozier, Jr.
Title Division Production Supt.

U. S. GOVERNMENT PRINTING OFFICE 16—84375-8

B18 10

STATE LAND DEPARTMENT
STATE OF ARIZONA

Form O&G 63

Form Prescribed Under Oil and Gas Conservation Act of 1951

REPORT ON TEST OF WATER SHUT-OFF #2
(Formation Tester)

Operator SHELL OIL CO.
Well No. 1 Sec. 6 T. 41 N.R. 29 E., Gila and Salt River B. & M.
East Boundary Butte Field, in Apache County, was tested for water shut-off on March 11, 1954. Mr. Phillip W. Johnson designated by the supervisor, was not (strike one) present as prescribed in Statewide Rule 11, there were also present C. F. Thomas, Shell Exploitation engineer, Carl Bitting, Shell drilling foreman, Mr. P. W. Johnson, State Geologist was notified by telephone on 3-10-54 in advance of test. Shut-off data: 5½ in. 17 lb. casing was cemented at 5350ft. on March 7, 1954 in 8 3/4" hole with 350 sacks of cement of which 16.8 sacks were left in casing. Casing record of well: 13 3/8" 48# ST&C, S-40, Surface casing at 909' 5½" 17# LT&C J-55 casing @5350. Reported total depth 6490 ft. Bridged with cement from 5418 ft. to 5604 ft. Cleaned out to 5245 ft. for this test. A pressure of 1100 lb. was applied to the inside of casing for 30 min. without loss after cleaning out to 5245 ft. A JOHNSTON tester was run into the hole on 2 in./~~drill~~ tubing pipe, with No ft. of water cushion, and packer set at 4852 ft. with tailpiece to 4866.7 ft. Tester Valve, with 3/4" bean, was opened at 8:52 A. M., 3-11-54 and remained open for 1 hr. and --- min. During this interval recovered 375' (1.47 bbl.) muddy water. Tested for jet perforated holes, 4874-4875.

A. L. Brown
A. L. Brown
Division Exploitation Engineer

APPROVED BY: [signature]
State Land Commissioner

DATE: June 2, 1954

2249

B18

State Arizona County Apache Field East Boundry Butte

Loc. C SE NW 3-41N-28E. Date (old) ?

Operator Shell Oil Company Well No. 2 Unit

Depth 4842 - 4850' Formation Hermosa

Resistivity 0.21 @ 68 °F pH ? Sp. Gr. ? @ ? °F

Total Solids PPM By Evap 39,720 By Calc 36,634

How Sampled DST No.12 - Chloride as NaCl 33,475 PPM.

Remarks

WATER ANALYSIS CARD CAR-PRO-1875

State Arizona County Apache Field East Boundry Butte.

Loc. C SE NW 3-41N-28E Date (old)

Operator Shell Oil Company Well No.2-Unit

Depth 4740 - 4950' Formation Hermosa

Resistivity 0.56 @ 68 °F pH ? Sp. Gr. ? @ ? °F

Total Solids PPM By Evap. 15,152 By Calc. 13,875

How Sampled DST No.11 - Chloride as NaCl 8,443

Remarks Quebracho colored

Organic matter present.

WATER ANALYSIS CARD CAR-PRO-1875

State Arizona County Apache Field East Boundry Butte.

Loc. C SE NW 3-41N-28E. Date October 16, 1954

Operator Shell Oil Company Well No.2 Unit

Depth 4745 - 4774' Formation Hermosa

Measured Resistivity 0.21 @ 68 °F pH 7.1 Sp. Gr. @ °F

Calc. 0.19

Total Solids PPM By Evap 39,452 By Calc. 38,010

How Sampled Casing test No.14 - NaCl Equivalent 37,241 PPM.

Remarks Clear water - Chem Lab report No.1-161

WATER ANALYSIS CARD CAR-PRO-1875

State Arizona County Apache Field East Boundry Butte

Loc. C SE NW - 3-41N-28E. Date (old)

Operator Shell ? Well ?

Depth 4782 - 4806' Formation Hermosa formation.

Resistivity 0.37 @ 68 °F pH ? Sp. Gr. ? @ ? °F

Total Solids PPM By Evap. 23,555 By Calc. 22,242

How Sampled Casing test No. 13 - Chloride as NaCl 17,644

Remarks Clear water.

Organic matter present.

WATER ANALYSIS CARD CAR-PRO-1875

State Arizona County Apache Field East Boundry Butte

Loc. 6-41N-29E. Date (old)

Operator Shell Oil Company Well No. 1

Depth 4884 - 4976' Formation Pennsylvanian

Resistivity 0.12 @ 68 °F pH ? Sp. Gr. ? @ ? °F

Total Solids PPM By Evap. 70,840 By Calc. 68,333

How Sampled by DST - Chloride as NaCl 69,258 PPM

Remarks Clear water

18-O.K.

32 x

JUL STATE CONS. CO

STATE LAND DEPARTMENT
STATE OF ARIZONA

Form O&G 63

Form Prescribed Under Oil and Gas Conservation Act of 1951

REPORT ON TEST OF WATER SHUT-OFF
(Formation Tester)

Operator SHELL OIL COMPANY
Well No. 1 Sec. 6 T. 41 N. R. 29E, Gila & Salt River B. & M.
East Boundary Butte Field, in Apache County, was tested for water shut-off on March 10, 1954. Mr. Phillip W. Johnson designated by the supervisor, was not (strike one) present as prescribed in Statewide Rule 11, there were also present C. F. Thomas, Shell Exploitation Engineer, Carl Bitting, Shell Drilling Foreman, Mr. P. W. Johnson, State Geologist, was notified by telephone on 3-10-54 in advance of test.
Shut-off data: 5½ in. 17 lb. casing was cemented at 5350 ft. on March 7, 1954. in 8 3/4 hole with 350 sacks of cement of which 16.8 sacks were left in casing. Casing record of well: 13 3/8" 48# ST&C S-40 Surface Casing at 909'
5 1/2" 17# LT&C J-55 casing @ 5350

Reported total depth 6490 ft. Bridged with cement from 5350 ft. to 5418 ft. Cleaned out to 5245 ft. for this test. A pressure of 1100 lb. was applied to the inside of casing for 30 min. without loss after cleaning out to 5245 ft. A Johnston tester was run into the hole on 4 1/2 in. drill pipe, with no ft. of water cushion, and packer set at 5217 ft. with tailpiece to 5232 ft. Tester valve, with 3/4" bean, was opened at 4:29 p.m. and remained open for 1 hr. and 30 min. During this interval Recovered 5' muddy water

A. L. Brown
Div. Exploitation Engineer

REPORT ON TEST OF WATER SHUT-OFF
(Bailing)

Operator
Well No. Sec. T. R., B&M.
Field, in County, was tested for water shut off on , 19. Mr. , designated by the supervisor, was not (strike one) present as prescribed in Statewide Rule 11, there were also present

Shut-off data: in. lb. casing was cemented at ft. on 19 in hole with sacks of cement of which sacks were left in casing. Casing record of well:

Reported total depth ft. Bridged with cement from ft. to ft. Cleaned out to ft. for this test. Casing test data:

APPROVED BY: State Land Commissioner

DATE: March 19, 1954

16

B18
Sent to Pitts - (Approved ok)

STATE LAND DEPARTMENT
STATE OF ARIZONA

Form O&G 63

Form Prescribed Under Oil and Gas Conservation Act of 1951

REPORT ON TEST OF WATER SHUT-OFF
(Formation Tester)

Operator SHELL OIL COMPANY
Well No. 1 Sec. 6 T. 41 N. R. 29E, Gila & Salt River B. & M.
East Boundary Butte Field, in Apache County, was tested for water shut-off on March 10, 1954. Mr. Phillip W. Johnson designated by the supervisor, was not (strike one) present as prescribed in Statewide Rule 11, there were also present C. F. Thomas, Shell Exploitation Engineer, Carl Bitting, Shell Drilling Foreman, Mr. P. W. Johnson, State Geologist, was notified by telephone on 3-10-54 in advance of test.
Shut-off data: 5½ in. 17 lb. casing was cemented at 5350 ft. on March 7, 1954. in 8 3/4 hole with 350 sacks of cement of which 16.8 sacks were left in casing. Casing record of well: 13 3/8" 48# ST&C S-40 Surface Casing at 909'
5 1/2" 17# LT&C J-55 casing @ 5350

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A. L. Brown
A. L. Brown
Div. Exploitation Engineer

REPORT ON TEST OF WATER SHUT-OFF
(Bailing)

Operator
Well No. Sec. T. R., B&M.
Field, in County, was tested for water shut off on , 19. Mr. , designated by the supervisor, was not (strike one) present as prescribed in Statewide Rule 11, there were also present

Shut-off data: in. lb. casing was cemented at ft. on 19 in hole with sacks of cement of which sacks were left in casing. Casing record of well:

Reported total depth ft. Bridged with cement from ft. to ft. Cleaned out to ft. for this test. Casing test data:

APPROVED BY: State Land Commissioner

DATE: March 19, 1954

16

B18
Lease & Pits - (Approved ok)

RECEIVED
MAR 13 1954
STATE LAND
DEPT.

1605

[illegible]
Shell Oil Company
Navajo No. 1
Sec. [illegible], [illegible] N, R 25 E
660 FS&F lines of sec.
Comp: TD: 6490

#18 6720

Elev: 5236 Gr.

SPECIAL: Carter Oil Company
12-20-54: Ordered as Special from 1300 to 5700 feet.
1-6-55: LETTER REPORT SENT TO MR. A. M. CURRENT - Carter Oil, Durango
SPECIAL: Honolulu Oil Corporation
4-14-55: Ordered as Special from 3000 to 6485 feet.
5-2-55: LETTER REPORT SENT TO MR. W. T. SCHNEIDER - Honolulu, Midland

No report issued to subscribers.

LETTER REPORT SENT TO MR. A. M. CURRENT
January 6, 1955

2000: Tentative top Permian system, by lithology
4360-5373: Lower Des Moines fusulines
*4950-5373: Lower Cherokee types
*5376: Top Atoka series, by lithology
*5377-5395½: Atoka fusulines
5510: Top Mississippian limestone, by lithology
Samples examined from 1300 to 5700 feet.

Not issued.

APACHE COUNTY, ARIZONA

Per. No. 18 #18 6720

Shell Oil Company

Navajo No. 1

Elev: 5236 Gr.

Sec. 6, T 21 N, R 29 E

660 FS&E lines of sec.

Comp: TD: 6490

SPECIAL: Carter Oil Company

12-20-54: Ordered as Special from 1300 to 5700 feet.

1-6-55: LETTER REPORT SENT TO MR. A. M. CURRENT - Carter Oil, Durango

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No report issued to subscribers.

LETTER REPORT SENT TO MR. A. M. CURRENT

January 6, 1955

2000: Tentative top Permian system, by lithology

4360-5373: Lower Des Moines fusulines

#4950-5373: Lower Cherokee types

Not issued.

#5376: Top Atoka series, by lithology

#5377-5395½: Atoka fusulines

5540: Top Mississippian limestone, by lithology

Samples examined from 1300 to 5700 feet.

32 × 1

Core cuts examined from 4862 to 5055 & 5358 to 5395½ feet. 1-6-55

LETTER REPORT TO MR. W. T. SCHNEIDER

May 2, 1955

4360-5373: Lower Des Moines fusulines

¢4950-5373: Lower Cherokee types — Not issued.

¢5376: Top Atoka series, by lithology

¢5377-5395½: Atoka fusulines

By lithology only:

5540: Base Atoka series

5540: Top Mississippian limestone

5900: Top Devonian(?) dolomite

5950: Top Middle Silurian(?) zone

5990: Top Ordovician(?) system

6460: Top Cambrian(?) sandstone

6485 LSA: In Cambrian(?) sandstone

Samples examined from 3000 to 6485 feet, TD: 6490 feet.

Core cuts examined from 4862 to 5055 & 5358 to 5395½ feet. 5-2-55

Detailed Report (to Carter Oil Company)

1300-4360: No fossils found

2000: Tentative top Permian system, by lithology

4360-5373: Lower Des Moines fusulines

4360-4370: *Fusulina* - nondescript Cherokee types

32 × 8

Apache Co., Ariz. - Shell Oil,- Navajo No. 1 Card 2

4460-4470: Fusulina
4540-4550: Fusulina
4570-4580: Fusulina Not issued.
4590-4610: Fusulina; "Fusulinella-Fusulina"
4610-4640: Fusulina
4700-4710: Fusulina
4710-4720: Wedekindellina
4720-4862: No fossils found
¢4862-4950: No fossils found
¢4950-5373: Lower Cherokee types
¢4950-4951: Fusulina - lower Cherokee types
5050-5060: Fusulina
5160-5170: Fusulina
5170-5310: No fossils found
5310-5330: Chaetetes
5350-5358: Chaetetes
¢5359-5361: Fusulina; "Fusulinella-Fusulina"
¢5361-5364: Fusulina
¢5365-5366: "Fusulinella-Fusulina"
¢5366-5367: Fusulina; "Fusulinella-Fusulina"; Millerella
¢5368-5369: Fusulina; "Fusulinella-Fusulina"
¢5370-5371: Fusulina

32 × 8

[redacted]

¢5372-5373: "Fusulinella-Fusulina" - lower Cherokee types
¢5373-5377: No fossils found
5376: Suggested top Atoka series, by lithology
¢5377-5395½: Atoka fusulines — Not issued.
¢5377-5378: Eoschubertella - Atoka types
¢5378-5379: Fusulinella
¢5380-5381: Millerella
¢5381-5382: Fusulinella
¢5382-5383: Eoschubertella; Fusulinella
¢5383-5384: Fusulinella
¢5384-5385: Eoschubertella; Fusulinella
¢5385-5386: Fusulinella
¢5393-5394: Fusulinella
¢5395-5395½: Fusulinella - Atoka in age
5395½-5700(last sample examined): No fossils found
5540: Suggested top Mississippian limestone, by lithology
Samples examined from 1300 to 5700 feet.
Core cuts examined from 4862 to 5055 & 5358 to 5395½ feet. (Carter)
Not issued.

[redacted]

32 × [redacted]

APACHE COUNTY, ARIZONA 8430

Shell Oil Company Shell #1 Navajo

East Boundary Butte No. 1 6-41n-29e 660' FS&EL TD 6490

2-8-57: Atlantic thin-sections - LR to W. E. Hall - Midland

4600-4605: @Fusulina, poor - Des Moines, nondescript

¢5360-5361: @Fusulina, good & Fusulina, very poor - Lower Des Moines

¢5360-5361: @Fusulina, 1 poor, 1 fair, 1 good - Lower Des Moines

¢5362-5363: @Fusulina, 2 good & 2 poor - Lower Des Moines

¢5368-5369: @Fusulina, 2 good & 5 poor - Lower Des Moines

¢5395-5395½; @Fusulina, 1 good & 1 poor; "Fusulinella-Fusulina", good-Lower Des Moines

32 ×

DITCH SAMPLES

Examined by _____ _____to_____
_____ _____to_____

Well East Boundary Butte #1
Field or Area East Boundary Butte

FROM:	TO:	%	SHOWS UNDERLINED	SAMPLES (NOT) LAGGED
6455	6460	60	Siltstone - Bright orange, hard.	
		20	Shale - Dark purple, hematitic.	
		20	Siltstone - Medium brown, as above.	
6460	6465	100	Sandstone - White, conglomerate, coarse, angular-sub-rounded with purple hematite stain and cement. Clasts are predominantly clear quartz, milky quartz; Some bright orange siltstone as above.	
6465	6470	100	Sandstone - As above.	
6470	6475	100	Probably Sandstone as above but contains abundant shale, red, purple, brown and green.	
6475	6480	100	Sandstone - Conglomerate with hematite cement.	
6480	6484		Skip	
6484	6490	100	Shale - Dark - Light red.	
			Slight trace of gas in mud 6460-6475 (3 Hycalog Units)	

B 18

32 × 1

DITCH SAMPLES

Examined by Thomas Knight

%o
to

Well East Boundary Butte #1
Field or Area East Boundary Butte

FROM:	TO:	%	SHOW UNDERLINED	SAMPLES (NOT) LAGGED
6380	6385	40	Dolomite - As above.	
		40	Sandstone - Medium gray to brown gray, fine - medium, angular - sub-rounded, argillaceous, appears siliceous in part.	
		20	Shale - As above.	
6385	6390	100	Dolomite - White - light gray, I-III FA with abundant fine - medium, angular - round quartz grains. Grades to sandstone - coarse angular grains.	
6390	6395	60	Dolomite - As above.	
		40	Dolomite - Light brown, I MA with stringers white coarse quartzite.	
6395	6400	100	Sandstone - White, loose with abundant shale - red.	
6400	6405	100	Sandstone - White, very fine with few medium grains angular-sub-rounded dolomite, in part siliceous. Grades to very sandy dolomite.	
6405	6410	100	Sandstone - As above. Becoming coarse micro-conglomeratic with angular to well rounded large grains quartzite, clear to frosted in very fine angular, well sorted matrix, siliceous in part.	
6410	6415	100	Predominantly loose fine sand (very poor sample)	
6415	6420	100	Predominantly loose fine sand (very poor sample)	
6420	6425		Skip	
6425	6430	100	Sand - loose, very fine with one piece maroon-purple, white banded, blocky shale.	
6430	6435	100	Probably sandstone - White very fine angular. Contains shale - red-dark red purple, grades to very argillaceous, very fine - fine sandstone.	
6435	6440	100	Probably sandstone - Light orange, medium, angular-sub-rounded, very friable, appears tight.	
6440	6445	60	Sandstone - White - light red, fine - coarse, angular-sub-rounded with abundant milky quartz.	
		40	Shale - Dark red brown - purple, silty, calcareous	
6445	6450	80	Sand - Loose, very fine - coarse, angular rounded.	
		20	Shale - Dark purple - maroon, silty. Trace orange siltstone.	
6450	6455	80	Sand - Loose as above.	

B 18

32 × 8

DITCH SAMPLES

Examined by Thomas to to

Field or Area East Boundary Butte

Well East Boundary Butte #1

FROM:	TO:	%	SHOWS UNDERLINED SAMPLES (NOT) LAGGED
6300	6305	50	Dolomite - Medium brown, III M-LA with pockets of pink III VFA dolomite.
		50	Dolomite - Cream, III FA.
6305	10	50	Dolomite - Medium dark brown, III MA.
		50	Dolomite - Tan, III FA
6310	15	40	Dolomite - Medium dark brown, III MA.
		30	Dolomite - Light brown, I - III FA
		30	Dolomite - Light gray, III F-MA.
6315	20	40	Dolomite - Light brown, III F-MA.
		60	Dolomite - Medium gray-black, III FA, appears very argillaceous. Trace red shale.
6320	25	60	Dolomite - Dark brown-black, III F-MA
		40	Shale - Medium-dark gray, silty, dolomitic.
6325	50	100	Dolomite - Dark gray, III FA, argillaceous. (Some light red shale 25-30) Few fragments chert 45-50.
6350	55	100	Dolomite - Medium brown, III M-LA + B_1 (10% of cuttings with B_1) with streaks of white large calcite crystals and stringers of medium gray III MA dolomite. (2 pieces light brown III FA + B_{10} with spotty weak fluorescence and pale yellow cut fluorescence). Some apparent dead oil staining in inter granular pores, very pale cut fluorescence.
6355	60	60	Dolomite - Medium brown, III M-LA + B_1 (10% of cuttings B_1) with black dead oil staining in pores.
		40	Dolomite - Medium brown, III F-MA.
6360	65	100	Dolomite - Medium brown, III M-LA + B_1 (50% of cuttings B_1). Pores filled with black dead oil.
6365	70	100	Dolomite - Medium brown, III F-M-LA + B_3 (25% cuttings B_3), calcareous in part. Dead oil staining in pores.
6370	75	100	Probably as above but largely shale - soft, red, purple.
6375	80	80	Dolomite - Medium brown, III F-LA
		20	Shale - Dark gray, hard pyrite.
	# B 18		Slight trace of gas show in mud 6300-6328, 6365-6380 (3-5 Hycalog Units)

32 × 1

DRILL CUTTINGS

Well: E.B.B.#1

Examined by Thomas & Knight

Field or Area: East Boundary Butte

FROM	TO	%	SHOWS UNDERLINED SAMPLES LAGGED
6215	6225	40	Sandstone, white, very fine-fine, angular, well sorted becoming light purple.
		30	Sandstone, white-purple, loose, friable, argillaceous.
		30	Shale, medium purple, soft.
6225	6235	40	Sandstone, light-medium purple, very fine-fine, angular, in part purple, argillaceous and poorly sorted with apparent abundant glauconite
		40	Sandstone, white, very fine-medium, angular with medium grains being sub-rounded.
		20	Shale, purple-maroon, soft (contact pieces with sandstone).
6235	6240	100	Sandstone, light-dark purple, very fine, angular, in part purple, argillaceous with abundant glauconite? grains, very hard and light. Contains stringers of medium coarse, angular-sub-rounded grains.
6240	6250	100	Sandstone, dark-light purple, very fine-silty, argillaceous with scarce glauconite grains.
6250	6260	100	Sandstone, poor samples.
6260	6265	100	Sandstone, light red, fine-medium, angular, sub-rounded, hard, poor sort, glauconite.
6265	6280	100	Sandstone, loose, fine.
6280	6285	70	Dolomite, dark brown, III M-LA, part black, argillaceous with silt.
		30	Dolomite, white-light gray, III F-MA.
6285	6290	100	Dolomite, dark brown, as above.
6290	6295	100	Dolomite, dark-light brown, III M-LA.
6295	6300	60	Dolomite, medium brown, III M-LA with pockets pink, III VFA dolomite.
		40	Dolomite, cream, III FA.
			Slight trace of gas show in mud 6220-6236 (3-4 Hycalog units).

B 18

32 ×

DITCH SAMPLES

Well: East Boundary Butte #1

Examined by Miller & Knight

Field or Area: East Boundary Butte

FROM	TO	%	SHOWS UNDERLINED	SAMPLES LAGGED
6110	6120	80	Dolomite, light brown, III FA.	
		20	Dolomite, light gray green, I-III VF-FA, sandy.	
			Slight trace to fair gas shows in mud 6000-6100 (3-25 gas units).	
6120	6135	100	Dolomite, dark brown, III FA.	
6135	6140	50	Dolomite, light gray, III FA, sandy.	
		50	Dolomite, dark brown, III FA.	
6140	6145	60	Dolomite, light brown, III F-MA.	
		40	Dolomite, light green, I FA, sandy.	
6145	6150	70	Dolomite, light brown, III F-MA.	
		30	Dolomite, light green, I FA, sandy.	
6150	6155	100	Dolomite, light brown, III F-MA.	
6155	6160	90	Dolomite, as above.	
		10	Sandstone, white.	
6160	6165	70	Sandstone, light gray-green-white.	
		30	Dolomite, as above.	
6165	6174	100	Sandstone, white, friable, poor-to well-sorted, fine-medium. Top of Undifferentiated Devonian.	
6175	6180	100	Sandstone, as above. 1/2% spotty fluorescence and cut fluorescence, dead oil in pores.	
6180	6190	100	Sandstone, as above. 5% spotty fluorescence and cut fluorescence, dead oil in pores.	
6190	6195	100	Sandstone, as above, 1/2% spotty fluorescence and cut fluorescence, dead oil in pores.	
6195	6215	100	Sandstone, as above.	
			Slight trace to trace of gas show in mud 6120-6215 (3-11 gas units) and slight trace of gas in cuttings 6188-6194 (3-4 gas units).	

B 18

32 x

DITCH SAMPLES

Well: East Boundary Butte #1

Examined by Miller & Knight

Field or Area: East Boundary Butte

FROM	TO	%	SHOWS UNDERLINED	SAMPLES LAGGED
6000	6005	80	Dolomite, light brown-cream III FA.	
		20	Shale, red, orange, silty.	
6005	6010	80	Dolomite, cream, III FA with trace dolomite light green III FA with medium-coarse rounded sand grains.	
		20	Shale, red, purple and green.	
6010	6015	70	Dolomite, cream, III FA.	
		30	Shale, red, orange, green.	
6015	6025	100	Sandstone, white, fine-medium, well-rounded, frosted, dolomitic. Trace dead oil in matrix, 10% spotty bright yellow fluorescence.	
6025	6030	50	Sandstone, as above, 5% spotty yellow fluorescence.	
		50	Dolomite, cream III F-MA.	
6030	6035	100	Dolomite, White-cream, III MA.	
6035	6040	70	Dolomite, light brown, III FA.	
		30	Shale, gray.	
6040	6045	40	Dolomite, as above.	
		30	Sandstone, white, medium, well-sorted.	
		30	Shale, purple.	
6045	6050	100	Dolomite, light brown-cream, III FA, sandy.	
6050	6075	100	Dolomite, light gray-brown III FA - Trace C&D at 6075 with dead oil stain in cavities, yellow fluorescence and cut fluorescence.	
6075	6080	100	Dolomite, light brown III M-LA+B_5C_1 (10% cuttings show porosity) Cavities filled with dark dead oil. 10% yellow fluorescence and cut fluorescence.	
6080	6085	50	Dolomite, as above, dead oil staining in cavities, 5% yellow fluorescence and cut fluorescence.	
		50	Dolomite, light brown III FA with green shale partings and sandy.	
6085	6100	100	Dolomite, light brown III FA, occasional sand and green shale partings.	
6100	6105	80	Dolomite, light brown-cream III FA, argillaceous.	
		20	Dolomite, cream, III FA, sandy.	
6105	6110	60	Dolomite, light brown, III F-MA.	
		20	Shale, purple, silty.	
		20	Dolomite, light gray, III VF-FA, sandy.	

B 18

32 ×

DITCH SAMPLES

Well E.B.B.#1

Examined by Thomas & Knight

Field or Area: East Boundary Butte

FROM	TO	%	SHOWS UNDERLINED	SAMPLES LAGGED
			Cont'd.	
		20	Shale, Pale green, sub-waxy.	
5955	5960	100	Shale, light green, mushy, silty.	
5960	5965	90	Dolomite, light green, I/III VF-FA.	
		10	Shale, purple.	
5965	5970	80	Dolomite, as above.	
		20	Dolomite, cream, III FA, calcareous.	
5970	5975	90	Dolomite, as last above.	
		10	Shale, red orange, soft.	
5975	5980	70	Dolomite, light gray, III FA.	
		30	Shale, purple, green and red orange.	Trip @ 5977
5980	5985	60	Dolomite, light gray-cream, III FA.	
		40	Shale, light green, silty.	
5985	5990	50	Dolomite, light gray-cream, III FA with green shale partings.	
		50	Siltstone, pink, micaceous.	
5990	5995	70	Siltstone, pink-light gray, with abundant copper colored mica.	
		15	Shale, dark purple.	
		15	Shale, light green.	
5995	6000	70	Shale, red orange, silty, calcareous, blocky.	
		30	Dolomite, light gray green, III FA with rare round sand grain.	

Slight trace to trace gas in mud 5930-5964 (4-8 units)
2 units gas in cuttings 5936-5940 & 5944-48.

B 18

32 × 1

DITCH SAMPLES

Well: E.B.B. #1

Examined by Thomas Knight

Field or Area: East Boundary Butte

FROM	TO	%	SHOWS UNDERLINED	SAMPLES LAGGED
5885	5890	80	Dolomite.- White, light gray, III FA, Calcareous.	
		20	Shale.- Light green, as above.	
5890	5895	50	Dolomite.- As above.	
		50	Dolomite.- Pink, II VFA, trace shale.	
5895	5900	90	Dolomite.- Pale gray, III MA, pyrite, with few cuttings with light green, argillaceous color	
		10	Shale.- Light green, as above.	
5900	5910	100	Dolomite.- White-pale gray, III MA with trace light green shale.	
5910	5915	80	Dolomite.- As above.	
		20	Shale.- Light green, sub-waxy.	
5915	5920	100	Dolomite.- Pale gray, III MA with trace shale, light green.	
5920	5925	100	Dolomite.- Pale gray-brown, III F-MA with trace green shale and dark brown chert.	
5925	5930	90	Dolomite.- Cream, III F-MA.	
		10	Shale.- Dark purple and light green, rare fragment dolomite, pale olive, also very rare orange, chert.	
5930	5935	90	Dolomite.- As above.	
		10	Shale.- Purple, as above.	
5935	5940	100	Dolomite.- Light brown, I/III VF-FA, trace purple.	
5940	5945	80	Dolomite.- Light brown, IVFA-III FA.	
		20	Shale.- Dark brown purple and light green.	
5945	5950	70	Dolomite.- Light brown, IVFA.	
		20	Shale.- Light green, sub-waxy.	
		10	Shale.- Dark purple.	

Note: Trace to fair gas in mud 5764-5884 (8-14 units) with 30-40 units @ 5822-5826; Trace gas in mud 5890-94 (6-9 units); Slight trace gas in mud 5904-5926 (4 units); 2 units gas in cuttings 5778-5792 and 5802-5812. Abundant pipe dope in samples.

5950	5955	60	Dolomite.- Cream, IVFA	
		20	Shale.- Dark purple, silty.	

B 18

32 × 1

DITCH SAMPLES

Examined by Thomas Knight

Well: E.B.B. #1

Field or Area: East Boundary Butte

FROM	TO	%	SHOWS UNDERLINED	SAMPLES LAGGED
			Cont'd.	
5790	5795	60	Dolomite.- Pink, II VFA.	
		40	Limestone.- White, IMA, Trace fluorescence.	
5795	5800	100	Dolomite.- As above, with trace light green shale.	
5800	5805	100	Dolomite.- Dark brown, III MB_{10} (15% of cuttings) Trace fluorescence.	
5805	5810	100	Dolomite.- Dark brown, III MB_5C_5 (10-15% cuttings) Trace fluorescence.	
			Note: Porosity as above in 5% of cuttings to 5775, 15% of cuttings to 5785, 5% thereon unless noted.	
5810	5815	60	Dolomite.- Dark brown, III MB_5 (10-15)	
		40	Limestone.- White, light brown, III MA, dolomitic, appears to contain dolomite crystals in limestone matrix	
5815	5820	50	Dolomite.- Dark brown, III MB_5+C_5 (10-15).	
		50	Limestone.- As above, Trace fluorescence.	
			Note: Slight trace gas in mud (4 units) 5722-30, 5738-60 (4-8 units)	
5820	5825	100	Dolomite.- Medium brown, III MB_{10}.	
5825	5830	100	Dolomite.- Medium-dark brown, III MB_{10}, slightly calcareous.	
5830	5835	100	Dolomite.- As above B_5 (10% of cuttings).	
5835	5840	100	Dolomite.- As above B_5.	
5840	5845	60	Dolomite.- As above (20% of cutting B_5).	
		40	Dolomite.- Medium-dark brown-black III MB_5.	
5845	5850	100	Dolomite.- Medium-dark brown, III MB_5 (10%).	
5850	5860	100	Dolomite.- Medium brown, III F-MA intercal. with dolomite, light gray, III FA, argillaceous.	
5860	5870	50	Dolomite.- Medium brown-black, III F-MA, some gray, argillaceous III FA dolomite.	
		50	Dolomite.- Pink, II VFA, trace light green, waxy shale.	
5870	5775	50	Dolomite.- As last above.	
5875	5880	100	Limestone.- White, I/III VF-MA with trace light green shale.	Top ELBERT 5875'
5880	5885	100	Limestone.- White, III FA, slight dolomite (few contact pieces with light green sub-waxy, slight calcareous shale.	

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DUTCH SAMPLES

Well: E.B.B. #1

Examined by Thomas Knight

Field or Area: East Boundary Butte

FROM	TO	%	SHOWS UNDERLINED	SAMPLES LAGGED
		Cont'd.		
5700	5705		As above? very poor sample.	
5705	5710	100	Dolomite.- Light brown, IIIM-LA+C_1+B_2.	
5710	5715	70	Dolomite.- As above, some B, 1 piece bright yellow fluorescence.	
		30	Dolomite.- Pink, II VFA.	
5715	5720	70 30	As above, becoming F, less porosity.	
5720	5725	70	Dolomite.- Pink, IIVFA.	
		30	Dolomite.- White, IIIMA,C_5 1 piece bright yellow fluorescence.	
5725	5730	100	Dolomite.- Light brown, III M-LA,C_5 (local)	
5730	5735	60	Dolomite.- As above, C_2.	
		40	Chert.- White, translucent-opaque.	
5735	5740		As above, light brown dolomite has C_5 some pink dolomite.	
5740	5745	80	Dolomite.- As above, becoming white.	
		20	Dolomite.- Medium brown, III FA, trace shale, red-purple, silty.	
5745	5750	100	Dolomite.- Light brown-medium brown, III F-MA, 1 piece C_5.	
5750	5755	100	Dolomite.- Light brown-III MB_5, calcareous. 1% fluorescence & cut fluorescence bright yellow.	
5755	5760	100	Dolomite.- As above, not calcareous. Bright yellow fluorescence and cut fluorescence 1% some C_1.	
5760	5765	100	Dolomite.- As above B_1 C_1. Bright yellow fluorescence and cut fluorescence 1% Crocoite crystals.	
5765	5770	100	Dolomite.- As above B_5 trace C. Some oil stain 2% bright yellow fluorescence and cut fluorescence.	
5770	5775	100	Dolomite.- As above B_5 few pieces, 3% fluorescence and cut fluorescence.	
5775	5780	100	Dolomite.- Light brown III MB_5C_1. 4% bright yellow orange fluorescence, slight cut fluorescence.	
5780	5785	100	Dolomite.- As above, B_{5-10} 5% yellow orange fluorescence, bright yellow cut fluorescence, few fragments stained.	
5785	5790	100	Dolomite.- Medium brown, III MB_5 0.2% yellow orange fluorescence, slight cut fluorescence.	

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32 ×

DITCH SAMPLES

Well:- E.B.B.#1

Examined by Thomas Knight

Field or Area: East Boundary Butte

FROM	TO	%	SIGNS UNDERLINED	SAMPLES LAGGED
			Cont'd.	
5605	5610	100	Limestone.- As above with some light brown IVFA	very poor sample
5610	5615	100	Limestone.- Cream, light yellow, IVFA-IIIFA with few fragments limestone - light gray brown, III FC_5 with pale spotty yellow fluorescence, no cut fluorescence.	
5615	5620	80	Shale.- White, very soft.	poor sample
		20	Limestone.- Light gray, I VFA.	
5620	5625	50	Shale.- White-pink, soft.	
		50	Limestone.- As above	Very poor sample
5625	5650	100	Dolomite.- Light-medium brown, IIIF-MA.	Some ochre staining 5640-45
			Note: Slight trace gas in mud 5494-5510 and 5524-5528 (4 Units); Slight trace to trace gas in mud 5538-5560 (4-6 units).	
5650	5655	100	Limestone.- White-tan, IM-LA.	
5655	5660	100	Limestone.- As above, very poor sample.	
5660	5665	50	Limestone.- As above.	
		50	Dolomite.- Light brown, IIIF-MA, calcareous.	
5665	5670	75	Dolomite.- As above.	
		25	Limestone.- White, IIIMA, some IIILA.	
5670	5675	75	Dolomite.- As above.	
		25	Limestone.- White, III MA.	
5675	5680	50	Dolomite.- White, light brown, III MA	Very poor sample.
		50	Limestone.- Various types.	
5680	5685	60	Limestone.- White-pink, II VFA.	
		40	Dolomite.- White, III MA.	
5685	5690	50	Dolomite.- Pink, calcareous, II VFA.	Poor sample.
		50	Dolomite.- Light brown, IVFA.	
5690	5695	100	Dolomite.- Pink, II VFA.	
5695	5700	60	Dolomite.- As above, trace II C.	
		40	Limestone.- White, III MA, dolomitic.	

B 8

32 × 1

DITCH SAMPLES

Examined by Thomas Knight

Well: E.B.B. #1

Field or Area: East Boundary Butte

FROM	TO	%	SHOWS UNDERLINED	SAMPLES LAGGED
			Cont'd	
		40	Shale.- Medium red, soft, flaky, calcareous.	
5515	5520	60	Shale.- Medium purple, fissile.	
		40	Limestone.- Light gray, brown, IVFA.	
5520	5525	40	Shale.- Purple as above.	
		40	Shale.- Medium red-purple, soft, flaky, slightly calcareous.	
		20	Limestone.- As above.	
5525	5535	60	Shale.- Medium purple, fissile (some gray).	
		40	Shale.- Red purple and red. Few fragments chert. Trace ochre shale.	
5535	5540	100	Shale.- Purple, red, brown.	5530-40 Rare fragment bryozoan limestone, with C15 porosity.
5540	5545	60	Shale.- Red brown, purple, silty.	
		40	Limestone.- Light gray-brown, I/III VF-FA.	
5545	5550	60	Shale.- As above.	
		40	Limestone.- As above shows 1 fusulinid.	
5550	--------		Top Leadville (sample top)	
5550	5560	90	Shale.- As above.	Poor samples to 5585.
		10	Limestone.- White-cream, IVFA with medium oolites, streaks shale-red.	
5560	5565	90	Shale.- As above.	
		10	Limestone.- As above, with some light gray, IFA, B_1 oolitic (May be caving)	
5565	5570	100	Limestone.- Light brown, IVFA.	
5570	5575	100	Limestone.- White-light brown, I/III VF-FA with one piece limestone, light brown, III FB_1C_1 oolitic.	
5575	5580	100	Limestone.- Light brown, IVFA.	
5580	5585	100	Limestone.- Cream, IVFA.	
5585	5590	100	Limestone.- As above.	
5590	5595	100	Limestone.- As above, with few fragments medium orange IVFA limestone.	
5595	5600	100	Limestone.- Light yellow, IIIF-MA with one piece limestone-gray, brown, IIIFA+C_5 with dead oil stain (probably cavings)	
5600	5605	100	Limestone.- Light yellow, As above.	poor sample.

