

Submit To Appropriate District Office Two Copies District I 1625 N. French Dr., Hobbs, NM 88240 District II 811 S. First St., Artesia, NM 88210 District III 1000 Rio Brazos Rd., Aztec, NM 87410 District IV 1220 S. St. Francis Dr., Santa Fe, NM 87505		State of New Mexico Energy, Minerals and Natural Resources Oil Conservation Division 1220 South St. Francis Dr. Santa Fe, NM 87505				Form C-105 Revised August 1, 2011				
		WELL COMPLETION OR RECOMPLETION REPORT AND LOG								
4. Reason for filing: ☒ COMPLETION REPORT (Fill in boxes #1 through #31 for State and Fee wells only) ☐ C-144 CLOSURE ATTACHMENT (Fill in boxes #1 through #9, #15 Date Rig Released and #32 and/or #33; attach this and the plat to the C-144 closure report in accordance with 19.15.17.13.K NMAC)						5. Lease Name or Unit Agreement Name Copperhead 18 State				
						6. Well Number: 2H				
7. Type of Completion: ☒ NEW WELL ☐ WORKOVER ☐ DEEPENING ☐ PLUGBACK ☐ DIFFERENT RESERVOIR ☐ OTHER										
8. Name of Operator OXY USA Inc.						9. OGRID 16696				
10. Address of Operator P.O. Box 50250 Midland, TX 79710						11. Pool name or Wildcat Triple X Bone Spring, West				
12. Location	Unit Ltr	Section	Township	Range	Lot	Feet from the	N/S Line	Feet from the	E/W Line	County
Surface:	1	10	24S	33E		340	north	660	west	Lea
BH:	4	10	24S	33E		199	south	679	west	Lea
13. Date Spudded	14. Date T.D. Reached	15. Date Rig Released		16. Date Completed (Ready to Produce)		17. Elevations (DF and RKB, RT, GR, etc.)				
2/6/14	3/10/14	3/13/14		4/18/14		3569.5 GR				
18. Total Measured Depth of Well		19. Plug Back Measured Depth		20. Was Directional Survey Made?		21. Type Electric and Other Logs Run				
15415' M 11060' V		15270' M 11066' V		Yes		CWL(TDL) HRLA MCFE HWGS				
22. Producing Interval(s), of this completion - Top, Bottom, Name 11468 - 15238' 2nd Bone Spring										
23. CASING RECORD (Report all strings set in well)										
CASING SIZE	WEIGHT LB./FT.		DEPTH SET		HOLE SIZE	CEMENTING RECORD		AMOUNT PULLED		
11 3/4"	47#		1210'		14 3/4"	750x-Surf Circ		NA		
8 5/8"	32#		5060'		10 5/8"	1760x-1120-TS		NA		
5 1/2"	20#		15381'		7 7/8"	1460x-Surf Circ				
24. LINER RECORD										
SIZE	TOP	BOTTOM	SACKS CEMENT		SCREEN					
						25. TUBING RECORD				
SIZE		DEPTH SET		PACKER SET						
27/8"		10080'		10080'						
26. Perforation record (interval, size, and number) Perfor @ 15238-14978, 14843-14588, 14458-14198, 14068-13808, 13678-13418, 13288-13028, 12898-12638, 12505-12248, 12118-11858, 11728-11468' Total 1310 Holes						27. ACID, SHOT, FRACTURE, CEMENT, SQUEEZE, ETC. DEPTH INTERVAL AMOUNT AND KIND MATERIAL USED 11468-15238' 137799g T+Water + 34500g 15% HCl acid + 14600g 15% BXL + 318162g 18% BXLW 2642070#51				
28. PRODUCTION										
Date First Production		Production Method (Flowing, gas lift, pumping - Size and type pump)				Well Status (Prod. or Shut-in)				
4/19/14		Flowing				Prod.				
Date of Test	Hours Tested	Choke Size	Prod'n For Test Period	Oil - Bbl	Gas - MCF	Water - Bbl.	Gas - Oil Ratio			
4/21/14	24	15/64		558	864	585	1548			
Flow Tubing Press.	Casing Pressure	Calculated 24-Hour Rate	Oil - Bbl.	Gas - MCF	Water - Bbl.	Oil Gravity - API - (Corr.)				
2075	-		558	864	585					
29. Disposition of Gas (Sold, used for fuel, vented, etc.) Flared						30. Test Witnessed By A. Cervantes				
31. List Attachments C102, C103, C104, Directional Surveys, Logs, WBD										
32. If a temporary pit was used at the well, attach a plat with the location of the temporary pit.										
33. If an on-site burial was used at the well, report the exact location of the on-site burial:										
Latitude Longitude NAD 1927 1983										
I hereby certify that the information shown on both sides of this form is true and complete to the best of my knowledge and belief										
Signature		Printed Name		Title		Date				
David Stewart		David Stewart		SR. Regulatory Advisor		4/23/14				
E-mail Address										
david_stewart@oxy.com										

MAY 05 2014

INSTRUCTIONS

This form is to be filed with the appropriate District Office of the Division not later than 20 days after the completion of any newly-drilled or deepened well and not later than 60 days after completion of closure. When submitted as a completion report, this shall be accompanied by one copy of all electrical and radio-activity logs run on the well and a summary of all special tests conducted, including drill stem tests. All depths reported shall be measured depths. In the case of directionally drilled wells, true vertical depths shall also be reported. For multiple completions, items 11, 12 and 26-31 shall be reported for each zone.

INDICATE FORMATION TOPS IN CONFORMANCE WITH GEOGRAPHICAL SECTION OF STATE

Southeastern New Mexico			Northwestern New Mexico		
T. Anhy	1169'	T. Canyon	T. Ojo Alamo		T. Penn A"
T. Salt	1537'	T. Strawn	T. Kirtland		T. Penn. "B"
B. Salt	3467'	T. Atoka	T. Fruitland		T. Penn. "C"
T. Yates		T. Miss	T. Pictured Cliffs		T. Penn. "D"
T. 7 Rivers		T. Devonian	T. Cliff House		T. Leadville
T. Queen		T. Silurian	T. Menefee		T. Madison
T. Grayburg		T. Montoya	T. Point Lookout		T. Elbert
T. San Andres		T. Simpson	T. Mancos		T. McCracken
T. Glorieta		T. McKee	T. Gallup		T. Ignacio Otzte
T. Paddock		T. Ellenburger	Base Greenhorn		T. Granite
T. Blinbry		T. Gr. Wash	T. Dakota		
T. Tubb		T. Delaware Sand 4982'	T. Morrison		
T. Drinkard		T. Bone Springs 3948'	T. Todilto		
T. Abo		T. Bell Canyon 5007'	T. Entrada		
T. Wolfcamp		T. Cherry Canyon 5935'	T. Wingate		
T. Penn		T. Brushy Canyon 7350'	T. Chinle		
T. Cisco (Bough C)		T. 1st Bone Spring 9997'	T. Permian		

T. 2nd Bone Spring 10237.
T. 3rd Bone Spring 11119.

OIL OR GAS SANDS OR ZONES

No. 1, from.....to.....

No. 3, from.....to.....

No. 2, from.....to.....

No. 4, from.....to.....

IMPORTANT WATER SANDS

Include data on rate of water inflow and elevation to which water rose in hole.

No. 1, from.....to.....feet.....

No. 2, from.....to.....feet.....

No. 3, from.....to.....feet.....

LITHOLOGY RECORD (Attach additional sheet if necessary)

From	To	Thickness In Feet	Lithology

From	To	Thickness In Feet	Lithology



C18S 2H
Lea County, New Mexico
Northing: 445907.50
Easting: 721463.20
Design #4



To convert a Magnetic Direction to a Grid Direction, Add 6.89°
To convert a True Direction to a Grid Direction, Subtract 0.38°

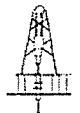
Azimuths to Grid North
True North: -0.38°
Magnetic North: 6.89°

Magnetic Field
Strength: 48340.5nT
Dip Angle: 60.11°
Date: 02/24/2014
Model: IGRF2010

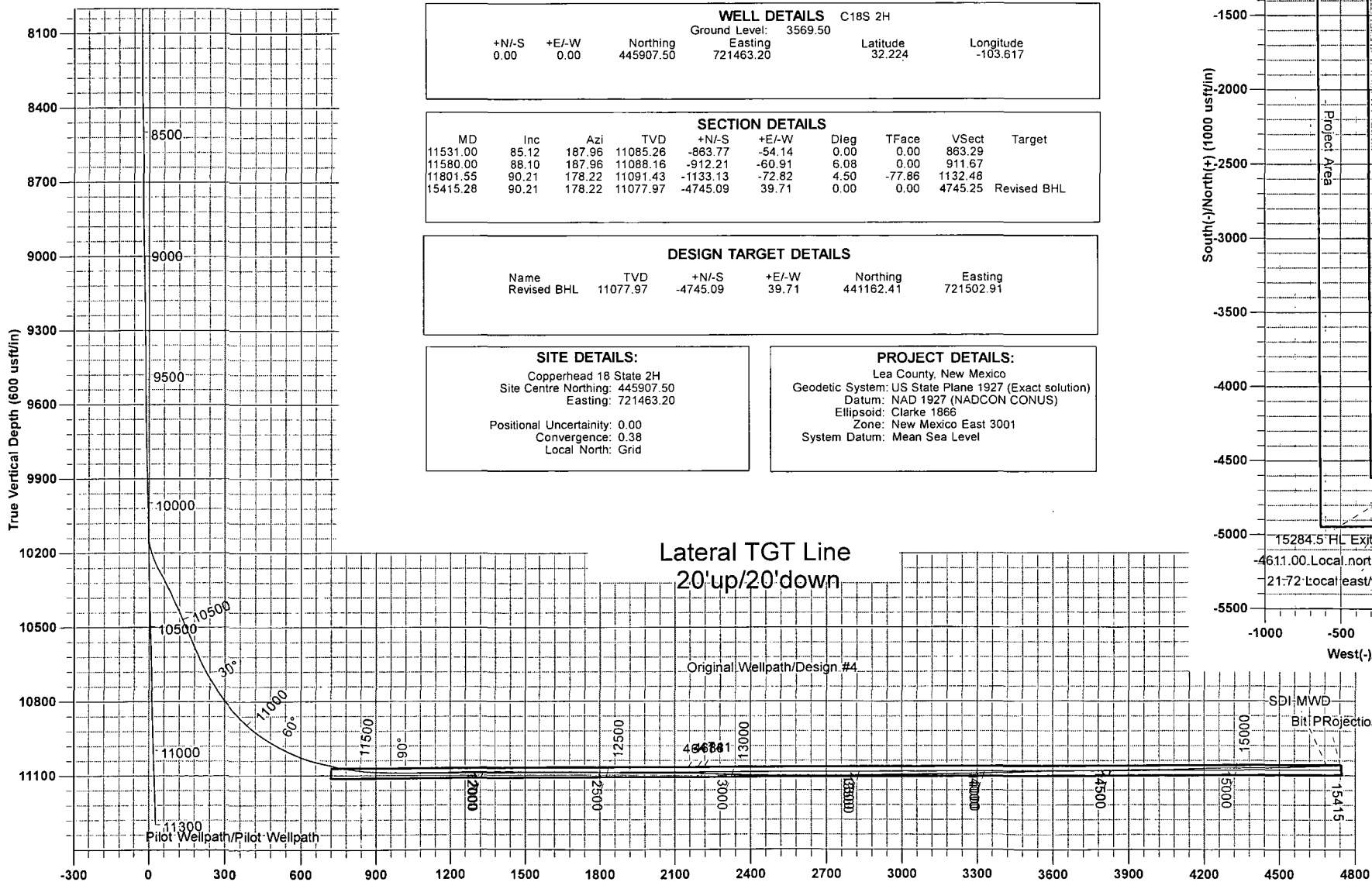
HOBBS OCD

APR 24 2014

RECEIVED



KB @ 3593.50
Gr @ 3569.50



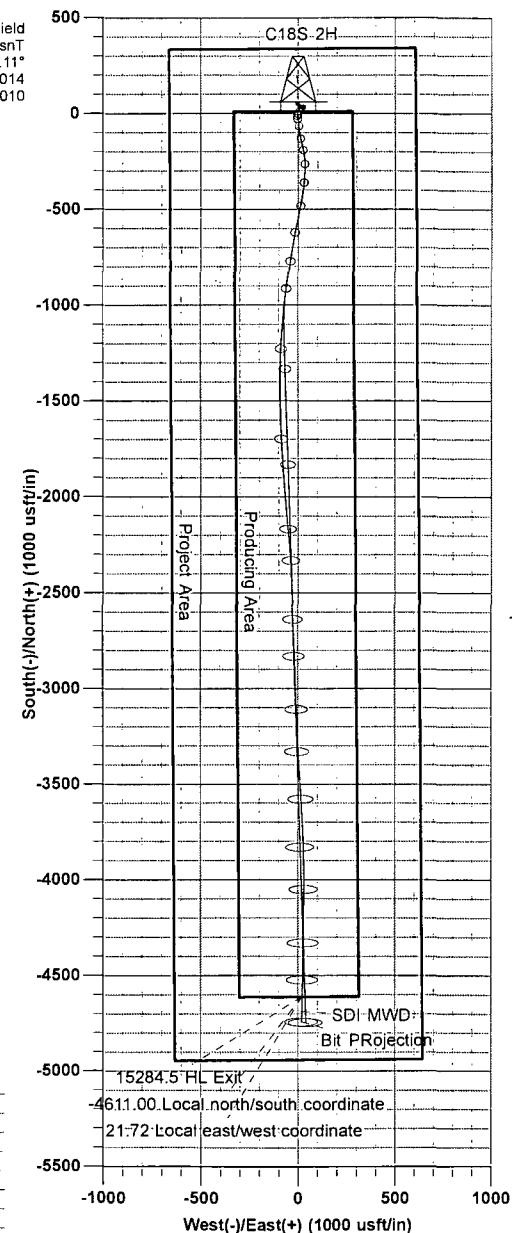
WELL DETAILS C18S 2H						
Ground Level: 3569.50						
+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	
0.00	0.00	445907.50	721463.20	32.224	-103.617	

SECTION DETAILS									
MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	Vsect	Target
11531.00	85.12	187.96	11085.26	-863.77	-54.14	0.00	0.00	863.29	
11580.00	88.10	187.96	11088.16	-912.21	-60.91	6.08	0.00	911.67	
11801.55	90.21	178.22	11091.43	-1133.13	-72.82	4.50	-77.86	1132.48	
15415.28	90.21	178.22	11077.97	-4745.09	39.71	0.00	0.00	4745.25	Revised BHL

DESIGN TARGET DETAILS					
Name	TVD	+N/-S	+E/-W	Northing	Easting
Revised BHL	11077.97	-4745.09	39.71	441162.41	721502.91

SITE DETAILS:	
Copperhead 18 State 2H	
Site Centre Northing: 445907.50	
Easting: 721463.20	
Positional Uncertainty: 0.00	
Convergence: 0.38	
Local North: Grid	

