

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

OCD-HOBBS

ATS-11-341
FORM APPROVED
OMB NO. 1004-0136
Expires: November 30, 2000

MAR 25 2011

APPLICATION FOR PERMIT TO DRILL OR REENTER

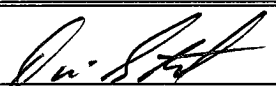
SECRETARY'S POTASH

1a. Type of Work ☒ DRILL ☐ REENTER		6. If Indian, Allottee or Tribe Name	
1b. Type of Well ☒ Oil Well ☐ Gas Well ☐ Other ☒ Single Zone ☐ Multiple Zone		7. Unit or CA Agreement Name and No.	
2. Name of Operator OXY USA Inc.		8. Lease Name and Well No. <38552> Rum Runner 2 Federal #1H	
3a. Address P.O. Box 50250 Midland, TX 79710-0250		9. API Well No. 40095 30-025- <6825>	
3b. Phone No. (include area code) 432-685-5717		10. Field and Pool, or Exploratory Undsg, Bootleg Ridge Delaware NW	
4. Location of Well (Report location clearly and in accordance with any State requirements)* At surface 1980 FNL 330 FEL SENE(H) At proposed prod. zone 1980 FNL 330 FWL SWNW(E)		11. Sec., T., R., M., or Blk. and Survey or Area Sec 2 T22S R32E	
14. Distance in miles and direction from nearest town or post office* 28 miles east from Eunice, NM		12. County or Parish Lea	
15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drg. unit line, if any) 330'		13. State NM	
16. No. of Acres in lease 160		17. Spacing Unit dedicated to this well 160	
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. N/A		20. BLM/BIA Bond No. on file ES0136	
21. Elevations (Show whether DF, KDB, RT, GL, etc.) 3647.3' GL		22. Approximate date work will start* 3/1/11	
		23. Estimated duration 45	

24. Attachments

The following, completed in accordance with the requirements of Onshore Oil and Gas Order No. 1, shall be attached to this form:

- | | |
|---|--|
| 1. Well plat certified by a registered surveyor. | 4. Bond to cover the operations unless covered by an existing bond on file (see Item 20 above). |
| 2. A Drilling Plan | 5. Operator certification. |
| 3. A Surface Use Plan (if the location is on National Forest System Lands, the SUPO shall be filed with the appropriate Forest Service Office). | 6. Such other site specific information and/or plans as may be required by the authorized officer. |

25. Signature 	Name (Printed/Typed) David Stewart	Date 11/5/11
Title Sr. Regulatory Analyst		
Approved by (Signautre) /s/ Jesse J. Juen	Name (Printed/Typed) /s/ Jesse J. Juen	Date MAR 17 2011
Title FOR STATE DIRECTOR	Office NM STATE OFFICE	

Application approval 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.

Conditions of approval, if any, are attached.

APPROVAL FOR TWO YEARS

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 Reverse)

K2 03/28/11

MAR 29 2011

CARLSBAD CONTROLLED WATER BASIN

PETROLEUM ENGINEER

SEE ATTACHED FOR
CONDITIONS OF APPROVALAPPROVAL SUBJECT TO
GENERAL REQUIREMENTS
AND SPECIAL STIPULATIONS
ATTACHED

United States Department of the Interior
Bureau of Land Management
Carlsbad Field Office
620 East Greene Street
Carlsbad, New Mexico 88220

Attention: Linda Denniston

RE: Rum Runner 2 Federal Com #1H
Lea County, New Mexico

STATEMENT ACCEPTING RESPONSIBILITY FOR OPERATIONS

OPERATOR NAME: OXY USA Inc.
ADDRESS: P.O. Box 4294
Houston, Texas 77210-4294

The undersigned accepts all applicable terms, conditions, stipulations, and restrictions concerning operations conducted on the leased land or portion thereof, as described below:

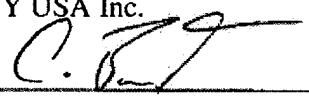
LEASE NO.: NMNM 109758
NMNM 105891
NMNM 106696 *BHL*

LEGAL DESCRIPTION: SL: 1980 FNL & 330 FEL SENE(H)
PBHL: 1980 FNL & 330 FWL SWNW(E)
Section 2 T22S R32E
Lea County, New Mexico

FORMATIONS: Delaware

BOND COVERAGE: Nationwide

BLM BOND FILE NO.: ES 0136

AUTHORIZED SIGNATURE: OXY USA Inc.

