

Well Name: SOUTH AVALON AUA FED COM 1	Well Location: T21S / R26E / SEC 23 / NWNW /	County or Parish/State: EDDY / NM
Well Number: 402H	Type of Well: CONVENTIONAL GAS WELL	Allottee or Tribe Name:
Lease Number: FEE	Unit or CA Name: 1 S. AVALON AUA COM	Unit or CA Number: NMNM106837
US Well Number: 3001531001	Well Status: Producing Gas Well	Operator: SPC RESOURCES LLC

Notice of Intent

Sundry ID: 2646989

Type of Submission: Notice of Intent

Date Sundry Submitted: 12/05/2021

Date proposed operation will begin: 12/15/2021

Type of Action: Other

Time Sundry Submitted: 01:21

Procedure Description: Request new well name and number: South Avalon AUA Fed Com 1 402H. New well BHL is 1650 FNL & 100 FEL 23-21s-26e. Will drill shallower and shorter well. TVD has changed from 8782' to 8609'. MD has changed from 18105' to 13362'. See attached C-102, well bore diagram, production casing specs, well bore plan and profile views, and drilling procedures. No change in pad footprint.

Surface Disturbance

Is any additional surface disturbance proposed?: No

NOI Attachments

Procedure Description

South_Avalon_1H_Sundry_Attachment_20211205131927.pdf

Received by OCD: 12/20/2021 7:51:00 AM

Page 2 of 23

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Lease Number: FEE	Unit or CA Name: 1 S. AVALON AUA COM	Unit or CA Number: NMNM106837
US Well Number: 3001531001	Well Status: Producing Gas Well	Operator: SPC RESOURCES LLC

Conditions of Approval

Specialist Review

SOUTH_AVALON_AUA_FED_COM__1_402H_Sundry_2646989_Drilling_COA_OTA_20211214230013.pdf

Operator Certification

I certify that the foregoing is true and correct. 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. Electronic submission of Sundry Notices through this system satisfies regulations requiring a submission of Form 3160-5 or a Sundry Notice.

Operator Electronic Signature: BRIAN WOOD	Signed on: DEC 05, 2021 01:19 PM
Name: SPC RESOURCES LLC	
Title: President	
Street Address: 37 VERANO LOOP	
City: SANTA FE	State: NM
Phone: (505) 466-8120	
Email address: AFMSS@PERMITSWEST.COM	

Field Representative

Representative Name:		
Street Address:		
City:	State:	Zip:
Phone:		
Email address:		

BLM Point of Contact

BLM POC Name: AJIBOLA OLABODE	BLM POC Title: Engineer
BLM POC Phone: 5752342231	BLM POC Email Address: OAJIBOLAEIT@BLM.GOV
Disposition: Approved	Disposition Date: 12/14/2021
Signature: Olabode Thomas Ajibola	

DISTRICT I
1625 N. French Dr., Hobbs, NM 88240
Phone (575) 393-6161 Fax: (575) 393-0720

DISTRICT II
811 S. First St., Artesia, NM 88210
Phone (575) 748-1283 Fax: (575) 748-9720

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

DISTRICT IV
1220 S. St. Francis Dr., Santa Fe, NM 87505
Phone (505) 476-3460 Fax: (505) 476-3462

State of New Mexico
Energy, Minerals and Natural Resources Department

Form C-102
Revised August 4, 2011

Submit one copy to appropriate
District Office

OIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Santa Fe, New Mexico 87505

new name & #
new BHL
X AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number 30-015-31001	Pool Code 74160	Pool Name CARLSBAD; WOLFCAMP, EAST (GAS)
Property Code 332050	Property Name SOUTH AVALON AUA FED COM 1	Well Number 402H
OGRID No. 372262	Operator Name SPC RESOURCES, LLC	Elevation 3152'

Surface Location

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	SOUTH/South line	Feet from the	East/West line	County
D	23	21 S	26 E		660	NORTH	660	WEST	EDDY

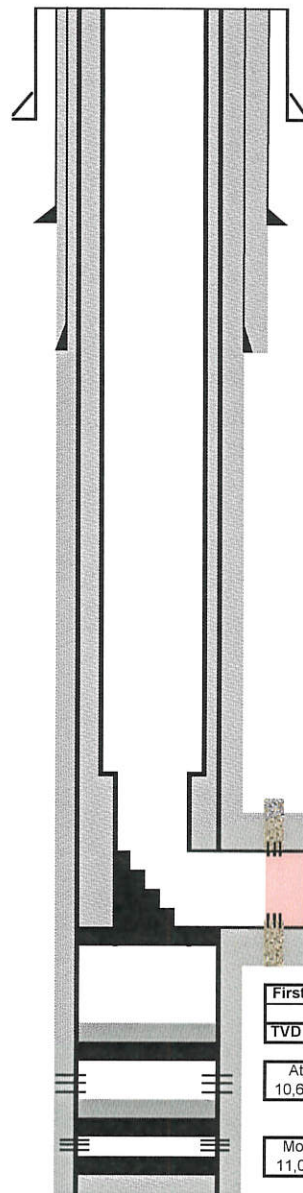
Bottom Hole Location If Different From Surface

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	SOUTH/South line	Feet from the	East/West line	County
H	23	21 S	26 E		1650	NORTH	100	EAST	EDDY
Dedicated Acres 321.84	Joint or Infill	Consolidation Code C	Order No.						

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

N: 535789.8 E: 560306.6 (NAD83) 660' 660' S.L. F.T.P. N: 533125.1 E: 560303.5 (NAD83)		N: 535832.1 E: 565631.7 (NAD83) 1650' L.T.P. 100' B.H.		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. Signature _____ 11/23/2021 Date Printed Name Lelan J Anders Email Address LAnders@SantoPetroleum.com				
SURFACE LOCATION Lat - N 32.471133° Long - W 104.269686° NMSPCE - N 535134.8 E 560965.8 (NAD-83) Lat - N 32.471016° Long - W 104.269179° NMSPCE - N 535074.6 E 519785.2 (NAD-27)		FIRST TAKE POINT 1650' FNL & 330' FWL Lat - N 32.468405° Long - W 104.270762° NMSPCE - N 534142.4 E 560634.7 (NAD-83) Lat - N 32.468288° Long - W 104.270255° NMSPCE - N 534082.3 E 519454.1 (NAD-27)		LAST TAKE POINT 1650' FNL & 330' FEL Lat - N 32.468499° Long - W 104.255597° NMSPCE - N 534179.5 E 565311.6 (NAD-83) Lat - N 32.468381° Long - W 104.255090° NMSPCE - N 534119.3 E 524130.8 (NAD-27)		BOTTOM HOLE LOCATION Lat - N 32.468503° Long - W 104.254851° NMSPCE - N 534181.3 E 565541.6 (NAD-83) Lat - N 32.468386° Long - W 104.254344° NMSPCE - N 534121.1 E 524360.8 (NAD-27)		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. NOVEMBER 30, 2021 Date Surveyed _____ Signature & Seal of Professional Surveyor 7977 Certificate No. 7977 Jones 7977 BASIN SURVEYS 0' 1000' 2000' 3000' 4000' SCALE: 1" = 2000' N: 530521.3 E: 565663.6 (NAD83) WO Num.: 35192

