

Amended

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

FORM APPROVED
OMB NO. 1004-0137
Expires: January 31, 2018

SUNDRY NOTICES AND REPORTS ON WELLS
Do not use this form for proposals to drill or to re-enter an abandoned well. Use form 3160-3 (APD) for such proposals.

SUBMIT IN TRIPLICATE - Other instructions on page 2

1. Type of Well ☐ Oil Well ☐ Gas Well ☒ Other: COAL BED METHANE		5. Lease Serial No. NMNM30015
Name of Operator SOUTHLAND ROYALTY COMPANY LLC		6. If Indian, Allottee or Tribe Name
Contact: CONNIE BLAYLOCK Email: CBLAYLOCK@MSPARTNERS.COM		7. If Unit or CA/Agreement, Name and/or No.
3a. Address 400 W 7TH STREET FORT WORTH, TX 76102	3b. Phone No. (include area code) Ph: 817-334-7882	8. Well Name and No. CARRACAS 19B 10
4. Location of Well (Footage, Sec., T., R., M., or Survey Description) Sec 19 T32N R4W NWSE 1510FSL 1350FEL 36.969072 N Lat, 107.291674 W Lon		9. API Well No. 30-039-27565-00-S1
		10. Field and Pool or Exploratory Area BASIN FRUITLAND COAL
		11. County or Parish, State RIO ARRIBA COUNTY, NM

12. CHECK THE APPROPRIATE BOX(ES) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION			
☒ Notice of Intent	☐ Acidize	☐ Deepen	☐ Production (Start/Resume)	☐ Water Shut-Off
☐ Subsequent Report	☐ Alter Casing	☐ Hydraulic Fracturing	☐ Reclamation	☐ Well Integrity
☐ Final Abandonment Notice	☐ Casing Repair	☐ New Construction	☐ Recomplete	☒ Other
	☐ Change Plans	☐ Plug and Abandon	☐ Temporarily Abandon	
	☐ Convert to Injection	☐ Plug Back	☐ Water Disposal	

13. Describe Proposed or Completed Operation: Clearly state all pertinent details, including estimated starting date of any proposed work and approximate duration thereof. If the proposal is to deepen directionally or recompleat horizontally, give subsurface locations and measured and true vertical depths of all pertinent markers and zones. Attach the Bond under which the work will be performed or provide the Bond No. on file with BLM/BIA. Required subsequent reports must be filed within 30 days following completion of the involved operations. If the operation results in a multiple completion or recompleat in a new interval, a Form 3160-4 must be filed once testing has been completed. Final Abandonment Notices must be filed only after all requirements, including reclamation, have been completed and the operator has determined that the site is ready for final inspection.

SRC is requesting approval of the following Horizontal Sidetrack Procedure:

1. Prepare existing well for drilling operations with a pulling unit.
2. Pull tubing and rods.
3. PU mill and TIH to verify csg is clean.
4. Set CBP at approximately 3800 ft, above Lateral #1, isolating Lateral #1 from the rest of the wellbore.
5. Roll hole and pressure test casing.
6. Set CBP at approximately 3760 ft below proposed window area.
7. Release Pulling Unit.
8. MIRU drilling rig.
9. RU BOP and test.
10. PU whipstock and csg mill assembly and set whipstock for casing exit at 3750 ft MD.

HOLD CTM FOR ISL

14. I hereby certify that the foregoing is true and correct. Electronic Submission #431779 verified by the BLM Well Information System For SOUTHLAND ROYALTY COMPANY LLC, sent to the Farmington Committed to AFMSS for processing by JACK SAVAGE on 08/20/2018 (18JWS0194SE)	
Name (Printed/Typed) CONNIE BLAYLOCK	Title REGULATORY TECH
Signature (Electronic Submission)	Date 08/17/2018

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved By JACK SAVAGE	Title PETROLEUM ENGINEER	Date 08/20/2018
Conditions of approval, if any, are attached. Approval of this notice does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.		Office Farmington

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

(Instructions on page 2)

**** BLM REVISED ** BLM REVISED ** BLM REVISED ** BLM REVISED ** BLM REVISED ****

NMOC
AY

1

Additional data for EC transaction #431779 that would not fit on the form

32. Additional remarks, continued

11. Release whip and mill window f/ 3750-58ft.
12. TOOH for curve BHA and drill sidetrack.
13. Planned KOP at 3750 ft MD / 3750 ft TVD (directional pilot well).
14. Drill 6-1/4 in from 3750 ft MD / 3750 ft TVD to 8270 ft MD / 4084 ft TVD at 89.77 degrees, 356.6 degrees azimuth.
15. TOOH and run 4-1/2 in pre-perforated liner from approximately 3750 ft MD to 8270 ft MD.
16. RD&R drilling rig.
17. MIRU pulling unit.
18. RIH and retrieve whipstock w/work string and jars.
19. Drill out upper CBP at 3760 ft.
20. LD work string.
21. Run production tbg and equipment to test lateral completion.
22. Secure well, rig down and move off location.

Attached is Well Plan, WBD, Updated Plat

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENTFORM APPROVED
OMB NO. 1004-0137
Expires: January 31, 2018**SUNDRY NOTICES AND REPORTS ON WELLS**
*Do not use this form for proposals to drill or to re-enter an abandoned well. Use form 3160-3 (APD) for such proposals.*5. Lease Serial No.
NMNM30015

6. If Indian, Allottee or Tribe Name

7. If Unit or CA/Agreement, Name and/or No.

SUBMIT IN TRIPLICATE - Other instructions on page 2

1. Type of Well

☐ Oil Well ☐ Gas Well ☒ Other: COAL BED METHANE8. Well Name and No.
CARRACAS 19B 10

2. Name of Operator

Contact: CONNIE BLAYLOCK
ENERGEN RESOURCES CORPORATION
Email: CBLAYLOCK@MSPARTNERS.COM9. API Well No.
30-039-27565-00-S1

3a. Address

2010 AFTON PLACE
FARMINGTON, NM 87401

3b. Phone No. (include area code)

Ph: 817-334-7882

10. Field and Pool or Exploratory Area
BASIN FRUITLAND COAL

4. Location of Well (Footage, Sec., T., R., M., or Survey Description)

Sec 19 T32N R4W NWSE 1510FSL 1350FEL
36.969072 N Lat, 107.291674 W Lon

11. County or Parish, State

RIO ARRIBA COUNTY, NM

12. CHECK THE APPROPRIATE BOX(ES) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION			
☒ Notice of Intent	☐ Acidize	☐ Deepen	☐ Production (Start/Resume)	☐ Water Shut-Off
☐ Subsequent Report	☐ Alter Casing	☐ Hydraulic Fracturing	☐ Reclamation	☐ Well Integrity
☐ Final Abandonment Notice	☐ Casing Repair	☐ New Construction	☐ Recomplete	☒ Other
	☐ Change Plans	☐ Plug and Abandon	☐ Temporarily Abandon	Drilling Operations
	☐ Convert to Injection	☐ Plug Back	☐ Water Disposal	

13. Describe Proposed or Completed Operation: Clearly state all pertinent details, including estimated starting date of any proposed work and approximate duration thereof. If the proposal is to deepen directionally or recomplete horizontally, give subsurface locations and measured and true vertical depths of all pertinent markers and zones. Attach the Bond under which the work will be performed or provide the Bond No. on file with BLM/BIA. Required subsequent reports must be filed within 30 days following completion of the involved operations. If the operation results in a multiple completion or recompletion in a new interval, a Form 3160-4 must be filed once testing has been completed. Final Abandonment Notices must be filed only after all requirements, including reclamation, have been completed and the operator has determined that the site is ready for final inspection.

Please expedite approval - we would like to begin work mid-August.

SRC is requesting approval of the following Horizontal Sidetrack Procedure:

1. Prepare existing well for drilling operations with a Pulling Unit
2. Pull tubing and rods
3. PU Mill and TIH to verify csg is clean
4. Set CBP at approximately 3800 ft, above Lateral #1 isolating Lateral #1 from the rest of the wellbore
5. Roll hole and pressure test casing
6. Set CBP at approximately 3760 ft below proposed window area
7. Release Pulling Unit
8. MIRU drilling rig

NMOCB

AUG 09 2018

DISTRICT III

HOLD C104 FOR NSL

14. I hereby certify that the foregoing is true and correct.

Electronic Submission #429402 verified by the BLM Well Information System
For ENERGEN RESOURCES CORPORATION, sent to the Farmington
Committed to AFMSS for processing by JACK SAVAGE on 08/06/2018 (18JWS0170SE)

Name (Printed/Typed) CONNIE BLAYLOCK

Title REGULATORY TECH

Signature (Electronic Submission)

Date 07/31/2018

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved By JACK SAVAGE

Title PETROLEUM ENGINEER

Date 08/06/2018

Conditions of approval, if any, are attached. Approval of this notice does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.

