

Submit To Appropriate District Office State Lease - 6 copies Fee Lease - 5 copies District I 1625 N. French Dr., Hobbs, NM 88240 District II 1301 W. Grand Avenue, 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 June 10, 2003 WELL API NO. 30-015-35511 5. Indicate Type of Lease STATE ☒ FEE ☐ State Oil & Gas Lease No.
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WELL COMPLETION OR RECOMPLETION REPORT AND LOG					
1a. Type of Well: OIL WELL ☐ GAS WELL ☐ DRY ☒ OTHER <u>Injection</u>			7. Lease Name or Unit Agreement Name South Culebra Bluff 23		
b. Type of Completion: NEW ☐ WORK ☐ DEEPEN ☐ PLUG ☐ DIFF. WELL OVER BACK RESVR. ☐ OTHER ☒ Injection					
2. Name of Operator Range Operating New Mexico, Inc.			8. Well No. 018		
3. Address of Operator 100 Throckmorton Street Suite 1200 Fort Worth TX 76102			9. Pool name or Wildcat Loving, Brushy Canyon. East 40350		
4. Well Location Unit Letter <u>E</u> <u>1883</u> Feet From The <u>North</u> Line and <u>1052</u> Feet From The <u>West</u> Line Section <u>23</u> Township <u>23S</u> Range <u>28E</u> NMPM County <u>Eddy</u>					
10. Date Spudded 06-12-07	11. Date T.D. Reached 06-24-07	12. Date Compl. (Ready to Prod.) 07-17-07	13. Elevations (DF& RKB, RT, GR, etc.) GR 3030'	14. Elev. Casinghead 3030'	
15. Total Depth 6464'	16. Plug Back T.D. 6378'	17. If Multiple Compl. How Many Zones?	18. Intervals Drilled By	Rotary Tools X	Cable Tools
19. Producing Interval(s), of this completion - Top, Bottom, Name Lower Brushy Canyon				20. Was Directional Survey Made Yes	
21. Type Electric and Other Logs Run Compensated Z - Densilog Compensated Neutron GR Log / DLL GR Log				22. Was Well Cored No	
23. CASING RECORD (Report all strings set in well)					
CASING SIZE	WEIGHT LB /FT.	DEPTH SET	HOLE SIZE	CEMENTING RECORD	AMOUNT PULLED
8 5/8"	24	335	12 1/4"	250	0
5 1/2"	15.5	6364	7 7/8"	2000	0
24. LINER RECORD			25. TUBING RECORD		
SIZE	TOP	BOTTOM	SACKS CEMENT	SCREEN	SIZE
					2 3/8
					6066
					6057
26. Perforation record (interval, size, and number)			27. ACID. SHOT. FRACTURE, CEMENT, SQUEEZE, ETC.		
6120' - 6138'			DEPTH INTERVAL		
6141' - 6153'			AMOUNT AND KIND MATERIAL USED		
6174' - 6191'			6120' - 6220'		
6210' - 6220'			Acidize w/2850 gals 15% NEFE HCL		
28. PRODUCTION					
Date First Production		Production Method (Flowing, gas lift, pumping - Size and type pump)		Well Status (Prod. or Shut-in)	
Date of Test	Hours Tested	Choke Size	Prod'n For Test Period	Oil - Bbl	Gas - MCF
Flow Tubing Press	Casing Pressure	Calculated 24-Hour Rate	Oil - Bbl.	Gas - MCF	Water - Bbl.
29. Disposition of Gas (Sold, used for fuel, vented, etc.)					Test Witnessed By
30. List Attachments					
31. I hereby certify that the information shown on both sides of this form as true and complete to the best of my knowledge and belief. Signature <u>Bill Trej for LCS</u> Printed Name <u>Linda C. Stiles</u> Title <u>Sr. Engineering Tech</u> Date <u>08-30-2007</u> E-mail Address <u>lstiles@rangeresources.com</u>					

INSTRUCTIONS

AUG 30 2007
OCD-ARTESIA

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. It 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 25 through 29 shall be reported for each zone. The form is to be filed in quintuplicate except on state land, where six copies are required. See Rule 1105.

INDICATE FORMATION TOPS IN CONFORMANCE WITH GEOGRAPHICAL SECTION OF STATE

Southeastern New Mexico		Northwestern New Mexico	
T. Anhy	T. Cherry Canyon <u>3375</u>	T. Ojo Alamo	T. Penn. "B"
T. Salt	T. Brushy Canyon <u>4680</u>	T. Kirtland-Fruitland	T. Penn. "C"
B. Salt <u>2389</u>	T. Atoka	T. Pictured Cliffs	T. Penn. "D"
T. Yates	T. Miss	T. Cliff House	T. Leadville
T. 7 Rivers	T. Devonian	T. Menefee	T. Madison
T. Queen	T. Silurian	T. Point Lookout	T. Elbert
T. Grayburg	T. Montoya	T. Mancos	T. McCracken
T. San Andres	T. Simpson	T. Gallup	T. Ignacio Otzte
T. Glorieta	T. McKee	Base Greenhorn	T. Granite
T. Paddock	T. Ellenburger	T. Dakota	T.
T. Blinébry	T. Gr. Wash	T. Morrison	T.
T. Tubb	T. Delaware Sand	T. Todilto	T.
T. Drinkard	T. Bone Springs <u>6223</u>	T. Entrada	T.
T. Abo	T. Lamar LS <u>2605</u>	T. Wingate	T.
T. Wolfcamp	T. Salado <u>246</u>	T. Chinle	T.
T. Penn	T.	T. Permian	T.
T. Cisco (Bough C)	T.	T. Penn "A"	T.

