

Well No. 3 Lease Gallegos Canyon Unit

Operator Benson & Montin

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DRILLING AND COMPLETION RECORD

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\* Copy of conventional analysis included.  
Special long core analysis is being run  
and will be furnished at a later date.

(IN POCKET)

<input checked="" type="checkbox"/>	ELECTRIC LOG - LARGE SCALE
<input type="checkbox"/>	" " - SMALL SCALE
<input type="checkbox"/>	RADIOACTIVE LOG - LARGE SCALE
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WELL NO. 3 LEASE Gallegos Canyon Unit  
 OPERATOR Benson & Montin

## COMPLETION SUMMARY

SCHEDULE OF DATES	MONTH	DAY	YEAR
LOCATION <del>DATE</del> Surveyed	4	2	51
ROTARY RIGGING UP	9	8	51
DRILLING COMMENCED	9	8	51
DRILLING COMPLETED	9	28	51
FIRST PRODUCTION	9	18	51
POTENTIAL TEST	11	1	51
OFFICIAL COMPLETION	11	1	51
PLUGGED (IF DRY HOLE)			

LOCATION DATA			
FIELD <u>Wildcat</u>	FORMATION COMPLETED IN <u>Pictured Cliffs</u>		
COUNTY <u>San Juan</u>	STATE <u>New Mexico</u>		
LOCATION <u>990</u>	FEE	ST	OF THE <u>West</u> LINE
AND <u>1650</u>	FEE	ST	OF THE <u>South</u> LINE OF
SECTION <u>24</u>	TOWNSHIP <u>28 N</u>	RANGE <u>12 W</u>	
SURVEY	BLOCK NO.		
ELEVATION GROUND <u>5830</u>	ELEVATION K. B. <u>5840</u>		
ELEVATION CASINGHEAD <u>5831</u>	WELL SPACING ACRES		

## BRIEF DESCRIPTION OF COMPLETION

FORMATION, OPEN HOLE OR PERF., SINGLE, DUAL, TRIPLE, OIL, GAS, WATER, DRY, ETC.

Drilled to 1713' with rotary and set casing. Deepened 1713 to 1752 with cable tools. Shot 1693 - 1752 with 135 qts. LNG.

Casing: 10 3/4" @ 96' with 100 sacks  
 5 1/2" @ 1681' with 100 sacks

## Production tests:

Natural: 160 MCF per day and 4 gallons water per hour after open 24 hours.

After Shot: 555 MCF per day after open 3 hours.  
 (State Test) Shut in pressure 473#.

- (1) This is one of seven exploratory wells drilled to test the Pictured Cliffs formation.
- (2) No participating areas have yet been established.

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## COMPLETION SUMMARY

DRILLING AND PLUG BACK DEPTHS		
	FROM	TO
DEPTH DRILLED WITH ROTARY	Surf.	1713
DEPTH DRILLED WITH CABLE TOOLS	1713	1752
TOTAL DEPTH		1752
PLUG BACK NO. 1	--	--
PLUG BACK NO. 2	--	--
PLUG BACK NO. 3	--	--

LOGGING DEPTHS		
	FROM	TO
SAMPLE LOG (DESCRIPTION)	1400	1661
TIME LOG	100	1713
ELECTRIC LOG	96	1695 *
RADIOACTIVE LOG		
Core description	1665	1713
Sample description	1713	1752

\*Core #4 on bottom and not recovered

## DRILL STEM TEST DEPTH SUMMARY

DST. NO.	FORMATION	FROM	TO	DST. NO.	FORMATION	FROM	TO
	NONE						

## CORING SUMMARY

CORE NO.	FORMATION	DRILL OR CONV.	FROM	TO	FT. CORED	FT. REC.	% REC.	ANAL.
1	Pictured Cliffs	Conv.	1665	1677	12	7.0	90	Yes
2	Pictured Cliffs	Conv.	1677	1678	1	3.8		No
3	Pictured Cliffs	Conv.	1678	1696	18	17.6	98	Yes
4	Pictured Cliffs	Conv.	1696	1713	17	0	0	No

## SHOT SUMMARY

DATE	FORMATION	FROM	TO	NO. QTS.	TYPE	TD.	PBTD.	CSG. SHOE	TAMPED?	OPEN?
9-20-51	Pictured Cliffs	1693	1752	135	ING	1752	----	1681	Yes	