Office Farmington

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

(Instructions on page 2)

** BLM REVISED ** BLM REVISED ** BLM REVISED ** BLM REVISED ** BLM REVISED **

NMOCB

Additional data for EC transaction #429402 that would not fit on the form

32. Additional remarks, continued

9. RU BOP and test
10. PU whipstock and csg mill assembly and set whipstock for casing exit at 3750 ft MD
11. Release whip and mill window f/ 3750-58 ft
12. TOOH for curve BHA and drill sidetrack
13. Planned KOP at 3750 ft MD / 3750 ft TVD (directional pilot well)
14. Drill 6-1/4 in from 3750 ft MD / 3750 ft TVD to 8270 ft MD / 4084 ft TVD at 89.77 degrees, 356.6 degrees azimuth
15. TOOH and run 4-1/2 in pre-perforated liner from approximately 3750 ft MD to 8270 ft MD
16. RD&R Drilling Rig
17. MIRU Pulling Unit
18. RIH and retrieve whipstock w/ work string and jars
19. Drill out upper CBP at 3760 ft
20. LD work string
21. Run production tbg and equipment to test lateral completion
22. Secure well, rig down and move off location

Attached is Well Plan, WBD, Updated Plat

NMOC

AUG 09 2018

Form C-102

State of New Mexico
Energy, Minerals & Natural Resources Department

Revised August 1, 2011

DISTRICT III

Submit one copy to appropriate
District OfficeOIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Santa Fe, NM 87505☒ AMENDED REPORT

DISTRICT I
1825 N. French Dr., Hobbs, N.M. 88240
Phone: (575) 393-8181 Fax: (575) 393-0720

DISTRICT II
611 S. First St., Artesia, N.M. 88210
Phone: (575) 748-1283 Fax: (575) 748-9720

DISTRICT III
1000 Rio Brazos Rd., Aztec, N.M. 87410
Phone: (505) 334-6178 Fax: (505) 334-6170

DISTRICT IV
1220 S. St. Francis Dr., Santa Fe, NM 87505
Phone: (505) 476-0480 Fax: (505) 476-3462

WELL LOCATION AND ACREAGE DEDICATION PLAT

¹ API Number 30-039-27565		² Pool Code 71629	³ Pool Name BASIN FRUITLAND COAL
⁴ Property Code 314447	⁵ Property Name CARRACAS 19B		⁶ Well Number 10-1ST
⁷ OGRID No. 370292	⁸ Operator Name SOUTHLAND ROYALTY CO., LLC		⁹ Elevation 7369'

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
J	19	32N	4W		1489'	SOUTH	1360'	EAST	RIO ARRIBA

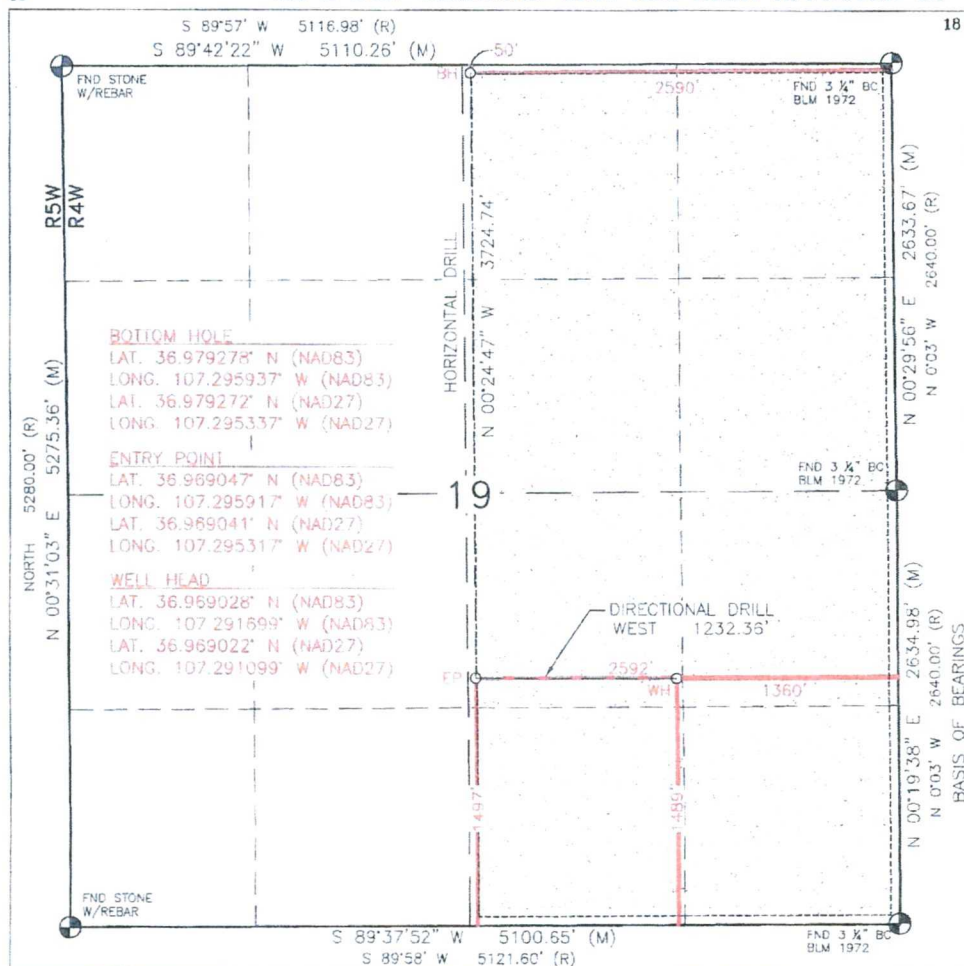
¹¹ Bottom Hole Location If Different from Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
B	19	32N	4W		50'	NORTH	2590'	EAST	RIO ARRIBA

¹² Dedicated Acres E/2 SEC. 19 320.00 ACRES	¹³ Joint or Infill	¹⁴ Consolidation Code	¹⁵ Order No. R-13119
--	-------------------------------	----------------------------------	------------------------------------

NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED
OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION

18



17 OPERATOR CERTIFICATION

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.

Connie B. Laylock 7/12/18
Signature Date

Connie Blaylock
Printed Name

cblaylock@mspartners.com
E-mail Address

SURVEYOR CERTIFICATION

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.

JULY 3, 2018

Date of Survey
Signature and Seal of Professional Surveyor:



Certificate Number

11393

SOUTHLAND ROYALTY COMPANY

Location: NEW MEXICO
Field: RIO ARRIBA COUNTY (NAD27/TN)
Facility: SEC.19-T32N-R4W CARRACAS 19B

Slot: SLOT#01, CARRACAS 19B 10-1ST (1489°FSL & 1360°FEL, SEC.19)
Well: CARRACAS 19B 10-1ST
Wellbore: CARRACAS 19B 10-1ST PWB



Scale 1 inch = 1000

Easting (ft)

02.CARRACAS 19B 10-1ST BHL (50°FNL & 2590°FEL, REV-2, SEC.19)

End of Tangent (J) : 4084.88ft TVD, 3731.95ft N, 1238.02ft W

HARDLINE (50' SETBACK FNL)

Plot reference wellpath is CARRACAS 19B 10-1ST (NAD27, REV-B.0) PWP

True vertical depths are referenced to Rig on SLOT#01, CARRACAS 19B 10-1ST (1489°FSL & 1360°FEL, SEC.19) (RKB)

Measured depths are referenced to Rig on SLOT#01, CARRACAS 19B 10-1ST (1489°FSL & 1360°FEL, SEC.19) (RKB)

Rig on SLOT#01, CARRACAS 19B 10-1ST (1489°FSL & 1360°FEL, SEC.19) (RKB) to Mean Sea Level 7384 feet

Mean Sea Level to Ground level (At Slot, SLOT#01, CARRACAS 19B 10-1ST (1489°FSL & 1360°FEL, SEC.19)) 0 feet