Colin D. Barnett

TITLE: Landman

DATE: December 14, 2010

District I
1625 N. French Dr., Hobbs, NM 88240
District II
1301 W. Grand Avenue, Artesia, NM 88210
District III
1000 Rio Brazos Rd., Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy, Minerals & Natural Resources Department
OIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-402
Revised October 12, 2005
Submitted to Appropriate District Office
State Lease- 4 Copies
Fee Lease- 3 Copies

MAR 25 2011
HOBBSOCD

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number 30-025-400 95	Pool Code 6925	Pool Name Undesignated NW Bootleg Ridge Delaware
Property Code 38552	Property Name RUM RUNNER "2" FED. COM	Well Number 1H
OGRID No. 16696	Operator Name OXY USA INC.	Elevation 3647.3'

Surface Location

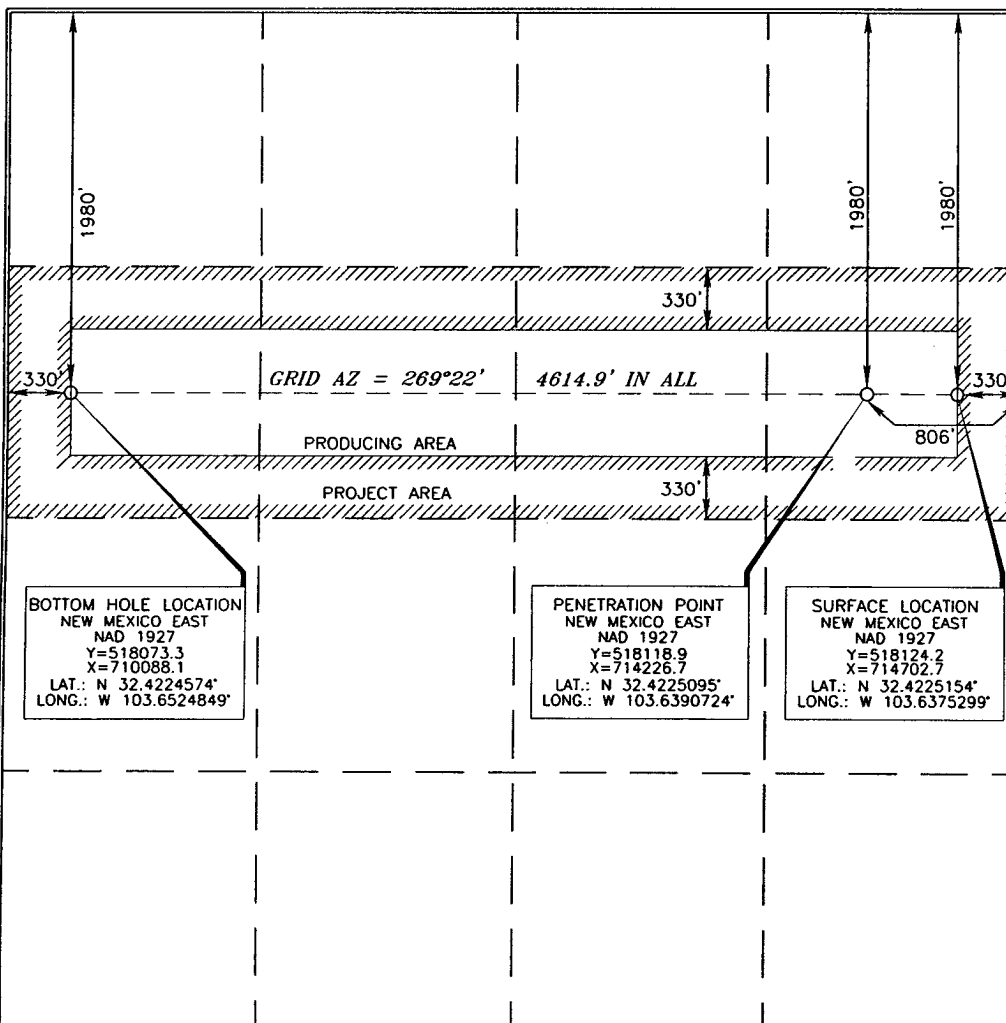
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
H	2	22 SOUTH	32 EAST, N.M.P.M.		1980'	NORTH	330'	EAST	LEA

Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
E	2	22 SOUTH	32 EAST, N.M.P.M.		1980'	NORTH	330'	WEST	LEA

Dedicated Acres	Joint or Infill	Consolidation Code	Order No.
160	N		

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.



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.

David Stewart
Signature Date **11/5/11**

David Stewart
Printed Name

SURVEYOR CERTIFICATION

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

15079
NOVEMBER 30, 2010
Date of Survey

Signature and Seal of Professional Surveyor

Terry D. Paul
Certificate Number **15079**

WO# 101130WL-a (KA)

DRILLING PROGRAM

Operator Name/Number:	OXY USA Inc.	16696
Lease Name/Number:	Rum Runner 2 Federal Com #1H	N/A
Pool Name/Number:	Undesignated Northwest Bootleg Ridge Delaware	6925
Surface Location:	1980 FNL 330 FEL SENE(H) Sec 2 T22S R32E	
Bottom Hole Location:	1980 FNL 330 FWL SWNW(E) Sec 2 T22S R32E	

Proposed TD:	8725' TVD	12925' TMD	Elevation: 3647.3' GL
SL - Lat: 32.4225154	Long: 103.6375299	X= 714702.7 Y= 518124.2	NAD - 1927
BH - Lat: 32.4224574	Long: 103.6524849	X= 710088.1 Y= 518073.3	NAD - 1927

1. Geologic Name of Surface Formation:

a. Permian

2. Estimated Tops of Geological Markers & Depths of Anticipated Fresh Water, Oil or Gas:

Geological Marker	Depth	Type
a. Upper Permian Sand	255'	Water
b. Anhydrite	1160'	---
c. Bottom Salt	2880'	---
d. Delaware	4704'	---
e. Bell Canyon	4885'	Oil
f. Cherry Canyon	5675'	Oil
g. Brushy Canyon	7045'	Oil
h. Bone Spring	8700'	Oil

3. Casing Program:** See COA*

Hole Size	Interval	OD Csg	Weight	Collar	Grade	Condition	Collapse Design Factor	Burst Design Factor	Tension Design Factor
17-1/2"	1185'	13-3/8"	48	ST&C	H-40	New	2.69	2.33	2.16
12-1/4"	4860'	9-5/8"	36	LT&C	L-80	New	3.14	1.26	1.81
8-3/4"	12925' M	5-1/2"	17	BT&C	L-80	New	1.65	1.29	1.7
DVT @ 7000' - POST @ 4910'				Hole filled with 8.6# Mud			6290#	7740#	

Collapse and burst loads calculated using Stress Check with anticipated loads

4. Cement Program** Per Operator Melissa J. SchAAF 9 5/8" 40# L-80 LT&C*

- a. 13-3/8" Surface Circulate cement to surface w/ 918sx HES light PP cmt w/ 4% Bentonite + .25#/sx Poly-E-Flake + 2% CaCl₂ 13.5ppg 1.75 yield 160% Excess followed by 440sx PP cmt w/ 2% CaCl₂, 14.8ppg 1.35 yield 160% Excess
- b. 9-5/8" Intermediate Circulate cement to surface w/ 1205sx HES light PP cmt w/ 5% Salt + .125#/sx Poly-E-Flake + 5#/sx Gilsonite 12.4ppg 2.10 yield 65% Excess followed by 200sx PP cmt w/ 1% CaCl₂, 14.8ppg 1.34 yield 65% Excess

