District I
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District III
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Phone:(505) 334-6178 Fax:(505) 334-6170
District IV
1220 S. St Francis Dr., Santa Fe, NM 87505
Phone:(505) 476-3470 Fax:(505) 476-3462

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

Form C-101
August 1, 2011

Permit 288270

APPLICATION FOR PERMIT TO DRILL, RE-ENTER, DEEPEN, PLUGBACK, OR ADD A ZONE

1. Operator Name and Address		2. OGRID Number
SPC RESOURCES, LLC P.O. Box 1020 Artesia, NM 88211		372262
		3. API Number 30-015-47629
4. Property Code 329783	5. Property Name CAVEMAN 7 12 WCXY	6. Well No. 002H

7. Surface Location

UL - Lot	Section	Township	Range	Lot Idn	Feet From	N/S Line	Feet From	E/W Line	County
E	8	22S	27E	E	2271	N	240	W	Eddy

8. Proposed Bottom Hole Location

UL - Lot	Section	Township	Range	Lot Idn	Feet From	N/S Line	Feet From	E/W Line	County
E	12	22S	26E	E	1650	N	100	W	Eddy

9. Pool Information

PURPLE SAGE;WOLFCAMP (GAS)	98220

Additional Well Information

11. Work Type	12. Well Type	13. Cable/Rotary	14. Lease Type	15. Ground Level Elevation
New Well	GAS		Private	3099
16. Multiple	**17. Proposed Depth**	**18. Formation**	**19. Contractor**	**20. Spud Date**
N	19472	Wolfcamp		1/4/2021
Depth to Ground water		Distance from nearest fresh water well		Distance to nearest surface water

☒ **We will be using a closed-loop system in lieu of lined pits**

21. Proposed Casing and Cement Program

Type	Hole Size	Casing Size	Casing Weight/ft	Setting Depth	Sacks of Cement	Estimated TOC
Surf	17.5	13.375	54.5	425	430	0
Int1	12.25	10.75	40.5	2800	500	0
Prod	8.75	5.5	20	19458	2545	9152
Prod	9.875	5.5	20	9152	2020	0

Casing/Cement Program: Additional Comments

Plan to drill production interval from 1800 to bottom of curve at 9152 with 9-7/8" in order to have 7-5/8" contingency option. After tripping for a bit, we will drill 8.75" open hole in lateral. Then run 5.5" long string and cement with 4565 sxs of cement.

22. Proposed Blowout Prevention Program

Type	Working Pressure	Test Pressure	Manufacturer
Annular	3000	2000	Shaffer
Pipe	5000	3500	Shaffer
Blind	5000	3500	Shaffer

23. I hereby certify that the information given above is true and complete to the best of my knowledge and belief. **I further certify I have complied with 19.15.14.9 (A) NMAC ☒ and/or 19.15.14.9 (B) NMAC ☒, if applicable.** Signature:		**OIL CONSERVATION DIVISION**	
Printed Name:	Electronically filed by Lelan J Anders	Approved By:	Kurt Simmons
Title:	Vice President of Operations	Title:	Petroleum Specialist - A
Email Address:	landers@santopetroleum.com	Approved Date: 11/5/2020	Expiration Date: 11/5/2022
Date: 11/4/2020	Phone: 713-600-7502	Conditions of Approval Attached	

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State of New Mexico
Energy, Minerals and Natural Resources Department

OIL CONSERVATION DIVISION

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

Form C-102
Revised August 4, 2011

Submit one copy to appropriate District Office

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number	Pool Code	Pool Name
	98220	PURPLE SAGE WOLFCAMP GAS POOL

Property Code	Property Name	Well Number
	CAVEMAN 7-12 WCXY	2H

OGRID No.	Operator Name	Elevation
	SPC RESOURCES, LLC	3099

Surface Location

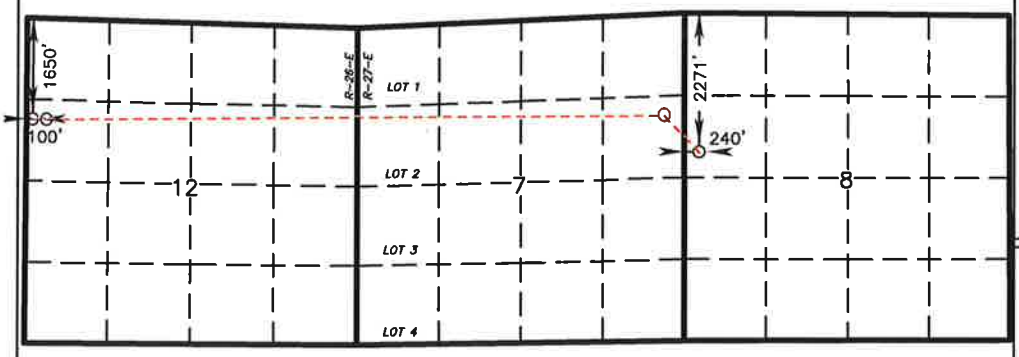
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	SOUTH/South line	Feet from the	East/West line	County
E	8	22 S	27 E		2271	NORTH	240	WEST	EDDY

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
E	12	22 S	26 E		1650	NORTH	100	WEST	EDDY

Dedicated Acres	Joint or Infill	Consolidation Code	Order No.
1267.1			

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



BOTTOM HOLE LOCATION
Lat – N 32.410061
Long – W 104.254726
NMSPCE– N 512920.2
E 565595.8
(NAD-83)

LAST TAKE POINT
1650 FNL & 330 FWL
Lat – N 32.410039
Long – W 104.253981
NMSPCE– N 512912.4
E 565826.0
(NAD-83)

FIRST TAKE POINT
1650 FNL & 330 FEL
Lat – N 32.410231
Long – W 104.221300
NMSPCE– N 512991.2
E 575910.6
(NAD-83)

SURFACE LOCATION
Lat – N 32.408564
Long – W 104.219452
NMSPCE– N 512385.6
E 576482.0
(NAD-83)

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 — Date: 11/2/2020

Lelan J Anders
Printed Name

LAnders@SantoPetroleum.com
Email 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 supervison, and that the same is true and correct to the best of my belief.

Date Surveyed: JULY 31, 2019

Signature & Seal of Professional Surveyor

Certificate Number 7977

BASIN SURVEYS

0' 2000' 4000' 6000' 8000' N
SCALE: 1" = 4000'
WO Num.: 34729

BEFORE THE OIL CONSERVATION DIVISION
Santa Fe, New Mexico
Exhibit No. 2A
Submitted by: **SPC Resources, LLC**
Hearing Date: September 19, 2019
Case No. 20762

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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

GAS CAPTURE PLAN

Date: 11/5/2020

☒ Original

☐ Amended - Reason for Amendment:

Operator & OGRID No.: [372262] SPC RESOURCES, LLC

This Gas Capture Plan outlines actions to be taken by the Operator to reduce well/production facility flaring/venting for new completion (new drill, recomplete to new zone, re-frac) activity.

Note: Form C-129 must be submitted and approved prior to exceeding 60 days allowed by Rule (Subsection A of 19.15.18.12 NMAC).

Well(s)/Production Facility – Name of facility

The well(s) that will be located at the production facility are shown in the table below.