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DITCH SAMPLES

Well: E.B.B. #1

Examined by Knight Thomas

Field or Area: East Boundary Butte

FROM	TO	%	SHOWS UNDERLINED	SAMPLES LAGGED
5465	70	45	Shale.- Red-medium purple, flaky, very soft, slightly calcareous.	
		45	Shale.- Medium gray, fissile, slightly calcareous.	
		10	Shale.- Light gray, very soft, bentonitic?	
5470	75	50	Shale.- As first above	
		25	Shale.- Gray, black, gray purple, fissile, silty and fine micaceous in part.	
		15	Limestone.- White, tan, medium brown, IVF-FA, with nodules chert, clear to light orange transparent-translucent. Limestone appears to grade into sandstone.	
		10	Sandstone.- Tan, well sorted, fine grained, calcareous, 1 piece large grained, well sorted, sub-rounded - sub-angular, calcareous.	
5475	80	70	Shale.- Light-medium chocolate brown, mottled white, very soft, anhydritic with 1 piece anhydrite white.	
		20	Shale.- Gray, black, purple, light green, fissile.	
		10	Limestone.- White-light brown, IVFA, with chert nodules-light brown, orange, transparent-translucent and anhydrite-white inclusions.	
5480	85	60	Shale.- As first above.	
		20	Shale.- As last above.	
		20	Limestone.- As above, chert becoming more abundant.	
5485	90	90	Shale.- Light brown, very soft, mushy, calcareous.	
		10	Limestone.- As above.	
5490	95	60	Shale.- Medium purple, fissile.	
		20	Shale.- Light green, fissile.	
		20	Limestone.- Light brown, IVFA with pale gray orange translucent chert fragments.	
5495	5500	50	Shale.- Purple; as above.	
		50	Shale.- Light red, very soft, flaky, calcareous.	
5500	5505	50	Shale.- As first above with few fragments limestone in contact with purple shale.	
		50	Shale.- As last above.	Note: Fair gas in mud 5456-5464 (15-20 units); Trace gas in mud 5464-5470 (4-6 units).
5505	10	50	Shale.- Purple, fissile.	
		30	Shale.- Medium red, soft, flaky, calcareous.	
		20	Limestone.- Light brown III FA.	
5510	15	60	Shale.- Medium purple, fissile.	

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DITCH SAMPLES

Well: E.B.B #1

Examined by Thomas & Knight

Field or Area: East Boundary Butte

FROM	TO	%	SHOWS UNDERLINED	SAMPLES LAGGED
			Cont'd.	
5410	5415	80	Limestone, as above with fragments light orange opaque chert.	
		20	Shale, as above.	
5415	5420	100	Shale, light red brown, soft, slightly calcareous. 1st shale definitely not caving.	
5420	5425	100	Shale, light red brown, orange, ochre, calcareous and very flaky with trace sandstone light yellow, very calcareous.	
5425	5430	100	Limestone, light gray-tan, I VFA, with trace yellow bryozoan fragments.	
5430	5435	100	Shale, red brown, very soft, flaky, calcareous.	
5435	5440	100	Limestone, cream, I/III VF-FA.	
5440	5445	100	Shale, light purple and ochre, very soft, flaky, calcareous.	
5445	5450	50	Limestone, light gray, I FA.	
		50	Shale, red, gray, purple with red orange opaque chert fragments.	
5450	5455	100	Shale, gray, purple, green, red	
5455	5460	50	Shale, dark purple, calcareous grading somewhat to limestone.	
		50	Shale, light-medium gray green.	
5460	5465	100	Shale, light-dark purple, fissile-grades to light gray.	
			Slight trace to fair gas show in mud 5396-5460 (4-25 gas units).	

B 18

32 ×

PD 40 MASTER CET 2-50 PRINTED IN U.S.A. 0-53

B 8

WEEK ENDING

CORED FROM 5390.1 TO 5396

CORES EXAMINED BY Thomas & Knight

SHELL OIL COMPANY

CORE RECORD

AREA OR FIELD East Boundary Butte

COMPANY Shell

LEASE AND WELL NO. E.B.B./1

NO	FROM	TO	RECOVERED	FORMATIONAL, STRUCTURAL AND PROBABLE PRODUCTIVITY DESCRIPTION OF CORE	SYMBOL	OBSERVED DIP	INDICATIONS OIL — GAS CORE OR DITCH
6	5358	5396	37.5	Cont.			
	5390.1	91.6	1.5'	Shale: Light gray-green, soft, flaky, calcareous with black specks with 50% limestone nodules, buff, IVFA irregular interbedded with shale.			
	5391.6	92.6	1'	Limestone: Light gray, IVFA, organic shadows.			
	5392.6	93.3	0.7'	Shale: Light gray, mottled light brown, very calcareous irregular interbedded with limestone nodules.			
	5393.3	5394	0.7'	Limestone: Light tan-gray, IVFA, with abundant small forams and shell casts.			
	5394	5394.5	0.5'	Shale: Light grey, very soft and flaky, very calcareous.			
	5394.5	95.5	1.0'	Limestone: Tan, IVA-FA with small fusulinids and thin irregular shale partings.			
	5395.5	96	0.5'	Not recovered			

SYMBOLS: 0-CLAY OR SHALE (SAND 0-5%), 1-CLAY OR SHALE WITH SAND STREAKS (SAND 5-25%), 2-CLAY OR SHALE AND SAND (SAND 25-50%), 3-SAND WITH SHALE STREAKS (SAND 50-75%), [illegible]

32 x 23

B 8

FORM 43 MASTER SET 2-60 PRINTED IN U.S.A.

WEEK ENDING

CORED FROM 5373 TO 5390.1

CORES EXAMINED BY Thomas & Knight

SHELL OIL COMPANY
CORE RECORD

AREA OR FIELD East Boundary Butte

COMPANY Shell

LEASE AND WELL NO. E.B .B. #1

NO.	FROM	TO	RECOVERED	FORMATIONAL, STRUCTURAL AND PROBABLE PRODUCTIVITY DESCRIPTION OF CORE	SYMBOL	OBSERVED DIP	INDICATIONS OIL — GAS CORE OR DITCH
6	5358	5396	37.5	Cont.			
	5373	75	2'	Limestone: Medium brown, IVF-FA with irregular shale partings as above, irregular chert inclusions and bands 5373.5-5375.7			32 gas units mud @ 5373 20-28 units 5374-77
	5375	76	1'	Limestone: As above, becoming IF-MA.			
	5376	77	1'	Limestone: As above, IVFA. Interval 5368-77 contains a few productid brachipods, irregular thin dark brown-black, carbonaceous stylolites.			
	5377	77.6	0.6'	Limestone: Medium-dark-brown, IVFA with large white crystals along fracture.			
	5377.6	78	0.4'	Limestone: As above, becoming siliceous with thin black carbonaceous streak at top.			
	5378	79	1'	Limestone: Medium-dark-brown, IVFA.			12-18 units mud gas 5378-96 No cuttings gas
	5379	81.5	2.5'	Limestone: Medium gray-brown, IMA with rare fusulinids and 1 spirifer 79-80 interval 5378-81.5 contains irregular rounded chert bands and nodules.			
	5381.5	82.1	0.6'	Limestone: Dark brown-black, IVFA, very [illegible] with [illegible] black, opaque-translucent chert.			No chert entire core
	5382.1	83	0.9'	Shale: Black, very calcareous, fusulinids, hard, irregular, fissile.			
	5383	83.8	0.8'	Shale: As above, becoming massive		0°(?)	
	5383.8	86.6	2.8'	Limestone: Medium brown, IMA with abundant fusulinids. Becoming argillaceous.			
	5386.6	87.2	0.6'	Shale: Dark gray, calcareous, silty, abundant carbonaceous plant impressions.			
	5387.2	87.4	0.2'	Shale: Black, fissile, irregularly bedded.			
	5387.4	90.1	2.7'	Limestone: Tan-light brown, IVF-MA with carbonaceous spots and thin carbonaceous partings. Brachiopod fragments.			

KEY: C-CLAY OR SHALE (SAND 0-5%). 1-CLAY OR SHALE WITH SAND STREAKS (SAND 5-25%). 2-CLAY OR SHALE AND SAND (SAND 25-50%). 3-SAND WITH SHALE STREAKS (SAND 50-90%). 4-SAND (90-100%)
NOTE: SHOW FLUID CONTENT AS IN STANDARD LEGEND.

32 x 23

PD 42 MASTER SET 2-50 PRINTED IN U.S.A. C-50

B 18

WEEK ENDING

CORED FROM 5358 TO 5372

CORES EXAMINED BY Thomas & Knight

SHELL OIL COMPANY
CORE RECORD

AREA OR FIELD East Boundary Butte WO

COMPANY Shell

LEASE AND WELL NO. E.B.B. #1

NO	FROM	TO	RECOVERED	FORMATIONAL, STRUCTURAL AND PROBABLE PRODUCTIVITY DESCRIPTION OF CORE	SYMBOL	OBSERVED DIP	INDICATIONS OIL – GAS CORE OR DITCH
6	5358	5396	37.5				
	5358	59	1'	Limestone: Tan, IVFA with stringers of dark brown shale along stylolites, rare forams. 2" bryozoan colony at very top.			20-24 units gas in mud 5358-5372 No shows in core.
	5359	61	2'	Limestone: As above, grading to IF-MA, with abundant small fusulinids.			
	5361	63	2'	Limestone: Tan, IVFA, few forams, medium gray shale stringer.			
	5363	63.8	0.8'	Limestone: Tan, IFA with few fusulinids.			
	5363.8	64.6	0.8'	Chert: Medium gray-brown, translucent-opaque with white sponge spicules.			
	5364.6	65.7	1.1'	Limestone: Tan, IF-MA with rare large calcite crystal cluster, rare to abundant forams.			
	5365.7	66	0.3'	Shale: Dark gray-black, very calcareous, showing large irregular round limestone inclusions as above.			
	5366	67.2	1.2'	Limestone: Light gray-brown, IF-MA with small pseudoolites, fusulinids, brachiopods.			
	5367.2	68	0.8'	Chert: Dark gray-brown, opaque with white spicules and fusulinids, irregularly bedded with limestone as above.			
	5368	69	1'	Limestone: Light brown, IVF-FA, abundant fusulinids.			
	5369	70	1'	Limestone: As above, becoming argillaceous, dark brown.			
	5370	71	1'	Limestone: Light brown, IFA with rare fusulinids.			
	5371	72	1'	Limestone: As above, with rare small light gray chert inclusions, no fusulinids.			
	5372	73	1'	Limestone: Light brown, IVFA with medium dark-gray irregular thin shale partings.			

SYMBOLS: C-CLAY OR SHALE (SAND 0-5%). 1-CLAY OR SHALE WITH SAND STREAKS (SAND 5-25%). 2-CLAY OR SHALE AND SAND (SAND 25-50%). 3-SAND WITH SHALE STREAKS (SAND 50-90%). S-SAND (90-100%)

NOTE: SHOW FLUID CONTENT AS IN STANDARD LEGEND.

32 ×

DITCH SAMPLES

Well: E.B.B.#1

Examined by Knight & Miller

Field or Area: East Boundary Butte

FROM	TO	%	SHOWS UNDERLINED	SAMPLES LAGGED
			Cont'd.	
		10	Shale, purple, first bryozoans.	
5315	5320	100	Limestone, cream-white, III F-MA 30% bryozoan fragments with C-B porosity.	
5320	5325	60	Limestone, as above.	
		40	Shale, red, purple, green. Bryozoans.	
5325	5330	30	Limestone, light brown, I VFA.	
		30	Shale, light green, silty, flaky, calcareous.	
		20	Limestone, white III FA.	
		20	Shale, light red, brown.	
5330	5335	50	Limestone, light brown, I VFA with crystal clusters.	
		50	Shale, light red, green, gray.	
5335	5340	90	Shale, orange, red, purple, green.	
		10	Limestone, light brown, III F-MA, C_{10}, oolitic with dark brown nearly dead oil stain. Pale yellow fluorescence strong blue yellow cut fluorescence.	
5340	5345	80	Limestone, cream, III FA	
		20	Shale, light red, green, gray.	
5345	5350	100	Limestone, cream, I/III VF-FA with trace B. (leached oolites), abundant small forams.	
5350	5355	60	Limestone, light brown I/III F-MA, pyrite.	
		20	Shale, red orange, purple, green, gray.	
		20	Bryozoan fragments in brown-gray, chert, translucent.	
			Trace of gas to strong gas show 5304-5350 (10-65 gas units). Cored 5358-5396	
5396	5400	70	Limestone, cream, I/III FA.	
		30	Shale, red, orange, purple and light gray. (orange and purple probably caving).	
5400	5405	70	Limestone, as above.	
		30	Shale, medium gray, calcareous and gray green pyrite.	
5405	5410	80	Limestone, as above with abundant white translucent-opaque chert fragments.	
		20	Shale, medium gray, silty, calcareous, fissile.	

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DITCH SAMPLES

Examined by Knight & Miller

Well: E.B.B. #1
Field or Area: East Boundary Butte

FROM	TO	SHOWS UNDERLINED	SAMPLES LAGGED
		Cont'd.	
5260	5265	50	Limestone, cream I/III F-MA.
		30	Shale, orange red-purple, soft, flaky (may be Moenkopi)
		20	Shale, dark green-gray, hard.
5265	5270	80	Limestone, cream, as above.
		20	Shale, red, gray.
5270	5275	80	Limestone, as above with occasional brown green shale spot.
		20	Shale, red orange, silty, calcareous and light green, silty, flaky.
5275	5280	60	Limestone, as above with scarce green spot.
		20	Shale, red orange, as above.
		10	Shale, green, gray, as above.
		10	Dolomite, light gray-brown, III F-MA.
5280	5285	50	Dolomite, light gray-brown, as above.
		30	Limestone, as above.
		20	Shale, light green, silty, calcareous, sub-waxy, trace medium gray shale, waxy, calcareous.
			Slight trace of gas in mud 5248-5270 (3-5 gas units).
5285	5290	60	Dolomite, light gray, III FA.
		20	Limestone, cream, I/III F-MA.
		20	Shale, orange, brown, gray, green.
5290	5295	80	Limestone, light brown, I/III FA.
		20	Shale, orange, purple.
5295	5305	100	Limestone, light-medium brown, mottled white, dark brown and black, I VF-MA with $CaCO_3$ crystal clusters.
5305	5310	60	Limestone, cream, I VFA with organic shadows.
		40	Shale, purple, red orange, flaky.
5310	5315	40	Limestone, light brown, I VFA.
		30	Limestone, white, III F-MA.
		20	Shale, light green, flaky, silty.

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32 ×

DITCH SAMPLES

Well: E.B.B. #1

Examined by Knight & Miller

Field or Area: East Boundary Butte

FROM	TO	SHOWS UNDERLINED	SAMPLES LAGGED
		Cont'd.	
5185	5190	90	Limestone, medium gray-gray brown, III F-MA, argillaceous.
		10	Limestone, white, I VFA with 5% spotty blue yellow fluorescence, no cut fluorescence.
5190	5195	60	Limestone, gray, as above.
		40	Limestone, tan-white, I/III VF-FA with medium grained pseudoolites.
5195	5200	70	Limestone, tan, III F-MA, oolitic.
		30	Limestone, tan, I VFA, in part cherty, dark brown translucent-opque, trace yellow fluorescence, milky cut fluorescence.
5200	5205	80	Limestone, tan, II/III VF-FA.
		20	Limestone, light-dark brown, I VFA with large oolites having dark centers. 1% spotty fluorescence, no cut fluorescence.
5205	5210	60	Limestone, light brown-tan, I/III VF-FA
		30	Shale, medium gray-green, calcareous, silty.
		10	Chert, light green, translucent.
			Slight trace to fair gas show in mud 5140-5164. (3-12 gas units) fair to strong gas show in mud 5204-5216 (20-52 gas units) Slight trace to trace gas show in cuttings 5140-5158 (3-10 gas units).
5210	5220	80	Limestone, tan I/III VF-FA.
		20	Shale, medium gray-green, silty, micaceous, pyrite.
5220	5225	70	Limestone, as above.
		30	Shale, as above.
5225	5240	100	Limestone, tan, I/III VF-FA. Some M-LA@ 35-40.
5240	5250	100	Limestone, tan, I VFA, in part fine sandy and II FA.
5250	5255	90	Dolomite, pink, II VFA.
		10	Limestone, pale tan , III MA, dolomitic.
5255	5260	50	Dolomite, as above.
		30	Limestone, tan, III MA, dolomitic.
		20	Shale, medium gray, silty, calcareous.
			Trace sandstone- very fine, argillaceous.

B 18

32 ×

DITCH SAMPLES

Examined by Knight, Miller

Well: E.B.B. #1
Field or Area: East Boundary Butte

FROM	TO	SHOWS UNDERLINED	SAMPLES LAGGED
		Cont'd.	
5125	5130	60	Limestone, medium dark brown.
		40	Dolomite, as above, 10% fluorescence pale cut fluorescence.
5130	5135	100	Limestone, medium-dark brown, I VF-FA.
5135	5140	50	Limestone, as above.
		50	Dolomite, tan, III FA.
			Slight trace to fair gas show in mud 5112-5140 (4-13 gas units). Slight trace to trace gas show in cuttings 5112-5140 (3-10 gas units).
5140	5145	80	Dolomite, light brown-tan, III F-MA.
		20	Chert, white-tan, mottled translucent.
5145	5150	90	Dolomite, tan, III F-MA, tr. B.
		10	Chert, white-blue gray, translucent.
5150	5155	100	Dolomite, as above with trace B and large crystal clusters.
5155	5160	60	Dolomite, as above, trace bright yellow fluorescence and pale yellow cut fluorescence.
		20	Limestone, dark gray, III FA, fossil with black chert, opaque with white specks.
		20	Shale, light gray, calcareous, silty.
5160	5165	100	Limestone, dark gray, I/III FA, with white specks, very argillaceous, 1% blue yellow fluorescence, no cut fluorescence.
5165	5170	100	Limestone, dark gray-black-brown, I/III VF-FA.
5170	5175	60	Limestone, light brown, III FA, with trace B. Few chert fragments, opaque dary gray.
		40	Limestone, as last above (dark gray-black-brown).
5175	5180	80	Limestone, gray-brown, I/III FA.
		20	Shale, light green-gray, silty, slightly calcareous, slightly micaceous trace black deed oil (contamination ?)
5180	5185	70	Limestone, medium gray-gray -brown, III F-MA, argillaceous with sponge spicules and cherty spots.
		20	Limestone, black, I VFA.
		10	Shale, as above. Trace bright yellow fluorescence, no cut fluorescence.

B 18

32 × 8

DITCH SAMPLES

Examined by Knight & Thomas

Well: E.B.B. #1
Field or Area: East Boundary Butte

FROM	TO	%	SHOWS UNDERLINED SAMPLES LAGGED & corrected 5' up.
5052	5055	100	Limestone, light brown, I/III VF-MA.
5055	5060	40	Limestone, as above.
		40	Limestone, white-very light brown, I/III FA.
		20	Chert, white-light brown, translucent-opaque. 1% fluorescent, very pale blue cut fluorescence, no cut.
5060	5065	40	Limestone, light brown, I/III VF-MA
		40	Dolomite, light gray to brown, III MA.
		20	Shale, light gray, calcareous some purple.
5065	5070	50	Limestone, light brown-tan, III F-MA, numerous small forams.
		50	Dolomite, light gray III F-MA.
5070	5075	60	Limestone, light brown, I/III VF-FA
		40	Dolomite, light gray, III FA
5075	5080	100	Limestone, light brown, III FA.
5080	5085	100	Limestone, light brown, I/III VF-MA with one piece having C vugs (oolite holes?)
5085	5090	100	Limestone, light brown I/III VF-FA with scarce large crystals and few oolites?
5090	5095	60	Limestone, as above.
		40	Dolomite, tan, III M-LB5.
5095	5100	100	Limestone, light brown, I/III VF-MA.
5100	5105	40	Limestone, as above.
		40	Limestone, dark gray, III FA, argillaceous.
		20	Shale, medium gray.
5105	5107	60	Limestone, light brown, III M-LA
		40	Chert, light gray-blue-brown, transparent-translucent. Appears oolitic.
5107	5115	100	Dolomite, tan, III F-MA,B5 (local) with black stylolite partings. 70% strong yellow spotty fluorescence, pale cut fluorescence.
5115	5120	100	Dolomite, as above, 50% strong yellow spotty fluorescence, pale yellow cut fluorescence.
5120	5125	100	Dolomite, as above, 30% strong yellow spotty fluorescence, pale yellow cut fluorescence.

B 18

32 × 1

B 18

PD-40 MASTER SET 7-50 PRINTED IN U.S.A. 6-53

WEEK ENDING

CORED FROM 5052 TO 5057

CORES EXAMINED BY Thomas & Herman

SHELL OIL COMPANY
CORE RECORD

AREA OR FIELD East Boundary Butte #1

COMPANY Shell

LEASE AND WELL NO. 1

NO	FROM	TO	RECOVERED	FORMATIONAL, STRUCTURAL AND PROBABLE PRODUCTIVITY DESCRIPTION OF CORE	SYMBOL	OBSERVED DIP	INDICATIONS OIL – GAS CORE OR DITCH
5	5052	5053	1	Limestone, as above becoming light brown			
	5053	5054	1	Limestone, as above, lithographic, glassy, poor light brown oil stain and spotty yellow fluorescence near bottom.			
	5054	5055	1	Limestone, as above, shaly in part, no shows.			
	5055	5056	1	Limestone, tan to light gray, I VFA.			
	5056	5057	1	Not recovered.			

SYMBOLS: C-CLAY OR SHALE (SAND 0-5%). 1-CLAY OR SHALE WITH SAND STREAKS (SAND 5-25%). 2-CLAY OR SHALE AND SAND (SAND 25-[illegible]%). 3-SAND WITH SHALE STREAKS (SAND [illegible]). 5-SAND (90-100%).

32 x

FD 40 MASTER SET 6-50 PRINTED IN U.S.A. 6-50

WEEK ENDING

CORED FROM 5032 TO 5052

CORES EXAMINED BY Thomas & Herman

SHELL OIL COMPANY
CORE RECORD

AREA OR FIELD East Boundary Butte #1

COMPANY Shell

LEASE AND WELL NO. 1

NO	FROM	TO	RECOVERED	FORMATIONAL, STRUCTURAL AND PROBABLE PRODUCTIVITY DESCRIPTION OF CORE	SYMBOL	OBSERVED DIP	INDICATIONS OIL – GAS CORE OR DITCH
5	5032	5033	1	Limestone, light to medium brown, I VFA with abundant medium-gray shale partings.			
	5033	5035	2	Limestone, white to light brown, I-III VFA, very fossiliferous, good bright yellow fluorescence along rather tight irregular fractures. Good cut fluorescence.			
	5035	5038	3	Limestone, light brown, I F-M B_5C_7 and some D_{10}, few shell fragments, good spotty, light yellow fluorescence in matrix (locally uniform). Good cut fluorescence.			
	5038	5041	3	Limestone, tan to light brown, I VF-FA, pseudoolitic, stylolitic, occasional calcite zones I LA. Very good spotty yellow fluorescence along 50 to 70% fractured surfaces. Fractures rather open, irregular, good cut fluorescence.			
	5041	5042	1	Limestone, tan, III VF-FA, stylolitic, with bright yellow uniform fluorescence along hair line fractures. Fair cut fluorescence.			
	5042	5044	2	Limestone, tan, light brown, I VF-FA, fossiliferous.			
	5044	5046	2	Limestone, light brown, tan, I-III VF-FA, fossiliferous with occasional translucent chert inclusions.			
	5046	5047	1	Limestone, tan, I VFA, fossiliferous, locally calcitic.			
	5047	5048	1	Limestone, tan, I-III VF-FA, fossiliferous.			
	5048	5049	1	Limestone, light to medium brown, I VFA with argillaceous breaks becoming very argillaceous toward base.			
	5049	5050	1	Limestone, medium brown to gray, I VFA, argillaceous, fossiliferous.			
	5050	5051	1	Limestone, gray to tan, I VFA with medium calcite crystals.			
	5051	5052	1	Limestone as above with occasional shale partings.			

SYMBOLS: C-CLAY OR SHALE (SAND 0-5%). 1-CLAY OR SHALE WITH SAND STREAKS (SAND 5-25%). 2-CLAY OR SHALE AND SAND (SAND 25-50%). 3-SAND WITH SHALE STREAKS (SAND 50-90%). 4-SAND (90-100%)

NOTE: SHOW FLUID CONTENT AS IN STANDARD LEGEND.

B 18

MASTER SET 3-50 PRINTED IN U.S.A. 0-52

WEEK ENDING

CORED FROM 5018 TO 5032

CORES EXAMINED BY Thomas & Herman

SHELL OIL COMPANY
CORE RECORD

AREA OR FIELD East Boundary Butte #1

COMPANY Shell

LEASE AND WELL NO. 1

NO	FROM	TO	RECOVERED	FORMATIONAL, STRUCTURAL AND PROBABLE PRODUCTIVITY DESCRIPTION OF CORE	SYMBOL	OBSERVED DIP	INDICATIONS OIL — GAS CORE OR DITCH
5	5018	5021	3	Limestone, Tan, I VF-FA with few thin shale partings 5019-5020. Stylolite with apparent dead oil stain, no fluorescence at 5020-21.		0°(g)	
	5021	5022	1	Limestone, light to medium gray, I VFA, argillaceous.			
	5022	5023	1	Limestone, tan I VFA with occasional M-L crystals. Thin streak (0.1') calcareous, carbonaceous shale at 5022.8-5022.9.			
	5023	5024	1	Limestone, tan I VF-FA, very fossiliferous grades to I M-LA coquina.			
	5024	5025	1	Limestone, light brown, I VF-FA, stylolite with apparent dead oil stain. Fair spotty light yellow fluorescence along stylolite, fair cut fluorescence.			
	5025	5026	1	Limestone, dark brown, I-III VF-FA with 50% brown opaque chert inclusions with spicules.			
	5026	5027	1	Limestone, buff, III VF-FA.			
	5027	5028	1	Limestone, cream-tan, III VFA with occasional shell fragments.			See Description
	5028	5029	1	Limestone, light brown to gray, III VF-FA, stylolitic.			
	5029	5030	1	Limestone, tan to light brown, III F-MA, fair spotty yellow fluorescence along short rather tight abundant irregular fractured surfaces. Fair cut fluorescence. Grades to light gray, I VFA, argillaceous, carbonaceous limestone.			
	5030	5030.6	0.6	Limestone, tan, I VF-MA, stylolitic with good oil stain along rather open vertical fractures. Good bright yellow fluorescence along fractured surfaces, good cut fluorescence.			
	5030.6	5030.8	0.2	Limestone, tan, I VF-MB_5C_5 with fair light brown oil stain, good uniform to spotty bright yellow fluorescence, good cut fluorescence.			
	5030.8	5032	1.2	Limestone, tan, I VF-FA, stylolitic with steep fractures, tight and oil stained. Light yellow fluorescence and cut fluorescence along fractures.			

WHEN USED: C-CLAY OR SHALE (SAND 0-5%). 1-CLAY OR SHALE WITH SAND STREAKS (SAND 5-25%). 2-CLAY OR SHALE AND SAND (SAND 25-60%). 3-SAND WITH SHALE STREAKS (SAND 60-90%). [illegible]

NOTE: SHOW FLUID COND. TO AS IN STANDARD LEGEND.

32 x [illegible]

B 18

PRO ED MASTER SET 2-50 PRINTED IN U.S.A. 5

WEEK ENDING

CORED FROM 5007 TO 5018

CORES EXAMINED BY Thomas & Herman

SHELL OIL COMPANY
CORE RECORD

AREA OR FIELD East Boundary Butte

COMPANY Shell

LEASE AND WELL NO. E.B.B. #1

NO	FROM	TO	RECOVERED	FORMATIONAL, STRUCTURAL AND PROBABLE PRODUCTIVITY DESCRIPTION OF CORE	SYMBOL	OBSERVED DIP	INDICATIONS OIL – GAS CORE OR DITCH
	5007	5057	49'				
	5007	5008	1	Limestone, tan, I VFA with calcite filled fractures. Spotty medium brown oil stain, poor spotty bright straw yellow fluorescence, light yellow cut fluorescence. Limestone, gray, tan, I VFA, slightly argillaceous, fossiliferous, interbedded with above.			
	5008	5009	1	Limestone as above with fewer fossils. No shows.			
	5009	5010	1	Limestone, light gray, I VFA, argillaceous, fossiliferous, with common medium brown pseudoolites, glauconitic.			
	5010	5011	1	Limestone, light gray-brown, I VFA, argillaceous, fossiliferous, with abundant pseudoolites.			
	5011	5012.2	1.2	Limestone, tan, I VFA, carbonaceous, pyritic with brachiopod fragments, becoming shaly, gray.			
	5012.2	5012.3	0.1	Shale, medium gray.		0° F	See descriptio
	5012.3	5013	0.7	Limestone, light to medium gray, I VFA, argillaceous with brown calcite in granules.			
	5013	5014	1	Limestone, light brown, I VFA with abundant calcite crystals, few vertical fractures, rather tight with light brown oil stain. Uniform fluorescence along fractures, fair cut fluorescence.			
	5014	5015	1	Limestone, as above with green-gray shale partings and one stylolite.			
	5015	5016	1	Limestone, buff-tan, I VFA, very fossiliferous, very poor spotty pale yellow fluorescence, poor cut fluorescence.			
	5016	5017	1	Limestone, tan I VFA with few brown calcite shale breaks.			
	5017	5018	1	Limestone, light gray, I VFA, argillaceous, fossiliferous			

C-CLAY OR SHALE (SAND 0-5%). 1-CLAY OR SHALE WITH SAND STREAKS (SAND 5-25%). 2-CLAY OR SHALE AND SAND (SAND 25-50%). 3-SAND WITH SHALE STREAKS (SAND 50-90%). 3-SAND (90-100%).

NOTE: [illegible]

32 x

PD 48 MASTER SET 9-50 PRINTED IN U.S.A.

WEEK ENDING

CORED FROM 4998.7 TO 5002

CORES EXAMINED BY Thomas & Herman

SHELL OIL COMPANY
CORE RECORD

AREA OR FIELD East Boundary Butte

COMPANY Shell

LEASE AND WELL NO. 1

NO.	FROM	TO	RECOVERED	FORMATIONAL, STRUCTURAL AND PROBABLE PRODUCTIVITY DESCRIPTION OF CORE	SYMBOL	CASTERED DIP	INDICATIONS OIL — GAS / CORE OR DITCH
4	4983	5007	19'				
	4998.7	4 999	0.3	Limestone, as above, grades into light gray, I VFA, argillaceous, fossiliferous.			
	4999	4999.6	0.6	Limestone, light brown, I VFA, very fossiliferous with fair spotty light brown oil stains, poor to no fluorescence. Poor light yellow cut fluorescence.			
	4999.6	5000.5	0.9	Limestone, medium to dark brown gray, intercalated with dark gray shale.			
	5000.5	5002	1.5	Limestone, light gray, I VFA, argillaceous, micaceous.			

SYMBOLS: C-CLAY OR SHALE (SAND 0-5%). 1-CLAY OR SHALE WITH SAND STREAKS (SAND 5-25%). 2-CLAY OR SHALE AND SAND (SAND 25-50%). 3-SAND WITH SHALE STREAKS (SAND 50-90%). S-SAND (90-100%).

NOTE: [illegible]

32 x

PD 48 MASTER SET 2-50 PRINTED IN U. S. A. 0-50

WEEK ENDING

CORED FROM 4983 TO 4998.7

CORES EXAMINED BY Thomas & Herman

SHELL OIL COMPANY
CORE RECORD

AREA OR FIELD East Boundary Butte #1

COMPANY Shell

LEASE AND WELL NO. 1

NO	FROM	TO	RECOVERED	FORMATIONAL, STRUCTURAL AND PROBABLE PRODUCTIVITY DESCRIPTION OF CORE	SYMBOL	OBSERVED DIP	INDICATIONS OIL — GAS / CORE OR DITCH
4	4983	5007	19'				
	4983	4984	1'	Limestone, tan, light brown, I VF-FA; stylolite with poor dead oil stain.			See description
	4984	4985.4	1.4	Limestone, light brown, I VFA, fossiliferous, slightly argillaceous, interbedded with limestone, light brown gray, I VFA, argillaceous with occasional carbonaceous specks. Fair spotty, light yellow fluorescence, fair cut fluorescence.			
	4985.4	4986.4	1	Dolomite, cream-buff, III VFA, occasional pyrite clusters.			
	4986.4	4986.5	0.1	Shale, black, blocky-fissile, hard pyritic, slightly calcareous.			
	4986.5	4987	0.5	Limestone, light brown-gray, I VFA, very fossiliferous, abundant brachiopods. Few fairly open, short nearly vertical fractures stained with light brown oil. Uniform fluorescence along fractures.			
	4987	4988.5	1.5	Limestone, light gray, mottled, light brown, I VFA, carbonaceous with rare pyritic clusters.			
	4988.5	4990.5	2'	Limestone, as above in part light gray, very slightly argillaceous.			
	4990.5	4990.6	0.1	Limestone, tan, I VFA, sublithographic with few carbonaceous specks.			
	4990.6	4991.3	0.7	Shale, medium gray, hard, irregular interbedded with siltstone.			
	4991.3	4994.5	3.2	Limestone, tan, I VF-FA with few brachiopods and stylolites. Good bright yellow spotty fluorescence along stylolites.			
	4994.5	4995.7	1.2	Limestone, medium gray, I VF-FA, very argillaceous, carbonaceous.			
	4995.7	4996.4	0.7	Limestone, tan, I VFA with occasional calcite crystals and poor brachiopod fragments.			
	4996.4	4998	1.6	Limestone, as above, dolomitic, black stylolites with pale yellow spotty fluorescence, pale yellow fluorescence along few short irregular fractures with oil stains.			
	4998	4998.7	0.7	Limestone, light brown, I VFA, very fossiliferous.			

MODEL: C-CLAY OR SHALE (SAND 0-5%), 1-CLAY OR SHALE WITH SAND STREAKS (SAND 5-20%), 2-CLAY OR SHALE AND SAND (SAND 20-50%), 3-SAND WITH SHALE STREAKS (SAND 50-80%), 4-SAND (80-100%)

NOTE: SHOW FLUID CONTENT AS IN STANDARD LEGEND.

DITCH SAMPLES

Well: E.B.B. #1

Examined by Knight & Thomas

Field or Area: East Boundary Butte

FROM	TO	%	SHOWS UNDERLINED	SAMPLES LAGGED
4973	78	100	Limestone.- Medium gray, I VFA, argillaceous.	
4978	4983	100	Limestone.- As above with very spotty yellow fluorescence. 1% pale cut fluorescence.	
			Fair to strong gas in mud 4968-4982 (12-80 units). Trace gas in cuttings 4964-4978 (5-10 units)	
			Cored 4983-5057	

B 18

32 × 1

PD 40 MASTER REV 2-50 PRINTED IN U.S.A.

WEEK ENDING

CORED FROM 4960.6 TO 4973

CORES EXAMINED BY Thomas & Knight

SHELL OIL COMPANY

CORE RECORD

AREA OR FIELD East Boundary Butte

COMPANY Shell

LEASE AND WELL NO. East Boundary Butte #1

NO	FROM	TO	RECOVERED	FORMATIONAL, STRUCTURAL AND PROBABLE PRODUCTIVITY DESCRIPTION OF CORE	SYMBOL	OBSERVED DIP	INDICATIONS OIL – GAS CORE OR DITCH
2	4960.6	4961	0.4	Dolomite, dark gray, brown, I VFA, argillaceous.			
	4961	4962	1	Dolomite, medium gray, I-III FA with abundant large tan calcite crystals, argillaceous.			
	4962	4962.2	0.2	Dolomite, as above with one irregular fracture. Slight petroleum odor (probably along fractures).			
	4962.2	4962.5	0.3	Shale, black, fissile, very carbonaceous, 16° slickensides.			
	4962.5	4964	1.5	Limestone, dark brown, I VFA, argillaceous.			
	4964	4965.5	1.5	Dolomite, dark gray -black, III FA, argillaceous.			
	4965.5	4966.4	0.9	Limestone, black, dark brown, I VFA with rare thin carbonaceous parting. Faint petroleum odor.			
	4966.4	4972.5	6.1	Limestone, medium-light brown, III FA, grading to calcareous dolomite bottom 2'. Show light brown oil stain, uniform, becoming dark brown stain bottom 1'. Rock is easily broken with very scarce hairline fractures with local calcite crystal development. Very strong petroleum odor at bottom decreasing to weak at top. Weak spotty fluorescence at top with slight cut fluorescence grading through weak fluorescence along and near fractures in middle part to uniform strong pale yellow fluorescence in matrix (locally barren) at bottom with fair cut fluorescence.			10-50 units in core; 10 units in cuttings
	4972.5	4973	0.5	Limestone, dark brown, I-III VF-FA with slight petroleum odor. No stain. Bottom grades through thin bedded and fine micaceous, calcareous shale with small stringer of near coal.			

SYMBOLS: C-CLAY OR SHALE (SAND 0-5%). 1-CLAY OR SHALE WITH SAND STREAKS (SAND 5-25%). 2-CLAY OR SHALE AND SAND (SAND 25-50%). 3-SAND WITH SHALE STREAKS (SAND 50-75%). 4-SAND (SAND 75-100%).

NOTE: SHOW FLUID CONTENT AS IN STANDARD LEGEND.