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
150	2602	2452	Salt & Anhydrite
2602	6242	3640	SS, SLTST, & SH
6242	6290	48	LS & SH

OPERATOR RANGE PRODUCTION CO.
WELL/LEASE SCB 23-18
COUNTY EDDY

141-0081

STATE OF NEW MEXICO
DEVIATION REPORT

295	0.75
551	0.75
764	0.50
963	1.25
1,149	2.00
1,336	2.00
1,514	2.25
1,700	2.50
1,898	3.00
2,025	3.50
2,119	3.25
2,221	3.25
2,411	3.25
2,664	3.25
2,918	3.00
3,171	3.00
3,372	3.00

AUG 30 2007
OCD-ARTESIA

BY: Steve Moore

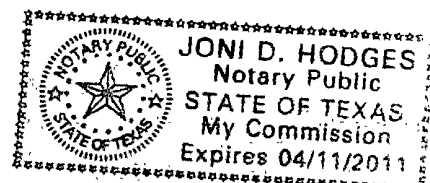
STATE OF TEXAS

COUNTY OF MIDLAND

The foregoing instrument was acknowledged before me on
Moore on behalf of Patterson-UTI Drilling Company LLC:

July 3, 2007, by Steve

Joni D. Hodges
Notary Public for Midland County, Texas
My Commission Expires: 4/11/11



A Gyrodata Directional Survey

for

RANGE RESOURCES

Location: PATTERSON #141, EDDY COUNTY, NEW MEXICO

Lease: SCB 23 Well: #18, 4-1/2" DRILLPIPE

Job Number: MD0607G_224

Run Date: 6/17/2007 11:28:26 AM

Surveyor: AJ EATON

Calculation Method: MINIMUM CURVATURE

Survey Latitude: 32.292980 deg. N Longitude: 104.063190 deg. W

Azimuth Correction:

Gyro: -0.14000 deg West to Grid North

Vertical Section Calculated from Well Head Location

Closure Calculated from Well Head Location

Horizontal Coordinates Calculated from Well Head Location

A Gyrodata Directional Survey

RANGE RESOURCES

Location: PATTERSON #141, EDDY COUNTY, NEW MEXICO

Lease: SCB 23 Well: #18, 4-1/2" DRILLPIPE

Job Number: MD0607G_224

MEASURED DEPTH feet	I N C L deg.	AZIMUTH deg.	DOGLE SEVERITY deg./ 100 ft.	VERTICAL DEPTH feet	CLOSURE DIST. feet	AZIMUTH deg.	HORIZONTAL COORDINATES feet	
0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.00 N	0.00 E

0 TO 3322 FT. RATE GYROSCOPIC MULTISHOT SURVEY RUN INSIDE 4-1/2" DRILLPIPE								
ALL MEASURED DEPTHS AND COORDINATES REFERENCED TO PATTERSON #141 R.K.B.								

100.00	0.31	96.61	0.31	100.00	0.3	96.6	0.03 S	0.27 E
200.00	0.55	85.41	0.25	200.00	1.0	91.3	0.02 S	1.01 E
300.00	0.66	84.22	0.11	299.99	2.1	88.0	0.07 N	2.06 E
400.00	0.70	76.29	0.10	399.98	3.2	85.1	0.28 N	3.23 E
500.00	0.71	78.19	0.03	499.98	4.5	83.0	0.55 N	4.43 E
600.00	0.82	57.00	0.30	599.97	5.7	79.3	1.06 N	5.63 E
700.00	1.02	47.33	0.25	699.96	7.2	73.4	2.05 N	6.88 E
800.00	1.24	42.34	0.24	799.94	9.0	67.3	3.46 N	8.27 E
900.00	1.48	28.16	0.41	899.91	11.0	60.7	5.40 N	9.61 E
1000.00	1.67	22.71	0.24	999.87	13.3	53.8	7.88 N	10.78 E
1100.00	1.78	23.12	0.11	1099.82	16.0	48.3	10.64 N	11.95 E
1200.00	2.12	18.88	0.37	1199.77	19.1	43.6	13.81 N	13.15 E
1300.00	2.36	17.64	0.25	1299.69	22.7	39.4	17.53 N	14.38 E
1400.00	2.47	18.78	0.12	1399.60	26.6	36.1	21.54 N	15.70 E
1500.00	2.53	21.12	0.12	1499.51	30.9	33.8	25.64 N	17.19 E
1600.00	2.85	20.43	0.32	1599.40	35.5	32.1	30.02 N	18.85 E
1700.00	3.21	22.69	0.38	1699.26	40.7	30.8	34.94 N	20.80 E
1800.00	3.40	24.70	0.22	1799.09	46.4	29.9	40.22 N	23.12 E
1900.00	3.71	26.69	0.33	1898.90	52.6	29.4	45.81 N	25.81 E

A Gyrodata Directional Survey

RANGE RESOURCES

Location: PATTERSON #141, EDDY COUNTY, NEW MEXICO

Lease: SCB 23 Well: #18, 4-1/2" DRILLPIPE

Job Number: MD0607G_224

MEASURED DEPTH feet	I N C L deg.	A Z I M U T H deg.	DOGLEG SEVERITY deg./ 100 ft.	VERTICAL DEPTH feet	CLOSURE DIST. AZIMUTH feet deg.	HORIZONTAL COORDINATES feet
2000.00	3.71	30.53	0.25	1998.69	59.1 29.3	51.49 N 28.91 E
2100.00	3.88	30.66	0.17	2098.47	65.7 29.4	57.19 N 32.28 E
2200.00	3.79	34.30	0.26	2198.24	72.3 29.7	62.83 N 35.87 E
2300.00	3.65	37.15	0.23	2298.03	78.8 30.2	68.10 N 39.65 E
2400.00	3.49	286.48	5.88	2397.93	81.3 28.4	71.50 N 38.65 E
2500.00	3.57	40.17	5.91	2497.82	83.7 26.8	74.75 N 37.74 E
2600.00	3.47	40.27	0.10	2597.64	89.7 27.7	79.44 N 41.71 E
2700.00	3.42	41.22	0.08	2697.46	95.6 28.5	83.99 N 45.62 E
2800.00	3.64	38.12	0.29	2797.27	101.6 29.2	88.73 N 49.55 E
2900.00	3.67	40.53	0.16	2897.06	107.9 29.8	93.65 N 53.58 E
3000.00	3.43	39.48	0.25	2996.87	114.0 30.3	98.39 N 57.56 E
3100.00	3.58	37.02	0.22	3096.68	120.0 30.7	103.19 N 61.34 E
3200.00	3.44	32.57	0.31	3196.50	126.1 30.9	108.21 N 64.84 E
3322.00	3.40	41.22	0.42	3318.28	133.4 31.3	114.02 N 69.19 E

Final Station Closure: Distance: 133.37 ft Az: 31.25 deg.

