

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 & Natural Resources

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-104
Revised August 1, 2011

Submit one copy to appropriate District Office

☐ AMENDED REPORT

I. REQUEST FOR ALLOWABLE AND AUTHORIZATION TO TRANSPORT

¹ Operator name and Address Alta Mesa Services, LP 15021 Katy Fwy, Suite 400 Houston, TX 77094		² OGRID Number 295752
		³ Reason for Filing Code/ Effective Date RT / 9-1-13
⁴ API Number 30 - 019-20141	⁵ Pool Name Cuervo Hill; Pennsylvanian	⁶ Pool Code 97811
⁷ Property Code 39708	⁸ Property Name Latigo Ranch	⁹ Well Number 033F

II. 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
F	33	11N	23E		2252	North	2487	West	Guadalupe

¹¹ Bottom Hole Location

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
¹² Lse Code P	¹³ Producing Method Code F	¹⁴ Gas Connection Date	¹⁵ C-129 Permit Number	¹⁶ C-129 Effective Date	¹⁷ C-129 Expiration Date				

III. Oil and Gas Transporters

¹⁸ Transporter OGRID	¹⁹ Transporter Name and Address	²⁰ O/G/W

IV. Well Completion Data

²¹ Spud Date 2-28-13	²² Ready Date 9-1-13	²³ TD 17490' MD; 17474' TVD	²⁴ PBDT 17,354'	²⁵ Perforations Proposed: 17130'-17300'	²⁶ DHC, MC
²⁷ Hole Size	²⁸ Casing & Tubing Size	²⁹ Depth Set	³⁰ Sacks Cement		
17-1/2"	13.375" 54.5# J-55 STC	1,516'	1260 sx		
12-1/4"	9.625" 47.0# L-80HC BTC	7,996' MD; 7,995' TVD	530 sx		
8-1/2"	5.5" 20# P-110 Prem	17,474' MD; 17,458' TVD	1280 sx		

V. Well Test Data

³¹ Date New Oil	³² Gas Delivery Date	³³ Test Date	³⁴ Test Length	³⁵ Tbg. Pressure	³⁶ Csg. Pressure
³⁷ Choke Size	³⁸ Oil	³⁹ Water	⁴⁰ Gas		⁴¹ Test Method

⁴² I hereby certify that the rules of the Oil Conservation Division have been complied with and that the information given above is true and complete to the best of my knowledge and belief.

Signature: *Bridget Helfrich*

Printed name: Bridget Helfrich

Title: Regulatory Coordinator

E-mail Address: bhelfrich@altamesa.net

Date: 8-21-13 Phone: 281-943-1373

OIL CONSERVATION DIVISION

Approved by:

Ed Martin

Title:

DISTRICT SUPERVISOR

Approval Date:

5/7/2014

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								
		1. WELL API NO. 30-019-20141								
		2. Type of Lease ☐ STATE ☒ FEE ☐ FED/INDIAN								
		3. State Oil & Gas Lease No.								
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 Latigo Ranch								
		6. Well Number: 033F								
7. Type of Completion: ☒ NEW WELL ☐ WORKOVER ☐ DEEPENING ☐ PLUGBACK ☐ DIFFERENT RESERVOIR ☐ OTHER										
8. Name of Operator Alta Mesa Services, LP		9. OGRID 295752								
10. Address of Operator 15021 Katy Freeway, Suite 400 Houston, TX 77094		11. Pool name or Wildcat Cuervo Hill; Pennsylvanian								
12. Location	Unit Ltr	Section	Township	Range	Lot	Feet from the	N/S Line	Feet from the	E/W Line	County
Surface:	F	33	11N	23E		2252	N	2487	W	Guadalupe
BH:										
13. Date Spudded 2-28-13	14. Date T.D. Reached 5-23-13	15. Date Rig Released 6-5-13		16. Date Completed (Ready to Produce)			17. Elevations (DF and RKB, RT, GR, etc.) 4755' GR			
18. Total Measured Depth of Well 17,490		19. Plug Back Measured Depth 17,354		20. Was Directional Survey Made? Yes			21. Type Electric and Other Logs Run GR; CBL			
22. Producing Interval(s), of this completion - Top, Bottom, Name Cuervo Hill; Pennsylvanian										
23. CASING RECORD (Report all strings set in well)										
CASING SIZE		WEIGHT LB./FT.		DEPTH SET		HOLE SIZE		CEMENTING RECORD		AMOUNT PULLED
13.375"		54.5		1516'		17-1/2"		1260sx		
9.625"		47.0		7996' MD; 7995' TVD		12-1/4"		530sx		
5.5"		20.0		17474' MD; 17458' TVD		8-1/2"		1280sx		
24. LINER RECORD										
SIZE	TOP	BOTTOM		SACKS CEMENT	SCREEN					
25. TUBING RECORD										
SIZE	DEPTH SET		PACKER SET							
26. Perforation record (interval, size, and number) Proposed: 17,130'-17,300'						27. ACID, SHOT, FRACTURE, CEMENT, SQUEEZE, ETC.				
						DEPTH INTERVAL		AMOUNT AND KIND MATERIAL USED		
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	Water - Bbl.	Gas - Oil Ratio			
Flow Tubing Press.	Casing Pressure	Calculated 24-Hour Rate	Oil - Bbl.	Gas - MCF	Water - Bbl.	Oil Gravity - API - (Corr.)				
29. Disposition of Gas (Sold, used for fuel, vented, etc.)							30. Test Witnessed By			
31. List Attachments C-103; C-104; C-129; C-144 CLEZ; Deviation Report + Directional Survey; Triple Combo Log; CBL										
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 <i>Bridget Helfrich</i>			Printed Name Bridget Helfrich		Title Regulatory Coordinator			Date 8/26/13		
E-mail Address bhelfrich@altamesa.net										

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State of New Mexico
Energy Minerals and Natural Resources
Department
Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-144 CLEZ
Revised August 1, 2011

For closed-loop systems that only use above ground steel tanks or haul-off bins and propose to implement waste removal for closure, submit to the appropriate NMOC District Office.

Closed-Loop System Permit or Closure Plan Application

(that only use above ground steel tanks or haul-off bins and propose to implement waste removal for closure)

Type of action: ☐ Permit ☒ Closure

Instructions: Please submit one application (Form C-144 CLEZ) per individual closed-loop system request. For any application request other than for a closed-loop system that only use above ground steel tanks or haul-off bins and propose to implement waste removal for closure, please submit a Form C-144.