PD 40 LIMITED SET 2-50 PRINTED IN U.S.A. 6-55

WEEK ENDING

CORED FROM 4945.3 TO 4960.6

CORES EXAMINED BY Thomas & Knight

SHELL OIL COMPANY
CORE RECORD

AREA OR FIELD East Boundary Butte

COMPANY Shell

LEASE AND WELL NO. East Boundary Butte #1

NO	FROM	TO	RECOVERED	FORMATIONAL, STRUCTURAL AND PROBABLE PRODUCTIVITY DESCRIPTION OF CORE	SYMBOL	OBSERVED DIP	INDICATIONS OIL — GAS / CORE OR DITCH
3	4945.3	4945.9	0.6	Dolomite, dark gray brown, IVF-M-LA with rare thin carbonaceous parting. Some irregular horizontal rather open fractures. Becomes calcareous at base. Interval 4944-4945.9 contains numerous fossils and fossil casts (brachiopods, pelecypods, trilobites).			
	4945.9	4947.5	1.6	Dolomite, dark gray brown, III FA, one nearly vertical thin rather tight fracture with no cementing.			
	4947.5	4948.7	1.2	Shale, black, very carbonaceous, fine micaceous, fissile with small thin brachiopod shells. Becoming hard, blocky, dolomitic bottom 1/2. Occasional shiny, irregular, carbonaceous parting.			
	4948.7	4950.4	1.7	Dolomite, dark gray, III VF-FA, very argillaceous.			
	4950.4	4951.2	0.8	Sandstone, dark gray, very coarse, angular to well rounded, poorly sorted, with grains red well rounded jasper, milky quartz, pink stained quartz, calcareous cement, very tight.			
	4951.2	4951.3	0.1	Irregular & gradational contact with 0.1 foot very siliceous limestone - dark brown, I VFA.			
	4951.3	4952.7	1.4	Limestone, medium to dark gray, I VFA, very argillaceous, dolomite with shaly partings. Small conchoidal fractures.			
	4952.7	4956.7	4	Dolomite, dark grey, I VFA, calcareous, very argillaceous.			
	4956.7	4958.3	1.6	Dolomite. Dark gray brown, I VFA, calcareous with patches shale, medium gray, calcareous, argillaceous.			
	4958.3	4959	0.7	Shale, medium gray, very calcareous, waxy, fissile.			
	4959	4960.2	1.2	Dolomite, medium brown, I VFA, calcareous, 0.2 feet with scarce large milky quartz and jasper grains.			
	4960.2	4960.6	0.4	Shale, dark gray- light grey, waxy luster, deformed.			

[illegible] 0-CLAY OR SHALE (SAND [illegible]). 1-CLAY OR SHALE WITH SAND STREAKS (SAND 8-25%). 2-CLAY OR SHALE AND SAND (SAND [illegible]). 3-SAND WITH [illegible]

NOTE: SHOW FLUID CONTENT AS IN STANDARD LEGEND.

32 x

PD 40 MASTER SET 2-30 PRINTED IN U.S.A. 6-55

B 18

WEEK ENDING

CORED FROM 4922 TO 4945.3

CORES EXAMINED BY Thomas & Knight

SHELL OIL COMPANY
CORE RECORD

AREA OR FIELD East Boundary Butte

COMPANY Shell

LEASE AND WELL NO. East Boundary Butte #1

NO	FROM	TO	RECOVERED	FORMATIONAL, STRUCTURAL AND PROBABLE PRODUCTIVITY DESCRIPTION OF CORE	SYMBOL	OBSERVED DIP	INDICATIONS OIL – GAS CORE OR DITCH
	4922	4924	2	Dolomite, medium gray brown, I VFA with stylolite surface and possible very tight irregular fractures. No odor.			
	4924	4925	1	Dolomite, dark brown - gray, III/I VF-FA.			
	4925	4925.1	0.1	Shale, dark gray, dolomitic.			
	4925.1	4926	0.9	Limestone, dark gray, III M-LA, dolomitic, with local very large calcite crystal development.			
	4926	4928	2	Dolomite, black, calcareous, very argillaceous, III FA, grading to black dolomitic shale with high luster.			
	4928	4929.5	1.5	Dolomite, medium gray, III FA. Becomes black and very argillaceous at 4929			fl. in mud increasing 8 units gas
	4929.5	4934	4.5	Dolomite, medium brown, III F-MA with strong petroleum odor. Bubbling gas from rare pin points. Light brown oil staining 90% of matrix. Strong pale yellow fluorescence 90% of matrix. Very strong pale yellow cut fluorescence, slight yellow brown cut 50% of matrix below 4931.			60% fl. in mud
	4934	4938.5	4.5	Dolomite, dark brown gray, I/III VF-FA, very hard, tight. Streak at 35.5-35.7. very carbonaceous black with brachiopod shell, becoming light gray toward bottom. Some live oil staining along irregular break around brachiopod shells at 4937. Very weak spotty pale yellow fluorescence.			
	4938.5	4939	0.5	Shale, black, fissile, slightly calcareous, carbonaceous, fine, micaceous.			
	4939	4942	3	Limestone, dark brown, black, I VF-FA, argillaceous, one vertical fracture over total appears tight.			10% fl. in mud. 8 Units
3	4943	4973	29	Believe upper 1' missing because of drilling time.			
	4944	4945	2	Dolomite, medium gray, I VFA with possible irregular fracture.			
	4945	4945.3	0.3	Dolomite, medium gray, I-III VFA, one rather open vertical fracture with some free oil staining.		1°(g)	Sl. tr. gas

[illegible] C-CLAY OR SHALE (SAND 0-5%). 1-CLAY OR SHALE WITH SAND STREAKS (SAND 5-25%). 2-CLAY OR SHALE AND SAND (SAND 25-50%). 3-SAND WITH SHALE STREAKS (SAND 50-90%). 5-SAND (90-100%).

NOTE: SHOW FLUID CONTENT AS IN STANDARD LEGEND.

32 x

PD 49 MASTER SET 7-50 PRINTED IN U.S.A. 0-53

18

WEEK ENDING

CORED FROM 4908.5 TO 4922

CORES EXAMINED BY Thomas & Knight

SHELL OIL COMPANY
CORE RECORD

AREA OR FIELD East Boundary Butte

COMPANY Shell

LEASE AND WELL NO. East Boundary Butte #1

NO.	FROM	TO	RECOVERED	FORMATIONAL, STRUCTURAL AND PROBABLE PRODUCTIVITY DESCRIPTION OF CORE	SYMBOL	OBSERVED DIP	INDICATIONS OIL – GAS CORE OR DITCH
1	4908.3	4909.7	1.4	Shale, black, fissile.		3° (g)	
	4909.7	4910	0.3	Dolomite, medium gray, argillaceous.			
	4910	4914	4	Shale, medium-dark gray, dolomitic with stringers dolomite as above, pelecypod shells 4910-4910.5			
2	4914	4943	27.5				
	4914	4914.8	0.8	Dolomite, medium brown gray, III FA, with stringers of chert - milky white. Strong petroleum odor. Spotty to uniform pale yellow fluorescence along short fractures. Good cut fluorescence. No cut.			
	4914.8	4916	1.2	Dolomite, medium brown, III MB_{20} with patches white coarse crystalline, anhydritic, irregular fractures, approach horizontal, filled with black shale and covered with free light oil. Fracs appear rather tight. Uniform bright yellow fluorescence 50%-70% of matrix. Very good cut fluorescence. no cut.			
2	4916	4918.5	2.5	Limestone, dark gray brown, I VFA, dolomitic with scarce vertical rather open fracs. stained with free oil (light green). Spotty to uniform pale yellow fluorescence along and near tight minor predominately horizontal fractures and one rather open vertical fracture. Very slight yellow orange cut fluor.			10% fl. in mud
	4918.5	4919.5	1	Limestone, medium brown, III M-LA with numerous small oolites, dolomitic. Moderate petroleum odor. Very slight pale yellow fluorescence restricted to tight irregular horizontal fractures and short distance into matrix. Slight milky pale yellow cut fluorescence.			
	4919.5	4921	1.5	Limestone, medium gray brown, III F-MA, with scarce black shale partings (one at bottom of unit), very slight spotty yellow fluorescence.			
	4921	4922	1	Dolomite, black, I VFA, very argillaceous and carbonaceous. Stylolite surface at base.			

SYMBOLS: C-CLAY OR SHALE (SAND 0-5%). 1-CLAY OR SHALE WITH SAND STREAKS (SAND 5-25%). 2-CLAY OR SHALE AND SAND (SAND 25-50%). 3-SAND WITH SHALE STREAKS (SAND 50-50%). 4-SAND (50-100%).

NOTE: SHOW FLUID CONTENT AS IN STANDARD LEGEND.

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PD 45 MASTER SET 2-50 PRINTED IN U.S.A. 0-52

WEEK ENDING

CORED FROM 4862 TO 4908.3

CORES EXAMINED BY Thomas & Knight

SHELL OIL COMPANY
CORE RECORD

AREA OR FIELD East Boundary Butte

COMPANY Shell

LEASE AND WELL NO. East Boundary Butte #1

NO	FROM	TO	RECOVERED	FORMATIONAL, STRUCTURAL AND PROBABLE PRODUCTIVITY DESCRIPTION OF CORE	SYMBOL	OBSERVED DIP	INDICATIONS OIL – GAS CORE OR DITCH
1	4862	4914	52'				
	4862	4865	3'	Shale, medium gray to black, with stringers siltstone and dolomite, medium gray, I VFA. Some apparent slickensides 45°.		1° (f)	Sl. tr. gas in mud to 4896
	4865	4866.5	1.5	Anhydrite, dark gray with stringers black shale. Some stringers appear to have been contemporaneous with anhydrite			
	4866.5	4884	17.5'	Anhydrite, as above, no shale stringers.			
	4884	4891	7'	Dolomite, medium brown gray, III F-MA with localized spots B_{10-30}. Contains inclusions white anhydrite. Slight dead oil stain in porous spots, non-fluorescence, very slight cut fluorescence, slight petroleum odor.			
	4891	4893	2'	Dolomite, as above, becoming calcareous and very anhydritic, white, fine, crystalline. No apparent porosity.			
	4893	4895	2'	Dolomite, medium brown-gray, III F-MA with very spotty B, anhydritic.			
	4895	4898	3'	Shale, light gray, dolomitic, looks like mudstone.			Tr. gas in mud
	4898	4899	1'	Dolomite, light gray, III FA, very argillaceous, scarce stylolite with black carbonaceous residue. Slickensides questionable.		1° (f)	
	4899	4899.2	0.2'	Shale, black, very carbonaceous.			
	4899.2	4901	1.8	Dolomite, light gray, III F-MA, slight trace B., pyritic, very slight carbon. Bottom intertongues with black shale.			
	4901	4904	3'	Shale, black, very dolomitic.		3° (g)	
	4904	4905.5	1.5'	Dolomite, medium gray, III FA, arigllaceous			
	4905.5	4906.5	1'	Shale, black, fissile.			
	4906.5	4908.3	1.8'	Dolomite, medium gray, III MA.			

SYMBOLS: C-CLAY OR SHALE (SAND 0-5%). 1-CLAY OR SHALE WITH SAND STREAKS (SAND 5-25%). 2-CLAY OR SHALE AND SAND (SAND 25-50%). 3-SAND WITH SHALE STREAKS (SAND 50-90%). 5-SAND (90-100%)

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DITCH SAMPLES

Well: E.B.B. #1

Field or Area: East Boundary Butte

Examined by Knight & Miller

FROM	TO	%	SHOWS UNDERLINED	SAMPLES LAGGED
			Cont'd.	
		10	Dolomite, tan, III FA.	
4790	4795	80	Limestone, light gray, I/III VF-FA.	
		20	Shale, medium gray, silty, calcareous	
4795	4800	70	Limestone, as above.	
		30	Shale, as above.	
4800	4815	70	Shale, as above.	
		30	Limestone, as above.	
4815	4820	100	Shale, light gray, soft, flaky, silty, very calcareous.	
			Slight trace to fair gas show in mud 4695-4820 (5-45 gas units). Slight trace to trace gas show in cuttings 4685-4703 (3-8 gas units).	
4820	4825	100	Shale, light gray, soft, flaky, silty, very calcareous.	
4825	4830	100	Shale, as above with some purple Hermosa type.	
4830	4835	60	Limestone, dark brown, I VFA.	
		40	Shale, light gray, flaky-blocky, calcareous.	
4835	4840	40	Limestone, as above.	
		30	Limestone, medium gray, I/III VF-FA.	
		20	Shale, as above.	
		10	Shale, black, calcareous, silty, hard.	
4840	4845	40	Limestone, dark brown, I VFA.	
		40	Limestone, medium gray, as above.	
		20	Shale, black, as above.	
4845	4850	70	Limestone, dark brown, I/III F-FA.	
		30	Shale, light gray, fissile, silty, minute pyrite.	
4850	4855	100	Shale, light gray, very soft, flaky, very calcareous.	
4855	4860	80	Shale, as above.	
4860	4862	Ship.	Cored 4862-4973. Trace gas in mud 4804-4862 (5-11 units) with 20 units (fair) 4852-4856 2 units gas in cuttings 4716-4816.	

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DITCH SAMPLES

Examined by Knight & Miller

Well: E.B.B. #1

Field or AREA: East Boundary Butte

FROM	TO	%	SHOWS UNDERLINED	SAMPLES LAGGED
			Cont'd.	
			Slight trace to fair gas show in mud 4620-4690 (3-40 gas units). Slight trace to trace gas show in cuttings 4620-4640(3-6 gas units).	
4695	4700	80	Limestone, light brown, I VFA-III FA.	
		20	Shale, light-medium green-gray, calcareous.	
4700	4710	100	Limestone, light gray brown, I/III VF-FA with I fragment I VFA, $C_{tr.}$ with oil stain.	
4710	4715	100	Limestone, tan, I/III VF-FA.	
4715	4725	50	Limestone, as above.	
		50	Limestone, white, II VFA.	
4725	4740	80	Limestone, light gray-white, I/III VF-FA.	
		20	Limestone, white, II VFA.	
4740	4750	100	Limestone, light gray, I/III VF-FA with scarce fragment chert-light gray translucent.	
4750	4755	80	Limestone, dark brown, I VFA.	
		20	Chert, brown-gray, translucent-opaque.	
4755	4760	80	Limestone, white-dark gray, I VFA-III F-MA.	
		20	Limestone, dark brown, I VFA.	
4760	4765	60	Limestone, white-dark gray, I/III VF-FA.	
		40	Limestone, white, II VFA, dolomitic.	
4765	4770	50	Limestone, light gray, I VFA.	
		50	Dolomite, light gray, III FA, calcareous in part. 15% strong bluish fluorescence no cut fluorescence.	
4770	4775	100	Limestone, as above.	
4775	4780	100	Limestone, light gray-white, I/III VF-FA.	
4780	4785	80	Limestone, as above.	
		20	Shale, medium gray, silty, calcareous.	
4785	4790	70	Limestone, as above.	
		20	Shale, as above.	

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DITCH SAMPLES

Well E.B.B. #1

Examined by Thomas & Knight

Field or area East Boundary Butte

FROM	TO	%	SHOWS UNDERLINED	SAMPLES LAGGED
			Cont'd.	
		20	Dolomite, medium-dark brown, III FA, argillaceous. Some gray shale.	
4630	4635	60	Limestone, light gray-gray brown, I VFA grading to white II VFA.	
		40	Limestone, white, II VFA. Trace dolomite, tan-light gray brown, III FA, B_{tr}.	
4635	4640	80	Limestone, light gray-brown-brown gray, III MA, crinoidal with some white calcite grains.	
		20	Shale, medium gray, silty, calcareous.	
4640	4645	40	Limestone, light gray, brown, I/III F-MA, tr. C, one fragment chert, translucent, light gray.	
		30	Limestone, white, II/III FA.	
		30	Shale, medium gray, silty, calcareous.	
4645	4650	70	Limestone, white, II/III FA.	
		30	Limestone, light gray-brown, I VFA.	
4650	4660	50	Limestone, as first above.	
		50	Limestone, as last above, with trace light brown gray III FA with stylolites.	
4660	4665	100	Limestone, light-medium brown-gray, I/III VF-FA with abundant gray, orange, brown, shale (cavings).	
4665	4670	100	Limestone, medium brown-gray, I/III F-MA.	
4670	4675	100	Limestone, light brown, III FA with small oolites. very poor sample.	
4675	4680	100	Limestone, medium brown, I F-MA grading to tan III FA, showing few contact pieces with sandstone-white, medium, angular, very calcareous. 5% cuttings show yellow fluorescence very pale cut fluorescence.	
4680	4685	70	Limestone, light gray brown, III F-MA.	
		20	Shale, medium gray, calcareous.	
		10	Limestone, medium brown, III FA, pseudoolitic with occasional C_{10} porosity. pale spotty fluorescence; pale cut fluorescence.	
4685	4690	70	Limestone, light-medium gray, brown, III F-MA; spotty pale yellow fluorescence; pale cut fluorescence.	
		30	Shale, medium gray, calcareous.	
4690	4695	100	Limestone, light brown I/III VF-FA with scarce black stylolites. 10% spotty yellow fluorescence, pale yellow cut fluorescence.	

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DITCH SAMPLES

Well: E.B.B. #1

Field or area: East Boundary Butte

Examined by Thomas & Knight

FROM	TO	%	SHOWS UNDERLINED	SAMPLES LAGGED
			Cont'd.	
4550	4555	70	Shale, gray-green, silty, calcareous, with white anhydrite.	
		30	Limestone, as above.	
4555	4565	100	Shale, gray-green, silty, large flaky, calcareous.	
4565	4575	100	Shale, medium gray, soft, flaky very calcareous, silty.	
4575	4585	70	Limestone, light-medium brown, I VFA.	
		30	Limestone, gray brown, II VFA.	
4585	4590	60	Limestone, light-medium brown, I VFA.	
		40	Shale, medium gray, soft, flaky.	
4590	4595	60	Limestone, medium brown, gray, I VFA to III MA+C_5 with streak white chert. One piece has C vug with dead oil stain.	
		40	Shale, as above.	
4595	4600	60	Limestone, medium brown gray, I VFA.	
		40	Limestone, light gray, II VF-FA.	
4600	4605	80	Limestone, medium gray, I VFA.	
		20	Limestone, light gray, II VF-FA.	
4605	4610	60	Limestone, as first above.	
		20	Limestone, white, I VFA.	
		20	Limestone, white-light gray, II FA.	
4610	4615	50	Limestone, light gray, I VFA.	
		50	Limestone, white, I/II VFA.	
4615	4620	60	Limestone, light gray, I/III VF-FA some III MA, with veinlets of calcite-evidence fractures.	
		40	Limestone, white IIVFA, slight fractures. One piece blue white chert, translucent.	
			Slight trace gas show in mud 4555-4608 (4-10 units gas).	
4620	4625	100	Dolomite, light brown gray, III FA slight B. with few veinlets indicating possible vugs.	
4625	4630	40	Dolomite, as above.	
BB		40	Dolomite, light gray, II VFA, argillaceous.	

DITCH SAMPLES

Examined by Knight Miller

Well: E.B.B. #1

Field or Area: East Boundary Butte

FROM	TO	%	SHOWS UNDERLINED	SAMPLES LAGGED
			Cont'd.	
		20	Chert, as above.	
4445	4450	100	Limestone, white, III VF-FA.	
4450	4455	20	Limestone, as above.	
		80	Shale, gray-gray green, silty, calcareous with scarce patch white crystalline anhydrite.	
4455	4465	100	Limestone, white-pale gray, IVFA, slight cherty (white).	
4465	4470	60	Limestone, as above.	
		40	Shale, gray green, as above.	
4470	4480	100	Limestone, light gray-brown, IVFA.	
4480	4485	80	Shale, tan, soft, very calcareous, mottled slightly orange.	
		20	Limestone, as above.	
4485	4495	60	Shale, as above.	
		20	Limestone, light brown, IVFA with rhombs.	
		20	Shale, medium-dark gray green, silty, calcareous.	
4495	4510	100	Shale, medium gray green, silty, copper micaceous, slightly calcareous, big cuttings.	
4510	4515	80	Shale, as above.	
		20	Limestone, light brown, IVFA.	
4515	4520	100	Shale, green, gray, silty, calcareous, spotty fluorescence, pale cut fluorescence.	
4520	4530	100	Limestone, light gray, I/II VFA (40% II FA) sandy in part.	
4530	4535	70	Shale, green-gray, silty. Poor sample.	
		30	Limestone, as above, few light gray chert, fragments translucent.	
4535	4540	40	Shale, as above. Poor sample	
		40	Shale, tan, soft, flaky, very calcareous.	
		20	Limestone, as above.	
4540	4545	50	Limestone, light gray, IVFA.	
		50	Shale, green-gray, silty, calcareous, with white anhydrite.	
4545	4550	100	Limestone, light gray-brown, III FA. Poor sample.	

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DITCH SAMPLES

Examined by Knight Thomas Miller

Well: E.B.B. #1

Field or Area: East Boundary Butte

FROM	TO	%	SHOWS UNDERLINED	SAMPLES LAGGED
		Cont'd.		
		50	Siltstone, as above, argillaceous.	
4345	4350	80	Limestone, as above. poor sample	
		20	Shale, gray, silty, calcareous.	
4350	4360	60	Limestone, light gray, I FA with fragments white translucent chert with bright orange specks.	
		40	Shale, light gray, soft, flaky, very calcareous. Poor sample	
4360	4365	70	Limestone, as above, cherty. Poor sample	
		30	Shale, medium gray-gray-green, silty, calcareous.	
4365	4370	100	Limestone, as above with fusulinids in I VFA streaks. Poor sample	
4370	4375	100	Limestone, light gray, I-III VF-FA. Very poor sample.	
4375	4385	100	Limestone, as above probable though samples largely shale. Very poor sample	
4385	4395	50	Shale, light tan, very soft, very calcareous. Very poor sample.	
		50	Shale, medium gray, silty, calcareous.	
4395	4400	100	Shale, tan, soft, silty, very calcareous. Very poor sample.	
4400	4410	100	Shale, gray, gray green, calcareous, silty, crinoid stems. Very poor sample	
4410	4415	50	Limestone, light gray, IVFA, fine sandy, fragment chert, dark gray. opaque.	
		50	Shale, as above.	
4415	4420	100	Limestone, as above.	
4420	4425	50	Limestone, as above	
		30	Shale, light gray, soft.	
		20	Siltstone, gray, calcareous.	
4425	4430	50	Siltstone, light-medium gray, very argillaceous, calcareous. Poor sample.	
		50	Shale, light-medium gray, silty, slightly calcareous, some copper colored micaceous.	
4430	4440	60	Limestone, light gray-brown, I VFA.	
		40	Chert, dark gray-brown-black, with white spicules translucent-opaque.	
4440	4445	40	Limestone, as above.	
B 18		40	Limestone, very light gray, III FA.	

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DITCH SAMPLES

Examined by Knight & Thomas

Well: East Boundary Butte #1
Field or Area: East Boundary Butte

FROM	TO	%	SHOW UNDERLINED	SAMPLES LAGGED
4240	4245	100	Limestone, as above, part fine, sandy.	
4245	4250	80	Limestone, as above with fine light green micaceous flakes.	
		20	Shale, medium gray, calcareous.	
4250	4255	80	Limestone, as above, part fine, sandy.	
		20	Shale, as above.	
4255	4265	100	Limestone, light gray, I VFA - III FA, cherty translucent with black pyrite spots and trace sandstone.	
4265	4270	100	Limestone, light gray brown, I-III VF-FA, slight fine sandy, slight crinoidal.	
4270	4275	50	Limestone, as above, cherty.	
		50	Shale, medium gray, silty, calcareous with small nodules limestone.	
4275	4280	100	Shale, light gray, very flaky, very calcareous.	
4280	4285	50	Limestone, as above.	
		50	Shale, as above.	
4285	4290	100	Limestone, light gray brown, I-III VF-FA, cherty.	
4290	4295	100	Shale, light gray, soft, very calcareous.	
4295	4300	100	Siltstone, light gray, very argillaceous, very calcareous.	
4300	4305	60	Limestone, light gray, I VFA.	
		40	Limestone, white II-III FA.	
4305	4310	100	Limestone, as above with some mica.	
4310	4315	100	Limestone, light gray, I VFA, in part cherty, light gray, translucent.	
4315	4320	100	Shale, tan, very soft, flaky, mottled orange.	
4320	4325	100	Limestone, tan, I-II VF-FA.	
			Slight trace gas in mud 4318-4320. (4 Hycalog Units).	
4325	4330	100	Limestone, light gray, I-II VFA.	
4330	4340	80	Shale, Red, purple, gray.	poor sample
		10	Limestone, as above.	
		10	Siltstone, light gray, calcareous.	poor sample
4340	4345	50	Limestone, light gray, I-III VF-FA.	

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DITCH SAMPLES

Examined by Knight & Thomas

Well: East Boundary Butte #1
Field or Area: East Boundary Butte

FROM	TO	%	SHOWS UNDERLINED	SAMPLES LAGGED
		Cont'd		
4165	4170	30	Shale, green, flaky, sub-waxy, calcareous with patches white anhydrite.	
4170	4175	30	Shale, orange as above.	
		30	Shale, brown as above.	
		20	Shale, tan, very soft, calcareous.	
		20	Shale, green, as above.	
			Slight trace gas in mud 4140-4156 (4 Hycalog Units).	
4175	4180	70	Limestone, light-medium gray, I VFA with scarce chert fragments.	
		20	Shale, light gray, very soft, flaky.	
		10	Limestone, white, II-III FA.	
4180	4185	100	Limestone, medium gray, I-III VF-FA.	
4185	4190	50	Limestone, as above, part fine sandy.	
		50	Shale, variegated purple, gray, brown.	
4190	4195	50	Limestone, light gray, I VFA.	
		30	Shale, medium gray, silty.	
		20	Shale, light gray, very soft, very calcareous.	
4195	4200	40	Limestone, light gray, I VFA with orange cherty fragments.	
		30	Shale, light gray-tan, very soft, very calcareous.	
		30	Shale, variegated brown, purple.	
4200	4210	60	Shale, tan-light gray, silty, very soft, very calcareous.	
		40	Shale, variegated purple, green, brown.	
4210	4225	100	Shale, tan, soft, silty, very calcareous.	
4225	4230	100	Siltstone, grades to very fine sandstone, medium gray, very calcareous, micaceous.	
4230	4335	60	Shale, green gray, silty, calcareous.	
		30	Shale, light gray, soft, silty.	
		10	Limestone, light gray, I VFA.	
4235	4240	100	Limestone, light gray I VFA with minute black specks.	

B 18

32 ×

DITCH SAMPLES

Well: East Boundary Butte #1

Examined by Knight & Thomas

Field or Area: East Boundary Butte

FROM	TO	%	SHOWS UNDERLINED	SAMPLES LAGGED
4095	4100	100	Limestone, as above with less III FA; organic shadows.	
4100	4105	90	Shale, brown-gray, orange, silty.	
		10	Limestone, as above.	
4105	4110	75	Chert, light gray, transparent-bright orange translucent-opaque.	
		25	Limestone, light gray, I VFA, fine sandy, slight trace gas in mud 3948-3966 (4 Hycalog Units).	
4110	4115	45	Limestone, as above.	
		45	Chert, as above.	
		10	Shale, dark purple, blocky.	
4115	4120	100	Limestone, light gray, I-III VF-FA, cherty with loose chert fragments.	
4120	4125	80	Limestone, as above.	
		20	Chert, light gray.	
4125	4130	80	Shale, variegated purple, brown.	
		20	Limestone, light gray, I VFA.	
4130	4135	50	Shale, as above and orange.	
		50	Limestone, as above.	
4135	4140	60	Shale, brown, calcareous, silty.	
		40	Shale, green-gray, calcareous, carbonaceous, silty.	
4140	4145	70	Shale, as first above.	
		30	Shale, as last above.	
4145	4150	60	Shale, as first above.	
		40	Shale, Gray green, streaked brown, silty, calcareous, few gray-green limestone nodules.	
4150	4155	40	Shale, brown, calcareous, silty.	
		40	Shale, gray green with patches white anhydrite and limestone nodules.	
		20	Shale, orange, silty, calcareous.	
4155	4165	100	Shale, proportioned as above with one limestone fragment, tan stained ochre.	
4165	4170	40	Shale, orange, silty, calcareous.	
B/8		30	Shale, brown, silty, calcareous.	

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DITCH SAMPLES

Examined by: Knight & Thomas

Well: East Boundary Butte #1
Field or Area: East Boundary Butte

FROM	TO	%	SHOWS UNDERLINED	SAMPLES LOGGED
3905	3910	60	Limestone, white-light gray, I-II VF-FA, with bright orange chert fragments.	
		30	Shale, dark brown-red brown, silty, calcareous.	
		10	Chert, bright orange, iridescent.	
3910	3915	40	Shale, red-brown-purple, calcareous in part.	
		40	Shale, medium green, carbonaceous, slightly calcareous.	
		20	Limestone, as above.	
			Slight trace gas in cuttings 3862-3866 (4 Hycalog Units).	
3915	3920	50	Shale, brown, flaky, silty, calcareous.	
		20	Shale, green, as above.	
		20	Limestone, as above, shows crystal lining on chert fragments.	
		10	Sandstone, gray, speckled black, very calcareous.	
3920	3925	60	Shale, brown, mottled green, silty, calcareous with rare brown rounded limestone nodules.	
		40	Sandstone, as above.	
3925	3930	100	Shale, variegated brown, mottled green, silty, calcareous, samples are poor.	
3930	4020	100	Shale, variegated brown, purple, orange, green.	
4020	4025	80	Shale, as above with ochre.	
		20	Limestone, light gray, I VFA, very sandy.	
4025	4035	100	Limestone, as above, micaceous, grading to sandstone, very fine, very calcareous.	
4035	4040	60	Shale, brown, orange, flaky, calcareous.	
		20	Limestone, as above.	
		20	Chert, bright orange, translucent-opaque.	
4040	4050	100	Sample mostly shale-red, orange, green, but drilling speed would indicate limestone (few fragments limestone, light gray, I VFA with abundant chert).	
4050	4060	100	Shale, variegated brown, orange, purple with trace limestone as above and trace sandstone, white-light gray, soft, calcareous, very fine, subrounded.	
4060	4085	100	Shale, variegated purple, brown, green, red.	
4085	4095	100	Limestone, white-light gray, I-III VF-FA, fine sandy (few fragments smoky gray to bright orange chert.	

B18

32 × 8

DITCH SAMPLES

Well: East Boundary Butte #1
Field or Area: East Boundary Butte

Examined by Knight & Thomas

FROM	TO	%	SHOWS UNDERLINED	SAMPLES LAGGED
		Cont'd		
3835	3840	50	Sandstone, tan, very fine, angular, well sorted, micaceous, calcareous.	
3840	3845	50	Limestone, as above with bryozoan fragments.	
		50	Sandstone, as above, some white.	
			Slight trace gas in mud 3722-3734, 3750-3806, 3818-3836 (4 Hycalog Units)	
3845	3850	80	Siltstone, medium brown, very calcareous, micaceous, grading to limestone light brown, I VFA.	
		20	Shale, brown, mottled green, silty, micaceous, calcareous.	
3850	3860	50	Shale, as above.	
		50	Sandstone, light gray, very fine, angular, well sorted, very calcareous, grades to limestone, light gray, I VFA, very sandy.	
3860	3865	100	Limestone, light gray-white, I-II VF-FA contains irregular inclusions of dark red and ochre shale, organic shadows, coral calyx, few very small bright orange chert fragments.	
3865	3875	60	Limestone, as above.	
		40	Limestone, white, II A.	
3875	3880	80	Limestone, light gray, I VFA, part sandy.	
		20	Siltstone, brown, calcareous, argillaceous with trace shale, orange, very calcareous.	
3880	3885		No sample	
3885	3890	50	Siltstone, light brown, very calcareous, argillaceous.	
		50	Siltstone, light gray, very calcareous, hard, blocky.	
3890	3895	80	Siltstone, grades to very fine sandstone, medium brown, calcareous, micaceous, blocky.	
		20	Shale, light brown, silty, very calcareous.	
3895	3900	60	Siltstone, as above.	
		40	Shale, medium green-gray, calcareous, slightly carbonaceous with trace siltstone-bright green, very argillaceous.	
3900	3905	40	Shale, red brown-brown.	
		20	Siltstone, as above.	
		20	Limestone, white, I-II FA.	
B18		20	Chert, white, gray-orange, translucent.	

32 × 1

DITCH SAMPLES

Well: East Boundary Butte #1

Examined by: Knight & Thomas

Field or Area: East Boundary Butte

FROM	TO	%	SHOWS UNDERLINED	SAMPLES LAGGED
3700	3715	100	Shale, variegated purple, brown, green, red.	
3715	3720	80	Shale, brown, mottled green, gray, silty, calcareous.	
		20	Siltstone, brown, very calcareous, micaceous.	
3720	3745	100	Shale, brown, mottled gray, silty, calcareous with olive round limestone nodules in gray shale.	
3745	3750	100	Shale, as above with few fragments light tan I VFA limestone.	
3750	3760	90	Shale, brown, mottled green, silty, calcareous with brown round limestone nodules.	
		10	Limestone, olive, I VFA.	
3760	3765	100	Shale, variegated, green, purple, red, gray, few chips of fine to medium angular sandstone.	
3765	3770	100	Shale, variegated orange, brown, purple, gray, green.	
3770	3775	80	Shale, as above.	
		20	Limestone, light brown to medium brown, I VFA, anhydritic.	
3775	**3780**	**100**	**Shale, light red, mottled ochre and purple, soft, flaky.**	
3780	3785	100	Shale, brown, silty, calcareous, part mottled green.	
[illegible]	3790	100	Limestone, light [illegible]	
		Tr.	Chert, [illegible]	
			[illegible]	
3795	3810	50	Limestone, as above interbedded.	
		50	Sandstone, light gray, VF, subrounded to angular, fair sorted, very calcareous, micaceous.	
[illegible]	3815	100	Limestone, light gray, I VFA, very sandy, micaceous.	
3815	3820	100	Limestone, pale greenish gray, I-II VF-FA with organic shadows.	
3820	3825	90	Limestone, as above.	
		10	Limestone, medium brown, I FA, sandy.	
3825	3830	100	Limestone, pale green, I VFA grading to II A.	
3830	3835	100	Limestone, as above, grading to tan with shell fragments.	
3835	3840	50	Limestone, pale green, I-II VF-FA with scarce fragments bright orange irregular chert.	

B18

DITCH SAMPLES

Well: East Boundary Butte #1

Examined by: Thomas A. Knight

Field or Area: East Boundary Butte

FROM	TO	%	SHOW UNDERLINED	SAMPLES LAGGED
3540	3545	100	Sandstone, medium brown, very fine, angular.	
3545	3550	100	Shale, variegated, green, red, purple, brown.	
3550	3555	80	Shale, variegated, as above.	
		20	Limestone, brown, sandy, I VFA.	
3555	3560	100	Shale, as above.	
3560	3565	100	Shale, as above with few cuttings sandstone brown, grading to limestone I VF.	
3565	3570	100	Shale, variegated, gray, green, purple, brown.	
3570	3575	80	Shale, variegated as above.	
		20	Siltstone, medium brown, very calcareous, micaceous.	
3575	3590	100	Shale, variegated as above.	
3590	3600	50	Shale, variegated, purple, light green, red, flaky, soft.	
		30	Siltstone, brown, very calcareous, micaceous.	
		20	Shale, brown, silty, calcareous.	
3600	3615	100	Shale, variegated, purple, brown, red, green, gray.	
3615	3630	60	Sandstone, medium brown, very fine, angular, well sorted, micaceous, calcareous.	
		40	Shale, purple, mottled white, soft, flaky with limestone nodules.	
3630	3635	50	Sandstone, as above.	
		30	Shale as above.	
		20	Limestone, brown, sandy, I VFA grading to sandstone.	
3635	3640	60	Shale, variegated purple, green, brown.	
		40	Limestone, medium brown, I VFA, sandy.	
3640	3650	100	Limestone, as above grading to sandstone.	
3650	3685	100	Sandstone, light brown very fine, angular, well sorted, micaceous, very calcareous, argillaceous with patches brown I VFA limestone.	
3685	3690	80	Sandstone, as above.	
		20	Shale, red, mottled white, soft, flaky.	
3690	3700	60	Sandstone, as above.	
B-18		40	Shale, purple, red, green, gray.	

DITCH SAMPLES

Well: East Boundary Butte #1

Examined by: Knight & Thomas

Field or Area: East Boundary Butte

FROM	TO	%	SHOWS UNDERLINED	SAMPLES BAGGED
3510	3525	100	Sandstone, as above.	
3525	3540	80	Sandstone as above.	
		20	Shale, brown, green.	

B18.

32 × 1

Examined by: Knight & Thomas

Well: East Boundary Butte 1
Field or Area: East Boundary Butte

FROM	TO	%	SHOWS UNDERLINED	SAMPLES LOGGED
3385	3400	50	Siltstone, as above.	
		50	Shale, variegated as above.	
3400	3410	100	Shale, variegated purple, white, green, ochre, red.	
3410	3415	100	Limestone, olive, I VFA, pseudoolitic, part white, crystalline anhydrite.	
3415	3425	100	Shale, medium green, flaky, fissile, calcareous in part, carbonaceous in part.	
3425	3440	70	Shale, as above, becoming darker green, mottled brown and purple with some olive limestone I VFA.	
		30	Sandstone, light brown, very fine angular, very calcareous, micaceous.	
3440	3445	60	Shale, as above.	
		40	Sandstone, as above.	
3445	3450	80	Siltstone, dark brown -medium brown, very argillaceous, very calcareous.	
		20	Shale, variegated, green, brown, purple.	
3450	3460	80	Shale, variegated green, orange, purple.	
		20	Siltstone, as above.	
3460	3465	100	Shale, predominately red-maroon, mottled white, soft, flaky, some light gray and purple.	
3465	3470	100	Shale, as above, some green, very soft with light brown, III VFA, limestone nodules.	
3470	3475	60	Shale, variegated green, brown, purple.	
		40	Shale, red-brown, soft, smooth, flaky.	
3475	3485	100	Shale, variegated brown, green, purple, red.	
3485	3490	100	Sandstone, medium brown, very fine, angular.	
3490	3495	100	Sandstone, medium brown with interbedded light brown, very calcareous shale	
3495	3500	60	Sandstone as above.	
		40	Shale, green, brown, hard.	
3500	3505	50	Shale, green, gray, fissile, calcareous.	
		50	Sandstone, as above.	
3505	3510	70	Sandstone, as above (3485-3490)	
		30	Shale, as above.	

