

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.
NMNM66925

6. If Indian, Allottee or Tribe Name

SUBMIT IN TRIPLICATE - Other instructions on page 27. If Unit or CA/Agreement, Name and/or No.
NMNM137096X8. Well Name and No.
MESA VERDE BS UNIT 19. API Well No.
30-025-44195-00-X110. Field and Pool or Exploratory Area
BONE SPRINGS11. County or Parish, State
LEA COUNTY, NM

1. Type of Well

☒ Oil Well ☐ Gas Well ☐ Other2. Name of Operator
OXY USA INCORPORATEDContact: DAVID STEWART
E-Mail: david_stewart@oxy.com3a. Address
P O BOX 4294
HOUSTON, TX 77210-42943b. Phone No. (include area code)
Ph: 432-685-5717

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

Sec 17 T24S R32E SESE 241FSL 245FEL
32.210918 N Lat, 103.688980 W Lon**12. CHECK THE APPROPRIATE BOX(ES) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA**

TYPE OF SUBMISSION

TYPE OF ACTION

☒ Notice of Intent☐ Subsequent Report☐ Final Abandonment Notice☐ Acidize☐ Alter Casing☐ Casing Repair☐ Change Plans☐ Convert to Injection☐ Deepen Directionally (Start/Resume)☐ Hydraulic Fracturing☐ New Completion☐ Plug and Abandon☐ Plug Back☐ Reclamation☐ Recomplete☐ Temporarily Abandon☐ Water Disposal☐ Water Shut-Off☐ Well Integrity☒ Other
Change to Original A
PD

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.

OXY USA Inc. respectfully requests to amend the APD with the following changes.

Due to the casing leak on Mesa Verde WC Unit 1H, API No. 30-025-44101, (target changed to 1st Bone Spring), we have changed the target of the Mesa Verde BS Unit 1H, API No. 30-025-44195 to a Wolfcamp X/Y Lateral with a pilot hole down to the Strawn for data collection.

1. Amend the casings size, type, depth and liner to reflect the deep targets, see attached.

2. Amend the cementing program, see attached.

3. Amend the pressure control equipment due to casing size and depth changes, see attached.

HOBBS OCD**JUL 19 2018****RECEIVED**

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

Electronic Submission #408441 verified by the BLM Well Information System

For OXY USA INCORPORATED, sent to the Hobbs

Committed to AFMSS for processing by PRISCILLA PEREZ on 03/28/2018 (18PP0842SE)

Name (Printed/Typed) DAVID STEWART

Title SR. REGULATORY ADVISOR

Signature (Electronic Submission)

Date 03/19/2018

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved By

ACCEPTEDZOTA STEVENS
Title PETROLEUM ENGINEER

Date 06/28/2018

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 Hobbs

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 ****

Additional data for EC transaction #408441 that would not fit on the form

32. Additional remarks, continued

4. Amend the mud program, depth and type, see attached.
5. Amend the logging program, see attached.
6. Amend drilling conditions due to pilot hole and new target, see attached.

OXY USA Inc. - Mesa Verde BS Unit 1H – Drill Plan - Amended

OXY respectfully requests approval for the following changes from the approved permit:

1. Geologic Formations

Due to the casing leak on Mesa Verde WC Unit 1, we have changed the target of the Mesa Verde BS Unit 1 to be a Wolfcamp X/Y Lateral with a pilot hole down to the Strawn for data collection.

TVD of Target	12,126ft	Pilot Hole Depth:	14,077ft MD/14,065ft TVD
MD at TD:	22,212ft	Deepest Expected fresh Water	875ft

Formation Name	TVD (ft)	Expected Fluids
Rustler	875	Brine
Salado	1200	Losses
Lamar/Delaware	4713	
Bell Canyon	4757	
Cherry Canyon	5508	Water
Brushy Canyon	6898	Oil/Gas
Bone Spring	8535	Oil/Gas
1st Bone Spring	9672	Oil/Gas
2nd Bone Spring	9839	Oil/Gas
3rd Bone Spring	10692	Oil/Gas
Wolfcamp (Lateral)	11905	Oil/Gas
Penn	12297	Oil/Gas
Strawn (Pilot)	13915	

2. Casing Program

With the directional plan and target formation changing, we've updated the casing program to reflect the changes and how we will now be running a production liner.

Hole Size	Casing Interval		Csg. Size (in)	Weight (lbs/ft)	Grade	Conn.	Safety Factor			
	From (ft)	To (ft)					Collapse	Burst	Body Tension	Joint Tension
17.5	0	900	13.375	54.5	J-55	BTC	> 1.125	> 1.2	> 1.4	> 1.4
12.25	0	11,007	9.625	47	HCL-80	BTC	> 1.125	> 1.2	> 1.4	> 1.4
8.5	10,907	22,212	5.5	20	P-110	DQX	> 1.125	> 1.2	> 1.4	> 1.4

All casing strings will be tested in accordance with Onshore Oil and Gas Order #2 III.B.1.h

*OXY requests the option to set casing shallower yet still below the salts if losses or hole conditions require this. Cement volumes may be adjusted if casing is set shallower and a DV tool will be run in case a contingency second stage is required for cement to reach surface. If cement circulated to surface during first stage we will drop a cancellation cone and not pump the second stage.

OXY USA Inc. - Mesa Verde BS Unit 1H – Drill Plan - Amended

3. **Cementing Program**

The cement program has been updated with our actual planned job based on our new casing program and directional plan, as well as updated with the planned slurries for each stage. We've reduced the 2nd stage of the production casing job to a single slurry for simplicity. For our pilot cement plugs, we plan to pump 4 cement plugs (3 x 642', 1 x 800').

Casing	Slurry	#Sks	Wt. (Lb/gal)	Yld ft ³ /sack	H2O gal/sk	500# Comp. Strength	Slurry Description
Surface	Tail	934	14.8	1.33	6.365	6:50	Class C Cement, Accelerator
1st Stage	Lead	787	10.2	2.58	11.568	6:59	LW Cement, Retarder, Extender, Dispersant
Production Casing	Tail	233	13.2	1.61	7.804	7:11	LW Cement, Retarder, Dispersant, Salt
DV/ECP Tool @ 4703ft							
2nd Stage Production Casing	Tail	1,444	13.6	1.67	8.765	7:32	Class C Cement, Extender, Accelerator, Dispersant
Production Liner	Tail	2,156	13.2	1.38	6.686	3:49	LW Cement, Retarder, Dispersant, Fluid Loss Control, Extender

Casing String	Top of Lead (ft)	Bottom of Lead (ft)	Top of Tail (ft)	Bottom of Tail (ft)	% Excess Lead	% Excess Tail
Surface	N/A	N/A	0	900	N/A	100%
1st Stage Production Casing	4603	10007	10007	11007	20%	20%
2nd Stage Production Casing	N/A	N/A	0	4703	N/A	75%
Production Liner	N/A	N/A	10907	22212	N/A	15%

Cement Top and Liner Overlap

- a. Oxy is requesting permission to have minimum fill of cement behind the 5-1/2" production liner to be 100 ft into previous casing string. The reason for this is so that we can come back and develop shallower benches from the same 9.625" mainbore in the future
- b. Our plan is to use a whipstock for our exit through the mainbore. Based on our future lateral target, we are planning a whipstock cased/hole exit so that kick-off point will allow for roughly 10deg/100' doglegs needed for the curve
- c. Cement will be brought to the top of this liner hanger
- d. See attached for additional casing tie-back information

OXY USA Inc. - Mesa Verde BS Unit 1H – Drill Plan - Amended

Include Pilot Hole Cementing specs:

Pilot hole depth: 14,077' MD

KOP: 11,599' MD

Plug Top	Plug Bottom	% Excess	No. Sacks	Wt. lb/gal	Yld ft ³ /sack	H2O gal/sk	Slurry Description
13,435' MD	14,077' MD	10%	235	14.4	1.24	5.518	50/50 Poz/H
12,792' MD	13,435' MD	10%	235	14.4	1.24	5.518	50/50 Poz/H
12,149' MD	12,792' MD	10%	272	16.4	1.07	4.415	Class H Cement, Retarder
11,349' MD	12,149' MD	10%	386	17.5	0.94	3.468	Class H Cement, Retarder

Note: The first through third plugs are designed to be 642' each to isolate the high pressure zones in the Pilot Hole from the KOP. The fourth plug is designed to be 800' in length and 250' above KOP to provide a strong foundation to sidetrack at the KOP.

4. Pressure Control Equipment

We updated the BOP table to reflect our updated well design to be drilled and required working pressures for each section. We've also included our information for a variance to allow for a 5M annular preventer with a 10M BOP Stack and updated attachments are included for the BOP stack and the Well Control Plan.

BOP installed and tested before drilling which hole?	Size?	Min. Required WP	Type	✓	Tested to:
12-1/4" Intermediate	13-5/8"	5M	Annular	✓	70% of working pressure
		5M	Blind Ram	✓	250/5,000 psi
			Upper Pipe Ram		
			Double Ram	✓	
			Lower Pipe Ram		
8-1/2" Pilot Hole	13-5/8"	5M	Annular	✓	70% of working pressure
		10M	Blind Ram	✓	250/10,000 psi
			Upper Pipe Ram	✓	
			Double Ram	□	
			Lower Pipe Ram	✓	
8-1/2" Lateral	13-5/8"	5M	Annular	✓	70% of working pressure
		5M	Blind Ram	✓	250/5,000 psi
			Upper Pipe Ram	✓	
			Double Ram	□	
			Lower Pipe Ram	✓	

OXY USA Inc. - Mesa Verde BS Unit 1H – Drill Plan - Amended

Per BLM's Memorandum No. NM-2017-008: *Decision and Rationale for a Variance Allowing the Use of a 5M Annular Preventer with a 10M BOP Stack*, Oxy requests to employ a 5M annular with a 10M BOPE stack in the pilot and lateral sections of the well and will ensure that two barriers to flow are maintained at all times. Please see attached Well Control Plan.

BOP/BOPE will be tested by an independent service company to 250 psi low and the high pressure indicated above per Onshore Order 2 requirements. The System may be upgraded to a higher pressure but still tested to the working pressure listed in the table above. If the system is upgraded all the components installed will be functional and tested.

Pipe rams will be operationally checked each 24 hour period. Blind rams will be operationally checked on each trip out of the hole. These checks will be noted on the daily tour sheets. Other accessories to the BOP equipment will include a Kelly cock and floor safety valve (inside BOP) and choke lines and choke manifold. See attached schematics.

	Formation integrity test will be performed per Onshore Order #2. On Exploratory wells or on that portion of any well approved for a 5M BOPE system or greater, a pressure integrity test of each casing shoe shall be performed. Will be tested in accordance with Onshore Oil and Gas Order #2 III.B.1.i.
	A variance is requested for the use of a flexible choke line from the BOP to Choke Manifold. See attached for specs and hydrostatic test chart.
Y	Are anchors required by manufacturer?
	A multibowl or a unionized multibowl wellhead system will be employed. The wellhead and connection to the BOPE will meet all API 6A requirements. The BOP will be tested per Onshore Order #2 after installation on the surface casing which will cover testing requirements for a maximum of 30 days. If any seal subject to test pressure is broken the system must be tested. We will test the flange connection of the wellhead with a test port that is directly in the flange. We are proposing that we will run the wellhead through the rotary prior to cementing surface casing as discussed with the BLM on October 8, 2015. See attached schematics.

5. **Mud Program**

The mud program has been updated to reflect the well design and target changes.