Please be advised that approval of this request does not relieve the operator of liability should operations result in pollution of surface water, ground water or the environment. Nor does approval relieve the operator of its responsibility to comply with any other applicable governmental authority's rules, regulations or ordinances.

1.
Operator: ALTA MESA SERVICES, LP OGRID #: 295752
Address: 15021 KATY FREEWAY, SUITE 400, HOUSTON TX 77094
Facility or well name: LATIGO RANCH 33-F
API Number: 30-019-20141 OCD Permit Number: _____
U/L or Qtr/Qtr F Section 33 Township 11 N Range 23 E County: GUADALUPE
Center of Proposed Design: Latitude N 35° 08' 14.38" Longitude W 104° 30' 21.27" NAD: ☐ 1927 ☒ 1983
Surface Owner: ☐ Federal ☐ State ☒ Private ☐ Tribal Trust or Indian Allotment

2.
☒ **Closed-loop System:** Subsection H of 19.15.17.11 NMAC
Operation: ☒ Drilling a new well ☐ Workover or Drilling (Applies to activities which require prior approval of a permit or notice of intent) ☐ P&A
☐ Above Ground Steel Tanks or ☒ Haul-off Bins

3.
Signs: Subsection C of 19.15.17.11 NMAC
☐ 12"x 24", 2" lettering, providing Operator's name, site location, and emergency telephone numbers
☒ Signed in compliance with 19.15.16.8 NMAC

4.
Closed-loop Systems Permit Application Attachment Checklist: Subsection B of 19.15.17.9 NMAC
Instructions: Each of the following items must be attached to the application. Please indicate, by a check mark in the box, that the documents are attached.
☒ Design Plan - based upon the appropriate requirements of 19.15.17.11 NMAC
☒ Operating and Maintenance Plan - based upon the appropriate requirements of 19.15.17.12 NMAC
☒ Closure Plan (Please complete Box 5) - based upon the appropriate requirements of Subsection C of 19.15.17.9 NMAC and 19.15.17.13 NMAC
☐ Previously Approved Design (attach copy of design) API Number: _____
☐ Previously Approved Operating and Maintenance Plan API Number: _____

5.
Waste Removal Closure For Closed-loop Systems That Utilize Above Ground Steel Tanks or Haul-off Bins Only: (19.15.17.13.D NMAC)
Instructions: Please identify the facility or facilities for the disposal of liquids, drilling fluids and drill cuttings. Use attachment if more than two facilities are required.
Disposal Facility Name: GANDY MARLEY INC. Disposal Facility Permit Number: NMOC 711-01-0019
Disposal Facility Name: _____ Disposal Facility Permit Number: _____
Will any of the proposed closed-loop system operations and associated activities occur on or in areas that *will not* be used for future service and operations?
☐ Yes (If yes, please provide the information below) ☒ No
Required for impacted areas which will not be used for future service and operations:
☐ Soil Backfill and Cover Design Specifications - based upon the appropriate requirements of Subsection H of 19.15.17.13 NMAC
☐ Re-vegetation Plan - based upon the appropriate requirements of Subsection I of 19.15.17.13 NMAC
☐ Site Reclamation Plan - based upon the appropriate requirements of Subsection G of 19.15.17.13 NMAC

6.
Operator Application Certification:
I hereby certify that the information submitted with this application is true, accurate and complete to the best of my knowledge and belief.
Name (Print): _____ Title: _____
Signature: _____ Date: _____
e-mail address: _____ Telephone: _____

7. **OCD Approval:** ☐ Permit Application (including closure plan) ☐ Closure Plan (only)

OCD Representative Signature: _____ Approval Date: _____

Title: _____ OCD Permit Number: _____

8. **Closure Report (required within 60 days of closure completion):** Subsection K of 19.15.17.13 NMAC

Instructions: Operators are required to obtain an approved closure plan prior to implementing any closure activities and submitting the closure report. The closure report is required to be submitted to the division within 60 days of the completion of the closure activities. Please do not complete this section of the form until an approved closure plan has been obtained and the closure activities have been completed.

☐ Closure Completion Date: _____

9. **Closure Report Regarding Waste Removal Closure For Closed-loop Systems That Utilize Above Ground Steel Tanks or Haul-off Bins Only:**

Instructions: Please identify the facility or facilities for where the liquids, drilling fluids and drill cuttings were disposed. Use attachment if more than two facilities were utilized.

Disposal Facility Name: Grand Marley Inc. Disposal Facility Permit Number: NMOCD 711-01-0019

Disposal Facility Name: _____ Disposal Facility Permit Number: _____

Were the closed-loop system operations and associated activities performed on or in areas that *will not* be used for future service and operations?

☐ Yes (If yes, please demonstrate compliance to the items below) ☒ No

Required for impacted areas which will not be used for future service and operations:

☐ Site Reclamation (Photo Documentation)

☐ Soil Backfilling and Cover Installation

☐ Re-vegetation Application Rates and Seeding Technique

10. **Operator Closure Certification:**

I hereby certify that the information and attachments submitted with this closure report is true, accurate and complete to the best of my knowledge and belief. I also certify that the closure complies with all applicable closure requirements and conditions specified in the approved closure plan.

Name (Print): Bridget Helfrich Title: Regulatory Coordinator

Signature: Bridget Helfrich Date: 8-26-13

e-mail address: bhelfrich@altamesa.net Telephone: 281-943-1373

OPERATOR: Alta Mesa Services, LP

WELL: Latigo Ranch No. 033F

COUNTY: Guadalupe

API: 30-019-20141

LOCATION: Sec 33 - Twp 23E - Rge 23E
2252 ' FNL & 2487' FWL (Unit F)

DEVIATION REPORT

<u>DEPTH</u>	<u>DEVIATION</u>
500'	0.71°
1000'	1.77°
(Tie In) 17411'	3.47°

1590' }
to } please see Certified Directional Survey Report
(TD) 17411' }

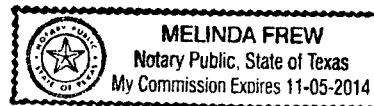
SIGNED BY: _____

DALE BREAUX - V.P. DRILLING

STATE OF TEXAS
COUNTY OF HARRIS

ON THIS 28th DAY OF August, 2013, BEFORE ME, Melinda Frew
A NOTARY PUBLIC, PERSONALLY APPEARED DALE BREAUX WHO ACKNOWLEDGED
AND EXECUTED THIS DOCUMENT. WITNESS MY HAND AND OFFICIAL SEAL.

Melinda Frew
NOTARY PUBLIC





A Schlumberger Company

DIRECTIONAL SURVEY REPORT

ALTA MESA SERVICES, LP.