Well Name	API	Well Location (ULSTR)	Footages	Expected MCF/D	Flared or Vented	Comments
CAVEMAN 7 12 WCXY #002H	30-015-47629	E-8-22S-27E	2271N 0240W	2500	None	Plan to tie into Enterprise B-4 lateral. Will have 2 stage compressor at CTB on Douglas COM 1 Pad

Gathering System and Pipeline Notification

Well(s) will be connected to a production facility after flowback operations are complete, if gas transporter system is in place. The gas produced from production facility is dedicated to ENTERPRISE FIELD SERVICES L.L.C. and will be connected to ENTERPRISE FIELD SERVICES L.L.C. High Pressure gathering system located in Eddy County, New Mexico. It will require 7300' of pipeline to connect the facility to High Pressure gathering system. SPC RESOURCES, LLC provides (periodically) to ENTERPRISE FIELD SERVICES L.L.C. a drilling, completion and estimated first production date for wells that are scheduled to be drilled in the foreseeable future. In addition, SPC RESOURCES, LLC and ENTERPRISE FIELD SERVICES L.L.C. have periodic conference calls to discuss changes to drilling and completion schedules. Gas from these wells will be processed at ENTERPRISE FIELD SERVICES L.L.C. Processing Plant located in Sec. 31, Twn. 23S, Rng. 28E, Eddy County, New Mexico. The actual flow of the gas will be based on compression operating parameters and gathering system pressures.

Flowback Strategy

After the fracture treatment/completion operations, well(s) will be produced to temporary production tanks and gas will be flared or vented. During flowback, the fluids and sand content will be monitored. When the produced fluids contain minimal sand, the wells will be turned to production facilities. Gas sales should start as soon as the wells start flowing through the production facilities, unless there are operational issues on ENTERPRISE FIELD SERVICES L.L.C. system at that time. Based on current information, it is SPC RESOURCES, LLC's belief the system can take this gas upon completion of the well(s).

Safety requirements during cleanout operations from the use of underbalanced air cleanout systems may necessitate that sand and non-pipeline quality gas be vented and/or flared rather than sold on a temporary basis.

Alternatives to Reduce Flaring

Below are alternatives considered from a conceptual standpoint to reduce the amount of gas flared.

- Power Generation – On lease
  - Only a portion of gas is consumed operating the generator, remainder of gas will be flared
- Compressed Natural Gas – On lease
  - Gas flared would be minimal, but might be uneconomical to operate when gas volume declines
- NGL Removal – On lease
  - Plants are expensive, residue gas is still flared, and uneconomical to operate when gas volume declines

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

Form APD Comments

Permit 288270

PERMIT COMMENTS

Operator Name and Address:	API Number:
SPC RESOURCES, LLC [372262] P.O. Box 1020 Artesia, NM 88211	30-015-47629
	Well: CAVEMAN 7 12 WCXY #002H

Created By	Comment	Comment Date

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Energy, Minerals and Natural Resources
Oil Conservation Division
1220 S. St Francis Dr.
Santa Fe, NM 87505

Form APD Conditions

Permit 288270

PERMIT CONDITIONS OF APPROVAL

Operator Name and Address:	API Number:
SPC RESOURCES, LLC [372262] P.O. Box 1020 Artesia, NM 88211	30-015-47629
	Well: CAVEMAN 7 12 WCXY #002H

OCD Reviewer	Condition
kpickford	Will require a directional survey with the C-104
kpickford	Surface casing must be set 25' below top of the salt in order to seal off protectable water
kpickford	Once the well is spud, to prevent ground water contamination through whole or partial conduits from the surface, the operator shall drill without interruption through the fresh water zone or zones and shall immediately set in cement the water protection string
kpickford	Oil base muds are not to be used until fresh water zones are cased and cemented providing isolation from the oil or diesel. This includes synthetic oils. Oil based mud, drilling fluids and solids must be contained in a steel closed loop system.
kpickford	Will require administrative order for non-standard spacing unit
kpickford	The Operator is to notify NMOCD by sundry (Form C-103) within ten (10) days of the well being spud 2)- Drilling Sundries Form C-103 (Casing and Cement test are to be submitted within 10 days 3)- Completion Reports & Logs are to be submitted within 45 days
kpickford	Cement is required to circulate on both surface and intermediate1 strings of casing

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Hydrogen Sulfide Drilling Operations Plan

SPC Resources, LLC
101 S. 4th Street, Suite B
Artesia, NM 88210
(575) 736-3250

1. H_2S Safety Instructions to the following:
    - Characteristics of H_2S.
    - Physical effects and hazards.
    - Principal and operation of H_2S detectors, warning system and briefing areas.
    - Evacuation procedures, routes and First Aid.
    - Proper use of safety equipment and life support systems.
    - Essential personnel meeting medical evaluation criteria will receive additional training on the proper use of 30 min pressure demand air packs.

2. H_2S Detection & Alarm Systems:
    - H_2S sensor/detectors to be located on the drilling rig floor, in the base of the sub structure/cellar area, on the mud returns pits by the shale shaker. Additional H_2S monitors may be placed as deemed necessary.
    - An audio alarm system will be installed on the derrick, the floor, and in the doghouse.

3. Windsocks and Wind Streamers:
    - Windsocks at mud pit area should be high enough to be visible.
    - Windsock on the rig floor/top of doghouse should be high enough to be visible.

4. Condition Flags & Signs:
    - Warning sign on access road to location
    - Flags to be displayed on sign at entrance to location
        i. Green Flag – Normal Safe Operation Condition
        ii. Yellow Flag – Potential Pressure and Danger
        iii. Red Flag – Danger (H_2S present in dangerous concentrations) Only H_2S trained personnel admitted on location

5. Well Control Equipment:
    - See attached APD

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6. Communications:
   - While working under masks, chalkboards will be used for communications
   - Hand signals will be used where chalk board is inappropriate
   - Two way radio will be used to communicate off location in case of emergency help is required. In most cases cellular telephones will be available at drilling foreman's trailer or living quarters.

7. Drilling Stem Testing:
   - No Drill Stem Tests or hole coring is planned at this time.

8. Drilling contractor supervisor will be required to be familiar with the effects H_2S has on tubular goods and other mechanical equipment.

9. If H2S is encountered, mud system will be altered if necessary to maintain control of formation. A mud gas separator will be brought into service along with H2S scavenger chemicals if necessary.

10. Emergency Contacts:

Emergency Contact Information - Santo Personnel				
Santo Petroleum, LLC	**Artesia Office**	575-736-3250	**Houston**	713-600-7500
Key Parties at Santo Petroleum	**Title**	**Office**	**Mobile**	**Email**
Gary Waldrop	Field Land Manager	575-736-3256	469-261-3446	gwaldrop@santopetroleum.com
Lelan J Anders	VP, Operations	713-600-7502	281-908-1752	landers@santopetroleum.com
Hanson Yates	President	713-600-7503	713-412-2097	hyates@santopetroleum.com

Carlsbad, New Mexico:	
Ambulance	911
State Police	575-885-3137
City Police	575-885-2111
Sheriff's Office	575-887-7551
Fire Department	575-887-3798
Local Emergency Planning Committee	575-887-6544
New Mexico Oil Conservation Division	575-887-6544

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Santa Fe, New Mexico:	
New Mexico Emergency Response Commission	505-476-9600
New Mexico Emergency Response Commission (24 hr)	505-827-9126
New Mexico State Emergency Operations Center	505-476-9635

Federal Contacts:	
Carlsbad BLM Office	575-234-5972
National Emergency Response Center (Washington, DC)	800-424-8802