PROJECT DETAILS:	
Lea County, New Mexico	
Geodetic System: US State Plane 1927 (Exact solution)	
Datum: NAD 1927 (NADCON CONUS)	
Ellipsoid: Clarke 1866	
Zone: New Mexico East 3001	
System Datum: Mean Sea Level	



Jody Barclay
8:06, March 11 2014

Scientific Drilling
2740 N. Highway 287



APR 24 2014

RECEIVED

Company:	OXY	Local Co-ordinate Reference:	Well C18S 2H
Project:	Lea County, New Mexico	TVD Reference:	KB @ 3593.50usft
Site:	Copperhead 18 State 2H	MD Reference:	KB @ 3593.50usft
Well:	C18S 2H	North Reference:	Grid
Wellbore:	Original Wellpath	Survey Calculation Method:	Minimum Curvature
Design:	Original Wellpath	Database:	CompassC

Project:		Lea County, New Mexico	
Map System:	US State Plane 1927 (Exact solution)	System Datum:	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	New Mexico East 3001		

Site		Copperhead 18 State 2H			
Site Position:		Northing:	445,907.50 usft	Latitude:	32.224
From:	Map	Easting:	721,463.20 usft	Longitude:	-103.617
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.38 °

Well:	C18S 2H					
Well Position	+N/-S	0.00 usft	Northing:	445,907.50 usft	Latitude:	32.224
	+E/-W	0.00 usft	Easting:	721,463.20 usft	Longitude:	-103.617
Position Uncertainty		0.00 usft	Wellhead Elevation:	0.00 usft	Ground Level:	3,569.50 usft

Wellbore		Original Wellpath			
gnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	02/24/14	7.28	60.11	48,340

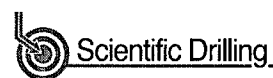
Design:	Original Wellpath				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	10,008.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)	
	0.00	0.00	0.00	179.66	

Survey Program		Date	03/11/14		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
51.00	785.00	MS Gyro (Pilot Wellpath)	Generic Gyro	Generic Gyro	
878.00	10,008.00	SDI MWD (Pilot Wellpath)	SDI MWD	SDI MWD - Standard ver 1.0.1	
10,115.00	15,415.00	SDI MWD (Original Wellpath)	SDI MWD	SDI MWD - Standard ver 1.0.1	

Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
51.00	0.71	19.17	51.00	0.30	0.10	-0.30	1.39	1.39	0.00	
133.00	0.87	35.62	132.99	1.28	0.63	-1.28	0.34	0.20	20.06	
226.00	0.48	3.67	225.98	2.25	1.07	-2.24	0.57	-0.42	-34.35	
319.00	0.70	20.31	318.98	3.17	1.29	-3.16	0.30	0.24	17.89	
413.00	1.01	12.73	412.97	4.52	1.67	-4.51	0.35	0.33	-8.06	
506.00	1.47	12.32	505.95	6.48	2.11	-6.47	0.49	0.49	-0.44	
599.00	3.01	11.91	598.87	10.03	2.87	-10.02	1.66	1.66	-0.44	
692.00	3.38	10.75	691.73	15.12	3.88	-15.09	0.40	0.40	-1.25	



Scientific Drilling Survey Report

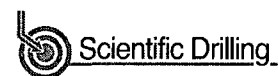


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Project:	Lea County, New Mexico	TVD Reference:	KB @ 3593.50usft
Site:	Copperhead 18 State 2H	MD Reference:	KB @ 3593.50usft
Well:	C18S2H	North Reference:	Grid
Wellbore:	Original Wellpath	Survey Calculation Method:	Minimum Curvature
Design:	Original Wellpath	Database:	CompassC

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
785.00	4.44	11.82	784.51	21.33	5.13	-21.30	1.14	1.14	1.15
878.00	5.56	12.65	877.16	29.25	6.86	-29.21	1.21	1.20	0.89
955.00	3.34	353.01	953.92	35.12	7.40	-35.08	3.46	-2.88	-25.51
1,050.00	2.64	344.58	1,048.79	39.98	6.48	-39.94	0.87	-0.74	-8.87
1,150.00	1.58	335.17	1,148.72	43.45	5.29	-43.42	1.11	-1.06	-9.41
1,242.00	1.49	327.26	1,240.69	45.61	4.11	-45.58	0.25	-0.10	-8.60
1,337.00	1.49	328.23	1,335.66	47.69	2.79	-47.68	0.03	0.00	1.02
1,431.00	0.97	313.20	1,429.64	49.28	1.57	-49.27	0.65	-0.55	-15.99
1,526.00	0.79	287.18	1,524.63	50.02	0.36	-50.02	0.46	-0.19	-27.39
1,620.00	0.53	240.25	1,618.62	50.00	-0.64	-50.00	0.61	-0.28	-49.93
1,715.00	0.26	186.20	1,713.62	49.57	-1.05	-49.57	0.45	-0.28	-56.89
1,809.00	0.18	249.13	1,807.62	49.30	-1.21	-49.31	0.25	-0.09	66.95
1,903.00	0.44	219.42	1,901.62	48.97	-1.57	-48.98	0.32	0.28	-31.61
1,998.00	0.44	237.70	1,996.61	48.49	-2.11	-48.50	0.15	0.00	19.24
2,092.00	0.35	233.22	2,090.61	48.13	-2.65	-48.14	0.10	-0.10	-4.77
2,187.00	0.26	311.62	2,185.61	48.10	-3.04	-48.11	0.41	-0.09	82.53
2,281.00	0.35	249.48	2,279.61	48.14	-3.47	-48.16	0.34	0.10	-66.11
2,375.00	0.26	288.77	2,373.61	48.11	-3.94	-48.13	0.24	-0.10	41.80
2,469.00	0.09	181.45	2,467.61	48.10	-4.14	-48.13	0.32	-0.18	-114.17
2,563.00	0.00	327.79	2,561.61	48.03	-4.15	-48.05	0.10	-0.10	0.00
2,658.00	0.18	225.48	2,656.61	47.92	-4.25	-47.95	0.19	0.19	0.00
2,752.00	0.09	152.97	2,750.61	47.75	-4.32	-47.78	0.19	-0.10	-77.14
2,846.00	0.18	16.92	2,844.61	47.83	-4.25	-47.85	0.27	0.10	-144.73
2,940.00	0.09	56.73	2,938.61	48.01	-4.14	-48.03	0.13	-0.10	42.35
3,034.00	0.26	314.17	3,032.61	48.20	-4.23	-48.22	0.31	0.18	-109.11
3,129.00	0.26	36.96	3,127.61	48.52	-4.26	-48.55	0.36	0.00	87.15
3,223.00	0.26	60.95	3,221.61	48.80	-3.95	-48.82	0.11	0.00	25.52
3,318.00	0.44	23.07	3,316.60	49.24	-3.61	-49.26	0.30	0.19	-39.87
3,412.00	0.26	344.49	3,410.60	49.77	-3.53	-49.79	0.31	-0.19	-41.04
3,506.00	0.18	345.28	3,504.60	50.12	-3.62	-50.14	0.09	-0.09	0.84
3,600.00	0.35	303.27	3,598.60	50.42	-3.90	-50.45	0.26	0.18	-44.69
3,695.00	0.18	358.55	3,693.60	50.73	-4.15	-50.76	0.30	-0.18	58.19
3,789.00	0.44	269.78	3,787.60	50.88	-4.51	-50.90	0.50	0.28	-94.44
3,883.00	0.53	268.81	3,881.60	50.87	-5.31	-50.90	0.10	0.10	-1.03
3,978.00	0.70	300.02	3,976.59	51.15	-6.25	-51.18	0.39	0.18	32.85
4,072.00	0.26	184.18	4,070.59	51.22	-6.76	-51.26	0.90	-0.47	-123.23
4,166.00	0.62	165.10	4,164.58	50.52	-6.65	-50.56	0.41	0.38	-20.30
4,260.00	1.14	140.49	4,258.57	49.31	-5.92	-49.34	0.67	0.55	-26.18
4,354.00	1.49	136.98	4,352.55	47.69	-4.49	-47.72	0.38	0.37	-3.73
4,448.00	1.49	118.52	4,446.52	46.21	-2.59	-46.23	0.51	0.00	-19.64
4,543.00	1.67	127.66	4,541.48	44.78	-0.40	-44.78	0.33	0.19	9.62
4,637.00	1.93	137.15	4,635.44	42.78	1.76	-42.77	0.42	0.28	10.10
4,731.00	1.49	126.78	4,729.39	40.89	3.81	-40.87	0.57	-0.47	-11.03



Scientific Drilling Survey Report

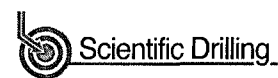


Company:	OXY	Local Co-ordinate Reference:	Well C18S 2H
Project:	Lea County New Mexico	TVD Reference:	KB @ 3593.50usft
Site:	Copperhead 18 State 2H	MD Reference:	KB @ 3593.50usft
Well:	C18S 2H	North Reference:	Grid
Wellbore:	Original Wellpath	Survey Calculation Method:	Minimum Curvature
Design:	Original Wellpath	Database:	CompassC

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
4,826.00	0.97	146.03	4,824.37	39.48	5.25	-39.45	0.69	-0.55	20.26
4,920.00	0.70	129.95	4,918.36	38.45	6.14	-38.42	0.38	-0.29	-17.11
5,014.00	0.53	131.79	5,012.36	37.80	6.90	-37.75	0.18	-0.18	1.96
5,104.00	1.06	124.76	5,102.35	37.04	7.89	-37.00	0.60	0.59	-7.81
5,198.00	0.88	127.84	5,196.33	36.10	9.18	-36.05	0.20	-0.19	3.28
5,292.00	0.88	127.57	5,290.32	35.22	10.32	-35.16	0.00	0.00	-0.29
5,386.00	0.88	94.53	5,384.31	34.72	11.61	-34.66	0.53	0.00	-35.15
5,481.00	1.06	107.10	5,479.30	34.41	13.18	-34.33	0.29	0.19	13.23
5,575.00	0.97	87.23	5,573.28	34.19	14.80	-34.10	0.38	-0.10	-21.14
5,669.00	0.70	88.73	5,667.27	34.24	16.17	-34.15	0.29	-0.29	1.60
5,763.00	0.62	117.29	5,761.27	34.02	17.20	-33.92	0.36	-0.09	30.38
5,858.00	0.70	95.23	5,856.26	33.73	18.23	-33.63	0.28	0.08	-23.22
5,952.00	0.79	110.17	5,950.25	33.46	19.41	-33.34	0.23	0.10	15.89
6,046.00	0.53	93.82	6,044.25	33.21	20.46	-33.08	0.34	-0.28	-17.39
6,141.00	0.35	120.02	6,139.25	33.03	21.15	-32.91	0.28	-0.19	27.58
6,235.00	0.62	108.41	6,233.24	32.73	21.88	-32.60	0.30	0.29	-12.35
6,330.00	0.70	103.23	6,328.24	32.43	22.93	-32.30	0.10	0.08	-5.45
6,424.00	0.53	81.26	6,422.23	32.37	23.92	-32.23	0.31	-0.18	-23.37
6,518.00	0.44	93.03	6,516.23	32.41	24.71	-32.27	0.14	-0.10	12.52
6,613.00	0.53	105.60	6,611.22	32.28	25.50	-32.13	0.15	0.09	13.23
6,707.00	0.70	89.25	6,705.22	32.17	26.49	-32.01	0.26	0.18	-17.39
6,801.00	0.35	241.74	6,799.22	32.04	26.81	-31.88	1.09	-0.37	162.22
6,896.00	0.70	265.39	6,894.21	31.85	25.98	-31.70	0.43	0.37	24.89
6,990.00	0.53	240.34	6,988.21	31.59	25.03	-31.44	0.33	-0.18	-26.65
7,085.00	0.70	234.63	7,083.20	31.04	24.17	-30.90	0.19	0.18	-6.01
7,179.00	0.44	258.71	7,177.20	30.64	23.35	-30.50	0.37	-0.28	25.62
7,274.00	0.79	236.30	7,272.19	30.20	22.45	-30.07	0.44	0.37	-23.59
7,368.00	1.32	248.25	7,366.17	29.44	20.90	-29.32	0.61	0.56	12.71
7,462.00	1.32	248.86	7,460.15	28.65	18.89	-28.54	0.01	0.00	0.65
7,556.00	0.70	241.83	7,554.13	27.99	17.37	-27.88	0.67	-0.66	-7.48
7,651.00	0.53	272.51	7,649.13	27.73	16.42	-27.64	0.38	-0.18	32.29
7,745.00	0.53	18.77	7,743.13	28.16	16.13	-28.07	0.90	0.00	113.04
7,839.00	0.26	63.06	7,837.13	28.67	16.46	-28.57	0.41	-0.29	47.12
7,933.00	0.09	74.40	7,931.12	28.79	16.72	-28.69	0.18	-0.18	12.06
8,028.00	0.18	106.39	8,026.12	28.77	16.93	-28.67	0.12	0.09	33.67
8,122.00	0.09	26.59	8,120.12	28.79	17.11	-28.69	0.20	-0.10	-84.89
8,216.00	0.35	136.28	8,214.12	28.65	17.34	-28.55	0.41	0.28	116.69
8,310.00	0.44	107.10	8,308.12	28.34	17.88	-28.23	0.23	0.10	-31.04
8,405.00	3.61	240.78	8,403.06	26.77	15.62	-26.68	4.13	3.34	140.72
8,499.00	2.02	236.73	8,496.95	24.41	11.65	-24.35	1.70	-1.69	-4.31
8,593.00	0.26	140.49	8,590.93	23.34	10.40	-23.28	2.20	-1.87	-102.38
8,688.00	0.18	102.00	8,685.93	23.14	10.68	-23.08	0.17	-0.08	-40.52
8,782.00	0.79	193.76	8,779.92	22.48	10.67	-22.42	0.87	0.65	97.62



Scientific Drilling Survey Report

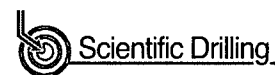


Company:	OXY	Local Co-ordinate Reference:	Well C:18S:2H
Project:	Lea County, New Mexico	TVD Reference:	KB @ 3593.50usft
Site:	Copperhead, 18 State 2H	MD Reference:	KB @ 3593.50usft
Well:	C:18S 2H	North Reference:	Grid
Wellbore:	Original Wellpath	Survey Calculation Method:	Minimum Curvature
Design:	Original Wellpath	Database:	CompassC

