

District I
PO Box 1980, Hobbs, NM 88241-1980
District II
811 S. 1st Street, Artesia, NM 88210-2834
District III
1000 Rio Brazos Rd., Aztec, NM 87410
District IV
2040 South Pacheco, Santa Fe, NM 87505

State of New Mexico
Energy, Minerals & Natural Resources Department
OIL CONSERVATION DIVISION
2040 South Pacheco
Santa Fe, NM 87505

Form C-101
Revised October 18, 1994
Instructions on back
Submit to Appropriate District Office
State Lease - 6 Copies
Fee Lease - 5 Copies

☐ AMENDED REPORT

APPLICATION FOR PERMIT TO DRILL, RE-ENTER, DEEPEN, PLUGBACK, OR ADD A ZONE

¹ Operator name and Address Marathon Oil Company P.O. Box 552 Midland, TX 79702		² OGRID Number 14021
⁴ Property Code 6488	⁵ Property Name Lou Worthan	³ API Number 30-0 30-025-10218
		⁶ Well No. # 9

⁷ Surface Location									
UL or lot no.	Section	Township	Range	Lot. Idn	Feet from the	North/South Line	Feet from the	East/West line	County
"E"	11	22-S	37-E		1905'	North	440'	West	Lea

⁸ Proposed Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot. Idn	Feet from the	North/South Line	Feet from the	East/West line	County
"F"	11	22-S	37-E		1980'	North	2308'	West	Lea
⁹ Proposed Pool 1 Blinebry Oil					¹⁰ Proposed Pool 2				

¹¹ Work Type Code D	¹² Well Type Code O	¹³ Cable/Rotary Rotary	¹⁴ Lease Type Code g' P	¹⁵ Ground Level Elevation 3366'
¹⁶ Multiple N	¹⁷ Proposed Depth 7575'MD, 5627'TVD	¹⁸ Formation Blinebry	¹⁹ Contractor Key	²⁰ Spud Date 3/19/01

²¹ Proposed Casing and Cement Program

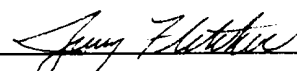
Hole Size	Casing Size	Casing weight/foot	Setting Depth	Sacks of Cement	Estimated TOC
17"	13-3/8"	48#	262'	250 sks. Howco	Surface
11"	8-5/8"	32#	2799'	1500 sks.	275' by T.S.
8"	5-1/2"	17#	6417'	700 sks.	2500' by T.S.

²² Describe the proposed program. If this application is to DEEPEN or PLUG BACK give the data on the present productive zone and proposed new productive zone. Describe the blowout prevention program, if any. Use additional sheets if necessary

Marathon Oil Company is proposing to set CIBP @ 5620'. RIH w/ EZSV cement: retainer, squeeze perfs 5330' to 5600'. Test squeeze, R.U. horizontal pulling unit package. Set Baker Whipstock drill directionally to new BHL.

See attached procedure for drilling operations and directional survey.

²³ I hereby certify that the information given above is true and complete to the best of my knowledge and belief.

Signature: 

Printed name: **Jerry Fletcher** 3/06/01

Title: **Engineer Tech.**

OIL CONSERVATION DIVISION

Approved by:

Title:

Approval Date:

Expiration Date:

Permit Expires 1 Year From Approval
Unless Drilling Underway
Deepen

3
C
3

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Energy, Minerals & Natural Resources Department

OIL CONSERVATION DIVISION
2040 South Pacheco
Santa Fe, NM 87505

Form C-102
Revised October 18, 1994
Instructions on back
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State Lease - 4 Copies
Fee Lease - 3 Copies

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

¹ API Number 30-025-10218	² Pool Code 6660	³ Pool Name Blinebry
⁴ Property Code 6488	⁵ Property Name Lou Worthan	⁶ Well Number # 9
⁷ OGRID No. 14021	⁸ Operator Name Marathon Oil Company	⁹ Elevation 3366' G.L.