MP B18

DITCH SAMPLES

Examined by: Knight - Thomas

Well: East Boundary Butte #1
Field or Area: East Boundary Butte

FROM	TO	%	SHOW UNDERLINED	SAMPLES LOGGED
3315	3320	80	Shale, variegated.	
		20	Sandstone, brown, very fine -silty, very calcareous, copper micaceous, well sorted.	
3320	3325	100	Sandstone as above.	
3325	3330	90	Shale, variegated, red, green, white, purple, soft, flaky, non-calcareous.	
		10	Sandstone as above.	
3330	3335	80	Shale, variegated, red, purple, soft, flaky.	
		20	Siltstone, brown, very calcareous, minute mica flakes.	
3335	3340	80	Shale, variegated red, purple, green, soft, flaky.	
		20	Sandstone, as siltstone above, very fine.	
3340	3345	60	Shale, variegated red, soft.	
		40	Sandstone, white, very fine, calcareous, chloride, silty.	
3345	3355	100	Shale, variegated purple, red, brown, green, streaked brown, calcareous, micaceous.	
3355	3365	70	Siltstone, grading to very fine sandstone, light brown to orange-brown, calcareous, micaceous.	
		30	Shale, variegated red, purple, soft, flaky. Trace limestone, gray, I VFA.	
3365	3370	100	Shale, variegated, brown, orange, purple, mottled ochre, green, mostly soft, flaky.	
3370	3375	50	Shale, variegated red, green, orange.	
		30	Shale, purple, silty, very calcareous.	
		20	Limestone, dark gray, I VFA.	
3375	3380	50	Limestone, light green I VFA, very fine, sandy.	
		40	Shale, variegated red, purple, green, orange.	
		10	Limestone, dark gray, I VFA.	
3380	3385	60	Siltstone, grading to very fine sandstone, brown, slightly mottled green, very calcareous, brown, micaceous.	
		40	Shale, variegated as above.	

B18

32 × [illegible]

DRILL CUTTINGS

Examined by: Knight & Thomas

Well: East Boundary Butte 1
Field or Area: East Boundary Butte

FROM	TO	%	S.O.P. UNDERLINED	SAMPLES LOGGED
3185	3190	100	Shale, variegated purple, brown, green, with few fragments anhydrite.	
3190	3195	100	Shale, variegated orange, brown, purple, green.	
3195	3200	60	Shale, as above.	
		40	Siltstone, brown, calcareous.	
3200	3210	80	Siltstone, as above.	
		20	Shale, as above.	
3210	3220	60	Siltstone, as above.	
		40	Shale, as above.	
3220	3225	80	Shale, variegated as above.	
		20	Sandstone, light purple, fine, angular, well-sorted, very calcareous, hard, slightly copper micaceous.	
3225	3230	50	Sandstone, as above.	
		30	Limestone, medium gray-brown, I VFA, interbedded with sandstone above.	
		20	Shale, variegated.	
3230	3245	100	Sandstone, light brown, very fine, angular, well-sorted, very calcareous, slightly micaceous with patches anhydrite.	
3245	3250	60	Sandstone, as above.	
		40	Shale, orange, green, purple, brown.	
3250	3260	70	Shale, variegated purple, red-brown, red, very soft, non-calcareous.	
		30	Sandstone, as above.	
3260	3265	100	Limestone, medium gray-brown, I VFA.	
3265	3275	80	Shale, variegated purple, red, brown, green, soft.	
		20	Limestone, as above.	
3275	3285	100	Shale, as above.	
3285	3290	70	Shale, as above.	
		30	Siltstone, light green, argillaceous with white anhydrite.	
3290	3295	100	Siltstone as above.	
3295	3315	60	Siltstone as above.	
B-18		40	Shale, red, soft, flaky, mottled white, some purple, 3300-05 some green and ochre 3305-15.	

32 × 8

DITCH CUTTINGS

Examined by: Knight & Thomas

Well: East Boundary Butte #1
Field or Area: East Boundary Butte

FROM	TO	%	SAMPLES UNDERLINED	SAMPLES LOGGED
3095	3100	50	Limestone, light gray-green, I VFA.	
		30	Sandstone, light green, very fine, calcareous, micaceous.	
		20	Siltstone, orange-brown, calcareous.	
3100	3105	40	Limestone, as above.	
		40	Shale, purple, soft, calcareous.	
		20	Shale, brown, calcareous, interbedded with green limestone.	
3105	3110	30	Limestone, as above.	
		30	Shale, green, calcareous, chloride, flaky.	
		30	Shale, brown, silty, calcareous.	
		10	Anhydrite, white.	
3110	3120	80	Siltstone, brown, micaceous, very calcareous.	
		20	Siltstone, green, very micaceous, very calcareous, trace anhydrite.	
3120	3130	80	Siltstone, as first above.	
		20	Shale, medium green, micaceous, calcareous.	
3130	3135	80	Siltstone, as above.	
		20	Shale, as above, with abundant anhydrite patches.	
3135	3145	60	Shale, brown, very calcareous, slightly silty.	
		40	Siltstone, light green, anhydrite, chlorite.	
3145	3155	60	Siltstone, brown, very calcareous, chlorite.	
		40	Shale, variegated purple, red, green.	
3155	3165	60	Siltstone, as above.	
		40	Shale, green, purple.	
3165	3170	100	Shale, brown, silty, very calcareous, micaceous, anhydrite.	
3170	3175	40	Limestone, light green, argillaceous, anhydrite.	
		60	Shale, variegated brown, purple, green.	
3175	3180	100	Limestone, olive, I VFA with streaks green shale.	
3180	3185	80	Shale, variegated green, red, purple.	
B18		20	Limestone, as above.	

32 × 1

DITCH SAMPLES

Well: East Boundary Butte #1

Examined by Knight - Thomas

Field or Area: East Boundary Butte

FROM	TO	%	SHOWS UNDERLINED	SAMPLES LOGGED
2925	2935	100	Shale, orange-orange brown, mottled green and white, silty, calcareous, abundant patches white crystalline anhydrite.	
2935	2940	80	Shale, as above.	
		20	Limestone, pink-gray, white, I VFA, sandy.	
2940	2945	100	Siltstone, light-dark orange brown, mottled green, very calcareous, micaceous.	
2945	2950	100	Siltstone, as above, with anhydrite.	
2950	2975	100	Siltstone, as above, mottled green, with anhydrite.	
2975	2990	100	Siltstone, as above, poor samples.	
2990	3015	100	Siltstone, orange-brown, mottled green, very calcareous, green and black, micaceous, with patches white anhydrite.	
3015	3020	90	Siltstone, as above.	
		10	Siltstone, light green, calcareous, chloride, grading to very fine sandstone.	
3020	3025	20	Sandstone, orange-brown, very fine, angular, well-sorted, very calcareous, very micaceous, anhydrite.	
		20	Sandstone, same, light green.	
3025	3040	100	Siltstone, orange-brown, angular, very calcareous, very micaceous, anhydrite.	
3040	3045	60	Shale, light purple, very calcareous, sub-waxy, minute pyrite.	
		40	Shale, pink to light green, pyritic, anhydrite (coarse crystals).	
3045	3050	50	Shale, as above.	
		50	Shale, as last above.	
3050	3055	100	Siltstone, orange-brown, mottled green, very micaceous, very calcareous, anhydritic.	
3055	3060	100	Siltstone, light green, very calcareous, chloride, probably interbedded with pale green and purple shale anhydrite.	
3060	3080	100	Siltstone, orange, brown, anhydrite.	
3080	3090	80	Shale, orange, silty.	
		20	Shale, pink, very calcareous.	
3090	3095	80	Shale, brown to red brown, mottled green, very calcareous.	
B18		20	Shale, orange, silty, calcareous.	

32 × 1

DITCH SAMPLES

Well: East Boundary Butte #1
Examined by: Knight & Thomas Field or Area: East Boundary Butte

FROM	TO	%	SHOWS UNDERLINED	SAMPLES TAGGED
2795	2800	40	Shale, orange, silty.	
		40	Sandstone, light red, fine, angular, poorly sorted, argillaceous.	
		20	Shale, variegated white, red, green, with dark gray limestone nodules.	
2800	2810	50	Shale, variegated orange, pink, gray.	
		50	Sandstone, as above.	
2810	2815	100	Sandstone, white, very fine to fine, angular, slightly rounded, poorly sorted, chloride, very calcareous.	
2815	2855	100	Shale, orange-brown, silty, calcareous with patches white granular limestone, III FA and patches green waxy shale, some anhydritic.	
2855	2865	80	Shale, as above.	
		20	Shale, light purple, mottled green, streaked red, silty, very calcareous with patches limestone and anhydrite.	
2865	2870	100	Shale, orange-brown, silty, very calcareous, mottled light green with brown limestone nodules.	
2870	2875	60	Limestone, light purple, mottled white, streaked red, II-III FA, grading to shale.	
		40	Shale, as above.	
2875	2880	100	Shale, orange-brown, brown, soft, flaky, very calcareous with patches white, soft crystalline anhydrite.	
2880	2890	60	Shale, as above.	
		40	Siltstone, brown, mottled green, very calcareous, blocky, micaceous, grading to green, micaceous siltstone.	
2890	2895	100	Siltstone, as above, mottled light green, very micaceous, anhydritic.	
2895	2900	80	Siltstone, as above.	
		20	Shale, light purple, very calcareous.	
2900	2915	80	Siltstone, as above, with abundand anhydrite.	
		20	Shale, as above.	
2915	2925	50	Siltstone, as above.	
		10	Shale, as above.	
		40	Sandstone, pale green, very fine, hard, blocky, calcareous, chloride.	

B18

Slight trace 925 in mud (4 Hycalog Units) 2878-2895.

32 × 6

Examined by: Knight & Thomas

Well: East Boundary Butte #1
Field or Area: East Boundary Butte

FROM	TO	%	SHOWS UNDERLINED	SAMPLES LAGGED
2720	2730	100	Shale, orange-brown, silty, calcareous, micaceous, mottled green.	
2730	2735	60	Shale, as above.	
		40	Shale, light purple, soft, flaky, very slightly calcareous.	
2735	2740		Missing.	
2740	2750	60	Shale, as first above with scarce orange I VFA limestone pellets.	
		30	Siltstone, orange-brown, calcareous.	
		10	Shale, light purple to light red, mottled white, calcareous with fine white limestone nodules.	
2750	2755	60	Shale, orange, mottled green, calcareous, silty with large, brown, well-rounded limestone nodules	
		20	Siltstone, medium brown, argillaceous, calcareous, micaceous.	
		20	Sandstone, pale green, chloritic grading to siltstone.	
2755	2765	100	Siltstone, orange-brown, brown, very argillaceous, calcareous, very micaceous	
2765	2770	80	Siltstone, as above, mottled green.	
		20	Shale, light purple, very calcareous, with white limestone nodules.	
2770	2775	60	Siltstone, as above.	
		40	Shale, variegated purple, red, green.	
2775	2780	50	Shale, orange-brown, silty, calcareous.	
		30	Limestone, pink, nodular, appears clastic.	
		20	Shale, light gray, very soft, flaky, carbonaceous.	
2780	2785	100	Siltstone, orange-brown, mottled green, very calcareous, micaceous.	
2785	2790	40	Siltstone, as above.	
		40	Shale, orange, silty, calcareous.	
		20	Shale, light purple, soft, flaky.	
2790	2795	40	Shale, orange, silty.	
		20	Siltstone, as above.	
		20	Shale, brown, flaky, smooth.	
		20	Shale, red, calcareous, with limestone nodules, light gray to gray-green, well-rounded.	

B18

Slight trace 925 in mud 2762-66 (Hydrolog Units)

Examined by: Knight

Well: East Boundary Butte #1
Field or Area: East Boundary Butte

FROM	TO	%	SHOWS UNDERLINED	SAMPLES LOGGED
(Cont'd)				
2645	2650	30	Shale, brown, silty, calcareous.	
		10	Sandstone, as above.	
2650	2660	100	Shale, orange-brown, mottled green, very silty, calcareous, part micaceous.	
2660	2665	50	Siltstone, orange, brown to brown, slightly calcareous-calcareous.	
		50	Sandstone, light green, very fine, calcareous, chlorite.	
2665	2670	50	Shale, orange, calcareous, silty,	
		30	Siltstone, brown, argillaceous, micaceous.	
		20	Sandstone, as above with limestone nodules, light green, round.	
2670	2695	100	Shale, brown, orange, mottled green, silty, calcareous.	
2695	2705	100	Sandstone, brown-red, very fine, argillaceous, fair sort, very calcareous, minute mica, hard.	
2705	2720	100	Shale, orange, mottled green, silty, very calcareous. Slight trace gas in mud 2690-92 (5 Hycalog Units).	

B18

DRG. SAMPLES

Well: East Boundary Butte 1

Examined by: Knight

Field or Area: East Boundary Butte

FROM	TO	%	SHOW UNDESCRIBED	SAMPLES LAGGED
2495	2500	70	Shale, purple, dark brown, soft, flaky.	
		30	Shale, orange, brown, silty, calcareous.	
2500	2505	50	Shale, as above.	
		50	Shale, purple, soft, flaky, with trace orange, I VFA, limestone.	
2505	2510	100	Shale, variegated, purple, orange, calcareous, silty.	
2510	2540	100	Shale, orange, calcareous - very calcareous, silty, hard, blocky, grades to near limestone.	
2540	2550	80	Shale, as above.	
		20	Limestone, orange, I VFA, mottled white.	
2550	2555	100	Siltstone, orange-brown, calcareous, hard, blocky, minute micaceous.	
2555	2560	60	Shale, orange brown to brown, orange, calcareous, silty.	
		40	Siltstone, as above.	
2560	2580	100	Shale, as above, grading to siltstone, 2575-2580.	
2580	2585	100	Siltstone, orange, mottled, green, argillaceous, calcareous, non-calcareous	
2585	2590	100	Siltstone, as above, argillaceous, some green shale with large, gray-brown limestone nodules.	
2590	2595	100	Shale, orange, mottled green, silty -very silty, calcareous, flaky to blocky	
2595	2625	100	Shale, orange brown to orange, otherwise as above with patches limestone, orange I VFA.	
2625	2630	80	Siltstone, orange, mottled green, blocky, very calcareous.	
		20	Shale, brown, silty, calcareous.	
2630	2635	80	Shale, orange, mottled white, green, silty, very calcareous.	
		20	Limestone, occurs as patches in shale, orange, I VFA.	
2635	2640	70	Shale, as above.	
		20	Limestone, as above.	
		10	Siltstone, light green, hard, very calcareous, minute chlorite.	
2640	2645	80	Siltstone, orange-brown to orange, very argillaceous, slightly calcareous, non-calcareous, micaceous.	
		20	Sandstone, grading to siltstone, pale green, chlorite, slightly calcareous-non-calcareous.	
2645	2650	60	Siltstone, as above with limestone nodules.	

Slight trace gas in mud 2544-2576 & 2604-2620 (5 Hyd. Unit)

DRILL CUTTINGS

Well: East Boundary Butte #1

Examined by: Rowland

Field or Area: East Boundary Butte

FROM	TO	%	SHOWS UNDERLINED	SAMPLES BRIEFLY
2060	2070	100	Shale, variegated, flaky, soft, calcareous, abundant medium to coarse sand grain, well rounded, some amber.	
2070	2100	100	Sandstone, fine to coarse, slightly rounded, poor sort, non-calcareous.	
2100	2110	100	Sandstone, very fine, slightly calcareous, micaceous, in part micro-conglomerate with amber translucient sand grain; poor sort, round, porous, amber.	
2210	2225	100	Same as above, loose sand grain, abundant, very coarse, amber.	
2225	2295	100	Same as 2100, becoming silty.	
2295	2305	100	Siltstone, round grained, speckled, non-calcareous.	
2305	2330	50	Shale, red-brown, blocky, soft, calcareous.	
		50	Shale, variegated, flaky, soft, calcareous.	
2330	2415	50	Siltstone, as above, buff at 2360, red-brown, blocky, soft, calcareous.	
		50	Shale, as above, trace lignite at 2370.	
2415	2425	100	Sandstone, white-light green, fine to medium, speckled, argillaceous, samples contain abundant purple-brown limestone fragments, coarse to very coarse, well rounded.	
2425	2440	50	Sandstone as above.	
		50	Shale, variegated, soft, flaky, calcareous.	
2440	2455	20	Shale, red-brown, some purple, mottled white, calcareous.	
		80	Siltstone, amber, red-brown, slightly calcareous.	
2455			Shale, trace variegated.	
2460	2470	100	Sandstone, red-brown, very fine to fine, micaceous, calcareous, small rounded.	
2470	2475	100	Shale, red, brown, flaky; speckled with mica.	
2475	2480	50	Shale, as above.	
		50	Dolomite, lavender, III VF A, sandy in part, some white.	
2480	2485	70	Shale, variegated purple, brown, calcareous.	
		30	Sandstone, red, brown, orange, very fine, angular, fair sort, black micaceous, calcareous.	
2485	2495	80	Siltstone, brown, orange, very argillaceous, calcareous with patches grading to limestone, orange, III VF A, silty.	
		20	Shale, as above.	

B18

Slight trace 925 in mud 2240-44, 2478-80 (5 Units)

32 × 8

Examined by: Rowland

Well: East Boundary Unit 1
Field or Area: East Boundary Butte

FROM	TO	%	SAMPLES UNDERLINED	SAMPLES LOGGED
1040	1440	100	Shale, red-brown, mottled white, silty, calcareous, trace limestone, hard.	
1440	1560	100	Limestone, red-purple, mottled light green, I-III VF A, chert fragments.	
1560	1610	100	Shale, red-orange, blocky, very calcareous, limestone stringers [illegible]	
1610	1645	50	Shale, as above.	
		50	Shale, very flaky, soft, bentonite.	
1645	1695	100	Sandstone, white, very fine-medium, slightly rounded, frosted in part, chert fragments.	
1695	1750	100	Shale, very flaky, soft, calcareous, contains numerous loose, medium to coarse sand grains, round, clear to orange, some milky, some frosted.	
1750	1850	50	Shale, as above.	
		50	Shale, red-brown, blocky, calcareous, trace bentonite.	
1850	1915	50	Sandstone, white to light green, very fine to medium, angular, poorly sorted, slightly calcareous, micaceous.	
		50	Sandstone, clear with green shale staining on fractures, medium to coarse, angular, contains some loose round sand grain, milky in part. Trace very dead oil staining rare (may be lignite).	
1915	1925	100	Lignite, black, blocky, pyritic, concoidal fractures.	
1925	1945	50	Sandstone, as above.	
		50	Sandstone, as above.	
1945	1970	80	Sandstone, white, F-M, slightly calcareous, pyritic, porous, slightly rounded.	
		20	Sandstone, gray, F-M, argillaceous, slightly rounded, poorly sorted, chert fragments.	
1970	1980	100	Sandstone, white, medium to very coarse, poorly sorted, angular rounded, slightly calcareous.	
1980	2010	100	Dolomite, lavender to dark gray, I VF A, cherty.	
2010	2030	100	Limestone, pink to red, mottled white, argillaceous, soft, flaky, pyritic, fossiliferous, rare.	
2030	2050	100	Dolomite, white to light blue, III VF A, silty.	
2050	2060	100	Shale, gray, flaky, sandy, non-calcareous, contains abundant medium to very coarse sand grain, well rounded, part milky.	

B18

32 × 1

DITCH SAMPLES

Well: East Boundary Butte #1

Examined by Rowland

Field or Area: East Boundary Butte

FROM	TO	%	SHOWS UNDERLINED SAMPLES LOGGED
0	40		No samples
40	160	50	Sandstone, orange, very fine, calcareous, sub-rounded, porous.
		25	Sandstone, white-yellow, fine, calcareous, sandstone, sub-rounded, porous.
		25	Sandstone, white-medium course, sand, rounded, frosted. Pale yellow fluorescence and cut fluorescence on 1% of samples. (Probably due to D.C. Dope contamination).
160	320	100	Sandstone and Sand, same as above including some gray-black shale partings, calcareous. Pale yellow fluorescence on 1% of samples. (Probably due to contamination).
320	380	100	Sand, white-orange, very fine, subrounded, black shale partings. Pale yellow fluorescence on 1% of samples, probably contamination.
380	580	100	Sand, same as above, including some black, very fine sand grains, and some white fine-medium sand grains.
580	700	100	Sandstone, orange-red, very fine, well sorted, slightly calcareous, porous. Includes frequent, medium clear, sand grains rounded. Pale yellow fluorescence on less than 1% of samples, probably contaminated
700	900	50	Sandstone, same as above. No shows.
		50	Siltstone, orange-red, siltstone, trace brick red shale, calcareous.
900	920	100	Shale, pink-brown, mottled white, very calcareous.
920	980	80	Shale, same as above.
		20	Limestone, orange, mottled white, I VF A.
980	1000	80	Shale, brown, very silty, calcareous, very hard.
		20	Limestone, orange, mottled white, I-III VFA.
1000	1040	80	Shale, same as above, less silty.
		20	Limestone, same as above.

App. B18

32 × 1

SHELL OIL COMPANY

DRILLING REPORT

FOR PERIOD ENDING March 24, 1954

East Boundary Butte (FIELD)

Apache, Arizona (COUNTY)

WELL NO. #1

C, SE, SE, Sec. 6 (SECTION OR LEASE)

41 N., 29 E., G & SL B&M (TOWNSHIP OR RANCHO)

DAY	DEPTHS FROM	DEPTHS TO	REMARKS
3/22		6490	Flowed through 2" line 4 hours, tubing pressure 5 psi, salinities 60,000-90,000 ppm NaCl, 95% cut. Flowed through trap 3½ hours, tubing pressure 30 psi, gas rate 150 MCF/d gradually decreasing to 125 MCF/d no fluid. Shut in 5 hours, stabilized at 82 psi in 20 minutes. Open to 2" line for 4 hours, tubing pressure 5 psi, salinity 100,000 ppm NaCl, fluid has trace of oil. Made two swab runs to bottom, no fluid found, less than a gallon water pulled with each swab. Turned through trap for 7 hours, tubing pressure decreased from 35 to 28 psi, maximum flow rate 178 MCF/d decreasing gradually to 150 MCF/d, fluid 1 bbl/d, salinities ranged from 50,000 to 110,000 ppm NaCl.
3/23		6490	Shut in 10½ hours, tubing pressure rose to 80 psi. Rigged for B&R Service Company to run bottom hole pressure and temperature surveys. Bottom Hole Pressure 297 psi, temperature 112° F, fluid level 4577'. Open flow to trap for 12 hours, tubing pressure rose from 40 to 132 psi then fell to 30 psi, gas flow increased to a maximum of 430 MCF/d falling to 120 MCF/d, salinities 55,000-35,000 ppm NaCl, fluid 48 bbl/d for first hour 60% cut, oil 35° API, after first hour fluid rate .5 bbl/d with trace of oil
3/24		6490	Flowed through trap 8 hours, tubing pressure from 30 to 15 psi, gas flow rate fell from 120 to 30 MCF/d, salinity 35,000-40,000 ppm NaCl, less than .1 bbl fluid recovered. Swabbed for 1 hour, recovered approximately 5 gal fluid, trace oil. Flowed to trap for 7 hours, tubing pressure fell from 80 to 30 psi, gas flow declined from 400 to 150 MCF/d, fluid rate 4 bbl/d, 80% cut, salinities 35,000-40,000 ppm NaCl. Well shut in, operations suspended and rig released 5 PM.

Drillers for George Noland Drilling Company:

J. H. Cockrell
H. E. Clements
E. Weiker

CONDITION AT BEGINNING OF PERIOD

HOLE SIZE	HOLE FROM	HOLE TO	CASING SIZE	DEPTH SET
17½"	0	909'	13 3/8"	909'
9"	909'	4862	5½"	5350'
8 3/4	4862	6490		

DRILL PIPE SIZES 2" tubing

B18

C. J. Miller
SIGNED

CO 4A MASTER SET 2-50 PRINTED IN U. S. A.

SHELL OIL COMPANY

DRILLING REPORT

FOR PERIOD ENDING

March 21, 1954

WELL NO. #1

East Boundary Butte (FIELD)

Apache, Arizona (COUNTY)

C, SE, SE, Sec. 6 (SECTION OR LEASE)

41 N. 29 E., G&SL B&M (TOWNSHIP OR RANCHO)

DAY	DEPTHS FROM	DEPTHS TO	REMARKS
3/21		6490'	Flowed through 2" line to sump 8 hours, tubing pressure fell from 10 psi to 5 psi, salinities fell from 110,000 to 90,000 ppm NaCl, cut 95%. Flowed to trap 3 hours, tubing pressure 34 psi, gas flow 210 MCF/d, fluid rate 1.3 bbl/d, 95% cut. Shut in 2 hours, pressure stabilized at 115 psi in ½ hour. Flowed through 2" line 4 hours, pressure 5 psi, salinity 55,000 ppm NaCl, trace of oil. Flowed through trap 4 hours, tubing pressure 45 psi, gas rate increased from 200 to 233 MCF/d then decreased to 200 MCF/d, fluid rate nil, cut 95% salinities increased to 80,000 ppm NaCl. Flowed through 2" line to sump for 3 hours, tubing pressure 5 psi, salinities averaged 60,000 ppm NaCl, cut 95%. Drillers for George Noland Drilling Company: J. H. Cockrell H. E. Clements E. Weiker

CONDITION AT BEGINNING OF PERIOD				
HOLE SIZE	HOLE FROM	HOLE TO	CASING SIZE	DEPTH SET
DRILL PIPE SIZES				

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32 × 1

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SHELL OIL COMPANY

WELL NO. #1

East Boundary Butte
(FIELD)

Apache, Arizona
(COUNTY)

DRILLING REPORT
FOR PERIOD ENDING
March 21, 1954

C, SE, SE, Sec. 6
(SECTION OR LEASE)

41 N., 29 E., G&SL B&M
(TOWNSHIP OR RANCHO)

DAY	DEPTHS FROM	DEPTHS TO	REMARKS
3/15		6490'	Rigged up Lane-Wells, set wire line plug at 5045', tested at 840# for 30 minutes, tested okay. Lane-Wells perforated intervals 4884-4944 and 4963-4976 with 15/32", 3 F-2 jet and 3 A-2 bullets per foot. Packer set at 4837', tail to 4964'. Swabbed to test tank. Recovered slightly gassy water.
3/16		6490'	Swabbed well dry, gas flowed at rate of 20 MCF/d., gas gravity 0.9. Dowell acidized with 2000 gallons 15% HCl, flushed with 20 bbl. water. Formation broke at 1200 psi, final treating pressure vacuum. Swabbed fluid to test tank. Kicked off on second swab run and flowed at rate of 2000 MCF/d., gravity .672, tubing pressure 375 psi. After blowing 2 hours to sump, a dark amber oil condensate came to surface, 50° API, 50% cut.
3/17		6490'	Flowed gas condensate and water to sump 7½ hours, tubing pressure 200 psi against a ½" choke at time of shut in. Shut in 7½ hours for build up, maximum pressure 810 psi, still rising. Flowed 9 hours through trap against a ½" choke, tubing pressure decreased from 235 to 110 psi, flow rate from 1200 to 570 MCF/d., fluid rate 4.8 bbl/day, salinities ranged from 41,000 to 17,500 ppm NaCl.
3/18		6490'	Flowed 15 hours through trap against a ½" choke. Pressures varied from 110 psi to 100 psi, gas flow 570 to 380 MCF/d., fluid rate 8 bbl/d, cut 50%, oil 50° API, greenish amber color. Killed well by releasing packer, reset packer at 4851', tail to 4976', removed blowout equipment and installed deer horns. Started flowing after first swab run. Flowed to sump for 5 hours. Rigged for acidizing.
3/19		6490'	Dowell acidized with 2000 gal. channel acid (treated with 1000# NaCl) and 10,000 gal. 15% HCl. No pressure build up from formation, all pressures were volume pressures. Maximum pressure 600 psi and minimum pressure 0 psi. Tubing flushed with 10 bbl. water, final pressure vacuum. Average rate of injection 4 bbl/hr. Swabbed for 18½ hours; for the last 11 hours the well flowed 10-15 minutes after each swab run. Fluid and gas rates not gauged. Salinities averaged 160,000 ppm NaCl, no oil; flowed gas through 2" line to sump for 2½ hours, water with trace of oil, salinity averaged 150,000 ppm NaCl.
3/20		6490'	Flowed through 2" line to sump 9 hours. Tubing pressure fell from 30 psi to 17 psi. Salinity 140,000 ppm NaCl. Flow 3 hours against a 1" choke intrap, tubing pressure increased from 45 to 65 psi, gas rate 300 MCF/d with heads of 375 MCF/d, fluid rate 12 bbl/d, trace oil. Flowed through 2" line to sump for 12 hours, tubing pressure fell from 15 to 10 psi. Salinities decreased from 135,000 to 110,000 ppm NaCl, cut 95%.

CONDITION AT BEGINNING OF PERIOD

HOLE SIZE	HOLE FROM	HOLE TO	CASING SIZE	DEPTH SET
17½"	0	909'	13 3/8"	909'
9"	909'	4862'	5½"	5350'
8 3/4	4862	6 490		

DRILL PIPE SIZES 2" tubing

C. J. Miller
SIGNED

B18

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SHELL OIL COMPANY

WELL NO. #1

East Boundary Butte #1
(FIELD)

Apache, Arizona
(COUNTY)

DRILLING REPORT
FOR PERIOD ENDING
March 14, 1954

C, SE, SE, Sec.6
(SECTION OR LEASE)

41 N. 29 E. G&S.L. B & M
(TOWNSHIP OR RANCHO)

DAY	DEPTHS FROM	DEPTHS TO	REMARKS
3/8		6490	Cemented 5½" casing with 350 sacks Construction Cement, 115# slurry, top and bottom rubber plugs; displaced with mud and water with rig pump. Tested plugs with 1800#, held for 15 minutes, bled back okay. Flanged up. Tested packing ring with 2500# for 15 minutes, tested okay. Put Hasen test on flange, 2500# for 15 min, tested okay. Installed blowout equipment, cleaning pits.
3/9		6490	Picked up tubing and kelly. Tested casing with 1100# for 30 minutes, tested okay. Displaced mud with water.
3/10		6490	Ran LaneWells Gamma Ray Log and collar locater. WSO #1, Johnston; packer set at 5217', tail to 5232'; Four ½" Jet holes at 5239-5240'; Tool open 1½ hours; very weak blow immediately dead in 3 minutes. Recovered 5' (.1bbl.) muddy water, salinity 200 ppm NaCl.
3/11		6490	WSO #2, Johnston Shoot and Test; packer set at 4852', tail to 4867; Four ½" Jet holes at 4874; Tool open 1 hour; weak blow immediately, very weak blow in 5 minutes dead in 10 minutes; recovered 357' (1.47 bbls) water, salinity 300 ppm NaCl. Ran Lane-Wells jet guns and bullet gun, perforating selected intervals 5108-5240'.
3/12		6490	Completed perforating intervals 5108-5160', 5177-5188', and 5200-5240' with 3 F-2 Jet and 3 A-2 bullets, 15/32", per foot. Lost and recovered jet gun. 4 hours replacing sand line. Set Lane-Wells Circulating packer at 5080' tail to 5235'. Swabbed to test tank and recovered water.
3/13		6490	Swabbed hole dry, no oil or gas. Sand line jumped sheave, 6 hours to repair. Halliburton acidized with 2,000 gallons non-emulsifying 15% HCl, flushed with 20 bbls waters. Formation broke at 2,000 psi, displaced with fresh water. Final pressure 1500 psi. Final injection rate 2½ bbl/min. Swabbed fluid to test tank and swabbed hole dry, no gas.
3/14		6490	Continued to swab hole dry, trace gas. 6 hours splicing and respooling sand line. Reset packer at 5050'. Before reseting packer salinities decreased from 214,000 to 1600 ppm NaCl. After setting packer salinities fell from 4100 to 825 ppm NaCl.

CONDITION AT BEGINNING OF PERIOD

HOLE SIZE	HOLE FROM	HOLE TO	CASING SIZE	DEPTH SET
17½"	0	909'	13 3/8"	909'
9"	909'	4862'	5½"	5350'
6 3/4	4862	6490'		

DRILL PIPE SIZES 2" tubing

Drillers for Geo. Noland Drilling Co.:

J. H. Cockrell
H. E. Clements
E. Weiker

C. H. Miller
SIGNED

B18

SHELL OIL COMPANY

WELL NO. E.B.B.#1

East Boundary Butte
(FIELD)

Apache, Arizona
(COUNTY)

DRILLING REPORT
FOR PERIOD ENDING
March 7, 1954

C, SE, SE, Sec. 6
(SECTION OR LEASE)

41 N., 29 E., G & S.L.B&M
(TOWNSHIP OR RANCHO)

DAY	DEPTHS FROM	DEPTHS TO	REMARKS
3/1	6340'	6391'	Drilled 51'. 3 hours replacing Clutch. Treated mud with Quebracho, caustic lime and starch. Mud; weight 71, viscosity 53, water loss 8, cake 2/32".
3/2	6391	6428	Drilled 37'. 1½ hours repairing pump. Treated mud with quebracho, caustic and lime. Mud; weight 71, viscosity 55, water loss 9.6, cake 2/32".
3/3	6428	6485	Drilled 57'. 1 hour repairing pump. Treated mud with quebracho, caustic, lime, gel and starch. Lost circulation at 6485'. Pulled 10 stands; mixed mud add 10 Sx gel, 6 Sx starch, 35 Sx fiber, 41 Sx beaverdam. 3½ hours attempting to regain circulation. Mud; weight 71, viscosity 50, water loss 10, cake 2/32".
3/4		6485	Conditioned and circulated mud 3 stands at a time to bottom, 6 hours recovering circulation. 10 hours circulating and conditioning mud for Schlumberger. 5½ hours rigging up and running Schlumberger. Mud; weight 69.6, viscosity 42, water loss 11, cake 2/32".
3/5		6485	23 hours running Schlumberger. Ran Electrical Survey, microlog, Gamma Ray-Neutron, Laterolog-Limestone logs. Ran velocity survey.
3/6	6485	6490	Drilled 5'. 3 hours conditioning mud and catching junk. 3 hours replacing drilling line. Layed down drill collars. 2 hours waiting on Halliburton Cementers.
3/7		6490	Hung open drill pipe at 5604' to set cement plug. Pumped 20 bbls. water ahead of cement. Mixed 100 Sx of Construction Cement (Western Portland), 117# Slurry, displaced with 75 bbls. mud and water. Located plug at 5418'. Layed down drill pipe. Ran 5½", 17#, J-55 casing. Landed casing at 5350'. Equipped casing with 6 centralizers located at 5350', 5253', 5161', 4983', 4888.5' and 4797.5'. Casing also equipped with 12 scratchers located: 3 on shoe joint, 1 at 5195', 1 at 5170', 2 at 5000', 1 at 4964' and 4 above 4884', 8' a part. Baker Differential Shoe and Baffle Collar.

Drillers for Geo. Noland Drilling Company:

J. H. Cockrell
H. E. Clements
E. Weiker

CONDITION AT BEGINNING OF PERIOD

HOLE SIZE	HOLE FROM	HOLE TO	CASING SIZE	DEPTH SET
17½"	0	909'	13 3/8"	909'
9"	909'	4862'		
8 3/4"	4862	6490		

DRILL PIPE SIZES 4½"

C. J. Miller
SIGNED

B 18

East Boundary Butte
(FIELD)
Apache, Arizona
(COUNTY)

DRILLING REPORT
FOR PERIOD ENDING
2-28-54

C SE SW, Sec. 6
(SECTION OR LEASE)
41 N. 29 E.
(TOWNSHIP OR RANGE)

DAY	DEPTHS FROM	DEPTHS TO	REMARKS
	(Cont'd.)		
2-27	6247	6293	Drilled 46'. 1 1/2 hours working on pump and mud line, 1 1/2 hours cutting off drilling line. Treated mud with caustic, quebracho, lime.
2-28	6293	6340	Drilled 47'. 2 1/2 hours repairing chain, 6 hours repairing clutch yoke. Treated mud with caustic, quebracho, lime.
			Mud: 2/22/54 - 2/28/54: Wt: 71-75#/cu. ft., viscosity 45-53 seconds water loss 7-9 c.c., filter cake 1/32.

CONDITION AT BEGINNING OF PERIOD

HOLE SIZE	HOLE FROM	HOLE TO	CASING SIZE	DEPTH SET
17 1/2"	0	909	13 3/8"	909
9"	909	4862		
8 3/4"	4862	6080		
DRILL PIPE SIZES 4 1/2				

Drillers for George Noland Drilling Co.