Depth	Hole Size	Casing Data	Lithology	Fluid	Cement
40'	26"	20" 94# H-40			Ready-Mix @ Surface
595'	17-1/2"	13-3/8" 48#			800 sxs + Ready Mix TOC @ Surface
2150'	12-1/4"	9-5/8" 36#			1530 sxs TOC @ Surface
11,300'	8-3/4"	7" 26# & 29#			1525 sx TOC @ Surface
Surface to 8000'	Surface to 4600' 7" CSG ID 4600' to 8600' 6-3/4" Open Hole	5-1/2" 20# HCP-110 Flush Joint	Bone Spring top at 4410' WolfCamp top at 8356'	Oil Based Mud 8.5 ppg to 10.0 ppg	Lead: 250 sxs 50/50 POZ H Tail: 550 sxs Class H
8000' to 13,362'	6-1/8" Open Hole	5" 18# HCP-110 Flush Joint	WolfCamp top at 8356'	Oil Based Mud 8.5 ppg to 10.5 ppg	



 SPC Resources PLANNED WELLBORE DIAGRAM	South Avalon AUA Fed Com 1 402H		
	FIELD: [71120] - AVALON; WOLFCAMP (Gas)		API #: 30-015-31001
	CO, ST: Eddy Co, New Mexico		D&C AFE #:
	COST CODE:		GEOMETRY: Horizontal
	LOCATION: Lat: 32.471133°, Long: -104.269686° or X: 5535134.8, Y: 560965.8		
	STATUS: Permit Pending		SPUD DATE: 6/1/2021
	LATEST RIG WORKOVER:		COMPLETED:
	DIAGRAM REVISED:		11/20/2021

First Take Point
8,966
TVD 8506

Atoka Perfs
10,636 - 10,235

Morrow Perfs
11,089 - 10,790

4,156' Effective Lateral Length

Avg TVD	8556
Avg BHT	188
Est BHP	4278

Production Casing Shoe
13,352

Last Take Point
13,122
TVD 8605

TD Well
13,362'

MATERIAL TEST REPORT

CERTIFICATE NO. C10588 A&B

DATE OF ISSUE 11/21/2018

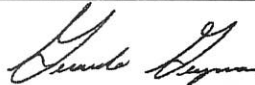
CUSTOMER:	TOOLPUSHERS SUPPLY	P.O. No.:	84591	SPECIFICATION(S) OR REFERENCE	GRADE	P110 HC
MATERIAL:	4.500 .290 13.50 RG3 ILJIN-SMSL	HEAT TREATMENT	QUENCH & TEMPER		API 5CT LATEST EDITION	
		MINIMUM TEMPERATURE	1,050°F			

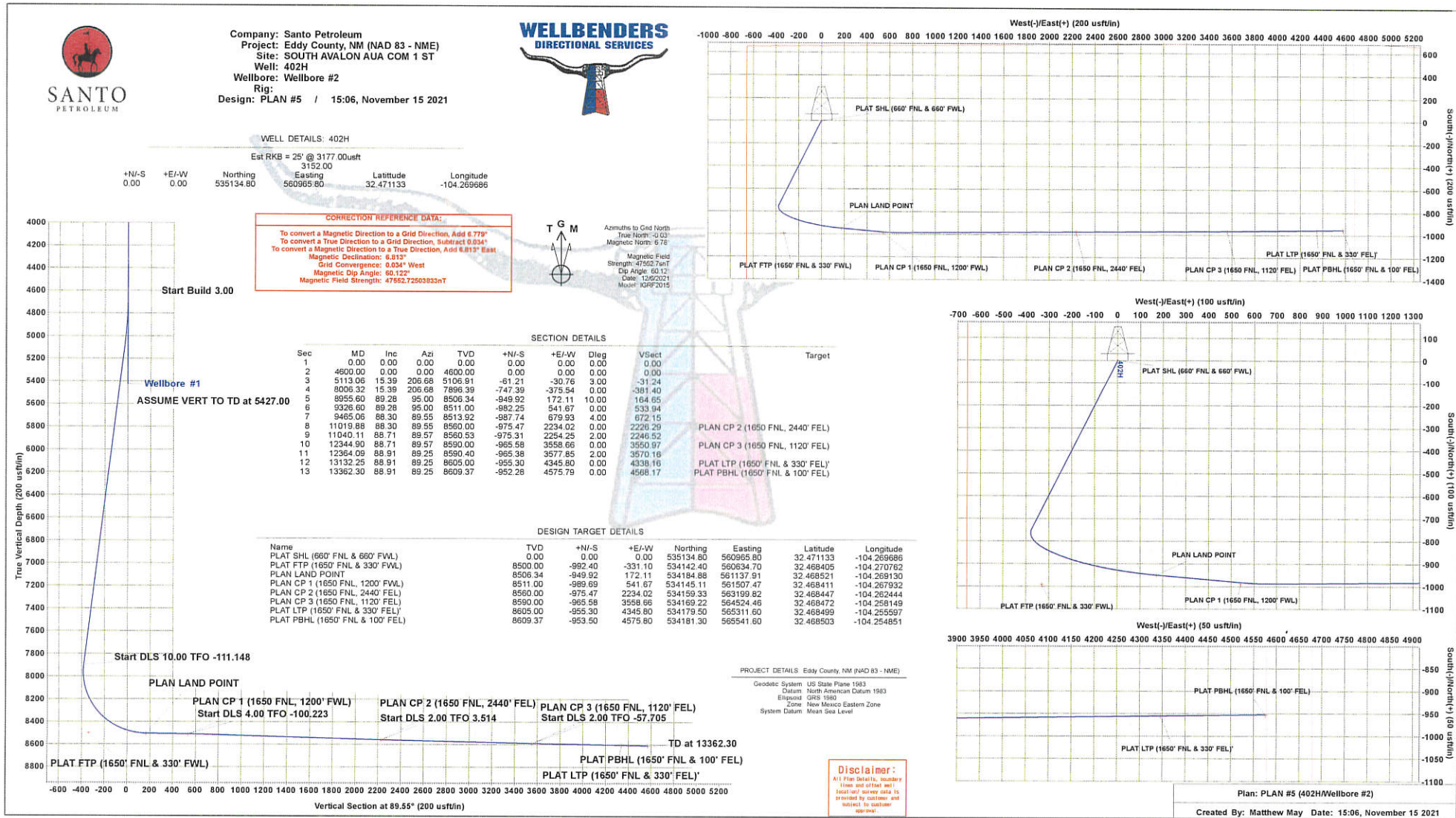
LOT NO.	QUANTIT Y	SAMPLE SIZE (in)	TENSILE TEST (KSI)			HARDNESS TEST (HRC)	COLLAPSE TEST (PSI)	CHARPY V-NOTCH		CHEMICAL COMPOSITION (%)													
			Y.S.	T.S.	ELONG			FT/LBS	SHEAR	C	Mn	Si	P	S	Al	Cu	Cr	Ni	Mo	V			
1																							
C2165	21	1.05 X .324	126.6	131.8	21.6	N/A	14,008	147	75	0.250	1.370	0.240	0.010	0.001	0.026	0.030	0.330	0.020	0.010	0.003			
HEAT NO.								154	80														
17503691-3								158	80														
2																							
C2166	10	1.05 X .313	127.5	132.8	23.7	N/A	15,057	150	80	0.250	1.370	0.250	0.010	0.001	0.260	0.040	0.350	0.020	0.010	0.004			
HEAT NO.								157	80														
17503692-3								160	80														
3																							
HEAT NO.																							
4																							
HEAT NO.																							
5																							
HEAT NO.																							