¹⁰ Surface Location

UL or lot no.	Section	Township	Range	Lot. Idn	Feet from the	North/South Line	Feet from the	East/West line	County
"E"	11	22-S	37-E		1905'	North	440'	West	Lea

¹¹ Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot. Idn	Feet from the	North/South Line	Feet from the	East/West line	County
"F"	11	22-S	37-E		1980'	North	2308'	West	Lea

¹² Dedicated Acres 80	¹³ Joint or Infill	¹⁴ Consolidation Code	¹⁵ Order No.
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NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED
OR A NON--STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION

	¹⁷ OPERATOR CERTIFICATION I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief. Signature <u><i>Jerry Fletcher</i></u> Printed Name Jerry Fletcher Title Engineer Tech. Date 3/06/01
	¹⁸ SURVEYOR CERTIFICATION I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief. <u>N/A</u> Date of Survey Signature and Seal of Professional Surveyer: Certificate Number



INTEQ

Marathon Oil Company

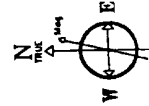
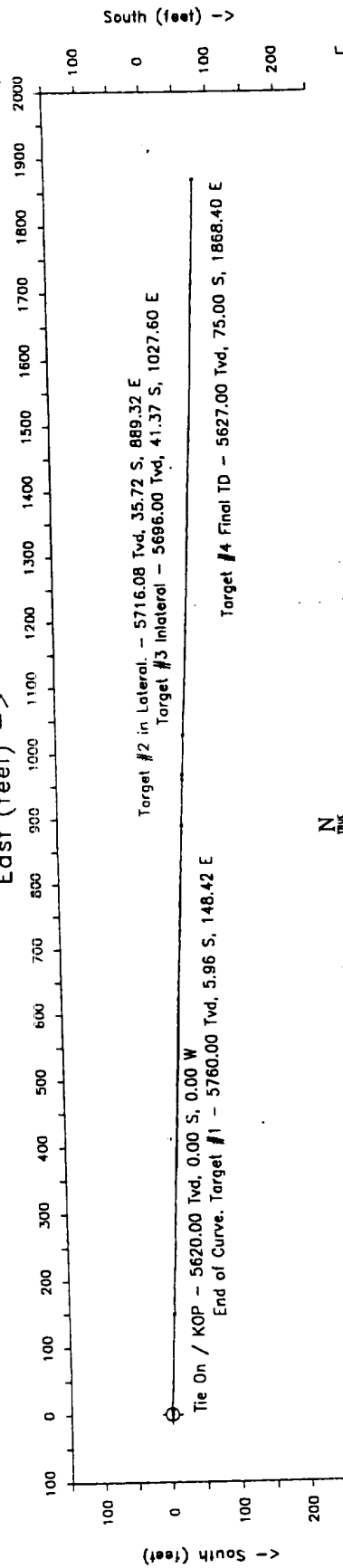
Structure : Lou Worthan #9 Slot : slot #1
Field : Drinkard Location : LEA COUNTY, NEW MEXICO