June 29, 2007

RANGE RESOURCES

Attn: Carol Culpepper
Suite 800
Fort Worth, TX 76102

RE: RANGE RESOURCES
SCB 23 #18
EDDY COUNTY, NM
RIG: PATTERSON 144
API: 30-015-35511
PES FILE NO.: 101006524-WT-WT

Dear Mr. Carol Culpepper

We hereby certify that the enclosed Original Field Survey Data contained in this report represents to the best of our knowledge, a true and accurate survey of the well at the time the survey was run.

DIRECTIONAL SURVEY DATA

- 1 – Original survey report
- 2 – Survey report copies

We appreciate the opportunity to work with you and we look forward to your business support. If you have any questions, I can be reached at (432) 687-1647

Sincerely,



Francisco Sinisterra
MWD Service Coordinator
PathFinder Energy Services

DIRECTIONAL SURVEY REPORT

RANGE RESOURCES

SCB 23 #18

EDDY COUNTY, NEW MEXICO

PREPARED BY: FRANCISCO SINISTERRA

DIRECTIONAL SURVEY COMPANY REPORT:

1. NAME OF SURVEYING COMPANY: PATHFINDER ENERGY SERVICES
2. NAME OF PERSON(S) PERFORMING SURVEY:
A) LINDSEY HUGHEY
3. POSITION OF SAID PERSON(S): (A-F) SURVEYORS (FIELD ENGINEERS)
4. DATE(S) ON WHICH SURVEY WAS PERFORMED: 06/17/07 TO 06/24/07
5. STATE IN WHICH SURVEY WAS PERFORMED: New Mexico
6. LOCATION OF WELL: Eddy County, NM
7. TYPE OF SURVEY(S) PERFORMED: MWD
8. COMPLETE IDENTIFICATION OF WELL:

RANGE RESOURCES
SCB 23 #18
EDDY COUNTY, NM
RIG: PATTERSON 144
9. SURVEY CERTIFIED FROM: 3398 TO 6412 FEET MEASURED DEPTH.

THIS IS TO VERIFY THAT ATTACHED DOCUMENTS SHOWING THE WELL TO BE
DISPLACED AT 915.97 FEET ON A BEARING OF 15.20 DEGREES FROM THE
CENTER OF THE ROTARY TABLE AT A PROJECTED BIT DEPTH OF 6472 FEET,
ARE TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE.


Francisco Sinisterra
MLWD SERVICE COORDINATOR

PATHFINDER

ENERGY SERVICES

DIRECTIONAL SURVEY INFORMATION

Prepared By: FRANCISCO SINISTERRA

Name of Client: RANGE RESOURCES

Attention: _____

☒ Directional Only Job OR ☐ Logging Job

Name(s) of Persons Performing Surveys:

A) LINDSEY HUGHEY D) _____
B) _____ E) _____
C) _____ F) _____

Positions of Said Persons: Surveyors / Field Engineers: Other _____

Date(s) Survey was Performed: From 6/17/2007 To 6/24/2007

Type of Survey Performed: (Specify if other than MWD) _____

IDENTIFICATION OF WELL:

Client:	<u>RANGE RESOURCES</u>	Rig Name:	<u>PATTERSON144</u>
Well No.:	<u>SCB 23 #18</u>	API No.:	<u>30-015-35511</u>
Location:	<u>NEW MEXICO EAST</u>	Job No.:	<u>101006524-WT-WT</u>
State:	<u>NM</u>		

TEXAS RAILROAD COMMISSION INFORMATION:

Field: LOVING; BRUSHY CANYON, EAST
SOUTH CULEBRA BLUFF 23 # 18

Abstract No.: _____
Well Plat Survey Co.: GARY EIDSON

Surveys Performed From 3398 Feet TO 6412 Feet

MMS / ASCII / LAS Diskette Filename: _____

THIS IS TO VERIFY THAT ATTACHED DOCUMENTS SHOW THE WELL TO BE DISPLACED AT 915.97 FEET ON A BEARING OF 15.20 DEGREES FROM THE CENTER OF THE ROTARY TABLE AT PROJECTED DEPTH OF 6472 FEET, ARE TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE.

PathFinder Energy Services, Inc.

BHL Report

Page 01/01
Tie-in Date: 06/17/2007
Date Completed: 06/24/2007

POGO PRODUCING
RANGE_SCB23_#18
EDDY COUNTY, NM
Rig:PATTERSON 141
PathFinder Office Supervisor:
PathFinder Field Engineers:LINDSEY HUGHEY

Survey Horiz. Reference:WELLHEAD
Ref Coordinates: LAT:32.17.35.0592 N LON:104.3.45.9864 W
GRID Reference:NAD27 new mexico east Transverse Mercator
Ref GRID Coord: X: 583604.2225 Y: 470442.0942
North Aligned To:GRID NORTH
Total Magnetic Correction: 8.28° EAST TO GRID
Vertical Section Plane: 41.22
Survey Vert. Reference: 0.00' Ground Level To Ground
Altitude:3032.00' Ground To MSL

Measured Depth	6472.00	(feet)
Inclination	16.71	(deg)
Azimuth	12.15	(deg)
True Vertical Depth	6350.76	(feet)
Vertical Section	823.16	(feet)
Survey X cord	583844.30	(feet)
Survey Y cord	471325.90	(feet)
Survey Lat	32.29549985 N	(deg)
Survey Lon	104.06198984 W	(deg)
Rectangular Corr. N/S	883.91 N	(feet)
Rectangular Corr. E/W	240.22 E	(feet)
Closure Distance	915.97	(feet)
Direction of Closure	15.20	(deg)
Dogleg Severity	0.00	(deg/100ft)

PathFinder Energy Services, Inc.