INSPECTION		FLATTENING TEST	ADDITIONAL	
VISUAL	100%	N/A	DRIFT	3.795"
UT WELD	N/A		COATING	BLACK
EMI/SEA	10.0 %		HYDRO	9,800 PSI

STATEMENT OF COMPLIANCE: This material has been processed, sampled, tested, and inspected in accordance with the agreed specifications and/or references mentioned herein and meet the customer's requirements for the grade indicated. Determinations of mechanical testing are accurate and traceable to NIST and conform to the applicable testing methods.

OTHER	These lots were processed for WO 18-3156 from Rec.4846
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Certification Representative		Splendor Pipe Services, LLC
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Planning Report



Database:	WBDS_SQL_2	Local Co-ordinate Reference:	Well 402H
Company:	Santo Petroleum	TVD Reference:	Est RKB = 25' @ 3177.00usft
Project:	Eddy County, NM (NAD 83 - NME)	MD Reference:	Est RKB = 25' @ 3177.00usft
Site:	SOUTH AVALON AUA COM 1 ST	North Reference:	Grid
Well:	402H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #2		
Design:	PLAN #5		

Project	Eddy County, NM (NAD 83 - NME)		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site	SOUTH AVALON AUA COM 1 ST				
Site Position:		Northing:	535,134.80 usft	Latitude:	32.471133
From:	Map	Easting:	560,965.80 usft	Longitude:	-104.269686
Position Uncertainty:	0.00 usft	Slot Radius:	13.200 in	Grid Convergence:	0.034 °

Well	402H					
Well Position	+N/-S	0.00 usft	Northing:	535,134.80 usft	Latitude:	32.471133
	+E/-W	0.00 usft	Easting:	560,965.80 usft	Longitude:	-104.269686
Position Uncertainty	0.00 usft		Wellhead Elevation:		Ground Level:	3,152.00 usft

Wellbore	Wellbore #2				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	12/6/2021	6.813	60.122	47,552.72503833

Design	PLAN #5				
Audit Notes:					
Version:	Phase:	PLAN	Tie On Depth:	0.00	
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)	
	0.00	0.00	0.00	89.55	

Plan Survey Tool Program	Date	11/15/2021			
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks	
1	0.00	13,362.30	PLAN #5 (Wellbore #2)	MWD+IGRF	
				OWSG MWD + IGRF or WM	



Planning Report



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Project: Eddy County, NM (NAD 83 - NME)
Site: SOUTH AVALON AUA COM 1 ST
Well: 402H
Wellbore: Wellbore #2
Design: PLAN #5

Local Co-ordinate Reference: Well 402H
TVD Reference: Est RKB = 25' @ 3177.00usft
MD Reference: Est RKB = 25' @ 3177.00usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature

Plan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	
4,600.00	0.00	0.00	4,600.00	0.00	0.00	0.00	0.00	0.00	0.000	
5,113.06	15.39	206.68	5,106.91	-61.21	-30.76	3.00	3.00	0.00	206.678	
8,006.32	15.39	206.68	7,896.39	-747.39	-375.54	0.00	0.00	0.00	0.000	
8,955.60	89.28	95.00	8,506.34	-949.92	172.11	10.00	7.78	-11.76	-111.148	
9,326.60	89.28	95.00	8,511.00	-982.25	541.67	0.00	0.00	0.00	0.000	
9,465.06	88.30	89.55	8,513.92	-987.74	679.93	4.00	-0.71	-3.94	-100.223	
11,019.88	88.30	89.55	8,560.00	-975.47	2,234.02	0.00	0.00	0.00	0.000	PLAN CP 2 (1650 F
11,040.11	88.71	89.57	8,560.53	-975.31	2,254.25	2.00	2.00	0.12	3.514	
12,344.90	88.71	89.57	8,590.00	-965.58	3,558.66	0.00	0.00	0.00	0.000	PLAN CP 3 (1650 F
12,364.09	88.91	89.25	8,590.40	-965.38	3,577.85	2.00	1.07	-1.69	-57.705	
13,132.25	88.91	89.25	8,605.00	-955.30	4,345.80	0.00	0.00	0.00	0.000	PLAT LTP (1650' F
13,362.30	88.91	89.25	8,609.37	-952.28	4,575.79	0.00	0.00	0.00	0.000	PLAT PBHL (1650'



Planning Report



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Company:	Santo Petroleum	TVD Reference:	Est RKB = 25' @ 3177.00usft
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Site:	SOUTH AVALON AUA COM 1 ST	North Reference:	Grid
Well:	402H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #2		
Design:	PLAN #5		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	0.00	0.00
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	0.00	0.00
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00
1,100.00	0.00	0.00	1,100.00	0.00	0.00	0.00	0.00	0.00	0.00
1,200.00	0.00	0.00	1,200.00	0.00	0.00	0.00	0.00	0.00	0.00
1,300.00	0.00	0.00	1,300.00	0.00	0.00	0.00	0.00	0.00	0.00
1,400.00	0.00	0.00	1,400.00	0.00	0.00	0.00	0.00	0.00	0.00
1,500.00	0.00	0.00	1,500.00	0.00	0.00	0.00	0.00	0.00	0.00
1,600.00	0.00	0.00	1,600.00	0.00	0.00	0.00	0.00	0.00	0.00
1,700.00	0.00	0.00	1,700.00	0.00	0.00	0.00	0.00	0.00	0.00
1,800.00	0.00	0.00	1,800.00	0.00	0.00	0.00	0.00	0.00	0.00
1,900.00	0.00	0.00	1,900.00	0.00	0.00	0.00	0.00	0.00	0.00
2,000.00	0.00	0.00	2,000.00	0.00	0.00	0.00	0.00	0.00	0.00
2,100.00	0.00	0.00	2,100.00	0.00	0.00	0.00	0.00	0.00	0.00
2,200.00	0.00	0.00	2,200.00	0.00	0.00	0.00	0.00	0.00	0.00
2,300.00	0.00	0.00	2,300.00	0.00	0.00	0.00	0.00	0.00	0.00
2,400.00	0.00	0.00	2,400.00	0.00	0.00	0.00	0.00	0.00	0.00
2,500.00	0.00	0.00	2,500.00	0.00	0.00	0.00	0.00	0.00	0.00
2,600.00	0.00	0.00	2,600.00	0.00	0.00	0.00	0.00	0.00	0.00
2,700.00	0.00	0.00	2,700.00	0.00	0.00	0.00	0.00	0.00	0.00
2,800.00	0.00	0.00	2,800.00	0.00	0.00	0.00	0.00	0.00	0.00
2,900.00	0.00	0.00	2,900.00	0.00	0.00	0.00	0.00	0.00	0.00
3,000.00	0.00	0.00	3,000.00	0.00	0.00	0.00	0.00	0.00	0.00
3,100.00	0.00	0.00	3,100.00	0.00	0.00	0.00	0.00	0.00	0.00
3,200.00	0.00	0.00	3,200.00	0.00	0.00	0.00	0.00	0.00	0.00
3,300.00	0.00	0.00	3,300.00	0.00	0.00	0.00	0.00	0.00	0.00
3,400.00	0.00	0.00	3,400.00	0.00	0.00	0.00	0.00	0.00	0.00
3,500.00	0.00	0.00	3,500.00	0.00	0.00	0.00	0.00	0.00	0.00
3,600.00	0.00	0.00	3,600.00	0.00	0.00	0.00	0.00	0.00	0.00
3,700.00	0.00	0.00	3,700.00	0.00	0.00	0.00	0.00	0.00	0.00
3,800.00	0.00	0.00	3,800.00	0.00	0.00	0.00	0.00	0.00	0.00
3,900.00	0.00	0.00	3,900.00	0.00	0.00	0.00	0.00	0.00	0.00
4,000.00	0.00	0.00	4,000.00	0.00	0.00	0.00	0.00	0.00	0.00
4,100.00	0.00	0.00	4,100.00	0.00	0.00	0.00	0.00	0.00	0.00
4,200.00	0.00	0.00	4,200.00	0.00	0.00	0.00	0.00	0.00	0.00
4,300.00	0.00	0.00	4,300.00	0.00	0.00	0.00	0.00	0.00	0.00
4,400.00	0.00	0.00	4,400.00	0.00	0.00	0.00	0.00	0.00	0.00
4,500.00	0.00	0.00	4,500.00	0.00	0.00	0.00	0.00	0.00	0.00
4,600.00	0.00	0.00	4,600.00	0.00	0.00	0.00	0.00	0.00	0.00
4,700.00	3.00	206.68	4,699.95	-2.34	-1.18	-1.19	3.00	3.00	0.00
4,800.00	6.00	206.68	4,799.63	-9.35	-4.70	-4.77	3.00	3.00	0.00
4,900.00	9.00	206.68	4,898.77	-21.01	-10.56	-10.72	3.00	3.00	0.00
5,000.00	12.00	206.68	4,997.08	-37.29	-18.74	-19.03	3.00	3.00	0.00
5,100.00	15.00	206.68	5,094.31	-58.15	-29.22	-29.67	3.00	3.00	0.00
5,113.06	15.39	206.68	5,106.91	-61.21	-30.76	-31.24	3.00	3.00	0.00
5,200.00	15.39	206.68	5,190.73	-81.83	-41.12	-41.76	0.00	0.00	0.00