WELL PROFILE DATA

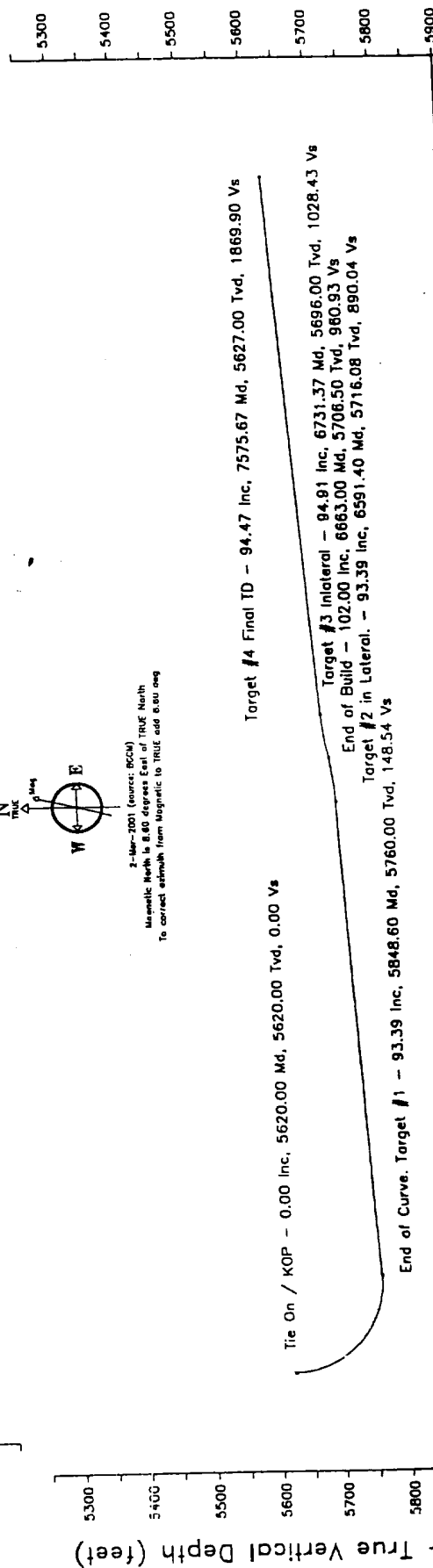
Point	MD	Inc	Dir	TVD	North	East	V. Sect	Deg/100
Tie on	5620.00	0.00	0.00	5620.00	0.00	0.00	0.00	0.00
End of Build/Turn	5848.60	93.39	92.30	5760.00	-5.96	148.42	148.54	40.85
End of Hold	6591.40	93.39	92.30	5716.08	-35.72	889.32	890.04	0.00
End of Build	6663.00	102.00	92.30	5706.50	-38.56	960.16	960.93	12.03
End of Hold	6670.50	102.00	92.30	5704.94	-38.86	967.49	968.27	0.00
End of Drop/Turn	6731.37	94.91	92.47	5696.00	-41.37	1027.60	1028.43	11.66
I.D. & End of Drop/Turn	7575.67	94.47	92.11	5627.00	-75.00	1868.40	1869.90	0.07

East (feet) -->



2-Way-200 (source: BGSN)
Magnetic North is 8.80 degrees East of True North
To correct azimuth from Magnetic to TRUE add 8.80 deg

True Vertical Depth (feet) -->



Vertical Section (feet) -->

Azimuth 92.30 with reference 0.00 N, 0.00 E from slot #1

Marathon Oil Company
Lou Worthan #9

slot #1
Drinkard
LEA COUNTY, NEW MEXICO

PROPOSAL LISTING

by
Baker Hughes INTEQ

Your ref : Plan 1 03/02/01
Our ref : prop2729
License :

Date printed : 2-Mar-2001
Date created : 2-Mar-2001
Last revised : 2-Mar-2001

Field is centred on n32 25 0.000,w103 1 0.000,-105
Structure is centred on n32 25 0.000,w103 10 0.000,-105

Slot location is n32 25 0.000,w103 10 0.000
Slot Grid coordinates are N 3588154.734, E 672400.539
Slot local coordinates are 0.00 N 0.00 E