LATIGO RANCH 33-F

GUADALUPE COUNTY, NEW MEXICO

PREPARED BY: KIRK DAVIS

PathFinder

6213 WCR 112
Midland, Texas 79706-3725
Tel. (432) 687-1447
Fax (432) 687-1544



A Schlumberger Company

**STATE OF TEXAS
MIDLAND COUNTY**

I, **CODY BUNDICK** certify that; I am employed by PathFinder, a Schlumberger company; that I did on the day(s) of **3/8/13** through **5/24/13** conduct or supervise the taking of a **Measurement While Drilling** survey from a depth of **1590 feet** to a depth of **17411 feet**; that the data is true, correct, complete and within the limitations of the tool as set forth by PathFinder, a Schlumberger company; that I am authorized and qualified to make this report; that this survey was conducted at the request of **ALTA MESA SERVICES, LP.** for the **LATIGO RANCH 33-F** Well API No. **30-019-20141** in **GUADALUPE COUNTY, NEW MEXICO**; and that I have reviewed this report and find that it conforms to the principles and procedures as set forth by PathFinder, a Schlumberger company.

A handwritten signature in cursive script that reads "Cody Bundick".

CODY BUNDICK
Field Engineer

PathFinder

6213 W. R 112
Midland, Texas 79706-3725
Tel. (432) 687-1647
Fax (432) 687-1544



A Schlumberger Company

June 17, 2013

ALTA MESA SERVICES, LP.

RE: ALTA MESA SERVICES, LP.
LATIGO RANCH 33-F
GUADALUPE COUNTY, NEW MEXICO
API No: 30-019-20141
Rig: Nabors 632
PES File No.: 13MLD0130

Dear Sir or Madam:

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
1 - 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,
A handwritten signature in black ink, appearing to be "K. Davis", written over a horizontal line.

KIRK DAVIS
MLWD Service Coordinator
PathFinder Energy Services

Pathfinder

6213 WCR 112
Midland, Texas 79706-3725
Tel. (432) 687-1647
Fax (432) 687-1544



A Schlumberger Company

DIRECTIONAL SURVEY COMPANY REPORT:

1. NAME OF SURVEYING COMPANY: PathFinder, a Schlumberger company
2. NAME OF PERSON(S) PERFORMING SURVEY:
A) CODY BUNDICK
B) KHAL BOOTH
C) JEFF CORBETT
D) SAKI GEORGE
E) ALLAN ABRAHAM
3. POSITION OF SAID PERSON(S): (A) SURVEYORS (FIELD ENGINEER)
4. DATE(S) ON WHICH SURVEY WAS PERFORMED: 3/8/13 TO 5/24/13
5. STATE IN WHICH SURVEY WAS PERFORMED: TEXAS
6. LOCATION OF WELL: REEVES COUNTY
7. TYPE OF SURVEY(S) PERFORMED: MWD
8. COMPLETE IDENTIFICATION OF WELL:

ALTA MESA SERVICES, LP.
LATIGO RANCH 33-F
GUADALUPE COUNTY, NEW MEXICO
API NO.: 30-019-20141
RIG: NABORS 632
9. SURVEY CERTIFIED FROM: 1590 TO 17411 FEET MEASURED DEPTH.

THIS IS TO VERIFY THAT ATTACHED DOCUMENTS SHOWING THE WELL TO BE
DISPLACED AT 172.57 FEET ON A BEARING OF 32.32 DEGREES FROM THE
CENTER OF THE ROTARY TABLE AT A PROJECTED DEPTH OF 17490.00 FEET,
ARE TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE.

A handwritten signature in black ink, appearing to be "K. Davis", written over a horizontal line.

KIRK DAVIS
M/LWD Field Service Manager

PathFinder – a Schlumberger company

BHL Report

Page 01/01
Tie-In Date: 03/07/2013
Date Completed: 05/24/2013

ALTA MESA SERVICES, LP.
LATIGO RANCH 33-F
GUADALUPE COUNTY, NM
API#: 30-019-20141 Rig: NABORS 632
PathFinder Office Supervisor: MARCUS MITCHAM
PathFinder Field Engineers: KHAL BOOTH
CODY BUNDICK
SAKI GEORGE

Survey Horiz. Reference: WELLHEAD
Ref Coordinates: LAT: 35.8.14.3800 N LON: 104.30.21.2709 W
GRID Reference: NAD83 new mexico east Transverse Mercator
Ref GRID Coord: X: 489742.1570 Y: 1505331.2710
North Aligned To: GRID NORTH
Total Magnetic Correction: 8.14° EAST TO GRID
Vertical Section Plane: 0.00
Survey Vert. Reference: 30.00' Rotary Table To Ground
Altitude: 4755.00' Ground To MSL

Measured Depth	17490.00	(feet)
Inclination	2.20	(deg)
Azimuth	243.61	(deg)
True Vertical Depth	17473.58	(feet)
Vertical Section	145.84	(feet)
Survey X cord	489834.41	(feet)
Survey Y cord	1505477.11	(feet)
Survey Lat	35.13772892 N	(deg)
Survey Lon	104.50560086 W	(deg)
Rectangular Corr. N/S	145.84 N	(feet)
Rectangular Corr. E/W	92.26 E	(feet)
Closure Distance	172.57	(feet)
Direction of Closure	32.32	(deg)
Dogleg Severity	0.00	(deg/100ft)

PathFinder – a Schlumberger company

Survey Report

ALTA MESA SERVICES, LP.
LATIGO RANCH 33-F
GUADALUPE COUNTY, NM
API#: 30-019-20141 Rlg: NABORS 632
PathFinder Office Supervisor: MARCUS MITCHAM
PathFinder Field Engineers: KHAL BOOTH
CODY BUNDICK
SAKI GEORGE

JEFF CORBETT
ALLAN ABRAHAM

Survey Horiz. Reference: WELLHEAD
Ref Coordinates: LAT: 35.8.14.3800 N LON: 104.30.21.2709 W
GRID Reference: NAD83 new mexico east Transverse Mercator
Ref GRID Coord: X: 489742.1570 Y: 1505331.2710
North Aligned To: GRID NORTH
Total Magnetic Correction: 8.14° EAST TO GRID
Vertical Section Plane: 0.00
Survey Vert. Reference: 30.00' Rotary Table To Ground
Altitude: 4755.00' Ground To MSL