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
8,876.00	0.97	193.76	8,873.91	21.08	10.33	-21.02	0.19	0.19	0.00
8,970.00	0.79	215.64	8,967.90	19.78	9.76	-19.72	0.40	-0.19	23.28
9,065.00	0.88	201.14	9,062.89	18.57	9.12	-18.51	0.24	0.09	-15.26
9,159.00	1.14	221.62	9,156.88	17.20	8.24	-17.15	0.47	0.28	21.79
9,253.00	1.14	225.92	9,250.86	15.85	6.95	-15.81	0.09	0.00	4.57
9,347.00	0.97	230.58	9,344.84	14.69	5.66	-14.66	0.20	-0.18	4.96
9,441.00	0.62	218.89	9,438.83	13.79	4.72	-13.76	0.41	-0.37	-12.44
9,536.00	0.53	250.80	9,533.83	13.25	3.99	-13.22	0.34	-0.09	33.59
9,630.00	1.06	231.11	9,627.82	12.56	2.90	-12.54	0.63	0.56	-20.95
9,725.00	1.14	189.01	9,722.80	11.07	2.07	-11.06	0.84	0.08	-44.32
9,819.00	1.67	171.61	9,816.78	8.79	2.12	-8.78	0.72	0.56	-18.51
9,913.00	1.41	201.58	9,910.74	6.36	1.90	-6.35	0.89	-0.28	31.88
10,008.00	1.41	216.43	10,005.71	4.34	0.77	-4.33	0.38	0.00	15.63
10,115.00	1.23	218.54	10,112.69	2.38	-0.73	-2.38	0.17	-0.17	1.97
10,146.00	5.12	190.29	10,143.63	0.76	-1.18	-0.76	13.16	12.55	-91.13
10,178.00	12.49	182.42	10,175.24	-4.11	-1.58	4.10	23.28	23.03	-24.59
10,210.00	17.85	178.99	10,206.11	-12.48	-1.64	12.47	16.98	16.75	-10.72
10,241.00	23.13	177.32	10,235.14	-23.32	-1.27	23.31	17.13	17.03	-5.39
10,273.00	26.82	175.04	10,264.14	-36.80	-0.35	36.79	11.92	11.53	-7.13
10,304.00	27.52	172.57	10,291.72	-50.87	1.18	50.87	4.28	2.26	-7.97
10,336.00	27.00	172.49	10,320.17	-65.40	3.08	65.41	1.63	-1.63	-0.25
10,367.00	26.20	173.01	10,347.89	-79.17	4.83	79.19	2.69	-2.58	1.68
10,399.00	25.50	171.52	10,376.68	-92.99	6.71	93.03	2.98	-2.19	-4.66
10,430.00	24.36	172.57	10,404.80	-105.93	8.52	105.98	3.94	-3.68	3.39
10,462.00	23.48	171.08	10,434.05	-118.77	10.36	118.83	3.34	-2.75	-4.66
10,493.00	22.42	170.90	10,462.59	-130.71	12.26	130.78	3.43	-3.42	-0.58
10,525.00	23.21	169.23	10,492.09	-142.93	14.40	143.02	3.19	2.47	-5.22
10,556.00	23.57	167.65	10,520.54	-154.99	16.87	155.09	2.33	1.16	-5.10
10,588.00	21.90	166.42	10,550.06	-167.04	19.64	167.15	5.43	-5.22	-3.84
10,619.00	22.34	166.95	10,578.77	-178.40	22.32	178.53	1.56	1.42	1.71
10,650.00	24.27	168.44	10,607.24	-190.38	24.93	190.53	6.51	6.23	4.81
10,681.00	25.24	168.53	10,635.39	-203.10	27.52	203.26	3.13	3.13	0.29
10,713.00	26.26	169.17	10,664.22	-216.74	30.21	216.92	3.30	3.19	2.00
10,745.00	29.62	172.55	10,692.48	-231.54	32.57	231.73	11.60	10.50	10.56
10,776.00	31.13	179.43	10,719.24	-247.16	33.64	247.35	12.23	4.87	22.19
10,807.00	33.77	178.99	10,745.39	-263.79	33.87	263.98	8.55	8.52	-1.42
10,839.00	35.44	178.81	10,771.73	-281.96	34.22	282.15	5.23	5.22	-0.56
10,870.00	36.84	181.63	10,796.77	-300.23	34.14	300.43	7.01	4.52	9.10
10,902.00	38.60	184.88	10,822.08	-319.77	33.02	319.96	8.30	5.50	10.16
10,933.00	40.98	184.70	10,845.90	-339.54	31.36	339.72	7.69	7.68	-0.58
10,965.00	43.18	185.58	10,869.65	-360.90	29.44	361.06	7.12	6.88	2.75
10,996.00	45.99	186.37	10,891.73	-382.54	27.17	382.69	9.24	9.06	2.55
11,028.00	50.21	188.39	10,913.09	-406.15	24.10	406.28	14.00	13.19	6.31
11,059.00	53.11	188.48	10,932.32	-430.20	20.53	430.31	9.36	9.35	0.29



Scientific Drilling
Survey Report



Company:	OXY	Local Co-ordinate Reference:	Well C18S 2H
Project:	Lea County, New Mexico	TVD Reference:	KB @ 3593.50usft
Site:	Copperhead 18 State 2H	MD Reference:	KB @ 3593.50usft
Well:	C18S 2H	North Reference:	Grid
Wellbore:	Original Wellpath	Survey Calculation Method:	Minimum Curvature
Design:	Original Wellpath	Database:	CompassC

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
11,091.00	56.01	189.98	10,950.88	-455.93	16.34	456.01	9.83	9.06	4.69
11,122.00	58.92	192.09	10,967.55	-481.57	11.34	481.63	11.00	9.39	6.81
11,153.00	61.20	193.40	10,983.02	-507.77	5.41	507.79	8.22	7.35	4.23
11,185.00	63.31	192.70	10,997.91	-535.36	-0.99	535.34	6.87	6.59	-2.19
11,216.00	65.33	190.77	11,011.35	-562.71	-6.66	562.66	8.60	6.52	-6.23
11,248.00	67.53	190.68	11,024.14	-591.52	-12.12	591.44	6.88	6.88	-0.28
11,279.00	71.37	190.49	11,035.02	-620.05	-17.45	619.94	12.40	12.39	-0.61
11,310.00	75.01	189.19	11,043.99	-649.29	-22.52	649.14	12.41	11.74	-4.19
11,342.00	76.41	189.54	11,051.89	-679.88	-27.57	679.71	4.50	4.38	1.09
11,373.00	76.77	188.92	11,059.08	-709.65	-32.40	709.44	2.27	1.16	-2.00
11,405.00	77.65	188.66	11,066.16	-740.49	-37.17	740.25	2.86	2.75	-0.81
11,436.00	79.40	188.39	11,072.33	-770.53	-41.67	770.27	5.71	5.65	-0.87
11,468.00	81.07	187.40	11,077.75	-801.77	-46.01	801.48	6.04	5.22	-3.09
11,499.00	83.18	187.26	11,082.00	-832.22	-49.92	831.91	6.82	6.81	-0.45
11,531.00	85.12	187.96	11,085.26	-863.77	-54.14	863.44	6.44	6.06	2.19
11,550.00	86.44	187.34	11,086.66	-882.55	-56.66	882.20	7.67	6.95	-3.26
11,581.00	86.88	187.69	11,088.47	-913.23	-60.71	912.86	1.81	1.42	1.13
11,613.00	88.37	187.34	11,089.79	-944.93	-64.89	944.53	4.78	4.66	-1.09
11,644.00	90.13	186.46	11,090.20	-975.70	-68.61	975.28	6.35	5.68	-2.84
11,707.00	89.87	185.49	11,090.20	-1,038.36	-75.17	1,037.90	1.59	-0.41	-1.54
11,801.00	91.28	183.74	11,089.26	-1,132.04	-82.73	1,131.54	2.39	1.50	-1.86
11,896.00	91.36	182.77	11,087.07	-1,226.86	-88.13	1,226.32	1.02	0.08	-1.02
11,990.00	90.66	181.28	11,085.41	-1,320.79	-91.45	1,320.22	1.75	-0.74	-1.59
12,084.00	89.16	179.17	11,085.56	-1,414.78	-91.82	1,414.21	2.75	-1.60	-2.24
12,178.00	89.96	179.96	11,086.28	-1,508.77	-91.10	1,508.21	1.20	0.85	0.84
12,272.00	89.53	177.78	11,086.70	-1,602.75	-89.25	1,602.19	2.36	-0.46	-2.32
12,367.00	89.96	178.38	11,087.12	-1,697.69	-86.07	1,697.15	0.78	0.45	0.63
12,461.00	87.85	175.65	11,088.92	-1,791.53	-81.17	1,791.02	3.67	-2.24	-2.90
12,555.00	88.99	175.47	11,091.51	-1,885.21	-73.90	1,884.74	1.23	1.21	-0.19
12,650.00	89.87	175.12	11,092.45	-1,979.89	-66.11	1,979.46	1.00	0.93	-0.37
12,744.00	91.10	175.12	11,091.66	-2,073.54	-58.11	2,073.16	1.31	1.31	0.00
12,838.00	88.02	174.95	11,092.38	-2,167.17	-49.98	2,166.84	3.28	-3.28	-0.18
12,932.00	87.93	176.09	11,095.70	-2,260.83	-42.64	2,260.54	1.22	-0.10	1.21
13,026.00	88.72	176.88	11,098.45	-2,354.61	-36.88	2,354.35	1.19	0.84	0.84
13,121.00	88.81	177.50	11,100.50	-2,449.47	-32.22	2,449.24	0.66	0.09	0.65
13,215.00	90.04	177.85	11,101.44	-2,543.39	-28.41	2,543.18	1.36	1.31	0.37
13,310.00	90.04	178.20	11,101.37	-2,638.33	-25.14	2,638.14	0.37	0.00	0.37
13,404.00	90.04	177.76	11,101.31	-2,732.27	-21.82	2,732.10	0.47	0.00	-0.47
13,498.00	90.75	177.94	11,100.66	-2,826.20	-18.30	2,826.05	0.78	0.76	0.19
13,593.00	92.42	177.06	11,098.03	-2,921.07	-14.15	2,920.94	1.99	1.76	-0.93
13,687.00	89.25	178.02	11,096.66	-3,014.96	-10.12	3,014.85	3.52	-3.37	1.02
13,781.00	90.31	178.55	11,097.02	-3,108.92	-7.31	3,108.82	1.26	1.13	0.56
13,876.00	91.89	178.64	11,095.20	-3,203.87	-4.98	3,203.78	1.67	1.66	0.09



Scientific Drilling

Survey Report



Company:	OXY	Local Co-ordinate Reference:	Well C18S 2H
Project:	Lea County, New Mexico	TVD Reference:	KB @ 3593.50usft
Site:	Copperhead 18 State 2H	MD Reference:	KB @ 3593.50usft
Well:	C18S 2H	North Reference:	Grid
Wellbore:	Original Wellpath	Survey Calculation Method:	Minimum Curvature
Design:	Original Wellpath	Database:	CompassC

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
13,970.00	90.92	177.14	11,092.90	-3,297.77	-1.52	3,297.71	1.90	-1.03	-1.60
14,064.00	92.15	175.65	11,090.38	-3,391.55	4.39	3,391.52	2.05	1.31	-1.59
14,158.00	91.98	176.97	11,086.99	-3,485.29	10.43	3,485.29	1.41	-0.18	1.40
14,252.00	91.71	176.62	11,083.96	-3,579.09	15.69	3,579.13	0.47	-0.29	-0.37
14,346.00	90.22	177.32	11,082.38	-3,672.95	20.65	3,673.00	1.75	-1.59	0.74
14,441.00	90.92	177.06	11,081.44	-3,767.83	25.31	3,767.91	0.79	0.74	-0.27
14,535.00	91.54	178.73	11,079.42	-3,861.74	28.76	3,861.84	1.89	0.66	1.78
14,630.00	89.78	179.78	11,078.32	-3,956.72	30.00	3,956.83	2.16	-1.85	1.11
14,724.00	91.28	181.10	11,077.45	-4,050.71	29.28	4,050.81	2.13	1.60	1.40
14,818.00	91.63	180.31	11,075.07	-4,144.67	28.12	4,144.76	0.92	0.37	-0.84
14,913.00	91.36	180.31	11,072.59	-4,239.64	27.61	4,239.72	0.28	-0.28	0.00
15,007.00	89.78	180.66	11,071.65	-4,333.62	26.81	4,333.71	1.72	-1.68	0.37
15,102.00	91.89	181.45	11,070.27	-4,428.59	25.06	4,428.66	2.37	2.22	0.83
15,196.00	91.01	180.75	11,067.89	-4,522.54	23.26	4,522.60	1.20	-0.94	-0.74
15,290.00	92.15	181.28	11,065.30	-4,616.49	21.59	4,616.54	1.34	1.21	0.56
15,343.00	92.15	181.28	11,063.31	-4,669.44	20.41	4,669.48	0.00	0.00	0.00
15,362.00	92.95	181.28	11,062.46	-4,688.42	19.99	4,688.45	4.21	4.21	0.00
SDI MWD									
15,415.00	92.95	181.28	11,059.74	-4,741.33	18.80	4,741.36	0.00	0.00	0.00
Bit Projection - Revised BHL									

Design Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
15,362.00	11,062.46	-4,688.42	19.99	SDI MWD
15,415.00	11,059.74	-4,741.33	18.80	Bit Projection

Checked By: _____ Approved By: _____ Date: _____



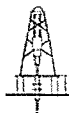
C18S 2H
Lea County, New Mexico
Northing: 445907.50
Easting: 721463.20
Pilot Wellpath



To convert a Magnetic Direction to a Grid Direction, Add 6.94°
To convert a True Direction to a Grid Direction, Subtract 0.38°

Azimuths to Grid North
True North: -0.38°
Magnetic North: 6.94°

Magnetic Field
Strength: 48378.9snT
Dip Angle: 60.12°
Date: 10/07/2013
Model: IGRF2010