Coordinates are in feet referenced to Slat

Grid System: NAD27 / TM New Mexico SP, Western Zone (3003), US feet

* = Wellpath was transformed from a different geodetic datum

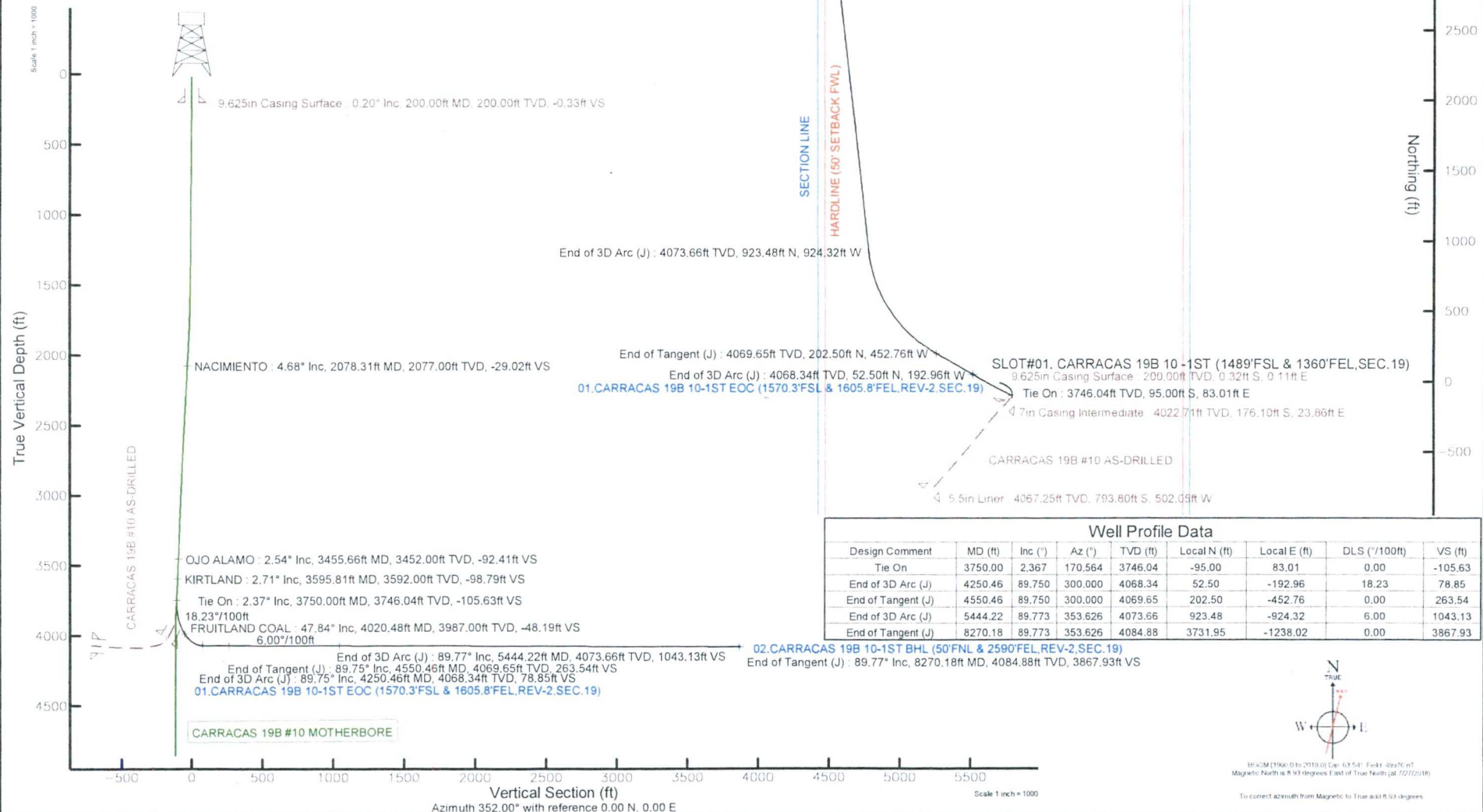
North Reference: True north

Scale: True distance

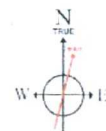
Depths are in feet

Created by: alwayes on 2018-07-27

Database: WellArchitectDB



Well Profile Data							
Design Comment	MD (ft)	Inc. (°)	Az (°)	TVD (ft)	Local N (ft)	Local E (ft)	VS (ft)
Tie On	3750.00	2.367	170.564	3746.04	-95.00	83.01	-105.63
End of 3D Arc (J)	4250.46	89.750	300.000	4068.34	52.50	-192.96	78.85
End of Tangent (J)	4550.46	89.750	300.000	4069.65	202.50	-452.76	263.54
End of 3D Arc (J)	5444.22	89.773	353.626	4073.66	923.48	-924.32	1043.13
End of Tangent (J)	8270.18	89.773	353.626	4084.88	3731.95	-1238.02	3867.93



HRCSM (1983.0 to 2019.0) Exp: 6.3541 Feet - 69470 mT
Magnetic North is 8.93 degrees East of True North (at 7/27/2018)
To correct azimuth from Magnetic to True add 8.93 degrees

SOUTHLAND ROYALTY COMPANY



Location: NEW MEXICO Slot: SLOT#01, CARRACAS 19B 10 -1ST (1489'FSL & 1360'FEL,SEC.19)
 Field: RIO ARriba COUNTY (NAD27/TN) Well: CARRACAS 19B 10 -1ST
 Facility: SEC.19-T32N-R4W CARRACAS 19B Wellbore: CARRACAS 19B 10 -1ST PWB

Well Profile Data

Design Comment	MD (ft)	Inc (°)	Az (°)	TVD (ft)	Local N (ft)	Local E (ft)	DLS (°/100ft)	VS (ft)
Tie On	3750.00	2.367	170.564	3746.04	-95.00	83.01	0.00	-105.63
End of 3D Arc (J)	4250.46	89.750	300.000	4068.34	52.50	-192.96	18.23	78.85
End of Tangent (J)	4550.46	89.750	300.000	4069.65	202.50	-452.76	0.00	263.54
End of 3D Arc (J)	5444.22	89.773	353.626	4073.66	923.48	-924.32	6.00	1043.13
End of Tangent (J)	8270.18	89.773	353.626	4084.88	3731.95	-1238.02	0.00	3867.93

Hole and Casing Sections

Name	Start MD (ft)	End MD (ft)	Interval (ft)	Start TVD (ft)	End TVD (ft)	Start Local N (ft)	Start Local E (ft)	End Local N (ft)	End Local E (ft)	Wellbore
12.25in Open Hole	15.00	200.00	185.00	15.00	200.00	0.00	0.00	-0.32	0.11	CARRACAS 19B #10 AWB
9.625in Casing Surface	15.00	200.00	185.00	15.00	200.00	0.00	0.00	-0.32	0.11	CARRACAS 19B #10 AWB
8.75in Open Hole	200.00	3750.00	3550.00	200.00	3746.04	-0.32	0.11	-95.00	83.01	CARRACAS 19B #10 AWB
7in Casing Intermediate	15.00	3750.00	3735.00	15.00	3746.04	0.00	0.00	-95.00	83.01	CARRACAS 19B #10 AWB
6.25in Open Hole	3750.00	8270.18	4520.18	3746.04	4084.88	-95.00	83.01	3731.95	-1238.02	CARRACAS 19B 10 -1ST PWB

Targets

Name	MD (ft)	TVD (ft)	Local N (ft)	Local E (ft)	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
01 CARRACAS 19B 10-1ST ETC (1489'FSL & 1360'FEL, SEC.19)	4750.46	4068.34	52.50	-192.96	658212.35	2172442.00	36°58'08.479"N	107°17'27.956"W
02 CARRACAS 19B 10-1ST ETC (1489'FSL & 1360'FEL, SEC.19)	8270.18	4084.88	3731.95	-1238.02	657146.42	2176167.23	36°58'45.379"N	107°17'43.213"W

Tie-On Position

MD (ft)	Inc (°)	Az (°)	TVD (ft)	Local N (ft)	Local E (ft)	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
3750.00	2.367	170.564	3746.04	-95.00	83.01	658489.14	2172348.08	36°58'07.540"N	107°17'26.933"W

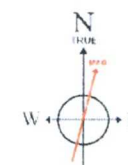
Bottom Hole Location

MD (ft)	Inc (°)	Az (°)	TVD (ft)	Local N (ft)	Local E (ft)	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
8270.18	89.773	353.626	4084.88	3731.95	-1238.02	657146.42	2176167.23	36°58'45.379"N	107°17'43.213"W

Plot reference wellpath is CARRACAS 19B 10 -1ST (NAD27,REV-B.0) PWB	Grid System: NAD27 / TM New Mexico SP Western Zone (3003), US feet
True vertical depths are referenced to Rig on SLOT#01, CARRACAS 19B 10 -1ST (1489'FSL & 1360'FEL,SEC.19) (RKB)	* = Wellpath was transformed from a different geodetic datum
Measured depths are referenced to Rig on SLOT#01, CARRACAS 19B 10 -1ST (1489'FSL & 1360'FEL,SEC.19) (RKB)	North Reference: True north
Rig on SLOT#01, CARRACAS 19B 10 -1ST (1489'FSL & 1360'FEL,SEC.19) (RKB) to Mean Sea Level 7384 feet	Scale: True distance
Mean Sea Level to Ground level (At Slot: SLOT#01, CARRACAS 19B 10 -1ST (1489'FSL & 1360'FEL,SEC.19)) 0 feet	Depths are in feet
Coordinates are in feet referenced to Slot	Created by: alvayes on 2018-07-27
	Database: WellArchitectDB

Location Information

Facility Name			Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
SEC.19-T32N-R4W CARRACAS 19B			658405.591	2172442.600	36°58'08.479"N	107°17'27.956"W
Slot	Local N (ft)	Local E (ft)	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
SLOT#01, CARRACAS 19B 10 -1ST (1489'FSL & 1360'FEL,SEC.19)	0.00	0.00	658405.591	2172442.600	36°58'08.479"N	107°17'27.956"W
Rig on SLOT#01, CARRACAS 19B 10 -1ST (1489'FSL & 1360'FEL,SEC.19) (RKB) to Ground level (At Slot: SLOT#01, CARRACAS 19B 10 -1ST (1489'FSL & 1360'FEL,SEC.19))					7384ft	
Mean Sea Level to Ground level (At Slot: SLOT#01, CARRACAS 19B 10 -1ST (1489'FSL & 1360'FEL,SEC.19))					0ft	
Rig on SLOT#01, CARRACAS 19B 10 -1ST (1489'FSL & 1360'FEL,SEC.19) (RKB) to Mean Sea Level					7384ft	



BGCM (1900.0 to 2019.0) Dip: 63.54° Field: 49976 nT
 Magnetic North is 8.93 degrees East of True North (at 7/27/2018)

To correct azimuth from Magnetic to True add 8.93 degrees

NMOCB

AUG 09 2018

DISTRICT III

Planned Wellpath Report

CARRACAS 19B 10 -1ST (NAD27,REV-B.0) PWP

Page 1 of 6

**BAKER
HUGHES**
a GE company



REFERENCE WELLPATH IDENTIFICATION

Operator	SOUTHLAND ROYALTY COMPANY	Slot	SLOT#01. CARRACAS 19B 10 -1ST (1489'FSL & 1360'FEL,SEC.19)
Area	NEW MEXICO	Well	CARRACAS 19B 10 -1ST
Field	RIO ARriba COUNTY (NAD27/TN)	Wellbore	CARRACAS 19B 10 -1ST PWB
Facility	SEC.19-T32N-R4W CARRACAS 19B	Sidetrack from	CARRACAS 19B #10 AWP <100'-4813'> TD:4881'MD at 3750.00 MD