Planning Report



Database: WBDS_SQL_2
Company: Santo Petroleum
Project: Eddy County, NM (NAD 83 - NME)
Site: SOUTH AVALON AUA COM 1 ST
Well: 402H
Wellbore: Wellbore #2
Design: PLAN #5

Local Co-ordinate Reference: Well 402H
TVD Reference: Est RKB = 25' @ 3177.00usft
MD Reference: Est RKB = 25' @ 3177.00usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
5,300.00	15.39	206.68	5,287.15	-105.54	-53.03	-53.86	0.00	0.00	0.00
5,400.00	15.39	206.68	5,383.56	-129.26	-64.95	-65.96	0.00	0.00	0.00
5,500.00	15.39	206.68	5,479.97	-152.98	-76.87	-78.07	0.00	0.00	0.00
5,600.00	15.39	206.68	5,576.39	-176.69	-88.78	-90.17	0.00	0.00	0.00
5,700.00	15.39	206.68	5,672.80	-200.41	-100.70	-102.27	0.00	0.00	0.00
5,800.00	15.39	206.68	5,769.21	-224.13	-112.62	-114.37	0.00	0.00	0.00
5,900.00	15.39	206.68	5,865.63	-247.84	-124.53	-126.48	0.00	0.00	0.00
6,000.00	15.39	206.68	5,962.04	-271.56	-136.45	-138.58	0.00	0.00	0.00
6,100.00	15.39	206.68	6,058.45	-295.28	-148.37	-150.68	0.00	0.00	0.00
6,200.00	15.39	206.68	6,154.87	-318.99	-160.28	-162.78	0.00	0.00	0.00
6,300.00	15.39	206.68	6,251.28	-342.71	-172.20	-174.89	0.00	0.00	0.00
6,400.00	15.39	206.68	6,347.69	-366.42	-184.12	-186.99	0.00	0.00	0.00
6,500.00	15.39	206.68	6,444.11	-390.14	-196.03	-199.09	0.00	0.00	0.00
6,600.00	15.39	206.68	6,540.52	-413.86	-207.95	-211.19	0.00	0.00	0.00
6,700.00	15.39	206.68	6,636.93	-437.57	-219.87	-223.30	0.00	0.00	0.00
6,800.00	15.39	206.68	6,733.35	-461.29	-231.78	-235.40	0.00	0.00	0.00
6,900.00	15.39	206.68	6,829.76	-485.01	-243.70	-247.50	0.00	0.00	0.00
7,000.00	15.39	206.68	6,926.17	-508.72	-255.62	-259.61	0.00	0.00	0.00
7,100.00	15.39	206.68	7,022.59	-532.44	-267.53	-271.71	0.00	0.00	0.00
7,200.00	15.39	206.68	7,119.00	-556.16	-279.45	-283.81	0.00	0.00	0.00
7,300.00	15.39	206.68	7,215.41	-579.87	-291.37	-295.91	0.00	0.00	0.00
7,400.00	15.39	206.68	7,311.83	-603.59	-303.29	-308.02	0.00	0.00	0.00
7,500.00	15.39	206.68	7,408.24	-627.31	-315.20	-320.12	0.00	0.00	0.00
7,600.00	15.39	206.68	7,504.65	-651.02	-327.12	-332.22	0.00	0.00	0.00
7,700.00	15.39	206.68	7,601.07	-674.74	-339.04	-344.32	0.00	0.00	0.00
7,800.00	15.39	206.68	7,697.48	-698.45	-350.95	-356.43	0.00	0.00	0.00
7,900.00	15.39	206.68	7,793.89	-722.17	-362.87	-368.53	0.00	0.00	0.00
8,006.32	15.39	206.68	7,896.39	-747.39	-375.54	-381.40	0.00	0.00	0.00
8,050.00	14.39	190.07	7,938.63	-757.92	-379.09	-385.03	10.00	-2.29	-38.02
8,100.00	14.79	170.19	7,987.05	-770.33	-379.09	-385.13	10.00	0.80	-39.76
8,150.00	16.72	153.10	8,035.19	-783.04	-374.75	-380.89	10.00	3.85	-34.17
8,200.00	19.72	140.26	8,082.70	-795.95	-366.10	-372.34	10.00	6.02	-25.68
8,250.00	23.40	131.00	8,129.21	-808.96	-353.20	-359.54	10.00	7.35	-18.53
8,300.00	27.48	124.24	8,174.36	-821.97	-336.16	-342.61	10.00	8.15	-13.52
8,350.00	31.80	119.15	8,217.81	-834.89	-315.11	-321.65	10.00	8.65	-10.18
8,400.00	36.28	115.18	8,259.24	-847.61	-290.19	-296.84	10.00	8.96	-7.93
8,450.00	40.87	111.99	8,298.32	-860.04	-261.62	-268.37	10.00	9.18	-6.39
8,500.00	45.53	109.34	8,334.76	-872.08	-229.60	-236.44	10.00	9.32	-5.30
8,550.00	50.24	107.09	8,368.28	-883.64	-194.37	-201.30	10.00	9.43	-4.51
8,600.00	55.00	105.12	8,398.63	-894.64	-156.20	-163.22	10.00	9.50	-3.93
8,650.00	59.77	103.38	8,425.57	-904.99	-115.39	-122.50	10.00	9.56	-3.49
8,700.00	64.57	101.79	8,448.91	-914.60	-72.25	-79.43	10.00	9.60	-3.17
8,750.00	69.39	100.33	8,468.45	-923.42	-27.10	-34.35	10.00	9.63	-2.92
8,800.00	74.22	98.96	8,484.06	-931.37	19.72	12.40	10.00	9.65	-2.75
8,850.00	79.05	97.65	8,495.62	-938.38	67.84	60.47	10.00	9.67	-2.62
8,900.00	83.89	96.38	8,503.03	-944.42	116.90	109.48	10.00	9.68	-2.53
8,950.00	88.74	95.14	8,506.24	-949.42	166.53	159.07	10.00	9.69	-2.49
8,955.60	89.28	95.00	8,506.34	-949.92	172.11	164.65	10.00	9.69	-2.48
9,000.00	89.28	95.00	8,506.90	-953.79	216.33	208.84	0.00	0.00	0.00
9,100.00	89.28	95.00	8,508.15	-962.50	315.95	308.38	0.00	0.00	0.00
9,200.00	89.28	95.00	8,509.41	-971.22	415.56	407.92	0.00	0.00	0.00
9,300.00	89.28	95.00	8,510.67	-979.93	515.17	507.46	0.00	0.00	0.00
9,326.60	89.28	95.00	8,511.00	-982.25	541.67	533.94	0.00	0.00	0.00
9,400.00	88.76	92.11	8,512.26	-986.80	614.91	607.14	4.00	-0.71	-3.94