Rum Runner 2 Federal #1H - Additional Information

1. Estimated Tops of Geological Markers & Depths of Anticipated Fresh Water, Oil or Gas:

<u>Geological Marker</u>	<u>Depth</u>	<u>Type</u>
a. Upper Permian Sand	255'	Water
b. Anhydrite	1160'	---
c. Top Salt	1450'	---
d. Bottom Salt	4650'	---
e. Delaware	4900'	---
f. Bell Canyon	5000'	Oil
g. Cherry Canyon	5675'	Oil
h. Brushy Canyon	7045'	Oil
i. Bone Spring	8700'	Oil

2. Flex Line Certification - See attached

4. Pilot Hole Plug Back Cement Information ** See COA - CLASS H*

Cement from 8725' to +/- 7750' w/ 600sx PP cmt w/ 3% KCl + .75% CFR-3 + .2% HR-800
17.5 ppg .97 yield 35% excess

5. Pilot Hole - 8725' TVD - Horizontal Lateral - 8546' TVD 12925' TMD

New

- c. 5-1/2" Production Cement 1st stage w/ 2173sx Super H w/ .5% Halad-344 + .4% CFR-3 + 3#/sx Gilsonite + .3% HR-800 + .125#/sx Poly-E-Flake 13.2ppg 1.59 yield 130% Excess, Calc TOC-6995'
 Cement 2nd stage w/ 695sx HES light PP cmt w/ 3#/sx Salt + .125#/sx Pheno Seal + 5#/sx Gilsonite 12.4ppg 2.09 yield 200% Excess followed by 150sx PP cmt w/ w/ 1% CaCl₂, 14.8ppg 1.35 yield 200% Excess, Calc TOC-4905'
 Cement 3rd stage w/ 799sx HES Light PP cmt w/ 3#/sx Salt 12.4ppg 1.98 yield 35% Excess followed by 150sx PP cmt w/ 2% CaCl₂ 14.8ppg 1.35 yield 35% Excess; Circ Surface

The above cement volumes could be revised pending the caliper measurement.

5. Pressure Control Equipment:

Surface 0-1185'

None

Production 1185-12925'

13-5/8" 10M two ram stack w/ 5M annular preventer, 10M Choke Manifold

All BOP's and associated equipment will be tested in accordance with Onshore Order #2 (250/5000 psi on rams for 10 minutes each and 250/3500 for 10 minutes for annular preventer, equal to 70% of working pressure) with a third party BOP testing service before drilling out the 13-3/8" casing shoe. Wellhead pressure rating will support this test and 13-3/8" casing will be protected from high pressure. Since the wellhead system is a multibowl design, this initial test will cover the requirements prior to drilling out the 9-5/8" casing shoe.

Pipe Rams will be operated and checked each 24-hour period and each time the drill pipe is out of the hole. These functional tests will be documented on the daily driller's log. A 2" kill line and 3" choke line will be accommodated on the drilling spool below the ram-type BOP. Other accessory BOP equipment will include a Kelly cock, floor safety valve, choke lines and choke manifold having a 5000 psi WP rating.

OXY requests that the entire system be tested as a 5000psi WP rating.

* See COA

OXY also requests a variance to connect the BOP outlet to the choke manifold using a co-flex hose that is manufactured by Contitech Rubber Industrial KFT. It is a 3" ID X 35' flexible hose rated to 10000psi working pressure. It has been tested to 15000psi and is built to API Spec 16C. Once the flex line is installed, it will be tied down with safety clamps, see attached for certifications.

6. Proposed Mud Circulation System

* *see COA*

Depth	Mud Wt. ppg	Visc sec	Fluid Loss	Type System
0 - 1185'	8.4-9.2	32-34	NC	Fresh Water/Spud Mud
1185 - 4860'	9.8-10.2	28-29	NC	Brine Water
4860 - 8000'	8.8-9.0	28-29	NC	Fresh Water
8000 - 8725' (Pilot) <i>8725M = 8689V</i>	9.0-9.4	34-36	8-10	Cut Brine Gel/LSND
8000 - 12925' (Curve/Lateral)	9.0-9.4	34-36	8-10	Cut Brine Gel/LSND

Pump high viscosity sweeps as needed for hole cleaning. The mud system will be monitored visually/manually as well as with an electronic PVT. The necessary mud products for additional weight and fluid loss control will be on location at all times.