J. H. Cockrell
H. E. Clements
Earl Weiker

Charles F. Thomas
SIGNED

B18

East Boundary Butte
(FIELD)
Apache, Arizona
(COUNTY)

DRILLING REPORT
FOR PERIOD ENDING
2-28-54

T 6S, R 27E, Sect. 4
(TOWNSHIP OR RANGE)
SLN, 29E
(TERRITORY OR WATERS)

DAY	DEPTHS FROM	DEPTHS TO	REMARKS
2-22	6080	6136	Drilled 56'. Worked on pump 1/2 hour. Treated mud with quebracho, caustic, lime, gel. Hole deviation test at 6121' (Sure Shot) 1 1/2°.
2-23	6136	6160	Drilled 24'. Treated mud with quebracho, caustic, lime, gel. Lost circulation at 6148'. Came out of hole 10 stands. Conditioned mud with 47 sax gel, 16 sax hulls. Went back in hole 3 stands at a time and circulated. 7 hours returning circulation. Mud before losing circulation 73.3 #/cu ft, mud after losing circulation 72 #/cu ft
2-24	6160	6188	Drilled 28'. Treated mud with Quebracho, caustic, lime.
2-25	6188	6237	Drilled 49'. Treated mud with quebracho, caustic, lime.
2-26	6237	6237	Drilled 100'. Treated mud with quebracho, caustic, lime. DST #11, 6136-6246, Johnston Testers. Ran two 7 1/2" packers @ 6129 and 6136, 3 outside pressure recorders, 3/4" subsurface bean, 1" surface bean, perforations 6136-6150 and 6205-6246, no water cushion. Tool open 3 hours, shut in 1 hour. 30 minutes. Weak immediate blow; medium in 2 minutes remaining steady to shut in. No gas to surface, no fluid loss in annulus. Recovered 2057' (26 bbl.) including 600' gassy watery mud, 1367' water, 90' gassy muddy water.
2-26			

Ft. above tester	Description	Gas Units Total/Methane	Salinity (t) NaCl	Wt. #/gal.
1997	Gassy watery cut mud	0/0	32,000	8.2
1727	Gassy watery cut mud	0/0	68,000	8.9
1457	Water	0/0	81,000	8.8
1187	Water	0/0	87,500	8.8
917	Water	0/0	87,500	8.8
697	Water	0/0	86,000	8.8
396	Water	0/0	87,500	8.8
0	Gassy muddy water	0/0	82,500	7.8

IFP 175, FFP 975, SIP 2075 (Stab. 10 minutes), HP 3200.
Mud before test 1235 ppm, 9.5 #/gal.

CONDITION AT BEGINNING OF PERIOD

HOLE SIZE	HOLE FROM	HOLE TO	CASING SIZE	DEPTH SET
17 1/2"	0	909	13 3/8"	909'
9"	909	4862		
8 3/4"	4862	6080		

DRILL PIPE SIZES 4 1/2

B18

Charles F. Thomas
SIGNED

East Boundary Butte
(FIELD)
Apache, Arizona
(COUNTY)

DRILLING REPORT
FOR PERIOD ENDING
2-21-54

C.S.L.S., Sec. 6
(SECTION OR LEASE)
13N, 29E.
(TOWNSHIP OR RANGE)

DAY	DEPTHS FROM	DEPTHS TO	REMARKS
2-17	5826	5923	Drilled 97'. Treated mud with quebracho, caustic, lime & gel. Hole deviation test (Sure shot) at 5890, 3/4°.
2-18	5923	5981	Drilled 58'. Treated mud with quebracho, caustic, lime, gel.
2-19	5981	6029	Drilled 48'. Treated mud with quebracho, caustic, lime, gel. Worked on pump 1/2 hour.
2-20	6029	6058	Drilled 29'. Treated mud with quebracho, caustic, lime, gel. Lost circulation @ 6032'. Pulled out 12 stands pipe. Mixed mud in pit added 70 sax gel, 50 sax fiber, 60 sax hull. Ran 3 stands at a time into hole and circulated until total depth. 9 1/2 hours returning circulation. Approximately 100 bbls. mud lost.
2-21	6058	6080	Drilled 22'. Treated mud with quebracho, caustic, lime. DST #10, 6014-6080, Johnston Tester, Ran two 7 1/2" straight hole packers at 6007' and 6014', three outside pressure recorders, 3/4" subsurface bean, 1" surface bean, perforations 6014-6037 and 6063-6080, no water cushion, tool open 3 hours, shut in 1 1/2 hours, very weak blow immediately increasing to medium in 2 minutes decreasing to weak at 2 1/2 hours. Recovered 3670' (48.0 bbls.) gas water cut mud and gassy, muddy water (trace oil 1%).

Ft. above tester	Description	Gas Units Total/Methane	Salinity (t) ppm	Weight #/gal.
3640	Slightly gas water cut mud	44/20	18,000	9.1
3190	Gas water cut mud	24/14	35,000	8.6
2560	Gassy muddy water	40/20	36,000	7.8
2200	Gassy muddy water	40/20	35,000	8.7
1840	Gassy muddy water	36/12	46,000	8.8
1210	Gassy muddy water	24/4	36,000	8.7
760	Gassy muddy water	10/4	55,000	8.9
0	Gas cut mud	8/4	53,000	7.8

Mud before test 2310 ppm, 9.7 lbs/gal.
IFP 500, FFP 1700, SIP 2150, (stabilized 15 min.) HP 3125
BHT 122°F. Time gas to surface not known. Non-inflamable gas. Pressure too low to calculate gas flow.

CONDITION AT BEGINNING OF PERIOD				
HOLE SIZE	HOLE FROM	HOLE TO	CASING SIZE	DEPTH SET
DRILL PIPE SIZES				

Mud: 2/15/54 to 2/21/54; Wt. 73.3-71.8#/cu. ft., viscosity 45-48 seconds, water loss 4-6 c.c., filter cake 2/32.

Geo Noland Drilling Co.

Drillers: J. H. Cockrell
H. E. Clement
Earl Weiker

G. J. Miller
SIGNED

99P B18

WELL NO. 1

East Boundary Butte
(FIELD)
Apache, Arizona
(COUNTY)

DRILLING REPORT
FOR PERIOD ENDING
2-21-54 page #1

C,SE,SE, Sec. 6
(SECTION OR TRACT)
41N, 29E
(TOWNSHIP OR RANGE)

DAY	DEPTHS FROM	DEPTHS TO	REMARKS
2-15	5684	5798	Drilled 114'. Treated mud with quebracho, caustic, lime, starch and gel.
2-16	5798	5826	Drilled 28'. Treated mud with quebracho, caustic, lime, starch and gel.

DST #9, 5738-5820, Johnston Tester; Ran two 7 1/2" straight hole packers @ 5731-5738, 3 outside pressure recorders; 3/4" subsurface bean, 1" surface bean, perforations 5738-5764 and 5784-5820, no water cushion, tool open 3 hours, shut in 1 1/2 hours, medium blow immediately becoming medium strong in 3 minutes, decreasing to medium blow in latter part of test. Recovered 4185' (60.7 bbl.) gas cut mud and water.

Ft. Above Tester	Description	Gas Units Total/ Methane	Salinity (t) ppm	Wt. #/gal.
4180	Gas Cut Mud (Trace oil)	40/0	9,900	8.6
4000	Gas Water Cut Mud (Tr. oil)	20/0	25,600	8.6
3550	Water	0/0	57,000	8.8
3100	Water	0/0	68,000	8.8
2650	Water	0/0	75,000	8.8
1750	Water	0/0	75,000	8.8
850	Water	0/0	75,000	8.8
0	Water	0/0	75,000	8.8

IFP 1030, FFP 1850, SIP 1935 (stabilized 1 hour 24 minutes) HP 3020
Mud before test 3052 ppm, 10 LBS/Gal.

Maximum gas pressure 19 PSI for a 3/8" orifice. Calculated flow 50 MCF/d
Gas to surface 21 minutes.

CONDITION AT BEGINNING OF PERIOD

HOLE SIZE	HOLE FROM	HOLE TO	CASING SIZE	DEPTH SET
17 1/2"	0	909	13 3/8"	909
9"	909	4862		
8 3/4"	4862	5684		
DRILL PIPE SIZES	4 1/2"			

HP B/8

C. J. Miller
SIGNED

FORM MASTER SET 2-50 PRINTED IN U. S. A.

SHELL OIL COMPANY

WELL NO. I.B.P. #1

East Boundary Butte
(FIELD)
Apache, Arizona
(COUNTY)

DRILLING REPORT
FOR PERIOD ENDING
2-14-54

C, SE, SW, Sec. 6
(SECTION OR LEASE)
41N, 29E
(TOWNSHIP OR RANCHO)

DAY	DEPTHS FROM	DEPTHS TO	REMARKS
2-9	5355	5358	Drilled 3'. Treated mud with starch, quebracho, gel, lime, caustic. DST #8, 5304-5355, Johnston Testers. Ran two 7 1/2" packers @ 5297 and 5304, 3 outside pressure recorders, 3/4" subsurface bean, 1" surface bean, perforations 5304-5355, no water cushion. Tool open 2 hours, 0 minutes, shut in 1 hour, 30 minutes. Weak immediate blow; packers unseated after 7 minutes and 30 minutes and reset to flush tool. Loss in annulus 6'. Weak blow continued, decreased to very weak blow after 1 hour. Recovered 185 ft. (0.9 bbl.) drilling fluid.
2-10	5358	5389	Cored 31'. Treated mud with caustic, quebracho, lime, starch, gel.
2-11	5389	5443	Cored 7', Core #6, 38', recovered 37.5'. Drilled 47'. Worked on pump 1/2 hour. Treated mud with caustic, quebracho, lime, starch, gel.
2-12	5443	5525	Drilled 82'. Treated mud with caustic, quebracho, lime, starch, gel.
2-13	5525	5598	Drilled 73'. Cut off 200' drilling line. Treated mud with caustic, quebracho, lime, starch, gel.
2-14	5598	5684	Drilled 86'. Put new belts on back motor and worked on pump 3 hours. Treated mud with caustic, quebracho, lime, starch, gel.

Mud: 2-8-54 - 2-14-54: Wt. 72-75#/cu. ft., viscosity 46-55 seconds, water loss 5-11 c.c., Filter cake 2/32

Ft. above tester	Description	Gas Units Total/Methane	Salinity (t) ppm	Wt. #/gal.
170	Drilling mud	80/56	2,475	9.5
85	Drilling mud	48/24	4,455	9.1
0	Slightly gassy cut mud	120/74	17,160	9.2

IFPO, FFP 150, SIP 1550 (still rising), HP 2700.
Mud before test 4100 ppm, 9.7 #/gal.

CONDITION AT BEGINNING OF PERIOD

HOLE SIZE	HOLE FROM	HOLE TO	CASING SIZE	DEPTH SET
17 1/2	0	909	13 3/8"	909
9"	909	4862		
8 3/4	4862	---		
DRILL PIPE SIZES 4 1/2"				

Contractor & Driller

Drillers for George Noland Drilling Company:
J. H. Cockrell
H. E. Clements
Earl Weiker

Charles F. Thomas

17 P 0218

32 x

SHELL OIL COMPANY

WELL NO. Federal #1

East Boundary Butte Area
(FIELD)

Apache, Arizona
(COUNTY)

DRILLING REPORT
FOR PERIOD ENDING
2-14-54

C.SE.SE, Sec. 6
(SECTION OR LEASE)

41N. 29E
(TOWNSHIP OR RANCHO)

DAY	DEPTHS FROM	DEPTHS TO	REMARKS
2-8	5304	5355	Drilled 51'. Ran DST #7. Treated mud with caustic, quebracho, lime, gel, starch. DST #7, 5200-5304, Johnston Testers. Ran 2 7 1/2" packers @ 5193 and 5200, 2 outside pressure recorders, 5/8" subsurface bean, 1" surface bean, perforations 5200-5210 and 5265-5304, no water cushion. Tool open 3 hours, shut in 1 hour, 30 minutes. Weak immediate blow, medium in 1 minute, strong in 2 minutes, steady to shut in. Gas to surface in 47 minutes, 6 feet of loss in annulus. Flowed 53 MCF/day. Recovered 930' (9.3 bbls.) including 140' (0.01) Gassy mud, 340' (0.33) gassy oily water cut mud, 450' (0.54) gassy muddy water.

Ft. above tester	Description	Gas Units Total/Methane	Salinity (t) NaCl	Wt. #/gal	%Oil
900	Gassy mud	160/10	2,351	9.5	---
810	Gassy watery mud	180/20	72,600	7.8	---
720	Gassy oily watery mud	350/110	44,500	7.8	2.5
630	" " " "	250/70	54,500	7.8	12.0
540	" " " "	42/2	54,500	7.8	10.0
450	" " " "	70/10	89,000	7.8	5.0
360	" " " "	168/24	101,000	7.8	15.0
270	Gassy muddy water	250/20	92,400	8.6	Trace

IFP 225, FFP 475, SIP 1525 still rising, HP 2700.
Mud before test 1148 PPM, 9.9 #/gal.

CONDITION AT BEGINNING OF PERIOD

HOLE SIZE	HOLE FROM	HOLE TO	CASING SIZE	DEPTH SET
17 1/2	0	909	13 3/8"	909
9"	909	4862		
8 3/4"	4862	5304		

DRILL PIPE SIZES 4 1/2"

B18
99P

Charles F. Thomas
SIGNED

East Boundary Butte Area
(FIELD)
Apache, Arizona
(COUNTY)

DRILLING REPORT
FOR PERIOD ENDING
2-7-54

C.SL. SE, Sec. 6
(SECTION OR LEASE)
41N, 29E.
(TOWNSHIP OR RANCHO)

DAY	DEPTHS FROM	DEPTHS TO	REMARKS
2-5	5161	5204	Drilled 43'. Jetted pit. Went in hole for DST #6. Treated mud with gal, starch, lime, caustic, quebracho.
2-6	5204	5260	Drilled 56'. Finished DST #6, @ 5260' ran Schlumberger E. log, micro-log, gamma ray, laterolog. Treated mud with gel, caustic, lime, starch, quebracho. DST #6, 5100-5204, Johnston testers. Ran 2 7 1/2" packers @ 5092 & 5100, 3 outside pressure recorders, 3/4" subsurface bean, 1" surface bean, perforations 5100-5114 & 5149-5204, no water cushion. Tool open 3 hours, 15 minutes, shut in 1 hour. 30 minutes. Weak immediate blow, becoming light in 1 minute, medium in 2 minutes, medium strong in 4 minutes, steady to shut in. Gas to surface 2 hours. 19 min. 4' (0.5 bbl.) fluid loss in annulus. Recovered 240' (1.2 bbl.), net rise 140'. Gas cut mud.

Ft. above tester	Description	Salinity (t) NaCl	Fluorescence	Wt. #/cuft.	Gas Total/Methane Bycalog Units
180	Gassy cut mud	1980	Spotty yellow	9.6	80/60
90	Gassy cut mud, H_2S	2475	Bright yellow	9.4	430/30
0	Gassy cut mud, H_2S Tr. oil-dark brown	1650	Bright yellow	8.3	200/50

IFP 150, FFP 225, SIP 1250 (st. in 15 minutes), HP 2600 (I) / 2625 (F)

Mud before test 1237 ppm, 9.7 #/gal.

DAY	DEPTHS FROM	DEPTHS TO	REMARKS
2-7	5260	5304	Drilled 44'. Completed running Schlumberger. Circulated and came out of hole for DST #7. Treated mud with caustic, gel, starch, lime, quebracho.

Mud: 2/1/54 - 2/7/54: Wt. 69-73#/cu. ft., viscosity 46-49 seconds, water loss 4-7.6 cc., Filter cake 2/32.

CONDITION AT BEGINNING OF PERIOD				
HOLE			CASING SIZE	DEPTH SET
SIZE	FROM	TO		
DRILL PIPE SIZES				

Drillers for George Noland Drilling Company:

J. H. Cockrell
H. E. Clements
Earl Weiker

Charles F. Thomas
SIGNED

JJP B18

FORM 44 MASTER SST 6-50 PRINTED IN U. S. A.

SHELL OIL COMPANY

WELL NO. E.B.B. #1

East Boundary Butte Area
(FIELD)
Apache, Arizona
(COUNTY)

DRILLING REPORT
FOR PERIOD ENDING
2-7-54

C, SE, SE, Sec. 6,
(SECTION OR LEASE)
41N, 29E,
(TOWNSHIP OR RANCHO)

DAY	DEPTHS FROM	DEPTHS TO	REMARKS
2-1	5004	5048	Cored 44'. Core barrel jammed @ 5007. Reran barrel. Worked on cathead and hydramatic 2 hours. Treated mud with gel, caustic, quebracho, lime, starch.
2-2-	5048	5057	Cored 9'. Ran in hole after coring to ream and circulate before test. Pulled out of hole and ran in tester for DST #4. Treated mud with lime, starch, caustic, quebracho.
2-3	5052	5108	Drilled 56'. Corrected pipe tally back 5'. Correction should be made up in Cores #4 & 5. DST #4, 4984.8-5057, Johnston testers. Ran single packer @ 4984.8 (7"), 3 outside pressure recorders, 3/4" subsurface bean, 1" surface bean, perforations 4984.8-4998 & 5023.7-5057, no water cushion. Tool open 1 hour, 15 minutes, shut in 0 hours. Very weak initial blow, dead in 37 minutes. Recovered 5 feet of drilling mud, Salinity 1190 ppm., 9.7 #/gal. HP 2450, IFP 0/0, FFP 0/0. Mud before test 9.7 #/gal., 1155 ppm. Went in hole for DST #5. Treated mud with gel, caustic, lime, quebracho, starch.
2-4	5108	5161	Drilled 53'. Treated mud with lime, starch, caustic, quebracho. DST #5, 4992.84-5108, Johnston testers. Ran two 7 1/2" packers @ 4992.8 & 4986, 3 outside pressure recorders, 3/4" subsurface bean, 1" surface bean, perforations 4993-5011? 5061.56-5108, no water cushion. Tool open 3 hours, shut in 1 hour, 30 minutes, very weak initial blow increasing to medium in 1 hour steady to shut in. Recovered 10 ft. drilling mud, wt. 9.7 #/gal., salinity 990 ppm. HP 2425, IFP 125, FFP 125, SIP 225. Mud before test 9.7 #/gal., salinity 940 ppm.

CONDITION AT BEGINNING OF PERIOD				
HOLE SIZE	HOLE FROM	HOLE TO	CASING SIZE	DEPTH SET
17 1/2"	0	909	13 3/8"	909
9"	909	4862		
8 3/4"	4862	5004		
DRILL PIPE SIZES 4 1/2"				

app B18

Charles F. Thomas

TEXAS MASTER SEC. 2-33 PRINTED IN U. S. A.

SHELL OIL COMPANY

WELL NO. E.B.B. #1

East Boundary Butte (FIELD)

DRILLING REPORT
FOR PERIOD ENDING
January 31, 1954

C. SE. SE. Sec. 6 (SECTION OR LEASE)

~~Apache, Arizona~~ (COUNTY)

41 N. 29 E. (TOWNSHIP OR RANCHO)

DAY	DEPTHS FROM	DEPTHS TO	REMARKS
1-29	Continued e		Recovered 530' (3.5 bbl.) slightly gassy, oily mud.

Feet above Tester	Description	Salinity (t)	Hycalog Units Total/Methane	Wt. #/Cu. ft.
530	Slightly gassy, oily mud	990	20/4	73+
470	Slightly gassy, oily mud	1072	32/6	72
410	Slightly gassy, oily mud	1320	32/10	72
350	Slightly gassy, oily mud	1320	34/12	71.5
290	Slightly gassy, oily mud	1320	60/28	71.5
230	Slightly gassy, oily mud	1732	78/42	72
170	Slightly gassy, oily mud	2229	103/64	72
110	Slightly gassy, oily mud	2640	98/52	71.5
50	Slightly gassy, oily mud	3455	130/60	71
0	Slightly gassy, oily mud, very viscous	5115	144/108	71

IFP 150, FFP 400, SIP 1625 (stab. 20 min.), HP 2550. Mud before test 76.5 #/ft.³, 825 ppm.

DAY	DEPTHS FROM	DEPTHS TO	REMARKS
1-30	4983	----	Pulled out junk basket. 15 hrs. cleaning pits, mixing and conditioning new mud. Went in with core barrel for Core #4. Barrel jammed. Started pulling barrel. Mixed caustic, gel, starch, quebracho.
1-31	4983	5004	Core 21'. Treated mud with gel, caustic, lime, starch, quebracho.

Drillers for George Noland Drilling Company, Contractor:

Earl Weiker
H. H. Cockrell
H. C. Clements

CONDITION AT BEGINNING OF PERIOD				
HOLE SIZE	HOLE FROM	HOLE TO	CASING SIZE	DEPTH SET
17½"	0	909	13 3/8"	909'
9"	909	5004		
DRILL PIPE SIZES 4½"				

Charles F. Thomas

MP B18

32 × 1

U.S.A. MASTER SEP. 2-49 PRINTED IN U.S.A.

SHELL OIL COMPANY

WELL NO. E. B. B. #1

DRILLING REPORT
FOR PERIOD ENDING

East Boundary Butte (FIELD)

Apache, Arizona (COUNTY)

January 31, 1954

C. SE. SE. Sec. 6 (SECTION OR LEASE)

41 N. 29 E. (TOWNSHIP OR RANCHO)

DAY	DEPTHS FROM	DEPTHS TO	REMARKS
1-25	4857	4873	Drilled 5' Cored 11'. 7½ hours. Waiting on Kelly Hose and installing same. Drilled from 4857-4862 with junk basket. Pulled out and went in hole with diamond core bit for core #1. Treated mud with gel, lime, caustic, starch.
1-26	4873	4937	Cored 64'. Core #1, 4862-4914, recovered 52' (100%) Went in hole for Core #2. Treated mud with caustic, starch, lime.
1-27	4937	4964	Cored 27'. Core #2, 4914-4944, 30', rec. 28'. Went in hole for Core #3. Treated mud with lime, caustic, starch.
1-28	4964	4978	Cored 9', drilled 5'. Core #3, 4944-4973, rec. 29'. Treated mud with gel, caustic, lime, starch. D.S.T. #3, 4910-4973. Light steady blow, gas to surface in 13 min., packer failed after 15 minutes. Went in hole and reamed to bottom. Drilled 5' and conditioned mud for D.S.T. #3A.
1-29	4978	4983	Drilled 5' with junk casket. Treated mud with starch, lime, gel. D.S.T. #3A, 4886-4978, Johnston Testers. Ran tester with two 7½" packers @ 4880 and 4886, 3 outside pressure recorders, 1" subsurface bean, 3/4" surface bean, perforations 4886-4894.4 and 4949.6-4978, no water cushion. Tool open 2 hr., 45 min., shut in 1 hr., 30 min. Very weak initial blow, intermittant weak blow in 1 min. becoming moderate in 3 min. Found leak in flow line, shut in @ surface to repair. Strong blow when opened (after 15 min.), decreasing to moderate, then gradual increase to strong. 4' fluid loss in annulus. Inflammable gas to surface 15 min. Calculated rate 100 MCF/day.

CONDITION AT BEGINNING OF PERIOD				
HOLE SIZE	HOLE FROM	HOLE TO	CASING SIZE	DEPTH SET
17½"	0	909	13 3/8"	909'
DRILL PIPE SIZES 4½"				

Charles F. Thomas
SIGNED

CP B/8

[redacted]

East Boundary Butte
(FIELD)
Apache County, Arizona
(COUNTY)

DRILLING REPORT
FOR PERIOD ENDING
January 24, 1954

WELL NO. #1

C, SE, SE, 6
(SECTION OR LEASE)

(TOWNSHIP OR RANCHO)

DAY	DEPTHS FROM	DEPTHS TO	REMARKS
1-23	4740	4772	

Feet Above Tester	Description	Salinity (t) NaCl	Units Gas	Wt. #/gal.	Fluor.
1160	Slightly gassy mud, tr. oil.	8990	6	9.5	Spotty pale yellow
860	Slightly gassy watery mud	45400	38	9.1	"
400	Slightly gassy muddy water	52800	48	8.8	"
0	"	58800	38	8.6	"

HP 2625/2650, IFP 250/275, FFP 600/600, SIP 1575/1550

Mud before test 76 #/cu.ft., 1030 ppm.

1-24 4772 4857

Drilled 85'. Five hours working on shaker motor, service rig, check Blow-out preventer. Went in hole at 4857 with junk basket to clean out for Core #1. Rotary hose burst; waiting for new hose 1/2 hour. Treated mud with gel, starch, caustic, lime.

Mud: 1/18/54 to 1/24/54: Wt. 73-77#/cu. ft., viscosity 39-42 seconds, water loss 6.6-13 c.c., filter cake 2/32-4/32.

CONDITION AT BEGINNING OF PERIOD				
HOLE			CASING SIZE	DEPTH SET
SIZE	FROM	TO		
DRILL PIPE SIZES				

Drillers for George Noland Drlg. Co.

J. H. Cockrell
H. E. Clements
Earl Weiker

Charles F. Thomas
SIGNED

B/8

A.A. MATLER JET 8-59 PRINTED IN U.S.A.

SHELL OIL COMPANY

WELL NO. E.B.B. #2

East Boundary Butte
(FIELD)

Apache, Arizona
(COUNTY)

DRILLING REPORT
FOR PERIOD ENDING
January 24, 1954

C, SE, SE, 6
(SECTION OR LEASE)

4L N. 29E
(TOWNSHIP OR RANCHO)

DAY	DEPTHS FROM	DEPTHS TO	REMARKS
1-18	4260	4372	Drilled 112'. Changed pump lines and serviced rig 3 1/2 hours. Treated mud with gel, caustic, lime.
1-19	4372	4475	Drilled 103'. Treated mud with gel, caustic, lime.
1-20	4475	4563	Drilled 88'. Made up and stood core barrel in derrick. Jetted pits. Treated mud with caustic, lime and Isomull.
1-21	4563	4670	Drilled 107'. Circulated for DST #1. Treated mud with caustic, lime, gel, starch.
1-22	4670	4740	Drilled 70'. Strapped out of hole for DST #1, 4619-4670, Johnston Testers. Ran tester with single 8" packer at 4619, three outside pressure recorders, 3/4" subsurface bean, 1/4" surface bean, perforations 4619-4670, no water cushion. Tool open 2 hours, shut in 30 min. Light blow in one minute increasing to medium in 2 minutes, decreasing to light medium in 40 minutes, remained steady to shut-in. No gas to surface. Four feet fluid loss in annulus. Recovered 100' (0.5 bbl.) fluid.

Feet Above Tester	Description	Salinity (t) NaCl	Wt. #/gal.	Units Gas	Fluor.
100	Slightly gassy oily mud (1% brown oil)	1980 ppm.	10.1	110	pale yellow
0	"	2480 ppm.	10.0	160	"

FIP 0, FFP 0, SIP 365 (still rising), HP 2450/2500

Mud before test 77.5 #/cu.ft., 1237 ppm.

DAY	DEPTHS FROM	DEPTHS TO	REMARKS
1-23	4740	4772	Drilled 32'. Circulated for DST #2, 2 hours. Cutting off drilling line 2 hours. Treated mud with starch. DST #2, 4670-4772, Johnston Testers. Ran tester with single 8" packer at 4670, three outside pressure recorders, 3/4" subsurface bean, 3/8" surface bean, perforations 4670-4679, 4747-4772, no water cushion. Tool open 2 hours, 30 minutes, shut in 1 hour 30 minutes. Weak blow increasing to moderate in 10 minutes, decreasing to medium latter part of test. Two feet fluid loss in annulus. Recovered 1160' (12.85 bbls.) fluid including 300' (3.32 bbls.) slightly gassy mud with trace oil, 460' (5.09 bbls.) slightly gassy, watery mud, 400' (4.43 bbls.) slightly gassy muddy water.

CONDITION AT BEGINNING OF PERIOD

HOLE SIZE	HOLE FROM	HOLE TO	CASING SIZE	DEPTH SET
17 1/2	0	909	13 3/8"	909'
9	909	4260		
DRILL PIPE SIZES		4 1/2"		

Charles F. Thomas

B18

32 × 8

NO. 4A MASTER SET 5-50 PRINTED IN U.S.A.

SHELL OIL COMPANY

WELL NO. 1

EAST BOUNDARY BUTTE
(FIELD)

Apache, Arizona
(COUNTY)

DRILLING REPORT
FOR PERIOD ENDING
January 17, 1954

C, SE, SE, 6
(SECTION OR LEASE)

41 N. 29 E
(TOWNSHIP OR RANCHO)

DAY	DEPTHS FROM	DEPTHS TO	REMARKS
1-11	3572	3666	Drilled 96'. Completed conversion to lime base mud. Used lime, gel, quebracho, Isomull, aeropan. Mud after conversion: weight 71/72; viscosity 40/57; water loss 59/129.2; filter cake 4/32 - 8/32; salinity 1980/1155; pH 10/11+.
1-12	3666	3839	Drilled 173'. Treated mud with caustic, quebracho. Mud: weight 74 #/cu.ft.; viscosity 49 seconds; water loss 61 cc.; filter cake 5/32"; salinity 950 ppm.; pH 13.
1-13	3839	3902	Drilled 63'. Measured out of hole. Driller's depth 3844'. Pipe tally 3849'. Ran Schlumberger electric log and microlog. Schlumberger depth 3847'. Mud: weight 73 #/cu.ft.; viscosity 45 seconds; water loss 4.8 cc.; filter cake 2/32"; salinity 1240 ppm.; pH 13.
1-14	3902	3990	Drilled 88'. Repaired water line on brake, cut off drilling line, put on air compressor belt (6 1/2 hours). Treated mud with gel. Mud: weight 73 #/cu.ft.; viscosity 45 seconds; water loss 4.6 cc.; filter cake 2/32"; salinity 1240 ppm.; pH 13.
1-15	3990	4079	Drilled 89'. Mixed mud 1 hour, conditioned 2 hours. Treated mud with gel, starch, quebracho. Mud: weight 73 #/cu.ft.; viscosity 42 seconds; water loss 8 cc.; filter cake 2/32"; salinity 1238; pH 13.
1-16	4079	4165	Drilled 86'. Treated mud with gel, starch, lime, quebracho. Mud 72.5 #/cu.ft.; viscosity 38 seconds; water loss 7.6 cc.; filter cake 3/32"; salinity 980 ppm.; pH 11+.
1-17	4165	4260	Drilled 95'. Repaired shale shaker motor. Treated mud with gel, caustic, lime. Mud: weight 75 #/cu.ft.; viscosity 41 seconds; water loss 6.4 cc.; filter cake 4/32"; salinity 865 ppm.; pH 13.

CONDITION AT BEGINNING OF PERIOD

HOLE SIZE	HOLE FROM	HOLE TO	CASING SIZE	DEPTH SET
17 1/2	0	909	13 3/8	909'
9	909	3572		

DRILL PIPE SIZES 4 1/2"

George Noland Drilling Co., Contr.
Drillers:
J. H. Cockrell
H. E. Clements
Earl Weiker

Charles F. Thomas
SIGNED

B18

TL 44 MASTER SET 2-70 PRINTED IN U.S.A.

SHELL OIL COMPANY

WELL NO. 1

East Boundary Butte (FIELD)

Apache (COUNTY)

DRILLING REPORT

FOR PERIOD ENDING January 10, 1954

C, SE, SE, 6 (SECTION OR LEASE)

4N 29E (TOWNSHIP OR RANCHO)

DAY	DEPTHS FROM	DEPTHS TO	REMARKS
1-4-54	2436	2613	Drilled 177'. Jetted pits and mixed mud 2½ hours. Treated mud with caustic, quebracho, gel; mud: wt. 73.5 #/cu.ft.; viscosity 34 seconds; water loss 13 c.c.; filter cake 4/32"; salinity 1238 ppm.;pH 10.
1-5-54	2613	2822	Drilled 209'. Installed starting motor #2 draw works engine, repaired air lines. Treated mud with caustic, quebracho, soda ash.
1-6-54	2822	3012	Drilled 190'. Treated mud with quebracho, caustic, soda ash. Mud wt. 70#/cu.ft; viscosity 42 seconds; water loss 40 c.c.; filter cake 3/32"; salinity 759 ppm.; pH 6.0.
1-7-54	3012	3222	Drilled 210'. Jetted pits and repaired air lines 3/4 hour. Repaired frozen water lines. Treated mud with caustic, gel, quebracho, soda ash, anti-gyp. Mud: weight 72#/cu.ft.; viscosity 37 seconds; water loss 53 c.c.; cake 4/32"; salinity 745 ppm; pH 7+.
1-8-54	3222	3409	Drilled 187'. Treated mud with caustic, gel, quebracho, soda ash, antigyp. Mud: wt. 75.5 #/cu.ft.; viscosity 40 seconds; water loss 56 cc.; filter cake 4/32"; pH 7+; salinity 745 ppm.
1-9-54	3409	3572	Drilled 163'. Installed hydril 5 hours. Rig time. Checked O.K. Treated mud with quebracho, caustic, antigyp. Mud wt. 71#/cu.ft.; viscosity 40 sec.; water loss 59 cc.;cake 4/32"; salinity 1980 ppm.; pH 10.
1-10-54	3572		Converting to lime base mud. Pit full of cement and pickup pump intake clogged. Pit cleaned and intake repaired. Went in hole and began displacing old mud. New mud contained lime, salt water clay, quebracho, caustic, well gel, Isomul.

CONDITION AT BEGINNING OF PERIOD

HOLE SIZE	HOLE FROM	HOLE TO	CASING SIZE	DEPTH SET
17 1/2	0	909	13 3/8	909'
9	909	2436		

DRILL PIPE SIZES 4 1/2"

George Noland Drilling Co., Contr.
Drillers:
J. H. Cockrell
H. E. Clements
Earl Weiker

Charles F. Thomas
SUPT.

32 ×

STEELE OIL COMPANY

East Boundary Butte
(FIELD)
Apache, Arizona
(COUNTY)

DRILLING REPORT
FOR PERIOD ENDING
January 3, 1954

C SE SE Sec. 6
(SECTION OR LEASE)
T.41N., R.29E., SLM
(TOWNSHIP OR RANCHO)

DAY	DEPTHS FROM	DEPTHS TO	REMARKS
12-28		1040	Flanging-up and installing blowout preventers.
12-29		1040	Flanging-up and installing blowout preventers.
12-30	1040	1081	Flanging-up and installing blowout preventers. Going in hole with 11" bit. Cleaned out 10' cement, tested BOP with 1000 psi for 30 min. O.K. Blowout preventer froze shut, waited on Shaffer Tool Co. Cleaned out cement to 890'. Tested casing with 700 psi. O.K. Drilled 5' past casing shoe. Tested cement with 550 psi for 15 min. O.K. Ran in with 9" bit and drilled 41'. Working on pumps 9 hours.
12-31	1081	1550	Drilled 469'. Treated mud with gel, quebracho, and caustic soda. Repairing water line.
1-1	1550	2010	Drilled 460'. Treated mud with gel, quebracho and caustic soda. Shut down to repair shaker engine 7 hours.
1-2	2010	2260	Drilled 250'. Shut down to repair shaker engine 4 hours. Treated mud with gel, quebracho, and caustic soda.
1-3	2260	2436	Drilled 176'. Treated mud with quebracho and caustic. Mud wt. 67.5 to 75.0 #/cu.ft., Visc. 30-42 sec, W.L. 11-307 cc, Cake 4/32 - 8/32 in. Salinity 1238-1650 ppm. pH 10-11.

CONDITION AT BEGINNING OF PERIOD				
HOLE SIZE	HOLE FROM	HOLE TO	CASING SIZE	DEPTH SET
17 1/2"	0	909	13 3/8	909
9 "	909	1040		
DRILL PIPE SIZES 4 1/2"				

George Noland Drilling Co.
J. H. Cockrell
H. E. Clements
Earl Weiker

B 18

D. A. Houland
SIGNED

SHELL OIL COMPANY

East Boundary Butte (FIELD)
Apache, Arizona (COUNTY)

DRILLING REPORT
FOR PERIOD ENDING
December 27, 1953

C SE SE Sec. 6 (SECTION OR LEASE)
T. 41 N., R. 29 E. (TOWNSHIP OR PARISH)

DAY	DEPTHS FROM	DEPTHS TO	REMARKS
12-21	643	915	Drilled 272'. Treated mud with gel and water.
12-22	915	1040	Drilled 125'. Reamed 12¼" hole to 17½" from 0 to 207'. Treated mud with water and gel.
12-23		1040	Continued reaming to a depth of 721'. Treated mud with gel and water.
12-24		1040	Continued reaming to a depth of 861'.
12-25		1040	Continued reaming to a depth of 907'. Treated mud with gel. Ran 23 joints of 13 3/8", 48# A. O. Smith casing, landed at 907'. Casing equipped with Baker Float Shoe. Cemented with 800 sacks construction cement, the last 100 sacks treated with $CaCl_2$. Good returns.
12-26		1040	Finished cementing at 12:20 a.m. Good cement return. Flanging up.
12-27		1040	Flanging-up and installing blowout preventers.

CONDITION AT BEGINNING OF PERIOD				
HOLE SIZE	HOLE FROM	HOLE TO	CASING SIZE	DEPTH SET
12¼"	0	643		
DRILL PIPE SIZES 4½"				

Contractor: George Noland Drilling Co.

Drillers: H. E. Clements
J. H. Cockrell
Earl Weicker

B18

David A. Dollard

SHELL OIL COMPANY

WELL NO. 1

East Boundary Butte
(FIELD)
Apache, Arizona
(COUNTY)

DRILLING REPORT
FOR PERIOD ENDING
December 20, 1953

C SE SE Sec. 6
(SECTION OR LEASE)
T.41N., R.29E., SLM
(TOWNSHIP OR RANGE)

#18

DAY	DEPTHS FROM	DEPTHS TO	REMARKS
			LOCATION: 660' North and 660' West of the SE corner of Section 6, T.41N., R.29E., G & S.R.B.&M. K.B. elevation 5248. Ground elevation 5237
12-18	0	43	Drilled 43'. Spudded in at 8:15 pm.
12-19	43	512	Drilled 469'. (4 hours mixing mud).
12-20	512	643	Drilled 131'. Water well down. Waiting on trucks to haul water 12 hours.
			Mud Wt. 64.6#/cu.ft., Visc. 31 sec, no further mud report.

CONDITION AT BEGINNING OF PERIOD				
HOLE SIZE	HOLE FROM	HOLE TO	CASING SIZE	DEPTH SET
-	-	0	-	-
DRILL PIPE SIZES 4½"				

George Noland Drilling Co.
J. H. Cockrell
H. E. Clements
Earl Weiker

B 18

32 × 8

Form 9-331 b
(February 1937)

Budget Bureau No. 42-R359.1.
Approval expires 11-30-49.