Survey Calculations by RX5 V6.04D using Minimum Curvature

Measured Depth (ft)	Incl (deg)	Drift Dir. (deg)	TVD (ft)	Course Length (ft)	Vertical Section (ft)	TOTAL Rectangular Offsets (ft) (ft)	Closure Dist Dir (ft) (deg)	DLS (dg/100ft)
THE FOLLOWING ARE SINGLE SHOT SURVEYS								
500.00	0.71	344.86	499.98	0.00	2.99	2.99 N 0.81 W	3.10@ 344.84	0.00
1000.00	1.77	344.86	999.86	500.00	13.43	13.43 N 3.64 W	13.92@ 344.86	0.21
** TIED INTO SINGLE SHOT SURVEY AT 1518'MD								
1518.00	3.47	344.86	1517.30	518.00	36.29	36.29 N 9.82 W	37.60@ 344.86	0.33
THE FOLLOWING ARE PATHFINDER MWD SURVEYS								
1590.00	1.49	344.86	1589.23	72.00	39.30	39.30 N 10.63 W	40.71@ 344.86	2.75
1685.00	0.00	50.25	1684.22	95.00	40.49	40.49 N 10.96 W	41.95@ 344.86	1.57
1779.00	0.00	169.34	1778.22	94.00	40.49	40.49 N 10.96 W	41.95@ 344.86	0.00
1873.00	0.09	26.69	1872.22	94.00	40.56	40.56 N 10.92 W	42.00@ 344.93	0.10
1968.00	0.09	184.11	1967.22	95.00	40.55	40.55 N 10.89 W	41.99@ 344.96	0.19
2063.00	0.09	62.99	2062.22	95.00	40.51	40.51 N 10.83 W	41.93@ 345.03	0.16
2158.00	0.09	158.18	2157.22	95.00	40.47	40.47 N 10.74 W	41.87@ 345.14	0.14
2252.00	0.09	231.48	2251.22	94.00	40.36	40.36 N 10.77 W	41.77@ 345.06	0.11
2347.00	0.09	219.26	2346.22	95.00	40.25	40.25 N 10.88 W	41.70@ 344.88	0.02
2441.00	0.09	291.16	2440.22	94.00	40.22	40.22 N 10.99 W	41.70@ 344.72	0.11
2535.00	0.09	325.96	2534.22	94.00	40.31	40.31 N 11.10 W	41.81@ 344.60	0.06
2630.00	0.09	25.11	2629.22	95.00	40.44	40.44 N 11.11 W	41.94@ 344.64	0.09
2724.00	0.09	34.87	2723.22	94.00	40.57	40.57 N 11.04 W	42.04@ 344.78	0.02
2819.00	0.18	309.35	2818.22	95.00	40.72	40.72 N 11.11 W	42.21@ 344.74	0.20
2913.00	0.00	287.64	2912.22	94.00	40.82	40.82 N 11.22 W	42.33@ 344.62	0.19
3008.00	0.09	286.41	3007.22	95.00	40.84	40.84 N 11.30 W	42.37@ 344.54	0.09
3103.00	0.18	341.87	3102.22	95.00	41.00	41.00 N 11.41 W	42.56@ 344.44	0.16
3197.00	0.00	215.22	3196.22	94.00	41.14	41.14 N 11.46 W	42.71@ 344.43	0.19
3292.00	0.00	202.30	3291.22	95.00	41.14	41.14 N 11.46 W	42.71@ 344.43	0.00
3386.00	0.09	316.82	3385.22	94.00	41.19	41.19 N 11.51 W	42.77@ 344.39	0.10
3479.00	0.00	246.77	3478.22	93.00	41.25	41.25 N 11.56 W	42.84@ 344.34	0.10

PathFinder – a Schlumberger company

Survey Report

ALTA MESA SERVICES, L.P.
LATIGO RANCH 33-F
GUADALUPE COUNTY, NM
API#: 30-019-20141 Rig: NABORS 632

Page 02/08

Measured Depth (ft)	Incl (deg)	Drift Dir. (deg)	TVD (ft)	Course Length (ft)	Vertical Section (ft)	TOTAL Rectangular Offsets (ft) (ft)		Closure Dist Dir (ft) (deg)		DLS (dg/100ft)
3575.00	0.18	306.80	3574.22	96.00	41.34	41.34 N	11.68 W	42.96@	344.22	0.19
3670.00	0.09	283.69	3669.22	95.00	41.45	41.45 N	11.87 W	43.11@	344.01	0.11
3764.00	0.09	29.24	3763.22	94.00	41.53	41.53 N	11.91 W	43.20@	344.00	0.15
3858.00	0.18	10.52	3857.22	94.00	41.74	41.74 N	11.85 W	43.39@	344.15	0.10
3953.00	0.00	96.83	3952.22	95.00	41.88	41.88 N	11.82 W	43.52@	344.24	0.19
4047.00	0.09	53.24	4046.22	94.00	41.93	41.93 N	11.76 W	43.55@	344.33	0.10
4142.00	0.09	2.44	4141.22	95.00	42.05	42.05 N	11.70 W	43.64@	344.45	0.08
4236.00	0.09	320.51	4235.22	94.00	42.18	42.18 N	11.74 W	43.78@	344.44	0.07
4330.00	0.09	15.09	4329.22	94.00	42.31	42.31 N	11.77 W	43.91@	344.45	0.09
4425.00	0.09	121.79	4424.22	95.00	42.34	42.34 N	11.69 W	43.92@	344.57	0.15
4520.00	0.00	334.58	4519.22	95.00	42.30	42.30 N	11.62 W	43.87@	344.64	0.09
4614.00	0.09	196.50	4613.22	94.00	42.23	42.23 N	11.64 W	43.80@	344.59	0.10
4709.00	0.18	265.41	4708.22	95.00	42.15	42.15 N	11.81 W	43.77@	344.34	0.18
4804.00	0.09	92.53	4803.22	95.00	42.13	42.13 N	11.89 W	43.77@	344.24	0.28
4899.00	0.09	220.49	4898.21	95.00	42.07	42.07 N	11.86 W	43.71@	344.25	0.17
4993.00	0.09	341.78	4992.21	94.00	42.08	42.08 N	11.93 W	43.74@	344.17	0.17
5088.00	0.00	75.65	5087.21	95.00	42.15	42.15 N	11.96 W	43.82@	344.17	0.09
5183.00	0.00	267.87	5182.21	95.00	42.15	42.15 N	11.96 W	43.82@	344.17	0.00
5277.00	0.09	265.76	5276.21	94.00	42.15	42.15 N	12.03 W	43.83@	344.07	0.10
5372.00	0.09	222.34	5371.21	95.00	42.09	42.09 N	12.15 W	43.81@	343.89	0.07
5466.00	0.09	275.69	5465.21	94.00	42.04	42.04 N	12.28 W	43.80@	343.72	0.09
5561.00	0.26	43.92	5560.21	95.00	42.20	42.20 N	12.20 W	43.93@	343.87	0.34
5655.00	0.09	200.98	5654.21	94.00	42.29	42.29 N	12.08 W	43.98@	344.06	0.37
5751.00	0.09	30.21	5750.21	96.00	42.28	42.28 N	12.07 W	43.97@	344.07	0.19
5845.00	0.00	188.50	5844.21	94.00	42.35	42.35 N	12.03 W	44.02@	344.14	0.10
5940.00	0.00	359.36	5939.21	95.00	42.35	42.35 N	12.03 W	44.02@	344.14	0.00
6034.00	0.00	198.96	6033.21	94.00	42.35	42.35 N	12.03 W	44.02@	344.14	0.00
6129.00	0.09	58.25	6128.21	95.00	42.39	42.39 N	11.97 W	44.04@	344.23	0.09