Medical:	
Flight for Life - Lubbock, TX	806-743-9911
AeroCare - Lubbock, TX	806-747-8923
Med Flight Air Ambulance - Albuquerque, NM	505-842-4433
SB Air Med Service - Albuquerque, NM	505-842-4949

Well Control/Other:	
Wild Well Control	281-784-4700
Boots & Coots IWC	800-256-9688
B.J. Services	575-746-3569
Halliburton	575-746-2757

Santo Petroleum

Eddy County, NM (NAD 83 - NME)
Caveman Unit
#402H

Wellbore #1

Plan: PERMIT

Standard Survey Report

03 November, 2020

PRELIMINARY

Company: Santo Petroleum
Project: Eddy County, NM (NAD 83 - NME)
Site: Caveman Unit
Well: #402H
Wellbore: Wellbore #1
Design: PERMIT

WELL DETAILS: #402H

Rig Name: Est RKB = 25' @ 3124.00usft
3099.00

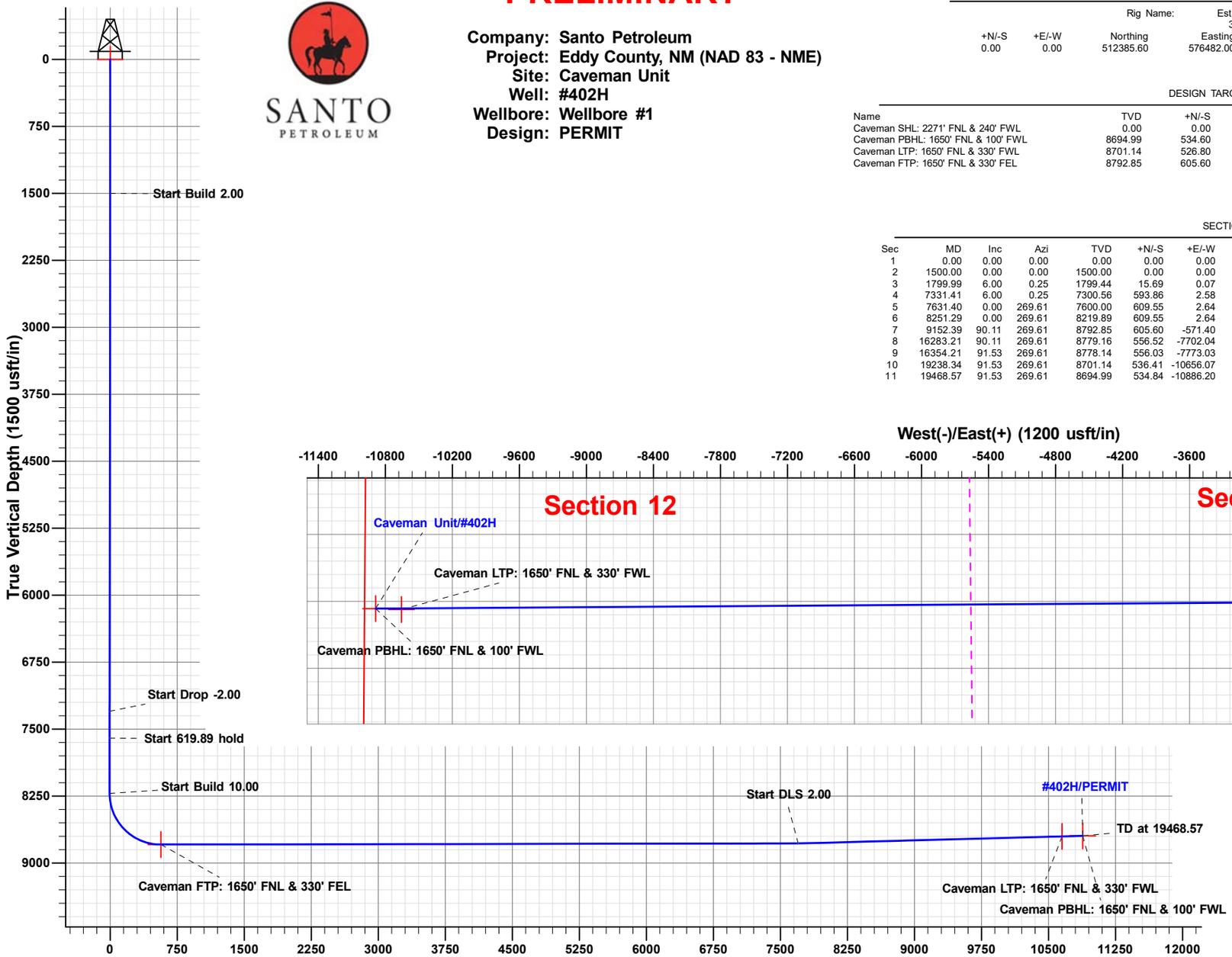
+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
0.00	0.00	512385.60	576482.00	32.408564	-104.219452

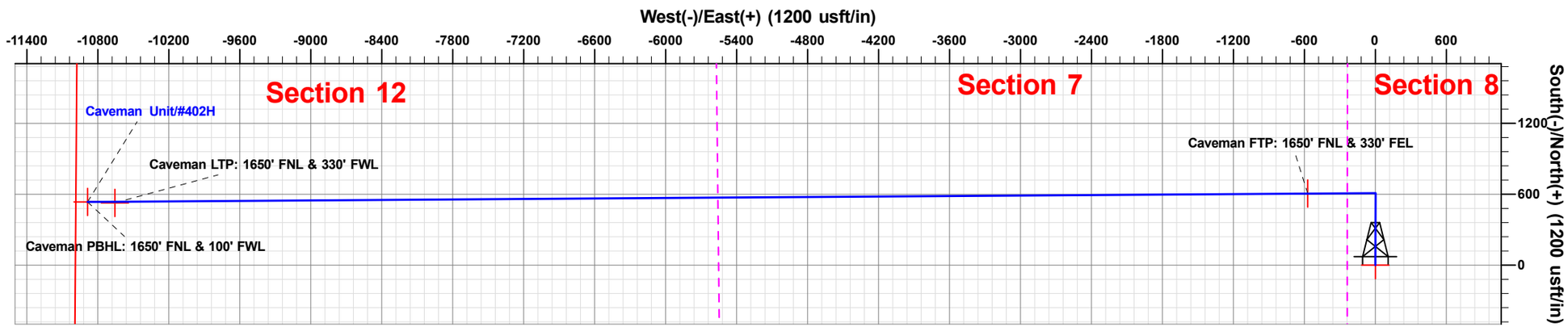
DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
Caveman SHL: 2271' FNL & 240' FWL	0.00	0.00	0.00	512385.60	576482.00	32.408564	-104.219452
Caveman PBHL: 1650' FNL & 100' FWL	8694.99	534.60	-10886.20	512920.20	565595.80	32.410060	-104.254726
Caveman LTP: 1650' FNL & 330' FWL	8701.14	526.80	-10656.00	512912.40	565826.00	32.410039	-104.253980
Caveman FTP: 1650' FNL & 330' FEL	8792.85	605.60	-571.40	512991.20	575910.60	32.410230	-104.221301