Planning Report



Database: WBDS_SQL_2
Company: Santo Petroleum
Project: Eddy County, NM (NAD 83 - NME)
Site: SOUTH AVALON AUA COM 1 ST
Well: 402H
Wellbore: Wellbore #2
Design: PLAN #5

Local Co-ordinate Reference: Well 402H
TVD Reference: Est RKB = 25' @ 3177.00usft
MD Reference: Est RKB = 25' @ 3177.00usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
9,465.06	88.30	89.55	8,513.92	-987.74	679.93	672.15	4.00	-0.70	-3.94
9,500.00	88.30	89.55	8,514.96	-987.47	714.86	707.08	0.00	0.00	0.00
9,600.00	88.30	89.55	8,517.92	-986.68	814.81	807.03	0.00	0.00	0.00
9,700.00	88.30	89.55	8,520.89	-985.89	914.76	906.99	0.00	0.00	0.00
9,800.00	88.30	89.55	8,523.85	-985.10	1,014.71	1,006.95	0.00	0.00	0.00
9,900.00	88.30	89.55	8,526.81	-984.31	1,114.67	1,106.90	0.00	0.00	0.00
10,000.00	88.30	89.55	8,529.78	-983.52	1,214.62	1,206.86	0.00	0.00	0.00
10,100.00	88.30	89.55	8,532.74	-982.73	1,314.57	1,306.81	0.00	0.00	0.00
10,200.00	88.30	89.55	8,535.70	-981.94	1,414.53	1,406.77	0.00	0.00	0.00
10,300.00	88.30	89.55	8,538.67	-981.15	1,514.48	1,506.73	0.00	0.00	0.00
10,400.00	88.30	89.55	8,541.63	-980.36	1,614.43	1,606.68	0.00	0.00	0.00
10,500.00	88.30	89.55	8,544.59	-979.57	1,714.39	1,706.64	0.00	0.00	0.00
10,600.00	88.30	89.55	8,547.56	-978.78	1,814.34	1,806.59	0.00	0.00	0.00
10,700.00	88.30	89.55	8,550.52	-977.99	1,914.29	1,906.55	0.00	0.00	0.00
10,800.00	88.30	89.55	8,553.48	-977.21	2,014.24	2,006.51	0.00	0.00	0.00
10,900.00	88.30	89.55	8,556.45	-976.42	2,114.20	2,106.46	0.00	0.00	0.00
11,000.00	88.30	89.55	8,559.41	-975.63	2,214.15	2,206.42	0.00	0.00	0.00
11,019.88	88.30	89.55	8,560.00	-975.47	2,234.02	2,226.29	0.00	0.00	0.00
11,040.11	88.71	89.57	8,560.53	-975.31	2,254.25	2,246.52	2.00	2.00	0.12
11,100.00	88.71	89.57	8,561.88	-974.87	2,314.12	2,306.39	0.00	0.00	0.00
11,200.00	88.71	89.57	8,564.14	-974.12	2,414.09	2,406.36	0.00	0.00	0.00
11,300.00	88.71	89.57	8,566.40	-973.38	2,514.06	2,506.34	0.00	0.00	0.00
11,400.00	88.71	89.57	8,568.66	-972.63	2,614.03	2,606.31	0.00	0.00	0.00
11,500.00	88.71	89.57	8,570.92	-971.88	2,714.00	2,706.29	0.00	0.00	0.00
11,600.00	88.71	89.57	8,573.17	-971.14	2,813.97	2,806.26	0.00	0.00	0.00
11,700.00	88.71	89.57	8,575.43	-970.39	2,913.95	2,906.24	0.00	0.00	0.00
11,800.00	88.71	89.57	8,577.69	-969.65	3,013.92	3,006.21	0.00	0.00	0.00
11,900.00	88.71	89.57	8,579.95	-968.90	3,113.89	3,106.18	0.00	0.00	0.00
12,000.00	88.71	89.57	8,582.21	-968.15	3,213.86	3,206.16	0.00	0.00	0.00
12,100.00	88.71	89.57	8,584.47	-967.41	3,313.83	3,306.13	0.00	0.00	0.00
12,200.00	88.71	89.57	8,586.73	-966.66	3,413.80	3,406.11	0.00	0.00	0.00
12,300.00	88.71	89.57	8,588.99	-965.91	3,513.78	3,506.08	0.00	0.00	0.00
12,344.90	88.71	89.57	8,590.00	-965.58	3,558.66	3,550.97	0.00	0.00	0.00
12,364.09	88.91	89.25	8,590.40	-965.38	3,577.85	3,570.16	2.00	1.07	-1.69
12,400.00	88.91	89.25	8,591.08	-964.91	3,613.75	3,606.06	0.00	0.00	0.00
12,500.00	88.91	89.25	8,592.98	-963.60	3,713.72	3,706.04	0.00	0.00	0.00
12,600.00	88.91	89.25	8,594.88	-962.29	3,813.70	3,806.02	0.00	0.00	0.00
12,700.00	88.91	89.25	8,596.78	-960.97	3,913.67	3,906.00	0.00	0.00	0.00
12,800.00	88.91	89.25	8,598.68	-959.66	4,013.64	4,005.98	0.00	0.00	0.00
12,900.00	88.91	89.25	8,600.59	-958.35	4,113.62	4,105.96	0.00	0.00	0.00
13,000.00	88.91	89.25	8,602.49	-957.04	4,213.59	4,205.94	0.00	0.00	0.00
13,100.00	88.91	89.25	8,604.39	-955.72	4,313.56	4,305.92	0.00	0.00	0.00
13,132.25	88.91	89.25	8,605.00	-955.30	4,345.80	4,338.16	0.00	0.00	0.00
13,200.00	88.91	89.25	8,606.29	-954.41	4,413.54	4,405.90	0.00	0.00	0.00
13,300.00	88.91	89.25	8,608.19	-953.10	4,513.51	4,505.88	0.00	0.00	0.00
13,362.30	88.91	89.25	8,609.37	-952.28	4,575.79	4,568.17	0.00	0.00	0.00