(SUBMIT IN TRIPLICATE)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

Indian Agency: Window Rock, Arizona
Allottee: Tribal Lands
Lease No.: 14-20-603-223

SUNDRY NOTICES AND REPORTS ON WELLS

NOTICE OF INTENTION TO DRILL	X	SUBSEQUENT REPORT OF WATER SHUT-OFF	
NOTICE OF INTENTION TO CHANGE PLANS		SUBSEQUENT REPORT OF SHOOTING OR ACIDIZING	
NOTICE OF INTENTION TO TEST WATER SHUT-OFF		SUBSEQUENT REPORT OF ALTERING CASING	
NOTICE OF INTENTION TO REDRILL OR REPAIR WELL		SUBSEQUENT REPORT OF REDRILLING OR REPAIR	
NOTICE OF INTENTION TO SHOOT OR ACIDIZE		SUBSEQUENT REPORT OF ABANDONMENT	
NOTICE OF INTENTION TO PULL OR ALTER CASING		SUPPLEMENTARY WELL HISTORY	
NOTICE OF INTENTION TO ABANDON WELL			

(INDICATE ABOVE BY CHECK MARK NATURE OF REPORT, NOTICE, OR OTHER DATA)

November 2, 1953

Well No. 1 is located 660 ft. from {N/S} line and 660 ft. from {E/W} line of sec. 6

(¼ Sec. and Sec. No.) 41 N., 29 E., (Twp.) (Range) Gila and Salt River B. & M. (Meridian)

East Boundary Butte Area (Field) Apache County (County or Subdivision) Arizona (State or Territory)

The elevation of the derrick floor above sea level is 5247 ft. (approx.)

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NOV 6 1953
U. S. GEOLOGICAL SURVEY
FARMINGTON, N. M.

DETAILS OF WORK

(State names of and expected depths to objective sands; show sizes, weights, and lengths of proposed casings; indicate mudding jobs, cementing points, and all other important proposed work)

Exploratory Well

1. Drill to 600' ±.
2. Cement 13 3/8" casing at 600' ± with sufficient cement to reach surface.
3. Drill to total depth (6950' ±).
4. If commercial production is obtained, a supplementary completion notice will be filed; otherwise, plug and abandon in accordance with U.S.G.S. requirements.

I understand that this plan of work must receive approval in writing by the Geological Survey before operations may be commenced.

Company: Shell Oil Company

Address: 33 Richards Street
Salt Lake City 1, Utah

By: Original Signed By
A. L. BROWN

Title: Division Exploitation Engineer

U. S. GOVERNMENT PRINTING OFFICE 16—84371-4

D/8

STATE LAND DEPARTMENT
STATE OF ARIZONA

Form OG 51

Form Prescribed Under Oil and Gas Conservation Act of 1951

NOTICE OF INTENTION TO DRILL NEW WELL

This notice and surety bond must be filed and permit must be granted before drilling begins

Salt Lake City, Utah November 10, 19 53

State Land Commissioner

In compliance with Statewide Rule 3, notice is hereby given that it is our intention to commence the work of drilling well No. 1 Sec. 6, T. 41 N, R. 29 E, Gila and Salt River B. & M., East Boundary Butte Area, Apache County.

Legal description of lease # 14-20-603-223, Tribal Lands.
(Attach map or plat to scale)

Indian Agency, Window Rock, Arizona. (Plat attached).

Location of Well: 660 ft. from S Line and 660 ft. from E Line of Sec 6
(Give exact footage from section corners or other legal subdivisions or streets)

Proposed drilling depth 6950' ± feet. Acres in lease 2,342.00. Has surety bond been filed? No. Application being filed. Is location a regular or exception to spacing rule? regular.

Elevation of ground above sea level approx. 5237 feet.

All depth measurements taken from top of Derrick floor (Derrick, floor, Rotary Table or Kelly Bushing) which is 10' ± feet above the ground.

PROPOSED CASING PROGRAM

Size of Casing Inches A.P.I.	Weight	Grade and Type	Top	Bottom	Cementing Depths
13 3/8			Surface	600± ft.	600 ± ft.

If commercial production is obtained, a supplementary completion report will be filed; otherwise, well will be plugged and abandoned in accordance with State regulations and an abandonment and plugging record will be filed.

Intended Zone or Zones of completion:
Name Perforated Interval

Exploratory well. Deepest objective formation is undifferentiated Devonian

AFFIDAVIT:
I hereby certify under the penalty of perjury, that the information contained and statements herein made are to the best of my knowledge and belief, true, correct and complete.

Shell Oil Company, 33 Richards St. Salt Lake City, Utah
(Applicant)
By A. N. Brown
Division Exploitation Engineer

Application approved this 27 day of NOVEMBER 1953

Permit NO. B-18

James R. Bunger
DEP State Land Commissioner

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NOV 17 1953
STATE LAND
DEPT.

SURVEYED WELL LOCATION

Date: Nov. 5, 1953

Area or Field EAST BOUNDARY BUTTE

Lease TRACT 176 NAVAJO INDIAN LANDS

Well EAST BOUNDARY BUTTE No. 1

Location:

660 Feet NORTH and 660' Feet WEST from the

SOUTH EAST corner of SEC. 6, T41N, R29E,

GILA AND SALT RIVER MERIDIAN, ARIZONA

OR

_____ Feet _____ along the _____ line

of _____ from the _____

corner thereof; thence _____ Feet _____ at right angles

thereto.

Ground Elevation: 5237'

Signed: J. P. LEESE
(Surveyor)
ARIZONA REG. No. 1849

RECEIVED
NOV 17 1953
STATE LAND
DEPT.

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COMPANY Shell Oil Company

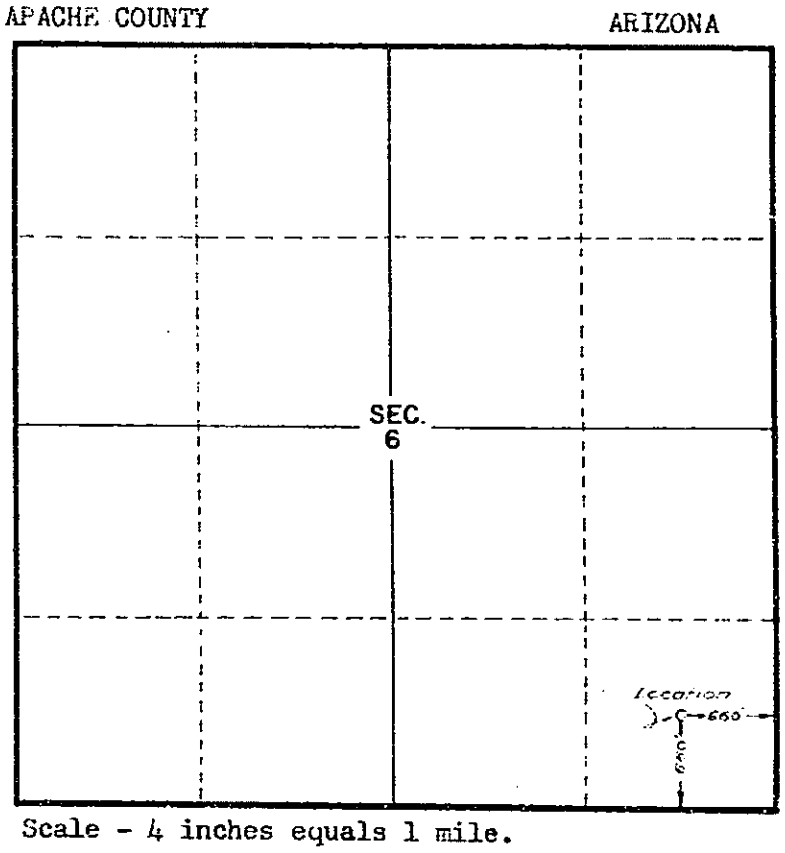
LEASE East Boundary Butte WELL NO. 1

SEC. 6 , T. 41 N. , R. 29 E., G. & S.R.M.

LOCATION 660' from the South line and 660' from the East line and being in the center of the SE¼ of the SE¼ of the above section.

ELEVATION 5237, ungraded ground.

APACHE COUNTY ARIZONA



Scale - 4 inches equals 1 mile.

This is to certify that the above plat was prepared from field notes of actual surveys made under my supervision and that the same are true and correct to the best of my knowledge and belief.

James P. Leese
Registered Land Surveyor
Arizona Reg. No. 1849

SURVEYED, October 26, 1953

B18

No. 7915611
Remun $60.00

BOND

KNOW ALL MEN BY THESE PRESENTS:

THAT, the undersigned SHELL OIL COMPANY, a corporation organized under the laws of the State of Delaware and duly authorized to do business in the State of Arizona, as Principal, and the undersigned FEDERAL INSURANCE COMPANY, a corporation organized under the laws of the State of New Jersey, as Surety, are held and firmly bound unto the State of Arizona for the use and benefit of the Oil and Gas Conservation Fund in the sum of Ten Thousand Dollars ($10,000.00) for the payment of which well and truly to be made, we bind ourselves, our successors and assigns, jointly and severally, by these presents.

THE CONDITION OF THE ABOVE OBLIGATION IS SUCH that whereas the said Principal is contemplating the drilling of wells in the State of Arizona for the production of oil and gas and the installation of equipment necessary and incidental thereto for the operation and maintenance of such wells;

NOW, THEREFORE, if in its oil and gas operations in the State of Arizona said Principal shall comply with rules, regulations and orders promulgated under subsections 1, 2 and 3 of Paragraph (a) of Section 17 (Sec. 11-1717 Arizona Code) of the Oil and Gas Conservation Act of 1951, then this obligation shall be void, otherwise to remain in full force and effect.

IN WITNESS WHEREOF, said Principal and Surety have caused their respective names to be subscribed hereto this 20th day of November, 1953.

SHELL OIL COMPANY

ACKNOWLEDGMENT OF ANNEXED INSTRUMENT

STATE OF CALIFORNIA
COUNTY OF Los Angeles } ss.:

On this 20th day of November in the year one thousand nine hundred and fifty-three before me, M. S. Banks, a Notary Public in and for the County of Los Angeles residing therein, duly commissioned and sworn, personally appeared F. Graeszel known to me to be the attorney-in-fact of FEDERAL INSURANCE COMPANY, the Corporation that executed the within instrument, and also known to me to be the person who executed the within instrument on behalf of the Corporation therein named and acknowledged to me that such Corporation executed the same.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal in the County of Los Angeles the day and year in this certificate first above written.

CANCELLED DATE 7-15-64

M S Banks
Notary Public in and for the County of
Los Angeles State of California

My Commission expires Feb. 2, 1955

BF-670 PRINTED IN U. S. A. (7-53-3M B16183)

B 18
B 18

No. 7915611
Premium $60.00

B O N D

KNOW ALL MEN BY THESE PRESENTS:

THAT, the undersigned SHELL OIL COMPANY, a corporation organized under the laws of the State of Delaware and duly authorized to do business in the State of Arizona, as Principal, and the undersigned FEDERAL INSURANCE COMPANY, a corporation organized under the laws of the State of New Jersey, as Surety, are held and firmly bound unto the State of Arizona for the use and benefit of the Oil and Gas Conservation Fund in the sum of Ten Thousand Dollars ($10,000.00) for the payment of which well and truly to be made, we bind ourselves, our successors and assigns, jointly and severally, by these presents.

THE CONDITION OF THE ABOVE OBLIGATION IS SUCH that whereas the said Principal is contemplating the drilling of wells in the State of Arizona for the production of oil and gas and the installation of equipment necessary and incidental thereto for the operation and maintenance of such wells;

NOW, THEREFORE, if in its oil and gas operations in the State of Arizona said Principal shall comply with rules, regulations and orders promulgated under subsections 1, 2 and 3 of Paragraph (a) of Section 17 (Sec. 11-1717 Arizona Code) of the Oil and Gas Conservation Act of 1951, then this obligation shall be void, otherwise to remain in full force and effect.

IN WITNESS WHEREOF, said Principal and Surety have caused their respective names to be subscribed hereto this 20th day of November, 1953.

SHELL OIL COMPANY

By M. W. Sheppard Jr
Manager, Land Department

FEDERAL INSURANCE COMPANY

By F. Graeszel
F. GRAESZEL
ATTORNEY IN FACT

Countersigned by
Lucson Realty & Trust Co.
By F. Graeszel
Resident Agent, State of Arizona

CANCELLED
DATE 7-15-64

B18

RECEIVED
NOV 21 1953
STATE LAND
DEPT.

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STATE OF CALIFORNIA }
COUNTY OF LOS ANGELES } ss.

On this 20th day of November, 1953, before me, Mildred M. Crawford, a Notary Public in and for said County and State, residing therein, duly commissioned and sworn, personally appeared M. W. Sheppard, Jr., known to me to be the Manager, Land Department, Los Angeles Office, of SHELL OIL COMPANY, the corporation described in and that executed the within instrument, and also known to me to be the person who executed it on behalf of the corporation therein named, and he acknowledged to me that such corporation executed the same.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal, at my office, in said County and State, the day and year last above written.

Mildred M. Crawford
Notary Public in and for said County and State

My Commission expires December 11, 1955

CANCELLED
DATE 7-15-64

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NOV 21 1953
STATE LAND DEPT.

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CERTIFICATE OF AUTHORITY

THIS IS TO CERTIFY that I, the undersigned G. J. SMITH, am an Assistant Secretary of Shell Oil Company, a Delaware corporation, and that the following is a true and correct copy of a resolution duly adopted by the Board of Directors of said Company at a meeting held on March 26, 1953, and that said resolution is now in full force and effect:

> RESOLVED, that the Manager of the Land Department in the Los Angeles Office of the Company, now or hereafter appointed, be and he is hereby authorized to execute, deliver, accept, amend, extend, and cancel in the name and on behalf of the Company in the usual course of business, the following described instruments and documents relating to properties, business or interest of this Company in the States of California, Oregon, Washington, Idaho, Montana, Wyoming, Nevada, Utah, Colorado, Arizona, New Mexico and North Dakota and the Territory of Alaska and in the area comprising the continental shelf adjoining said states and Territory.
>
> (1) contracts, options or other instruments for the acquisition of real or personal property, mineral leases, royalties and other mineral interests; leases for oil, gas or other minerals, where the Company is the lessee;
>
> (2) assignments, subleases, releases and surrenders of oil, gas and mineral leases and conveyances of property real or personal;
>
> (3) pooling agreements, pooling powers, and pooling declarations relating to unitization of leasehold, royalty or other interests in oil, gas or other minerals;
>
> (4) agreements creating, or assignments of, overriding royalties and production payments;
>
> (5) acreage contribution agreements covering not more than one hundred and sixty acres;
>
> (6) subordination agreements;
>
> (7) bonds and indemnities and releases thereof;
>
> (8) surface leases where the Company is lessor or lessee;
>
> (9) easements and licenses where the Company is grantor or grantee;
>
> (10) applications required by governmental authorities in connection with the conduct of the business of the Company;

CANCELLED
DATE 7-15-64

RECEIVED
NOV 21 1953
STATE LAND
DEPT.

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(11) statutory requests for notice of default and notice of sale under deeds of trust or mortgages.

It is further certified that M. W. SHEPPARD, JR. is the Manager of the Land Department in the Los Angeles Office of said Company.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed the corporate seal of said Company this 20th day of November, 1953.

CANCELLED
DATE 7-15-64

RECEIVED
NOV 21 1953
STATE LAND
DEPT.

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December 26, 1963

Shell Oil Company
Mr. Joe E. Dosier, Jr.
Division Production Superintendent
P. O. Box 1200
Farmington, New Mexico

Dear Joe:

Attached find the approved Application to Abandon and Plug the East Boundary Butte 6 Well No. 1.

Hoping you'll drill and complete some good wells in Arizona in the future, I am,

Sincerely,

John K. Petty
Acting Executive Secretary

JKP:mkc
Encl.

B18

SHELL OIL COMPANY
Post Office Box 1200
Farmington, New Mexico

October 10, 1963

Subject: Cumulative Production
East Boundary Butte and
North Toh-Atin

Oil & Gas Conservation Commission
State of Arizona
Room 202 - 1624 West Adams
Phoenix 7, Arizona

Attention Mr. John K. Petty

Gentlemen:

With reference to your letter of October 3, 1963, we submit subject data for the following wells:

	Cumulative Oil (Bbls.)	Cumulative Gas (MCF)
East Boundary Butte, Lease 7, Well No. 2	---	164,343
East Boundary Butte, Lease 8, Well No. 23-11	5,288	221,061
Franco Western, North Toh-Atin, Navajo Lease 2, Well No. 1	326	189,798
East Boundary Butte, Lease 5, Well No. 1 (Idle)	---	497

The above figures are totals through August, 1963, as the Monthly Individual Well Reports for September are not yet available.

Yours very truly,

Joe E. Dozier, Jr.
Division Production Superintendent

EDH:OR

O.K
18

XXXXXXXXXX
XXXXXXXXXXX

October 3, 1963

Mr.Joe E. Dozier, Jr.
Division Production Superintendent
Shell Oil Company
P. O. Box 1200
Farmington, New Mexico

Re: Monthly Individual Well Reports - Form PD-189 (Rev 8-59)
East Boundary Butte 2, Lease 7
East Boundary Butte 23-11, Lease 8
Franco Western, North Toh-Atin, Navajo Lease 2, Well #1
East Boundary Butte 1, Lease 5

Dear Mr. Dozier:

We appreciate very much your compliance with our request for monthly individual well reports on the subject wells.

In order that our records of oil, gas and helium production for the state of Arizona may be as accurate as possible; we now request that you forward to us the total cumulative production figure for each well through September, 1963. Thus as you send us your monthly production figures for each well, we will be able to keep the cumulative figures accurate.

Your prompt cooperation is appreciated.

Very truly yours,

John K. Petty
Acting Executive Secretary

JKP:mkc

Cc: Shell Oil Company
Area Mailroom
1008 West 6th Street
Los Angeles 54, California

O.K.

32 ×

SHELL OIL COMPANY

Post Office Box 1200
Farmington, New Mexico

September 13, 1963

Subject: Monthly Individual Well Reports -
Form PB-189 (REV 8-59)
East Boundary Butte Leases 5, 7,
8 and Franco Western North
Toh-Atin Navajo Lease 3

Oil and Gas Conservation Commission
State of Arizona
Rooms 202, 1624 West Adams
Phoenix 7, Arizona

Attention Mr. John E. Fetty

Gentlemen:

For our telephone conversation on September 11, 1963, we are forwarding subject data from inception of production through July, 1963. By copy of this letter we are requesting our Los Angeles Office to send you copies monthly, commencing with the August report. We note that you will also require the monthly gas disposition report for each field.

The subject Shell Oil Company report will be utilized in lieu of your Form B-7, requested in your letter dated August 7, 1963, per Chapter III, Article XI of the State of Arizona's General Rules and Regulations governing the oil industry.

The attached plat will show sites for the three producing wells in the following surveyed locations:

East Boundary Butte 7 Lease 7 - 1900' east, 1980' south of the NW corner of Section 3, T. 41 N., R. 28 E.

East Boundary Butte 23-11 Lease 5 - 1980' east, 1980' north of the SW corner of Section 11, T. 41 N., R. 28 E.

Dineen Western, North Toh-Atin Navajo Lease 3, Well #1 - 660' east, 1980' south of the NE corner of Section 23, T. 41 N., R. 28 E.

East Boundary Butte 1 Lease 3 - Exc producing end not shown on plat - 660' north, 660' west of the SE corner of Section 36, T. 41 N., R. 29 E. Should be 6

All locations are from the Gila and Salt River Meridian Base Line.

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B18

It is hoped that the above information will satisfy Shell's obligation to your office.

Very truly yours,

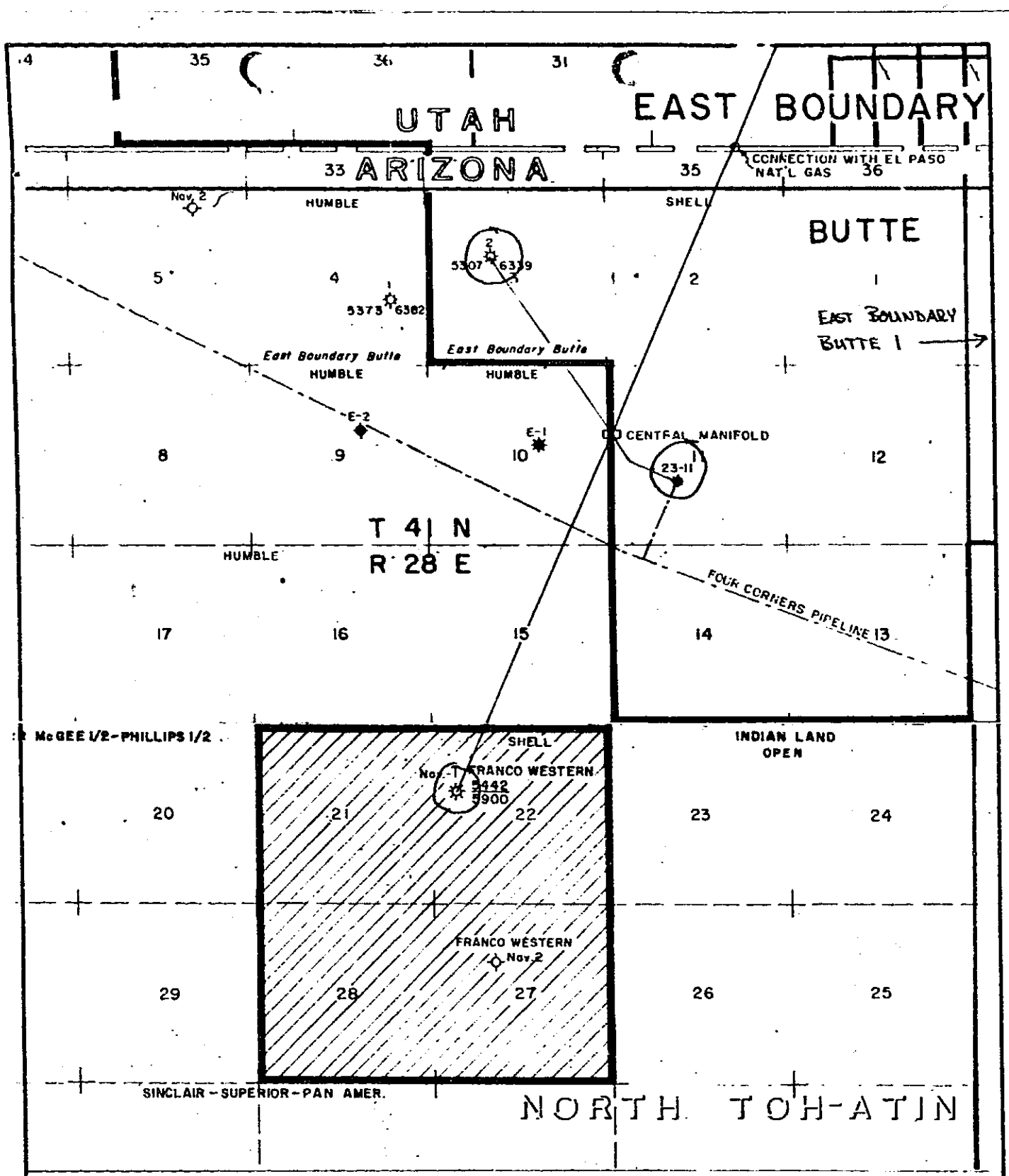
Joe E. Bozier, Jr.
Division Production
Superintendent

[redacted]:MFD

Attachments

cc - Area Mailroom, Los Angeles Office

B18



—LEGEND—

- Wells discussed in text
- Franco Western earned a 1/2 undivided interest in 2560 acres for test well.
- Gas gathering lines
- Oil line to Four Corners Pipeline

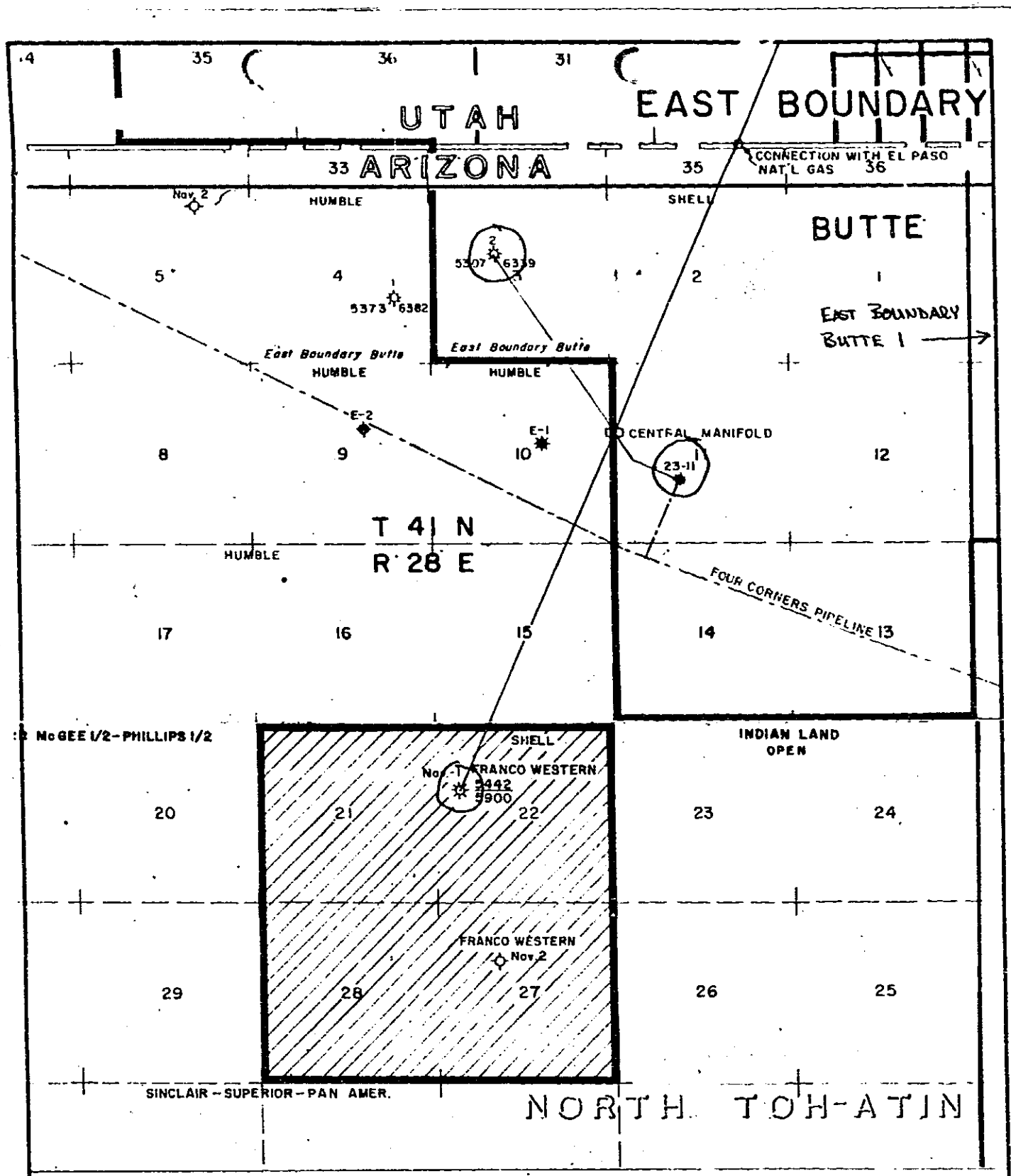
SHELL OIL COMPANY	PACIFIC COAST AREA FARMINGTON DIVISION	EXPLOITATION DEPT.

EAST BOUNDARY BUTTE & NORTH TOH-ATIN AREA

San Juan County, Utah & Apache County, Arizona

DATE 1-11-63 SCALE 1" = 4000' FIG. 5
BY R.E.D.
APPROVED J.E.D.

To Accompany Exploitation Engineers' Quarterly Report – 4th Quarter 1962



—LEGEND—

- Wells discussed in text
- Franco Western earned a 1/2 undivided interest in 2560 acres for test well.
- Gas gathering lines
- Oil line to Four Corners Pipeline

SHELL OIL COMPANY	PACIFIC COAST AREA FARMINGTON DIVISION	EXPLOITATION DEPT.

EAST BOUNDARY BUTTE & NORTH TOH-ATIN AREA

San Juan County, Utah & Apache County, Arizona

Date 1-11-63 Scale 1" = 4000' FIG. 5
By R.E.D.
Approved J.E.D.

To Accompany Exploitation Engineers' Quarterly Report – 4th Quarter 1962

B18

September 16, 1960

Mr. G. E. Mojonier
Division Office Supervisor
Shell Oil Company
P. O. Box 1200
Farmington, New Mexico

Dear Mr. Mojonier:

Enclosed are 12 copies each of Forms OG 60 and 65, which you requested in your letter of September 14, 1960.

Yours very truly,

W. F. Maule
Petroleum Engineer

EW
Enclosures

B18

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SHELL OIL COMPANY

Post Office Box 1200
Farmington, New Mexico

September 14, 1960

Arizona State Land Department
State Office Building
Phoenix, Arizona

Attention Mr. Frederick C. Ryan

Gentlemen:

Please send to the above address Arizona Oil and Gas Conservation Commission Forms Nos. O. & G. 60 and O. & G. 65 for reporting oil and gas production in the State of Arizona.

Very truly yours,

G. E. Mojonier
Division Office Supervisor

B18

32 × 6

SHELL OIL COMPANY
DESERET NEWS BUILDING
33 RICHARDS STREET
SALT LAKE CITY 1, UTAH

TELEPHONE 22-0471

October 8, 1954

Office of State Land Department
State of Arizona
Phoenix, Arizona

ATTENTION: Phillip W. Johnson, Geologist

Gentlemen:

We thank you for the copy of Article II, Chapter III, "General Rules and Regulations Governing the Conservation of Oil and Gas in Arizona", and for the copies of O. & G. forms 55 and 56 which you transmitted with your letter of September 27, 1954.

As you know, operations on our East Boundary Butte 1 well (Shell Oil-Navajo-Tribal 1) were suspended on March 24, 1954, inasmuch as the well did not appear to be capable of commercial production. We produced this well approximately 30 days during the period July 1954 to September 1954, and used the produced gas as a fuel supply for our East Boundary Butte 2 well. The limited gas production obtained was not encouraging; accordingly, the well is presently shut in and is incapable of additional production in its present condition.

We plan to perform additional testing to further determine the productivity of this well. Prior to any abandonment proceedings, we will execute form O. & G. 55 in duplicate for transmittal to your office.

We thank you for your cooperation in this matter.

Very truly yours,

A. L. Brown

A. L. Brown
Division Exploitation Engineer

ARIZONA
STATE LAND DEPARTMENT

Noted by	To	Date
P.J.S.	R.E.	10/11
R.E.	P.J.	

Ans. by Date

B18

RECEIVED
OCT 14 1954
STATE LAND
DEPT.

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September 27, 1954

Mr. A. L. Brown
Division Exploitation Engineer
Shell Oil Company
33 Richards Street
Salt Lake City 1, Utah

Dear Mr. Brown: Re: Shell Oil-Navajo-Tribal #1

We have just received a telephone request from a Mr. Johnstone of your Company, requesting that we send him a copy of our rules and regulations regarding plugging and abandonment procedure. We are inclosing a copy for his information and respectfully call his attention to Rules 25 and 26, pages 12 and 13. Mr. Johnstone requested that our forms be sent to a Mr. George Kukuchet so that they may be completed and returned to this office for processing. Inasmuch as the telephone connection was not too clear at this end, there might have been a misinterpretation as to the name of the gentleman, and we were wondering if you would see that the proper person receives them. These O&G forms 55 and 56 are to be filled out in duplicate and returned to us.

Thank you very much for your cooperation in this matter.

Very truly yours,

Phillip W. Johnson, Geologist

By: _____
Secretary

mb
Encl. (5)

B18

COPY

32 x

June 24, 1954

Mr. Phillip W. Johnson
P. O. Box 2270
Tucson, Arizona

Dear Phil:

Thank you very much for your letter of recent date regarding samples, etc, and about the names and addresses for the Scout Report. In case you need any more copies, I have quite a few on hand. Let me know.

I am enclosing a letter from Mr. A. L. Brown of the Shell Oil Company, also a copy of Form O&G 52. Would you please check this form and return both the letter as well as the form to me? They have also sent us various logs which seem to be in duplicate. Would you like to have me send one to you, or shall I hold both of them here until your next visit?

Sincerely,

Muriel R. Bates

mb
Encl. (1)

B18

SHELL OIL COMPANY
DESERET NEWS BUILDING
33 RICHARDS STREET
SALT LAKE CITY 1, UTAH

TELEPHONE 22-0471

June 22, 1954

State Land Department
State Capitol Building Annex
Phoenix, Arizona

ATTENTION: Phillip W. Johnson, Geologist

Gentlemen:

With reference to your letter of June 3, the procedure used at East Boundary Butte #1 for collecting and distributing ditch samples for the State of Arizona was entirely satisfactory to us. The same procedure will be followed at East Boundary Butte #2.

We have arranged for you to receive a complete set of samples and the final prints of all logs from our Desert Creek #1, currently drilling in San Juan County, Utah,

You will also be supplied with the samples which you are missing from the interval 5750-6490' at East Boundary Butte #1.

Please do not hesitate to call on us if we can be of any further assistance.

Yours very truly,

A. L. Brown

A. L. Brown
Division Exploitation Engineer

CFT:vlb

5821

RECEIVED
JUN 24 1954
STATE LAND
DEPT.

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IN REPLY REFER TO:

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
GROUND WATER BRANCH
P. O. Box 2270
Tucson Arizona

June 21, 1954

Muriel Bates
State Land Department
407 State Office Bldg.
Phoenix, Arizona

Dear Muriel:

Am sorry for the delay in answering the inquiry you made through Mr. Halpenny concerning the various items mentioned. We are, and will be, in the midst of moving and things are quite a mess.

We will receive a complete set of samples from the East Boundary Butte, Shell well No. 1, free of charge, from the Four Corners sample cut and I will send them shipping instructions direct.

I have no further word on the progress of the East Boundary Butte No. 2 well except as indicated in the letter from Mr. Knight.

You don't have to worry about the names and addresses for the Scout Report. I have taken care of that. I guess this answers all your questions. If not, let me know.

Regards,

Phil

Phillip W. Johnson
Geologist

PWJ/mh

5749

RECEIVED JUN 22 1954 STATE LAND DEPT.

ARIZONA STATE LAND DEPARTMENT
Noted by | To | Date
Ans. by | Date

B18

June 9th, 1954

U. S. G. S.
Groundwater Office
Fairgrounds
Holbrook, Arizona

Gentlemen:

We understand that you are holding samples from the Shell Oil Company East Boundary Butte No. 1 well between 40-1300' and that they are to be picked up by a representative of the Shell Oil Company.

We are in receipt of a letter from Mr. R. L. Knight of the Shell Oil Company, dated June 8th, in which he requests that the above mentioned samples be sent to him collect. Would you please comply with this request and send them to him at the following address?

Mr. R. L. Knight
Shell Oil Company
1910 Main Avenue
Durango, Colorado

Thank you for your kind attention in this matter.

Very truly yours,

Phillip W. Johnson, Geologist

By: _____
Secretary

B18

mb

COPY

June 9, 1954

Mr. P. W. Johnson
P. O. Box 2270
Tucson, Arizona

Dear Phil:

I am enclosing a copy of a letter received from Mr. Knight of the Shell Oil Company which is in answer to your letter of June 3rd, also copies of my letters in regard to same.

Since you are on vacation for this month, I suppose any answer pertaining to any of the above business will have to wait until your return, unless Mr. Halpenny thinks it requires any immediate attention.

Very truly yours,

Muriel R. Bates

mb

COPY

B18

June 9, 1954

Mr. R. L. Knight
Shell Oil Company
1901 Main Avenue
Durango, Colorado

Dear Mr. Knight:

I am in receipt of your letter to Mr. Phillip W. Johnson, dated June 8th, in which you asked that the samples from 40-1300' on the Shell Oil Company East Boundary Butte #1 well be sent to you collect. Mr. Johnson is on vacation at the present time, and I have taken the liberty of writing to the U. S. G. S. office at Holbrook in regard to your request that they ship these samples directly to you.

In regard to the other missing samples on this well, I would prefer that he take care of this when he returns, as I have not received any instructions as to where or how he would like to have them shipped. I have sent a copy of your June 8th letter to his office in Tucson.

Very truly yours,

(Mrs.) Muriel R. Bates
Secretary to P. W. Johnson

mb

B18

COPY

32 x

SM-35

SHELL OIL COMPANY
1901 Main Avenue
Durango, Colorado

June 8, 1954

Mr. Phillip W. Johnson
State Land Department
Phoenix, Arizona

Dear Phil:

I am wondering if it would be possible for you to arrange to have the samples from 40-1300 feet on East Boundary Butte #1 sent collect to my attention at this office.

The samples you are missing from 5750-6490 feet have undoubtedly been lost while cleaning up the location. However, Mrs. Smith at the Four Corners Sample Cut, Box 876, Farmington, New Mexico, has informed me that she is holding a set of samples from 1300-6490 feet for you pending instructions on where and how to send them.

Desert Creek #1 is not a tight hole, therefore I'm sure that we can obtain a set of samples and logs for your office. However, these will be delayed until the well is completed.

The well-sitting schedule for East Boundary Butte #2 has not been worked out so I'm not sure that I will be on it. The arrangement we had last time was quite satisfactory.

Sam Ieronimo told me you were out at the well and that he had known you at school.

I will look forward to seeing you on your next trip.