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.00	
2	1500.00	0.00	0.00	1500.00	0.00	0.00	0.00	0.000	0.00	
3	1799.99	6.00	0.25	1799.44	15.69	0.07	2.00	0.248	-0.17	
4	7331.41	6.00	0.25	7300.56	593.86	2.58	0.00	0.000	-6.62	
5	7631.40	0.00	269.61	7600.00	609.55	2.64	2.00	180.000	-6.79	
6	8251.29	0.00	269.61	8219.89	609.55	2.64	0.00	0.000	-6.79	
7	9152.39	90.11	269.61	8792.85	605.60	-571.40	10.00	0.000	567.26	Caveman FTP: 1650' FNL & 330' FEL
8	16283.21	90.11	269.61	8779.16	556.52	-7702.04	0.00	0.000	7698.07	
9	16354.21	91.53	269.61	8778.14	556.03	-7773.03	2.00	0.177	7769.06	
10	19238.34	91.53	269.61	8701.14	536.41	-10656.07	0.00	0.000	10652.17	Caveman LTP: 1650' FNL & 330' FWL
11	19468.57	91.53	269.61	8694.99	534.84	-10886.20	0.00	0.000	10882.31	Caveman PBHL: 1650' FNL & 100' FWL





PROJECT DETAILS: Eddy County, NM (NAD 83 - NME)

Geodetic System: US State Plane 1983
Datum: North American Datum 1983
Ellipsoid: GRS 1980
Zone: New Mexico Eastern Zone
System Datum: Mean Sea Level

Plan: PERMIT (#402H/Wellbore #1)

Created By: Matthew May Date: 20:08, November 03 2020

Received by OCD: 11/5/2020 10:03:12 AM

SANTO PETROLEUM

Survey Report

WELLBENDERS DIRECTIONAL SERVICES

Company:	Santo Petroleum	**Local Co-ordinate Reference:**	Well #402H
Project:	Eddy County, NM (NAD 83 - NME)	**TVD Reference:**	Est RKB = 25' @ 3124.00usft
Site:	Caveman Unit	**MD Reference:**	Est RKB = 25' @ 3124.00usft
Well:	#402H	**North Reference:**	Grid
Wellbore:	Wellbore #1	**Survey Calculation Method:**	Minimum Curvature
Design:	PERMIT	**Database:**	WBDS_SQL_2

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 Caveman Unit

Site Position:		**Northing:**	512,385.60 usft	**Latitude:**	32.408564
From:	Map	**Easting:**	576,482.00 usft	**Longitude:**	-104.219452
Position Uncertainty:	0.00 usft	**Slot Radius:**	13.200 in	**Grid Convergence:**	0.061 °

Well #402H

Well Position	**+N/-S**	0.00 usft	**Northing:**	512,385.60 usft	**Latitude:**	32.408564
	+E/-W	0.00 usft	**Easting:**	576,482.00 usft	**Longitude:**	-104.219452
Position Uncertainty		0.00 usft	**Wellhead Elevation:**	usft	**Ground Level:**	3,099.00 usft

Wellbore Wellbore #1

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	11/02/20	6.903	60.086	47,633.77449642

Design PERMIT

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	269.61

Survey Tool Program	Date			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
0.00	19,468.57	PERMIT (Wellbore #1)	MWD+IGRF	OWSG MWD + IGRF or WMM

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

SANTO PETROLEUM

Survey Report

WELLBENDERS DIRECTIONAL SERVICES

Company:	Santo Petroleum	**Local Co-ordinate Reference:**	Well #402H
Project:	Eddy County, NM (NAD 83 - NME)	**TVD Reference:**	Est RKB = 25' @ 3124.00usft
Site:	Caveman Unit	**MD Reference:**	Est RKB = 25' @ 3124.00usft
Well:	#402H	**North Reference:**	Grid
Wellbore:	Wellbore #1	**Survey Calculation Method:**	Minimum Curvature
Design:	PERMIT	**Database:**	WBDS_SQL_2

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)
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	2.00	0.25	1,599.98	1.75	0.01	-0.02	2.00	2.00	0.00
1,700.00	4.00	0.25	1,699.84	6.98	0.03	-0.08	2.00	2.00	0.00
1,799.99	6.00	0.25	1,799.44	15.69	0.07	-0.17	2.00	2.00	0.00
1,900.00	6.00	0.25	1,898.90	26.15	0.11	-0.29	0.00	0.00	0.00
2,000.00	6.00	0.25	1,998.36	36.60	0.16	-0.41	0.00	0.00	0.00
2,100.00	6.00	0.25	2,097.81	47.05	0.20	-0.52	0.00	0.00	0.00
2,200.00	6.00	0.25	2,197.26	57.50	0.25	-0.64	0.00	0.00	0.00
2,300.00	6.00	0.25	2,296.71	67.96	0.29	-0.76	0.00	0.00	0.00
2,400.00	6.00	0.25	2,396.17	78.41	0.34	-0.87	0.00	0.00	0.00
2,500.00	6.00	0.25	2,495.62	88.86	0.39	-0.99	0.00	0.00	0.00
2,600.00	6.00	0.25	2,595.07	99.31	0.43	-1.11	0.00	0.00	0.00
2,700.00	6.00	0.25	2,694.52	109.77	0.48	-1.22	0.00	0.00	0.00
2,800.00	6.00	0.25	2,793.97	120.22	0.52	-1.34	0.00	0.00	0.00
2,900.00	6.00	0.25	2,893.43	130.67	0.57	-1.46	0.00	0.00	0.00
3,000.00	6.00	0.25	2,992.88	141.12	0.61	-1.57	0.00	0.00	0.00
3,100.00	6.00	0.25	3,092.33	151.57	0.66	-1.69	0.00	0.00	0.00
3,200.00	6.00	0.25	3,191.78	162.03	0.70	-1.81	0.00	0.00	0.00
3,300.00	6.00	0.25	3,291.24	172.48	0.75	-1.92	0.00	0.00	0.00
3,400.00	6.00	0.25	3,390.69	182.93	0.79	-2.04	0.00	0.00	0.00
3,500.00	6.00	0.25	3,490.14	193.38	0.84	-2.15	0.00	0.00	0.00
3,600.00	6.00	0.25	3,589.59	203.84	0.88	-2.27	0.00	0.00	0.00
3,700.00	6.00	0.25	3,689.04	214.29	0.93	-2.39	0.00	0.00	0.00
3,800.00	6.00	0.25	3,788.50	224.74	0.97	-2.50	0.00	0.00	0.00
3,900.00	6.00	0.25	3,887.95	235.19	1.02	-2.62	0.00	0.00	0.00
4,000.00	6.00	0.25	3,987.40	245.65	1.07	-2.74	0.00	0.00	0.00
4,100.00	6.00	0.25	4,086.85	256.10	1.11	-2.85	0.00	0.00	0.00
4,200.00	6.00	0.25	4,186.31	266.55	1.16	-2.97	0.00	0.00	0.00
4,300.00	6.00	0.25	4,285.76	277.00	1.20	-3.09	0.00	0.00	0.00
4,400.00	6.00	0.25	4,385.21	287.46	1.25	-3.20	0.00	0.00	0.00
4,500.00	6.00	0.25	4,484.66	297.91	1.29	-3.32	0.00	0.00	0.00
4,600.00	6.00	0.25	4,584.11	308.36	1.34	-3.44	0.00	0.00	0.00
4,700.00	6.00	0.25	4,683.57	318.81	1.38	-3.55	0.00	0.00	0.00
4,800.00	6.00	0.25	4,783.02	329.27	1.43	-3.67	0.00	0.00	0.00
4,900.00	6.00	0.25	4,882.47	339.72	1.47	-3.79	0.00	0.00	0.00
5,000.00	6.00	0.25	4,981.92	350.17	1.52	-3.90	0.00	0.00	0.00
5,100.00	6.00	0.25	5,081.38	360.62	1.56	-4.02	0.00	0.00	0.00
5,200.00	6.00	0.25	5,180.83	371.08	1.61	-4.13	0.00	0.00	0.00
5,300.00	6.00	0.25	5,280.28	381.53	1.65	-4.25	0.00	0.00	0.00