Projection type: mercator - UTM, Spheroid: Hayford

Reference North is True North

Marathon Oil Company
 Lou Worthan #9, slot #1.
 Drinkard, LEA COUNTY, NEW MEXICO

PROPOSAL LISTING Page 1
 Your ref : Plan 1 03/02/01
 Last revised : 2-Mar-2001

Measured Depth	Inclin. Degrees	Azimuth Degrees	True Vert Depth	R E C T A N G U L A R C O O R D I N A T E S		Dogleg Deg/100ft	Vert Sect
5620.00	0.00	0.00	5620.00	0.00 N	0.00 E	0.00	0.00 Tie On / KOP
5700.00	32.68	92.30	5695.73	0.89 S	22.19 E	40.85	22.20
5800.00	73.54	92.30	5754.50	4.03 S	100.42 E	40.85	100.50
5848.60	93.39	92.30	5760.00	5.96 S	148.42 E	40.85	148.54 End of Curve. Target #1
6000.00	93.39	92.30	5751.05	12.03 S	299.44 E	0.00	299.68
6500.00	93.39	92.30	5721.48	32.06 S	798.16 E	0.00	798.80
6591.40	93.39	92.30	5716.08	35.72 S	889.32 E	0.00	890.04 Target #2 in Lateral.
6614.78	96.20	92.30	5714.13	36.65 S	912.60 E	12.03	913.33
6663.00	102.00	92.30	5706.50	38.56 S	960.16 E	12.03	960.93
6670.50	102.00	92.30	5704.94	38.86 S	967.49 E	0.00	968.27
6700.00	98.56	92.39	5699.68	40.04 S	996.48 E	11.66	997.29
6731.37	94.91	92.47	5696.00	41.37 S	1027.60 E	11.66	1028.43 Target #3 Inlateral
6800.00	94.87	92.44	5690.15	44.30 S	1095.92 E	0.07	1096.82
6900.00	94.82	92.40	5681.70	48.51 S	1195.48 E	0.07	1196.46
7000.00	94.77	92.36	5673.35	52.65 S	1295.04 E	0.07	1296.11
7100.00	94.72	92.31	5665.08	56.71 S	1394.61 E	0.07	1395.77
7200.00	94.66	92.27	5656.90	60.70 S	1494.20 E	0.07	1495.43
7300.00	94.61	92.23	5648.82	64.61 S	1593.80 E	0.07	1595.10
7400.00	94.56	92.18	5640.82	68.44 S	1693.40 E	0.07	1694.78
7500.00	94.51	92.14	5632.92	72.20 S	1793.02 E	0.07	1794.47
7575.67	94.47	92.11	5627.00	75.00 S	1868.40 E	0.07	1869.90 Target #4 Final TD

All data is in feet unless otherwise stated.
 Coordinates from slot #1 and TVD from rotary table.
 Bottom hole distance is 1869.90 on azimuth 92.30 degrees from wellhead.
 Vertical section is from wellhead on azimuth 92.30 degrees.
 Calculation uses the minimum curvature method.
 Presented by Baker Hughes INTEQ

Marathon Oil Company
Lou Worthan #9, slot #1.
Drinkard, LEA COUNTY, NEW MEXICO

PROPOSAL LISTING Page 2
Your ref : Plan 1 03/02/01
Last revised : 2-Mar-2001

Comments in wellpath			
=====			
MD	TVD	Rectangular Coords.	Comment
5620.00	5620.00	0.00 N 0.00 E	Tie On / KOP
5848.60	5760.00	5.96 S 148.42 E	End of Curve. Target #1
6591.40	5716.08	35.72 S 889.32 E	Target #2 in Lateral.
6731.37	5696.00	41.37 S 1027.60 E	Target #3 Inlateral
7575.67	5627.00	75.00 S 1868.40 E	Target #4 Final TD

NO Targets associated with this wellpath

Lou Worthan #9
1905' FNL & 440' FWL
Section 11, T-22-S, R-37-E
Lea County, New Mexico

HORIZONTAL DRILLING PROCEDURE

Date: March 5, 2001
AFE No: 303600
AFE Cost: Total - \$400,000 DHC - \$350,000
MOC: WI - 100.0% NRI - 87.5%
AFE Days: Drlg Days - 10 Compl Days - 7
Purpose: Drill Horizontal Well in the Blinebry Formation
Elevation: GL - 3,366' KB - 3,375' TD - 6,462' PBTD - 6,142'
Surface Casing: 13-3/8" 48# H-40 Smls R-2 8rd @ 262' w/250 sx Reg Howco cmt (circ)
Intermediate Casing: 8-5/8" 32# J-55 Smls R-3 8rd @ 2799' w/1008 sx Reg Howco
w/3% Gel & 492 sx Reg Howco cmt (DNC - TOC @ 275' By TS)
Production Casing: 5-1/2" 17# J-55 Smls R-3 8rd @ 6417' w/700 sx Reg Howco cmt
(DNC - TOC @ 2500' By TS). 17# Csg ID = 4.892", Drift = 4.767"
Tubing: 171 jts. 2 3/8" O.D., 4.7#, J-55 tubing, 2 3/8" x 5-1/2" TAC btm @ 5,262',
15 jts. 2 7/8" O.D., 4.7#, J-55 tubing, ceramic jt., SN, perf sub, OPMA lnd
@ 5,776.50'.
Rods/Pump: One 1-1/4" x 22' Polish rod w/1-1/2" x 16' liner, four 7/8" 'D' subs
(2', 2', 4', 8'), 70 7/8" Norris 90 'D' rods, 153 3/4" Norris 90 'D'
rods, four 7/8" Norris 90 'D' rods, one 7/8" x 4' Norris 90 'D' sub, 1
RHBC pump (2" x 1-1/4" x 16' x 4'), one 1" x 4' Stanley filter.
Perforations: 5330'-5430', 5455'-5505', 5535'-5557', 5565'-5600', 5630'-5635',
5655'-5665', 5680'-5690', 5715'-5720', 5725'-5735', 5740'-5750'
Estimated SBHP: 1200 psi