Planning Report



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Site: SOUTH AVALON AUA COM 1 ST
Well: 402H
Wellbore: Wellbore #2
Design: PLAN #5

Local Co-ordinate Reference: Well 402H
TVD Reference: Est RKB = 25' @ 3177.00usft
MD Reference: Est RKB = 25' @ 3177.00usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature

Design Targets									
Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
PLAT SHL (660' FNL - plan hits target center - Point	0.00	0.00	0.00	0.00	0.00	535,134.80	560,965.80	32.471133	-104.269686
PLAT FTP (1650' FNL - plan misses target center by 218.80usft at 8550.00usft MD (8368.28 TVD, -883.64 N, -194.37 E) - Point	0.00	0.00	8,500.00	-992.40	-331.10	534,142.40	560,634.70	32.468405	-104.270762
PLAN LAND POINT - plan hits target center - Point	0.00	0.00	8,506.34	-949.92	172.11	534,184.88	561,137.91	32.468521	-104.269130
PLAN CP 1 (1650' FN - plan misses target center by 7.41usft at 9327.07usft MD (8511.01 TVD, -982.29 N, 542.13 E) - Point	0.00	0.00	8,511.00	-989.69	541.67	534,145.11	561,507.47	32.468411	-104.267932
PLAN CP 2 (1650' FN - plan hits target center - Point	0.00	0.00	8,560.00	-975.47	2,234.02	534,159.33	563,199.82	32.468448	-104.262444
PLAN CP 3 (1650' FN - plan hits target center - Point	0.00	0.00	8,590.00	-965.58	3,558.66	534,169.22	564,524.46	32.468472	-104.258149
PLAT LTP (1650' FNL - plan hits target center - Point	0.00	0.00	8,605.00	-955.30	4,345.80	534,179.50	565,311.60	32.468499	-104.255597
PLAT PBHL (1650' FN - plan misses target center by 1.22usft at 13362.29usft MD (8609.37 TVD, -952.28 N, 4575.78 E) - Point	0.00	0.00	8,609.37	-953.50	4,575.80	534,181.30	565,541.60	32.468503	-104.254851

Hole Section Summary and Well Diagram

String	Hole Size	Casing	Approx. Depth	Depth Criteria
Conductor	26"	20" Conductor	40'	Ready mix cemented to surface 7-5-2000
Surface	17 1/2"	13 3/8" 48# H-40	595'	Cemented 200 sxs and ready mix on 7-9-2000
Intermediate	12 1/4"	9 5/8" 36# J-55 LTC	2150'	To protect the usable water, cover lost circulation in hole – cemented with 1530 sxs 7/12/2000
Intermediate	8 3/4"	7" 29# SP-110 VAM	4600'	Cemented 1525 sxs to surface 8-8-2000 Casing exit planned at 4600' MD to drill lateral
Production	6 1/8"	5 1/2" 20# HCP-110 FJ	8,000'	TD determined by Wellbenders directional well plan
Production	6 1/8"	4 1/2" 13.5# HCP-110	13,362'	TD determined by Wellbenders directional well plan

Casing Characteristics

String	Depth (ft)	OD (in)	ID (in)	Cpl OD (in)	Drift (in)	Weight (#/ft)	Grade	CXN	Burst (psi)	Collapse (psi)	Tension (k-lbs)	Torque (ft-lbs)		
												Min	Opt	Max
Production	0' – 8,000'	5.5	4.778	5.5	4.653	20	HCP 110	FJ	12640	11100	548			
Production	8000' – 13,362'	4.5	3.920	5	3.795	13.5	HCP 110	BTC	12410	10680	422			

Cement Program

String	Hole Size	Casing	LEAD SLURRY			TAIL SLURRY		
			Weight	TOC	Excess / OH	Weight	TOC	Excess / OH
Production	6.125"	5.5"	11.8	Surface	50%			
Production	6.125"	4.5"				13.2	8950'	50%

Description	Top	Bottom	Casing	Hole	Volume (cuft)	Excess	Total:	Type:	Yield	Total sks	Total bbls
5-1/2" inside 7"	0	4600	5.5	6.276	229.3	50%	343.9	Lead	2.24	153.5	27.3
5-1/2" inside open hole	4600	8000	5.5	6.125	134.7	50%	202.1	Tail	2.24	90.2	16.1
4-1/2" inside open hole	8000	13,362	4.5	6.125	504.9	50%	757.4	Tail	1.38	548.8	97.8

Mud Program

Hole Section	Fluid Type	Mud Weight (ppg)	Funnel Visc (s/qt)	PV	YP	pH	API Fluid Loss	Chlorides	Drill Solids (%)
6.125" Curve/Lateral 4615' – TD	Oil Based Mud	8.5-10.0	35-45	12-18	12-15		NC	30,000	<5

Bit, Hydraulics, and Drilling Parameters

Size	Vendor	Type	Depth Out	Jets \ TFA	WOB (k-lbs)	RPM	Flowrate (GPM)	Pressure (psi)
6.125" Lateral	Ulterra	616	N/A	1.1	15-25	60-200	250-400	3000
BACK UP BITS								
6.125"	Smith	XS513	N/A	.902	15-35	80-200	250-400	3000

Approximate Geologic Formation Tops, Pressures, and Hazards

Projected Formation Tops		Pressures	Hazards/Notes
Formation	TVD	EMW ppg	
Delaware	2122'	8.4	Lost circulation, wellbore cleaning
Delaware	2122'	8.4	Lost circulation, wellbore cleaning
Bone Spring	4410'	9.0	Seepage, lost circulation
1 st Bone Spring Sand	5731'	9.0	Seepage, lost circulation
2 nd Bone Spring Sand	6522'	9.0	Seepage, lost circulation
3 rd Bone Spring Sand	7992'	9.5	Seepage, lost circulation
Wolfcamp	8356'	9.5	Seepage, lost circulation, torque & drag
Landing Target	8,495'	9.5	

Formation Evaluation

Type	Section \ Comments
MWD/Gamma Ray	Gamma Ray logging from casing exit to TD
	Vendor – Wellbenders Directional – C.W. Ely (979) 777-3329
Mud Logging	Rigged up and Logging from casing exit to TD
	Vendor – Unknown

BHA Program

Section	Hole Size	BHA Description
Production Vertical/ Curve/ Lateral	6.125"	6.125" PDC bit 1 - 5" Motor 5.0 0.25 rev/gal (2.0° Fixed w/ 5 3/4" NBS) 4 3/4" NM PONY Collar 1 - UBHO 2 - NMDC (w/MWD & Gamma Ray) 3.5" DP HT-38 connections - Pull BHA after curve is landed and drill 300' to 500' in the lateral
Production Lateral	6.125"	6.125" PDC bit 1 - 5" Motor 5.0 0.25 rev/gal (1.5° Fixed w/ 5 3/4" NBS) 4 3/4" NM PONY Collar 1 - UBHO 2 - NMDC (w/MWD & Gamma Ray) 3.5" DP HT-38 connections - Pull BHA at TD

Survey Program

Hole	Type	Comments
6.125"	Inclination & Azimuth	MWD with gamma ray in the production hole section.