Pilot

Depth		Type	Weight (ppg)	Viscosity	Water Loss
From (ft)	To (ft)				
0	900	Water-Based Mud	8.4-8.6	28-40	N/C
900	4703	Brine	9.8 - 10	28-30	N/C
4703	11,007	Oil-Based Mud	8.2 - 9.2	35-50	N/C
11,007	14,077	Water-Based Mud	10.0-13.0	45-65	N/C

Lateral

Depth		Type	Weight (ppg)	Viscosity	Water Loss
From (ft)	To (ft)				
11,007	22,212	Oil-Based Mud	10.0-11.0	42-50	N/C

OXY USA Inc. - Mesa Verde BS Unit 1H – Drill Plan - Amended

Sufficient mud materials to maintain mud properties and meet minimum lost circulation and weight increase requirements will be kept on location at all times. The following is a general list of products: Barite, Bentonite, Gypsum, Lime, Soda Ash, Caustic Soda, Nut Plug, Cedar Fiber, Cotton Seed Hulls, Drilling Paper, Salt Water Clay, CACL2. Oxy will use a closed mud system.

6. Logging and Testing Procedures

Since we were unable to drill our pilot hole to run out logs in the MVWCU 1, we will be performing those wireline logs in the pilot hole of the MVBSU 1.

Logging, Coring and Testing.	
Yes	Will run GR from TD to surface (horizontal well – vertical portion of hole). Stated logs run will be in the Completion Report and submitted to the BLM.
Yes	Logs are planned based on well control or offset log information.
No	Drill stem test? If yes, explain
No	Coring? If yes, explain

Additional logs planned		Interval
No	Resistivity	
No	Density	
No	CBL	
Yes	Mud log	Surface Casing Shoe - TD
Yes	PEX	3rd Bone Spring – Pilot TD

7. Drilling Conditions

We have updated the drilling conditions table to reflect our new target/pilot hole design.

Condition	Specify what type and where?
BH Pressure at deepest TVD	9510 psi (Pilot)
Abnormal Temperature	No
BH Temperature at deepest TVD	192°F

OXY Well Control Plan - Mesa Verde BS Unit 1 – 30-025-44195

A. Component and Preventer Compatibility Table

The table below, which covers the drilling and casing of the >5M MASP portion of the well, outlines the tubulars and the compatible preventers in use. This table, combined with the mud program, documents that two barriers to flow can be maintained at all times, independent of the rating of the annular preventer.

8-1/2" Pilot hole section, 10M requirement

Component	OD	Preventer	RWP
Drillpipe	5"	Lower 4-1/2 - 7" VBR Upper 4-1/2 - 7" VBR	10M
HWDP	5"	Lower 4-1/2 - 7" VBR Upper 4-1/2 - 7" VBR	10M
Drill collars and MWD tools	6-3/4"	Lower 4-1/2 - 7" VBR Upper 4-1/2 - 7" VBR	10M
Mud Motor	6-3/4"	Lower 4-1/2 - 7" VBR Upper 4-1/2 - 7" VBR	10M
Production casing	5-1/2"	Lower 4-1/2 - 7" VBR Upper 4-1/2 - 7" VBR	10M
ALL	0" - 13-5/8"	Annular	5M
Open-hole	-	Blind Rams	10M

VBR = Variable Bore Ram. Compatible range listed in chart.

HWDP = Heavy Weight Drill Pipe

MWD = Measurement While Drilling

B. Well Control Procedures

Well control procedures are specific to the rig equipment and the operation at the time the kick occurs. Below are the minimal high-level tasks prescribed to assure a proper shut-in while drilling, tripping, running casing, pipe out of the hole (open hole), and moving the Bottom Hole Assembly (BHA) through the Blowout Preventers (BOP). The pressure at which control is swapped from the annular to another compatible ram will occur when the anticipated pressure is approaching or envisioned to exceed 70% of the 5M annular Rated Working Pressure (RWP) or 3500 PSI.

General Procedure While Drilling

1. Sound alarm (alert crew)
2. Space out drill string
3. Shut down pumps (stop pumps and rotary)
4. Shut-in Well (uppermost applicable BOP, typically annular preventer first. The Hydraulic Control Remote (HCR) valve and choke will already be in the closed position).
5. Confirm shut-in
6. Notify tool pusher/company representative
7. Read and record the following:
 - a. SIDPP and SICP
 - b. Pit gain
 - c. Time
8. Regroup and identify forward plan

OXY Well Control Plan - Mesa Verde BS Unit 1 – 30-025-44195

9. If pressure has built or is expected to reach 70% of the annular RWP during kill operations, crew will reconfirm spacing and swap to the upper pipe ram

General Procedure While Tripping

1. Sound alarm (alert crew)
2. Stab full opening safety valve and close
3. Space out drill string
4. Shut-in (uppermost applicable BOP, typically annular preventer first. The HCR and choke will already be in the closed position)
5. Confirm shut-in
6. Notify tool pusher/company representative
7. Read and record the following
 - a. SIDPP and SICP
 - b. Pit gain
 - c. Time
 - d. Regroup and identify forward plan
 - e. If pressure has built or expected to reach 70% of the annular RWP during kill operations, crew will reconfirm spacing and swap to the upper pipe ram

General Procedure While Running Casing

1. Sound alarm (alert crew)
2. Stab crossover and full opening safety valve and close
3. Space out string
4. Shut-in (uppermost applicable BOP, typically annular preventer first. The HCR and choke will already be in the closed position).
5. Confirm shut-in
6. Notify tool pusher/company representative
7. Read and record the following:
 - a. SIDPP and SICP
 - b. Pit gain
 - c. Time
 - d. Regroup and identify forward plan.
 - e. If pressure has built or is expected to reach 70% of the annular RWP during kill operations, crew will reconfirm spacing and swap to the upper pipe ram.

General Procedure With No Pipe In Hole (Open Hole)

1. Sound alarm (alert crew)
2. Shut-in with blind rams or BSR. (The HCR and choke will already be in the closed position)
3. Confirm shut-in
4. Notify tool pusher/company representative
5. Read and record the following:
 - a. SICP
 - b. Pit gain
 - c. Time
6. Regroup and identify forward plan

General Procedures While Pulling BHA thru Stack

OXY Well Control Plan - Mesa Verde BS Unit 1 – 30-025-44195

1. **PRIOR** to pulling last joint of drill pipe thru the stack.
 - a. Perform flow check, if flowing:
 - b. Sound alarm (alert crew)
 - c. Stab full opening safety valve and close
 - d. Space out drill string with tool joint just beneath the upper pipe ram
 - e. Shut-in using upper pipe ram. (The HCR and choke will already be in the closed position)
 - f. Confirm shut-in
 - g. Notify tool pusher/company representative
 - h. Read and record the following:
 - i. SIDPP and SICP
 - ii. Pit gain
 - iii. Time
 - iv. Regroup and identify forward plan
2. With BHA in the stack and compatible ram preventer and pipe combo immediately available.
 - a. Sound alarm (alert crew)
 - b. Stab crossover and full opening safety valve and close
 - c. Space out drill string with upset just beneath the upper pipe ram
 - d. Shut-in using upper pipe ram. (The HCR and choke will already be in the closed position.)
 - e. Confirm shut-in
 - f. Notify tool pusher/company representative
 - g. Read and record the following:
 - i. SIDPP and SICP
 - ii. Pit gain
 - iii. Time
 - iv. Regroup and identify forward plan
3. With BHA in the stack and NO compatible ram preventer and pipe combo immediately available.
 - a. Sound alarm (alert crew)
 - b. If possible to pick up high enough, pull string clear of the stack and follow “Open Hole” scenario
 - c. If impossible to pick up high enough to pull the string clear of the stack
 - d. Stab crossover, make up one joint/stand of drill pipe, and full opening safety valve and close
 - e. Space out drill string with tool joint just beneath the upper pipe ram
 - f. Shut-in using upper pipe ram. (The HCR and choke will already be in the closed position)
 - g. Confirm shut-in
 - h. Notify tool pusher/company representative
 - i. Read and record the following:
 - i. SIDPP and SICP
 - ii. Pit gain
 - iii. Time
 - j. Regroup and identify forward plan

PERFORMANCE DATA

TMK UP DQX
Technical Data Sheet

5.500 in

20.00 lbs/ft

P-110

Tubular Parameters

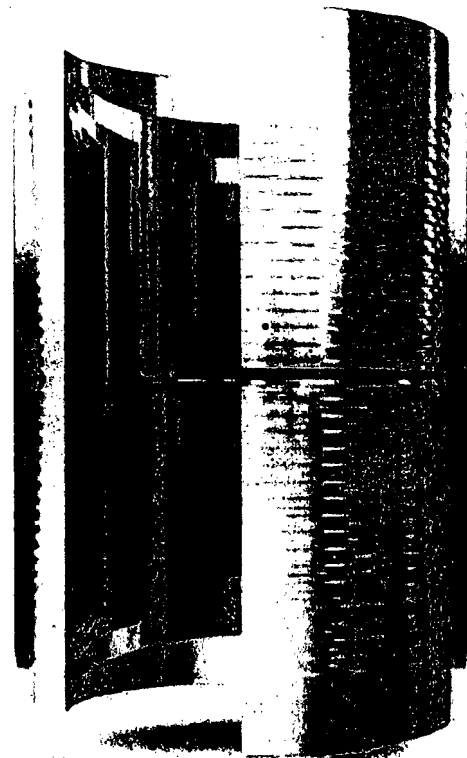
Size	5.500	in	Minimum Yield	110,000	psi
Nominal Weight	20.00	lbs/ft	Minimum Tensile	125,000	psi
Grade	P-110		Yield Load	641,000	lbs
PE Weight	19.81	lbs/ft	Tensile Load	729,000	lbs
Wall Thickness	0.361	in	Min. Internal Yield Pressure	12,600	psi
Nominal ID	4.778	in	Collapse Pressure	11,100	psi
Drift Diameter	4.653	in			
Nom. Pipe Body Area	5.828	in ²			

Connection Parameters

Connection OD	6.050	in
Connection ID	4.778	in
Make-Up Loss	4.122	in
Critical Section Area	5.828	in ²
Tension Efficiency	100.0	%
Compression Efficiency	100.0	%
Yield Load In Tension	641,000	lbs
Min. Internal Yield Pressure	12,600	psi
Collapse Pressure	11,100	psi

Make-Up Torques

Min. Make-Up Torque	11,600	ft-lbs
Opt. Make-Up Torque	12,900	ft-lbs
Max. Make-Up Torque	14,100	ft-lbs
Yield Torque	20,600	ft-lbs



Printed on: July-29-2014

NOTE:

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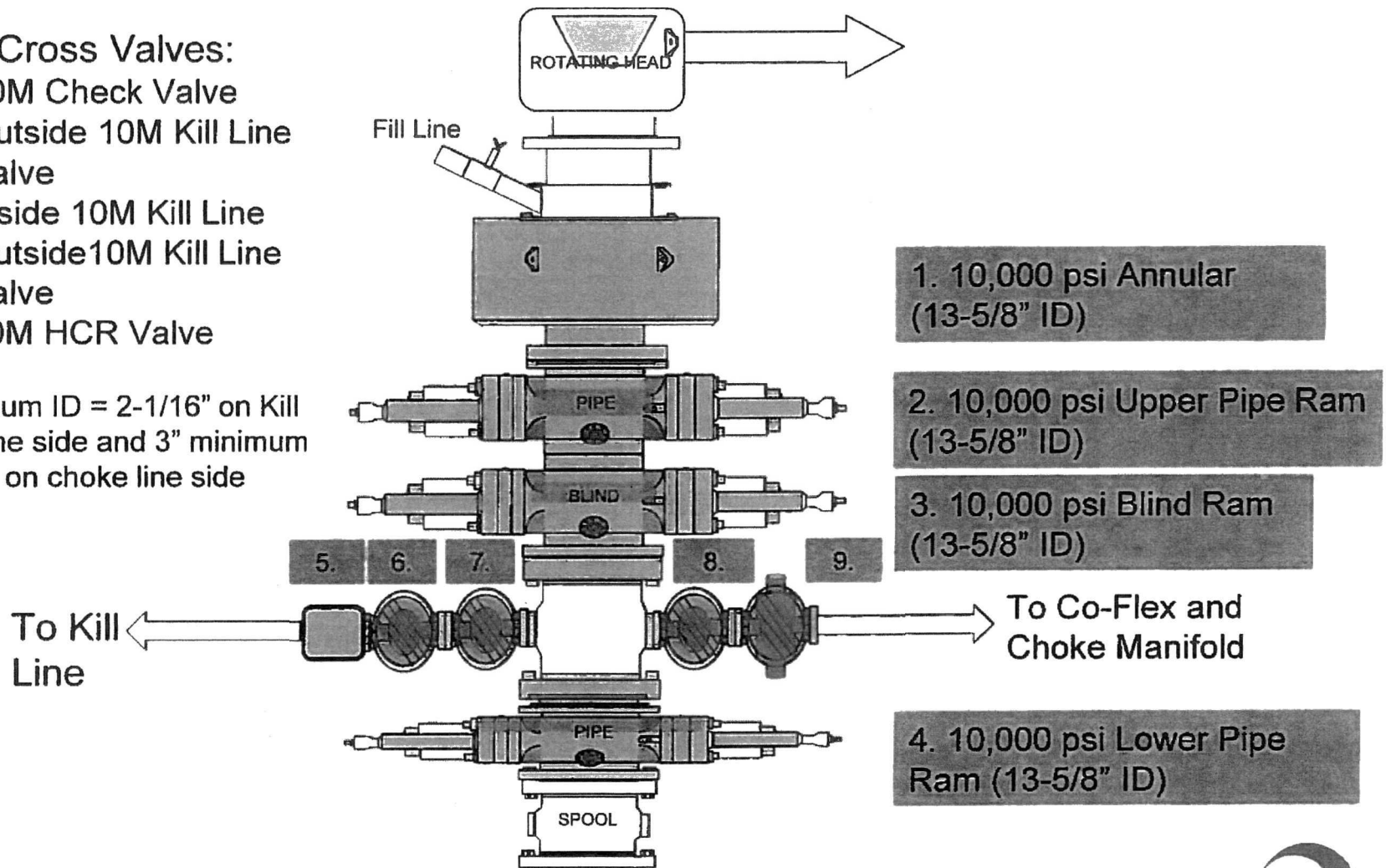


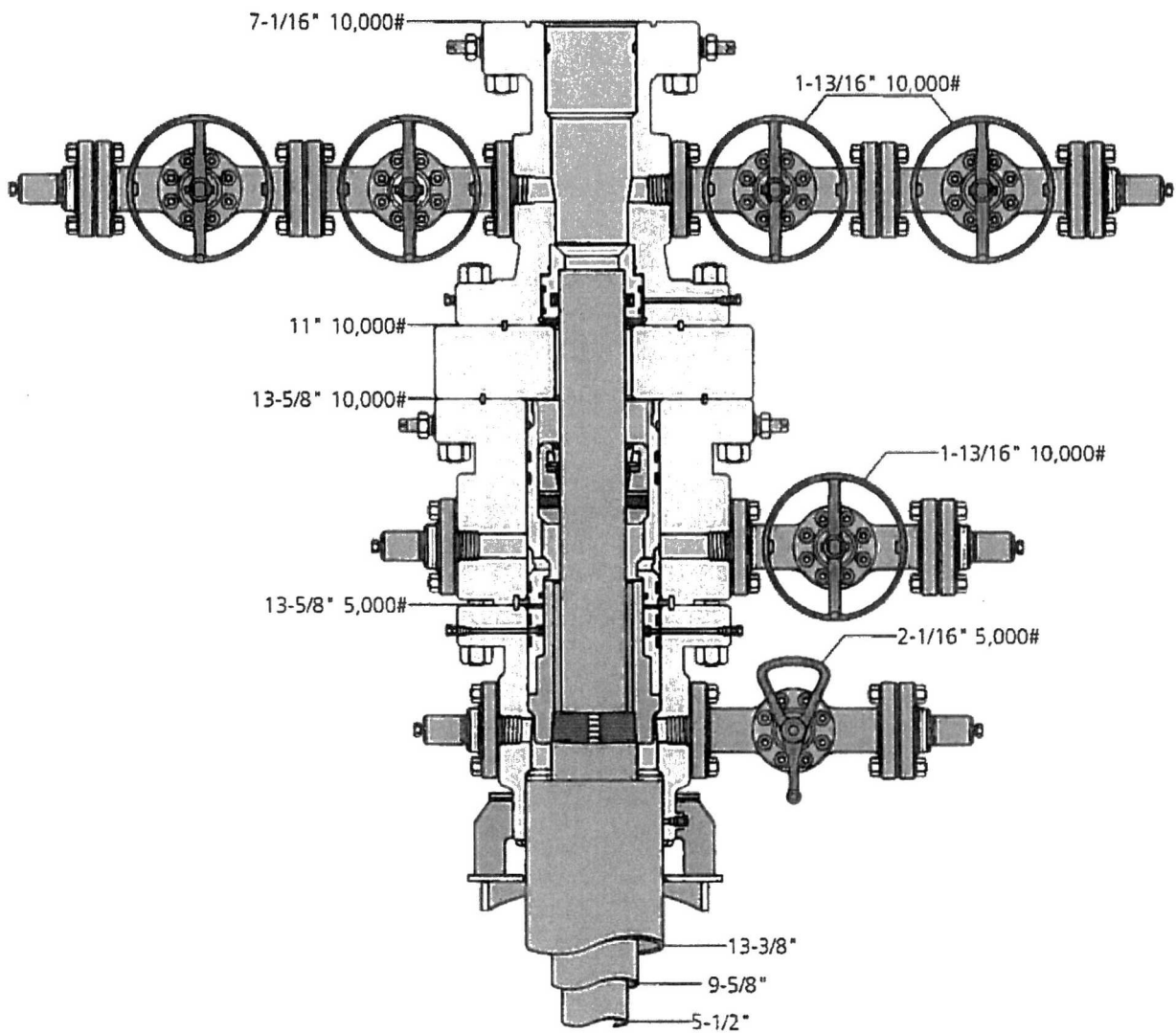
10M BOP Stack

Mud Cross Valves:

5. 10M Check Valve
6. Outside 10M Kill Line Valve
7. Inside 10M Kill Line Valve
8. Outside 10M Kill Line Valve
9. 10M HCR Valve

*Minimum ID = 2-1/16" on Kill Line side and 3" minimum ID on choke line side

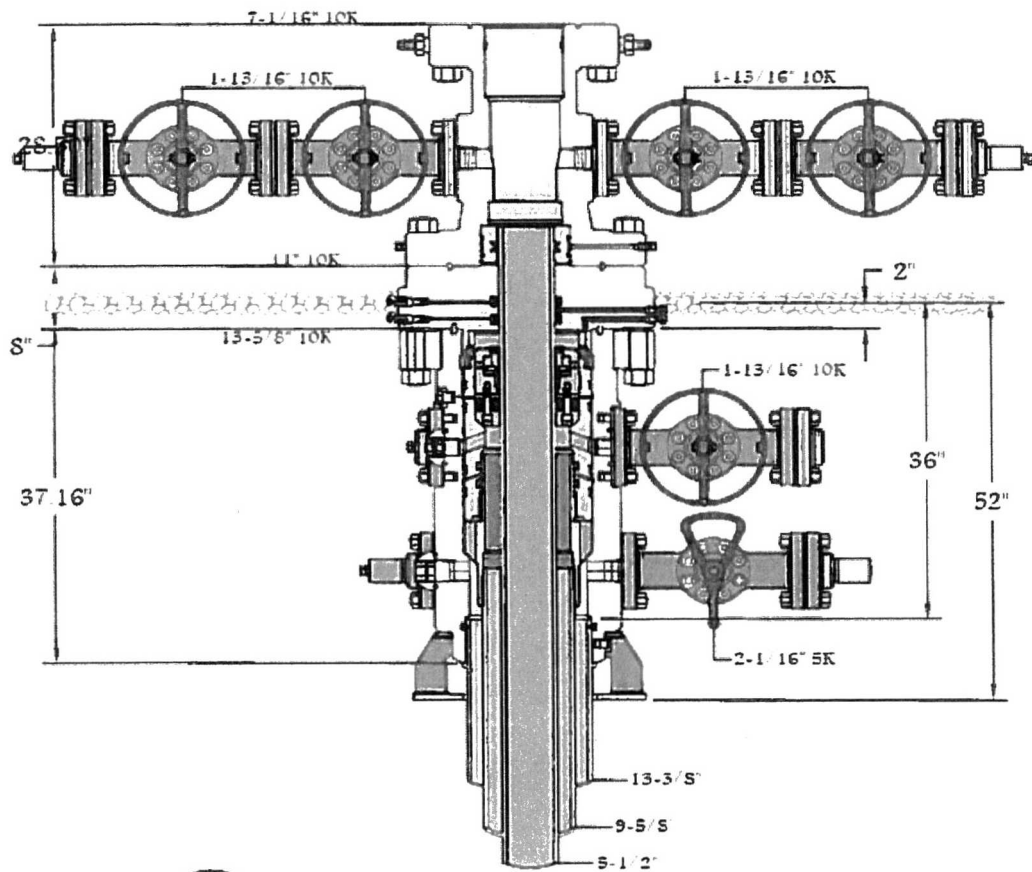




13" 10K MBS SL2 Wellhead



Author	Jeanette	Date	7-5-16	Working Pressure	#	J-9786-2
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13-5/8" 10K MIN-DS

CAMERON
A Schlumberger Company

Branden	S-3-17	1473950
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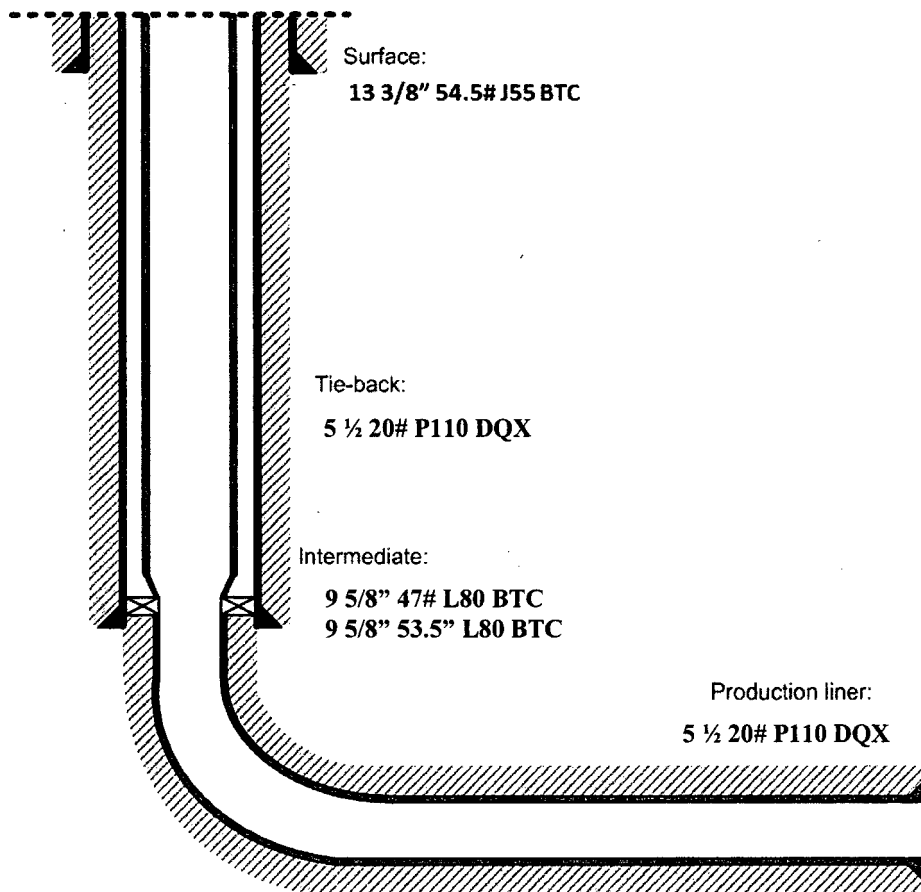
OXY USA Inc.
Mesa Verde BS Unit #1H – 30-025-44195

Below is a summary that describes the general operational steps to drill and complete the well.