Survey Report

POGO PRODUCING
RANGE_SCB23_#18
EDDY COUNTY, NM
Rig:PATTERSON 141
PathFinder Office Supervisor:
PathFinder Field Engineers: LINDSEY HUGHEY

Page 01/02
Tie-in Date: 06/17/2007
Date Completed: 06/24/2007

Survey Horiz. Reference:WELLHEAD
Ref Coordinates: LAT:32.17.35.0592 N LON:104.3.45.9864 W
Reference:NAD27 new mexico east Transverse Mercator
Ref GRID Coord: X: 583604.2225 Y: 470442.0942
North Aligned To:GRID NORTH
Total Magnetic Correction: 8.28° EAST TO GRID
Vertical Section Plane: 41.22
Survey Vert. Reference: 0.00' Ground Level To Ground
Altitude:3032.00' Ground To MSL

Survey Calculations by RX4 using Minimum Curvature

Measured Depth (ft)	Incl (deg)	Drift Dir. (deg)	TVD (ft)	Course Length (ft)	Vertical Section (ft)	TOTAL Retangular Offsets (ft) (ft)		Closure Dist Dir (ft) (deg)		DLS (dg/100ft)
TIE-IN TO GYRODATA SURVEY @ 3322' MD.										
3322.00	3.40	41.22	3318.28	0.00	131.36	114.02 N	69.19 E	133.37@	31.25	0.00
THE FOLLOWING ARE PATHFINDER MWD SURVEYS.										
3398.00	2.99	41.24	3394.16	76.00	135.59	117.21 N	71.98 E	137.54@	31.56	0.54
3494.00	3.96	35.44	3489.98	96.00	141.39	121.79 N	75.55 E	143.32@	31.81	1.07
3558.00	3.87	34.91	3553.83	64.00	145.74	125.36 N	78.07 E	147.68@	31.91	0.15
3653.00	3.78	37.28	3648.62	95.00	152.05	130.48 N	81.80 E	154.00@	32.09	0.19
3748.00	3.69	39.31	3743.42	95.00	158.23	135.34 N	85.64 E	160.16@	32.32	0.17
3811.00	4.48	31.13	3806.26	63.00	162.68	139.01 N	88.19 E	164.63@	32.39	1.56
3875.00	6.24	16.37	3869.98	64.00	168.30	144.49 N	90.47 E	170.47@	32.05	3.47
3938.00	7.03	11.27	3932.56	63.00	174.74	151.56 N	92.18 E	177.39@	31.31	1.56
4001.00	8.27	10.83	3995.00	63.00	181.99	159.79 N	93.79 E	185.28@	30.41	1.97
4065.00	9.94	15.05	4058.19	64.00	190.92	169.64 N	96.09 E	194.97@	29.53	2.81
4129.00	11.17	20.67	4121.11	64.00	201.68	180.78 N	99.71 E	206.45@	28.88	2.50
4192.00	12.40	15.49	4182.78	63.00	213.49	193.01 N	103.67 E	219.09@	28.24	2.57
4287.00	15.92	9.69	4274.88	95.00	233.79	215.69 N	108.59 E	241.48@	26.72	3.99
4381.00	18.20	11.18	4364.74	94.00	257.49	242.80 N	113.61 E	268.07@	25.08	2.47
4445.00	18.82	10.92	4425.43	64.00	275.06	262.74 N	117.50 E	287.82@	24.09	0.98
4508.00	18.91	10.48	4485.05	63.00	292.61	282.76 N	121.28 E	307.67@	23.22	0.27
4603.00	18.82	9.42	4574.94	95.00	318.86	313.01 N	126.59 E	337.64@	22.02	0.37
4667.00	18.91	10.57	4635.51	64.00	336.56	333.39 N	130.18 E	357.91@	21.33	0.60
4730.00	18.64	10.57	4695.15	63.00	354.00	353.32 N	133.90 E	377.85@	20.76	0.43
4794.00	18.20	9.51	4755.88	64.00	371.30	373.24 N	137.43 E	397.73@	20.21	0.86
4856.00	17.67	10.13	4814.86	62.00	387.60	392.05 N	140.69 E	416.53@	19.74	0.91

PathFinder Energy Services, Inc.