TARGET INFORMATION

<u>KOP:</u> 5,620' TVD	<u>EOC:</u> 5846' MD, 5,760' TVD	<u>Azimuth:</u> Due East
<u>Radius:</u> 150'	<u>TD:</u> 7,575' MD, 5,627' TVD	<u>BHL:</u> 1,980' FNL, 2,308' FWL

Comments / Safety:

- Hold daily safety meetings explaining the proposed procedure.
- H₂S concentration - 500 ppm.
- Keep TIW on rig floor for all pipe connections at all times.
- Use 10# Brine to kill well if necessary.
- **All equipment and vehicles must stay on the location and/or road at all times.**
- For gyro orientation of whipstock, use Scientific or someone other than directional company.
- Use gamma tool for curve only.

1. Lockout/tagout energy source. RDMO pumping unit. Prepare location as necessary for pulling unit. Test safety anchors to 22,500#, if necessary. Build and line pit.
2. MIRU pulling unit. Kill well as necessary. Install rod stripper. Unseat pump and TOOH with rods, laying down. ND wellhead. Install 7-1/16" 3M dual ram hydraulic BOP (blind rams on bottom and 2-3/8" pipe rams on top) with stripping rubber. Release tubing anchor and TOOH 3 stands. PU 5-1/2" Lockset packer/plug with on/off tool, TIH 2 stands, set tool, and screw on TIW valve. Test pipe rams 2000 psi. Unjay from on/off tool and test blind rams to 2000 psi. Jay onto on/off tool, release and TOH with tubing.
3. RU wireline company. Install and test lubricator. Make gauge ring run to 5,650'. RIH with GR-CCL and 5-1/2" CIBP. Correlate with open hole logs and set top of CIBP at 5,620'. RD wireline company.
4. PU 5-1/2" packer & TIH. Tag CIBP at 5,620'. Set packer at 5,610' and test CIBP. TOH with packer, TIH with tubing open ended. Dump bail 1 sk of sand (approximately 7') on top of CIBP.
5. PU Halliburton EZSV cement retainer and RIH with wireline and set at 5300'. RD wireline. TIH with 2-3/8" tbg and sting into cement retainer. RU Halliburton. Establish injection rate into perforations 5,330' - 5,600' with fresh water. If high rate of injectivity is established squeeze perforations with cement and Flochek as specified on the attached cement recommendation. If injection rate into perforations is low, squeeze with cement only. Max squeeze pressure