PathFinder – a Schlumberger company

Survey Report

ALTA MESA SERVICES, LP.
LATIGO RANCH 33-F
GUADALUPE COUNTY, NM
API#: 30-019-20141 Rig: NABORS 632

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Measured Depth (ft)	Incl (deg)	Drift Dir. (deg)	TVD (ft)	Course Length (ft)	Vertical Section (ft)	TOTAL Rectangular Offsets (ft) (ft)		Closure Dist Dir (ft) (deg)		DLS (dg/100ft)
6224.00	0.00	99.82	6223.21	95.00	42.43	42.43 N	11.91 W	44.06@	344.33	0.09
6316.00	0.00	14.65	6315.21	92.00	42.43	42.43 N	11.91 W	44.06@	344.33	0.00
6413.00	0.00	321.92	6412.21	97.00	42.43	42.43 N	11.91 W	44.06@	344.33	0.00
6500.00	0.00	90.24	6499.21	87.00	42.43	42.43 N	11.91 W	44.06@	344.33	0.00
6594.00	0.09	68.36	6593.21	94.00	42.45	42.45 N	11.84 W	44.07@	344.42	0.10
6689.00	0.00	314.01	6688.21	95.00	42.48	42.48 N	11.77 W	44.08@	344.52	0.09
6784.00	0.00	180.50	6783.21	95.00	42.48	42.48 N	11.77 W	44.08@	344.52	0.00
6853.00	0.00	321.22	6852.21	69.00	42.48	42.48 N	11.77 W	44.08@	344.52	0.00
6916.00	0.18	85.67	6915.21	63.00	42.49	42.49 N	11.67 W	44.06@	344.64	0.29
6948.00	0.35	82.33	6947.21	32.00	42.50	42.50 N	11.52 W	44.04@	344.83	0.53
6972.00	0.26	95.25	6971.21	24.00	42.51	42.51 N	11.39 W	44.01@	344.99	0.47
7066.00	0.09	116.25	7065.21	94.00	42.46	42.46 N	11.12 W	43.89@	345.33	0.19
7176.00	0.09	83.38	7175.21	110.00	42.43	42.43 N	10.95 W	43.82@	345.53	0.05
7270.00	0.26	42.43	7269.21	94.00	42.60	42.60 N	10.74 W	43.93@	345.85	0.21
7365.00	0.53	60.71	7364.21	95.00	42.97	42.97 N	10.21 W	44.16@	346.64	0.31
7460.00	0.88	66.33	7459.20	95.00	43.48	43.48 N	9.16 W	44.43@	348.11	0.38
7554.00	0.97	75.30	7553.19	94.00	43.97	43.97 N	7.72 W	44.64@	350.04	0.18
7649.00	1.23	73.54	7648.17	95.00	44.46	44.46 N	5.97 W	44.86@	352.35	0.28
7743.00	1.67	77.67	7742.14	94.00	45.04	45.04 N	3.66 W	45.19@	355.35	0.48
7838.00	2.02	72.75	7837.09	95.00	45.83	45.83 N	0.71 W	45.84@	359.11	0.40
7933.00	2.29	71.61	7932.03	95.00	46.93	46.93 N	2.69 E	47.00@	3.28	0.29
8018.00	1.67	77.58	8016.98	85.00	47.73	47.73 N	5.51 E	48.05@	6.58	0.77
8113.00	0.09	12.11	8111.96	95.00	48.10	48.10 N	6.88 E	48.59@	8.14	1.72
8208.00	0.09	134.54	8206.96	95.00	48.12	48.12 N	6.95 E	48.62@	8.21	0.17
8302.00	0.09	182.44	8300.96	94.00	48.00	48.00 N	6.99 E	48.50@	8.29	0.08
8397.00	0.09	244.05	8395.96	95.00	47.89	47.89 N	6.92 E	48.39@	8.23	0.10
8492.00	0.09	0.24	8490.96	95.00	47.93	47.93 N	6.86 E	48.42@	8.14	0.16
8586.00	0.09	40.32	8584.96	94.00	48.06	48.06 N	6.91 E	48.55@	8.18	0.07