REPORT SETUP INFORMATION

Projection System	NAD27 / TM New Mexico SP, Western Zone (3003), US feet	Software System	WellArchitect® 5.0
North Reference	True	User	Alvayes
Scale	0.999945	Report Generated	7/27/2018 at 2:09:35 PM
Convergence at slot	0.33° East	Database/Source file	WellArchitectDB/CARRACAS_19B_10_-1ST_NAD27_REV-B.0_PWP.xml

WELLPATH LOCATION

	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	0.00	0.00	658405.59	2172442.60	36°58'08.479"N	107°17'27.956"W
Facility Reference Pt			658405.59	2172442.60	36°58'08.479"N	107°17'27.956"W
Field Reference Pt			152400.30	0.00	30°59'42.846"N	108°56'33.629"W

WELLPATH DATUM

Calculation method	Minimum curvature	Rig on SLOT#01. CARRACAS 19B 10 -1ST (1489'FSL & 1360'FEL,SEC.19) (RKB) to Facility Vertical Datum	7384.00ft
Horizontal Reference Pt	Slot	Rig on SLOT#01. CARRACAS 19B 10 -1ST (1489'FSL & 1360'FEL,SEC.19) (RKB) to Mean Sea Level	7384.00ft
Vertical Reference Pt	Rig on SLOT#01. CARRACAS 19B 10 -1ST (1489'FSL & 1360'FEL,SEC.19) (RKB)	Rig on SLOT#01. CARRACAS 19B 10 -1ST (1489'FSL & 1360'FEL,SEC.19) (RKB) to Ground Level at Slot (SLOT#01. CARRACAS 19B 10 -1ST (1489'FSL & 1360'FEL,SEC.19))	7384.00ft
MD Reference Pt	Rig on SLOT#01. CARRACAS 19B 10 -1ST (1489'FSL & 1360'FEL,SEC.19) (RKB)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	352.00°

Planned Wellpath Report

CARRACAS 19B 10 -1ST (NAD27,REV-B.0) PWP

Page 2 of 6



REFERENCE WELLPATH IDENTIFICATION

Operator	SOUTHLAND ROYALTY COMPANY	Slot	SLOT#01. CARRACAS 19B 10 -1ST (1489'FSL & 1360'FEL,SEC.19)
Area	NEW MEXICO	Well	CARRACAS 19B 10 -1ST
Field	RIO ARRIBA COUNTY (NAD27/TN)	Wellbore	CARRACAS 19B 10 -1ST PWB
Facility	SEC.19-T32N-R4W CARRACAS 19B	Sidetrack from	CARRACAS 19B #10 AWP <100'-4813'> TD:4881'MD at 3750.00 MD

WELLPATH DATA (91 stations) † = interpolated/extrapolated station

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	DLS [°/100ft]	Build Rate [°/100ft]	Turn Rate [°/100ft]	Comments
0.00†	0.000	160.120	0.00	0.00	0.00	0.00	658405.59	2172442.60	36°58'08.479"N	107°17'27.956"W	0.00	0.00	0.00	
15.00	0.000	160.120	15.00	0.00	0.00	0.00	658405.59	2172442.60	36°58'08.479"N	107°17'27.956"W	0.00	0.00	0.00	
100.00	0.100	160.120	100.00	-0.07	-0.07	0.03	658405.62	2172442.53	36°58'08.478"N	107°17'27.956"W	0.12	0.12	188.38	
200.00	0.200	160.120	200.00	-0.33	-0.32	0.11	658405.71	2172442.28	36°58'08.476"N	107°17'27.955"W	0.10	0.10	0.00	
300.00	0.370	201.650	300.00	-0.78	-0.78	0.05	658405.65	2172441.82	36°58'08.471"N	107°17'27.955"W	0.26	0.17	41.53	
400.00	0.610	214.200	399.99	-1.46	-1.52	-0.36	658405.24	2172441.08	36°58'08.464"N	107°17'27.960"W	0.26	0.24	12.55	
500.00	0.600	211.760	499.99	-2.25	-2.41	-0.94	658404.67	2172440.19	36°58'08.455"N	107°17'27.968"W	0.03	-0.01	-2.44	
600.00	0.600	209.270	599.98	-3.07	-3.31	-1.47	658404.14	2172439.28	36°58'08.446"N	107°17'27.974"W	0.03	0.00	-2.49	
700.00	0.530	222.150	699.98	-3.78	-4.11	-2.04	658403.58	2172438.48	36°58'08.438"N	107°17'27.981"W	0.14	-0.07	12.88	
800.00	0.490	238.000	799.97	-4.25	-4.68	-2.71	658402.91	2172437.91	36°58'08.433"N	107°17'27.989"W	0.15	-0.04	15.85	
900.00	0.390	222.840	899.97	-4.64	-5.15	-3.30	658402.32	2172437.43	36°58'08.428"N	107°17'27.997"W	0.15	-0.10	-15.16	
1000.00	0.340	200.710	999.97	-5.12	-5.68	-3.64	658401.98	2172436.90	36°58'08.423"N	107°17'28.001"W	0.15	-0.05	-22.13	
1100.00	0.340	150.390	1099.97	-5.65	-6.22	-3.60	658402.03	2172436.36	36°58'08.418"N	107°17'28.000"W	0.29	0.00	-50.32	
1200.00	0.540	121.410	1199.97	-6.23	-6.72	-3.05	658402.58	2172435.86	36°58'08.413"N	107°17'27.994"W	0.29	0.20	-28.98	
1300.00	1.030	112.280	1299.96	-6.98	-7.31	-1.82	658403.82	2172435.28	36°58'08.407"N	107°17'27.978"W	0.50	0.49	-9.13	
1400.00	1.530	109.070	1399.93	-8.04	-8.08	0.28	658405.91	2172434.52	36°58'08.399"N	107°17'27.953"W	0.50	0.50	-3.21	
1500.00	1.980	109.030	1499.88	-9.44	-9.08	3.17	658408.81	2172433.54	36°58'08.389"N	107°17'27.917"W	0.45	0.45	-0.04	
1600.00	2.430	109.010	1599.81	-11.18	-10.34	6.81	658412.46	2172432.30	36°58'08.377"N	107°17'27.872"W	0.45	0.45	-0.02	
1700.00	3.160	112.970	1699.69	-13.56	-12.10	11.35	658417.01	2172430.56	36°58'08.359"N	107°17'27.816"W	0.75	0.73	3.96	
1800.00	3.900	115.440	1799.50	-16.86	-14.64	16.96	658422.63	2172428.06	36°58'08.334"N	107°17'27.747"W	0.76	0.74	2.47	
1900.00	4.260	116.340	1899.25	-20.83	-17.75	23.36	658429.05	2172424.99	36°58'08.304"N	107°17'27.668"W	0.37	0.36	0.90	
2000.00	4.630	117.090	1998.94	-25.24	-21.23	30.28	658435.99	2172421.54	36°58'08.269"N	107°17'27.583"W	0.37	0.37	0.75	
2078.31†	4.683	119.942	2077.00	-29.02	-24.27	35.87	658441.59	2172418.54	36°58'08.239"N	107°17'27.514"W	0.30	0.07	3.64	NACIMIENTO
2100.00	4.700	120.720	2098.61	-30.12	-25.16	37.40	658443.13	2172417.65	36°58'08.230"N	107°17'27.495"W	0.30	0.08	3.59	
2200.00	4.790	124.220	2198.27	-35.49	-29.61	44.37	658450.13	2172413.25	36°58'08.186"N	107°17'27.409"W	0.30	0.09	3.50	
2300.00	4.440	124.680	2297.95	-40.92	-34.16	51.01	658456.79	2172408.74	36°58'08.141"N	107°17'27.327"W	0.35	-0.35	0.46	
2400.00	4.090	125.210	2397.67	-45.99	-38.41	57.10	658462.91	2172404.51	36°58'08.099"N	107°17'27.252"W	0.35	-0.35	0.53	
2500.00	3.740	128.760	2497.44	-50.81	-42.51	62.56	658468.39	2172400.45	36°58'08.059"N	107°17'27.185"W	0.43	-0.35	3.55	
2600.00	3.270	144.310	2597.25	-55.71	-46.87	66.77	658472.62	2172396.11	36°58'08.016"N	107°17'27.133"W	1.06	-0.47	15.55	
2900.00	2.850	146.160	2896.82	-70.00	-60.01	75.91	658481.84	2172383.02	36°58'07.886"N	107°17'27.021"W	0.14	-0.14	0.62	

Planned Wellpath Report

CARRACAS 19B 10 -1ST (NAD27,REV-B.0) PWP

Page 3 of 6



REFERENCE WELLPATH IDENTIFICATION

Operator	SOUTHLAND ROYALTY COMPANY	Slot	SLOT#01. CARRACAS 19B 10 -1ST (1489'FSL & 1360'FEL,SEC.19)
Area	NEW MEXICO	Well	CARRACAS 19B 10 -1ST
Field	RIO ARriba COUNTY (NAD27/TN)	Wellbore	CARRACAS 19B 10 -1ST PWB
Facility	SEC.19-T32N-R4W CARRACAS 19B	Sidetrack from	CARRACAS 19B #10 AWP <100'-4813'> TD:4881'MD at 3750.00 MD