KB @ 3593.50
Gr @ 3569.50

HOBBS OCD

APR 24 2014

RECEIVED

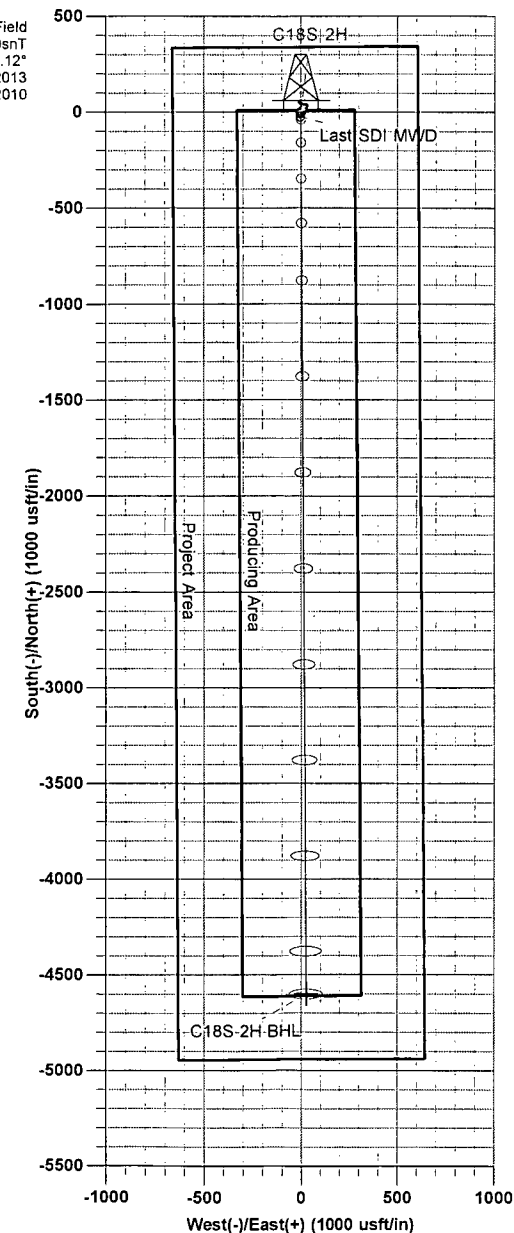
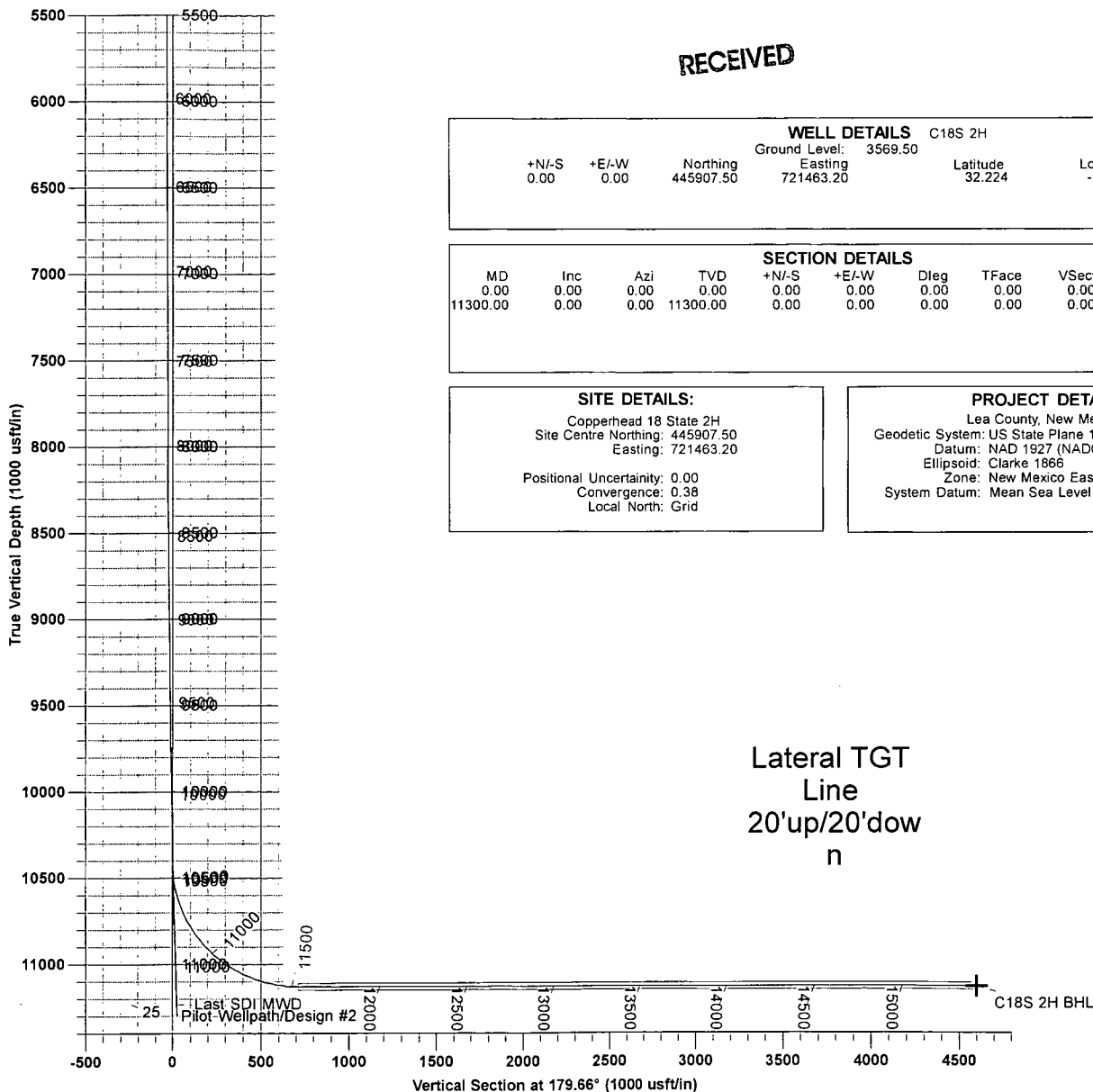
WELL DETAILS C18S 2H						
Ground Level: 3569.50						
+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	
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SECTION DETAILS									
MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
11300.00	0.00	0.00	11300.00	0.00	0.00	0.00	0.00	0.00	

SITE DETAILS:	
Copperhead 18 State 2H	
Site Centre Northing: 445907.50	
Easting: 721463.20	
Positional Uncertainty: 0.00	
Convergence: 0.38	
Local North: Grid	

PROJECT DETAILS:	
Lea County, New Mexico	
Geodetic System: US State Plane 1927 (Exact solution)	
Datum: NAD 1927 (NADCON CONUS)	
Ellipsoid: Clarke 1866	
Zone: New Mexico East 3001	
System Datum: Mean Sea Level	

Lateral TGT
Line
20'up/20'dow
n

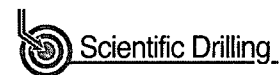


Jody Barclay
22:02, February 22 2014

Scientific Drilling
2740 N. Highway 287



Scientific Drilling
Survey Report
HOBBS OCD



Company:	OXY	APR 24 2014 RECEIVED	Local Co-ordinate Reference:	Well C18S 2H
Project:	Lea County, New Mexico		TVD Reference:	KB @ 3593.50usft
Site:	Copperhead 18 State 2H		MD Reference:	KB @ 3593.50usft
Well:	C18S 2H		North Reference:	Grid
Wellbore:	Pilot Wellpath		Survey Calculation Method:	Minimum Curvature
Design:	Pilot Wellpath		Database:	CompassC

Project:	Lea County, New Mexico		
Map System:	US State Plane 1927 (Exact solution)	System Datum:	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	New Mexico East 3001		

Site:	Copperhead 18 State 2H		
Site Position:		Northing:	445,907.50 usft
From:	Map	Easting:	721,463.20 usft
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "
		Latitude:	32.224
		Longitude:	-103.617
		Grid Convergence:	0.38 °

Well:	C18S 2H		
Well Position	+N/-S	0.00 usft	Northing:
	+E/-W	0.00 usft	Easting:
Position Uncertainty	0.00 usft	Wellhead Elevation:	0.00 usft
		Latitude:	32.224
		Longitude:	-103.617
		Ground Level:	3,569.50 usft

Wellbore:	Pilot Wellpath		
Magnetics	Model Name	Sample Date	Declination
	IGRF2010	10/07/13	(°)
			7.32
			60.12
			48,379

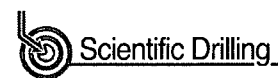
Design:	Pilot Wellpath		
Audit Notes:			
Version:	1.0	Phase:	ACTUAL
		Tie On Depth:	0.00
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W
	(usft)	(usft)	(usft)
	0.00	0.00	0.00
			179.66

Survey Program	Date: 02/22/14		
From	To	Survey (Wellbore)	Tool Name
(usft)	(usft)		
51.00	785.00	MS Gyro (Pilot Wellpath)	Generic Gyro
878.00	11,300.00	SDI MWD (Pilot Wellpath)	SDI MWD
			SDI MWD - Standard ver 1.0.1

Survey									
Measured	Inclination	Azimuth	Vertical	+N/-S	+E/-W	Vertical	Dogleg	Build	Turn
Depth	(°)	(°)	Depth	(usft)	(usft)	Section	Rate	Rate	Rate
(usft)			(usft)			(usft)	(°/100usft)	(°/100usft)	(°/100usft)
785.00	4.44	11.82	784.51	21.33	5.13	-21.30	0.00	0.00	0.00
878.00	5.56	12.65	877.16	29.25	6.86	-29.21	1.21	1.20	0.89
955.00	3.34	353.01	953.92	35.12	7.40	-35.08	3.46	-2.88	-25.51
1,050.00	2.64	344.58	1,048.79	39.98	6.48	-39.94	0.87	-0.74	-8.87
1,150.00	1.58	335.17	1,148.72	43.45	5.29	-43.42	1.11	-1.06	-9.41
1,242.00	1.49	327.26	1,240.69	45.61	4.11	-45.58	0.25	-0.10	-8.60
1,337.00	1.49	328.23	1,335.66	47.69	2.79	-47.68	0.03	0.00	1.02
1,431.00	0.97	313.20	1,429.64	49.28	1.57	-49.27	0.65	-0.55	-15.99
1,526.00	0.79	287.18	1,524.63	50.02	0.36	-50.02	0.46	-0.19	-27.39
1,620.00	0.53	240.25	1,618.62	50.00	-0.64	-50.00	0.61	-0.28	-49.93



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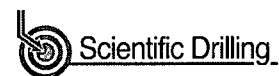


Company:	OXY	Local Co-ordinate Reference:	Well C18S 2H
Project:	Lea County, New Mexico	TVD Reference:	KB @ 3593.50usft
Site:	Copperhead 18 State 2H	MD Reference:	KB @ 3593.50usft
Well:	C18S 2H	North Reference:	Grid
Wellbore:	Pilot Wellpath	Survey Calculation Method:	Minimum Curvature
Design:	Pilot Wellpath	Database:	CompassC

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
1,715.00	0.26	186.20	1,713.62	49.57	-1.05	-49.57	0.45	-0.28	-56.89
1,809.00	0.18	249.13	1,807.62	49.30	-1.21	-49.31	0.25	-0.09	66.95
1,903.00	0.44	219.42	1,901.62	48.97	-1.57	-48.98	0.32	0.28	-31.61
1,998.00	0.44	237.70	1,996.61	48.49	-2.11	-48.50	0.15	0.00	19.24
2,092.00	0.35	233.22	2,090.61	48.13	-2.65	-48.14	0.10	-0.10	-4.77
2,187.00	0.26	311.62	2,185.61	48.10	-3.04	-48.11	0.41	-0.09	82.53
2,281.00	0.35	249.48	2,279.61	48.14	-3.47	-48.16	0.34	0.10	-66.11
2,375.00	0.26	288.77	2,373.61	48.11	-3.94	-48.13	0.24	-0.10	41.80
2,469.00	0.09	181.45	2,467.61	48.10	-4.14	-48.13	0.32	-0.18	-114.17
2,563.00	0.00	327.79	2,561.61	48.03	-4.15	-48.05	0.10	-0.10	0.00
2,658.00	0.18	225.48	2,656.61	47.92	-4.25	-47.95	0.19	0.19	0.00
2,752.00	0.09	152.97	2,750.61	47.75	-4.32	-47.78	0.19	-0.10	-77.14
2,846.00	0.18	16.92	2,844.61	47.83	-4.25	-47.85	0.27	0.10	-144.73
2,940.00	0.09	56.73	2,938.61	48.01	-4.14	-48.03	0.13	-0.10	42.35
3,034.00	0.26	314.17	3,032.61	48.20	-4.23	-48.22	0.31	0.18	-109.11
3,129.00	0.26	36.96	3,127.61	48.52	-4.26	-48.55	0.36	0.00	87.15
3,223.00	0.26	60.95	3,221.61	48.80	-3.95	-48.82	0.11	0.00	25.52
3,318.00	0.44	23.07	3,316.60	49.24	-3.61	-49.26	0.30	0.19	-39.87
3,412.00	0.26	344.49	3,410.60	49.77	-3.53	-49.79	0.31	-0.19	-41.04
3,506.00	0.18	345.28	3,504.60	50.12	-3.62	-50.14	0.09	-0.09	0.84
3,600.00	0.35	303.27	3,598.60	50.42	-3.90	-50.45	0.26	0.18	-44.69
3,695.00	0.18	358.55	3,693.60	50.73	-4.15	-50.76	0.30	-0.18	58.19
3,789.00	0.44	269.78	3,787.60	50.88	-4.51	-50.90	0.50	0.28	-94.44
3,883.00	0.53	268.81	3,881.60	50.87	-5.31	-50.90	0.10	0.10	-1.03
3,978.00	0.70	300.02	3,976.59	51.15	-6.25	-51.18	0.39	0.18	32.85
4,072.00	0.26	184.18	4,070.59	51.22	-6.76	-51.26	0.90	-0.47	-123.23
4,166.00	0.62	165.10	4,164.58	50.52	-6.65	-50.56	0.41	0.38	-20.30
4,260.00	1.14	140.49	4,258.57	49.31	-5.92	-49.34	0.67	0.55	-26.18
4,354.00	1.49	136.98	4,352.55	47.69	-4.49	-47.72	0.38	0.37	-3.73
4,448.00	1.49	118.52	4,446.52	46.21	-2.59	-46.23	0.51	0.00	-19.64
4,543.00	1.67	127.66	4,541.48	44.78	-0.40	-44.78	0.33	0.19	9.62
4,637.00	1.93	137.15	4,635.44	42.78	1.76	-42.77	0.42	0.28	10.10
4,731.00	1.49	126.78	4,729.39	40.89	3.81	-40.87	0.57	-0.47	-11.03
4,826.00	0.97	146.03	4,824.37	39.48	5.25	-39.45	0.69	-0.55	20.26
4,920.00	0.70	129.95	4,918.36	38.45	6.14	-38.42	0.38	-0.29	-17.11
5,014.00	0.53	131.79	5,012.36	37.80	6.90	-37.75	0.18	-0.18	1.96
5,104.00	1.06	124.76	5,102.35	37.04	7.89	-37.00	0.60	0.59	-7.81
5,198.00	0.88	127.84	5,196.33	36.10	9.18	-36.05	0.20	-0.19	3.28
5,292.00	0.88	127.57	5,290.32	35.22	10.32	-35.16	0.00	0.00	-0.29
5,386.00	0.88	94.53	5,384.31	34.72	11.61	-34.66	0.53	0.00	-35.15
5,481.00	1.06	107.10	5,479.30	34.41	13.18	-34.33	0.29	0.19	13.23
5,575.00	0.97	87.23	5,573.28	34.19	14.80	-34.10	0.38	-0.10	-21.14
5,669.00	0.70	88.73	5,667.27	34.24	16.17	-34.15	0.29	-0.29	1.60



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Well:	C18S 2H	North Reference:	Grid
Wellbore:	Pilot Wellpath	Survey Calculation Method:	Minimum Curvature
Design:	Pilot Wellpath	Database:	CompassC

Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
5,763.00	0.62	117.29	5,761.27	34.02	17.20	-33.92	0.36	-0.09	30.38	
5,858.00	0.70	95.23	5,856.26	33.73	18.23	-33.63	0.28	0.08	-23.22	
5,952.00	0.79	110.17	5,950.25	33.46	19.41	-33.34	0.23	0.10	15.89	
6,046.00	0.53	93.82	6,044.25	33.21	20.46	-33.08	0.34	-0.28	-17.39	
6,141.00	0.35	120.02	6,139.25	33.03	21.15	-32.91	0.28	-0.19	27.58	
6,235.00	0.62	108.41	6,233.24	32.73	21.88	-32.60	0.30	0.29	-12.35	
6,330.00	0.70	103.23	6,328.24	32.43	22.93	-32.30	0.10	0.08	-5.45	
6,424.00	0.53	81.26	6,422.23	32.37	23.92	-32.23	0.31	-0.18	-23.37	
6,518.00	0.44	93.03	6,516.23	32.41	24.71	-32.27	0.14	-0.10	12.52	
6,613.00	0.53	105.60	6,611.22	32.28	25.50	-32.13	0.15	0.09	13.23	
6,707.00	0.70	89.25	6,705.22	32.17	26.49	-32.01	0.26	0.18	-17.39	
6,801.00	0.35	241.74	6,799.22	32.04	26.81	-31.88	1.09	-0.37	162.22	
6,896.00	0.70	265.39	6,894.21	31.85	25.98	-31.70	0.43	0.37	24.89	
6,990.00	0.53	240.34	6,988.21	31.59	25.03	-31.44	0.33	-0.18	-26.65	
7,085.00	0.70	234.63	7,083.20	31.04	24.17	-30.90	0.19	0.18	-6.01	
7,179.00	0.44	258.71	7,177.20	30.64	23.35	-30.50	0.37	-0.28	25.62	
7,274.00	0.79	236.30	7,272.19	30.20	22.45	-30.07	0.44	0.37	-23.59	
7,368.00	1.32	248.25	7,366.17	29.44	20.90	-29.32	0.61	0.56	12.71	
7,462.00	1.32	248.86	7,460.15	28.65	18.89	-28.54	0.01	0.00	0.65	
7,556.00	0.70	241.83	7,554.13	27.99	17.37	-27.88	0.67	-0.66	-7.48	
7,651.00	0.53	272.51	7,649.13	27.73	16.42	-27.64	0.38	-0.18	32.29	
7,745.00	0.53	18.77	7,743.13	28.16	16.13	-28.07	0.90	0.00	113.04	
7,839.00	0.26	63.06	7,837.13	28.67	16.46	-28.57	0.41	-0.29	47.12	
7,933.00	0.09	74.40	7,931.12	28.79	16.72	-28.69	0.18	-0.18	12.06	
8,028.00	0.18	106.39	8,026.12	28.77	16.93	-28.67	0.12	0.09	33.67	
8,122.00	0.09	26.59	8,120.12	28.79	17.11	-28.69	0.20	-0.10	-84.89	
8,216.00	0.35	136.28	8,214.12	28.65	17.34	-28.55	0.41	0.28	116.69	
8,310.00	0.44	107.10	8,308.12	28.34	17.88	-28.23	0.23	0.10	-31.04	
8,405.00	3.61	240.78	8,403.06	26.77	15.62	-26.68	4.13	3.34	140.72	
8,499.00	2.02	236.73	8,496.95	24.41	11.65	-24.35	1.70	-1.69	-4.31	
8,593.00	0.26	140.49	8,590.93	23.34	10.40	-23.28	2.20	-1.87	-102.38	
8,688.00	0.18	102.00	8,685.93	23.14	10.68	-23.08	0.17	-0.08	-40.52	
8,782.00	0.79	193.76	8,779.92	22.48	10.67	-22.42	0.87	0.65	97.62	
8,876.00	0.97	193.76	8,873.91	21.08	10.33	-21.02	0.19	0.19	0.00	
8,970.00	0.79	215.64	8,967.90	19.78	9.76	-19.72	0.40	-0.19	23.28	
9,065.00	0.88	201.14	9,062.89	18.57	9.12	-18.51	0.24	0.09	-15.26	
9,159.00	1.14	221.62	9,156.88	17.20	8.24	-17.15	0.47	0.28	21.79	
9,253.00	1.14	225.92	9,250.86	15.85	6.95	-15.81	0.09	0.00	4.57	
9,347.00	0.97	230.58	9,344.84	14.69	5.66	-14.66	0.20	-0.18	4.96	
9,441.00	0.62	218.89	9,438.83	13.79	4.72	-13.76	0.41	-0.37	-12.44	
9,536.00	0.53	250.80	9,533.83	13.25	3.99	-13.22	0.34	-0.09	33.59	
9,630.00	1.06	231.11	9,627.82	12.56	2.90	-12.54	0.63	0.56	-20.95	
9,725.00	1.14	189.01	9,722.80	11.07	2.07	-11.06	0.84	0.08	-44.32	



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Project:	Lea County, New Mexico	TVD Reference:	KB @ 3593.50usft
Site:	Copperhead 18 State 2H	MD Reference:	KB @ 3593.50usft
Well:	C18S 2H	North Reference:	Grid
Wellbore:	Pilot Wellpath	Survey Calculation Method:	Minimum Curvature
Design:	Pilot Wellpath	Database:	CompassC

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
9,819.00	1.67	171.61	9,816.78	8.79	2.12	-8.78	0.72	0.56	-18.51
9,913.00	1.41	201.58	9,910.74	6.36	1.90	-6.35	0.89	-0.28	31.88
10,008.00	1.41	216.43	10,005.71	4.34	0.77	-4.33	0.38	0.00	15.63
10,102.00	1.49	229.26	10,099.68	2.61	-0.84	-2.61	0.35	0.09	13.65
10,196.00	1.32	213.44	10,193.66	0.91	-2.36	-0.92	0.45	-0.18	-16.83
10,291.00	1.14	196.74	10,288.64	-0.91	-3.24	0.89	0.42	-0.19	-17.58
10,385.00	0.97	204.48	10,382.62	-2.53	-3.84	2.51	0.24	-0.18	8.23
10,480.00	1.14	199.38	10,477.60	-4.16	-4.48	4.13	0.20	0.18	-5.37
10,574.00	1.67	189.54	10,571.57	-6.39	-5.02	6.36	0.62	0.56	-10.47
10,668.00	1.41	170.20	10,665.54	-8.88	-5.05	8.85	0.61	-0.28	-20.57
10,763.00	2.02	199.21	10,760.50	-11.61	-5.40	11.58	1.10	0.64	30.54
10,857.00	1.76	170.11	10,854.45	-14.60	-5.70	14.56	1.04	-0.28	-30.96
10,952.00	1.41	159.57	10,949.41	-17.13	-5.04	17.10	0.48	-0.37	-11.09
11,046.00	1.41	163.52	11,043.39	-19.32	-4.31	19.30	0.10	0.00	4.20
11,141.00	1.67	176.35	11,138.35	-21.83	-3.89	21.80	0.45	0.27	13.51
11,235.00	1.93	170.20	11,232.31	-24.75	-3.53	24.73	0.34	0.28	-6.54
Last SDI MWD									
11,300.00	1.93	170.20	11,297.27	-26.91	-3.16	26.89	0.00	0.00	0.00

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- hit/miss target									
- Shape									
C18S 2H BHL	0.00	0.00	11,130.00	-4,601.20	27.10	441,306.30	721,490.30	32.211	-103.617
- survey misses target center by 4577.42usft at 11284.81usft MD (11282.08 TVD, -26.41 N, -3.25 E)									
- Point									

Survey Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
11,235.00	11,232.31	-24.75	-3.53	Last SDI MWD	

Checked By: _____ Approved By: _____ Date: _____



Job Number: SVMO-140160
 Company: OXY USA, Inc.
 Lease/Well: Copperhead 18 State 2H
 Location: Lea County, NM
 Rig Name: H&P #474
 RKB: 25'
 G.L. or M.S.L.: GL

State/Country: New Mexico/USA
 Declination: 6.94°
 Grid: East To Grid North
 File name: S:\2014SU-1\OXY\MOICOPPER-1\2H.SVY
 Date/Time: 10-Feb-14 / 15:44
 Curve Name: Surface - 878' M.D. (Rate Gyro)

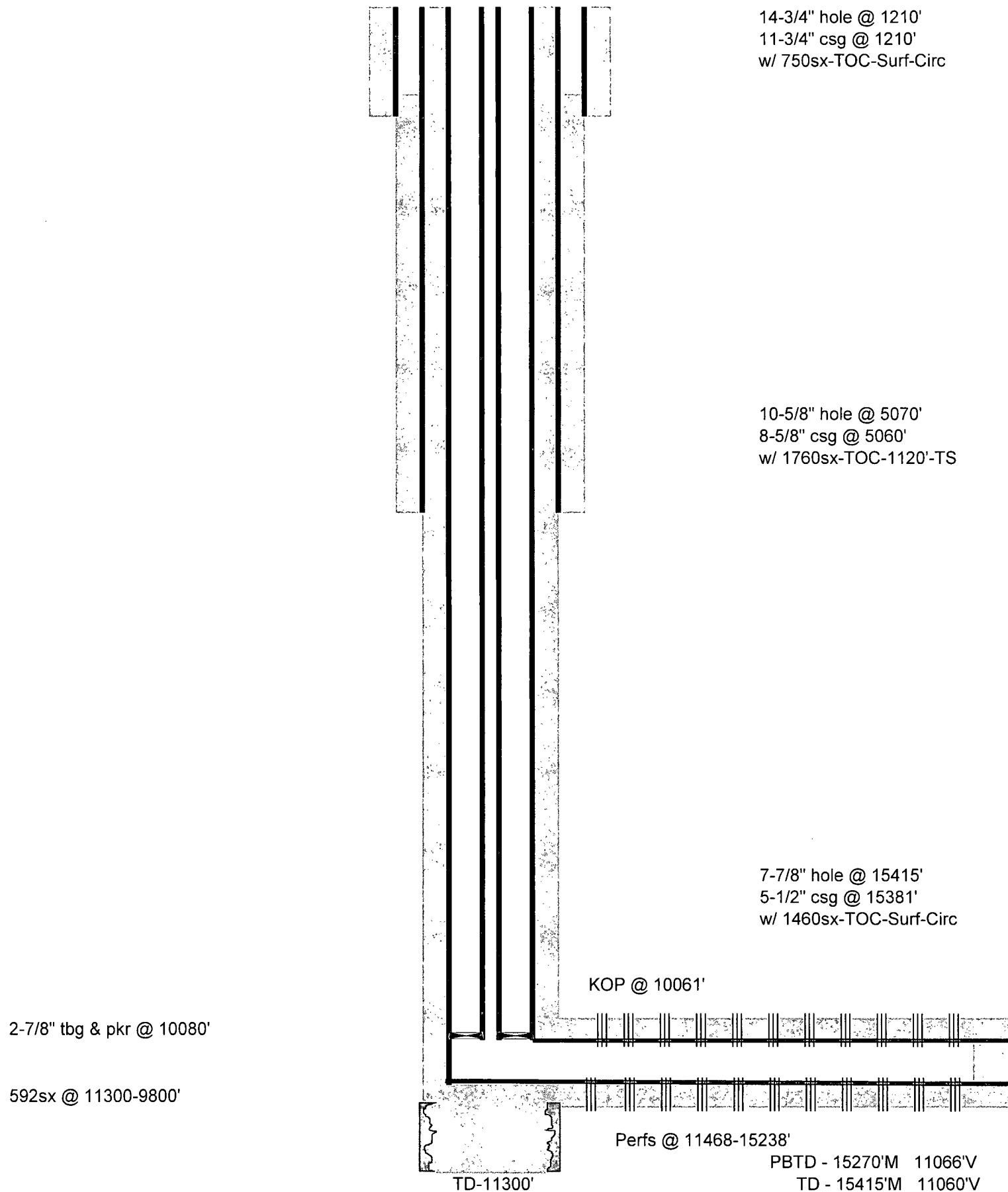
WINSERVE SURVEY CALCULATIONS
 Minimum Curvature Method
 Vertical Section Plane .00
 Vertical Section Referenced to Wellhead
 Rectangular Coordinates Referenced to Wellhead

We hereby certify that our survey data from
 Surface MD to 878 MD is, to the best of
 our knowledge a true and accurate account of
 the well bore.
 James E.ally 2/10/14
 MS Energy Services Date

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	True Vertical Depth	N-S FT	E-W FT	Vertical Section FT	C L O S U R E		Dogleg Severity Deg/100
							Distance FT	Direction Deg	
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
51.00	.71	19.17	51.00	.30	.10	.30	.32	19.17	1.39
133.00	.87	35.62	132.99	1.28	.63	1.28	1.43	26.24	.34
226.00	.48	3.67	225.98	2.25	1.07	2.25	2.49	25.45	.57
319.00	.70	20.31	318.98	3.17	1.29	3.17	3.42	22.17	.30
413.00	1.01	12.73	412.97	4.52	1.67	4.52	4.82	20.33	.35
506.00	1.47	12.32	505.95	6.48	2.11	6.48	6.81	18.02	.49
599.00	3.01	11.91	598.87	10.03	2.87	10.03	10.44	15.94	1.66
692.00	3.38	10.75	691.73	15.12	3.88	15.12	15.61	14.40	.40
785.00	4.44	11.82	784.51	21.33	5.13	21.33	21.94	13.52	1.14

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	True Vertical Depth	N-S FT	E-W FT	Vertical Section FT	C L O S U R E		Dogleg Severity Deg/100
							Distance FT	Direction Deg	
Last Survey Depth Recorded									
878.00	5.56	12.65	877.16	29.25	6.86	29.25	30.05	13.19	1.21

OXY USA Inc.
Copperhead 18 State #2H
API No. 30-025-41460





GAMMA RAY
HOBBS OCD

APR 24 2014

1" = 100' FEET TVD

RECEIVED

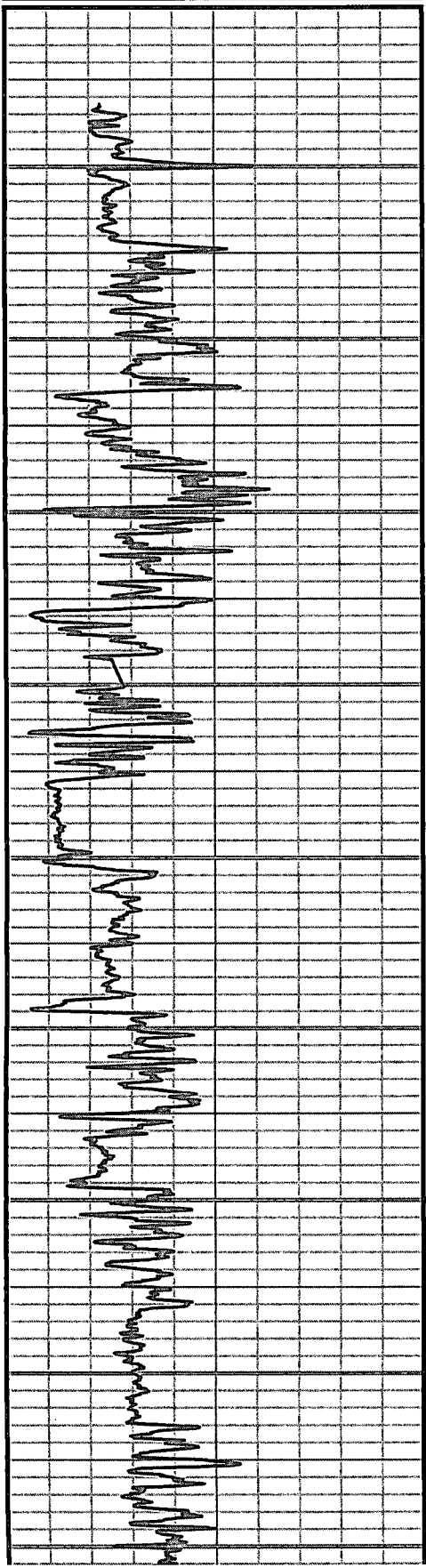
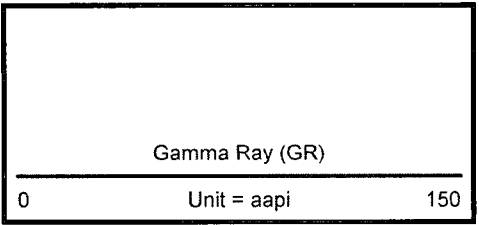
COMPANY : OXY WELL : COPPERHEAD 18 STATE 2H FIELD : TRIPLE X BONE SPRING WEST COUNTY : LEA STATE : NEW MEXICO COUNTRY : USA UWI : 30-025-41460									
COMPANY : OXY WELL : COPPERHEAD 18 STATE 2H FIELD : TRIPLE X BONE SPRING WEST COUNTY : LEA STATE : NEW MEXICO COUNTRY : USA UWI : 30-025-41460									
DEPTH REF. : RKB REF. HEIGHT : 24.000 ft GROUND LEVEL : 3569.500 ft					WELL LOCATION LAT: 32°13'26.400"N LONG: 103°37'1.200"W N: 445907.50 ft E: 721463.20 ft SEC:- TWP:- RANGE:-				
BOREHOLE RECORD HOLE SIZE in FROM ft TO ft 11.75 0 1200 8.625 1200 5070 8.625 1200 5070					OTHER SERVICES DIRECTIONAL ROP TEMPERATURE				
DEVIATION RECORD INCLINATION deg FROM ft TO ft 0 0 9692 0-89.5 9692 11580 89.5 11580					G.L. to MEAN SEA LEVEL				
CASING RECORD CASING SIZE in FROM ft TO ft 11.75 0 1200 8.625 1200 5070									
DRILLING CO. : H&P RIG : 474 LMD UNIT NO. : MWD-254-C DISTRICT : MIDLAND SPUD DATE : 02/06/2014 LMD START DATE : 02/25/2014 LMD END DATE : DEPTH : 9692 ft TOTAL DEPTH :									