Make sure all survey are recorded in IADC. Company rep is not to sign off on daily IADC until surveys are put in.

Note: Maintain survey program and ensure well path follows Wellbenders' directional plan.

Directional Target

KB Depth (ft)	Departure from BHL	Comments
Wellbore	10' up & down 20' left & right	Geologists will continue to monitor formation dip with gamma and adjust as needed.

Wellhead Equipment

Section	Man.	Bottom Flange		Top Flange		Comments
		Size (in.)	WP (psi)	Size (in.)	WP (psi)	
Tubing head	AFS	7 1/16"	5000	7 1/16"	15000	Test tubing head pack off to 5000 psi

BOP Equipment

Casing Size (in.)	Wellhead Flange		BOP Stack			Pressure Test (psi)			
	Size (in.)	Pressure (psi)	Type	Size (in.)	Pressure (psi)	Initial		Subsequent	
						Rams	Ann	Rams	Ann
7"	11"	5000	Shaffer	13 5/8"	5000	250/3000	2000		

BOP Installed and tested before drilling which hole?	Size	Min Required WP	Type	X	Tested to:	Deepest TVD Depth (ft) per Section:
6.125" Hole	13-5/8	3M	Annular	X	2000 psi	8825
		3M	Blind Ram	X	250 psi/3000 psi	
			Pipe Ram			
			Double Ram	X		
			Other			

***Test BOPE 250/3000 psi, and 2000 psi for the annular preventer. This pressure is close to the burst rating of 7" casing, therefore caution must be exerted to avoid exposing the casing to this high pressure. Make sure test plug is properly installed prior to beginning testing.**

- One set of pipe rams should be located below drilling spool
- Blind rams should be located in lower most double ram cavity
- Pipe rams should be fitted for 3.5" solid body ram.
- Use new ring gaskets every time BOP is installed
- Insure all BOP tests are recorded and kept in Drilling Supervisor Office
- TIW valve and inside BOP with appropriate wrenches must be on rig floor at all times.
- Drill pipe float is required in all BHAs.

All BOPE test pressures to be held for a minimum of 5 minutes. Relevant well control equipment shall be tested following replacement of any pressure containing component; or following removal, then reinstallation of BOP stack; or following installation of each casing string; or at the discretion of the Drill Site Manager or Drilling Superintendent.

BOP/Casing Test Assumptions

7" Intermediate Casing:

All BOP Tests: Should be done by a 3rd party tester and held for 5 mins each. All BOP test charts are to be kept for record and done at a minimum of every 21 days. **Note: a test plug should be utilized and the casing valve left open for the entire BOP test**

7" Casing Test: **1000 psi** pressure drop of no more than 10% over 30 min test.

- Nipple up 13 5/8" 5M BOP stack per the following: (bottom to top)
 - A-section wellhead
 - DSA (11" 5M x 13 5/8" 5M)
 - 13 5/8" 5M Spacing Spool
 - 13 5/8" 5M Drilling Spool
 - 13 5/8" 5M Double Ram (Blinds on bottom, 4.5" Pipe Rams on top)
 - 13 5/8 5M Annular Preventer

This BOP NU could vary with rig specific equipment. Consult with Mike prior to NU

- d. **SIMOPS:** Make up test plug offline with one joint of DP.
- e. Run test plug and perform remaining BOPE test as referenced in BOP Test Section for 5 minutes and chart same (test includes FOSV, IBOP and Top Drive valves). Retrieve test plug, and chart results. Perform one test on standpipe and top drive hose to 3500 psi to ensure integrity (make sure casing is not subject to this pressure). **Casing valve to remain open throughout all tests.**
 - Note: The intent is to stump test BOPs offline to minimize NU time.
- f. File BOP test chart in well file.
- g. Install the wear bushing.
- h. Pick up 6" BHA as per **BHA Section**. Drilling supervisor is to witness motor scribe on the rig floor with DD.
- i. TIH to the top of float collar and test casing before drilling out.
- j. Drill out the shoe track, limiting surface RPMs to 40 and flow rate to 400 GPM. Pump high viscosity fresh water gel sweeps as necessary while drilling cement. Record the firmness of cement in morning report.
- k. Commence drilling the production hole with fresh water circulating the closed loop system.

Production Hole Drilling Curve/ Lateral

Anticipated Problems

Type	Comments
Lost circulation	Seepage losses can occur while drilling. Mud weight (ECD) should be maintained at all times per the mud program.
Abnormal Pressure	Abnormal pressure is possible in the production hole section. Keep the hole full on connections, surveys, and trips to minimize the potential for flows. Monitor trip speed to avoid swabbing or surging the hole. If pressure is encountered, allow hole conditions to determine the best possible solution.
Wellbore cleaning	Poor wellbore cleaning can occur while drilling the horizontal section. Maintain maximum allowable GPM's to aid in hole cleaning. Use of clean up cycle should be used as hole dictates. These should be performed at MCMR (max circulating max rotating)
Excessive Torque and Drag	Clean up cycles and sweeps can be used to aid in hole cleaning. Additions of BCI Lube every 60' of lateral drilled may be used for lubricity. Use Beads and Xanthan gum

a. **Ensure that mud loggers are on location rigged up and taking samples prior to drill out of surface casing shoe.**

b. Move in and rig up all Oil Base Mud System and processing equipment.

c. Nipple up 13 5/8" 5M BOP stack per the following: (bottom to top)

- A-section wellhead
- DSA (11" 5M x 13 5/8" 5M)
- 13 5/8" 5M Spacing Spool
- 13 5/8" 5M Drilling Spool
- 13 5/8" 5M Double Ram (Blinds on bottom, 4.5" Pipe Rams on top)
- 13 5/8 5M Annular Preventer

This BOP NU could vary with rig specific equipment. Consult with WSS prior to NU

- SIMOPS: Make up test plug offline with one joint of DP.
- Run test plug and perform remaining BOPE test as referenced in BOP Test Section for 5 minutes and chart same (test includes FOSV, IBOP and Top Drive valves). Retrieve test plug, and chart results. Perform one test on standpipe and top drive hose to 3500 psi to ensure integrity (make sure casing is not subject to this pressure). Casing valve to remain open throughout all tests.
- Note: The intent is to stump test BOPs offline to minimize NU time.
- File BOP test chart in well file.
- Install the wear bushing.
- Pick up 6" whipstock BHA as per Globe Field Hand.

d. TIH to 4600' and set whipstock on top of CIBP.

e. Drill out the shoe track, limiting surface RPMs to 40 and flow rate to 250 GPM. Pump high viscosity weighted sweeps as necessary while milling casing,