Very truly yours,

R. L. Knight

R. L. Knight

RLK:aar

ARIZONA
STATE LAND DEPARTMENT

Handled by	To	Date
CB	PWJ	6/9/54
Ans. by		Date

5165

RECEIVED
JUN 9 1954
STATE LAND DEPT.

B18

June 3, 1954

Mr. A. L. Brown,
Division Exploitation Engineer,
Shell Oil Company
33 Richards Street
Salt Lake City, Utah

COPY

Dear Mr. Brown:

I was very glad to learn that the Shell Oil Company is planning to drill another well on the East Boundary Butte structure and sincerely hope it will be a producer.

You will note from my letter to Mr. Knight, a carbon copy of which is enclosed, that I would like to make the same arrangements for picking up samples as we had on the Number 1 well, if this meets with your approval.

I find inadvertently that my office neglected to return your copy of the report on the second water shut-off test on the East Boundary Butte Number 1 well. I am sorry for this delay and I am enclosing it herewith for your records.

On my recent trip north, I visited the Shell Desert Creek well and I am wondering if there is any possibility of securing a set of samples and copies of the logs when they are available. The close proximity of this well to the Arizona line makes this information very valuable to us and I would appreciate anything you could do to help us secure this data.

You will also note that we failed to get the samples from the bottom hole interval of 5750' to 6490' on the East Boundary Butte Number 1 well, but I trust that Mr. Knight will see that we receive them. Again I wish to thank you for the wonderful cooperation you have given us, as well as the splendid way I have been received by your men on my various visits to the Shell wells. If there is anything that I can do to help, please feel free to call on me.

Very truly yours,

Phillip W. Johnson,
Geologist

PWJ:mb
Enclosures

B18

June 3, 1954

Mr. R. L. Knight
Shell Oil Company
1901 Main Avenue
Durango, Colorado

Dear Mr. Knight:

Pursuant to your letter of April 20th, the samples which you desire from the Shell East Boundary Butte Number 1 well, between 40-1300', are ready to be picked up at the U.S.G.S. - G.W. office, located at the Fairgrounds in Holbrook, Arizona. In checking over our samples, I find that we are missing the bottom hole interval from 5750' to 6490'. I would appreciate your checking the whereabouts of these samples. The reason we didn't get them is that the rig shut down and moved off location between our visits to pick them up. It would be very helpful if you could arrange to send these samples with whoever comes to get those at Holbrook.

I am sorry I missed seeing you on my recent visit. The fellows at the Desert Creek well told me you had just left so we must have passed each other on the road.

In connection with this well, I am wondering if there would be any chance of our getting a sample cut and a set of logs. The close proximity to Arizona makes this information very useful and I certainly would appreciate anything you can do in our behalf.

The Shell Navajo Tribal Number 2 will no doubt get underway soon and I would like to make the same arrangements for getting samples as we had on the number 1 well. Will you be sitting on this well? If not, will you tell the geologist who will be on the well, just how we handled the last one? I have already passed the word on to the boys at Holbrook so there won't be any delay in picking up the samples and therefore, no great accumulation at the well. I sincerely hope this meets with your approval. If there is anything I can do please let me know.

Very truly yours,

Phillip W. Johnson,
Geologist

PWJ:mb
cc - A. L. Brown
J. H. Harshbarger

B18

March 18, 1954

Mr. A. L. Brown,
Division Exploitation Engineer,
Shell Oil Company
33 Richards Street
Salt Lake City, Utah

Dear Mr. Brown:

This will acknowledge receipt of our form No. O&G 63, "Report on Test of Water Shut-Off" concerning your recent operation of the Shell Oil - Navajo-Tribal #1, located in Section 6, Township 41N., Range 29E., Apache County. Transmitted herewith please find a completed copy of this form for your records which has been approved as of March 18, 1954.

We also wish to acknowledge receipt of the logs from the Schlumberger Well Survey Corporation of Farmington, New Mexico and for which we wish to thank you.

We shall be glad to file these logs along with the other reports and data which pertain to this well, and sincerely appreciate your prompt attention in this matter.

Very truly yours,

Roger Ernst,
State Land Commissioner

ab
Encl.(1)

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32 × 8

3/5/54

Shell Oil phoned from Salt Lake - obtained Phil's address - to send him wire that they were going to acidize about next week. Perhaps ~~xxx~~ Phil would like to be there.

B18

COPY

SHELL OIL COMPANY
33 Richards St.,
Salt Lake City 1, Utah

December 7, 1953

Arizona State Land Department
Phoenix, Arizona

Attention: Mr. Phillip W. Johnson

Dear Sir:

Thank you for your letter of December 2, 1953, acquainting us with the Arizona State requirements for the collection of ditch samples.

At our East Boundary Butte #1, we plan to obtain a full 5 1/2" x 10 1/2" cloth bag of cuttings from each sampling point for the State of Arizona. This should provide ample material for the three cuts that you need. These samples will be accumulated at the well site where you or your representative may pick them up at your convenience. We ask that the samples be treated as confidential for the six months' period permitted by the law, unless written notice to the contrary is received by you from Shell.

Weather conditions preclude an exact prediction, but East Boundary Butte #1 will probably be spudded during the latter part of December. The well is planned as a 6950'test.

Mr. R. W. Spalding, Shell's Colorado Plateau District Geologist, will be in charge of the geological phase of the well and Mr. W. C. Thompson, Drilling Foreman, is responsible for the drilling operations. Mr. C. F. Thomas will be the exploitation engineer assigned to the well. Although the well is of an exploratory nature, it will be drilled under the direct supervision of the Salt Lake City Division Production Department and all notices and inquiries should be directed to me at this office.

Verytruly yours,

A. L. Brown,
Division Exploitation Engineer

JJP: vlb
cc: Colorado Plateau District

B18

32 x

December 3, 1953

Shell Oil Company
33 Richards Street
Salt Lake City 1, Utah

Re: Lease #O&G-18

Gentlemen:

We are forwarding herewith your approved Notice of Intention to drill a new oil and gas well.

We are also enclosing your receipt for $25.00 which was paid as a drilling fee under the Oil and Gas Conservation Act of 1951.

We appreciate your continued fine cooperation with this Department.

Yours very truly,

Roger Ernst,
State Land Commissioner

LCD:bka
Enc: Notice
Receipt

B18

32 ×

December 2, 1953

Mr. A. L. Brown,
Division Exploitation Engineer
Shell Oil Company
33 Richards Street
Salt Lake City, Utah

Dear Mr. Brown:

I am writing you to acquaint you with our state policy for the collection of sample cuttings from all oil test wells drilled in Arizona and to request your cooperation in helping us to carry out this program.

The State Land Department, U.S.G.S. - G.W., University of Arizona and the Museum of Northern Arizona are the four agencies in the State, which are working together to collect and preserve in a permanent library, which will be in the University of Arizona, sample cuttings from all types of wells in the State. Under the program it was deemed advisable that there should also be a library of samples of wells from the northern part of the State at the Museum of Northern Arizona located in Flagstaff. The reason for this was two fold:

1. The marked difference in the geology between the plateau region and the basin and range country.

2. The distance it would be necessary to travel, for those interested in northern Arizona, to inspect the samples at the University of Arizona at Tucson.

In the case of oil test wells our policy also includes a set of samples to be available at the State Land Department, Phoenix, Arizona for mailing on a thirty day loan basis to those interested.

You can readily see that with your test well being located in the northern part of the State, it will be necessary that we receive a rather large amount of sample in order that we can cut it three ways. We will be glad to furnish sample bags so that you can have your driller pick up a sample for us when collecting your samples. The way we work it out with the Texas Company and also Sinclair Company on their two recent oil tests, was that I would visit the

B18

rig periodically and pick up the samples or would send a representative to do so. These samples were kept in the strictest confidence. I realize that under the law you are not required to turn over any information until six months after the hole is declared completed or abandoned and I will gladly comply with your decision in the matter. I only wanted to make certain that we receive an adequate amount of sample and my thought in offering to pick up these samples would alleviate your having to store them and the chance that they might become lost or destroyed around the rig.

I would appreciate hearing from you concerning this request and also I would like to know the names of the men in charge of your drilling operation and geology on the rig.

Could you also give me an idea of your anticipated drilling program or schedule? At the present time I do not think it possible for me to visit the rig much before the end of December and perhaps the above information could help me to plan my visit more advantageously.

Very truly yours,

Phillip W. Johnson,
Geologist

PWJ:mb

B18

SHELL OIL COMPANY
33 Richards Street
Salt Lake City, Utah

November 25, 1953

STATE LAND DEPARTMENT
State of Arizona
Phoenix, Arizona

Attention: Mr. James R. Burger
Deputy State Land Commissioner

Gentlemen:

Thank you for your letter of November 23, 1953, regarding the $25.00 drilling fee required in connection with our filing of a Notice of Intention to Drill, East Boundary Butte #1, Apache County, Arizona. We regret that the payment of this fee was overlooked at the time the Notice was filed. Our Draft No. LA 11460 is attached for this fee.

Thank you for your cooperation in processing our documents.

Yours very truly,

SHELL OIL COMPANY

A. L. Brown

A. L. Brown
Division Exploitation Engineer

ALB/mjt

Attach.

ARIZONA
STATE LAND DEPARTMENT

Noted by	To	Date
Ans. by		Date

RECEIVED
NOV 27 1953
STATE LAND DEPT.

B18

November 23, 1953

Shell Oil Company
33 Richards Street
Salt Lake City 1, Utah

Gentlemen:

We have this date received $10,000.00 Collective Surety Bond, with the Federal Insurance Company, as Surety, conditioned as required by Section 17 (a) 3 of the Oil and Gas Conservation Act of 1951, State of Arizona, from your Los Angeles Office.

There is a $25.00 per well drilling fee. To substantiate this fee we would like to quote from Chapter 123, House Bill No. 8, First Regular Session, Twentieth Legislature, House of Representatives, State of Arizona, as follows:

> "Sec. 14. Permit. A person desiring to drill a well in search of oil or gas shall notify the Commissioner of such intent on a form prescribed by the Commissioner, and shall pay a fee of twenty-five dollars for each well. Upon receipt of notification and the fee, the Commissioner shall promptly issue such person a permit to drill, unless the drilling of the well is contrary to law, or to a rule, regulation, or order of the Commissioner. The drilling of the well is prohibited until a permit to drill is obtained in accordance with the provisions of this section."

It appears that all of your documents are in order; therefore, upon receipt of the $25.00 drilling fee we shall be pleased to issue the Drilling Permit.

We are anticipating your answer at an early date.

Yours very truly,

James R. Burger,
Deputy State Land Commissioner

JRB:bka

cc: Shell Oil Co.
1008 W. Sixth St.
Los Angeles 17, Cal.

B18

SHELL OIL COMPANY
SHELL BUILDING
1008 WEST SIXTH STREET
LOS ANGELES 17, CALIFORNIA

TELEPHONE MADISON 7341

November 20, 1953

REGISTERED MAIL
SPECIAL DELIVERY
AIR MAIL

JAMES R. BURGER,
Deputy State Land Commissioner,
Phoenix, Arizona

Dear Sir:

EAST BOUNDARY BUTTE AREA
DINNEY AREA
NORTH TOH-ATIN AREA -
STATE OF ARIZONA
COLLECTIVE BOND

In accordance with Article II, Chapter III, Rule 40 of General Rules and Regulations Governing the Conservation of Oil and Gas in Arizona, we forward herewith $10,000.00 Collective Surety Bond, with the Federal Insurance Company, as Surety, conditioned as required by Section 17 (a) 3 of the Oil and Gas Conservation Act of 1951, State of Arizona.

We thank you for your cooperation in this matter.

Very truly yours,

SHELL OIL COMPANY

W H Fuller

For M. W. Sheppard, Jr.
Land Manager

Encl.
YLW:lm

ARIZONA
STATE LAND DEPARTMENT

Noted by	To	Date

Ans. by Date

RECEIVED
NOV 21 1953
STATE LAND
DEPT.

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IN REPLY REFER TO:

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

P. O. Box 965
Farmington, New Mexico

November 6, 1953

Shell Oil Company
33 Richards Street
Salt Lake City 1, Utah

Re: Tribal Lands
14-20-603-223

Gentlemen:

Receipt is acknowledged of your "Notice of Intention to Drill" dated November 2, 1953 covering your well No. 1 Navajo in SE¼ SE¼ sec. 6, T. 41 N., R. 29 E., G. S. R. B. & M., Apache County, Arizona, East Boundary Butte Area.

Your proposed work is hereby approved subject to compliance with the provisions of the "Oil and Gas Operating Regulations" revised May 25, 1942, a copy of which will be sent to you on request, and subject to the following conditions:

1. Drilling operations so authorized are subject to the attached sheet for general conditions of approval.

2. Furnish copies of all logs.

Very truly yours,

P. T. McGrath

P. T. McGrath
District Engineer

PTMcGrath:ac

ARIZONA
STATE LAND DEPARTMENT

Noted by	To	Date
Ans. by		Date

RECEIVED
NOV 16 1953
STATE LAND DEPT.

B/8

October 26, 1953

Mr. J. E. Mohr,
Division Land Manager,
Shell Oil Company
33 Richards Street
Salt Lake City 1, Utah

Dear Mr. Mohr:

As per your request, we are again sending you (5) additional copies of all booklets and information we have on hand pertaining to the oil and gas division of this Department.

We trust the above material will answer your needs.

Very truly yours,

Phillip W. Johnson, Geologist,
State Land Department

By: _____
Secretary

mb

B18

32 × 1

SHELL OIL COMPANY
33 Richards Street
Salt Lake City, Utah
October 21, 1953

State Land Commissioner
State Land Department
Capitol Building
Phoenix, Arizona

Dear Sir:

We request that you forward to the above address several copies of all booklets and information pertaining to the issuance of State Oil and Gas Leases.

We would also appreciate receiving the same type of information on rules and regulations governing the drilling, production and conservation of oil and gas in the State of Arizona.

If there is any charge for the above requested information, we will be glad to remit.

Thank you for your assistance in this matter.

Very truly yours,

SHELL OIL COMPANY

Jack D. Jones

For: J. E. Mohr
Division Land Manager

RECEIVED
OCT 22 1953
STATE LAND
DEPT.

B 18

32 ×

October 5, 1953

Mr. J. E. Mohr,
Division Land Manager,
Shell Oil Company
33 Richards Street
Salt Lake City 1, Utah

Dear Mr. Mohr:

We are forwarding to you under separate cover ten copies each of the following forms:

OG 51	Notice of Intention to Drill
OG 52	Well Completion Report
OG 53	Capacity Test Report
OG 54	Shooting or Treating Report
OG 55	Application to Deepen, Plug, etc.
OG 56	Abandonment and Plugging Record
OG 63	Report on Test of Water Shut-Off

In regard to forms OG 50, 57, 58, 59, 60, 61, 62, 64, and 65, these forms pertain to producing wells and consequently have not been reproduced until such time as oil or gas is found in commercial quantities in the State.

We sincerely hope this information will be of help to you.

Very truly yours,

James R. Burger,
Deputy State Land Commissioner,
State Land Department

JRB:mb

B 18

32 ×

SHELL OIL COMPANY
33 Richards Street
Salt Lake City 1, Utah

October 1, 1953

OFFICE OF STATE LAND DEPARTMENT
State of Arizona
Phoenix, Arizona

Attention: Mr. James R. Burger

Gentlemen:

This letter will confirm receipt of your shipment of September 25, 1953, and we wish to thank you for your prompt and efficient handling of our request.

Upon examining your General Rules and Regulations Governing the Conservation of Oil and Gas in Arizona, we find on pages 17 and 18 a list of State Approved Forms Numbers OG50 through OG65 inclusive, and we wish to request ten copies of each of these various forms. If there is any charge for these items, please include your statement of charges and we will promptly remit payment.

Thank you for your splendid cooperation in this matter.

Very truly yours,

SHELL OIL COMPANY

Claude E. Talbot

For: J. E. Mohr,
Division Land Manager

AIRMAIL

ARIZONA
STATE LAND DEPARTMENT

Noted by	To	Date
Ans. by		Date

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OCT 2 1953
STATE LAND DEPT.

B 18

September 25, 1953

Mr. J. E. Mohr,
Division Land Manager,
Shell Oil Company
33 Richards Street
Salt Lake City 1, Utah

Dear Mr. Mohr:

Your letter of September 23rd, 1953 in which you request ten copies each of the various forms used by the State of Arizona regarding drilling requirements has been received.

Under separate cover we are mailing you the following material:

General Rules and Regulations Governing The Conservation of Oil and Gas in Arizona

Rules and Regulations Governing the Issuance of Oil and Gas Leases

Application For Non-Competitive Lease for Oil and Gas on State Lands

Non-Competitive Oil and Gas Lease

Application to Assign, and Assumption of Lease for State Lands

Partial Assignment of Oil and Gas Lease

We are also enclosing three copies of a map of Arizona indicating counties and county seats. If we can be of any further service to you, please feel free to call on us.

Very truly yours,

James R. Burger,
Deputy State Land Commissioner
State Land Department

B/8

JRB:mb

SHELL OIL COMPANY
33 Richards Street
Salt Lake City 1, Utah

September 23, 1953

BOARD OF LAND COMMISSIONERS
State of Arizona
State Capitol Building
Tucson, Arizona

STATE OF ARIZONA
DRILLING REGULATIONS
AND REQUIREMENTS

Gentlemen:

We have recently established new offices in Salt Lake City, Utah, and are attempting to complete our files on the Rules and Regualtions for the States under our supervision. Would you please send to us, at the above address, ten copies of your Rules and Regulations booklet, State Lease Form, Assignment of State Lease Form, Application for State Lease Form, Release of State Lease Form, and three copies of a State of Arizona map showing the counties and county seats. If there is any charge for these items, please include your statement of charges, and we will be very pleased to promptly remit payment.

We assume your booklet on Rules and Regulations will contain information as to the filing of notices prior to drilling and necessary reports before and during actual drilling operations, but if this information is not contained in your booklet, would you please supply us with a list of the State requirements prior to and during actual drilling operations?

Thank you for your attention in this matter.

Yours very truly,

SHELL OIL COMPANY

For: J. E. Mohr,
Division Land Manager

Jack D. Jones

ARIZONA
STATE LAND DEPARTMENT

Noted by	To	Date
Ans. by		Date

AIR MAIL

RECEIVED
SEP 25 1953
STATE LAND
DEPT.

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DEC--1-53 06560 023829 OK CBA 25.00

STATE LAND DEPARTMENT

PHOENIX, ARIZONA

STATEMENT

You are hereby advised that RENTAL will be due and payable at this office on your Lease as shown by this statement. IF SAID RENTAL IS NOT RECEIVED ON OR BEFORE THE DUE DATE, PENALTY AND INTEREST WILL BE ADDED.

SHELL OIL COMPANY
33 RICHARDS STREET
SALT LAKE CITY 1 UTAH

LEASE NO. .18
6
B

	MO.	DAY	YR.
DATE	12	01	.53
DATE RENT DUE			

SHEET ____ OF ____ SHEETS

GR.	DESCRIPTION	SEC.	TWP.	RANGE	C. C.	RATE	ACREAGE		AMOUNT
	SESE	6	41 N	29 E					25.00
	DRILLING PER FEE								25.00T
									B18
						TOTAL DUE			25.00C

Hycalog, Inc.

SHREVEPORT, LA.

*TIME BREAKDOWN FOR DRILLING OPERATIONS

COMPANY Shell Oil Company WELL East Boundary Butte #1

FIELD _____ COUNTY Apache STATE Arizona

DATE: From 12-30-53 To 3-6-54 DEPTH: From 1040' To 6490'

*Time Breakdown Covers Only the Period a Hycalog Unit was Logging the Well.

DRILLING OPERATIONS	TIME IN HOURS	PER CENT OF TOTAL
DRILLING	741.84	45.64
CORING	114.33	7.04
TRIPS NEW BITS	208.47	12.83
TRIPS NEW CORE BIT	62.83	3.87
RIG REPAIR	70.86	4.36
CIRCULATING OUT SAMPLES	5.75	.35
CONDITION HOLE	155.36	9.56
REAMING	14.59	.90
DRILL STEM TEST	196.09	12.07
SET PIPE	5.50	.34
WAITING ON ORDERS	25.70	1.58
FISHING		
STRAIGHT HOLE TEST	3.43	.21
ELECTRIC LOG	20.25	1.25
TOTALS	1625.00	100.00

REMARKS _____

32 × 15

HYCALOG
SHOW REPORT

REF. NO. 28-1

COMPANY Shell Oil Company
WELL East Boundary Butte No. 1
BIT CONDITION: DULL ___ WORN ___ NEW X
DRILLING BREAK: YES X NO ___
CIRCULATED OUT YES ___ NO X
SECTION CORED YES ___ NO X
POROSITY GOOD ___ FAIR ___ TIGHT X

UNIT 28
DATE 1-22-54
GAS ___ OIL X
DEPTH FROM 4620' TO 4624'

RECOMMENDATION AS TO COMMERCIAL POSSIBILITIES GOOD ___ FAIR ___ POOR X
REASON FOR RECOMMENDATION Section has poor visible porosity and gives a very poor cut with carbon tetrachloride. The lime gives only a fair cut with hydrochloric acid even when dry.

E. H. Tomlinson, Jr.
Engineer

HYCALOG
SHOW REPORT

REF. NO. 28-2

COMPANY Shell Oil Company
WELL East Boundary Butte No. 1
BIT CONDITION: DULL ___ WORN ___ NEW X
DRILLING BREAK: YES X NO ___
CIRCULATED OUT YES ___ NO X
SECTION CORED YES ___ NO X
POROSITY GOOD ___ FAIR ___ TIGHT X

UNIT 28
DATE 1-22-54
GAS ___ OIL X
DEPTH FROM 4634' TO 4636'

RECOMMENDATION AS TO COMMERCIAL POSSIBILITIES GOOD ___ FAIR ___ POOR X
REASON FOR RECOMMENDATION Lime section has the appearance of previous show. Amount of cuttings gas indicates little or no chance for commercial production even though intermittent traces of oil fluorescence are found from the bottom of the previous show to the top of this one.

E. H. Tomlinson, Jr.
Engineer

HYCALOG
SHOW REPORT

REF. NO. 28-3

COMPANY Shell Oil Company
WELL East Boundary Butte No. 1
BIT CONDITION: DULL ___ WORN X NEW ___
DRILLING BREAK: YES X NO ___
CIRCULATED OUT YES ___ NO X
SECTION CORED YES ___ NO X
POROSITY GOOD ___ FAIR ___ TIGHT X

UNIT 28
DATE 1-22-54
GAS ___ OIL X
DEPTH FROM 4640' TO 4642'

RECOMMENDATION AS TO COMMERCIAL POSSIBILITIES GOOD ___ FAIR ___ POOR X
REASON FOR RECOMMENDATION Lime section has appearance of previous shows with same poor cut with carbon tetrachloride and absence of cuttings gas.

E. H. Tomlinson, Jr.
Engineer

HYCALOG
SHOW REPORT

REF. NO. 28-4

COMPANY Shell Oil Company
WELL East Boundary Butte No. 1
BIT CONDITION: DULL ___ WORN ___ NEW X
DRILLING BREAK: YES X NO ___
CIRCULATED OUT YES X NO ___
SECTION CORED YES ___ NO X
POROSITY GOOD ___ FAIR ___ TIGHT X

UNIT 28
DATE 1-22-54
GAS ___ OIL X
DEPTH FROM 4684' TO 4706'

RECOMMENDATION AS TO COMMERCIAL POSSIBILITIES GOOD ___ FAIR ___ POOR X
REASON FOR RECOMMENDATION Lime section has only little visible porosity. Mud gas readings are low; but with fair cuttings gas readings. Section gives poor cut wet with carbon tetrachloride and only fair cut dry with hydrochloric acid. Its general appearance is the same as that of previous shows.

E. H. Tomlinson, Jr.
Engineer

HYCALOG
SHOW REPORT

REF. NO. 28-5

COMPANY Shell Oil Company
WELL East Boundary Butte No. 1
BIT CONDITION: DULL ___ WORN X NEW ___
DRILLING BREAK: YES ___ NO X
CIRCULATED OUT YES ___ NO X
SECTION CORED YES ___ NO X
POROSITY GOOD ___ FAIR ___ TIGHT X

UNIT 28
DATE 1 - 22 - 54
GAS ___ OIL X
DEPTH FROM 4736' TO 4742'

RECOMMENDATION AS TO COMMERCIAL POSSIBILITIES GOOD ___ FAIR ___ POOR X
REASON FOR RECOMMENDATION This lime gave a very poor cut with carbon tetra-chloride and hydrochloric acid. The gas in cuttings were low while gas in the mud was fair.

Engineer
V S Neal

HYCALOG
SHOW REPORT

REF. NO. 28-6

COMPANY Shell Oil Company
WELL East Boundary Butte No 1
BIT CONDITION: DULL ___ WORN X NEW ___
DRILLING BREAK: YES ___ NO X
CIRCULATED OUT YES ___ NO X
SECTION CORED YES ___ NO X
POROSITY GOOD ___ FAIR ___ TIGHT X

UNIT 28
DATE 1-23-54
GAS ___ OIL X
DEPTH FROM 4766' TO 4770'

RECOMMENDATION AS TO COMMERCIAL POSSIBILITIES GOOD ___ FAIR ___ POOR X
REASON FOR RECOMMENDATION This lime gave a very poor cut with carbon tetra-chloride when dry. It the same type lime as above.

Engineer
V S Neal

HYCALOG
SHOW REPORT

REF. NO. 28-7

COMPANY Shell Oil Company
WELL East Boundary Butte No. 1
BIT CONDITION: DULL ___ WORN ___ NEW X
DRILLING BREAK: YES ___ NO X
CIRCULATED OUT YES ___ NO X
SECTION CORED YES ___ NO X
POROSITY GOOD ___ FAIR ___ TIGHT X

UNIT 28
DATE 1-24-54
GAS ___ OIL X
DEPTH FROM 4780' TO 4788'

RECOMMENDATION AS TO COMMERCIAL POSSIBILITIES GOOD ___ FAIR ___ POOR X
REASON FOR RECOMMENDATION This lime gave a poor cut when wet with carbon tetrachloride and hydrochloric acid. The lime was very soft for the biggest part. The gas in mud and cuttings was very low.

V S Neal
Engineer

HYCALOG
SHOW REPORT

REF. NO. 28-8

COMPANY Shell Oil Company
WELL East Boundary Butte No. 1
BIT CONDITION: DULL ___ WORN X NEW ___
DRILLING BREAK: YES ___ NO X
CIRCULATED OUT YES ___ NO X
SECTION CORED YES ___ NO X
POROSITY GOOD ___ FAIR ___ TIGHT X

UNIT 28
DATE 1-24-54
GAS ___ OIL X
DEPTH FROM 4794' TO 4800'

RECOMMENDATION AS TO COMMERCIAL POSSIBILITIES GOOD ___ FAIR ___ POOR X
REASON FOR RECOMMENDATION The lime was very soft, and gave a poor cut with carbon tetrachloride and hydrochloric acid. The gas in the cuttings was low while the mud gas was fair.

V S Neal
Engineer

32 × 8

HYCALOG
SHOW REPORT

REF. NO. 28-10

COMPANY Shell Oil Company
WELL East Boundary Butte No. 1
BIT CONDITION: DULL ___ WORN ___ NEW X
DRILLING BREAK: YES X NO ___
CIRCULATED OUT YES ___ NO X
SECTION CORED YES X NO ___
POROSITY GOOD ___ FAIR ___ TIGHT X

UNIT 28
DATE 1-26-54
GAS ___ OIL X
DEPTH FROM 4888' TO 4891'

RECOMMENDATION AS TO COMMERCIAL POSSIBILITIES GOOD ___ FAIR ___ POOR X
REASON FOR RECOMMENDATION Cored section was hard, dense, light-grey to tan dolomite with medium-grey anhydrite inclusions. It had poor porosity and no permiability. It has fair cut with carbon tetrachloride and slight odor on fresh break.

E. H. Tomlinson, Jr.
Engineer

HYCALOG
SHOW REPORT

REF. NO. 28-11

COMPANY Shell Oil Company
WELL East Boundary Butte No. 1
BIT CONDITION: DULL ___ WORN ___ NEW X
DRILLING BREAK: YES ___ NO X
CIRCULATED OUT YES ___ NO X
SECTION CORED YES X NO ___
POROSITY GOOD ___ FAIR ___ TIGHT X

UNIT 28
DATE 1-26-54
GAS ___ OIL X
DEPTH FROM 4914' TO 4943'

RECOMMENDATION AS TO COMMERCIAL POSSIBILITIES GOOD ___ FAIR ___ POOR X
REASON FOR RECOMMENDATION Cored section is lime and dolomite with little to only slight visible porosity except where fractured. Porosity percentages after analysis are deemed too low to be commercially productive. Permiability is also low or either absent.

E. H. Tomlinson, Jr.
Engineer

HYCALOG
SHOW REPORT

REF. NO. 28-12

COMPANY Shell Oil Company
WELL East Boundary Butte No. 1
BIT CONDITION: DULL ___ WORN X NEW ___
DRILLING BREAK: YES X NO ___
CIRCULATED OUT YES ___ NO X
SECTION CORED YES X NO ___
POROSITY GOOD ___ FAIR ___ TIGHT X

UNIT 28
DATE 1-27-54
GAS ___ OIL X
DEPTH FROM 4966' TO 4978'

RECOMMENDATION AS TO COMMERCIAL POSSIBILITIES GOOD ___ FAIR ___ POOR X
REASON FOR RECOMMENDATION Section was partially cored and partially drilled. It consists of dolomite with the properties of previously cored sections. Some porosity and permiability is revealed upon analysis, however, and a later attempt will be made to produce the section.

E. H. Tomlinson, Jr.
Engineer

HYCALOG
SHOW REPORT

REF. NO. 28-13

COMPANY Shell Oil Company
WELL East Boundary Butte No. 1
BIT CONDITION: DULL ___ WORN ___ NEW X
DRILLING BREAK: YES X NO ___
CIRCULATED OUT YES ___ NO X
SECTION CORED YES X NO ___
POROSITY GOOD ___ FAIR ___ TIGHT X

UNIT 28
DATE 1-31-54
GAS ___ OIL X
DEPTH FROM 4987' TO ___

RECOMMENDATION AS TO COMMERCIAL POSSIBILITIES GOOD ___ FAIR ___ POOR X
REASON FOR RECOMMENDATION Cored section is hard, dense lime with no visible porosity except for fractures. The section is not thick enough to warrant an attempt at commercial production.

V. S. Neal
Engineer

32 × 8

HYCALOG
SHOW REPORT

REF. NO. 28-14

COMPANY Shell Oil Company
WELL East Boundary Butte NO. 1
BIT CONDITION: DULL ___ WORN ___ NEW X
DRILLING BREAK: YES X NO ___
CIRCULATED OUT YES ___ NO X
SECTION CORED YES X NO ___
POROSITY GOOD ___ FAIR ___ TIGHT X

UNIT 28
DATE 2-1-54
GAS ___ OIL X
DEPTH FROM 5022' TO 5050'

RECOMMENDATION AS TO COMMERCIAL POSSIBILITIES GOOD ___ FAIR ___ POOR X
REASON FOR RECOMMENDATION This section had oil shows through core at intermittent intervals. Most of the shows were in fractures. The interval at 5034' to 5037' had pin point porosity. This section gave a poor cut with carbon tetrachloride, fair cut with hydrochloric acid. This section was made up mostly of light gray to dark brown lime.

V S Neal
Engineer

HYCALOG
SHOW REPORT

REF. NO. 28-15

COMPANY Shell oil Company
WELL East Boundary Butte No. 1
BIT CONDITION: DULL ___ WORN ___ NEW X
DRILLING BREAK: YES ___ NO X
CIRCULATED OUT YES ___ NO X
SECTION CORED YES ___ NO X
POROSITY GOOD ___ FAIR ___ TIGHT X

UNIT 28
DATE 2-3-54
GAS ___ OIL X
DEPTH FROM 5062' TO 5088'

RECOMMENDATION AS TO COMMERCIAL POSSIBILITIES GOOD ___ FAIR ___ POOR X
REASON FOR RECOMMENDATION Lime section has poor visiable porosity and gives a very poor cut with carbon tetrachloride, also gives only a fair cut with hydrochloric acid. intermittent shows through section.

T. C. Carr
Engineer

32 x

HYCALOG
SHOW REPORT

REF. NO. 28-16

COMPANY Shell Oil Company
WELL East Boundary Butte No.1
BIT CONDITION: DULL ___ WORN ___ NEW X
DRILLING BREAK: YES ___ NO X
CIRCULATED OUT YES ___ NO X
SECTION CORED YES ___ NO X
POROSITY GOOD ___ FAIR ___ TIGHT X

UNIT 28
DATE 2-4-54
GAS ___ OIL X
DEPTH FROM 5094' TO 5100'

RECOMMENDATION AS TO COMMERCIAL POSSIBILITIES GOOD ___ FAIR ___ POOR X
REASON FOR RECOMMENDATION Lime section has poor visiable porosity and gives a very poor cut with carbon tetrachloride, gives only a fair cut with hydrochloric acid.

F.C. Carr
Engineer

HYCALOG
SHOW REPORT

REF. NO. 28-17

COMPANY Shell Oil Company
WELL East Boundary Butte No.1
BIT CONDITION: DULL ___ WORN ___ NEW X
DRILLING BREAK: YES ___ NO X
CIRCULATED OUT YES ___ NO X
SECTION CORED YES ___ NO X
POROSITY GOOD ___ FAIR ___ TIGHT X

UNIT 28
DATE 2-4-54
GAS ___ OIL X
DEPTH FROM 5108' TO 5164'

RECOMMENDATION AS TO COMMERCIAL POSSIBILITIES GOOD ___ FAIR ___ POOR X
REASON FOR RECOMMENDATION Lime section has poor visiable porosity and gives a very poor cut with carbon tetrachloride, also gives only a fair cut with hydrochloric acid even when dry.

F.C. Carr
Engineer

32 x

HYCALOG
SHOW REPORT

REF. NO. 28-18

COMPANY Shell Oil Company
WELL East Boundary Butte No. 1
BIT CONDITION: DULL ___ WORN ___ NEW X
DRILLING BREAK: YES ___ NO X
CIRCULATED OUT YES ___ NO X
SECTION CORED YES ___ NO X
POROSITY GOOD ___ FAIR ___ TIGHT X

UNIT 28
DATE 2-5-54
GAS ___ OIL X
DEPTH FROM 5178' TO 5258'

RECOMMENDATION AS TO COMMERCIAL POSSIBILITIES GOOD ___ FAIR ___ POOR X
REASON FOR RECOMMENDATION This lime section has a very poor visiable porosity and it give a poor cut with carbon tetrachloride and hydrochloric acid. It had a very poor amount of gas in cuttings and mud.

V S Neal
Engineer

HYCALOG
SHOW REPORT

REF. NO. 28-19

COMPANY Shell Oil Company
WELL East Boundary Butte No. 1
BIT CONDITION: DULL ___ WORN ___ NEW X
DRILLING BREAK: YES ___ NO X
CIRCULATED OUT YES ___ NO X
SECTION CORED YES ___ NO X
POROSITY GOOD ___ FAIR ___ TIGHT X

UNIT 28
DATE 2-8-54
GAS ___ OIL X
DEPTH FROM 5318' TO 5354'

RECOMMENDATION AS TO COMMERCIAL POSSIBILITIES GOOD ___ FAIR ___ POOR X
REASON FOR RECOMMENDATION This lime section has poor visiable porosity and gives a very poor cut with carbon tetrachloride, gives only a fair cut with hydrocloric acid. Fair gas reading in the mud, zero gas reading in cuttings.

L C Carr
Engineer

32 × 8

HYCALOG
SHOW REPORT

REF. NO. 28-20

COMPANY Shell Oil Company
WELL East Boundary Butte No.1
BIT CONDITION: DULL ___ WORN ___ NEW X
DRILLING BREAK: YES ___ NO X
CIRCULATED OUT YES ___ NO X
SECTION CORED YES ___ NO X
POROSITY GOOD ___ FAIR ___ TIGHT X

UNIT 28
DATE 2-11-54
GAS ___ OIL X
DEPTH FROM 5396' TO 5436'

RECOMMENDATION AS TO COMMERCIAL POSSIBILITIES GOOD ___ FAIR ___ POOR X
REASON FOR RECOMMENDATION This lime and dolomite section has very poor visiable porosity and gives a very poor cut with carbon tetrachloride, gives only a fair cut with hydrocloric acid, cuttings have zero gas reading and only slight gas readings in the mud, intermittent shows through section.

L. C. Carr
Engineer

HYCALOG
SHOW REPORT

REF. NO. 28-21

COMPANY Shell Oil Company
WELL East Boundary Butte No. 1
BIT CONDITION: DULL ___ WORN X NEW ___
DRILLING BREAK: YES ___ NO X
CIRCULATED OUT YES ___ NO X
SECTION CORED YES ___ NO X
POROSITY GOOD ___ FAIR X TIGHT ___

UNIT 28
DATE 2-15-54
GAS ___ OIL X
DEPTH FROM 5772' TO 5818'

RECOMMENDATION AS TO COMMERCIAL POSSIBILITIES GOOD ___ FAIR ___ POOR X
REASON FOR RECOMMENDATION This dolomite has a fair visiable porosity. It has intermittent shows. The best show was at 5774' to 5792'. The gas in the cuttings and mud was very low. It gave a very poor cut with carbon tetrachloride when wet, fair cut when dry. The other section was at 5816' to 5818'. This section was made up of dolomite.