WELLPATH DATA (91 stations) † = interpolated/extrapolated station

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	DLS [°/100ft]	Build Rate [°/100ft]	Turn Rate [°/100ft]	Comments
3000.00	2.440	148.630	2996.72	-74.19	-63.90	78.41	658484.35	2172379.15	36°58'07.847"N	107°17'26.990"W	0.43	-0.41	2.47	
3100.00	2.270	158.950	3096.63	-78.07	-67.56	80.23	658486.19	2172375.50	36°58'07.811"N	107°17'26.967"W	0.46	-0.17	10.32	
3200.00	2.180	170.510	3196.56	-81.90	-71.29	81.25	658487.24	2172371.78	36°58'07.774"N	107°17'26.955"W	0.46	-0.09	11.56	
3300.00	2.320	174.300	3296.48	-85.82	-75.18	81.77	658487.78	2172367.89	36°58'07.736"N	107°17'26.948"W	0.20	0.14	3.79	
3400.00	2.470	177.640	3396.39	-89.99	-79.34	82.05	658488.09	2172363.73	36°58'07.694"N	107°17'26.945"W	0.20	0.15	3.34	
3455.66†	2.537	177.782	3452.00	-92.41	-81.77	82.15	658488.20	2172361.30	36°58'07.670"N	107°17'26.944"W	0.12	0.12	0.26	OJO ALAMO
3500.00	2.590	177.890	3496.30	-94.38	-83.75	82.23	658488.29	2172359.32	36°58'07.651"N	107°17'26.943"W	0.12	0.12	0.24	
3595.81†	2.715	178.111	3592.00	-98.79	-88.19	82.38	658488.47	2172354.89	36°58'07.607"N	107°17'26.941"W	0.13	0.13	0.23	KIRTLAND
3600.00	2.720	178.120	3596.19	-98.99	-88.38	82.39	658488.48	2172354.69	36°58'07.605"N	107°17'26.941"W	0.13	0.13	0.22	
3700.00	2.480	173.320	3696.09	-103.51	-92.90	82.72	658488.83	2172350.17	36°58'07.560"N	107°17'26.937"W	0.32	-0.24	-4.80	
3750.00	2.367	170.564	3746.04	-105.63	-95.00	83.01	658489.14	2172348.08	36°58'07.540"N	107°17'26.933"W	0.00	-0.23	-5.51	Tie On
3850.00†	16.827	293.949	3844.69	-99.98	-91.13	70.01	658476.12	2172351.88	36°58'07.578"N	107°17'27.093"W	18.23	14.46	123.39	
3950.00†	35.007	297.396	3934.26	-75.50	-71.89	30.99	658436.99	2172370.89	36°58'07.768"N	107°17'27.574"W	18.23	18.18	3.45	
4020.48†	47.843	298.352	3987.00	-48.19	-50.09	-10.12	658395.75	2172392.46	36°58'07.984"N	107°17'28.081"W	18.23	18.21	1.36	FRUITLAND COAL
4050.00†	53.221	298.641	4005.76	-34.64	-39.22	-30.14	658375.67	2172403.21	36°58'08.091"N	107°17'28.327"W	18.23	18.22	0.98	
4150.00†	71.443	299.394	4052.00	18.49	3.60	-107.24	658298.34	2172445.59	36°58'08.515"N	107°17'29.277"W	18.23	18.22	0.75	
4250.00†	89.668	299.997	4068.34	78.57	52.28	-192.56	658212.75	2172493.78	36°58'08.996"N	107°17'30.329"W	18.23	18.22	0.60	
4250.46	89.750	300.000	4068.34†	78.85	52.50	-192.96	658212.35	2172494.00	36°58'08.998"N	107°17'30.334"W	18.23	18.22	0.58	End of 3D Arc (J)
4350.00†	89.750	300.000	4068.77	140.13	102.27	-279.16	658125.87	2172543.28	36°58'09.490"N	107°17'31.396"W	0.00	0.00	0.00	
4450.00†	89.750	300.000	4069.21	201.70	152.27	-365.77	658038.99	2172592.78	36°58'09.985"N	107°17'32.463"W	0.00	0.00	0.00	
4550.00†	89.750	300.000	4069.64	263.26	202.27	-452.37	657952.11	2172642.28	36°58'10.479"N	107°17'33.530"W	0.00	0.00	0.00	
4550.46	89.750	300.000	4069.65	263.54	202.50	-452.76	657951.71	2172642.51	36°58'10.481"N	107°17'33.535"W	0.00	0.00	0.00	End of Tangent (J)
4650.00†	89.742	305.973	4070.09	328.80	256.67	-536.22	657867.95	2172696.20	36°58'11.017"N	107°17'34.563"W	6.00	-0.01	6.00	
4750.00†	89.735	311.973	4070.55	401.87	319.54	-613.93	657789.89	2172758.62	36°58'11.638"N	107°17'35.521"W	6.00	-0.01	6.00	
4850.00†	89.732	317.973	4071.01	481.67	390.18	-684.64	657718.78	2172828.86	36°58'12.337"N	107°17'36.392"W	6.00	0.00	6.00	
4950.00†	89.732	323.973	4071.48	567.32	467.83	-747.58	657655.40	2172906.14	36°58'13.105"N	107°17'37.168"W	6.00	0.00	6.00	
5050.00†	89.735	329.973	4071.94	657.89	551.63	-802.06	657600.45	2172989.63	36°58'13.933"N	107°17'37.839"W	6.00	0.00	6.00	
5150.00†	89.740	335.973	4072.40	752.38	640.67	-847.48	657554.53	2173078.40	36°58'14.814"N	107°17'38.399"W	6.00	0.01	6.00	
5250.00†	89.749	341.973	4072.85	849.76	733.97	-883.34	657518.14	2173171.49	36°58'15.736"N	107°17'38.841"W	6.00	0.01	6.00	
5350.00†	89.760	347.973	4073.28	948.96	830.50	-909.26	657491.67	2173267.87	36°58'16.691"N	107°17'39.160"W	6.00	0.01	6.00	

Planned Wellpath Report

CARRACAS 19B 10 -1ST (NAD27,REV-B.0) PWP

Page 4 of 6



REFERENCE WELLPATH IDENTIFICATION			
Operator	SOUTHLAND ROYALTY COMPANY	Slot	SLOT#01. CARRACAS 19B 10 -1ST (1489'FSL & 1360'FEL,SEC.19)
Area	NEW MEXICO	Well	CARRACAS 19B 10 -1ST
Field	RIO ARriba COUNTY (NAD27/TN)	Wellbore	CARRACAS 19B 10 -1ST PWB
Facility	SEC.19-T32N-R4W CARRACAS 19B	Sidetrack from	CARRACAS 19B #10 AWP <100'-4813'> TD:4881'MD at 3750.00 MD