- needed is 500 psi. Sting out of retainer to release hydrostatic, reverse excess cement off of retainer. RD Halliburton and WCC.
6. PU 4-3/4" bit and 6,3-1/2" drill collars on 2-3/8" tbg and TIH. Drill cement retainer and cement to top-of-sand (approximately 5,610'). Pressure test squeeze to a maximum 500 psi. Reverse sand off CIBP at 5,620' and confirm depth of plug. TOOH laying 2-3/8" tbg, drill collars and bit down. ND BOPE, NU wellhead. RDMO pulling unit.
 7. MIRU horizontal pulling unit package. NU 7-1/16" 3M dual ram hydraulic BOP (with blind rams on bottom and 2-7/8" pipe rams on top) and 7-1/16" 3M annular. Kill well as necessary. PU 2-7/8" AOH, 10.4#, X-955-1/2". PU Lockset packer/plug and TIH 2 stands to test BOPE to 500 psi. TIH to CIBP and tag. Correct pipe tally back to wireline measurement of 5,620'.
 8. PU 5-1/2" Baker 3° Bottom Trip Retrievable Whipstock assembly, starting mill, and orientation sub. TIH with 2-7/8" drillpipe to 10' above CIBP. RU Wireline unit. RU and run surface readout gyro (SRG) for vertical well survey from surface to above whipstock and orient whipstock at due east azimuth. Land whipstock on CIBP, set whipstock and re-check azimuth. Release starting mill and start casing exit with starting mill. TOOH. PU window mill, watermelon mill and TIH. Finish casing exit and attempt to drill pilot hole to 5,620' MD. If pilot hole cannot be drilled with mill, after finishing casing exit, TOOH. TIH with 4-3/4" bit, watermelon mill on 2-7/8" drillpipe. Open up casing exit and drill pilot hole to at least 5,620' MD. Circulate hole clean and TOOH.
 9. Mix ShearDril-N mud system as per attached mud program. PU 4-3/4" bit, 3-1/8" MIX motor, 2-7/8" O.D. Monel DC, MWD flow sub, and orienting sub, followed by 2-7/8" OD, 10.4#, X-95, AOH drillpipe.
 10. Orient motor to due east azimuth using SRG gyro. Control drill 15' at 2-3'/hour for 15 feet. Run SRG gyro survey to confirm orientation. Drill curve section as per the attached directional program. Pump xanthan sweeps as necessary to clean the hole. TOOH.
 11. PU 4-3/4" bit, 3-1/8" MIXL motor, 2-7/8" Monel DC, and MWD flow sub on 2-7/8" drillpipe. Drill lateral section as per the attached directional program using mud system and xanthan sweeps as necessary. After drilling lateral, circulate hole clean and displace hole with fresh water.
 12. PU 2-3/8" production string and TIH with 5-1/2" RBP. Set bridge plug at 5000'. TOOH with 2-3/8" production tubing laying down, leaving enough for a kill string. ND BOPE, NU wellhead. RDMO Horizontal Package.
 13. Clean up location. MIRU pulling unit. ND wellhead, NU BOPE and test. PU and RIH to retrieve RBP. TOH with RBP. PU and RIH with 2-3/8" tubing and packer, setting at approximately 5000'. RU swab lubricator. Swab well and evaluate fluid entry. Stimulation will be based upon fluid entry. If the well does not flow, the whipstock will be retrieved and the CIBP @ 5,620' will be drilled out to provide a sump for a rod pump installation.