## ACID TREATING SUMMARY

DATE	
COMPANY	
FORMATION	
FROM	
TO	
GALLONS	N O N E
TYPE	
TOTAL DEPTH	
PLUG BACK TO	
CASING DEPTH	
PACKER DEPTH	
OPEN HOLE OR PERF.	
ACID DOWN TBG. OR CSG.	
INJ. RATE AT B.O. (GPM.)	
TBG. PRESS.	
CSG. PRESS.	
INJ. RATE TREATING (GPM.)	
TBG. PRESS.	
CSG. PRESS.	
TOTAL INJ. TIME	
HOLE LOADED WITH GEL M.	
REMARKS	

### EQUIPMENT SUMMARY

CASING LINER HOLE SIZE AND CEMENTING SUMMARY													
SIZE O.D.	QUANTITY FEET	NO. JOINTS	WT.	CPLG	GRADE	THD	SET AT (DEPTH)	NO. SACKS	TYPE CEMENT	TOP IN ANNULUS	SCRATCHERS AND CENTRALIZERS		
											NO. CNT.	NO. SCR.	MAKE
10-3/4	86	3	33	short	J-55	8rd	96	100	Com.	Circ.	N o n e		
5-1/2	1673	51	14	short	J-55	8rd	1681	100	Com.	N.T.	10	3	Weather

SUBSURFACE EQUIPMENT SUMMARY (AT TIME OF COMPLETION--SEE OTHER RECORDS FOR CHANGES)												
TUBING OR RODS	TUBING AND RODS		NO. JOINTS	TYPE	WT.	GRADE	DEPTH SET AT	OPEN OR CLOSED END	PERFORATIONS			
	SIZE	QUANTITY							NO.	SIZE	FROM	TO
Tubing	1"	1726	82	BLP	1.6	LP	1723*	open	slotted joint	1700	1719	
*1726' + 4 - 12" nipples, 1730' less 7' to D.F.												
OTHER EQUIPMENT		KIND	SIZE	DATE INST.	LOCATED	REMARKS						
BOTTOM HOLE CHOKE		Orifice	1/8"	9-27-51	1637	12" BLP nipple with screen						
SIDE DOOR CHOKE		Orifice	1/16"	9-27-51	1217	"						
PACKER		Orifice	1/16"	9-27-51	797	"						
TUBING CATCHER		Orifice	1/16"	9-27-51	377	"						
PARAFFIN PADDLES OR SCRAPERS												
PUMP												

PERFORATION RECORD				
DATE				
COMPANY				
FROM		N	o	n e
TO				
NUMBER HOLES				
SIZE				
TYPE				

SURFACE EQUIPMENT SUMMARY (MAKE, MODEL, SIZE, ETC.)	
BRADENHEAD	Rectorhead, model R 10-3/4 x 5-1/2
TUBING HEAD	5-1/2" x 3" swaged nipple; 3" WECO union, mandrel, 2" outlets
<del>CHOKES</del>	2 - 2" Nordstrom plug valves, 500# W.P.
<del>PUMPING UNIT</del>	2 - 1" Nordstrom plug valves, 500# W.P.
PUMPING ENGINE	
PUMP	

When this well is placed on production it will probably be advisable to install an intermitter on the tubing to periodically unload the accumulated water from the hole.

990' FWL  
1650' FSL  
Section 24-25N-12W

3 Gallegos Canyon Unit

Benson & Montin  
Wildcat  
San Juan  
New Mexico

5340'

A. R. Greer

Benson & Montin

Base of Ojo Alamo  
Top of Pictured Cliffs

	570		5270
1668 (core)	1668	4172	4172

Ojo Alamo	W	470	570
Pictured Cliffs	G	1668	1752

48' Higher than #1 G.C.U.  
222' Higher than #2 G.C.U.

See drilling history

See core data for upper part of sand.

1713-52 drilled with cable tools, samples indicate fine grained sand entirely, with no shale. There was very little increase in gas as result of drilling this 39', hence permeability is probably quite low

Kirtland sands

700-1100

REMARK: Electric log indicates that combined sand thickness might yield commercial production