- Drill 17-1/2" hole x 13-3/8" casing for surface section. Cement to surface.
- Drill 12-1/4" hole x 9-5/8" casing for intermediate section. Cement to surface.
- Drill 8-1/2" hole x 5-1/2" liner for production section. Cement to top of liner, 100' inside 9-5/8" shoe.
- Release drilling rig from location.
- Move in workover rig and run a 5-1/2" 20# P110 DQX tie-back frack string and seal assembly (see connection specs below). Tie into liner hanger Polished Bore Receptacle (PBR) with seal assembly.
- Pump hydraulic fracture job.
- Flowback and produce well.

When a decision is made to develop a secondary bench from this wellbore, a workover rig will be moved to location. The workover rig will then retrieve the tie-back frack string and seal assembly before temporarily abandoning the initial lateral.

General well schematic:



5 1/2" 17# P110 DQX Tie-back string specifications:

Oxy Mesa Verde WC Unit 1H ST01 Rev1 APS 05Mar18 Proposal Geodetic Report

(Def Plan)



Report Date: March 07, 2018 - 12:00 PM
Client: OXY
Field: NM Lea County (NAD 83)
Structure / Slot: Oxy Mesa Verde WC Unit 1H / Oxy Mesa Verde WC Unit 1H
Well: Oxy Mesa Verde WC Unit 1H
Borehole: ST01
UWI / API#: Unknown / Unknown
Survey Name: Oxy Mesa Verde WC Unit 1H ST01 Rev1 APS 05Mar18
Survey Date: March 05, 2018
Tort / AHD / DDI / ERD Ratio: 104.171' / 10517.243 ft / 6.303 / 0.867
Coordinate Reference System: NAD83 New Mexico State Plane, Eastern Zone, US Feet
Location Lat / Long: N 32° 12' 39.30029", W 103° 41' 20.32574"
Location Grid N/E Y/X: N 441062.920 fUS, E 740622.770 fUS
CRS Grid Convergence Angle: 0.3435°
Grid Scale Factor: 0.99995458
Version / Patch: 2.10.706.0

Survey / DLS Computation: Minimum Curvature / Lubinski
Vertical Section Azimuth: 358.866° (Grid North)
Vertical Section Origin: 0.000 ft, 0.000 ft
TVD Reference Datum: RKB=26.5'
TVD Reference Elevation: 3585.700 ft above MSL
Seabed / Ground Elevation: 3559.200 ft above MSL
Magnetic Declination: 6.833°
Total Gravity Field Strength: 998.4324mgN (9.80665 Based)
Gravity Model: GARM
Total Magnetic Field Strength: 48026.356 nT
Magnetic Dip Angle: 59.930°
Declination Date: March 05, 2018
Magnetic Declination Model: HDGM 2018
North Reference: Grid North
Grid Convergence Used: 0.3435°
Total Corr Mag North->Grid North: 6.4900°
Local Coord Referenced To: Well Head

Comments	MD	Incl	Azim Grid	TVD	VSEC	NS	EW	DLS	Northing	Easting	Latitude	Longitude
	(ft)	(°)	(°)	(ft)	(ft)	(ft)	(ft)	(°/100ft)	(fUS)	(fUS)	(N/S ° ' ")	(E/W ° ' ")
SHL	0.00	0.00	0.00	0.00	0.00	0.00	0.00	N/A	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	100.00	0.00	201.35	100.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	200.00	0.00	201.35	200.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	300.00	0.00	201.35	300.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	400.00	0.00	201.35	400.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	500.00	0.00	201.35	500.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	600.00	0.00	201.35	600.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	700.00	0.00	201.35	700.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	800.00	0.00	201.35	800.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	900.00	0.00	201.35	900.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	1000.00	0.00	201.35	1000.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	1100.00	0.00	201.35	1100.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	1200.00	0.00	201.35	1200.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	1300.00	0.00	201.35	1300.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	1400.00	0.00	201.35	1400.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	1500.00	0.00	201.35	1500.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	1600.00	0.00	201.35	1600.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	1700.00	0.00	201.35	1700.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	1800.00	0.00	201.35	1800.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	1900.00	0.00	201.35	1900.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	2000.00	0.00	201.35	2000.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	2100.00	0.00	201.35	2100.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	2200.00	0.00	201.35	2200.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	2300.00	0.00	201.35	2300.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	2400.00	0.00	201.35	2400.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	2500.00	0.00	201.35	2500.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	2600.00	0.00	201.35	2600.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	2700.00	0.00	201.35	2700.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	2800.00	0.00	201.35	2800.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	2900.00	0.00	201.35	2900.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	3000.00	0.00	201.35	3000.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	3100.00	0.00	201.35	3100.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	3200.00	0.00	201.35	3200.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	3300.00	0.00	201.35	3300.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	3400.00	0.00	201.35	3400.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	3500.00	0.00	201.35	3500.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	3600.00	0.00	201.35	3600.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	3700.00	0.00	201.35	3700.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	3800.00	0.00	201.35	3800.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	3900.00	0.00	201.35	3900.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	4000.00	0.00	201.35	4000.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	4100.00	0.00	201.35	4100.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	4200.00	0.00	201.35	4200.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	4300.00	0.00	201.35	4300.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	4400.00	0.00	201.35	4400.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	4500.00	0.00	201.35	4500.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	4600.00	0.00	201.35	4600.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	4700.00	0.00	201.35	4700.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	4800.00	0.00	201.35	4800.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	4900.00	0.00	201.35	4900.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	5000.00	0.00	201.35	5000.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	5100.00	0.00	201.35	5100.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	5200.00	0.00	201.35	5200.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	5300.00	0.00	201.35	5300.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	5400.00	0.00	201.35	5400.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	5500.00	0.00	201.35	5500.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	5600.00	0.00	201.35	5600.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	5700.00	0.00	201.35	5700.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	5800.00	0.00	201.35	5800.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	5900.00	0.00	201.35	5900.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	6000.00	0.00	201.35	6000.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	6100.00	0.00	201.35	6100.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	6200.00	0.00	201.35	6200.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	6300.00	0.00	201.35	6300.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	6400.00	0.00	201.35	6400.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	6500.00	0.00	201.35	6500.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	6600.00	0.00	201.35	6600.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	6700.00	0.00	201.35	6700.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	6800.00	0.00	201.35	6800.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	6900.00	0.00	201.35	6900.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	7000.00	0.00	201.35	7000.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	7100.00	0.00	201.35	7100.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	7200.00	0.00	201.35	7200.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	7300.00	0.00	201.35	7300.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	7400.00	0.00	201.35	7400.00	0.0							