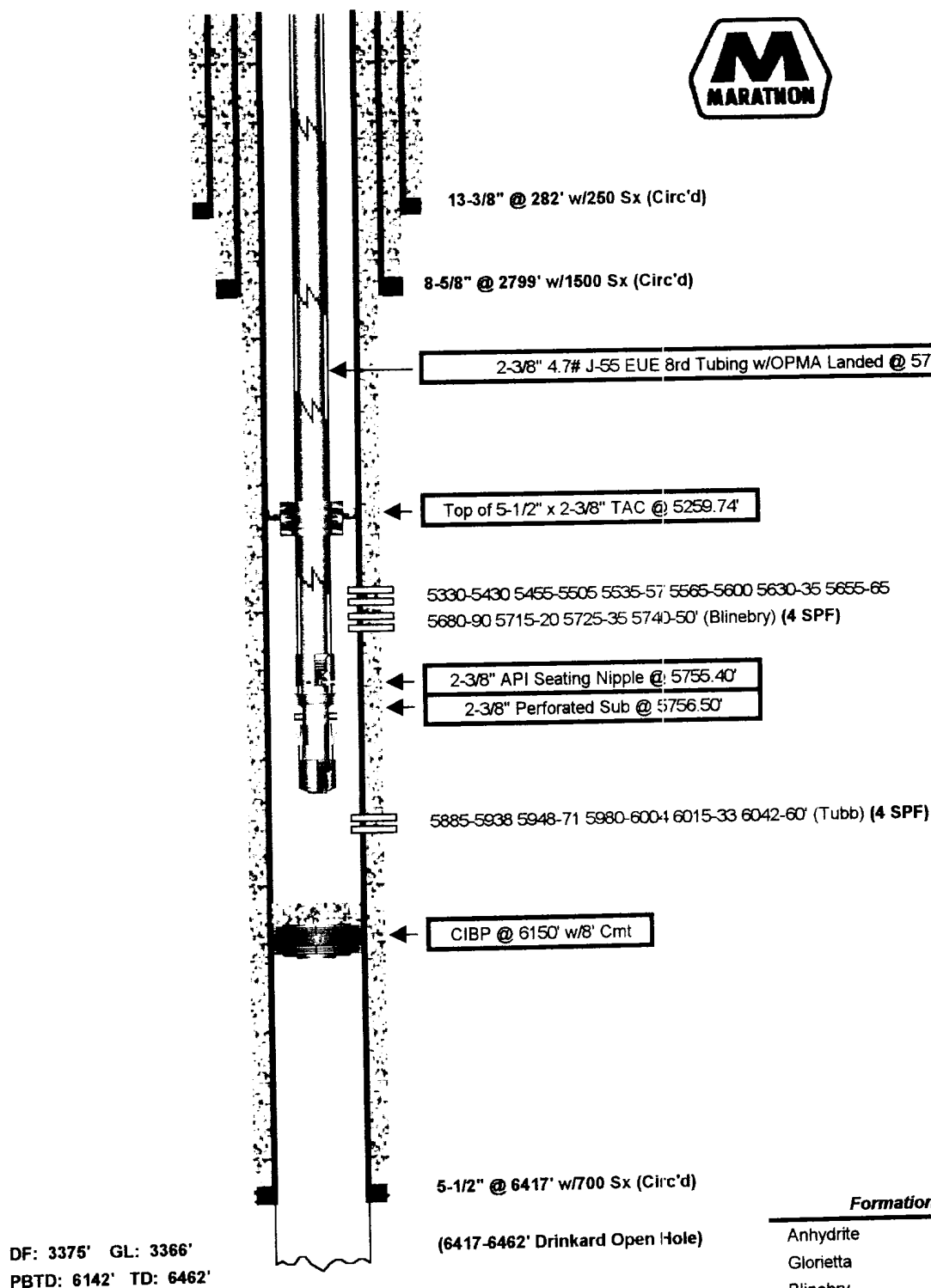
JOB

XC:	R. L. Kleiv	M. D. Bidwell	Drilling File
	Company Man	R. J. Longmire	Central Well File
	D. R. Hall	S. F. Millican	

Well Name & No.	LOU WORTHAN 9	Field	DRINKARD	3/1/01
County	LEA	State	NEW MEXICO	By: TIM L. CHASE



Tool Basket



- May '48 Completed Open Hole 6417-6462' (Drinkard). Acddz w/1500 gal. IP = 280 BOPD flwg.
- May '54 Set CIBP @ 6150' w/8' cmt cap to abandon Drinkard. Perf'd Tubb (4 SPF) @ 5885-5938 48-71 80-6004 15-33 & 42-60'. Acddz same w/500 gal MCA & 4000 gal XS-17 Dowell acid & 4000 gal 15% LST acid. CAOFP = 1450 mcfpd. Perf'd Blinbry (4 SPF) @ 5330-5430 & 5455-5505'. Acddz same w/250 gal MCA & 4000 gal 15% LST acid. CAOFP = 17,600 mcfpd. Ret to prod flwg.
- Mar '55 Acddz Tubb 5885-6060' w/10,000 gal regular acid. CAOFP = 2300 mcfpd. Ret to prod flwg.
- Mar '94 Found salt plug in tbg @ 5510'. Perf'd tbg @ 5483' to unload Blinbry zone. C/O csg w/200 gal Xylene & 500 gal 15% NeFeHcl. Ret to prod flwg.
- Jan '96 Perf'd Blinbry (2 SPF) @ 5535-57 5565-5600 30-35 55-65 80-90 5715-20 25-35 40-50'. Acddz same w/6000 gal 15% Hcl w/300 BS's. Swabbed. Installed ppg equipment. Ret to prod ppg.