Survey Report

POGO PRODUCING
RANGE_SCB23_#18
EDDY COUNTY, NM
RIG:PATTERSON 141

Page 02/02

Measured Depth (ft)	Incl (deg)	Drift Dir. (deg)	TVD (ft)	Course Length (ft)	Vertical Section (ft)	TOTAL Retangular Offsets (ft) (ft)		Closure Dist Dir (ft) (deg)		DLS (dg/100ft)
4919.00	16.71	14.34	4875.05	63.00	403.87	410.24 N	144.61 E	434.98@	19.42	2.49
4982.00	17.85	15.05	4935.21	63.00	420.61	428.34 N	149.36 E	453.63@	19.22	1.84
5045.00	18.20	14.96	4995.11	63.00	438.10	447.17 N	154.41 E	473.07@	19.05	0.56
5108.00	18.03	13.73	5054.99	63.00	455.57	466.14 N	159.26 E	492.60@	18.86	0.66
5172.00	17.94	11.53	5115.86	64.00	472.92	485.42 N	163.58 E	512.24@	18.62	1.07
5235.00	18.47	10.65	5175.71	63.00	489.94	504.74 N	167.37 E	531.76@	18.35	0.95
5330.00	18.47	9.86	5265.82	95.00	515.75	534.35 N	172.72 E	561.57@	17.91	0.26
5394.00	18.47	11.97	5326.52	64.00	533.25	554.26 N	176.56 E	581.70@	17.67	1.04
5457.00	18.73	12.06	5386.23	63.00	550.79	573.91 N	180.75 E	601.70@	17.48	0.42
5521.00	18.91	10.65	5446.81	64.00	568.69	594.15 N	184.81 E	622.23@	17.28	0.76
5585.00	18.82	10.48	5507.37	64.00	586.50	614.50 N	188.60 E	642.79@	17.06	0.16
5648.00	19.52	11.62	5566.88	63.00	604.38	634.80 N	192.57 E	663.36@	16.88	1.26
5712.00	19.70	11.00	5627.17	64.00	623.00	655.86 N	196.78 E	684.75@	16.70	0.43
5776.00	18.91	11.44	5687.57	64.00	641.32	676.61 N	200.90 E	705.81@	16.54	1.26
5840.00	18.47	10.74	5748.19	64.00	659.06	696.74 N	204.85 E	726.23@	16.38	0.77
5903.00	17.67	8.19	5808.09	63.00	675.68	716.01 N	208.07 E	745.63@	16.20	1.78
5967.00	18.11	7.66	5868.99	64.00	692.11	735.48 N	210.78 E	765.09@	15.99	0.73
6031.00	17.50	9.69	5929.93	64.00	708.60	754.82 N	213.72 E	784.50@	15.81	1.36
6127.00	17.67	10.39	6021.44	96.00	733.41	783.38 N	218.78 E	813.36@	15.60	0.28
6189.00	17.67	11.44	6080.51	62.00	749.66	801.86 N	222.34 E	832.12@	15.50	0.51
6253.00	17.50	12.76	6141.52	64.00	766.55	820.77 N	226.39 E	851.42@	15.42	0.68
6348.00	17.50	12.32	6232.13	95.00	791.61	848.65 N	232.60 E	879.95@	15.33	0.14
6412.00	16.71	12.15	6293.30	64.00	808.08	867.05 N	236.59 E	898.75@	15.26	1.24
SYTTRAIGHT LINE PROJECTION TO BIT @ 6472' MD.										
6472.00	16.71	12.15	6350.76	60.00	823.16	883.91 N	240.22 E	915.97@	15.20	0.00

FINDER
ENERGY SERVICES
TIE-IN SURVEY INFORMATION SHEET

CLIENT INFORMATION

CLIENT:	RANGE RESOURCES		
LEASE / WELL No :	SCB 23	#18	
WELL LOCATION:	NEW MEXICO EAST		
COUNTY / STATE / COUNTRY:	EDDY	NM	US
RIG:	PATTERSON144		
API WELL No:	30-015-35511		
JOB No:	101006524-WT-WT		
P.O. / AFE No.			
DIRECTIONAL COMPANY:	PATHFINDER ENERGY SERVICES		

WELL SITE INFORMATION

MAGNETIC DECLINATION:	8.2		
On Wall Plat.	8.13	LWD Calculated:	8.2
		Agreed Upon:	8.2
X =	Feet	Y =	Feet
SITE LATITUDE:	32.17N	SITE LONGITUDE:	104.3W
GRID SYSTEM:	TRUE ☐ UTM ☐ LAMBERT ☒	ZONE:	EAST NEW MEXICO
PROPOSED DRIFT DIRECTION:			
KELLY BUSHING ELEVATION:	3032		
ALTITUDE:	NA	Feet	WATER DEPTH:
			NA
			Feet

TIE-IN SURVEY

MEASURED DEPTH:	3322		
DRIFT ANGLE:	3.4		
DRIFT DIRECTION:	41.22		
TRUE VERTICAL DEPTH	3318.28		
VERTICAL SECTION:			
RECTANGULAR COORDINATE (N / S) :	114.02		
RECTANGULAR COORDINATE (E / W) :	69.19		
CLOSURE DISTANCE / DIRECTION:			
SURVEY CALCULATION METHOD:	AA ☐	MC ☒	RC ☐ BT ☐
SOURCE OF TIE-IN DATA (COMPANY):	gyrodata directional		
COPY OF TIE-IN SURVEY REPORT	☒ YES ☐ NO		

WELL PLAN

KICKOFF DEPTH:	3322	TOTAL DEPTH:	3318.28
KICKOFF ANGLE:	3.4	MAX ANGLE:	na

PES Engineers: L. HUGHEY

**Signature of both field engineers required if applicable

Directional Driller B. HOFFMAN

DATE: 17-Jun-2007

PathFinder Energy Services, Inc.

Magnetic & Grid Calculations

RANGE RESOURCES
SCB 23 # 18
EDDY Co., NM
Rig:PATTERSON 141

Thu Jun 14 17:14:30 2007

Coordinates

Latitude: 32.293072 N (32 deg. 17 min. 35.0583 sec.)
Longitude: 104.062774 W (-104 deg. 3 min. 45.9878 sec.)
Elevation: 3032.00 feet.
Calculation Date: Jun/14/2007

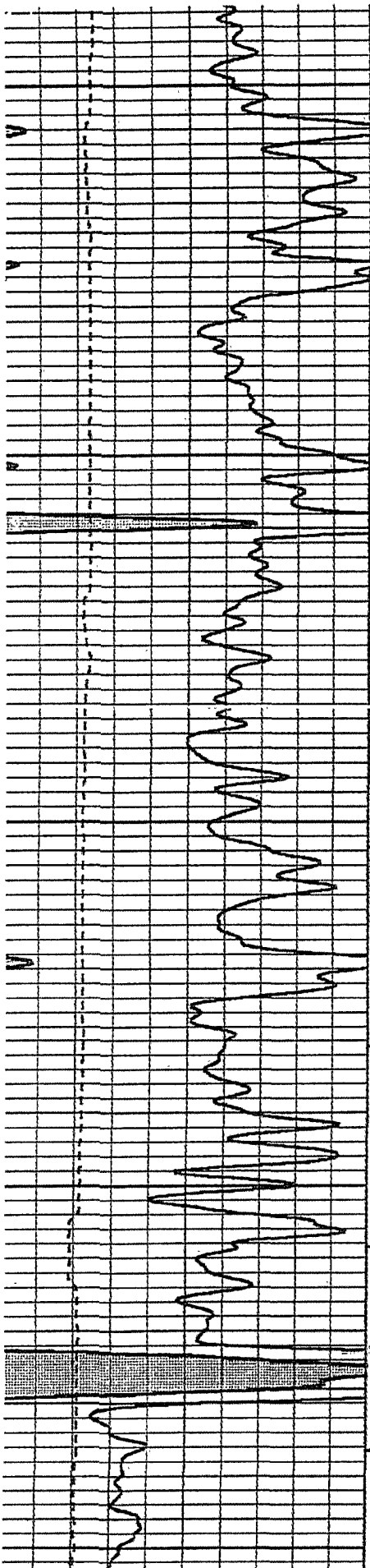
Magnetic Calculations

Model: IGRF2005
Dip Angle: 60.2699 degrees
Total Magnetic Field: 0.49026 gauss
Magnetic Declination: 8.279004 degrees
Horizontal Intensity: 0.243125 gauss
To Convert a Magnetic Dir. to a TRUE North Dir. Add 8.279004 Degr