SANTO PETROLEUM

Survey Report

WELLBENDERS DIRECTIONAL SERVICES

Company:	Santo Petroleum	**Local Co-ordinate Reference:**	Well #402H
Project:	Eddy County, NM (NAD 83 - NME)	**TVD Reference:**	Est RKB = 25' @ 3124.00usft
Site:	Caveman Unit	**MD Reference:**	Est RKB = 25' @ 3124.00usft
Well:	#402H	**North Reference:**	Grid
Wellbore:	Wellbore #1	**Survey Calculation Method:**	Minimum Curvature
Design:	PERMIT	**Database:**	WBDS_SQL_2

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)
5,400.00	6.00	0.25	5,379.73	391.98	1.70	-4.37	0.00	0.00	0.00
5,500.00	6.00	0.25	5,479.18	402.43	1.74	-4.48	0.00	0.00	0.00
5,600.00	6.00	0.25	5,578.64	412.89	1.79	-4.60	0.00	0.00	0.00
5,700.00	6.00	0.25	5,678.09	423.34	1.84	-4.72	0.00	0.00	0.00
5,800.00	6.00	0.25	5,777.54	433.79	1.88	-4.83	0.00	0.00	0.00
5,900.00	6.00	0.25	5,876.99	444.24	1.93	-4.95	0.00	0.00	0.00
6,000.00	6.00	0.25	5,976.45	454.69	1.97	-5.07	0.00	0.00	0.00
6,100.00	6.00	0.25	6,075.90	465.15	2.02	-5.18	0.00	0.00	0.00
6,200.00	6.00	0.25	6,175.35	475.60	2.06	-5.30	0.00	0.00	0.00
6,300.00	6.00	0.25	6,274.80	486.05	2.11	-5.42	0.00	0.00	0.00
6,400.00	6.00	0.25	6,374.25	496.50	2.15	-5.53	0.00	0.00	0.00
6,500.00	6.00	0.25	6,473.71	506.96	2.20	-5.65	0.00	0.00	0.00
6,600.00	6.00	0.25	6,573.16	517.41	2.24	-5.77	0.00	0.00	0.00
6,700.00	6.00	0.25	6,672.61	527.86	2.29	-5.88	0.00	0.00	0.00
6,800.00	6.00	0.25	6,772.06	538.31	2.33	-6.00	0.00	0.00	0.00
6,900.00	6.00	0.25	6,871.52	548.77	2.38	-6.11	0.00	0.00	0.00
7,000.00	6.00	0.25	6,970.97	559.22	2.42	-6.23	0.00	0.00	0.00
7,100.00	6.00	0.25	7,070.42	569.67	2.47	-6.35	0.00	0.00	0.00
7,200.00	6.00	0.25	7,169.87	580.12	2.52	-6.46	0.00	0.00	0.00
7,300.00	6.00	0.25	7,269.32	590.58	2.56	-6.58	0.00	0.00	0.00
7,331.41	6.00	0.25	7,300.56	593.86	2.58	-6.62	0.00	0.00	0.00
7,400.00	4.63	0.25	7,368.86	600.21	2.60	-6.69	2.00	-2.00	0.00
7,500.00	2.63	0.25	7,468.65	606.54	2.63	-6.76	2.00	-2.00	0.00
7,600.00	0.63	0.25	7,568.61	609.38	2.64	-6.79	2.00	-2.00	0.00
7,631.40	0.00	269.61	7,600.00	609.55	2.64	-6.79	2.00	-2.00	0.00
7,700.00	0.00	0.00	7,668.60	609.55	2.64	-6.79	0.00	0.00	0.00
7,800.00	0.00	0.00	7,768.60	609.55	2.64	-6.79	0.00	0.00	0.00
7,900.00	0.00	0.00	7,868.60	609.55	2.64	-6.79	0.00	0.00	0.00
8,000.00	0.00	0.00	7,968.60	609.55	2.64	-6.79	0.00	0.00	0.00
8,100.00	0.00	0.00	8,068.60	609.55	2.64	-6.79	0.00	0.00	0.00
8,200.00	0.00	0.00	8,168.60	609.55	2.64	-6.79	0.00	0.00	0.00
8,251.29	0.00	269.61	8,219.89	609.55	2.64	-6.79	0.00	0.00	0.00
8,300.00	4.87	269.61	8,268.55	609.54	0.57	-4.72	10.00	10.00	0.00
8,350.00	9.87	269.61	8,318.12	609.49	-5.84	1.69	10.00	10.00	0.00
8,400.00	14.87	269.61	8,366.94	609.42	-16.55	12.40	10.00	10.00	0.00
8,450.00	19.87	269.61	8,414.64	609.32	-31.47	27.32	10.00	10.00	0.00
8,500.00	24.87	269.61	8,460.87	609.19	-50.49	46.35	10.00	10.00	0.00
8,550.00	29.87	269.61	8,505.26	609.03	-73.47	69.33	10.00	10.00	0.00
8,600.00	34.87	269.61	8,547.47	608.84	-100.23	96.09	10.00	10.00	0.00
8,650.00	39.87	269.61	8,587.20	608.63	-130.57	126.43	10.00	10.00	0.00
8,700.00	44.87	269.61	8,624.12	608.40	-164.26	160.11	10.00	10.00	0.00
8,750.00	49.87	269.61	8,657.98	608.15	-201.03	196.89	10.00	10.00	0.00
8,800.00	54.87	269.61	8,688.49	607.88	-240.62	236.48	10.00	10.00	0.00

SANTO PETROLEUM

Survey Report

WELLBENDERS DIRECTIONAL SERVICES

Company:	Santo Petroleum	**Local Co-ordinate Reference:**	Well #402H
Project:	Eddy County, NM (NAD 83 - NME)	**TVD Reference:**	Est RKB = 25' @ 3124.00usft
Site:	Caveman Unit	**MD Reference:**	Est RKB = 25' @ 3124.00usft
Well:	#402H	**North Reference:**	Grid
Wellbore:	Wellbore #1	**Survey Calculation Method:**	Minimum Curvature
Design:	PERMIT	**Database:**	WBDS_SQL_2