PathFinder – a Schlumberger company

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ALTA MESA SERVICES, LP.
LATIGO RANCH 33-F
GUADALUPE COUNTY, NM
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Measured Depth (ft)	Incl (deg)	Drift Dir. (deg)	TVD (ft)	Course Length (ft)	Vertical Section (ft)	TOTAL Rectangular Offsets (ft) (ft)		Closure Dist Dir (ft) (deg)		DLS (dg/100ft)
8681.00	0.09	126.54	8679.96	95.00	48.07	48.07 N	7.01 E	48.58@	8.30	0.13
8776.00	0.09	155.46	8774.96	95.00	47.96	47.96 N	7.11 E	48.48@	8.43	0.05
8870.00	0.09	161.26	8868.96	94.00	47.82	47.82 N	7.16 E	48.36@	8.51	0.01
8965.00	0.09	94.81	8963.96	95.00	47.75	47.75 N	7.26 E	48.29@	8.64	0.10
9060.00	0.09	294.41	9058.96	95.00	47.77	47.77 N	7.26 E	48.32@	8.65	0.19
9155.00	0.09	4.99	9153.96	95.00	47.88	47.88 N	7.20 E	48.41@	8.56	0.11
9249.00	0.09	131.11	9247.96	94.00	47.90	47.90 N	7.26 E	48.45@	8.62	0.17
9344.00	0.09	247.39	9342.96	95.00	47.82	47.82 N	7.25 E	48.37@	8.62	0.16
9439.00	0.09	355.67	9437.96	95.00	47.87	47.87 N	7.18 E	48.40@	8.53	0.15
9534.00	0.09	229.20	9532.96	95.00	47.89	47.89 N	7.12 E	48.42@	8.45	0.17
9628.00	0.09	41.64	9626.96	94.00	47.90	47.90 N	7.11 E	48.43@	8.44	0.19
9723.00	0.09	210.56	9721.96	95.00	47.89	47.89 N	7.12 E	48.42@	8.46	0.19
9818.00	0.00	309.61	9816.96	95.00	47.83	47.83 N	7.08 E	48.35@	8.42	0.09
9913.00	0.09	155.81	9911.96	95.00	47.76	47.76 N	7.11 E	48.29@	8.47	0.09
10008.00	0.09	200.98	10006.96	95.00	47.62	47.62 N	7.12 E	48.15@	8.50	0.07
10102.00	0.09	158.71	10100.96	94.00	47.49	47.49 N	7.12 E	48.02@	8.52	0.07
10197.00	0.09	322.62	10195.96	95.00	47.48	47.48 N	7.10 E	48.00@	8.50	0.19
10292.00	0.09	48.58	10290.96	95.00	47.58	47.58 N	7.11 E	48.11@	8.50	0.13
10387.00	0.00	246.42	10385.96	95.00	47.63	47.63 N	7.17 E	48.17@	8.56	0.09
10482.00	0.26	83.30	10480.96	95.00	47.66	47.66 N	7.38 E	48.23@	8.80	0.27
10577.00	0.09	98.06	10575.96	95.00	47.67	47.67 N	7.67 E	48.29@	9.14	0.18
10671.00	0.70	103.34	10669.96	94.00	47.53	47.53 N	8.30 E	48.25@	9.90	0.65
10766.00	1.93	100.79	10764.93	95.00	47.10	47.10 N	10.44 E	48.24@	12.49	1.30
10861.00	4.57	93.32	10859.77	95.00	46.58	46.58 N	15.79 E	49.18@	18.72	2.81
10964.00	5.72	92.79	10962.35	103.00	46.09	46.09 N	25.01 E	52.44@	28.49	1.12
11059.00	5.89	90.94	11056.86	95.00	45.78	45.78 N	34.61 E	57.39@	37.09	0.27
11153.00	6.68	91.21	11150.30	94.00	45.59	45.59 N	44.90 E	63.99@	44.57	0.84
11248.00	4.66	90.15	11244.83	95.00	45.46	45.46 N	54.29 E	70.81@	50.06	2.13

PathFinder – a Schlumberger company

Survey Report

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LATIGO RANCH 33-F
GUADALUPE COUNTY, NM
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Measured Depth (ft)	Incl (deg)	Drift Dir. (deg)	TVD (ft)	Course Length (ft)	Vertical Section (ft)	TOTAL Rectangular Offsets (ft) (ft)		Closure Dist Dir (ft) (deg)		DLS (dg/100ft)
11372.00	4.22	89.10	11368.46	124.00	45.52	45.52 N	63.88 E	78.44@	54.53	0.36
11437.00	3.08	101.40	11433.32	65.00	45.21	45.21 N	67.99 E	81.65@	56.38	2.12
11542.00	1.32	95.86	11538.24	105.00	44.53	44.53 N	71.96 E	84.62@	58.25	1.69
11720.00	0.09	114.23	11716.23	178.00	44.26	44.26 N	74.12 E	86.33@	59.16	0.69
11815.00	0.00	57.37	11811.23	95.00	44.23	44.23 N	74.19 E	86.38@	59.20	0.09
11910.00	0.09	107.11	11906.23	95.00	44.21	44.21 N	74.26 E	86.43@	59.23	0.09
12004.00	0.53	111.95	12000.22	94.00	44.03	44.03 N	74.74 E	86.74@	59.50	0.47
12099.00	0.35	92.35	12095.22	95.00	43.85	43.85 N	75.43 E	87.25@	59.83	0.24
12194.00	0.09	195.01	12190.22	95.00	43.77	43.77 N	75.70 E	87.44@	59.97	0.40
12289.00	0.18	100.44	12285.22	95.00	43.67	43.67 N	75.83 E	87.50@	60.07	0.22
12383.00	0.09	109.84	12379.22	94.00	43.61	43.61 N	76.05 E	87.67@	60.16	0.10
12479.00	0.26	95.43	12475.22	96.00	43.57	43.57 N	76.33 E	87.89@	60.28	0.18
12574.00	2.02	88.83	12570.20	95.00	43.58	43.58 N	78.22 E	89.54@	60.88	1.85
12669.00	3.61	100.08	12665.08	95.00	43.09	43.09 N	82.84 E	93.38@	62.52	1.76
12764.00	0.26	151.94	12760.01	95.00	42.38	42.38 N	85.89 E	95.77@	63.74	3.64
12858.00	0.26	175.49	12854.01	94.00	41.98	41.98 N	86.01 E	95.70@	63.98	0.11
12954.00	0.26	189.29	12950.01	96.00	41.55	41.55 N	85.99 E	95.50@	64.21	0.06
13049.00	0.26	189.91	13045.01	95.00	41.12	41.12 N	85.92 E	95.25@	64.42	0.00
13143.00	0.35	176.64	13139.01	94.00	40.62	40.62 N	85.90 E	95.02@	64.69	0.12
13238.00	0.53	110.72	13234.01	95.00	40.18	40.18 N	86.32 E	95.22@	65.04	0.53
13333.00	2.29	99.12	13328.98	95.00	39.72	39.72 N	88.61 E	97.11@	65.85	1.87
13429.00	5.54	98.50	13424.74	96.00	38.73	38.73 N	95.09 E	102.67@	67.84	3.39
13523.00	6.16	94.46	13518.25	94.00	37.67	37.67 N	104.60 E	111.18@	70.19	0.79
13618.00	6.51	89.80	13612.67	95.00	37.29	37.29 N	115.07 E	120.96@	72.04	0.65
13712.00	6.33	83.03	13706.08	94.00	37.94	37.94 N	125.54 E	131.15@	73.18	0.83
13807.00	4.40	104.65	13800.67	95.00	37.65	37.65 N	134.27 E	139.45@	74.33	2.91
13901.00	4.92	138.84	13894.38	94.00	33.71	33.71 N	140.41 E	144.40@	76.50	2.96
13996.00	4.48	163.10	13989.07	95.00	27.09	27.09 N	144.17 E	146.69@	79.36	2.13