Transverse Mercator Grid Calculations NAD27

Grid System: Transverse Mercator: new mexico east
Ellipsoid: Clarke 1866
X: 583604.1000 feet
Y: 470442.0000 feet
True to Grid: (convergence) -0.144547 degrees
Magnetic to Grid: 8.134457 degrees
To Convert a Magnetic Dir. to a GRID dir. Add 8.134457 Degr.

SCB 23-18
Baker Atlas
CN-GD-GRL
6/25/07



100

6100

LBC-C

6111

Prop.
Perfs

LBC-C

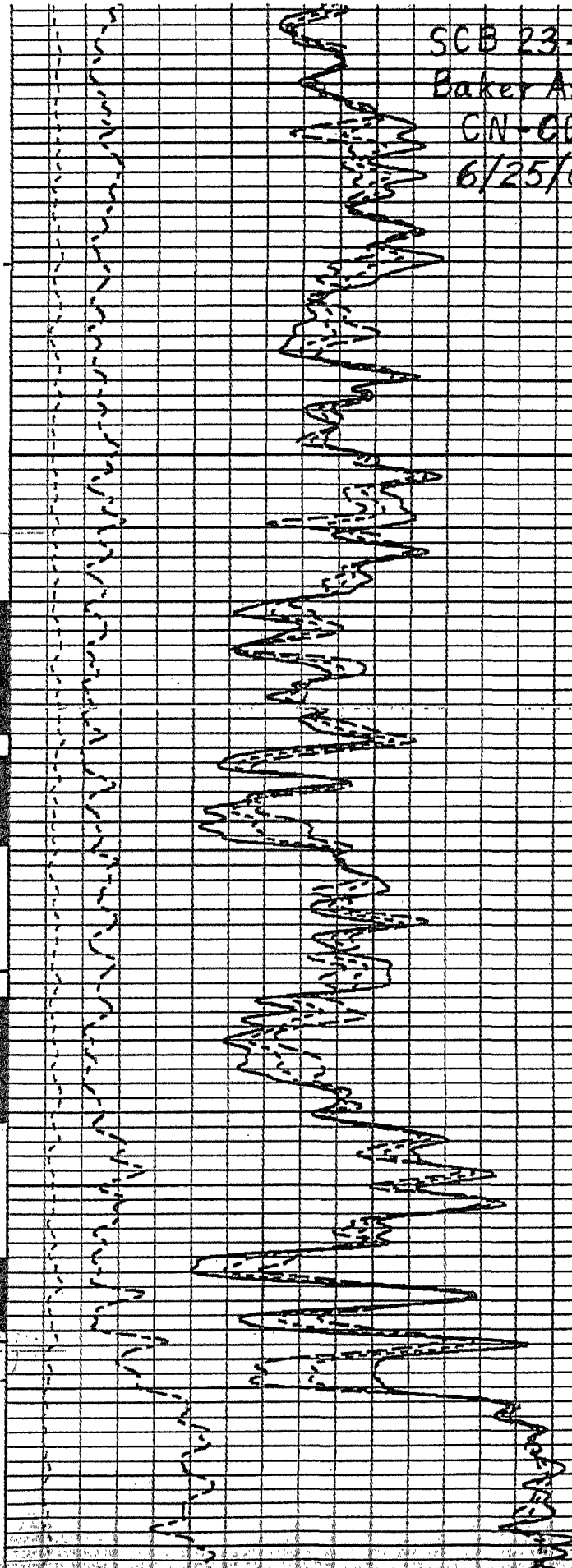
6174

Prop.
Perfs

6200

LBC-C

6223



CASING DETAIL AND CEMENTING REPORT

Well:	SCB 23-18	Field	East Loving	County	Eddy	State:	NM		
Total depth:	336	Bit Size:	12.25	Avg Hole size:	12.25	Mud wt:	8.7		
String detail (list each item in order run)									
Length	Cum Length	No Jts	OD	Description	Mfg	Wt	Grade	Threads	Cond
1.2	1.2			Texas Guide Shoe					
42.36	43.56	1	8.675			24	J-55	ST&C	New
0.5	44.06	1	8.675	Insert Float					
294.02	338.08	7	8.675			24	J-55	ST&C	New
	338.08								
	338.08								
	338.08								
	338.08								
	338.08								
	338.08								
	338.08								
MINUS	20	Total length							
PLUS	17.44	Cut-off							
	335.52	RIG KB							
		Setting depth							
Wt of csg string in mud:		10000							
Wt of csg set on slips:		N/A							
Cement used		Cementing company:		BJ Services					Design
Stage	No. sacks	Cement type and additives			PPG	YIELD	BBLs	BPM	TOC
SPACER		Fresh water			8.3		10		
Lead	250	Class C+2% CACL2			14.8	1.32	59	5	
							0		
Displacement									
STAGE 2	IF APPLICABLE								
							0		
							0		
Displacement									
Full circ (Y/N)	Y					Pipe reciprocated?	Y		
Cement to Surface	Y					Pipe rotated?	N		
Bbls to Surface	30					Float held (Y/N):	Y		
						Plug bumped (Y/N):	Y		
Centralizer and scratcher placement (type, depth and amount):									
Centralizers at 314', 291', 207', 120', 41' = 5 Centralizers									
Casing on location NOT RUN									
Length	No Jts	OD	Description - Mfg			Wt	Grade	Threads	Cond
630	15	8.675				24	J-55	STC	New
Remarks:									
Bumped plug 500 psi. over, release pressure no flow back									
Reported by: Kevin W. Carter					Date: 6/12/2007				