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)
8,850.00	59.87	269.61	8,715.44	607.59	-282.71	278.57	10.00	10.00	0.00
8,900.00	64.87	269.61	8,738.62	607.28	-327.00	322.86	10.00	10.00	0.00
8,950.00	69.87	269.61	8,757.86	606.96	-373.13	368.99	10.00	10.00	0.00
9,000.00	74.87	269.61	8,772.99	606.64	-420.77	416.63	10.00	10.00	0.00
9,050.00	79.87	269.61	8,783.92	606.30	-469.54	465.40	10.00	10.00	0.00
9,100.00	84.87	269.61	8,790.56	605.96	-519.08	514.94	10.00	10.00	0.00
9,152.39	90.11	269.61	8,792.85	605.60	-571.40	567.26	10.00	10.00	0.00
9,200.00	90.11	269.61	8,792.76	605.27	-619.01	614.88	0.00	0.00	0.00
9,300.00	90.11	269.61	8,792.57	604.58	-719.01	714.88	0.00	0.00	0.00
9,400.00	90.11	269.61	8,792.37	603.90	-819.01	814.88	0.00	0.00	0.00
9,500.00	90.11	269.61	8,792.18	603.21	-919.00	914.88	0.00	0.00	0.00
9,600.00	90.11	269.61	8,791.99	602.52	-1,019.00	1,014.88	0.00	0.00	0.00
9,700.00	90.11	269.61	8,791.80	601.83	-1,119.00	1,114.88	0.00	0.00	0.00
9,800.00	90.11	269.61	8,791.61	601.14	-1,219.00	1,214.88	0.00	0.00	0.00
9,900.00	90.11	269.61	8,791.41	600.45	-1,318.99	1,314.87	0.00	0.00	0.00
10,000.00	90.11	269.61	8,791.22	599.77	-1,418.99	1,414.87	0.00	0.00	0.00
10,100.00	90.11	269.61	8,791.03	599.08	-1,518.99	1,514.87	0.00	0.00	0.00
10,200.00	90.11	269.61	8,790.84	598.39	-1,618.98	1,614.87	0.00	0.00	0.00
10,300.00	90.11	269.61	8,790.65	597.70	-1,718.98	1,714.87	0.00	0.00	0.00
10,400.00	90.11	269.61	8,790.45	597.01	-1,818.98	1,814.87	0.00	0.00	0.00
10,500.00	90.11	269.61	8,790.26	596.32	-1,918.98	1,914.87	0.00	0.00	0.00
10,600.00	90.11	269.61	8,790.07	595.64	-2,018.97	2,014.87	0.00	0.00	0.00
10,700.00	90.11	269.61	8,789.88	594.95	-2,118.97	2,114.87	0.00	0.00	0.00
10,800.00	90.11	269.61	8,789.69	594.26	-2,218.97	2,214.87	0.00	0.00	0.00
10,900.00	90.11	269.61	8,789.50	593.57	-2,318.97	2,314.87	0.00	0.00	0.00
11,000.00	90.11	269.61	8,789.30	592.88	-2,418.96	2,414.87	0.00	0.00	0.00
11,100.00	90.11	269.61	8,789.11	592.19	-2,518.96	2,514.87	0.00	0.00	0.00
11,200.00	90.11	269.61	8,788.92	591.51	-2,618.96	2,614.87	0.00	0.00	0.00
11,300.00	90.11	269.61	8,788.73	590.82	-2,718.96	2,714.87	0.00	0.00	0.00
11,400.00	90.11	269.61	8,788.54	590.13	-2,818.95	2,814.87	0.00	0.00	0.00
11,500.00	90.11	269.61	8,788.34	589.44	-2,918.95	2,914.87	0.00	0.00	0.00
11,600.00	90.11	269.61	8,788.15	588.75	-3,018.95	3,014.87	0.00	0.00	0.00
11,700.00	90.11	269.61	8,787.96	588.06	-3,118.95	3,114.87	0.00	0.00	0.00
11,800.00	90.11	269.61	8,787.77	587.38	-3,218.94	3,214.87	0.00	0.00	0.00
11,900.00	90.11	269.61	8,787.58	586.69	-3,318.94	3,314.87	0.00	0.00	0.00
12,000.00	90.11	269.61	8,787.38	586.00	-3,418.94	3,414.87	0.00	0.00	0.00
12,100.00	90.11	269.61	8,787.19	585.31	-3,518.94	3,514.87	0.00	0.00	0.00
12,200.00	90.11	269.61	8,787.00	584.62	-3,618.93	3,614.87	0.00	0.00	0.00
12,300.00	90.11	269.61	8,786.81	583.93	-3,718.93	3,714.87	0.00	0.00	0.00
12,400.00	90.11	269.61	8,786.62	583.25	-3,818.93	3,814.87	0.00	0.00	0.00
12,500.00	90.11	269.61	8,786.42	582.56	-3,918.93	3,914.87	0.00	0.00	0.00
12,600.00	90.11	269.61	8,786.23	581.87	-4,018.92	4,014.87	0.00	0.00	0.00
12,700.00	90.11	269.61	8,786.04	581.18	-4,118.92	4,114.87	0.00	0.00	0.00

SANTO PETROLEUM

Survey Report

WELLBENDERS DIRECTIONAL SERVICES

Company:	Santo Petroleum	**Local Co-ordinate Reference:**	Well #402H
Project:	Eddy County, NM (NAD 83 - NME)	**TVD Reference:**	Est RKB = 25' @ 3124.00usft
Site:	Caveman Unit	**MD Reference:**	Est RKB = 25' @ 3124.00usft
Well:	#402H	**North Reference:**	Grid
Wellbore:	Wellbore #1	**Survey Calculation Method:**	Minimum Curvature
Design:	PERMIT	**Database:**	WBDS_SQL_2