PathFinder – a Schlumberger company

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LATIGO RANCH 33-F
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Measured Depth (ft)	Incl (deg)	Drift Dir. (deg)	TVD (ft)	Course Length (ft)	Vertical Section (ft)	TOTAL Rectangular Offsets (ft) (ft)		Closure Dist Dir (ft) (deg)		DLS (dg/100ft)
14092.00	3.69	184.55	14084.83	96.00	20.42	20.42 N	145.02 E	146.45@	81.98	1.78
14187.00	4.40	205.64	14179.60	95.00	14.09	14.09 N	143.20 E	143.89@	84.38	1.72
14283.00	5.19	222.87	14275.26	96.00	7.59	7.59 N	138.65 E	138.86@	86.87	1.70
14368.00	4.84	222.34	14359.94	85.00	2.12	2.12 N	133.62 E	133.64@	89.09	0.42
14464.00	1.32	241.94	14455.79	96.00	-1.40	1.40 S	129.91 E	129.92@	90.62	3.77
14559.00	0.70	290.47	14550.77	95.00	-1.71	1.71 S	128.40 E	128.42@	90.76	1.06
14655.00	1.93	11.56	14646.75	96.00	0.08	0.08 N	128.18 E	128.18@	89.96	2.03
14750.00	4.13	30.56	14741.61	95.00	4.59	4.59 N	130.24 E	130.32@	87.98	2.51
14846.00	3.61	0.77	14837.40	96.00	10.59	10.59 N	132.04 E	132.46@	85.41	2.14
14941.00	4.31	18.43	14932.18	95.00	16.97	16.97 N	133.21 E	134.28@	82.74	1.47
15004.00	4.75	32.06	14994.99	63.00	21.43	21.43 N	135.34 E	137.03@	81.00	1.84
15036.00	4.57	34.08	15026.88	32.00	23.61	23.61 N	136.76 E	138.78@	80.21	0.76
15068.00	4.22	32.23	15058.79	32.00	25.66	25.66 N	138.10 E	140.46@	79.47	1.18
15096.00	3.78	11.05	15086.72	28.00	27.44	27.44 N	138.83 E	141.51@	78.82	5.47
15132.00	4.66	0.15	15122.62	36.00	30.06	30.06 N	139.06 E	142.27@	77.80	3.30
15164.00	5.54	347.50	15154.50	32.00	32.87	32.87 N	138.73 E	142.57@	76.67	4.45
15195.00	5.45	336.95	15185.36	31.00	35.69	35.69 N	137.83 E	142.37@	75.48	3.27
15227.00	4.84	318.05	15217.23	32.00	38.09	38.09 N	136.33 E	141.55@	74.39	5.60
15271.00	4.84	287.27	15261.08	44.00	40.02	40.02 N	133.31 E	139.19@	73.29	5.83
15291.00	5.01	275.36	15281.00	20.00	40.35	40.35 N	131.64 E	137.69@	72.96	5.17
15323.00	5.01	253.34	15312.88	32.00	40.08	40.08 N	128.91 E	135.00@	72.73	5.97
15339.00	4.84	245.42	15328.83	16.00	39.60	39.60 N	127.63 E	133.63@	72.76	4.38
15355.00	4.75	234.82	15344.77	16.00	38.94	38.94 N	126.47 E	132.33@	72.89	5.56
15394.00	4.22	233.60	15383.65	39.00	37.16	37.16 N	124.00 E	129.44@	73.32	1.38
15424.00	3.52	251.80	15413.58	30.00	36.21	36.21 N	122.23 E	127.48@	73.50	4.68
15456.00	2.99	268.85	15445.53	32.00	35.89	35.89 N	120.46 E	125.70@	73.41	3.43
15488.00	2.37	279.46	15477.50	32.00	35.98	35.98 N	118.98 E	124.30@	73.17	2.47
15520.00	1.76	285.81	15509.48	32.00	36.23	36.23 N	117.85 E	123.29@	72.91	2.03

PathFinder – a Schlumberger company

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LATIGO RANCH 33-F
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Measured Depth (ft)	Incl (deg)	Drift Dir. (deg)	TVD (ft)	Course Length (ft)	Vertical Section (ft)	TOTAL Rectangular Offsets (ft) (ft)		Closure Dist Dir (ft) (deg)		DLS (dg/100ft)
15554.00	1.67	264.30	15543.46	34.00	36.32	36.32 N	116.86 E	122.37@	72.74	1.90
15614.00	1.14	226.35	15603.44	60.00	35.82	35.82 N	115.55 E	120.98@	72.78	1.74
15629.00	0.97	211.29	15618.44	15.00	35.61	35.61 N	115.38 E	120.75@	72.85	2.16
15647.00	0.62	165.47	15636.44	18.00	35.38	35.38 N	115.33 E	120.63@	72.94	3.88
15680.00	1.67	92.52	15669.44	33.00	35.19	35.19 N	115.85 E	121.08@	73.10	4.85
15711.00	2.55	91.90	15700.41	31.00	35.15	35.15 N	116.99 E	122.16@	73.28	2.84
15736.00	2.90	94.56	15725.38	25.00	35.08	35.08 N	118.18 E	123.27@	73.47	1.49
15768.00	3.69	96.92	15757.33	32.00	34.89	34.89 N	120.01 E	124.98@	73.79	2.50
15799.00	3.78	93.81	15788.27	31.00	34.70	34.70 N	122.02 E	126.86@	74.12	0.71
15863.00	1.41	54.91	15852.20	64.00	35.01	35.01 N	124.77 E	129.59@	74.32	4.41
15893.00	1.41	31.61	15882.19	30.00	35.54	35.54 N	125.26 E	130.21@	74.16	1.90
15925.00	1.93	345.17	15914.18	32.00	36.40	36.40 N	125.33 E	130.51@	73.81	4.38
15957.00	2.90	339.55	15946.15	32.00	37.68	37.68 N	124.91 E	130.47@	73.22	3.12
15990.00	3.52	343.71	15979.10	33.00	39.43	39.43 N	124.33 E	130.44@	72.40	2.01
16022.00	3.69	332.46	16011.03	32.00	41.29	41.29 N	123.58 E	130.30@	71.53	2.27
16054.00	3.78	322.62	16042.97	32.00	43.04	43.04 N	122.47 E	129.81@	70.64	2.02
16085.00	3.69	323.11	16073.90	31.00	44.65	44.65 N	121.25 E	129.21@	69.78	0.31
16118.00	3.87	323.55	16106.83	33.00	46.39	46.39 N	119.95 E	128.61@	68.85	0.55
16149.00	4.22	327.22	16137.75	31.00	48.19	48.19 N	118.71 E	128.12@	67.90	1.40
16182.00	4.04	329.52	16170.67	33.00	50.22	50.22 N	117.46 E	127.75@	66.85	0.74
16209.00	3.52	324.97	16197.61	27.00	51.71	51.71 N	116.50 E	127.47@	66.06	2.22
16245.00	3.43	328.03	16233.54	36.00	53.53	53.53 N	115.30 E	127.12@	65.09	0.57
16276.00	3.61	335.88	16264.48	31.00	55.21	55.21 N	114.41 E	127.03@	64.24	1.66
16307.00	3.96	340.12	16295.42	31.00	57.11	57.11 N	113.65 E	127.19@	63.32	1.44
16339.00	4.31	335.28	16327.33	32.00	59.24	59.24 N	112.77 E	127.38@	62.29	1.54
16371.00	4.57	309.23	16359.24	32.00	61.14	61.14 N	111.28 E	126.97@	61.21	6.30
16403.00	5.01	333.54	16391.13	32.00	63.20	63.20 N	109.67 E	126.57@	60.05	6.44
16435.00	5.45	333.90	16423.00	32.00	65.81	65.81 N	108.38 E	126.79@	58.73	1.38