INDIVIDUAL WELL PRODUCTION TEST SUMMARY

COUNTY San Juan STATE New Mexico  
FORMATION Pictured Cliffs

WELL 3 FIELD Wildcat  
LEASE Gallegos Canyon Unit  
OPERATOR Benson & Montin

DATE	PROD METHOD	LENGTH OF TEST HOURS	DURING TEST		PRODUCTION 24 HOUR RATE			GOR	(FLOWING AND GAS LIFT WELLS)				REMARKS
			OIL REL.	WATER	OIL REL.	GAS REL.	WATER REL.		CHOKED	TSG. PRESS. FROM - TO	CSG. PRESS. FROM - TO	POTENTIAL	
Tests taken while drilling in: (Natural)													
9-18-51	F	6				145	2.3						T.D. 1713 (6 hrs. after drlg. plug)
	F	14				150	2.3						T.D. 1723 (drlg.)
	F	24				160	2.3						T.D. 1752 (drlg. -24 hrs. after drlg. plug)
Tests taken cleaning out after shot:													
9-24-51	F	7				264	N.G.						Tools stuck at shoe. Producing around tools.
9-25-51		18				277	N.G.						Tools recovered
		23				390	N.G.						Cleaning out at 1700'
		27				333	N.G.						Cleaning out at 1705'
9-26-51		42				289	N.G.						Cleaning out at 1715'
9-27-51		67				220	N.G.						Cleaning out at 1750'
								10 (est.)					
Tests taken after running tubing:													
9-30-51	F-T	5 days				225	5 (est.)		0		160#		Flowing thru tbg.
10-5-51	F-C	14				132	5 (est)	11/64	S.I.		285#		Flowing thru csq.
10-5-51	F-C	23				178	"	"	"		278		
10-6-51	"	37				175	"	"	"		274		
10-7-51	"	63				172	"	"	"		270		
10-9-51	"	108				167	"	"	"		262		
10-10-51	"	138				165	"	"	"		260		
11-1-51	S.I.	20 days									478# (S.I.)		
	F-C	3				467	0		2" plug valve open				State Test
(550 by N. Mex. Cons. Com. tables - official potential)													

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WELL DRILLING AND COMPLETION HISTORY

DATE	REMARKS
9-7-51	Moving in Rotary
9-8-51	Rigging up Rotary 7:00 PM Preparing to dig rat hole.
9-9-51	Running surface casing. 5:00 PM Set 10-3/4" casing at 96' with 100 sacks cement.
9-10-51	Waiting on cement. 5:00 PM Drilling out from surface pipe.
9-11-51	10:30 AM Total Depth 630'
9-12-51	7:30 AM Total Depth 1300'. Making a trip.
9-13-51	1:00 AM Total Depth 1661'. Preparing to drill 6" pilot hole. 7:30 AM Cut 3' of 6" pilot hole from 1661-64 and circulated 1 hour. Prepared to come out of hole and pick up core barrel. 2:00 PM Out of hole with core #1. Cored 1667-77, recovered 7'. 4:15 PM Core #2. Cored 1677-78. Recovered 3.8'. 7:00 PM Started in hole with hard formation corehead.
9-14-51	1:00 AM Out of hole with core #3. Cored 1678-96. Cored 18'. Recovered 17.6'. 4:30 AM On bottom with soft formation corehead. 8:00 AM Out of hole with core #4. Cored 1696-1713. No recovery. Ran Schlumberger to 1695'. Apparently all of core #4 is standing on bottom. 1:00 PM On bottom preparing to ream. 2:20 PM Reamed pilot hole and core hole out to 7-7/8" to depth of 1681'. 5:00 PM After circulating prepared to lay down drill pipe. 11:30 PM Set 5-1/2" casing at 1681' with 100 sacks cement.
9-15-51	Waiting on Cement.
9-16-51	Moving in cable tools. Commenced swabbing hole on evening tower.
9-17-51	8:00 AM Drilling cement. 12:00 M Drilling cement at 1680'
9-18-51	11:00 AM Cleaned out to 1713' 5:00 AM Blew 400' water out of hole when shoe was drilled. 11:00 AM Measured 24" water through 1" (145 MCF). 3:00 PM 4 Hour bailing test showed 4 gallons per hour. 7:00 PM Total Depth 1723, drilling. Measured 26" water through 1" (150 MCF). 9:00 PM Bailed 6 gallons water in 1 1/2 hours (4 gallons per hour).

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## WELL DRILLING AND COMPLETION HISTORY