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")
	7900.00	0.00	201.35	7900.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	8000.00	0.00	201.35	8000.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	8100.00	0.00	201.35	8100.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	8200.00	0.00	201.35	8200.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	8300.00	0.00	201.35	8300.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	8400.00	0.00	201.35	8400.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	8500.00	0.00	201.35	8500.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	8600.00	0.00	201.35	8600.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	8700.00	0.00	201.35	8700.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	8800.00	0.00	201.35	8800.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	8900.00	0.00	201.35	8900.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	9000.00	0.00	201.35	9000.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	9100.00	0.00	201.35	9100.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	9200.00	0.00	201.35	9200.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	9300.00	0.00	201.35	9300.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	9400.00	0.00	201.35	9400.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	9500.00	0.00	201.35	9500.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	9600.00	0.00	201.35	9600.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	9700.00	0.00	201.35	9700.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	9800.00	0.00	201.35	9800.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	9817.00	0.00	201.35	9817.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
Build 2"/100'	9900.00	1.66	201.35	9899.99	-1.11	-1.12	-0.44	2.00	441061.80	740622.33	N 32 12 39.25	W 103 41 20.35
	10000.00	3.66	201.35	9999.98	-5.40	-5.44	-2.13	2.00	441057.48	740620.84	N 32 12 39.25	W 103 41 20.35
Hold Tangent	10100.00	7.00	201.35	10099.54	-12.81	-13.01	-5.08	2.00	441049.81	740617.69	N 32 12 39.17	W 103 41 20.39
	10166.80	7.00	201.35	10166.83	-19.71	-19.87	-7.77	2.00	441043.06	740615.01	N 32 12 39.10	W 103 41 20.42
	10200.00	7.00	201.35	10198.88	-23.44	-23.63	-9.24	0.00	441039.29	740613.53	N 32 12 39.07	W 103 41 20.43
	10300.00	7.00	201.35	10298.14	-34.70	-34.98	-13.67	0.00	441027.95	740609.10	N 32 12 38.96	W 103 41 20.49
	10400.00	7.00	201.35	10387.40	-45.85	-46.32	-18.11	0.00	441016.80	740604.66	N 32 12 38.84	W 103 41 20.54
	10500.00	7.00	201.35	10496.65	-57.21	-57.66	-22.54	0.00	441005.26	740599.23	N 32 12 38.73	W 103 41 20.59
	10600.00	7.00	201.35	10595.91	-68.48	-68.91	-26.97	0.00	440993.91	740595.80	N 32 12 38.62	W 103 41 20.64
	10700.00	7.00	201.35	10695.16	-79.72	-80.35	-31.41	0.00	440982.57	740591.36	N 32 12 38.51	W 103 41 20.70
	10800.00	7.00	201.35	10794.42	-90.97	-91.70	-36.84	0.00	440971.23	740586.93	N 32 12 38.40	W 103 41 20.75
	10900.00	7.00	201.35	10893.67	-102.22	-103.04	-40.28	0.00	440959.88	740582.49	N 32 12 38.28	W 103 41 20.80
	11000.00	7.00	201.35	10992.93	-113.48	-114.38	-44.71	0.00	440948.54	740578.06	N 32 12 38.17	W 103 41 20.85
	11100.00	7.00	201.35	11092.18	-124.73	-125.73	-49.15	0.00	440937.20	740573.63	N 32 12 38.06	W 103 41 20.91
	11200.00	7.00	201.35	11191.44	-135.99	-137.07	-53.58	0.00	440925.85	740569.19	N 32 12 37.95	W 103 41 20.96
	11300.00	7.00	201.35	11290.69	-147.24	-148.42	-58.01	0.00	440914.51	740564.76	N 32 12 37.84	W 103 41 21.01
	11400.00	7.00	201.35	11389.95	-158.49	-159.78	-62.45	0.00	440903.17	740560.32	N 32 12 37.72	W 103 41 21.06
Tie-In to Pilot Hole	11495.78	7.00	201.35	11485.02	-169.27	-170.63	-66.70	0.00	440892.30	740556.08	N 32 12 37.62	W 103 41 21.11
Build/Turn 10"/100'	11500.00	6.69	203.82	11489.21	-169.73	-171.09	-66.89	10.00	440891.84	740555.88	N 32 12 37.61	W 103 41 21.12
	11598.56	7.00	298.00	11587.31	-172.21	-173.72	-74.63	10.00	440889.21	740548.15	N 32 12 37.59	W 103 41 21.21
	11600.00	7.06	297.05	11588.73	-172.13	-173.64	-74.78	10.00	440889.29	740547.99	N 32 12 37.59	W 103 41 21.21
	11700.00	14.64	334.71	11686.98	-157.86	-159.39	-85.68	10.00	440903.04	740537.09	N 32 12 37.73	W 103 41 21.33
	11800.00	24.03	345.35	11781.26	-126.25	-128.18	-96.28	10.00	440934.74	740526.52	N 32 12 38.04	W 103 41 21.46
	11900.00	33.77	350.16	11888.72	-78.86	-80.98	-106.18	10.00	440981.95	740516.59	N 32 12 38.51	W 103 41 21.57
	12000.00	43.61	353.00	11948.68	-16.93	-19.21	-115.16	10.00	441043.71	740507.61	N 32 12 39.12	W 103 41 21.67
	12100.00	53.50	354.96	12012.79	57.67	55.25	-122.92	10.00	441118.17	740499.86	N 32 12 39.85	W 103 41 21.75
	12200.00	63.42	356.47	12065.04	142.67	140.14	-129.21	10.00	441203.05	740493.56	N 32 12 40.69	W 103 41 21.82
	12300.00	73.35	357.74	12101.83	235.47	232.87	-133.86	10.00	441295.78	740488.91	N 32 12 41.61	W 103 41 21.87
	12400.00	83.29	358.89	12122.05	333.27	330.63	-136.72	10.00	441383.54	740486.06	N 32 12 42.58	W 103 41 21.89
	12467.53	90.00	359.63	12126.00	400.65	398.00	-137.59	10.00	441460.90	740485.18	N 32 12 43.25	W 103 41 21.90
Landing Point	12500.00	90.00	359.63	12126.00	433.11	430.47	-137.80	0.00	441493.37	740484.97	N 32 12 43.57	W 103 41 21.90
	12600.00	90.00	359.63	12126.00	533.10	530.47	-138.45	0.00	441583.36	740484.33	N 32 12 44.56	W 103 41 21.90
	12700.00	90.00	359.63	12126.00	633.10	630.47	-139.10	0.00	441693.36	740483.66	N 32 12 45.55	W 103 41 21.90
	12800.00	90.00	359.63	12126.00	733.09	730.46	-139.75	0.00	441793.35	740483.03	N 32 12 46.54	W 103 41 21.90
	12900.00	90.00	359.63	12126.00	833.08	830.46	-140.39	0.00	441893.34	740482.38	N 32 12 47.53	W 103 41 21.90
	13000.00	90.00	359.63	12126.00	933.07	930.46	-141.04	0.00	441993.34	740481.73	N 32 12 48.52	W 103 41 21.90
	13100.00	90.00	359.63	12126.00	1033.06	1030.46	-141.69	0.00	442093.33	740481.06	N 32 12 49.51	W 103 41 21.90
	13200.00	90.00	359.63	12126.00	1133.05	1130.46	-142.34	0.00	442193.32	740480.44	N 32 12 50.49	W 103 41 21.90
	13300.00	90.00	359.63	12126.00	1233.04	1230.45	-142.99	0.00	442293.31	740479.79	N 32 12 51.48	W 103 41 21.90
	13400.00	90.00	359.63	12126.00	1333.03	1330.45	-143.63	0.00	442393.31	740479.14	N 32 12 52.47	W 103 41 21.90
	13500.00	90.00	359.63	12126.00	1433.02	1430.45	-144.28	0.00	442493.30	740478.49	N 32 12 53.46	W 103 41 21.91
	13600.00	90.00	359.63	12126.00	1533.02	1530.45	-144.93	0.00	442593.29	740477.85	N 32 12 54.45	W 103 41 21.91
	13700.00	90.00	359.63	12126.00	1633.01	1630.44	-145.58	0.00	442693.28	740477.20	N 32 12 55.44	W 103 41 21.91
	13800.00	90.00	359.63	12126.00	1733.00	1730.44	-146.23	0.00	442793.28	740476.55	N 32 12 56.43	W 103 41 21.91
	13900.00	90.00	359.63	12126.00	1832.99	1830.44	-146.88	0.00	442893.27	740475.90	N 32 12 57.42	W 103 41 21.91
	14000.00	90.00	359.63	12126.00	1932.98	1930.44	-147.52	0.00	442993.27	740475.25	N 32 12 58.41	W 103 41 21.91
	14100.00	90.00	359.63	12126.00	2032.97	2030.44	-148.17	0.00	443093.26	740474.61	N 32 12 59.40	W 103 41 21.91
	14200.00	90.00	359.63	12126.00	2132.96	2130.43	-148.82	0.00	443193.25	740473.96	N 32 13 0.39	W 103 41 21.91
	14300.00	90.00	359.63	12126.00	2232.95	2230.43	-149.47	0.00	443293.25	740473.31	N 32 13 1.38	W 103 41 21.91
	14400.00	90.00	359.63	12126.00	2332.94	2330.43	-150.12	0.00	443393.24	740472.66	N 32 13 2.37	W 103 41 21.91
	14500.00	90.00	359.63	12126.00	2432.94	2430.43	-150.76	0.00	443493.23	740472.01	N 32 13 3.36	W 103 41 21.91
	14600.00	90.00	359.63	12126.00	2532.93	2530.43	-151.41	0.00	443593.23	740471.37	N 32 13 4.35	W 103 41 21.91
	14700.00	90.00	359.63	12126.00	2632.92	2630.42	-152.06	0.00	443693.22	740470.72	N 32 13 5.34	W 103 41 21.91
	14800.00	90.00	359.63	12126.00	2732.91	2730.42	-152.71	0.00	443793.21	740470.07	N 32 13 6.33	W 103 41 21.91
	14900.00	90.00	359.63	12126.00	2832.90	2830.42	-153.36	0.00	443893.21	740469.42	N 32 13 7.32	W 103 41 21.91
	15000.00	90.00	359.63	12126.00	2932.89	2930.42	-154.00	0.00				

Comments	MD (ft)	Incl (°)	Azlm Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' '')	Longitude (E/W ° ' '')
	18100.00	90.00	359.63	12126.00	6032.62	6030.35	-174.09	0.00	447092.99	740448.68	N 32 13 38.98 W 103 41 21.93	
	18200.00	90.00	359.63	12126.00	6132.61	6130.35	-174.74	0.00	447192.88	740448.04	N 32 13 39.97 W 103 41 21.93	
	18300.00	90.00	359.63	12126.00	6232.60	6230.35	-175.39	0.00	447292.97	740447.39	N 32 13 40.96 W 103 41 21.93	
	18400.00	90.00	359.63	12126.00	6332.59	6330.35	-176.04	0.00	447392.97	740446.74	N 32 13 41.95 W 103 41 21.93	
	18500.00	90.00	359.63	12126.00	6432.58	6430.34	-176.69	0.00	447492.96	740446.09	N 32 13 42.94 W 103 41 21.93	
	18600.00	90.00	359.63	12126.00	6532.57	6530.34	-177.33	0.00	447592.95	740445.44	N 32 13 43.93 W 103 41 21.93	
	18700.00	90.00	359.63	12126.00	6632.56	6630.34	-177.98	0.00	447692.95	740444.80	N 32 13 44.92 W 103 41 21.93	
	18800.00	90.00	359.63	12126.00	6732.55	6730.34	-178.63	0.00	447792.94	740444.15	N 32 13 45.91 W 103 41 21.94	
	18900.00	90.00	359.63	12126.00	6832.55	6830.34	-179.28	0.00	447892.93	740443.50	N 32 13 46.90 W 103 41 21.94	
	19000.00	90.00	359.63	12126.00	6932.54	6930.33	-179.93	0.00	447992.92	740442.85	N 32 13 47.89 W 103 41 21.94	
	19100.00	90.00	359.63	12126.00	7032.53	7030.33	-180.57	0.00	448092.92	740442.20	N 32 13 48.88 W 103 41 21.94	
	19200.00	90.00	359.63	12126.00	7132.52	7130.33	-181.22	0.00	448192.91	740441.56	N 32 13 49.87 W 103 41 21.94	
	19300.00	90.00	359.63	12126.00	7232.51	7230.33	-181.87	0.00	448292.90	740440.91	N 32 13 50.85 W 103 41 21.94	
	19400.00	90.00	359.63	12126.00	7332.50	7330.33	-182.52	0.00	448392.90	740440.26	N 32 13 51.84 W 103 41 21.94	
	19500.00	90.00	359.63	12126.00	7432.49	7430.32	-183.17	0.00	448492.89	740439.61	N 32 13 52.83 W 103 41 21.94	
	19600.00	90.00	359.63	12126.00	7532.48	7530.32	-183.82	0.00	448592.88	740438.96	N 32 13 53.82 W 103 41 21.94	
	19700.00	90.00	359.63	12126.00	7632.48	7630.32	-184.46	0.00	448692.88	740438.32	N 32 13 54.81 W 103 41 21.94	
	19800.00	90.00	359.63	12126.00	7732.47	7730.32	-185.11	0.00	448792.87	740437.67	N 32 13 55.80 W 103 41 21.94	
	19900.00	90.00	359.63	12126.00	7832.46	7830.31	-185.76	0.00	448892.86	740437.02	N 32 13 56.79 W 103 41 21.94	
	20000.00	90.00	359.63	12126.00	7932.45	7930.31	-186.41	0.00	448992.86	740436.37	N 32 13 57.78 W 103 41 21.94	
	20100.00	90.00	359.63	12126.00	8032.44	8030.31	-187.06	0.00	449092.85	740435.72	N 32 13 58.77 W 103 41 21.94	
	20200.00	90.00	359.63	12126.00	8132.43	8130.31	-187.70	0.00	449192.84	740435.08	N 32 13 59.76 W 103 41 21.94	
	20300.00	90.00	359.63	12126.00	8232.42	8230.31	-188.35	0.00	449292.84	740434.43	N 32 14 0.75 W 103 41 21.94	
	20400.00	90.00	359.63	12126.00	8332.41	8330.30	-189.00	0.00	449392.83	740433.78	N 32 14 1.74 W 103 41 21.94	
	20500.00	90.00	359.63	12126.00	8432.40	8430.30	-189.65	0.00	449492.82	740433.13	N 32 14 2.73 W 103 41 21.95	
	20600.00	90.00	359.63	12126.00	8532.40	8530.30	-190.30	0.00	449592.82	740432.48	N 32 14 3.72 W 103 41 21.95	
	20700.00	90.00	359.63	12126.00	8632.39	8630.30	-190.94	0.00	449692.81	740431.84	N 32 14 4.71 W 103 41 21.95	
	20800.00	90.00	359.63	12126.00	8732.38	8730.30	-191.59	0.00	449792.80	740431.19	N 32 14 5.70 W 103 41 21.95	
	20900.00	90.00	359.63	12126.00	8832.37	8830.29	-192.24	0.00	449892.79	740430.54	N 32 14 6.69 W 103 41 21.95	
	21000.00	90.00	359.63	12126.00	8932.36	8930.29	-192.89	0.00	449992.79	740429.89	N 32 14 7.68 W 103 41 21.95	
	21100.00	90.00	359.63	12126.00	9032.35	9030.29	-193.54	0.00	450092.78	740429.24	N 32 14 8.67 W 103 41 21.95	
	21200.00	90.00	359.63	12126.00	9132.34	9130.29	-194.18	0.00	450192.77	740428.60	N 32 14 9.66 W 103 41 21.95	
	21300.00	90.00	359.63	12126.00	9232.33	9230.29	-194.83	0.00	450292.77	740427.95	N 32 14 10.65 W 103 41 21.95	
	21400.00	90.00	359.63	12126.00	9332.32	9330.28	-195.48	0.00	450392.76	740427.30	N 32 14 11.63 W 103 41 21.95	
	21500.00	90.00	359.63	12126.00	9432.32	9430.28	-196.13	0.00	450492.75	740426.65	N 32 14 12.62 W 103 41 21.95	
	21600.00	90.00	359.63	12126.00	9532.31	9530.28	-196.78	0.00	450592.75	740426.00	N 32 14 13.61 W 103 41 21.95	
	21700.00	90.00	359.63	12126.00	9632.30	9630.28	-197.42	0.00	450692.74	740425.35	N 32 14 14.60 W 103 41 21.95	
	21800.00	90.00	359.63	12126.00	9732.29	9730.27	-198.07	0.00	450792.73	740424.71	N 32 14 15.59 W 103 41 21.95	
	21900.00	90.00	359.63	12126.00	9832.28	9830.27	-198.72	0.00	450892.73	740424.06	N 32 14 16.58 W 103 41 21.95	
	22000.00	90.00	359.63	12126.00	9932.27	9930.27	-199.37	0.00	450992.72	740423.41	N 32 14 17.57 W 103 41 21.95	
	22100.00	90.00	359.63	12126.00	10032.26	10030.27	-200.02	0.00	451092.71	740422.76	N 32 14 18.56 W 103 41 21.95	
	22200.00	90.00	359.63	12126.00	10132.25	10130.27	-200.66	0.00	451192.71	740422.11	N 32 14 19.55 W 103 41 21.95	
Mesa Verde WC Unit 1H PBHL	22211.52	90.00	359.63	12126.00	10143.78	10141.79	-200.74	0.00	451204.23	740422.04	N 32 14 19.66 W 103 41 21.95	