WELLPATH DATA (91 stations) † = interpolated/extrapolated station

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	DLS [°/100ft]	Build Rate [°/100ft]	Turn Rate [°/100ft]	Comments
5444.22	89.773	353.626	4073.66	1043.13	923.48	-924.32	657476.09	2173360.75	36°58'17.610"N	107°17'39.346"W	6.00	0.01	6.00	End of 3D Arc (J)
5450.00†	89.773	353.626	4073.69	1048.90	929.22	-924.96	657475.41	2173366.48	36°58'17.667"N	107°17'39.354"W	0.00	0.00	0.00	
5550.00†	89.773	353.626	4074.08	1148.86	1028.60	-936.06	657463.75	2173465.80	36°58'18.649"N	107°17'39.491"W	0.00	0.00	0.00	
5650.00†	89.773	353.626	4074.48	1248.82	1127.98	-947.16	657452.08	2173565.11	36°58'19.632"N	107°17'39.627"W	0.00	0.00	0.00	
5750.00†	89.773	353.626	4074.88	1348.78	1227.36	-958.26	657440.42	2173664.42	36°58'20.615"N	107°17'39.764"W	0.00	0.00	0.00	
5850.00†	89.773	353.626	4075.27	1448.74	1326.74	-969.36	657428.75	2173763.73	36°58'21.597"N	107°17'39.901"W	0.00	0.00	0.00	
5950.00†	89.773	353.626	4075.67	1548.70	1426.12	-980.46	657417.09	2173863.04	36°58'22.580"N	107°17'40.038"W	0.00	0.00	0.00	
6050.00†	89.773	353.626	4076.07	1648.66	1525.50	-991.56	657405.42	2173962.35	36°58'23.563"N	107°17'40.175"W	0.00	0.00	0.00	
6150.00†	89.773	353.626	4076.47	1748.62	1624.88	-1002.66	657393.75	2174061.66	36°58'24.545"N	107°17'40.312"W	0.00	0.00	0.00	
6250.00†	89.773	353.626	4076.86	1848.57	1724.27	-1013.76	657382.09	2174160.97	36°58'25.528"N	107°17'40.448"W	0.00	0.00	0.00	
6350.00†	89.773	353.626	4077.26	1948.53	1823.65	-1024.86	657370.42	2174260.28	36°58'26.510"N	107°17'40.585"W	0.00	0.00	0.00	
6450.00†	89.773	353.626	4077.66	2048.49	1923.03	-1035.96	657358.76	2174359.59	36°58'27.493"N	107°17'40.722"W	0.00	0.00	0.00	
6550.00†	89.773	353.626	4078.05	2148.45	2022.41	-1047.07	657347.09	2174458.90	36°58'28.476"N	107°17'40.859"W	0.00	0.00	0.00	
6650.00†	89.773	353.626	4078.45	2248.41	2121.79	-1058.17	657335.43	2174558.21	36°58'29.458"N	107°17'40.996"W	0.00	0.00	0.00	
6750.00†	89.773	353.626	4078.85	2348.37	2221.17	-1069.27	657323.76	2174657.52	36°58'30.441"N	107°17'41.133"W	0.00	0.00	0.00	
6850.00†	89.773	353.626	4079.24	2448.33	2320.55	-1080.37	657312.09	2174756.84	36°58'31.424"N	107°17'41.269"W	0.00	0.00	0.00	
6950.00†	89.773	353.626	4079.64	2548.29	2419.93	-1091.47	657300.43	2174856.15	36°58'32.406"N	107°17'41.406"W	0.00	0.00	0.00	
7050.00†	89.773	353.626	4080.04	2648.25	2519.32	-1102.57	657288.76	2174955.46	36°58'33.389"N	107°17'41.543"W	0.00	0.00	0.00	
7150.00†	89.773	353.626	4080.43	2748.20	2618.70	-1113.67	657277.10	2175054.77	36°58'34.372"N	107°17'41.680"W	0.00	0.00	0.00	
7250.00†	89.773	353.626	4080.83	2848.16	2718.08	-1124.77	657265.43	2175154.08	36°58'35.354"N	107°17'41.817"W	0.00	0.00	0.00	
7350.00†	89.773	353.626	4081.23	2948.12	2817.46	-1135.87	657253.77	2175253.39	36°58'36.337"N	107°17'41.954"W	0.00	0.00	0.00	
7450.00†	89.773	353.626	4081.62	3048.08	2916.84	-1146.97	657242.10	2175352.70	36°58'37.320"N	107°17'42.091"W	0.00	0.00	0.00	
7550.00†	89.773	353.626	4082.02	3148.04	3016.22	-1158.07	657230.44	2175452.01	36°58'38.302"N	107°17'42.227"W	0.00	0.00	0.00	
7650.00†	89.773	353.626	4082.42	3248.00	3115.60	-1169.18	657218.77	2175551.32	36°58'39.285"N	107°17'42.364"W	0.00	0.00	0.00	
7750.00†	89.773	353.626	4082.82	3347.96	3214.98	-1180.28	657207.10	2175650.63	36°58'40.267"N	107°17'42.501"W	0.00	0.00	0.00	
7850.00†	89.773	353.626	4083.21	3447.92	3314.36	-1191.38	657195.44	2175749.94	36°58'41.250"N	107°17'42.638"W	0.00	0.00	0.00	
7950.00†	89.773	353.626	4083.61	3547.88	3413.75	-1202.48	657183.77	2175849.25	36°58'42.233"N	107°17'42.775"W	0.00	0.00	0.00	
8050.00†	89.773	353.626	4084.01	3647.83	3513.13	-1213.58	657172.11	2175948.56	36°58'43.215"N	107°17'42.912"W	0.00	0.00	0.00	
8150.00†	89.773	353.626	4084.40	3747.79	3612.51	-1224.68	657160.44	2176047.87	36°58'44.198"N	107°17'43.049"W	0.00	0.00	0.00	
8250.00†	89.773	353.626	4084.80	3847.75	3711.89	-1235.78	657148.78	2176147.19	36°58'45.181"N	107°17'43.185"W	0.00	0.00	0.00	

Planned Wellpath Report

CARRACAS 19B 10 -1ST (NAD27,REV-B.0) PWP

Page 5 of 6



REFERENCE WELLPATH IDENTIFICATION			
Operator	SOUTHLAND ROYALTY COMPANY	Slot	SLOT#01. CARRACAS 19B 10 -1ST (1489'FSL & 1360'FEL,SEC.19)
Area	NEW MEXICO	Well	CARRACAS 19B 10 -1ST
Field	RIO ARriba COUNTY (NAD27/TN)	Wellbore	CARRACAS 19B 10 -1ST PWB
Facility	SEC.19-T32N-R4W CARRACAS 19B	Sidetrack from	CARRACAS 19B #10 AWP <100'-4813'> TD:4881'MD at 3750.00 MD

WELLPATH DATA (91 stations)														
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	DLS [°/100ft]	Build Rate [°/100ft]	Turn Rate [°/100ft]	Comments
8270.18	89.773	353.626	4084.88 ²	3867.93	3731.95	-1238.02	657146.42	2176167.23	36°58'45.379"N	107°17'43.213"W	0.00	0.00	0.00	End of Tangent (J)

HOLE & CASING SECTIONS - Ref Wellbore: CARRACAS 19B 10 -1ST PWB Ref Wellpath: CARRACAS 19B 10 -1ST (NAD27,REV-B.0) PWP									
String/Diameter	Start MD [ft]	End MD [ft]	Interval [ft]	Start TVD [ft]	End TVD [ft]	Start N/S [ft]	Start E/W [ft]	End N/S [ft]	End E/W [ft]
12.25in Open Hole	15.00	200.00	185.00	15.00	200.00	0.00	0.00	-0.32	0.11
9.625in Casing Surface	15.00	200.00	185.00	15.00	200.00	0.00	0.00	-0.32	0.11
8.75in Open Hole	200.00	3750.00	3550.00	200.00	3746.04	-0.32	0.11	-95.00	83.01
7in Casing Intermediate	15.00	3750.00	3735.00	15.00	3746.04	0.00	0.00	-95.00	83.01
6.25in Open Hole	3750.00	8270.18	4520.18	3746.04	4084.88	-95.00	83.01	3731.95	-1238.02

TARGETS									
Name	MD [ft]	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
1) 01.CARRACAS 19B 10-1ST EOC (1570.3'FSL & 1605.8'FEL,REV-2,SEC.19)	4250.46	4068.34	52.50	-192.96	658212.35	2172494.00	36°58'08.998"N	107°17'30.334"W	point
2) 02.CARRACAS 19B 10-1ST BHL (50'FNL & 2590'FEL,REV-2,SEC.19)	8270.18	4084.88	3731.95	-1238.02	657146.42	2176167.23	36°58'45.379"N	107°17'43.213"W	point

SURVEY PROGRAM - Ref Wellbore: CARRACAS 19B 10 -1ST PWB Ref Wellpath: CARRACAS 19B 10 -1ST (NAD27,REV-B.0) PWP				
Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
15.00	3750.00	ISCWSA MWD, Rev. 4 (Standard)		CARRACAS 19B #10 AWP
3750.00	8270.18	BHI NaviTrak (Rotating+Axial Corr)		CARRACAS 19B 10 -1ST PWB

Planned Wellpath Report

CARRACAS 19B 10 -1ST (NAD27,REV-B.0) PWP

Page 6 of 6



REFERENCE WELLPATH IDENTIFICATION			
Operator	SOUTHLAND ROYALTY COMPANY	Slot	SLOT#01. CARRACAS 19B 10 -1ST (1489'FSL & 1360'FEL,SEC.19)
Area	NEW MEXICO	Well	CARRACAS 19B 10 -1ST
Field	RIO ARriba COUNTY (NAD27/TN)	Wellbore	CARRACAS 19B 10 -1ST PWB
Facility	SEC.19-T32N-R4W CARRACAS 19B	Sidetrack from	CARRACAS 19B #10 AWP <100'-4813'> TD:4881'MD at 3750.00 MD

WELLPATH COMMENTS				
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Comment
2078.31	4.683	119.942	2077.00	NACIMIENTO
3455.66	2.537	177.782	3452.00	OJO ALAMO
3595.81	2.715	178.111	3592.00	KIRTLAND
4020.48	47.843	298.352	3987.00	FRUITLAND COAL

DESIGN COMMENTS				
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Comment
3750.00	2.367	170.564	3746.04	Tie On
4250.46	89.750	300.000	4068.34	End of 3D Arc (J)
4550.46	89.750	300.000	4069.65	End of Tangent (J)
5444.22	89.773	353.626	4073.66	End of 3D Arc (J)
8270.18	89.773	353.626	4084.88	End of Tangent (J)

FORMATION DATA				
MD [ft]	TVD [ft]	Dip [°]	Dip Azimuth [°]	Formation name
2078.31	2077.00	0.000	0.000	NACIMIENTO
3455.66	3452.00	0.000	0.000	OJO ALAMO
3595.81	3592.00	0.000	0.000	KIRTLAND
4020.48	3987.00	0.000	0.000	FRUITLAND COAL

CARRACAS_19B_10_-1ST__NAD27_REV-B.0__PWP.las

~VERSION INFORMATION

VERS. 2.0 : CWLS LOG ASCII STANDARD-VERSION 2.0

WRAP. NO : ASCII DATA SECTION CONTAINS ONE ROW PER WELLPATH STATION

~WELL INFORMATION

#MNEM	.UNITS	DATA	:DESCRIPTION
#----	.-----	----	:-----
STRT	.ft	0.00	:START MD
STOP	.ft	8270.18	:STOP MD
STEP	.ft	0.0	:STEP (non-uniform increment)
NULL	.	-999.99	:NULL
COMP	.	SOUTHLAND ROYALTY COMPANY	:OPERATOR
WELL	.	CARRACAS 19B 10 -1ST	:WELL
FLD	.	RIO ARriba COUNTY (NAD27/TN)	:FIELD
LOC	.	NEW MEXICO	:AREA (aka: Location)
CNTY	.	N/A	:COUNTY
STAT	.	N/A	:STATE
CTRY	.	N/A	:COUNTRY
SRVC	.	Baker Hughes	:CONTRACTOR
DATE	.	07/18/2018	:LOG REV DATE
API	.		:API NUMBER