Run Data						
RUN NUMBER	6	7	8	9	10	
START DATE	02/.25/2014	02/27/2014	03/01/2014	03/03/2014	03/06/2014	
START TIME	14:00	19:00	18:00	23:00	19:00	
END DATE	02/27/2014	03/01/2014	03/03/2014	03/06/2014		
END TIME	19:00	18:00	23:00	17:00		
DEPTH IN (ft)	9692	10118	10198	10607	1158	
DEPTH OUT (ft)	10118	10198	10607	11580		
LOG TOP (ft)	9692	10069	10148	10556	11529	
LOG BOTTOM (ft)	10069	10148	10556	11529		
HOLE SIZE (in)	7.875	7.875	7.875	7.875	7.875	
MUD DATA @ (ft)	9925	10121	10198	10692		
MUD TYPE	BRINE	BRINE	BRINE	BRINE	BRINE	
DENSITY (lb / gal)	9.10	9.10	9.10	9.20		
VISCOSITY (s / qt)	30	31	31	31		
pH	9.5	11	11	11		
FLUID LOSS (cm3 / 30)	44	0	0	0		
SALINITY (ppm)	19,000	24,000	24,000	42,000		
Rm (ohmm @ deg F)	-	-	-	-		
Rmf (ohmm @ deg F)	-	-	-	-		
MAX TEMP (deg F)	150	128	128	136		
Rm @ MAX TEMP (ohmm)	-	-	-	-		
LWD ENGINEER #1	RUSTY MARTIN	RUSTY MARTIN	RUSTY MARTIN	RUSTY MARTIN		
LWD ENGINEER #2	MIKE ANAYA	MIKE ANAYA	MIKE ANAYA	MIKE ANAYA		
LWD ENGINEER #3						
LOG WITNESS #1						
LOG WITNESS #2						

Remarks
OXY PRODUCTION AFE# 1179660
SCIENTIFIC DRILLING INTERNATIONAL JOB# 112920
ALL REFERENCES IN THE DEPTH TRACK ARE AT BIT DEPTH.
ALL DATA IS MEMORY DATA UNLESS STATED OTHERWISE.
RUN #6: MWD / GAMMA RAY / LOGGING RUN
SENSORS S/N: PULSER= 128-292 / CONTROLLER= 734 / MWD EYE= 294 / GAMMA RAY= 1063
BIT TO SENSOR OFFSETS: SURVEYS= 49 FT. / GAMMA RAY= 38 FT.
RUN #7: MWD / GAMMA RAY / LOGGING RUN
SENSORS S/N: PULSER= 128-292 / CONTROLLER= 734 / MWD EYE= 294 / GAMMA RAY= 1063
BIT TO SENSOR OFFSETS: SURVEYS= 50 FT. / GAMMA RAY= 39 FT.
RUN #8: MWD / GAMMA RAY / LOGGING RUN
SENSORS S/N: PULSER= 128-292 / CONTROLLER= 530 / MWD EYE= 418 / GAMMA RAY= 320
BIT TO SENSOR OFFSETS: SURVEYS= 51 FT. / GAMMA RAY= 39 FT.
RUN #9: MWD / GAMMA RAY / LOGGING RUN
SENSORS S/N: PULSER= 128-292 / CONTROLLER= 530 / MWD EYE= 418 / GAMMA RAY= 320
BIT TO SENSOR OFFSETS: SURVEYS= 50 FT. / GAMMA RAY= 38 FT.
RUN #10: MWD / GAMMA RAY / LOGGING RUN
SENSORS S/N: PULSER= 128-292 / CONTROLLER= 530 / MWD EYE= 418 / GAMMA RAY= 320
BIT TO SENSOR OFFSETS: SURVEYS= 53 FT. / GAMMA RAY= 42 FT.

[illegible]

These interpretations are opinions based on information from electrical or other measurements and we cannot, and do not guarantee the accuracy or correctness of any interpretations, and we shall not, except in the case of gross or willful negligence on our part, be liable or responsible for any loss, costs, damages or expenses incurred or sustained by anyone resulting from any interpretation made by any of our officers, agents or employees. These interpretations are also subject to our general terms and conditions as set out in our current price schedule.



TRUE VERTICAL DEPTH
1:1200 (ft)

10100

10200

10300

10400

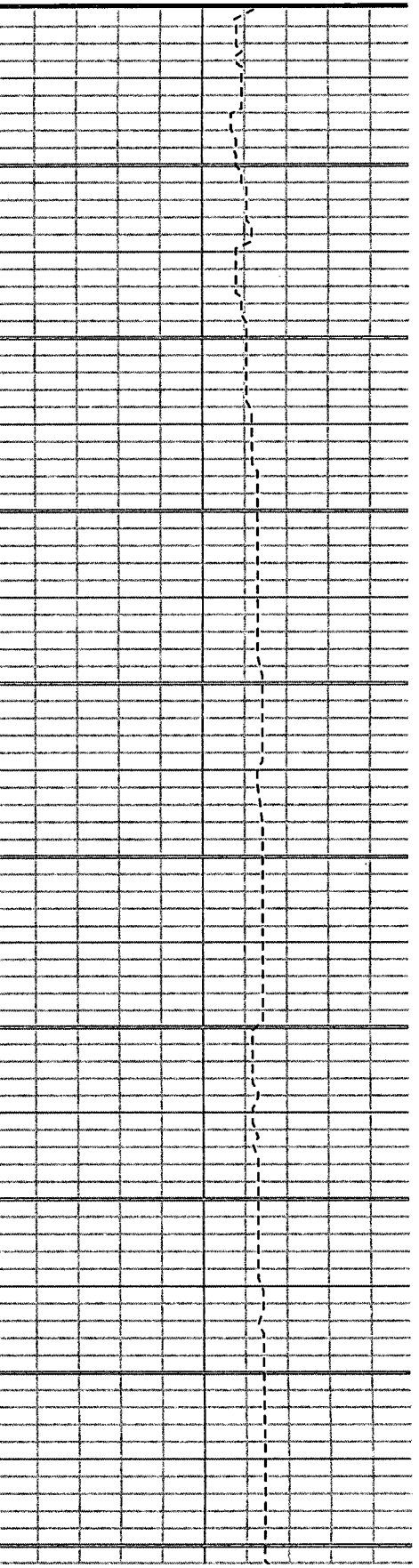
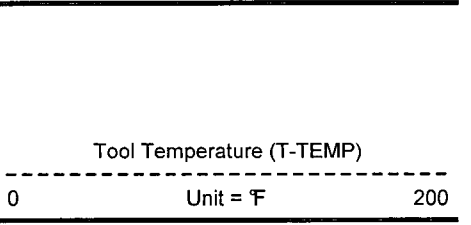
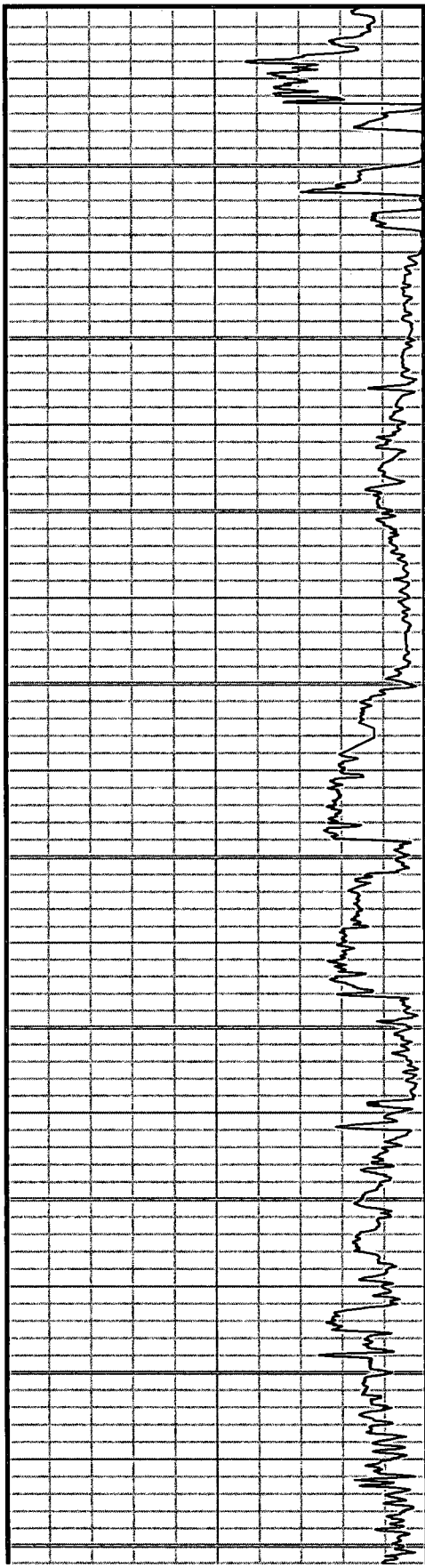
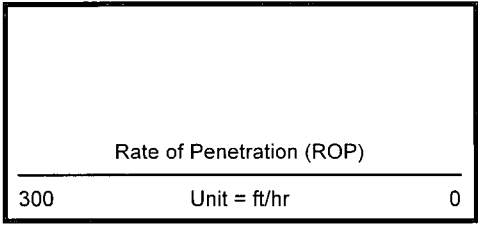
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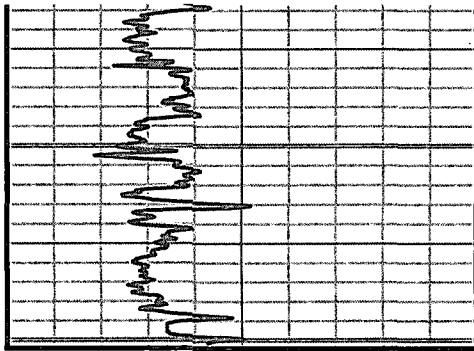
10600

10700

10800

10900

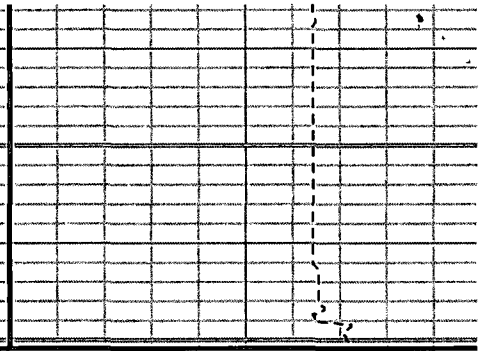
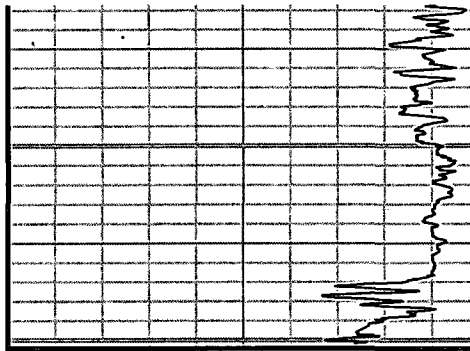




11000

11100

TRUE VERTICAL DEPTH
1:1200 (ft)



Gamma Ray (GR)		
0	Unit = aapi	150

Rate of Penetration (ROP)		
300	Unit = ft/hr	0

Tool Temperature (T-TEMP)		
0	Unit = °F	200

GAMMA RAY



Scientific Drilling

1" = 100' FEET TVD



GAMMA RAY

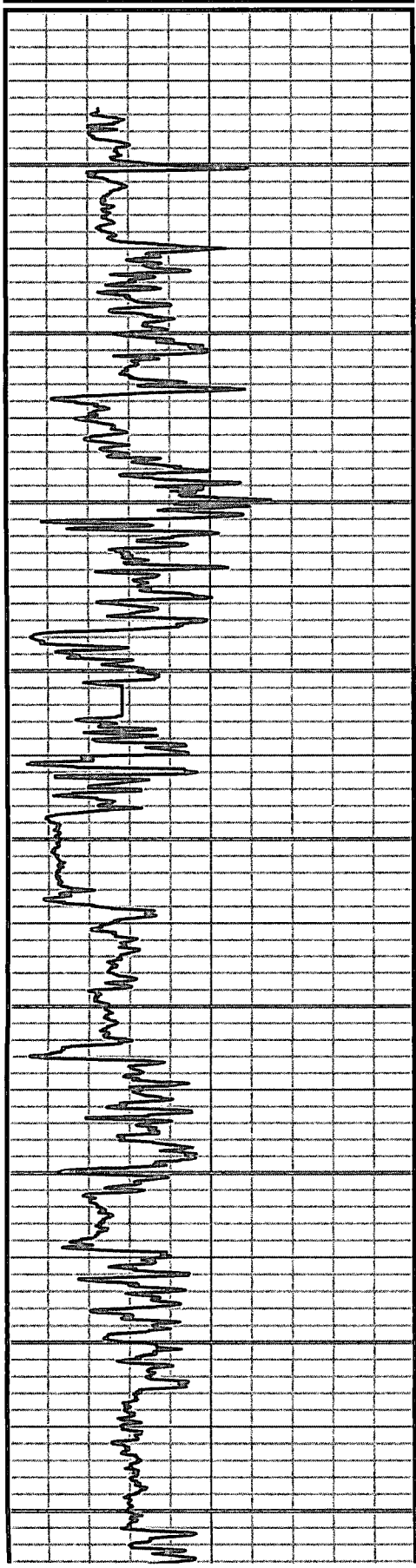
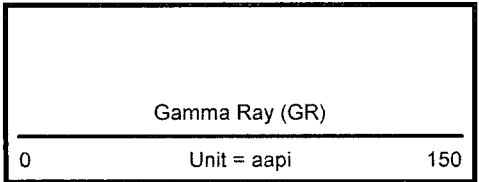
1" = 100' FEET MD