V S Neal
Engineer

HYCALOG
SHOW REPORT

REF. NO. 28-22

COMPANY Shell Oil Company
WELL East Boundary Butte No.1
BIT CONDITION: DULL ___ WORN ___ NEW X
DRILLING BREAK: YES ___ NO X
CIRCULATED OUT YES ___ NO X
SECTION CORED YES ___ NO X
POROSITY GOOD ___ FAIR ___ TIGHT X

UNIT 28
DATE 2-19-54
GAS ___ OIL X
DEPTH FROM 6016' TO 6026'

RECOMMENDATION AS TO COMMERCIAL POSSIBILITIES GOOD ___ FAIR ___ POOR X
REASON FOR RECOMMENDATION This sand section has poor visible porosity, gives only fair cut with carbon tetrachloride, zero reading on cuttings gas and very low reading on mud gas, sand was slightly calcareous.

J.C. Carr
Engineer

HYCALOG
SHOW REPORT

REF. NO. ___

COMPANY ___
WELL ___
BIT CONDITION: DULL ___ WORN ___ NEW ___
DRILLING BREAK: YES ___ NO ___
CIRCULATED OUT YES ___ NO ___
SECTION CORED YES ___ NO ___
POROSITY GOOD ___ FAIR ___ TIGHT ___

UNIT ___
DATE ___
GAS ___ OIL ___
DEPTH FROM ___ TO ___

RECOMMENDATION AS TO COMMERCIAL POSSIBILITIES GOOD ___ FAIR ___ POOR ___
REASON FOR RECOMMENDATION ___

32 x

HYCALOG
SHOW REPORT

REF. NO. 28-23

COMPANY Shell Oil Company
WELL East Boundary Butte No.1
BIT CONDITION: DULL ___ WORN ___ NEW X
DRILLING BREAK: YES ___ NO X
CIRCULATED OUT YES ___ NO X
SECTION CORED YES ___ NO X
POROSITY GOOD ___ FAIR ___ TIGHT X

UNIT 28
DATE 3-1-54
GAS ___ OIL X
DEPTH FROM 6366' TO 6380'

RECOMMENDATION AS TO COMMERCIAL POSSIBILITIES GOOD ___ FAIR ___ POOR X
REASON FOR RECOMMENDATION This dolomite section has poor visible porosity gives very poor cut with carbon tetrachloride, zero gas reading in cuttings no appreciable increase in mud gas, pin headed black dead oil.

T. C. Carr
Engineer

HYCALOG
SHOW REPORT

REF. NO. ___

COMPANY ___
WELL ___
BIT CONDITION: DULL ___ WORN ___ NEW ___
DRILLING BREAK: YES ___ NO ___
CIRCULATED OUT YES ___ NO ___
SECTION CORED YES ___ NO ___
POROSITY GOOD ___ FAIR ___ TIGHT ___

UNIT ___
DATE ___
GAS ___ OIL ___
DEPTH FROM ___ TO ___

RECOMMENDATION AS TO COMMERCIAL POSSIBILITIES GOOD ___ FAIR ___ POOR ___
REASON FOR RECOMMENDATION ___

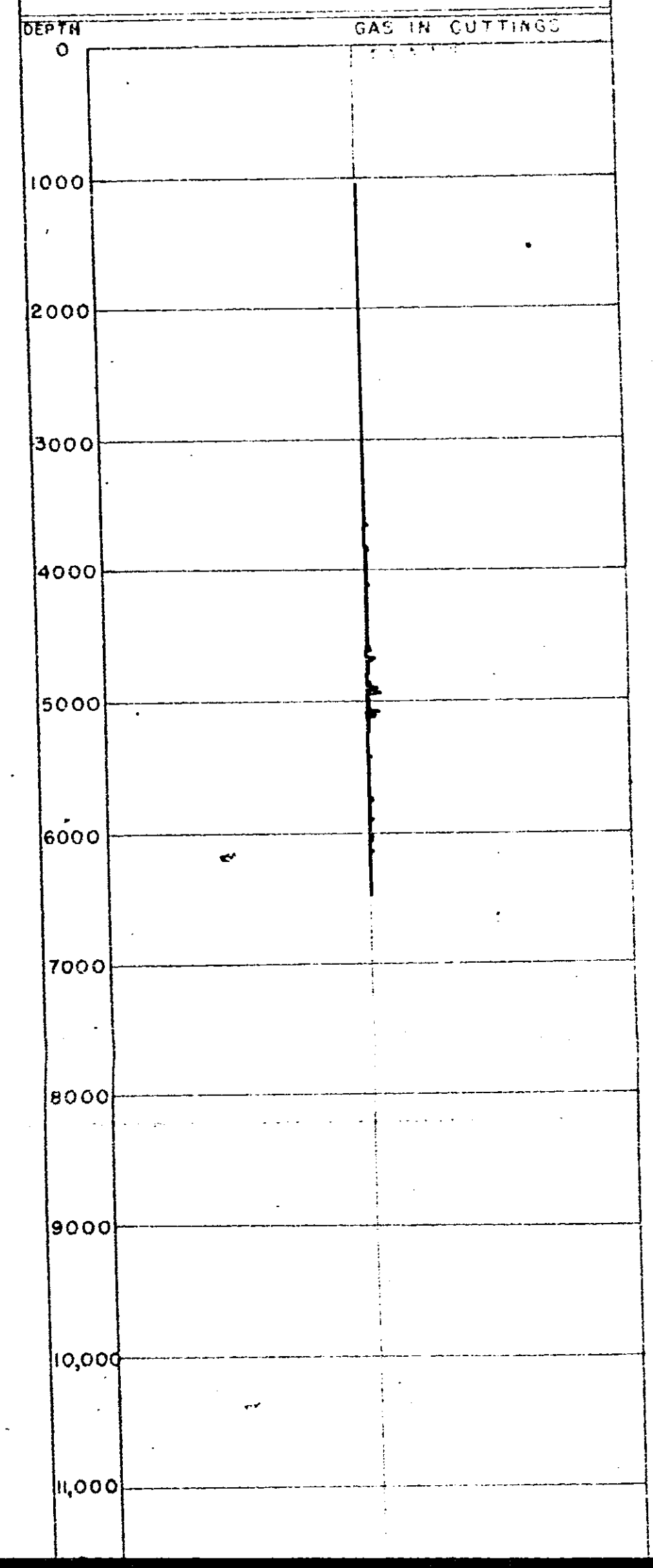
32 x

HYCALOG, INC.

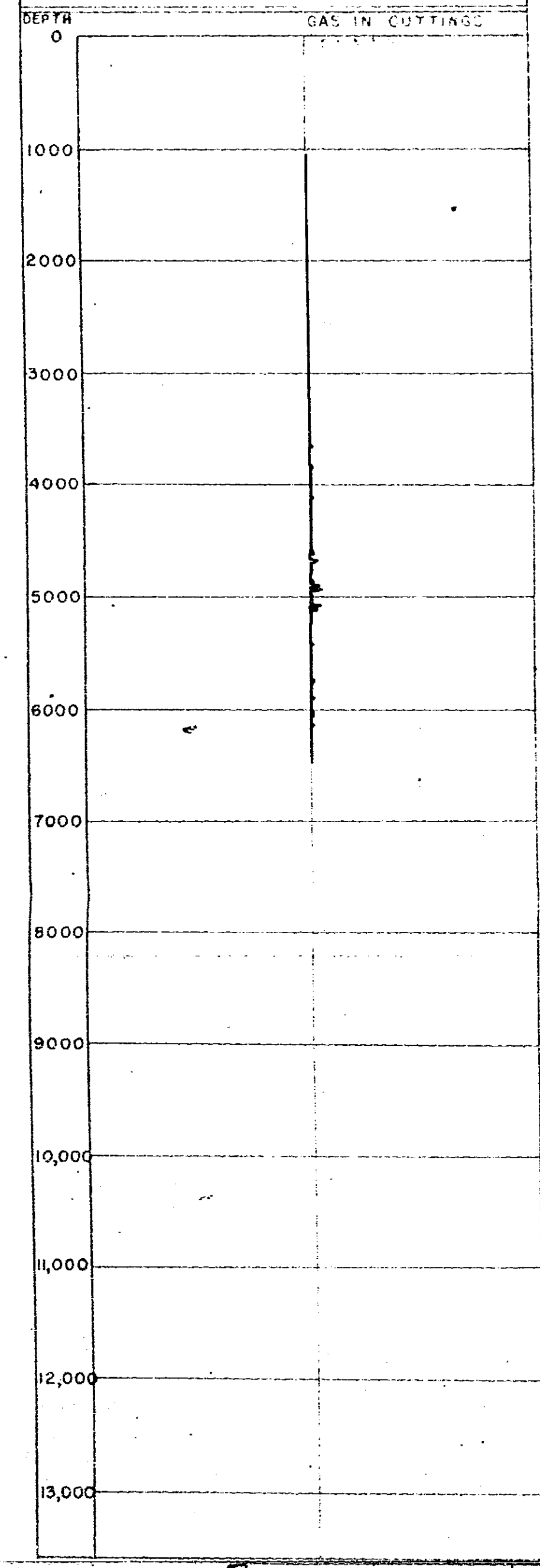
"D" LOG

DIAGNOSTIC PROFILE

COMPANY Shell Oil Company
WELL East Boundary Butte #1
FIELD Wildcat SEC 6 T 41N R 29E
SURVEY
COUNTY Apache STATE Arizona
LOGGED FROM 1040' TO 5239' ELEV
REMARKS



COMPANY Shell Oil Company
WELL East Boundary Butte #1
FIELD Wildcat SEC 6 T 41N R 29E
SURVEY
COUNTY Apache STATE Arizona
LOGGED FROM 1040' TO 5239' ELEV
REMARKS



32 × 1

HYCALOG, INC.

CORE ANALYSIS REPORT

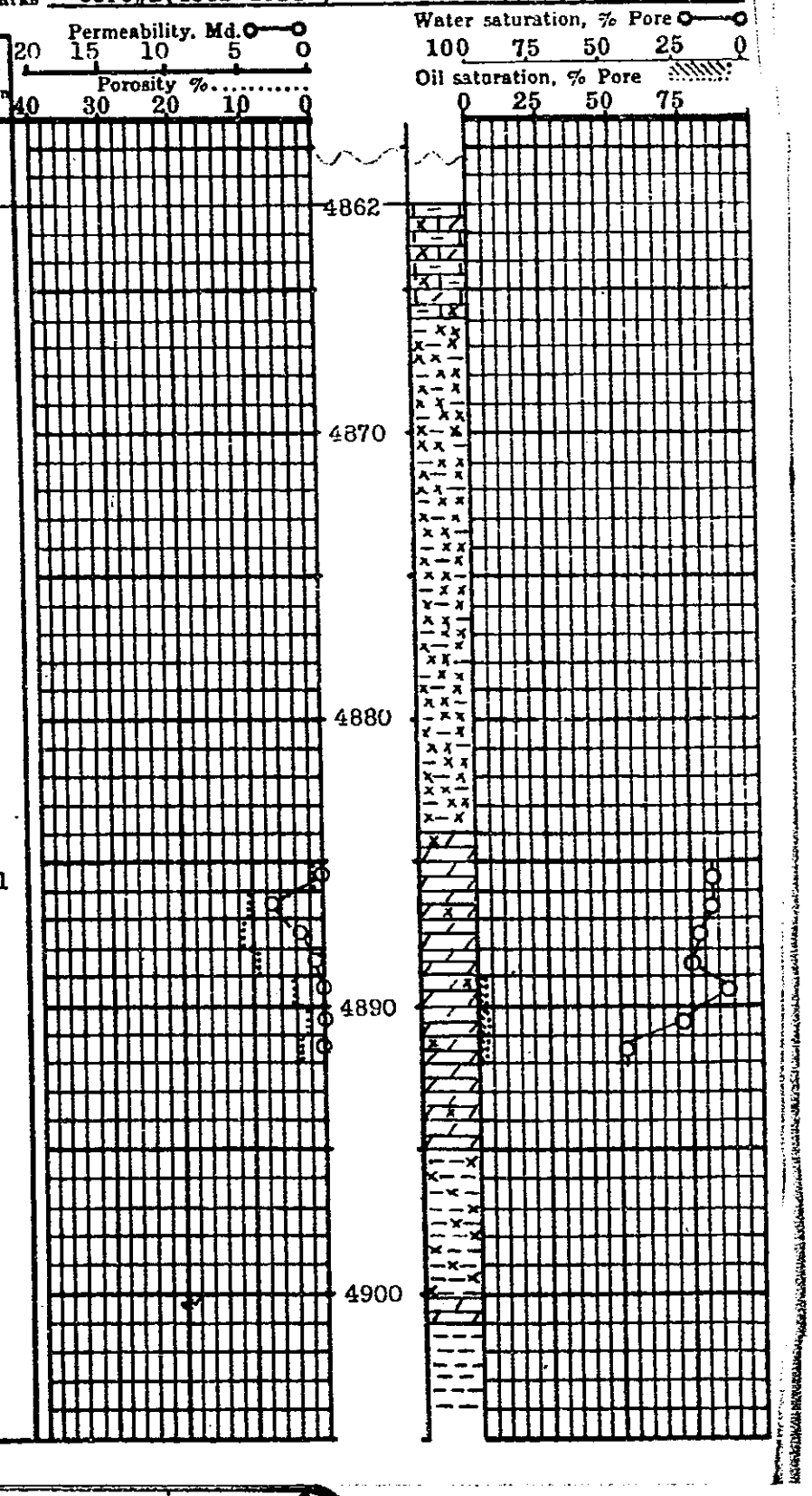
Company Shell Oil Company Location _____ File _____

Well East Boundary Butte #1 Legend: Sand..... Anhydrite.... Eng. _____

Field Wildcat Shale..... Dolomite..... Unit 28

County Apache State Arizona Lime..... _____ Remarks Core#1(4862-4914')

Depth Feet	Permeability Millidarcys	Porosity Percent	Residual Saturation Percent Pore Space Oil	Residual Saturation Percent Pore Space Water	Probable Production
4885.5	0.0	1.5	0.0	17.3	Nil
4886.5	3.5	10.4	0.0	18.2	"
4887.5	1.6	11.2	0.0	22.3	"
4888.5	0.6	9.4	0.0	25.0	"
4889.5	0.0	4.1	Trace	12.8	"
4890.5	0.0	2.4	Trace	29.3	"
4891.5	0.0	3.8	Trace	49.2	"



HYCALOG, INC.

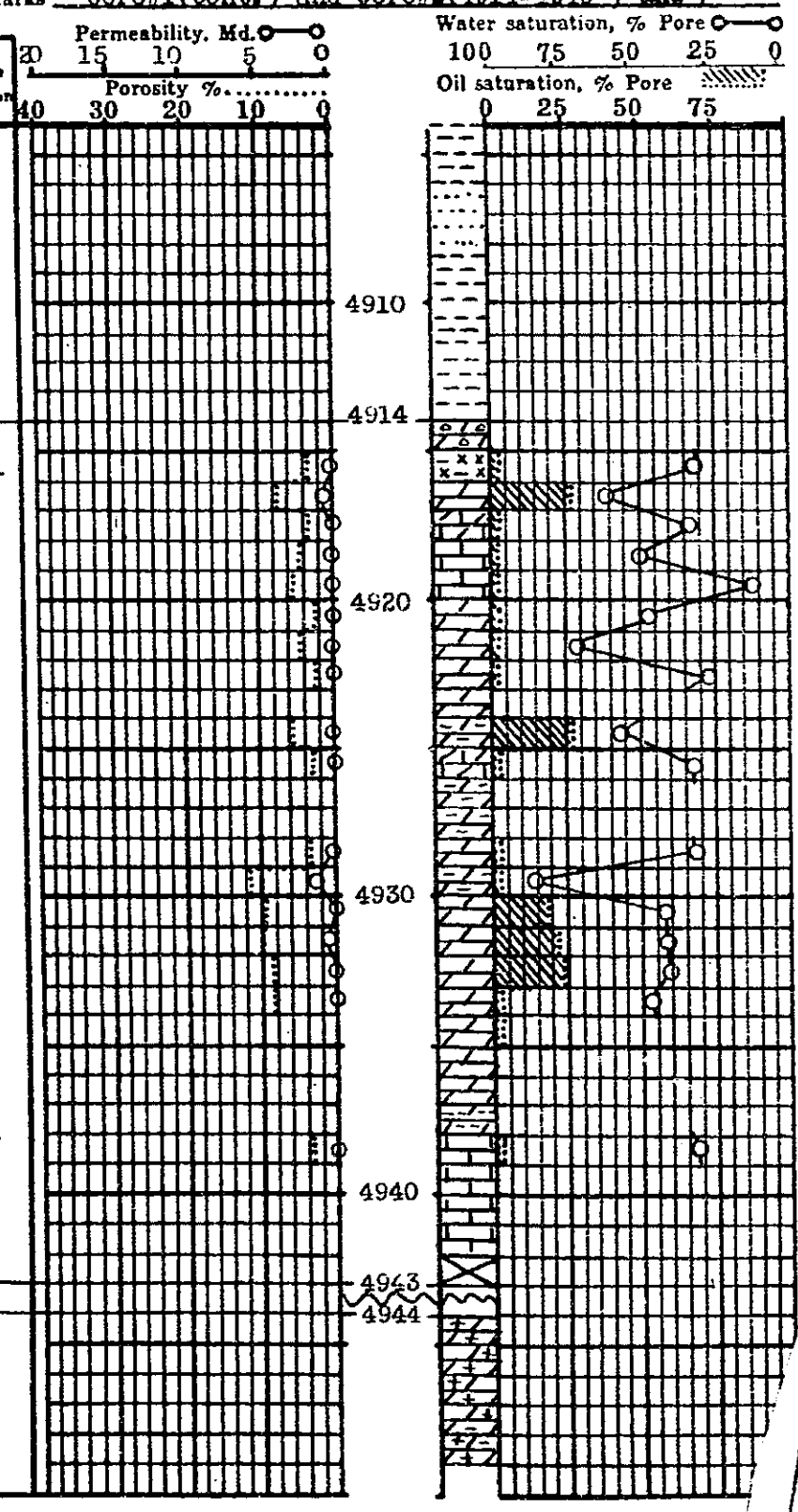
CORE ANALYSIS REPORT

Company: Shell Oil Company
Location:
File:
Well: East Boundary Butte #1
Field:
County:
State:
Eng.:
Unit:

Legend: Sand, Shale, Lime, Anhydrite, Chert, Dolomite, Fossils

Remarks: Core#1(Cont.) and Core#2(4914-4943') and Core#3(4944-4973')

Depth Feet	Permeability Millidarcys	Porosity Percent	Residual Saturation Percent Pore Space Oil	Residual Saturation Percent Pore Space Water	Probable Production
4915.5	0.0	3.1	Trace	33.2	Nil
4916.5	0.6	7.9	27.3	61.3	"
4917.5	0.0	3.2	Trace	34.3	"
4918.5	0.0	4.7	Trace	50.7	"
4919.5	0.0	5.5	Trace	13.9	"
4920.5	0.0	2.5	Trace	48.5	"
4921.1	0.0	4.4	Trace	71.2	"
4922.5	0.0	2.5	Trace	27.0	"
4924.5	0.0	5.1	28.6	57.2	"
4925.5	0.0	3.0	Trace	32.4	"
4928.5	0.0	3.1	Trace	33.8	"
4929.5	1.1	11.4	19.1	86.1	"
4930.5	0.0	9.4	22.9	43.2	"
4931.5	0.2	10.0	24.2	42.0	"
4932.5	0.0	8.2	Trace	41.3	"
4933.5	0.0	8.9	Trace	48.9	"
4938.5	0.0	3.1	Trace	33.2	"



HYCALOG, INC.

CORE ANALYSIS REPORT

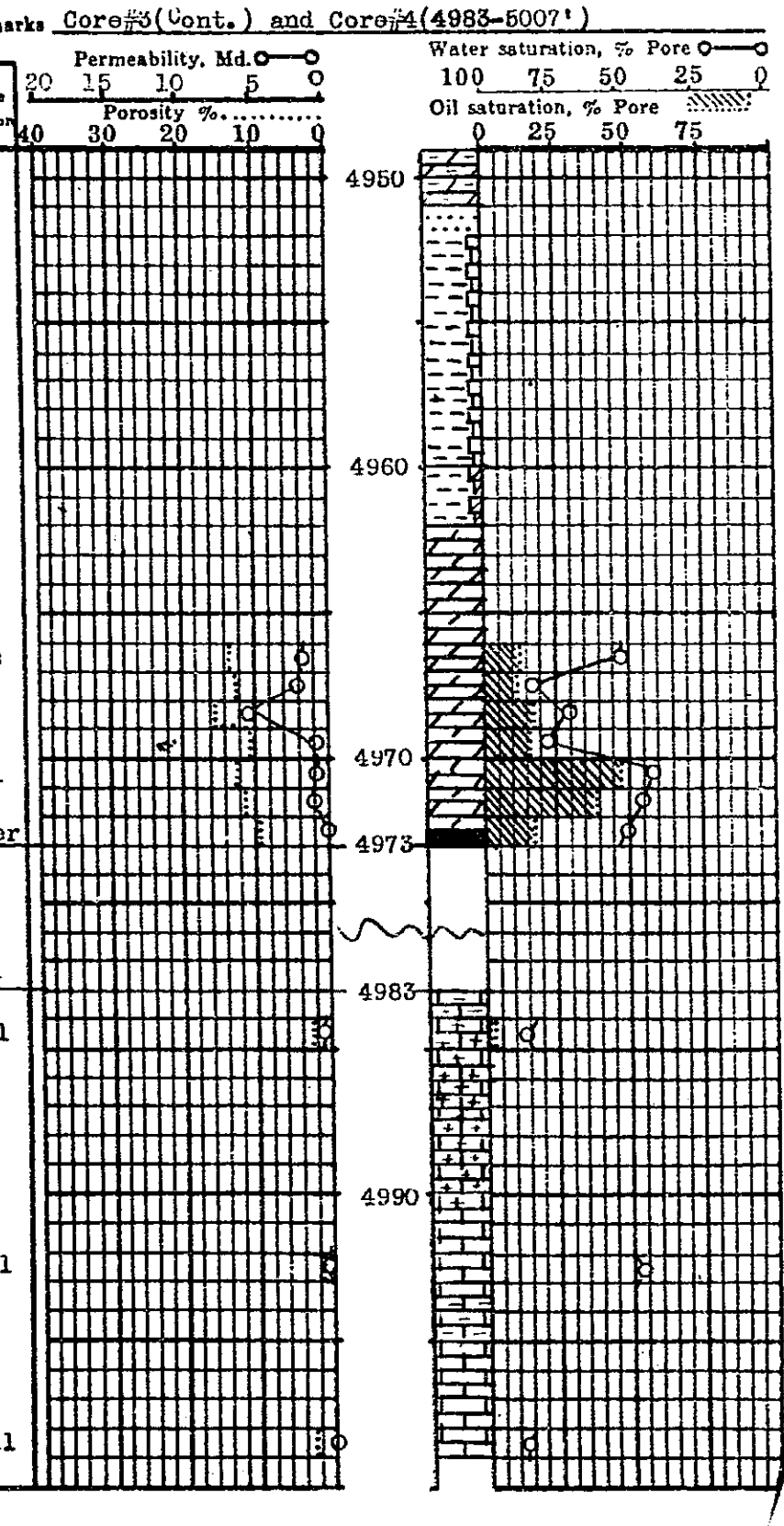
Company Shell Oil Company Location _____ File _____

Well East Boundary Butte #1 Legend: Sand..... Dolomite..... Shale..... Fossils..... Lime..... Lignite..... Eng. _____

Field _____ Unit _____

County _____ State _____ Remarks Core#3(Cont.) and Core#4(4983-5007')

Depth Feet	Permeability Millidarcys	Porosity Percent	Residual Saturation Percent Pore Space Oil	Residual Saturation Percent Pore Space Water	Probable Production
4966.5	1.9	13.2	13.8	52.8	Gas
4967.5	2.0	12.7	12.6	82.5	"
4968.5	5.2	15.5	13.5	70.0	"
4969.5	0.8	10.9	16.3	77.8	"
4970.5	0.9	12.7	48.0	41.5	Oil
4971.5	1.0	11.6	39.0	45.0	"
4972.5	0.0	9.6	18.1	50.5	Water
4984.5	0.2	2.7	Trace	86.5	Nil
4992.5	0.2	1.2	0.0	46.3	Nil
4998.5	0.0	2.6	0.0	86.5	Nil



HYCALOG, INC.

CORE ANALYSIS REPORT

Company Shell Oil Company Location _____ File _____

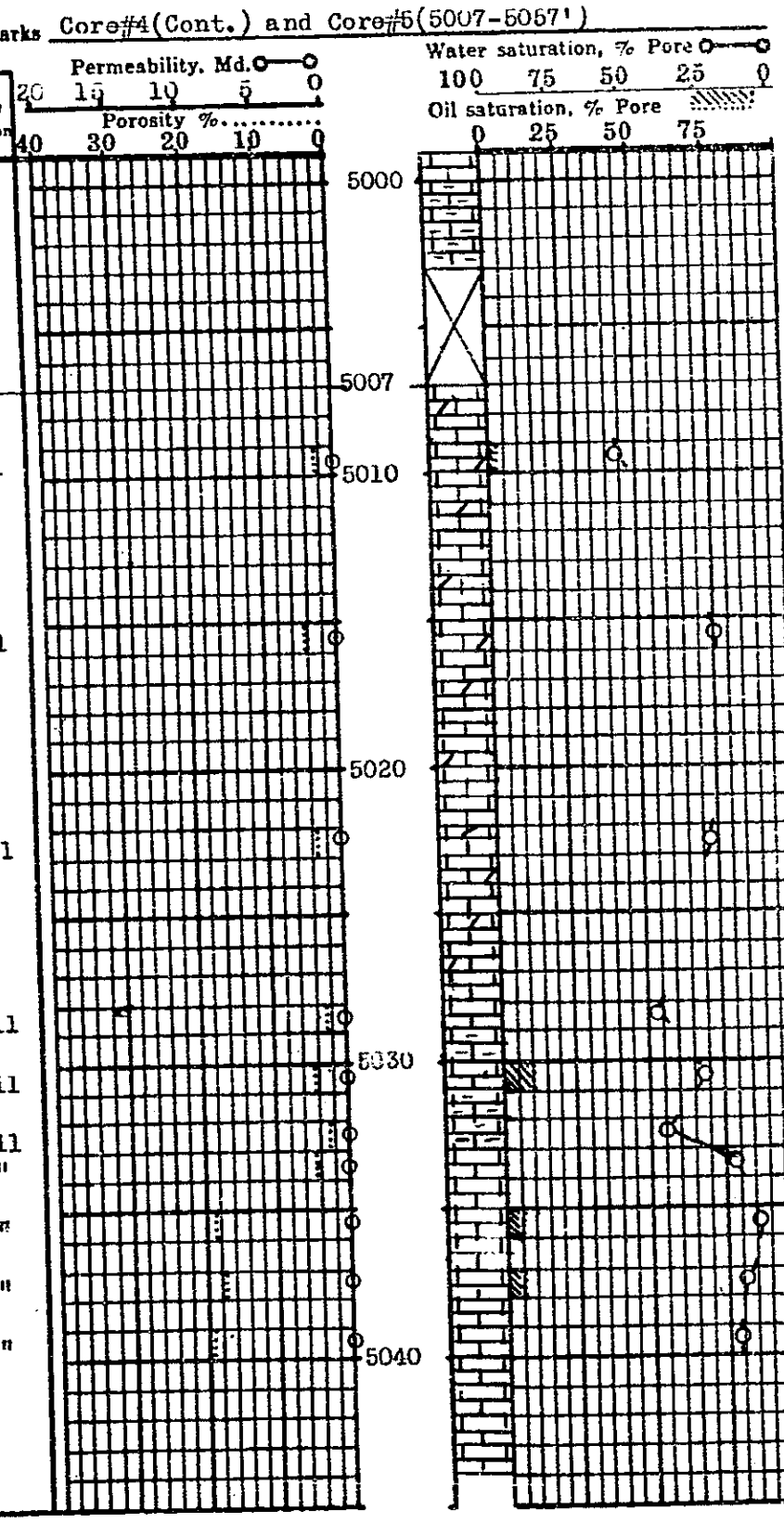
Well East Boundary Butte #1 Legend: Sand..... Dolomite..... Eng. _____

Field _____ Shale..... _____ Unit _____

Lime.....

County _____ State _____ Remarks Core#4(Cont.) and Core#5(5007-5067')

Depth Feet	Permeability Millidarcys	Porosity Percent	Residual Saturation Percent Pore Space Oil	Residual Saturation Percent Pore Space Water	Probable Production
5009.5	0.0	2.4	Trace	56.5	Nil
5015.5	0.0	4.3	0.0	25.4	Nil
5022.5	0.0	3.8	0.0	28.4	Nil
5028.5	0.0	2.9	0.0	48.0	Nil
5030.5	0.0	4.9	10.7	31.4	Nil
5032.5	0.0	2.4	0.0	45.0	Nil
5033.5	0.0	4.8	0.0	22.0	"
5035.5	0.0	18.4	5.5	14.8	"
5037.5	0.0	17.9	5.6	19.6	"
5039.5	0.0	19.8	0.0	21.0	"



HYCALOG, INC.

CORE ANALYSIS REPORT

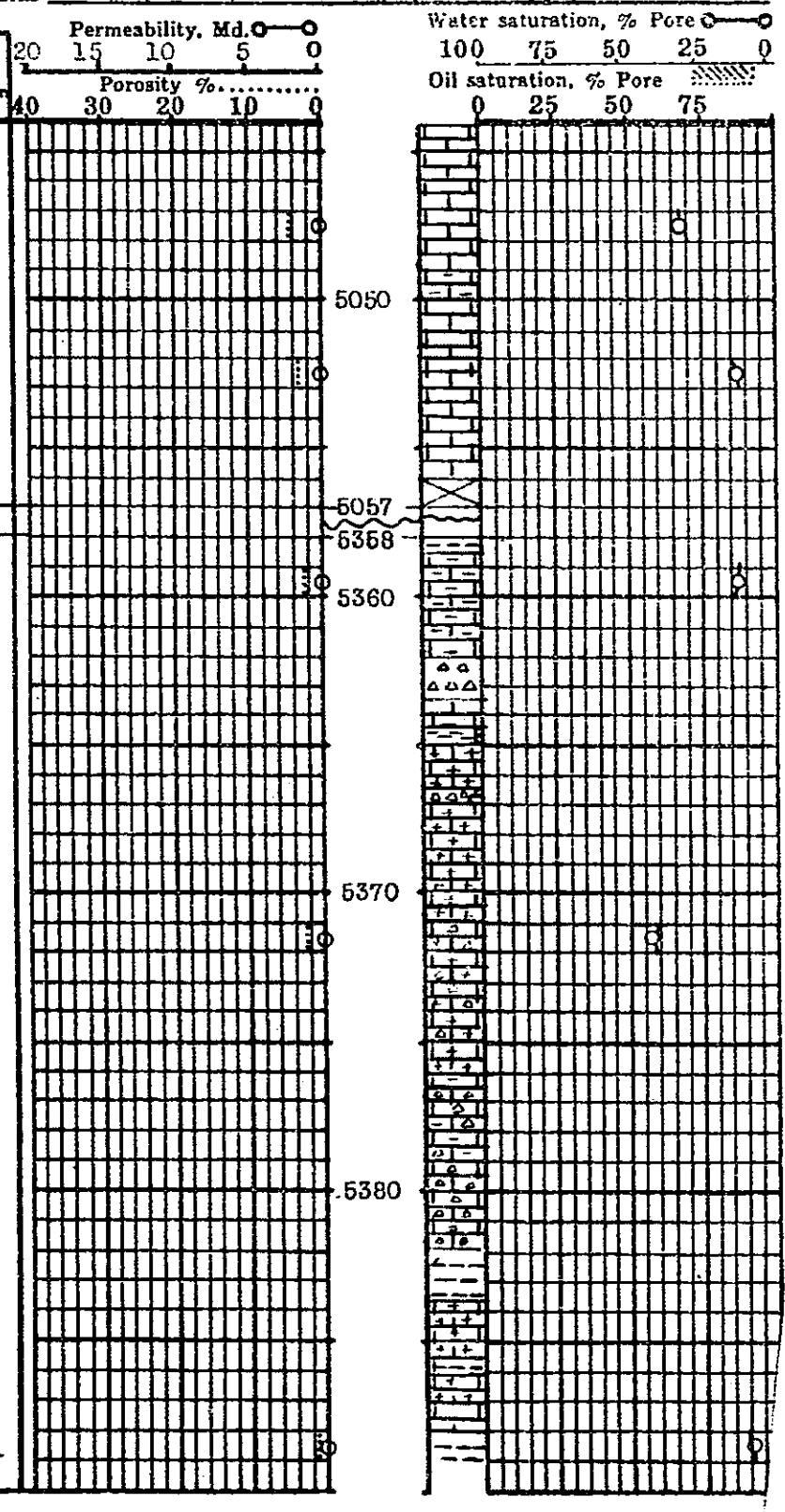
Company Shell Oil Company Location _____ File _____

Well East Boundary Butte #1 Legend: Sand..... Chert..... Eng. _____

Field _____ Shale..... Lime..... Unit _____

County _____ State _____ Remarks Core #5(Cont.) and Core #6(5358-5396')

Depth Feet	Permeability Millidarcys	Porosity Percent	Residual Saturation Percent Pore Space Oil	Residual Saturation Percent Pore Space Water	Probable Production
5047.5	0.0	4.0	0.0	31.2	Nil
5052.5	0.0	3.9	0.0	13.2	Nil
5359.5	0.0	2.4	0.0	13.1	Nil
5371.5	0.0	2.3	0.0	42.2	Nil
5388.5	0.0	1.8	0.0	9.9	Nil



HYCALOG, INC.

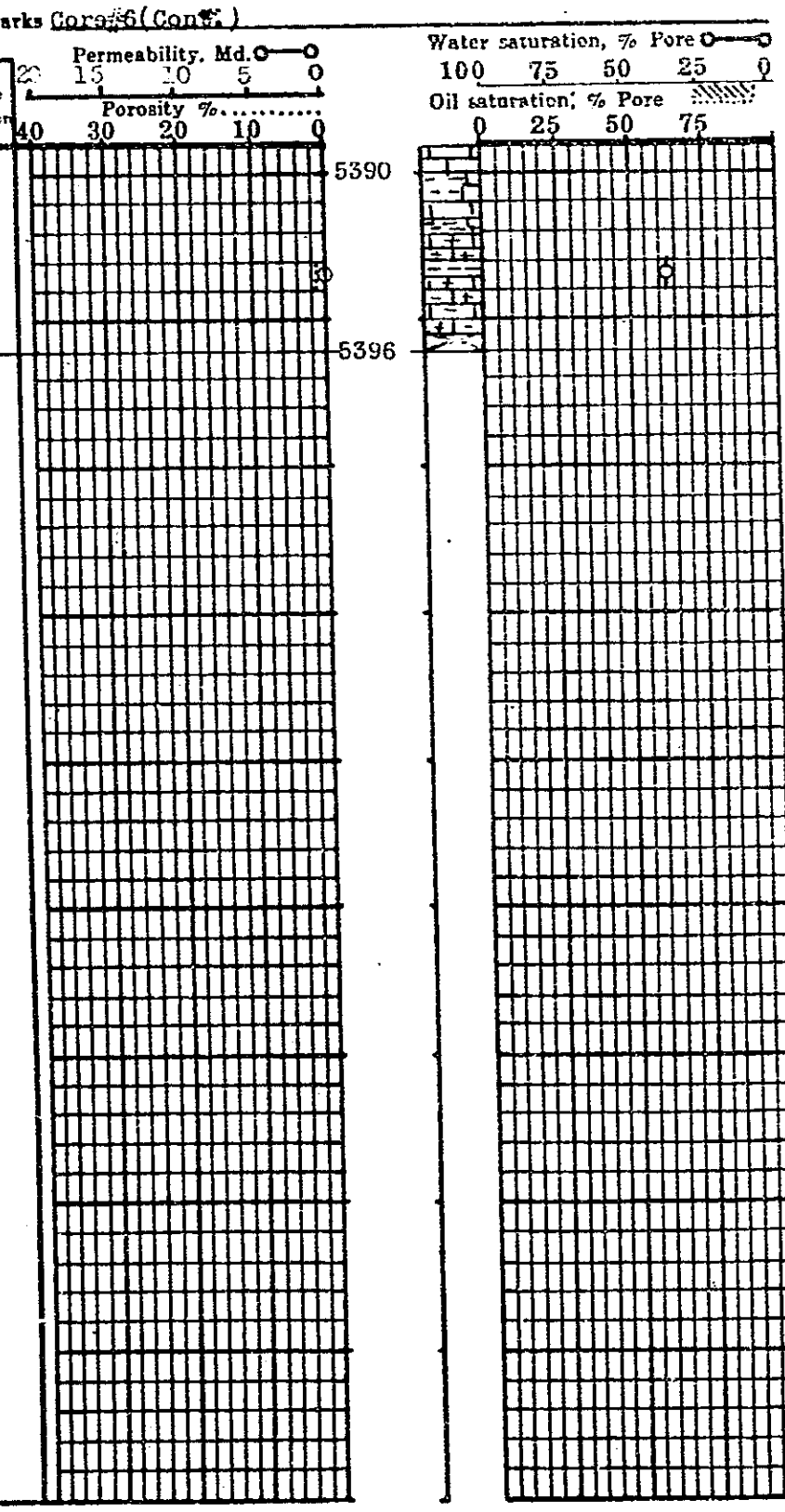
CORE ANALYSIS REPORT

Company: Shell Oil Company Location: _____ File: _____

Well: East Boundary Butte #1 Legend: Sand..... Fossils..... Eng. _____

Field: _____ Shale..... _____ Unit _____

Lime..... _____

County: _____ State: _____ Remarks: Core #6 (Cont.)

Depth Feet	Permeability Millidarcys	Porosity Percent	Residual Saturation Percent Pore Space Oil	Residual Saturation Percent Pore Space Water	Probable Production
5393.5	0.0	1.8	0.0	38.8	Nil