Survey Type: Def Plan

Survey Error Model: ISWWSA Rev 0 *** 3-D 95.000% Confidence 2.7955 sigma
Survey Program:

Description	Part	MD From (ft)	MD To (ft)	EOU Freq (ft)	Hole Size (in)	Casing Diameter (in)	Expected Max Inclination (deg)	Survey Tool Type	Borehole / Survey
	1	0.000	26.500	1/100.000	30.000	30.000		NAL_NSG+MSHOT-Depth Only	Pilot Hole / Oxy Mesa Verde WC Unit 1H Rev1 APS 05Mar18
	1	26.500	901.650	1/100.000	30.000	30.000		NAL_NSG+MSHOT	Pilot Hole / Oxy Mesa Verde WC Unit 1H Rev1 APS 05Mar18
	1	901.650	11495.780	1/100.000	30.000	30.000		NAL_MWD_PLUS_0.5 DEG	Pilot Hole / Oxy Mesa Verde WC Unit 1H Rev1 APS 05Mar18
	1	11495.780	22211.525	1/100.000	30.000	30.000		NAL_MWD_PLUS_0.5 DEG	ST01 / Oxy Mesa Verde WC Unit 1H ST01 Rev1 APS 05Mar18



Oxy Mesa Verde WC Unit 1H Rev1 APS 05Mar18 Proposal Geodetic Report

(Def Plan)

Report Date: March 07, 2018 - 11:20 AM
Client: OXY
Field: NM Lea County (NAD 83)
Structure / Slot: Oxy Mesa Verde WC Unit 1H / Oxy Mesa Verde WC Unit 1H
Well: Oxy Mesa Verde WC Unit 1H
Borehole: Pilot Hole
UWI / API#: Unknown / Unknown
Survey Name: Oxy Mesa Verde WC Unit 1H Rev1 APS 05Mar18
Survey Date: March 05, 2018
Tort / AHD / DDI / ERD Ratio: 13.992 * / 206.008 ft / 3.460 / 0.015
Coordinate Reference System: NAD83 New Mexico State Plane, Eastern Zone, US Feet
Location Lat / Long: N 32° 12' 39.30020", W 103° 41' 20.32574"
Location Grid N/E Y/X: N 441062.920 RUS, E 740622.770 RUS
CRS Grid Convergence Angle: 0.3435 *
Grid Scale Factor: 0.99995458
Version / Patch: 2.10.706.0

Survey / DLS Computation: Minimum Curvature / Lubinski
Vertical Section Azimuth: 358.866 * (Grid North)
Vertical Section Origin: 0.000 ft, 0.000 ft
TVD Reference Datum: RKB=26.5'
TVD Reference Elevation: 3585.700 ft above MSL
Seabed / Ground Elevation: 3559.200 ft above MSL
Magnetic Declination: 6.833 *
Total Gravity Field Strength: 998.4324mgm (9.80865 Based)
Gravity Model: GARM
Total Magnetic Field Strength: 48026.356 nT
Magnetic Dip Angle: 59.930 *
Declination Date: March 05, 2018
Magnetic Declination Model: HDGM 2018
North Reference: Grid North
Grid Convergence Used: 0.3435 *
Total Corr Mag North->Grid North: 6.4900 *
Local Coord Referenced To: Well Head

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (*/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")
SHL	0.00	0.00	0.00	0.00	0.00	0.00	0.00	N/A	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	100.00	0.00	201.35	100.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	200.00	0.00	201.35	200.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	300.00	0.00	201.35	300.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	400.00	0.00	201.35	400.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	500.00	0.00	201.35	500.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	600.00	0.00	201.35	600.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	700.00	0.00	201.35	700.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	800.00	0.00	201.35	800.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	900.00	0.00	201.35	900.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	1000.00	0.00	201.35	1000.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	1100.00	0.00	201.35	1100.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	1200.00	0.00	201.35	1200.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	1300.00	0.00	201.35	1300.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	1400.00	0.00	201.35	1400.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	1500.00	0.00	201.35	1500.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	1600.00	0.00	201.35	1600.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	1700.00	0.00	201.35	1700.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	1800.00	0.00	201.35	1800.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	1900.00	0.00	201.35	1900.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	2000.00	0.00	201.35	2000.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	2100.00	0.00	201.35	2100.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	2200.00	0.00	201.35	2200.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	2300.00	0.00	201.35	2300.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	2400.00	0.00	201.35	2400.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	2500.00	0.00	201.35	2500.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	2600.00	0.00	201.35	2600.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	2700.00	0.00	201.35	2700.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	2800.00	0.00	201.35	2800.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	2900.00	0.00	201.35	2900.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	3000.00	0.00	201.35	3000.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	3100.00	0.00	201.35	3100.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	3200.00	0.00	201.35	3200.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	3300.00	0.00	201.35	3300.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	3400.00	0.00	201.35	3400.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	3500.00	0.00	201.35	3500.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	3600.00	0.00	201.35	3600.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	3700.00	0.00	201.35	3700.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	3800.00	0.00	201.35	3800.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	3900.00	0.00	201.35	3900.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	4000.00	0.00	201.35	4000.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	4100.00	0.00	201.35	4100.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	4200.00	0.00	201.35	4200.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	4300.00	0.00	201.35	4300.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	4400.00	0.00	201.35	4400.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	4500.00	0.00	201.35	4500.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	4600.00	0.00	201.35	4600.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	4700.00	0.00	201.35	4700.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	4800.00	0.00	201.35	4800.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	4900.00	0.00	201.35	4900.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	5000.00	0.00	201.35	5000.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	5100.00	0.00	201.35	5100.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	5200.00	0.00	201.35	5200.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	5300.00	0.00	201.35	5300.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	5400.00	0.00	201.35	5400.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	5500.00	0.00	201.35	5500.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	5600.00	0.00	201.35	5600.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	5700.00	0.00	201.35	5700.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	5800.00	0.00	201.35	5800.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	5900.00	0.00	201.35	5900.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	6000.00	0.00	201.35	6000.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	6100.00	0.00	201.35	6100.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	6200.00	0.00	201.35	6200.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	6300.00	0.00	201.35	6300.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	6400.00	0.00	201.35	6400.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	6500.00	0.00	201.35	6500.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	6600.00	0.00	201.35	6600.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	6700.00	0.00	201.35	6700.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	6800.00	0.00	201.35	6800.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	6900.00	0.00	201.35	6900.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	7000.00	0.00	201.35	7000.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	7100.00	0.00	201.35	7100.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	7200.00	0.00	201.35	7200.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	7300.00	0.00	201.35	7300.00	0.00	0.00	0.00	0.00	441062.92	740622.77	N 32 12 39.30	W 103 41 20.33
	7400.00	0.00	201.35	7400.00	0.00	0.00	0.00	0.00</				