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)
12,800.00	90.11	269.61	8,785.85	580.49	-4,218.92	4,214.87	0.00	0.00	0.00
12,900.00	90.11	269.61	8,785.66	579.80	-4,318.92	4,314.87	0.00	0.00	0.00
13,000.00	90.11	269.61	8,785.46	579.12	-4,418.91	4,414.87	0.00	0.00	0.00
13,100.00	90.11	269.61	8,785.27	578.43	-4,518.91	4,514.87	0.00	0.00	0.00
13,200.00	90.11	269.61	8,785.08	577.74	-4,618.91	4,614.87	0.00	0.00	0.00
13,300.00	90.11	269.61	8,784.89	577.05	-4,718.91	4,714.87	0.00	0.00	0.00
13,400.00	90.11	269.61	8,784.70	576.36	-4,818.90	4,814.87	0.00	0.00	0.00
13,500.00	90.11	269.61	8,784.50	575.67	-4,918.90	4,914.87	0.00	0.00	0.00
13,600.00	90.11	269.61	8,784.31	574.99	-5,018.90	5,014.87	0.00	0.00	0.00
13,700.00	90.11	269.61	8,784.12	574.30	-5,118.90	5,114.87	0.00	0.00	0.00
13,800.00	90.11	269.61	8,783.93	573.61	-5,218.89	5,214.87	0.00	0.00	0.00
13,900.00	90.11	269.61	8,783.74	572.92	-5,318.89	5,314.87	0.00	0.00	0.00
14,000.00	90.11	269.61	8,783.54	572.23	-5,418.89	5,414.87	0.00	0.00	0.00
14,100.00	90.11	269.61	8,783.35	571.54	-5,518.89	5,514.87	0.00	0.00	0.00
14,200.00	90.11	269.61	8,783.16	570.86	-5,618.88	5,614.87	0.00	0.00	0.00
14,300.00	90.11	269.61	8,782.97	570.17	-5,718.88	5,714.87	0.00	0.00	0.00
14,400.00	90.11	269.61	8,782.78	569.48	-5,818.88	5,814.87	0.00	0.00	0.00
14,500.00	90.11	269.61	8,782.58	568.79	-5,918.88	5,914.87	0.00	0.00	0.00
14,600.00	90.11	269.61	8,782.39	568.10	-6,018.87	6,014.87	0.00	0.00	0.00
14,700.00	90.11	269.61	8,782.20	567.42	-6,118.87	6,114.87	0.00	0.00	0.00
14,800.00	90.11	269.61	8,782.01	566.73	-6,218.87	6,214.87	0.00	0.00	0.00
14,900.00	90.11	269.61	8,781.82	566.04	-6,318.87	6,314.87	0.00	0.00	0.00
15,000.00	90.11	269.61	8,781.62	565.35	-6,418.86	6,414.87	0.00	0.00	0.00
15,100.00	90.11	269.61	8,781.43	564.66	-6,518.86	6,514.87	0.00	0.00	0.00
15,200.00	90.11	269.61	8,781.24	563.97	-6,618.86	6,614.87	0.00	0.00	0.00
15,300.00	90.11	269.61	8,781.05	563.29	-6,718.85	6,714.87	0.00	0.00	0.00
15,400.00	90.11	269.61	8,780.86	562.60	-6,818.85	6,814.86	0.00	0.00	0.00
15,500.00	90.11	269.61	8,780.66	561.91	-6,918.85	6,914.86	0.00	0.00	0.00
15,600.00	90.11	269.61	8,780.47	561.22	-7,018.85	7,014.86	0.00	0.00	0.00
15,700.00	90.11	269.61	8,780.28	560.53	-7,118.84	7,114.86	0.00	0.00	0.00
15,800.00	90.11	269.61	8,780.09	559.84	-7,218.84	7,214.86	0.00	0.00	0.00
15,900.00	90.11	269.61	8,779.90	559.16	-7,318.84	7,314.86	0.00	0.00	0.00
16,000.00	90.11	269.61	8,779.70	558.47	-7,418.84	7,414.86	0.00	0.00	0.00
16,100.00	90.11	269.61	8,779.51	557.78	-7,518.83	7,514.86	0.00	0.00	0.00
16,200.00	90.11	269.61	8,779.32	557.09	-7,618.83	7,614.86	0.00	0.00	0.00
16,283.21	90.11	269.61	8,779.16	556.52	-7,702.04	7,698.07	0.00	0.00	0.00
16,300.00	90.45	269.61	8,779.08	556.40	-7,718.83	7,714.86	2.00	2.00	0.01
16,354.21	91.53	269.61	8,778.14	556.03	-7,773.03	7,769.06	2.00	2.00	0.01
16,400.00	91.53	269.61	8,776.92	555.72	-7,818.80	7,814.84	0.00	0.00	0.00
16,500.00	91.53	269.61	8,774.25	555.04	-7,918.76	7,914.80	0.00	0.00	0.00
16,600.00	91.53	269.61	8,771.58	554.36	-8,018.73	8,014.77	0.00	0.00	0.00
16,700.00	91.53	269.61	8,768.91	553.68	-8,118.69	8,114.73	0.00	0.00	0.00
16,800.00	91.53	269.61	8,766.24	553.00	-8,218.65	8,214.70	0.00	0.00	0.00
16,900.00	91.53	269.61	8,763.57	552.32	-8,318.61	8,314.66	0.00	0.00	0.00

SANTO PETROLEUM

Survey Report

WELLBENDERS DIRECTIONAL SERVICES

Company:	Santo Petroleum	**Local Co-ordinate Reference:**	Well #402H
Project:	Eddy County, NM (NAD 83 - NME)	**TVD Reference:**	Est RKB = 25' @ 3124.00usft
Site:	Caveman Unit	**MD Reference:**	Est RKB = 25' @ 3124.00usft
Well:	#402H	**North Reference:**	Grid
Wellbore:	Wellbore #1	**Survey Calculation Method:**	Minimum Curvature
Design:	PERMIT	**Database:**	WBDS_SQL_2

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)
17,000.00	91.53	269.61	8,760.90	551.64	-8,418.57	8,414.62	0.00	0.00	0.00
17,100.00	91.53	269.61	8,758.23	550.96	-8,518.54	8,514.59	0.00	0.00	0.00
17,200.00	91.53	269.61	8,755.56	550.28	-8,618.50	8,614.55	0.00	0.00	0.00
17,300.00	91.53	269.61	8,752.89	549.60	-8,718.46	8,714.52	0.00	0.00	0.00
17,400.00	91.53	269.61	8,750.22	548.92	-8,818.42	8,814.48	0.00	0.00	0.00
17,500.00	91.53	269.61	8,747.55	548.24	-8,918.38	8,914.45	0.00	0.00	0.00
17,600.00	91.53	269.61	8,744.88	547.55	-9,018.35	9,014.41	0.00	0.00	0.00
17,700.00	91.53	269.61	8,742.21	546.87	-9,118.31	9,114.37	0.00	0.00	0.00
17,800.00	91.53	269.61	8,739.54	546.19	-9,218.27	9,214.34	0.00	0.00	0.00
17,900.00	91.53	269.61	8,736.87	545.51	-9,318.23	9,314.30	0.00	0.00	0.00
18,000.00	91.53	269.61	8,734.20	544.83	-9,418.19	9,414.27	0.00	0.00	0.00
18,100.00	91.53	269.61	8,731.53	544.15	-9,518.16	9,514.23	0.00	0.00	0.00
18,200.00	91.53	269.61	8,728.86	543.47	-9,618.12	9,614.20	0.00	0.00	0.00
18,300.00	91.53	269.61	8,726.19	542.79	-9,718.08	9,714.16	0.00	0.00	0.00
18,400.00	91.53	269.61	8,723.52	542.11	-9,818.04	9,814.12	0.00	0.00	0.00
18,500.00	91.53	269.61	8,720.85	541.43	-9,918.00	9,914.09	0.00	0.00	0.00
18,600.00	91.53	269.61	8,718.18	540.75	-10,017.97	10,014.05	0.00	0.00	0.00
18,700.00	91.53	269.61	8,715.51	540.07	-10,117.93	10,114.02	0.00	0.00	0.00
18,800.00	91.53	269.61	8,712.84	539.39	-10,217.89	10,213.98	0.00	0.00	0.00
18,900.00	91.53	269.61	8,710.17	538.71	-10,317.85	10,313.95	0.00	0.00	0.00
19,000.00	91.53	269.61	8,707.50	538.03	-10,417.81	10,413.91	0.00	0.00	0.00
19,100.00	91.53	269.61	8,704.83	537.35	-10,517.78	10,513.88	0.00	0.00	0.00
19,200.00	91.53	269.61	8,702.16	536.67	-10,617.74	10,613.84	0.00	0.00	0.00
19,238.34	91.53	269.61	8,701.14	536.41	-10,656.07	10,652.17	0.00	0.00	0.00
19,300.00	91.53	269.61	8,699.49	535.99	-10,717.70	10,713.80	0.00	0.00	0.00
19,400.00	91.53	269.61	8,696.82	535.31	-10,817.66	10,813.77	0.00	0.00	0.00
19,468.57	91.53	269.61	8,694.99	534.84	-10,886.20	10,882.31	0.00	0.00	0.00

SANTO PETROLEUM

Survey Report

WELLBENDERS DIRECTIONAL SERVICES

Company:	Santo Petroleum	**Local Co-ordinate Reference:**	Well #402H
Project:	Eddy County, NM (NAD 83 - NME)	**TVD Reference:**	Est RKB = 25' @ 3124.00usft
Site:	Caveman Unit	**MD Reference:**	Est RKB = 25' @ 3124.00usft
Well:	#402H	**North Reference:**	Grid
Wellbore:	Wellbore #1	**Survey Calculation Method:**	Minimum Curvature
Design:	PERMIT	**Database:**	WBDS_SQL_2