COMPANY : OXY WELL : COPPERHEAD 18 STATE 2H FIELD : TRIPLE X BONE SPRING WEST COUNTY : LEA STATE : NEW MEXICO COUNTRY : USA UWI : 30-025-41460									
COMPANY : OXY WELL : COPPERHEAD 18 STATE 2H FIELD : TRIPLE X BONE SPRING WEST COUNTY : LEA STATE : NEW MEXICO COUNTRY : USA UWI : 30-025-41460									
DEPTH REF. : RKB REF. HEIGHT : 24.000 ft GROUND LEVEL : 3569.500 ft					RKB to Ground Level G.L. to MEAN SEA LEVEL				
BOREHOLE RECORD					DEVIATION RECORD				
HOLE SIZE in	FROM ft	TO ft	INCLINATION deg	FROM ft	TO ft				
11.75	0	1200	0	0	9692				
8.625	1200	5070	0-89.5	9692	11580				
			89.5	11580					
CASING RECORD									
CASING SIZE in	FROM ft	TO ft							
11.75	0	1200							
8.625	1200	5070							
			DRILLING CO.: H&P RIG: 474						
			LMD UNIT NO.: MWD-254-C DISTRICT: MIDLAND						
			SPUD DATE: 02/06/2014						
			LMD START DATE: 02/25/2014						
			LMD END DATE:			DEPTH: 9692 ft			
						TOTAL DEPTH:			

Remarks
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SCIENTIFIC DRILLING INTERNATIONAL JOB# 112920
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SENSORS S/N: PULSER= 128-292 / CONTROLLER= 530 / MWD EYE= 418 / GAMMA RAY= 320
BIT TO SENSOR OFFSETS: SURVEYS= 51 FT. / GAMMA RAY= 39 FT.
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BIT TO SENSOR OFFSETS: SURVEYS= 53 FT. / GAMMA RAY= 42 FT.

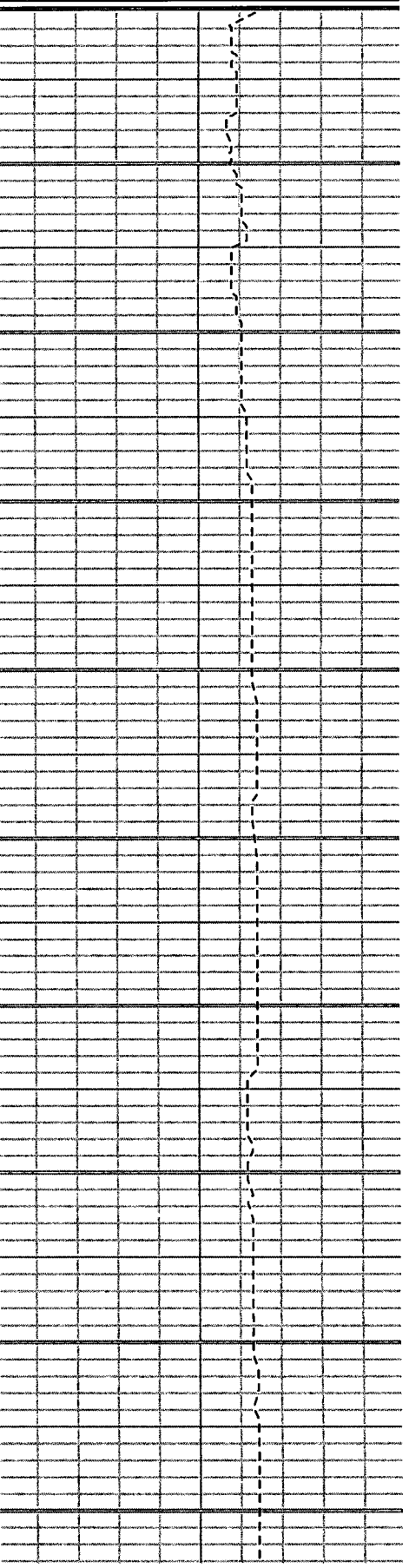
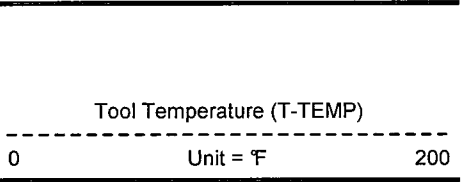
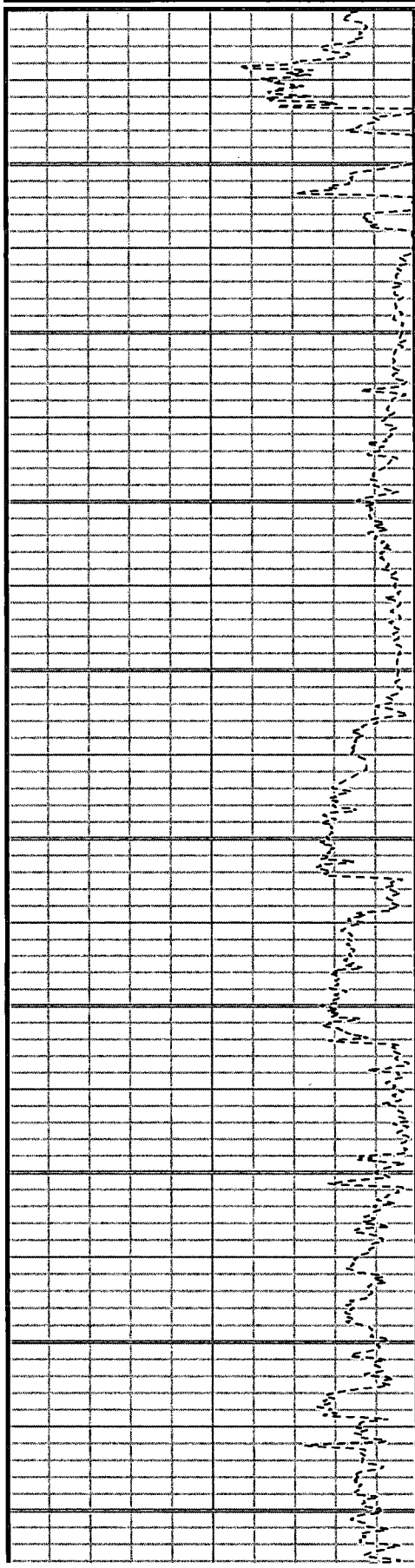
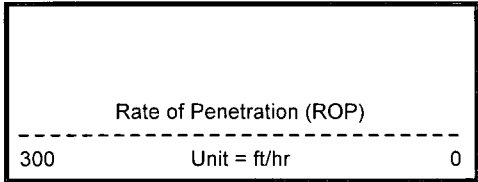
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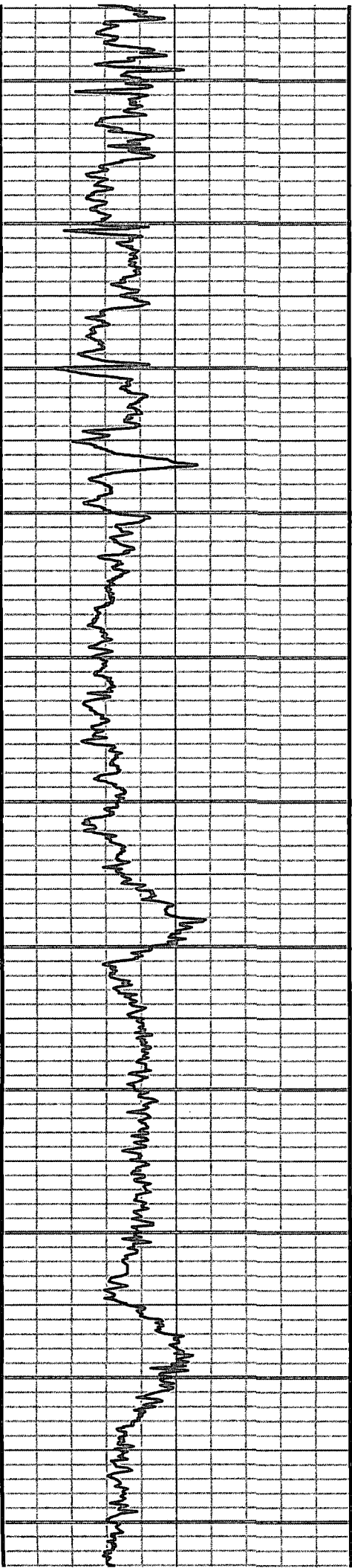
all interpretations are opinions based on information from electrical or other measurements and we cannot, and do not guarantee the accuracy or correctness of any interpretations, and we shall not, except in the case of gross or willful negligence on our part, be liable or responsible for any loss, costs, damages or expenses incurred or sustained by anyone resulting from any interpretation made by any of our officers, agents or employees. These interpretations are also subject to our general terms and conditions as set out in our current price schedule.



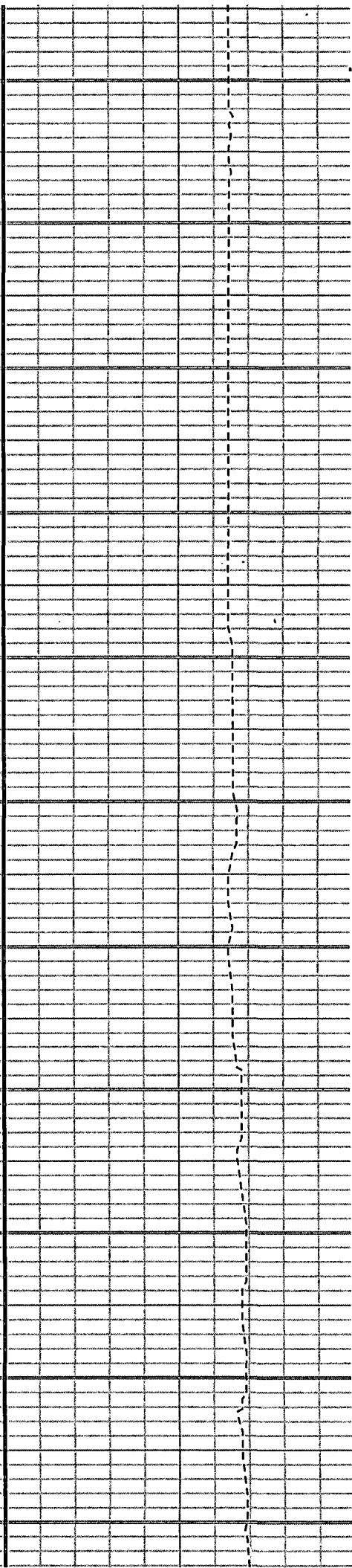
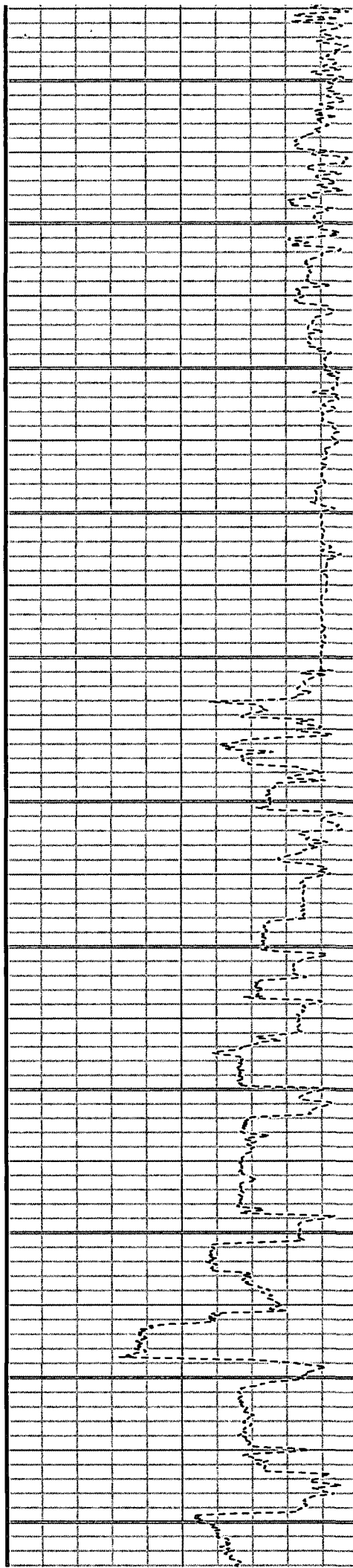
MEASURED DEPTH
1:1200 (ft)

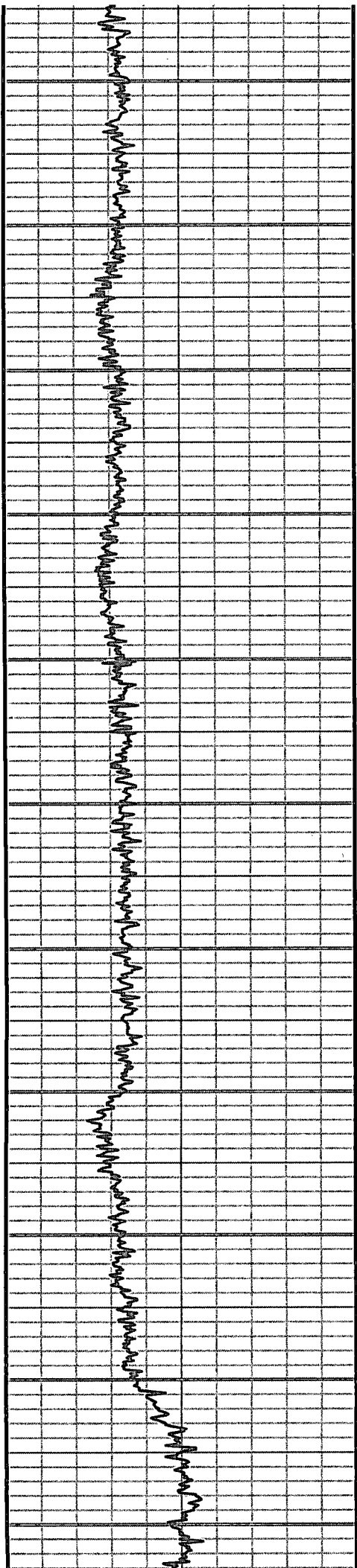
10100
10200
10300
10400
10500
10600
10700
10800
10900