DATE		REMARKS
9-19-51	11:00 AM	Total Depth 1752' Measured 30" water through 1". (MCF 160) 6-Hour bailing test showed 4 gallons per hour.
	7:00 PM	Total Depth 1752' Loaded hole with: 6 8'-Shells and 1 4'-Shell of LNG from 1752-1697; 1 4'-Bomb shell with 5 qts. SNG from 1697-93; Total of 135 qts. umbrella 1692-93. Tamped with 4' gravel and 7' calseal below shoe and 50' calseal in casing. 5 Gallons excess gravel required to fill hole the 4'. First bailer calseal filled up 24' (32' would be perfect), hence lost 3'.
9-20-51	7:57 AM	Shot went off.
	1:30 PM	Drilling calseal at about 1682'.
	7:30 PM	Drilling calseal about 1690', hole loaded with water. Tools hung up on starting out of hole.
9-21-51	3:00 AM	Shut down waiting on fishing tools after attempting to jar tools loose on both evening and morning tower.
9-22-51		Shut down waiting on fishing tools.
9-23-51		Cut off line with rope knife.
9-24-51	8:00 AM	Making up string of fishing tools.
	1:00 PM	Took hold of fish and jarred for 5 hours. Could not jar the tools free
	3:00 PM	Swabbed hole dry. No show of gas.
	4:00 PM	In hole with flat bottomed bit attempting to drive tools down where they can be made to swing free. Could not drive tools down.
	10:00 PM	Well making gas around tools. 5" Water through 2". (264 MCF) Shut down over night.
9-25-51	9:00 AM	Recovered fish. Measured 5 $\frac{1}{2}$ " water through 2". (277 MCF)
	2:00 PM	Cleaning out at approximately 1700'. Measured 11" water through 2". (390 MCF)
	7:00 PM	Cleaning out at approximately 1705'. Measured 8" water through 2". (333 MCF) Shut down over night.
9-26-51	9:00 AM	Cleaning out at 1715'. Measured 6" water through 2". (289 MCF) Shut down over night.



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## WELL DRILLING AND COMPLETION HISTORY

DATE	REMARKS
9-27-51	10:30 AM Measured 3½" through 2" (220 MCF) Cleaning out at 1750'.
	3:30 PM Cleaning out at 1725'. Hole caving. Have taken out 30 bailers (240 gallons) on daylight tower. Not bailed down.
	8:00 PM Cleaned out to total depth.
9-28-51	8:00 AM Tearing down rig. Ran siphon line on morning tower
9-30-51	7:00 AM After open 5 days measured 58" water through 1" (225 MCF) with 160# casing pressure and spray of water.
10-1-51	Shut in.
10-4-51	1:00 PM Opened up through siphon line.
	6:30 PM Casing pressure 210#. Shut in.
	7:30 PM Casing pressure 350#. Opened up on 11/64" choke.
10-5-51	9:45 AM Open 14 hours on 11/64" choke. Measured 58" water through 1" orifice. 285# Casing pressure (182 MCF). Opened siphon line for 15 minutes. Casing pressure dropped to 260#. Volume decreased to 43" through 1" orifice.
	6:30 PM 278# (g). Shut in and blew siphon line for 15 minutes. Pressure increased to 300#.
10-6-51	9:00 AM Open 37 hours on 11/64" choke. Pressure 274# g. 55½" Water through 1" orifice (175 MCF). Blew for 1 hour through siphon line, estimated 2 bbl. water.
	9:00 PM Blew through siphon line 55 minutes, estimated 2 bbl. water.
10-7-51	10:30 AM Open 63 hours on 11/64" choke. Pressure 270# g, 53" Water through 1" orifice (172 MCF). Blew through siphon line 40 minutes. Pressure dropped to 230#. Installed intermitter in siphon line to open 20 minutes every 6 hours. Making estimated 5 barrels water per day.
10-8-51	Testing.
10-9-51	7:30 AM Casing Pressure 262#. 49" Water through 1" orifice. (167 MCF)
10-10-51	1:30 PM Casing pressure 260#. 49" Water through 1" orifice. (165 MCF) Changed intermitter to open 30 minutes every 6 hours.

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WELL DRILLING AND COMPLETION HISTORY

DATE	REMARKS
10-11-51	Shut in
11-1-51	State potential test:  467 MCF by Benson & Montin calculations; 550 MCF by New Mexico Conservation Commission conventional pilot tube tables.  Open 3 hours. 478# Shut in casing pressure.  Completed.

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9-14-51

11:30 PM Plug down

Casing:Set all new 5 $\frac{1}{2}$ " 11# J-55 8rd thd short T&C casing at 1681'

Weatherford centralizers set at:

1610

1640

1675

Weatherford Scratchers set at:

1619

1651

1623

1657

1629

1663

1638

1672

1643

1678

Halliburton common guide shoe on bottom:

Halliburton float collar at 1645-46.

Cement:

Used 100 sacks Portland cement mixed neat. Used 2 bbls. of water, which is 5 sacks per bbl. or 8.4 gallons per sack.

Source of water: San Juan River.

Mud:

Native mud with aquagel, soda ash, quebracho and driscose added.

Weight: 9.4# per gal.

Viscosity: 84 sec.

Water Loss: 6 cc

General:

Used top and bottom wooden plugs. Preceded cement with 5 bbl. of water. Reciprocated casing while cement was displaced around shoe. Displacement rate approximately 5 bbl. per minute. Set about 1/2 weight of casing on bottom. Swung balance from slips.

[illegible]

No Drill Stem Tests taken.