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
Caveman SHL: 2271' - plan hits target center - Point	0.00	0.00	0.00	0.00	0.00	512,385.60	576,482.00	32.408564	-104.219452
Caveman PBHL: 165(- plan misses target center by 0.24usft at 19468.57usft MD (8694.99 TVD, 534.84 N, -10886.20 E) - Point	0.00	0.00	8,694.99	534.60	-10,886.20	512,920.20	565,595.80	32.410061	-104.254726
Caveman LTP: 1650' - plan misses target center by 9.61usft at 19238.34usft MD (8701.14 TVD, 536.41 N, -10656.07 E) - Point	0.00	0.00	8,701.14	526.80	-10,656.00	512,912.40	565,826.00	32.410039	-104.253980
Caveman FTP: 1650' - plan hits target center - Point	0.00	0.00	8,792.85	605.60	-571.40	512,991.20	575,910.60	32.410230	-104.221302

Checked By: _____ Approved By: _____ Date: _____

SANTO OPERATING LLC
GEOLOGIC WELL PROPOSAL

PROJECT AND PROSPECT

Project Name:	Caveman	Operator:	Santo Operating LLC
Prospect Name:	Caveman	Geologist:	John Weihe
Lease Name:	Caveman 7-12 WCXY	Well Number:	002H
Type of Operation:	New Drill	Prognosis Date:	10/11/2019
Well Profile:	Horizontal	Well Type:	Development
Field Name(s):	Purple Sage Wolfcamp Gas Pool	API:	

WELL DESCRIPTION

Wolfcamp A-XY; Y Sand Horizontal Development Well

PROPOSED BOTTOM HOLE LOCATION

Cnty/Parish:	Eddy	Latitude:	N 32.408564	X Coord:	565,595.8
State:	NM	Longitude:	W 104.219452	Y Coord:	512,920.2
Description (include section line & distance & direction from nearest city):				Datum:	NAD 83

South end City of Carlsbad, NM 1650' FNL 100' FWL Section 12 22S 26E

PROPOSED SURFACE HOLE LOCATION (IF DIFFERENT FROM BHL) (NOTE: INPUT FROM LAND DEPARTMENT REQUIRED)

SHL (Same as BHL, Different from BHL, or TBD):					
Cnty/Parish:	Eddy	Latitude:	N 32.408564	X Coord:	576,482.0
State:	NM	Longitude:	W 104.219452	Y Coord:	512,385.6
Elevation:	3,099				
Description (include section line & distance & direction from nearest city):				Datum:	NAD 83

South end City of Carlsbad, NM 2271' FNL 240' FWL Section 8 22S 27E (or as deemed by L. Anders)

ANTICIPATED GEOLOGIC MARKERS

#	Marker*	MD (ft)	TVD (ft)	Subsea (ft)	Comments
1	Option 1: Kelly Bushing	3,124			assume 25' KB from GL
2	Ground Level Elevation	3,099			
3				**3,124**	
4	Top Salt (John)	456	456	**2,668**	
5	Base Salt (John)	1150	1,150	**1,974**	
6	Delaware	1651	1,651	**1,473**	
	Lamar Limestone	1700	1,700	**1,424**	
	Base Lamar Limestone	1963	1,963	**1,161**	
11	BONE SPRING	5146	5,146	**-2,022**	
18	Top 1st BSPG Sand (John)	6298	6,298	**-3,174**	
20	Top 2nd Bone Spring Carbonate (John)	6564	6,564	**-3,440**	
21	Top 2nd Bone Spring Sand (John)	6937	6,937	**-3,813**	
22	Top 3rd Bone Spring Carbonate (John)	7207	7,207	**-4,083**	
24	Top 3rd Bone Spring Sand (John)	8339	8,339	**-5,215**	
29	WOLFCAMP A (John)	per directional plan	8,694	**-5,570**	
30	**Y Sand Top (John)**	per directional plan	8,779	**-5,655**	
31	**TOP WINDOW**	per directional plan	8,782	**-5,658**	
32	**TARGET**	per directional plan	8,794	**-5,670**	
33	**BASE WINDOW**	per directional plan	8,806	**-5,682**	
34					
35					
36	Proposed TD [feet]:				

***All listed geologic markers are formation tops unless otherwise noted.**

DRILLING TARGET(S) (Top to Bottom)

1	Section Distance 7680' West:	TARGET	Target Lat:	per dir. Plan	Target X:	per dir. Plan
	TVD:	8,779	Target Lon:	per dir. Plan	Target Y:	per dir. Plan
	Target Window:	+/- 12' TVD				
2	TD Target:	TARGET	Target Lat:	per dir. Plan	Target X:	per dir. Plan
	TVD:	8,694	Target Lon:	per dir. Plan	Target Y:	per dir. Plan
	Target Window:	+/- 12' TVD				

Comments:

NEARBY WELLS OF INTEREST

	API Number	Well Name	Comments
1			
2			
3			
4			
5			
6			
7			
8			

SANTO OPERATING LLC
GEOLOGIC WELL PROPOSAL

PROJECT AND PROSPECT			
Project Name:	Caveman	Operator:	Santo Operating LLC
Prospect Name:	Caveman	Geologist:	John Weihe
Lease Name:	Caveman 7-12 WCXY	Well Number:	002H
Type of Operation:	New Drill	Prognosis Date:	10/11/2019
Well Profile:	Horizontal	Well Type:	Development
Field Name(s):	Purple Sage Wolfcamp Gas Pool	API:	

9			
10			
11			
12			

ELECTRIC LOGGING

	Interval		Logging Tool(s)
	Top (ft)	Bottom (ft)	
1	Surface Casing	Intermetiate Casing	Triple Combo or equivalent w/ sonic
2			Triple combo to include: gamma ray spectroscopy
3	Intermediate Casing	TD	LWD gamma ray in build and lateral for geosteering
4			Important to get good LWD Gamma Ray in vertical portion below intermediate
5			to correlate top 3rd Bone Spring Sand
6			
7			
8			

Comments:

OTHER EVALUATION (Mud Logging, DST, Whole Cores, Etc.)

	Interval		Description
	Top (ft)	Bottom (ft)	
1	Intermediate Csg	TD	Mud Logging
2			
3			
4			
5			

Comments:

ANTICIPATED PORE PRESSURES

	Interval		Gradient (psi/ft)	Comments
	Top (ft)	Bottom (ft)		
1	surface	Top Bone Spring	0.430	
2	Top Bone Spring	Bone Spring 1 Sand	0.459	
3	Bone Spring 1 Sand	Bone Spring 2 Sand	0.445	
	Bone Spring 2 Sand	Bone Spring 3 Sand	0.490	
	Bone Spring 3 Sand	WCXY	0.502	
4	Lateral	Lateral	0.512	
5				

Comments:

KNOWN ISSUES THAT COULD BE DRILLING OR SAFETY CONCERNS

	Interval		Description
	Top (ft)	Bottom (ft)	
1			
2			
3			
4			
5			

Comments: Osprey 10 601H, 602H producing 1/2 miles to north west. Fairview 14 produced 25,646 bo from 1995 to present 1 mile due east.