CASING DETAIL AND CEMENTING REPORT

Well:	SCB 23-18	Field	East Loving	County	Eddy	State:	NM
Total depth:	6470	Bit Size:	7.875	Avg Hole size:		Mud wt:	10.1

String detail (list each item in order run)									
Length	Cum Length	No Jts	OD	Description	Mfg	Wt	Grade	Threads	Cond
1.65	1.65		5.500	Guide Shoe	BJ			LTC	New
82.43	84.08	2	5.500	Casing		15.5	J55	LTC	New
1.4	85.48		5.500	Float Collar	BJ			LTC	New
2884.64	2970.12	67	5.500	Casing		15.5	J55	LTC	New
2.2	2972.32		5.500	DV Collar	BJ			LTC	New
3493.91	6466.23	81	5.500	Casing		15.5	J55	LTC	New
	6466.23								
	6466.23								
	6466.23								
	6466.23								
MINUS	20			Total length					
PLUS	17.44			Cut-off					
	6463.67			RIG KB					
				Setting depth					
Wt of csg string in mud:									
Wt of csg set on slips:			n/a						

Cement used		Cementing company:		BJ Cementers					Design
Stage	No. sacks	Cement type and additives		PPG	YIELD	BBLs	BPM		TOC
SPACER		H2O				52			
Lead	900	15-61-11-C+6/10%FL-25+6/10%FL-52A+5/10%BA-1		13.2	1.64	263	5		3500'
Tail									
Displacement									
STAGE 2	IF APPLICABLE								
Lead	1000	35-61-6C+5%Salt+3/10%fl-52a+4#LCM-1		12.4	2.1	374	8.5		
Tail	100	Class C Neat		14.8	1.32	23	3.5		0'
Displacement									

Full circ (Y/N):	N	Pipe reciprocated?	Y
Cement to Surface	Y	Pipe rotated?	N
Bbls to Surface	130	Float held (Y/N):	Y
		Plug bumped (Y/N):	Y

Centralizer and scratcher placement (type, depth and amount):									
Centralizers: 6414', 6385', 6297', 6213', 6126', 6039', 3953', 5865', 5779', 5692', 5609', 5523', 5437', 5352', 5265', 5182', 5095', 5008', 4924', 4837', 4751', 4664', 4578', 4492' = 24									

Casing on location NOT RUN									
Length	No Jts	OD	Description - Mfg	Wt	Grade	Threads	Cond		
39.73	1	5.5		15.5	J-55	LTC	New		

Remarks:									
Pumped away approximately 60 bbls. Of Cement on First Stage. Bumped Plug pressure up to 2509 psi. held for 15 minutes. Bled off (OK)									
80 bbls. Of cement to surface after we opened the DV tool. 50 bbls. To Surface on the second stage									

Reported by: Kevin Carter	Date: 6/25/2007
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Baker Atlas

COMPENSATED Z-DENSILOGSM
COMPENSATED NEUTRON LOG
GAMMA RAY LOG

FILE NO: MD6969
API NO: 30-015-35511
COMPANY RANGE OPERATING NM, INC.
WELL SCB 23 NO. 18
FIELD LOVING EAST (BRUSHY CANYON)
COUNTY EDDY STATE NEW MEXICO

Ver. 3.87
FINAL PRINT
LOCATION: 1883' FNL & 1052' FWL
OTHER SERVICES DLL/GR
SEC 23 TWP 23S RGE 28E

PERMANENT DATUM G.L. ELEVATION 3030 FT
LOG MEASURED FROM K.B. 17.4 FT ABOVE P.D.
DRILL MEAS. FROM KELLY BUSHING
ELEVATIONS:
KB 3047.4 FT
DF 3046.4 FT
GL 3030 FT

DATE	25-JUN-2007			
RUN	TRIP	1	1	
SERVICE ORDER	522347			
DEPTH DRILLER	6472 FT			
DEPTH LOGGER	6467 FT			
BOTTOM LOGGED INTERVAL	6427 FT			
TOP LOGGED INTERVAL	200 FT			
CASING DRILLER	8.625 IN	Ø 338 FT		Ø
CASING LOGGER	332 FT			
BIT SIZE	7.875 IN			
TYPE OF FLUID IN HOLE	SALT GEL/STARCH			
DENSITY	VISCOSITY	10.15 LB/G	44 S	
PH	FLUID LOSS	9.0	7.5 C3	
SOURCE OF SAMPLE	CIRCULATION TANK			
RM AT MEAS. TEMP.	0.034 OHMM	Ø 75 DEGF		Ø
RMF AT MEAS. TEMP.	0.034 OHMM	Ø 75 DEGF		Ø
RMC AT MEAS. TEMP.	—	Ø —		Ø
SOURCE OF RMF	RMC	MEASURED	—	
RM AT BHT	0.023 OHMM	Ø 112 DEGF		Ø
TIME SINCE CIRCULATION	5 HOURS			
MAX. RECORDED TEMP.	112 DEGF			
EQUIP. NO.	LOCATION	HL6687	MIDLAND, TX	
RECORDED BY	S. AGUIRRE			
WITNESSED BY	MIKE METCALF			



DUAL LATEROLOG GAMMA RAY LOG

Baker Atlas

FILE NO: MD6969	COMPANY WELL	RANGE OPERATING NM, INC. SCB 23 NO. 18
API NO: 30-015-35511	FIELD COUNTY	LOVING EAST (BRUSHY CANYON) EDDY STATE NEW MEXICO
Ver. 3.87 FINAL PRINT	LOCATION: 1883' FNL & 1052' FWL SEC 23 TWP 23S RGE 28E	OTHER SERVICES ZDL/CN/GR
PERMANENT DATUM LOG MEASURED FROM DRILL MEAS. FROM	G.L. ELEVATION 3030 FT K.B. 17.4 FT ABOVE P.D. KELLY BUSHING	ELEVATIONS: KB 3047.4 FT DF 3046.4 FT GL 3030 FT