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS ("/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")
	7900.00	0.00	201.35	7900.00	0.00	0.00	0.00	0.00	441082.92	740822.77	N 32 12 39.30	W 103 41 20.33
	8000.00	0.00	201.35	8000.00	0.00	0.00	0.00	0.00	441082.92	740822.77	N 32 12 39.30	W 103 41 20.33
	8100.00	0.00	201.35	8100.00	0.00	0.00	0.00	0.00	441082.92	740822.77	N 32 12 39.30	W 103 41 20.33
	8200.00	0.00	201.35	8200.00	0.00	0.00	0.00	0.00	441082.92	740822.77	N 32 12 39.30	W 103 41 20.33
	8300.00	0.00	201.35	8300.00	0.00	0.00	0.00	0.00	441082.92	740822.77	N 32 12 39.30	W 103 41 20.33
	8400.00	0.00	201.35	8400.00	0.00	0.00	0.00	0.00	441082.92	740822.77	N 32 12 39.30	W 103 41 20.33
	8500.00	0.00	201.35	8500.00	0.00	0.00	0.00	0.00	441082.92	740822.77	N 32 12 39.30	W 103 41 20.33
	8600.00	0.00	201.35	8600.00	0.00	0.00	0.00	0.00	441082.92	740822.77	N 32 12 39.30	W 103 41 20.33
	8700.00	0.00	201.35	8700.00	0.00	0.00	0.00	0.00	441082.92	740822.77	N 32 12 39.30	W 103 41 20.33
	8800.00	0.00	201.35	8800.00	0.00	0.00	0.00	0.00	441082.92	740822.77	N 32 12 39.30	W 103 41 20.33
	8900.00	0.00	201.35	8900.00	0.00	0.00	0.00	0.00	441082.92	740822.77	N 32 12 39.30	W 103 41 20.33
	9000.00	0.00	201.35	9000.00	0.00	0.00	0.00	0.00	441082.92	740822.77	N 32 12 39.30	W 103 41 20.33
	9100.00	0.00	201.35	9100.00	0.00	0.00	0.00	0.00	441082.92	740822.77	N 32 12 39.30	W 103 41 20.33
	9200.00	0.00	201.35	9200.00	0.00	0.00	0.00	0.00	441082.92	740822.77	N 32 12 39.30	W 103 41 20.33
	9300.00	0.00	201.35	9300.00	0.00	0.00	0.00	0.00	441082.92	740822.77	N 32 12 39.30	W 103 41 20.33
	9400.00	0.00	201.35	9400.00	0.00	0.00	0.00	0.00	441082.92	740822.77	N 32 12 39.30	W 103 41 20.33
	9500.00	0.00	201.35	9500.00	0.00	0.00	0.00	0.00	441082.92	740822.77	N 32 12 39.30	W 103 41 20.33
	9600.00	0.00	201.35	9600.00	0.00	0.00	0.00	0.00	441082.92	740822.77	N 32 12 39.30	W 103 41 20.33
	9700.00	0.00	201.35	9700.00	0.00	0.00	0.00	0.00	441082.92	740822.77	N 32 12 39.30	W 103 41 20.33
	9800.00	0.00	201.35	9800.00	0.00	0.00	0.00	0.00	441082.92	740822.77	N 32 12 39.30	W 103 41 20.33
Build 2"/100'	9817.00	0.00	201.35	9817.00	0.00	0.00	0.00	0.00	441082.92	740822.77	N 32 12 39.30	W 103 41 20.33
	9900.00	1.66	201.35	9899.99	-1.11	-1.12	-0.44	2.00	441061.80	740822.33	N 32 12 39.29	W 103 41 20.33
	10000.00	3.66	201.35	9999.88	-5.40	-5.44	-2.13	2.00	441057.48	740820.84	N 32 12 39.25	W 103 41 20.35
	10100.00	5.66	201.35	10099.54	-12.91	-13.01	-5.08	2.00	441046.91	740817.69	N 32 12 39.17	W 103 41 20.39
Hold Tangent	10166.80	7.00	201.35	10165.93	-19.71	-19.87	-7.77	2.00	441043.06	740815.01	N 32 12 39.10	W 103 41 20.42
	10200.00	7.00	201.35	10198.88	-23.44	-23.63	-9.24	0.00	441039.29	740813.53	N 32 12 39.07	W 103 41 20.43
	10300.00	7.00	201.35	10298.14	-34.70	-34.98	-13.67	0.00	441027.95	740809.10	N 32 12 38.96	W 103 41 20.49
	10400.00	7.00	201.35	10397.40	-45.95	-46.32	-18.11	0.00	441016.60	740804.66	N 32 12 38.84	W 103 41 20.54
	10500.00	7.00	201.35	10496.65	-57.21	-57.66	-22.54	0.00	441005.26	740800.23	N 32 12 38.73	W 103 41 20.59
	10600.00	7.00	201.35	10595.91	-68.46	-69.01	-26.97	0.00	440993.91	740795.80	N 32 12 38.62	W 103 41 20.64
	10700.00	7.00	201.35	10695.16	-79.72	-80.35	-31.41	0.00	440982.57	740791.36	N 32 12 38.51	W 103 41 20.70
	10800.00	7.00	201.35	10794.42	-90.97	-91.70	-35.84	0.00	440971.23	740786.93	N 32 12 38.40	W 103 41 20.75
	10900.00	7.00	201.35	10893.67	-102.22	-103.04	-40.28	0.00	440959.88	740782.49	N 32 12 38.28	W 103 41 20.80
	11000.00	7.00	201.35	10992.93	-113.48	-114.38	-44.71	0.00	440948.54	740778.06	N 32 12 38.17	W 103 41 20.85
	11100.00	7.00	201.35	11092.18	-124.73	-125.73	-49.15	0.00	440937.20	740773.63	N 32 12 38.06	W 103 41 20.91
	11200.00	7.00	201.35	11191.44	-135.99	-137.07	-53.58	0.00	440925.85	740769.19	N 32 12 37.95	W 103 41 20.96
	11300.00	7.00	201.35	11290.69	-147.24	-148.42	-58.01	0.00	440914.51	740764.76	N 32 12 37.84	W 103 41 21.01
	11400.00	7.00	201.35	11389.95	-158.49	-159.76	-62.45	0.00	440903.17	740760.32	N 32 12 37.72	W 103 41 21.06
Drop 2"/100'	11500.00	7.00	201.35	11489.21	-169.75	-171.11	-66.88	0.00	440891.82	740755.89	N 32 12 37.61	W 103 41 21.12
	11507.92	7.00	201.35	11497.07	-170.64	-172.00	-67.23	0.00	440890.92	740755.54	N 32 12 37.60	W 103 41 21.12
	11600.00	5.15	201.35	11588.63	-179.64	-181.08	-70.78	2.00	440881.85	740751.99	N 32 12 37.51	W 103 41 21.16
	11700.00	3.15	201.35	11688.36	-186.34	-187.83	-73.42	2.00	440875.10	740749.35	N 32 12 37.45	W 103 41 21.19
	11800.00	1.15	201.35	11788.28	-189.81	-191.33	-74.79	2.00	440871.06	740747.99	N 32 12 37.41	W 103 41 21.21
Hold to TD	11857.72	0.00	201.35	11846.00	-190.35	-191.87	-75.00	2.00	440871.06	740547.77	N 32 12 37.41	W 103 41 21.21
	11900.00	0.00	201.35	11888.28	-190.35	-191.87	-75.00	0.00	440871.06	740547.77	N 32 12 37.41	W 103 41 21.21
	12000.00	0.00	201.35	11988.28	-190.35	-191.87	-75.00	0.00	440871.06	740547.77	N 32 12 37.41	W 103 41 21.21
	12100.00	0.00	201.35	12088.28	-190.35	-191.87	-75.00	0.00	440871.06	740547.77	N 32 12 37.41	W 103 41 21.21
	12200.00	0.00	201.35	12188.28	-190.35	-191.87	-75.00	0.00	440871.06	740547.77	N 32 12 37.41	W 103 41 21.21
	12300.00	0.00	201.35	12288.28	-190.35	-191.87	-75.00	0.00	440871.06	740547.77	N 32 12 37.41	W 103 41 21.21
	12400.00	0.00	201.35	12388.28	-190.35	-191.87	-75.00	0.00	440871.06	740547.77	N 32 12 37.41	W 103 41 21.21
	12500.00	0.00	201.35	12488.28	-190.35	-191.87	-75.00	0.00	440871.06	740547.77	N 32 12 37.41	W 103 41 21.21
	12600.00	0.00	201.35	12588.28	-190.35	-191.87	-75.00	0.00	440871.06	740547.77	N 32 12 37.41	W 103 41 21.21
	12700.00	0.00	201.35	12688.28	-190.35	-191.87	-75.00	0.00	440871.06	740547.77	N 32 12 37.41	W 103 41 21.21
	12800.00	0.00	201.35	12788.28	-190.35	-191.87	-75.00	0.00	440871.06	740547.77	N 32 12 37.41	W 103 41 21.21
	12900.00	0.00	201.35	12888.28	-190.35	-191.87	-75.00	0.00	440871.06	740547.77	N 32 12 37.41	W 103 41 21.21
	13000.00	0.00	201.35	12988.28	-190.35	-191.87	-75.00	0.00	440871.06	740547.77	N 32 12 37.41	W 103 41 21.21
	13100.00	0.00	201.35	13088.28	-190.35	-191.87	-75.00	0.00	440871.06	740547.77	N 32 12 37.41	W 103 41 21.21
	13200.00	0.00	201.35	13188.28	-190.35	-191.87	-75.00	0.00	440871.06	740547.77	N 32 12 37.41	W 103 41 21.21
	13300.00	0.00	201.35	13288.28	-190.35	-191.87	-75.00	0.00	440871.06	740547.77	N 32 12 37.41	W 103 41 21.21
	13400.00	0.00	201.35	13388.28	-190.35	-191.87	-75.00	0.00	440871.06	740547.77	N 32 12 37.41	W 103 41 21.21
	13500.00	0.00	201.35	13488.28	-190.35	-191.87	-75.00	0.00	440871.06	740547.77	N 32 12 37.41	W 103 41 21.21
	13600.00	0.00	201.35	13588.28	-190.35	-191.87	-75.00	0.00	440871.06	740547.77	N 32 12 37.41	W 103 41 21.21
	13700.00	0.00	201.35	13688.28	-190.35	-191.87	-75.00	0.00	440871.06	740547.77	N 32 12 37.41	W 103 41 21.21
	13800.00	0.00	201.35	13788.28	-190.35	-191.87	-75.00	0.00	440871.06	740547.77	N 32 12 37.41	W 103 41 21.21
	13900.00	0.00	201.35	13888.28	-190.35	-191.87	-75.00	0.00	440871.06	740547.77	N 32 12 37.41	W 103 41 21.21
	14000.00	0.00	201.35	13988.28	-190.35	-191.87	-75.00	0.00	440871.06	740547.77	N 32 12 37.41	W 103 41 21.21
TD @ 14,065'												
TVD	14076.72	0.00	201.35	14065.00	-190.35	-191.87	-75.00	0.00	440871.06	740547.77	N 32 12 37.41	W 103 41 21.21

Survey Type: Def Plan

Survey Error Model: ISCWSA Rev 0 *** 3-D 95.000% Confidence 2.7955 sigma
Survey Program:

Description	Part	MD From (ft)	MD To (ft)	EOU Freq (ft)	Hole Size (in)	Casing Diameter (in)	Expected Max Inclination (deg)	Survey Tool Type	Borehole / Survey
	1	0.000	26.500	1/100.000	30.000	30.000		NAL_NSG+MSHOT-Depth Only	Pilot Hole / Oxy Mesa Verde WC Unit 1H Rev1 APS 05Mar18
	1	26.500	901.650	1/100.000	30.000	30.000		NAL_NSG+MSHOT	Pilot Hole / Oxy Mesa Verde WC Unit 1H Rev1 APS 05Mar18
	1	901.650	14076.722	1/100.000	30.000	30.000		NAL_MWD_PLUS_0.5_DEG	Pilot Hole / Oxy Mesa Verde WC Unit 1H Rev1 APS 05Mar18

Schlumberger

OXY



Borehole:

Well:

Field:

Structure:

ST01

Oxy Mesa Verde WC Unit 1H

NM Lea County (NAD 83)

Oxy Mesa Verde WC Unit 1H

Gravity & Magnetic Parameters

Model: HDGM 2018 Dip: 59.93° Date: 05-Mar-2018
 MagDec: 6.833° FS: 48026.356mT Gravity FS: 986.432mgn (9.80665 Based)