~OTHER INFORMATION

#Software: WellArchitect(R) Version 5.0

#MNEM	.UNITS	DATA	:DESCRIPTION
#----	.-----	----	:-----
WPTYPE	.	PLANNED WELLPATH	:WELLPATH TYPE
FACILITY	.	SEC.19-T32N-R4W CARRACAS 19B	:FACILITY
SLOT	.	SLOT#01. CARRACAS 19B 10 -1ST (1489'FSL & 1360'FEL,SEC.19):SLOT	
WELLBORE	.	CARRACAS 19B 10 -1ST PWB	:WELLBORE
WELLPATH	.	CARRACAS 19B 10 -1ST (NAD27,REV-B.0) PWP:WELLPATH	
MDREFPT	.	Rig on SLOT#01. CARRACAS 19B 10 -1ST (1489'FSL & 1360'FEL,SEC.19) (RKB):MD REFERENCE POINT	
TVDREFPT	.	Rig on SLOT#01. CARRACAS 19B 10 -1ST (1489'FSL & 1360'FEL,SEC.19) (RKB):TVD REFERENCE POINT	
LCLREFPT	.	Slot	:LOCAL COORDINATE REFERENCE PT

CARRACAS_19B_10_-1ST__NAD27_REV-B.0_PWP.las

VSAZIMUTH.deg :VERTICAL SECTION AZIMUTH
 VSORIGN .ft :VERTICAL SECTION ORIGIN NORTH
 VSORIGE .ft :VERTICAL SECTION ORIGIN EAST

~CURVE (WELLPATH) INFORMATION

#MNEM	.UNITS	:DESCRIPTION
#----	.-----	:-----
DEPT	.ft	:MEASURED DEPTH
INC	.deg	:INCLINATION
AZI	.deg	:AZIMUTH
TVD	.ft	:TRUE VERTICAL DEPTH
LOCALN	.ft	:LOCAL NORTH
LOCALE	.ft	:LOCAL EAST
GRIDE	.US ft	:GRID EAST
GRIDN	.US ft	:GRID NORTH
LAT	.deg	:LATITUDE
LONG	.deg	:LONGITUDE

~ASCII DATA

0.00	0.00	160.12	0.00	0.00	0.00	658405.59	2172442.60	36.9690219	-107.2910989
15.00	0.00	160.12	15.00	0.00	0.00	658405.59	2172442.60	36.9690219	-107.2910989
100.00	0.10	160.12	100.00	-0.07	0.03	658405.62	2172442.53	36.9690218	-107.2910988
200.00	0.20	160.12	200.00	-0.32	0.11	658405.71	2172442.28	36.9690211	-107.2910985
300.00	0.37	201.65	300.00	-0.78	0.05	658405.65	2172441.82	36.9690198	-107.2910987
400.00	0.61	214.20	399.99	-1.52	-0.36	658405.24	2172441.08	36.9690178	-107.2911001
500.00	0.60	211.76	499.99	-2.41	-0.94	658404.67	2172440.19	36.9690153	-107.2911021
600.00	0.60	209.27	599.98	-3.31	-1.47	658404.14	2172439.28	36.9690129	-107.2911039
700.00	0.53	222.15	699.98	-4.11	-2.04	658403.58	2172438.48	36.9690107	-107.2911059
800.00	0.49	238.00	799.97	-4.68	-2.71	658402.91	2172437.91	36.9690091	-107.2911082
900.00	0.39	222.84	899.97	-5.15	-3.30	658402.32	2172437.43	36.9690078	-107.2911102
1000.00	0.34	200.71	999.97	-5.68	-3.64	658401.98	2172436.90	36.9690063	-107.2911113
1100.00	0.34	150.39	1099.97	-6.22	-3.60	658402.03	2172436.36	36.9690049	-107.2911112
1200.00	0.54	121.41	1199.97	-6.72	-3.05	658402.58	2172435.86	36.9690035	-107.2911093
1300.00	1.03	112.28	1299.96	-7.31	-1.82	658403.82	2172435.28	36.9690019	-107.2911051

CARRACAS_19B_10_-1ST_NAD27_REV-B.0_PWP.las

1400.00	1.53	109.07	1399.93	-8.08	0.28	658405.91	2172434.52	36.9689997	-107.2910979
1500.00	1.98	109.03	1499.88	-9.08	3.17	658408.81	2172433.54	36.9689970	-107.2910880
1600.00	2.43	109.01	1599.81	-10.34	6.81	658412.46	2172432.30	36.9689936	-107.2910756
1700.00	3.16	112.97	1699.69	-12.10	11.35	658417.01	2172430.56	36.9689887	-107.2910600
1800.00	3.90	115.44	1799.50	-14.64	16.96	658422.63	2172428.06	36.9689817	-107.2910408
1900.00	4.26	116.34	1899.25	-17.75	23.36	658429.05	2172424.99	36.9689732	-107.2910189
2000.00	4.63	117.09	1998.94	-21.23	30.28	658435.99	2172421.54	36.9689636	-107.2909952
2100.00	4.70	120.72	2098.61	-25.16	37.40	658443.13	2172417.65	36.9689528	-107.2909709
2200.00	4.79	124.22	2198.27	-29.61	44.37	658450.13	2172413.25	36.9689406	-107.2909470
2300.00	4.44	124.68	2297.95	-34.16	51.01	658456.79	2172408.74	36.9689281	-107.2909243
2400.00	4.09	125.21	2397.67	-38.41	57.10	658462.91	2172404.51	36.9689164	-107.2909034
2500.00	3.74	128.76	2497.44	-42.51	62.56	658468.39	2172400.45	36.9689052	-107.2908848
2600.00	3.27	144.31	2597.25	-46.87	66.77	658472.62	2172396.11	36.9688932	-107.2908704
2900.00	2.85	146.16	2896.82	-60.01	75.91	658481.84	2172383.02	36.9688571	-107.2908391
3000.00	2.44	148.63	2996.72	-63.90	78.41	658484.35	2172379.15	36.9688464	-107.2908305
3100.00	2.27	158.95	3096.63	-67.56	80.23	658486.19	2172375.50	36.9688364	-107.2908243
3200.00	2.18	170.51	3196.56	-71.29	81.25	658487.24	2172371.78	36.9688261	-107.2908208
3300.00	2.32	174.30	3296.48	-75.18	81.77	658487.78	2172367.89	36.9688155	-107.2908190
3400.00	2.47	177.64	3396.39	-79.34	82.05	658488.09	2172363.73	36.9688040	-107.2908180
3500.00	2.59	177.89	3496.30	-83.75	82.23	658488.29	2172359.32	36.9687919	-107.2908174
3600.00	2.72	178.12	3596.19	-88.38	82.39	658488.48	2172354.69	36.9687792	-107.2908169
3700.00	2.48	173.32	3696.09	-92.90	82.72	658488.83	2172350.17	36.9687668	-107.2908158
3750.00	2.37	170.56	3746.04	-95.00	83.01	658489.14	2172348.08	36.9687610	-107.2908148
3850.00	16.83	293.95	3844.69	-91.13	70.01	658476.12	2172351.88	36.9687717	-107.2908593
3950.00	35.01	297.40	3934.26	-71.89	30.99	658436.99	2172370.89	36.9688245	-107.2909928
4050.00	53.22	298.64	4005.76	-39.22	-30.14	658375.67	2172403.21	36.9689142	-107.2912021
4150.00	71.44	299.39	4052.00	3.60	-107.24	658298.34	2172445.59	36.9690318	-107.2914660
4250.00	89.67	300.00	4068.34	52.28	-192.56	658212.75	2172493.78	36.9691655	-107.2917580
4250.46	89.75	300.00	4068.34	52.50	-192.96	658212.35	2172494.00	36.9691661	-107.2917593
4350.00	89.75	300.00	4068.77	102.27	-279.16	658125.87	2172543.28	36.9693028	-107.2920544
4450.00	89.75	300.00	4069.21	152.27	-365.77	658038.99	2172592.78	36.9694402	-107.2923508
4550.00	89.75	300.00	4069.64	202.27	-452.37	657952.11	2172642.28	36.9695775	-107.2926473
4550.46	89.75	300.00	4069.65	202.50	-452.76	657951.71	2172642.51	36.9695781	-107.2926486
4650.00	89.74	305.97	4070.09	256.67	-536.22	657867.95	2172696.20	36.9697269	-107.2929343