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<u>DEPTH</u>		<u>DRILLING TIME</u>
<u>From</u>	<u>To</u>	
10' Intervals		
100	200	5-4-6-4-2-2-3-2-2-2
	300	3-3-3-3-3-5-3-3-8-3
	400	3-2-3-4-3-3-3-3-3-3
	500	3-3-3-3-3-3-5-5-5-4
	600	4-4-4-4-8-10-5-5-5-5
	700	6-6-8-8-8-9-8-7-9-4
	800	6-6-6-6-12-8-6-7-8-7
	900	9-3-5-6-7-6-5-7-5-7
	1000	7-6-8-10-10-8-8-7-8-9
	1100	6-15-10-11-9-10-10-8-10-10
	1200	7-7-8-9-8-8-8-10-9-10
	1300	13-15-12-9-12-14-15-14-10-8
	1400	8-8-6-5-7-6-6-5-7-9
	1500	12-10-9-7-17-10-9-11-9-17
	1600	10-17-15-17-9-5-5-6-7-8
	1660	18-31-32-25-25-13
1660	1661	1M 50S

OPERATOR Benson & Montin

## SAMPLE DESCRIPTION

[illegible]

r—Red  
gr—Green  
w—White

Well 3 Lease Gallegos Canyon UnitCore #1:

Cored 1665 - 77. Cored 12'; recovered 7'

1665-68 (Top 3'): Shale

1668-72 (Bottom 4'): Medium to coarse grained, clean, gray sand. Very small amount of white kaolin clay cementing material. Bleeding gas when removed from core barrel. Fresh break revealed odor of gas and formation water.

<u>Coring Time:</u>	1665-66	2 Minutes	15 Seconds
	1666-67	1 "	45 "
	1667-68	1 "	45 "
	1668-69	2 "	30 "
	1669-70	2 "	30 "
	1670-71	2 "	15 "
	1671-72	2 "	45 "
	1672-73	2 "	00 "
	1673-74	2 "	35 "
	1674-75	2 "	40 "
	1675-76	3 "	00 "
	1676-77	3 "	00 "

Mud Characteristics: Native mud with aquagel, soda ash, quebracho and driscose added.

Weight	9.4# per gallon
Viscosity	54 seconds
Water loss	6 cc

Core Barrel: Hughes Type J.

Core Head: 5 $\frac{1}{4}$ " Soft formation.

Weight While Coring: Approximately 2000# - 3000#.

Pump Pressure: 300# (4 $\frac{1}{2}$ " Drill Pipe)

Rotary Speed: 50 - 60 r.p.m.

Core barrel was run on bottom of 4 $\frac{1}{2}$ " drill pipe, no drill collars.

Core #2:

Cored 1677-78. Cored 1", recovered 3.8'.

All gray to black carbonaceous shale.  
1672-76 - Hard gray to dark brown sandy carbonaceous shale.

Coring Time: 22 Minutes

Mud, etc.: Same as for Core #1.

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Core #3: Cored 1678 - 96. Cored 18', recovered 176'.

All medium grained, fairly clean gray sand with small amount of white kaolin clay cementing material. Good odor of gas on fresh break. After standing corer showed odor of formation water.

<u>Coring Time:</u>	1678-79	16 Minutes
	1679-80	18 "
	1680-81	6 "
	1681-82	8 "
	1682-83	7 "
	1683-84	8 "
	1684-85	7 "
	1685-86	8 "
	1686-87	7 "
	1687-88	8 "
	1688-89	7 "
	1689-90	8 "
	1690-91	7 "
	1691-92	8 "
	1692-93	8 "
	1693-94	9 "
	1694-95	8 "
	1695-96	9 "

Mud: Viscosity 64 Seconds.  
Otherwise, same as before

Core Head: 5½" hard formation.

Weight: Approximately 2000# - 3000#.

Rotary Speed: 50 - 60 r. p. m.

Core #4: Cored 1696 - 1713. Cored 17', recovered 0'.

<u>Coring Time:</u>	1696-97	5 Minutes	1705-06	5 Minutes
	1697-98	12 "	1706-07	5 "
	1698-99	4 "	1707-08	4 "
	1699-1700	5 "	1708-09	4 "
	1700-01	5 "	1709-10	3 "
	1701-02	4 "	1710-11	3 "
	1702-03	4 "	1711-12	3 "
	1703-04	4 "	1712-13	5 "
	1704-05	4 "		

Mud: Viscosity 84 Seconds (after mixing one more sack of driscose).



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Core #4. Cont'd:

Core Head: 5 $\frac{1}{4}$ " soft formation.

Otherwise, conditions same as Core #1.