Surface Location NAD83 New Mexico State Plane, Eastern Zone, US Feet

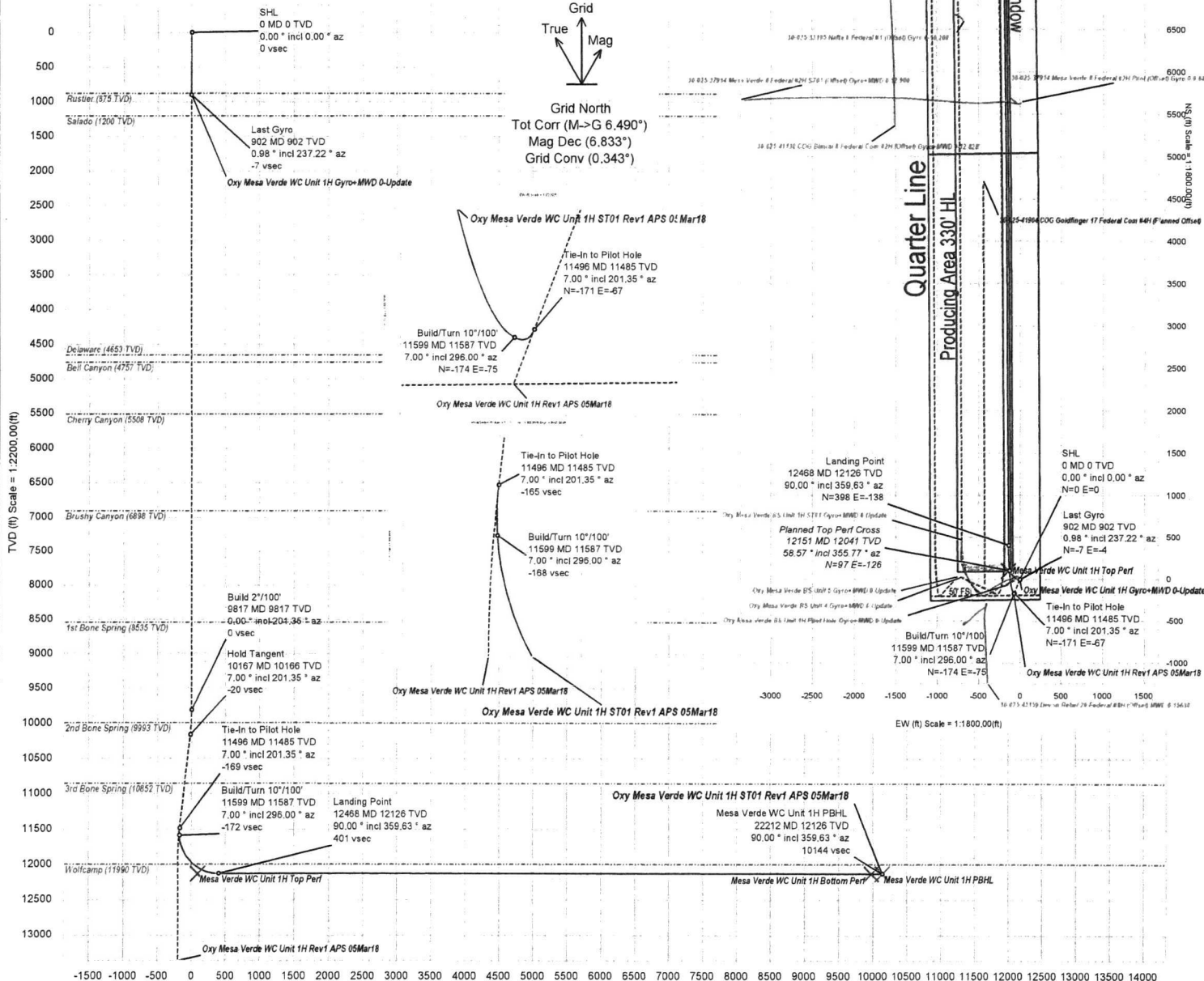
Lat: N 32 12 39.30 Northing: 441062.92HUS Grid Conv: 0.3436°
 Lon: W 103 41 20.33 Easting: 740622.77HUS Scale Fact: 0.9995468

Miscellaneous

Spot: Oxy Mesa Verde WC Unit 1H TVD Ref: RKB=26.5'(3585.7ft above MSL)
 Plan: Oxy Mesa Verde WC Unit 1H ST01 Rev1 APS 05Mar18

Critical Points

Critical Point	MD	INCL	AZIM	TVD	VSEC	N(°)S(-)	E(°)W(-)	DLS
Rustler	875.00	0.00	201.35	875.00	0.00	0.00	0.00	0.00
Salado	1200.00	0.00	201.35	1200.00	0.00	0.00	0.00	0.00
Delaware	4653.00	0.00	201.35	4653.00	0.00	0.00	0.00	0.00
Bell Canyon	4757.00	0.00	201.35	4757.00	0.00	0.00	0.00	0.00
Cherry Canyon	5508.00	0.00	201.35	5508.00	0.00	0.00	0.00	0.00
Brushy Canyon	6898.00	0.00	201.35	6898.00	0.00	0.00	0.00	0.00
1st Bone Spring	8535.00	0.00	201.35	8535.00	0.00	0.00	0.00	0.00
2nd Bone Spring	9993.11	3.52	201.35	9993.00	-5.00	-5.04	-1.97	2.00
3rd Bone Spring	10858.01	7.00	201.35	10852.00	-97.50	-98.28	-38.42	0.00
Tie-In to Pilot Hole	11495.78	7.00	201.35	11485.02	-169.27	-170.63	-66.70	0.00
Build/Turn 10°/100'	11598.56	7.00	296.00	11587.31	-172.21	-173.72	-74.63	10.00
Wolfcamp	12063.24	49.86	354.31	11990.00	28.91	26.54	-120.22	10.00
Planned Top Perf Cross	12151.07	58.57	355.77	12041.32	99.94	97.46	-126.33	10.00
Landing Point	12467.53	90.00	359.63	12126.00	400.65	398.00	-137.59	10.00
Planned Bottom Perf Cross	22051.51	90.00	359.63	12126.00	9983.78	9981.78	-199.70	0.00
Mesa Verde WC Unit 1H PBHL	22211.52	90.00	359.63	12126.00	10143.78	10141.79	-200.74	0.00
Strawn	NaN			13915.00				



Schlumberger

OXY



Borehole:

Well:

Field:

Structure:

Pilot Hole

Oxy Mesa Verde WC Unit 1H

NM Lea County (NAD 83)

Oxy Mesa Verde WC Unit 1H

Gravity & Magnetic Parameters

Model: HDGM 2018 Dip: 59.93° Date: 05-Mar-2018
 MagDec: 6.833° FS: 48026.366nT Gravity FS: 998.432mgm (9.80665 Based)

Surface Location NAD83 New Mexico State Plane, Eastern Zone, US Feet

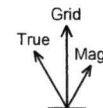
Lat: N 32 12 39.30 Northing: 441062.92NUS Grid Conv: 0.3435°
 Lon: W 103 41 20.33 Easting: 740622.77NUS Scale Fact: 0.99996458

Miscellaneous

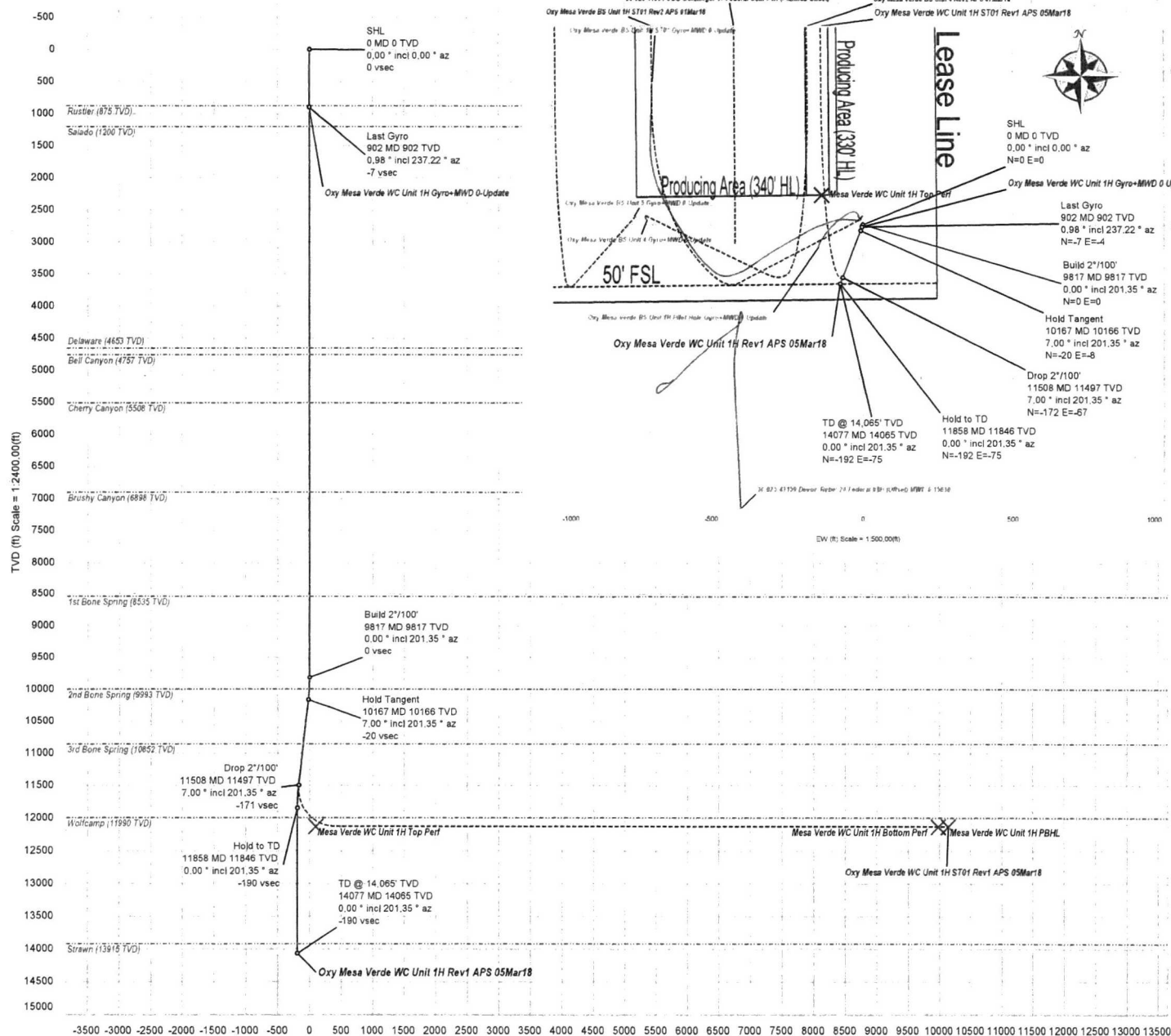
Slot: Oxy Mesa Verde WC Unit 1H TVD Ref: RKB=26.5'(3595.7ft above MSL)
 Plan: Oxy Mesa Verde WC Unit 1H Rev1 APS 05Mar18

Critical Points

Critical Point	MD	INCL	AZIM	TVD	VSEC	N(°)S(-)	E(°)W(-)	DLS
SHL	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Rustler	875.00	0.00	201.35	875.00	0.00	0.00	0.00	0.00
Salado	1200.00	0.00	201.35	1200.00	0.00	0.00	0.00	0.00
Delaware	4653.00	0.00	201.35	4653.00	0.00	0.00	0.00	0.00
Bell Canyon	4757.00	0.00	201.35	4757.00	0.00	0.00	0.00	0.00
Cherry Canyon	5508.00	0.00	201.35	5508.00	0.00	0.00	0.00	0.00
Brushy Canyon	6898.00	0.00	201.35	6898.00	0.00	0.00	0.00	0.00
1st Bone Spring	8535.00	0.00	201.35	8535.00	0.00	0.00	0.00	0.00
Build 2"/100'	9817.00	0.00	201.35	9817.00	0.00	0.00	0.00	0.00
2nd Bone Spring	9993.11	3.52	201.35	9993.00	-5.00	-5.04	-1.97	2.00
Hold Tangent	10166.80	7.00	201.35	10165.93	-19.71	-19.87	-7.77	2.00
3rd Bone Spring	10858.01	7.00	201.35	10852.00	-97.50	-98.28	-38.42	0.00
Drop 2"/100'	11507.92	7.00	201.35	11497.07	-170.64	-172.00	-67.23	0.00
Hold to TD	11857.72	0.00	201.35	11846.00	-190.35	-191.87	-75.00	2.00
Wolfcamp	12001.72	0.00	201.35	11990.00	-190.35	-191.87	-75.00	0.00
Strawn	13926.72	0.00	201.35	13915.00	-190.35	-191.87	-75.00	0.00
TD @ 14,065' TVD	14076.72	0.00	201.35	14065.00	-190.35	-191.87	-75.00	0.00



Grid North
 Tot Corr (M->G 6.490°)
 Mag Dec (6.833°)
 Grid Conv (0.343°)



Vertical Section (ft) Azim = 358.87° Scale = 1:2400.00(ft) Origin = 0N/-S, 0E/-W