CARRACAS_19B_10_-1ST_NAD27_REV-B.0_PWP.las

4750.00	89.74	311.97	4070.55	319.54	-613.93	657789.89	2172758.62	36.9698996	-107.2932003
4850.00	89.73	317.97	4071.01	390.18	-684.64	657718.78	2172828.86	36.9700936	-107.2934423
4950.00	89.73	323.97	4071.48	467.83	-747.58	657655.40	2172906.14	36.9703069	-107.2936577
5050.00	89.74	329.97	4071.94	551.63	-802.06	657600.45	2172989.63	36.9705370	-107.2938442
5150.00	89.74	335.97	4072.40	640.67	-847.48	657554.53	2173078.40	36.9707816	-107.2939997
5250.00	89.75	341.97	4072.85	733.97	-883.34	657518.14	2173171.49	36.9710378	-107.2941225
5350.00	89.76	347.97	4073.28	830.50	-909.26	657491.67	2173267.87	36.9713029	-107.2942112
5444.22	89.77	353.63	4073.66	923.48	-924.32	657476.09	2173360.75	36.9715583	-107.2942627
5450.00	89.77	353.63	4073.69	929.22	-924.96	657475.41	2173366.48	36.9715741	-107.2942649
5550.00	89.77	353.63	4074.08	1028.60	-936.06	657463.75	2173465.80	36.9718470	-107.2943029
5650.00	89.77	353.63	4074.48	1127.98	-947.16	657452.08	2173565.11	36.9721200	-107.2943410
5750.00	89.77	353.63	4074.88	1227.36	-958.26	657440.42	2173664.42	36.9723929	-107.2943790
5850.00	89.77	353.63	4075.27	1326.74	-969.36	657428.75	2173763.73	36.9726659	-107.2944170
5950.00	89.77	353.63	4075.67	1426.12	-980.46	657417.09	2173863.04	36.9729389	-107.2944550
6050.00	89.77	353.63	4076.07	1525.50	-991.56	657405.42	2173962.35	36.9732118	-107.2944930
6150.00	89.77	353.63	4076.47	1624.88	-1002.66	657393.75	2174061.66	36.9734848	-107.2945310
6250.00	89.77	353.63	4076.86	1724.27	-1013.76	657382.09	2174160.97	36.9737577	-107.2945690
6350.00	89.77	353.63	4077.26	1823.65	-1024.86	657370.42	2174260.28	36.9740307	-107.2946070
6450.00	89.77	353.63	4077.66	1923.03	-1035.96	657358.76	2174359.59	36.9743036	-107.2946450
6550.00	89.77	353.63	4078.05	2022.41	-1047.07	657347.09	2174458.90	36.9745766	-107.2946830
6650.00	89.77	353.63	4078.45	2121.79	-1058.17	657335.43	2174558.21	36.9748496	-107.2947211
6750.00	89.77	353.63	4078.85	2221.17	-1069.27	657323.76	2174657.52	36.9751225	-107.2947591
6850.00	89.77	353.63	4079.24	2320.55	-1080.37	657312.09	2174756.84	36.9753955	-107.2947971
6950.00	89.77	353.63	4079.64	2419.93	-1091.47	657300.43	2174856.15	36.9756684	-107.2948351
7050.00	89.77	353.63	4080.04	2519.32	-1102.57	657288.76	2174955.46	36.9759414	-107.2948731
7150.00	89.77	353.63	4080.43	2618.70	-1113.67	657277.10	2175054.77	36.9762143	-107.2949111
7250.00	89.77	353.63	4080.83	2718.08	-1124.77	657265.43	2175154.08	36.9764873	-107.2949491
7350.00	89.77	353.63	4081.23	2817.46	-1135.87	657253.77	2175253.39	36.9767602	-107.2949871
7450.00	89.77	353.63	4081.62	2916.84	-1146.97	657242.10	2175352.70	36.9770332	-107.2950252
7550.00	89.77	353.63	4082.02	3016.22	-1158.07	657230.44	2175452.01	36.9773062	-107.2950632
7650.00	89.77	353.63	4082.42	3115.60	-1169.18	657218.77	2175551.32	36.9775791	-107.2951012
7750.00	89.77	353.63	4082.82	3214.98	-1180.28	657207.10	2175650.63	36.9778521	-107.2951392
7850.00	89.77	353.63	4083.21	3314.36	-1191.38	657195.44	2175749.94	36.9781250	-107.2951772
7950.00	89.77	353.63	4083.61	3413.75	-1202.48	657183.77	2175849.25	36.9783980	-107.2952152

CARRACAS_19B_10_-1ST__NAD27_REV-B.0__PWP.las

8050.00	89.77	353.63	4084.01	3513.13	-1213.58	657172.11	2175948.56	36.9786709	-107.2952532
8150.00	89.77	353.63	4084.40	3612.51	-1224.68	657160.44	2176047.87	36.9789439	-107.2952913
8250.00	89.77	353.63	4084.80	3711.89	-1235.78	657148.78	2176147.19	36.9792169	-107.2953293
8270.18	89.77	353.63	4084.88	3731.95	-1238.02	657146.42	2176167.23	36.9792719	-107.2953369



Southland Royalty Company

Carracas 19 B 10 Rio Arriba County, NM

Mainbore TD - 4,211' MD
Lateral TD - 4,881' MD

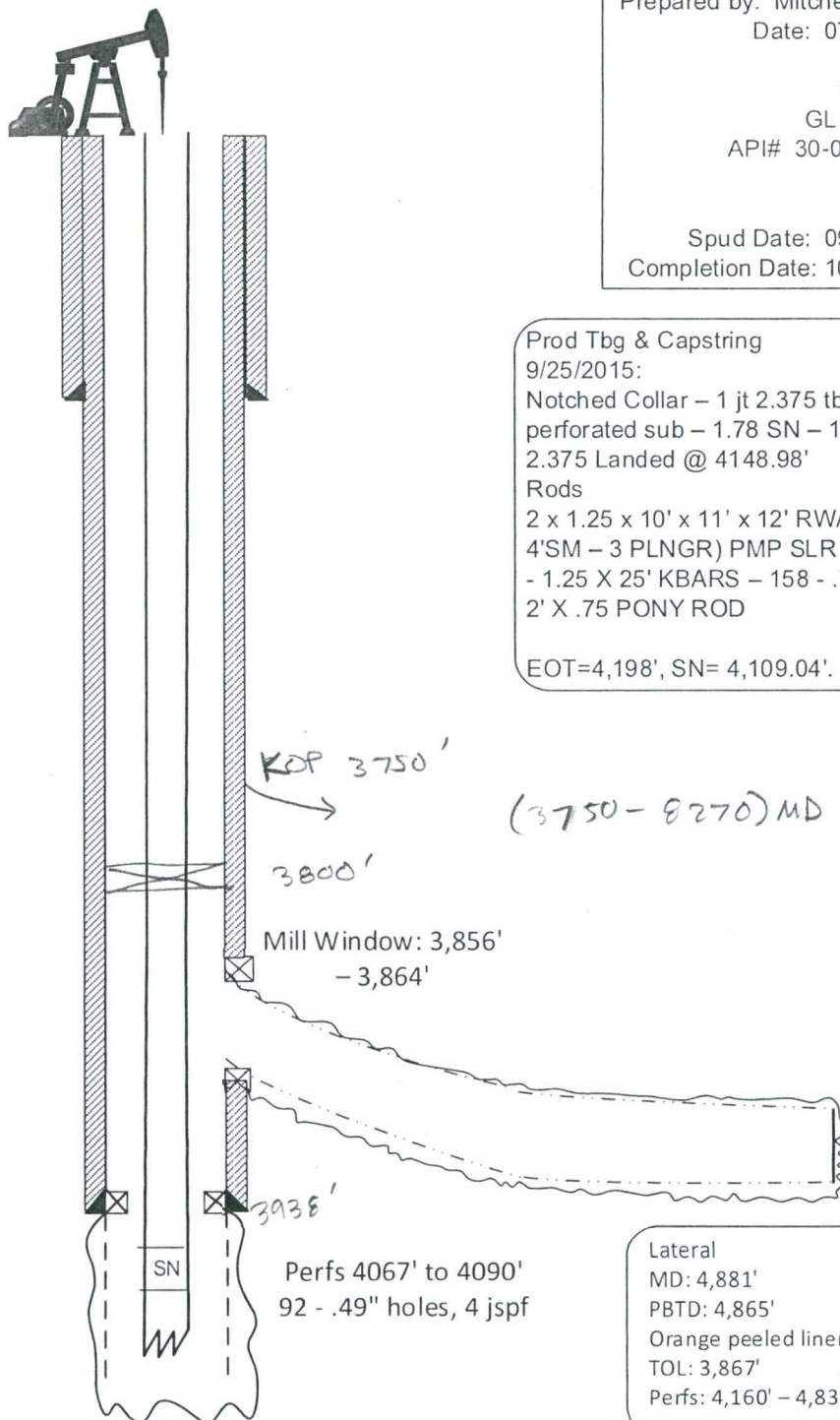
12 1/4" to 253'.
Surface Csg: 9 5/8" 32.3 lb/ft H-40
Setting Depth: 224 ft kb

Cement
125sx Class G (531 ft³), circ. 148 cu ft
to surface

8 3/4" hole to 4052'.
Intermediate Csg: jts - 7" 20#/ft K-55
Setting Depth: 4052 ft

Cement
Lead: 580 sx Class B poz
Tail: 100 sx Class B
Circulate 1264 ft³ to surface.

6 1/4" hole to 4211 ft MD
Prod Liner: 7 jts 2 3/8" 4.7 lb/ft, J-55,
length: 209 ft
Setting Depth: 4,147 ft MD
Liner Top: 3938 ft MD



Prepared by: Mitchell Stodola
Date: 07/13/2018

KB = 15 ft
GL = 7,367 ft
API# 30-039-27565

Spud Date: 09/14/2005
Completion Date: 10/28/2005

Prod Tbg & Capstring

9/25/2015:

Notched Collar - 1 jt 2.375 tbg - 6'
perforated sub - 1.78 SN - 131 jts
2.375 Landed @ 4148.98'

Rods

2 x 1.25 x 10' x 11' x 12' RWAC (W
4'SM - 3 PLNGR) PMP SLR - 046 - 6
- 1.25 X 25' KBARS - 158 - .75 RODS
2' X .75 PONY ROD

EOT=4,198', SN= 4,109.04'.

Lateral
MD: 4,881'
PBD: 4,865'
Orange peeled liner to 4,865'
TOL: 3,867'
Perfs: 4,160' - 4,831' 4 spf

Mainbore TD: 4211'