11000
11100
11200
11300
11400
11500
11600
11700
11800
11900
12000





12100

12200

12300

12400

12500

12600

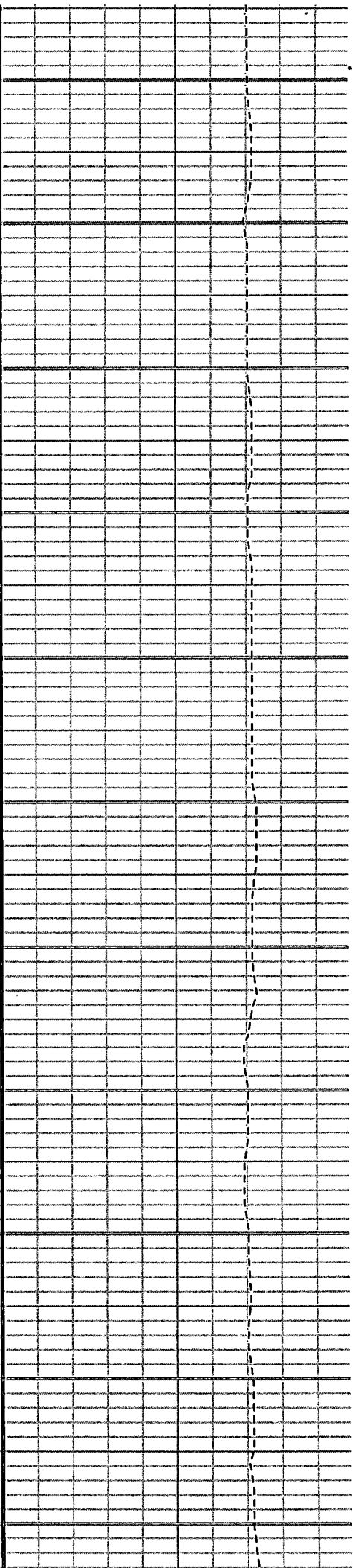
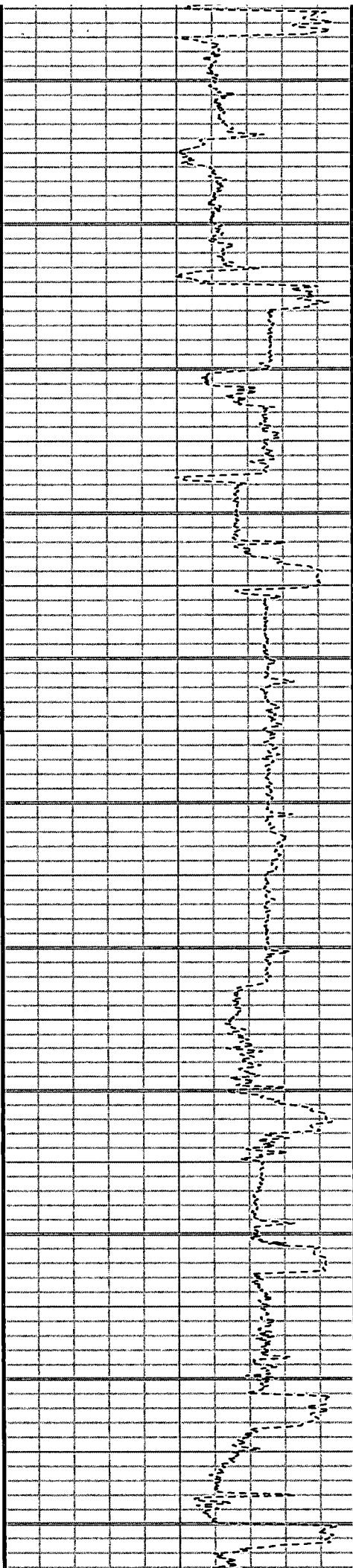
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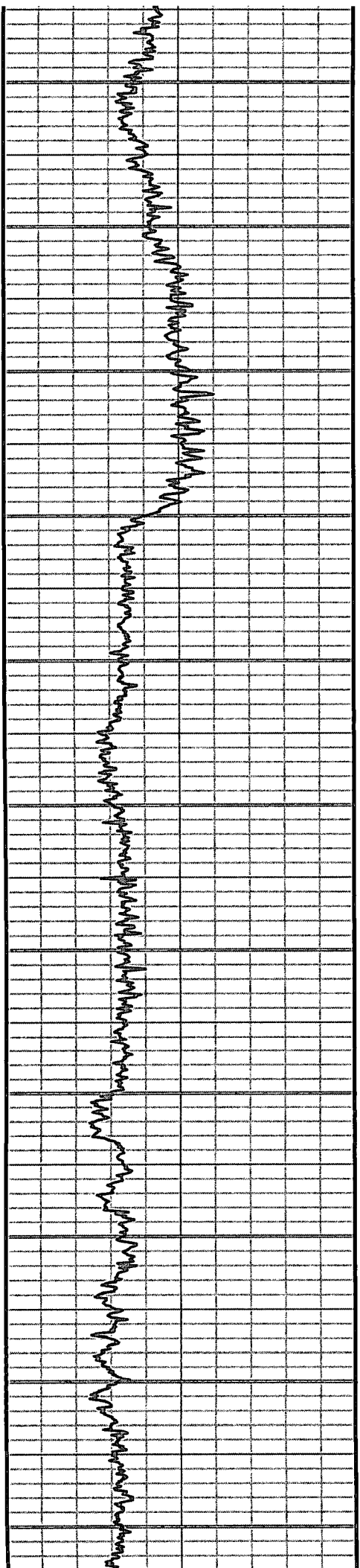
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12900

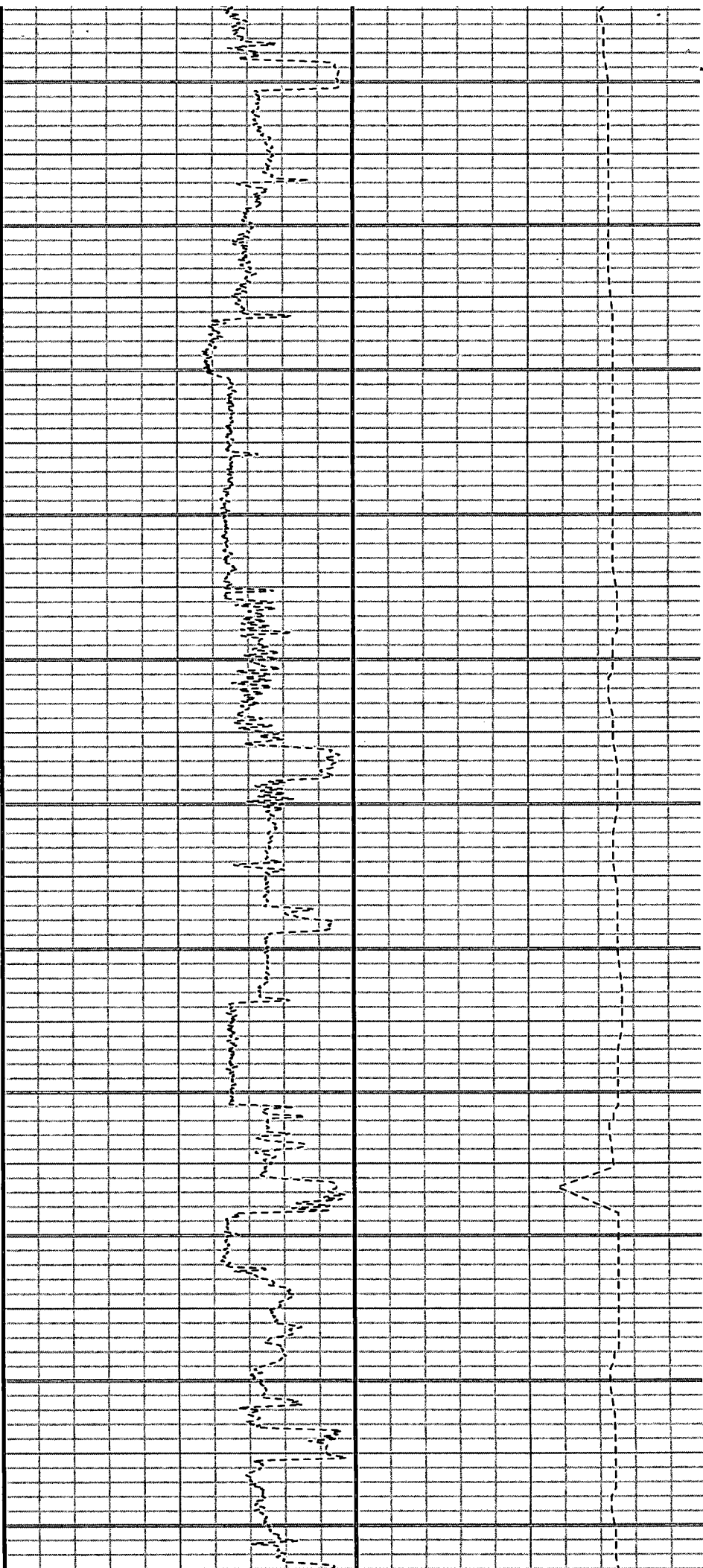
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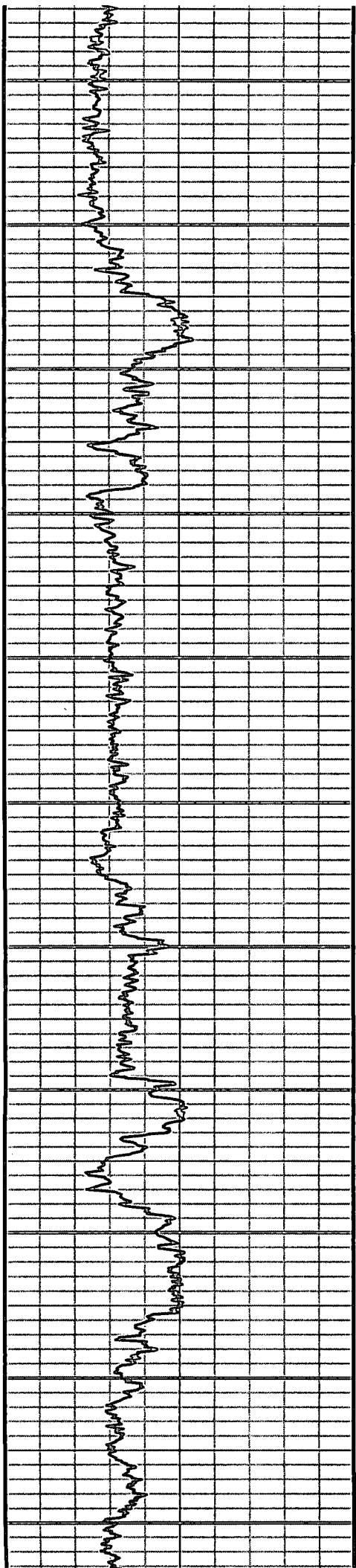
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13200
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14100
14200





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14400

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14600

14700

14800

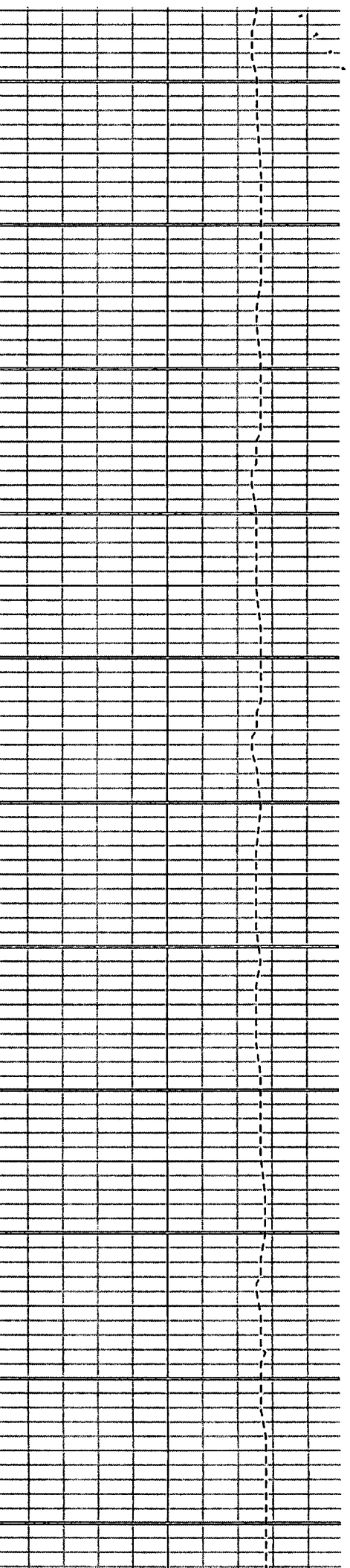
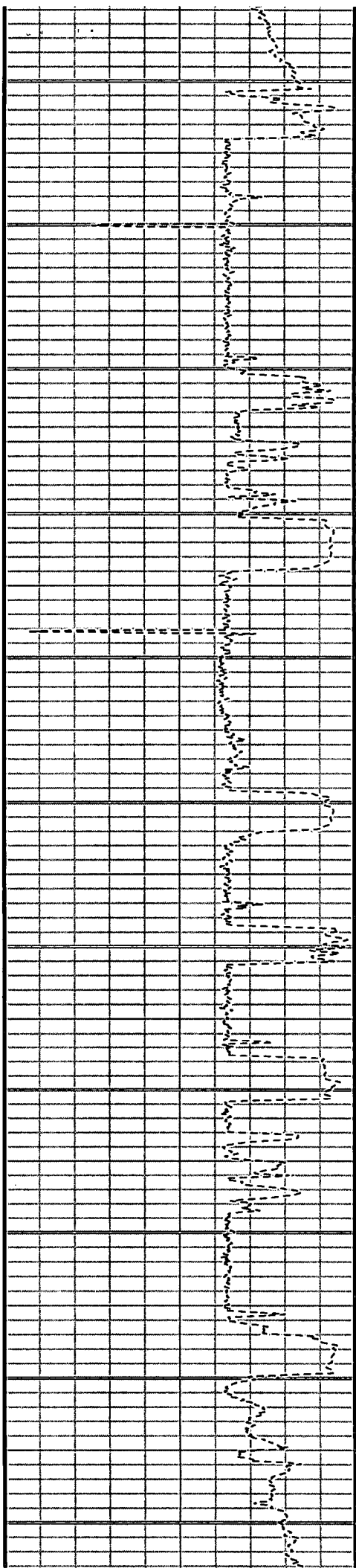
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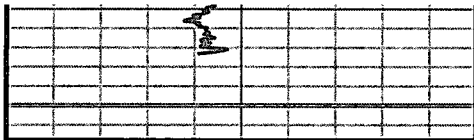
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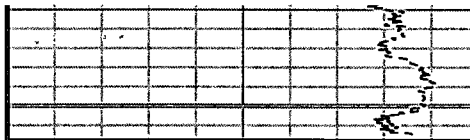




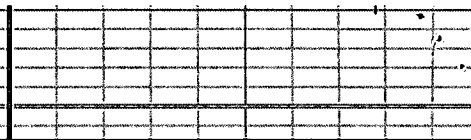
Gamma Ray (GR)		
0	Unit = aapi	150

15400

MEASURED DEPTH
1:1200 (ft)



Rate of Penetration (ROP)		
300	Unit = ft/hr	0



Tool Temperature (T-TEMP)		
0	Unit = °F	200

GAMMA RAY



Scientific Drilling

1" = 100' FEET MD