- cement and new formation. Record the firmness of cement and formation in morning report.
- f. Mill out of window until casing is fully open or mills are worn out. Back ream often to keep from piling up metal cuttings in the top of the window.
 - g. Ensure mills are worked without rotation up and down through the window multiple times before shutting down.
 - h. Pull out of the hole with the mills and ensure that they are still within gauge tolerance.
 - i. Pick up curve and lateral BHA as described above in **BHA Section** and trip in the well to the top of whipstock.
 - j. Test formation to an 11 ppg mud equivalent.
 - k. Commence drilling the production hole with fresh water circulating the closed loop system.
 - l. Drill the production hole as per directional drilling plan.
 - m. Maintain sufficient WOB to maximize the differential pressure, based on the motor and bit limits.
 - n. Continue to monitor all surveys closely. Calculate motor yield and project to TD after every survey to determine build rates needed to land curve.
 - Take surveys every 45 ft until landed.
 - If at any time calculated build rates to land on target are greater than motor yield stop drilling and contact DS and DE.
 - Directional team, on-site mud logger, and geologist are expected to stay in constant communication while drilling curve section.
 - o. Resume drilling production hole lateral section.
 - See recommended drilling parameters in **Bit Program**. Maintain enough WOB to maximize motor differential, and maximize rotary speed to minimize building tendencies. Attempt to maximize flow rate as hole conditions allow. If vibration is observed, adjust parameters in small increments in an attempt to find a sweet spot.
 - Surveys should be taken at least every stand and more often if surveys indicate building tendencies. **Follow directional plan and notify DS and DE if surveys indicate issues maintaining plan.**
 - After connections, fan the PDC bit back to bottom to mitigate bit damage.
 - Monitor and record pick up, slack off, and rotating weight/torque at every connection and evaluate as an indication of hole conditions.
 - While drilling the entire hole section, PVT data should be watched closely for signs of gains/losses.
 - Run solids control equipment continuously to keep LGS down and maximize ROP.
 - p. Do not allow the torque to fluctuate greater than +/-1000 ft-lbs. If the formation appears "ratty" (erratic torque or large variance in torque values), incrementally adjust the surface RPM and the WOB to reduce downhole vibration. Reduce RPMs in 3-5 RPM intervals, allowing sufficient time between adjustments for the string to stabilize.
 - q. Have LCM on location (per the mud program) at all times during drilling.

- r. **SIMOPS:** While drilling production hole section, ensure casing is received, cleaned, tallied, and drifted with an API drift.
- s. Refer to the mud procedure for specific drilling fluid handling procedures while drilling the production hole.
- t. Continue drilling to TD. Once at TD perform clean up cycle while pumping high viscosity & weighted sweeps prior to TOH. Discuss with DS and DE about sweep frequency and rotating parameters.
 - Space out to allow a full stand to be available to reciprocate drill pipe while pumping clean up cycle.
 - Pump at maximum allowable pump GPM's while rotating at maximum allowable RPM's
- u. Once out of the hole with BHA – pick up underreamer and go back in the hole to 4600' MD. Once through casing window, open underreamer and ream well from 4600' to 9100' MD. POOH check gauge on underreamer – lay down same.
- v. Pick Up re-run PDC bit and GIH to TD – perform cleanup cycles and pump high visc and weighted sweeps. Once well is clean – pull out of the hole laying down drill pipe.

Production Casing

- a. Notify the NMOCD & BLM of intent to run and cement production casing.
- b. Make sure to have **Drilling engineer** sign off on shoe track prior to making it up – engineer will ensure proper installation of float in collar.
- c. Conduct a pre-job safety meeting.
- d. SIMOPS: Visually inspect float equipment for damage and proper operation. Ensure that the manufacturer model and numbers match with the descriptions below.
- e. Make up and run 4 1/2" 13.5# HCP-110 production casing as follows
 - 1 – 4-1/2" OD Round Nose Float Shoe (thread locked)
 - 2 - joint 4-1/2" 13.5# HCP-110 casing (thread locked)
 - 1 – 4-1/2" Float Collar (thread locked)
 - 2200' of 4-1/2" 13.5# HCP-110 casing (middle of lateral)
 - 1 – Marker Joint
 - 3200' of 4-1/2" 13.5# HCP-110 casing (~50' above KOP)
 - 1 – Crossover (4/12" 13.5# HCP-110 BTC to 5-1/2" 20# HCP-110 FJ)
 - 5-1/2" 20# HCP-110 FJ** casing back to surface.
- f. Measure all casing jewelry and shoe tracks.
- g. Use this information for determining TD and any Rat Hole needed – DO NOT CROSS HARDLINE AT TOE!
- h. After making up the shoe track, pump through equipment to ensure that floats are clean of any obstructions. Confirm flow.
- i. Pick up and run casing with casing crew, monitoring returns on the trip tank. Record pick up and slack off weights.
- j. Proceed TIH through curve and lateral filling on the fly as needed.
- k. Tag bottom, and confirm hole depth.
- l. **SIMOPS:** Conduct pre-job safety meeting with cementing crew while circulating prior to cement job.

- m. Rig up cementing head (with top wiper plug pre-installed in cement head) and surface lines. Pressure test lines to 250/7500 psi; ensure that surface equipment is isolated from downhole while testing. Ensure pressure is bled off of mud lines. **Drilling supervisor is to visually verify that the plug is properly loaded in the cement head before installing it on casing.**
- n. Pressure up to rupture the disk in the Airlock Float-In sub. Once the disk has been ruptured, circulate to allow the debris to clear the casing string. *Refer to the detailed Airlock running procedure for more details – Provided by the manufacturer.*
- o. Mix and pump spacers / cement job at 6 BPM as follows (ensure and record all pressures and rates):

*****See detailed cement proposal for slurry specifics*****

Fluid #	Fluid Type	Fluid Name	Estimated Avg Rate bbl/min	Downhole Volume	Time min
1	Spacer	Weighted Spacer	6	40	7
2	Cement	Lead Cement	6	44	8
3	Cement	Tail Cement	6	100	17
4	Fluid	Water w/Bio-SI	6	361	60
Contingency 50% Job Time					48.0 140

*****Note: Field blend tests prior to job should have thickening time no less than 4 hrs*****

- p. Catch sample of dry cement, mix water, and wet cement.
- q. Drop top wiper plug and displace with cement truck to float collar with fresh water. **DO NOT OVERDISPLACE.** Slow pump rate to ± 2 BPM for the last 10 bbls. Bump plug and pressure up to 500 psi for 5 minutes, then bleed back to 0 psi. Check for back flow. Flow check annulus and confirm fluid level is holding at surface and record results.
- r. Monitor well and confirm well is static for a minimum of 30 minutes.
- s. Nipple down the BOP and proceed with setting 5 ½" slips prior to cement setting up in surface casing.
- t. Install the 11" 5K Well head cap prior to rig release.
- u. Laydown remaining drill string from derrick and Prepare to move rig.

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

COMMENTS

Action 67906

COMMENTS

Operator: SPC RESOURCES, LLC P.O. Box 1020 Artesia, NM 88211	OGRID: 372262
	Action Number: 67906
	Action Type: [C-103] NOI Change of Plans (C-103A)

COMMENTS

Created By	Comment	Comment Date
kpickford	KP GEO Review 12/21/2021	12/21/2021

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CONDITIONS

Action 67906

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	Action Type: [C-103] NOI Change of Plans (C-103A)

CONDITIONS

Created By	Condition	Condition Date
jagarcia	New Property code is 332050	1/3/2022
jagarcia	Effective date of property change is 12/1/2021	1/3/2022