DATE	25-JUN-2007			
RUN	TRIP	1	1	
SERVICE ORDER	522347			
DEPTH DRILLER	6472 FT			
DEPTH LOGGER	6467 FT			
BOTTOM LOGGED INTERVAL	6464 FT			
TOP LOGGED INTERVAL	4450 FT			
CASING DRILLER	8.625 IN	Ø 338 FT		Ø
CASING LOGGER	NOT LOGGED			
BIT SIZE	7.875 IN			
TYPE OF FLUID IN HOLE	SALT GEL/STARCH			
DENSITY	VISCOSITY	10.15 LB/G	44 S	
PH	FLUID LOSS	9.0	7.5 C3	
SOURCE OF SAMPLE	CIRCULATION TANK			
RM AT MEAS. TEMP.	0.034 OHMM	Ø 75 DEGF		Ø
RMF AT MEAS. TEMP.	0.034 OHMM	Ø 75 DEGF		Ø
RMC AT MEAS. TEMP.	—	Ø —		Ø
SOURCE OF RMF	RMC	MEASURED	—	
RM AT BHT	0.023 OHMM	Ø 112 DEGF		Ø
TIME SINCE CIRCULATION	5 HOURS			
MAX. RECORDED TEMP.	112 DEGF			
EQUIP. NO.	LOCATION	HL6687	MIDLAND, TX	
RECORDED BY	S. AGUIRRE			
WITNESSED BY	MIKE METCALF			



Baker Atlas

DUAL LATEROLOG
GAMMA RAY LOG
TRUE VERTICAL DEPTH

LOG NO: 6969	COMPANY WELL	RANGE OPERATING NM, INC. SCB 23 NO. 18
LOG NO: -015-35511	FIELD COUNTY	LOVING EAST (BRUSHY CANYON) EDDY STATE NEW MEXICO
LOG NO: 3.87 NAL PRINT	LOCATION: 1883' FNL & 1052' FNL SEC 23 TWP 23S RGE 28E	OTHER SERVICES ZDL/CN/GR
PERMANENT DATUM 3 MEASURED FROM ILL. MEAS. FROM	G.L. ELEVATION 3030 FT K.B. 17.4 FT ABOVE P.D. KELLY BUSHING	ELEVATIONS: KB 3047.4 FT DF 3046.4 FT GL 3030 FT

DATE	25-JUN-2007		
TRIP	1	1	
SERVICE ORDER	522347		
DEPTH DRILLER	6350 FT		
DEPTH LOGGER	6342 FT		
FROM LOGGED INTERVAL	6339 FT		
TO LOGGED INTERVAL	4428 FT		
DRILLER	8.625 IN	0 338 FT	0
LOGGER	NOT LOGGED		
SIZE	7.875 IN		
TYPE OF FLUID IN HOLE	SALT GEL/STARCH		
DENSITY	VISCOSITY	10.15 LB/G	44 S
	FLUID LOSS	9.0	7.5 C3
SOURCE OF SAMPLE	CIRCULATION TANK		
AT MEAS. TEMP.	0.034 OHMM	0 75 DEGF	0
AT MEAS. TEMP.	0.034 OHMM	0 75 DEGF	0
AT MEAS. TEMP.	---	0 ---	0
SOURCE OF RMF	RMC	MEASURED	---
AT BHT	0.023 OHMM	0 112 DEGF	0
TIME SINCE CIRCULATION	5 HOURS		
RECORDED TEMP.	112 DEGF		
LOG NO.	LOCATION	HL6687	MIDLAND, TX
RECORDED BY	S. AGUIRRE		
TESTED BY	MIKE METCALF		

**BAKER
HUGHES**

Baker Atlas

COMPENSATED Z-DENS LOGSM
COMPENSATED NEUTRON LOG
GAMMA RAY LOG
TRUE VERTICAL DEPTH

FILE NO: MD6969	COMPANY WELL	RANGE OPERATING NM, INC. SCB 23 NO. 18
API NO: 30-015-35511	FIELD COUNTY	LOVING EAST (BRUSHY CANYON) EDDY STATE NEW MEXICO
Ver. 3.87 FINAL PRINT	LOCATION: 1803' FNL & 1052' FNL SEC 23 TWP 23S RGE 20E	OTHER SERVICES DLL/GR
PERMANENT DATUM	G.L. ELEVATION 3030 FT	ELEVATIONS:
LOG MEASURED FROM	K.B. 17.4 FT ABOVE P.D.	KB 3047.4 FT
DRILL. MEAS. FROM	KELLY BUSHING	DF 3046.4 FT
		GL 3030 FT

DATE	25-JUN-2007		
RUN	TRIP	I	I
SERVICE ORDER	522347		
DEPTH DRILLER	6350 FT		
DEPTH LOGGER	6342 FT		
BOTTOM LOGGED INTERVAL	6302 FT		
TOP LOGGED INTERVAL	200 FT		
CASING DRILLER	8.625 IN	338 FT	
CASING LOGGER	332 FT		
BIT SIZE	7.875 IN		
TYPE OF FLUID IN HOLE	SALT GEL/STARCH		
DENSITY	VISCOSITY	10.15 LB/G	44 S
PH	FLUID LOSS	9.0	7.5 C3
SOURCE OF SAMPLE	CIRCULATION TANK		
RM AT MEAS. TEMP.	0.034 OHM	75 DEGF	
RMF AT MEAS. TEMP.	0.034 OHM	75 DEGF	
RMC AT MEAS. TEMP.	---	---	
SOURCE OF RMF	RMC	MEASURED	---
RM AT BHT	0.023 OHM	112 DEGF	
TIME SINCE CIRCULATION	5 HOURS		
MAX. RECORDED TEMP.	112 DEGF		
EQUIP. NO.	LOCATION	HL6687	MIDLAND, TX
RECORDED BY	S. AGUIRRE		
WITNESSED BY	MIKE METCALF		