PathFinder – a Schlumberger company

Survey Report

ALTA MESA SERVICES, LP.
LATIGO RANCH 33-F
GUADALUPE COUNTY, NM
API#: 30-019-20141 Rig: NABORS 632

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Measured Depth (ft)	Incl (deg)	Drift Dir. (deg)	TVD (ft)	Course Length (ft)	Vertical Section (ft)	TOTAL Rectangular Offsets (ft) (ft)		Closure Dist Dir (ft) (deg)		DLS (dg/100ft)
16466.00	5.80	338.66	16453.85	31.00	68.59	68.59 N	107.16 E	127.23@	57.38	1.88
16497.00	5.80	343.14	16484.69	31.00	71.55	71.55 N	106.13 E	128.00@	56.01	1.46
16529.00	5.10	349.39	16516.55	32.00	74.50	74.50 N	105.40 E	129.07@	54.75	2.87
16561.00	4.57	350.35	16548.43	32.00	77.15	77.15 N	104.93 E	130.24@	53.67	1.67
16593.00	4.13	334.05	16580.34	32.00	79.44	79.44 N	104.21 E	131.04@	52.68	4.08
16625.00	4.22	329.39	16612.26	32.00	81.49	81.49 N	103.11 E	131.42@	51.68	1.10
16656.00	4.40	335.48	16643.17	31.00	83.56	83.56 N	102.03 E	131.88@	50.69	1.59
16693.00	4.75	350.45	16680.05	37.00	86.36	86.36 N	101.19 E	133.03@	49.52	3.35
16752.00	5.45	4.65	16738.82	59.00	91.56	91.56 N	101.01 E	136.33@	47.81	2.44
16798.00	6.42	9.12	16784.57	46.00	96.28	96.28 N	101.59 E	139.97@	46.54	2.33
16848.00	7.74	351.39	16834.20	50.00	102.37	102.37 N	101.53 E	144.18@	44.77	5.07
16879.00	8.09	341.71	16864.90	31.00	106.50	106.50 N	100.54 E	146.46@	43.35	4.44
16910.00	8.18	335.17	16895.59	31.00	110.58	110.58 N	98.93 E	148.37@	41.82	3.00
16942.00	8.53	335.21	16927.25	32.00	114.80	114.80 N	96.98 E	150.27@	40.19	1.09
16974.00	8.18	340.79	16958.91	32.00	119.10	119.10 N	95.23 E	152.49@	38.65	2.76
17006.00	7.21	349.36	16990.63	32.00	123.22	123.22 N	94.11 E	155.05@	37.37	4.69
17038.00	5.89	350.12	17022.42	32.00	126.81	126.81 N	93.46 E	157.53@	36.39	4.13
17070.00	4.48	345.04	17054.29	32.00	129.64	129.64 N	92.85 E	159.46@	35.61	4.63
17100.00	4.04	346.29	17084.20	30.00	131.80	131.80 N	92.30 E	160.90@	35.00	1.50
17132.00	3.96	355.23	17116.12	32.00	133.99	133.99 N	91.94 E	162.51@	34.46	1.96
17163.00	3.69	5.87	17147.06	31.00	136.05	136.05 N	91.96 E	164.21@	34.05	2.44
17195.00	3.25	11.93	17179.00	32.00	137.97	137.97 N	92.25 E	165.96@	33.77	1.79
17226.00	3.78	15.53	17209.94	31.00	139.81	139.81 N	92.70 E	167.75@	33.55	1.85
17258.00	4.75	17.91	17241.85	32.00	142.09	142.09 N	93.39 E	170.03@	33.32	3.08
17290.00	4.48	19.49	17273.75	32.00	144.53	144.53 N	94.22 E	172.52@	33.10	0.93
17322.00	3.17	26.69	17305.67	32.00	146.49	146.49 N	95.03 E	174.62@	32.97	4.35
17354.00	1.14	37.86	17337.65	32.00	147.54	147.54 N	95.62 E	175.82@	32.95	6.45
17386.00	1.14	227.26	17369.65	32.00	147.57	147.57 N	95.59 E	175.82@	32.93	7.10

PathFinder – a Schlumberger company

Survey Report

ALTA MESA SERVICES, L.P.
LATIGO RANCH 33-F
GUADALUPE COUNTY, NM
API#: 30-019-20141 Rig: NABORS 632

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Measured Depth (ft)	Incl (deg)	Drift Dir. (deg)	TVD (ft)	Course Length (ft)	Vertical Section (ft)	TOTAL Rectangular Offsets (ft) (ft)		Closure Dist Dir (ft) (deg)		DLS (dg/100ft)
17411.00	2.20	243.61	17394.64	25.00	147.19	147.19 N	94.97 E	175.17@	32.83	4.61
STRAIGHT LINE PROJECTION TO BIT AT 17490' MD										
17490.00	2.20	243.61	17473.58	79.00	145.84	145.84 N	92.26 E	172.57@	32.32	0.00

** The survey data at tie-in point was furnished by a recognized survey company and entered as submitted. Survey stations above the tie-in point represent recalculated data by PathFinder – a Schlumberger company and may reflect minor changes due to rounding differences between survey programs. Only survey stations taken by qualified PathFinder personnel are subject to certification.