7. Auxiliary Well Control and Monitoring Equipment:

- A Kelly cock will be in the drill string at all times.
- A full opening drill pipe stabbing valve having the appropriate connections will be on the rig floor at all times.

- c. Hydrogen Sulfide detection equipment will be in operation after drilling out the surface casing shoe until the production casing is cemented. Breathing equipment will be on location upon drilling the surface casing shoe until total depth is reached.

8. Logging, Coring and Testing Program:

** See COA*

- a. Drill stem tests are not anticipated but if done will be based on geological sample shows.
- b. The open hole electrical logging program will consist of Triple Combo-GR/DEN/NEUT/RESIST/SONIC/CMR.
- c. No coring program is planned but if done will be sidewall rotary cores.
- d. Mud logging program will be initiated from 4860' to TD.

9. Potential Hazards:

** See COA*

No abnormal pressures, temperatures or H₂S gas are expected. The highest anticipated pressure gradient would be 0.43psi/ft or 3900psi. If H₂S is encountered the operator will comply with the provisions of Onshore Oil & Gas Order No.6. No lost circulation is expected to occur. All personnel will be familiar with all aspects of safe operation of equipment being used to drill this well. Adequate flare lines will be installed off the mud/gas separator where gas may be flared safely.

10. Anticipated Starting Date and Duration of Operations:

Road and location construction will begin after the BLM has approved the APD. Anticipated spud date will be as soon as possible after BLM approval and as soon as a rig will be available. Move in operations and drilling is expected to take 45 days. If production casing is run, then an additional 30 days will be needed to complete the well and construct surface facilities and/or lay flow lines in order to place well on production.

RECEIVED

MAR 25 2011

HOBBSOCD

ENGINEERING CALCS

Permian

NAG New Mexico Wells - Avalon

NAG Avalon Horizontals

Rum Runner 1 Pilot

Plan: APD Design Pilot

Standard Planning Report

22 December, 2010

OXY

Planning Report

Database:	HOPSPP	Local Co-ordinate Reference:	Well NAG Avalon Horizontals
Company:	ENGINEERING CALCS	TVD Reference:	Default Datum @ 0.0ft (H&P 370)
Project:	Permian	MD Reference:	Default Datum @ 0.0ft (H&P 370)
Site:	NAG New Mexico Wells - Avalon	North Reference:	Grid
Well:	NAG Avalon Horizontals	Survey Calculation Method:	Minimum Curvature
Wellbore:	Rum Runner 1 Pilot		
Design:	APD Design Pilot		

Project:	Permian		
Map System:	Flat Earth	System Datum:	Mean Sea Level
Geo Datum:	WGS 1984		
Map Zone:	No Conversions		

Site	NAG New Mexico Wells - Avalon		
Site Position:		Northing:	518,124.20 ft
From:	Map	Easting:	714,702.70 ft
Position Uncertainty:	0.0 ft	Slot Radius:	0.000 in
		Latitude:	0° 0' 0.000 N
		Longitude:	0° 0' 0.000 E
		Grid Convergence:	

Well	NAG Avalon Horizontals					
Well Position	+N/-S	0.0 ft	Northing:	518,124.20 ft	Latitude:	0° 0' 0.000 N
	+E/-W	0.0 ft	Easting:	714,702.70 ft	Longitude:	0° 0' 0.000 E
Position Uncertainty		0.0 ft	Wellhead Elevation:		Ground Level:	0.0 ft

Wellbore	Rum Runner 1 Pilot				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	User Defined	12/22/2010	0.00	0.00	0

Design	APD Design Pilot			
Audit Notes:				
Version:	Phase:	PROTOTYPE		Tie On Depth: 0.0
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W	Direction
	(ft)	(ft)	(ft)	(°)
	0.0	0.0	0.0	270.00

Plan Sections										
Measured Depth	Inclination	Azimuth	Vertical Depth	+N/-S	+E/-W	Dogleg Rate	Build Rate	Turn Rate	TFO	Target
(ft)	(°)	(°)	(ft)	(ft)	(ft)	(°/100ft)	(°/100ft)	(°/100ft)	(°)	
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
8,000.0	0.00	270.00	8,000.0	0.0	0.0	0.00	0.00	0.00	270.00	
8,200.0	20.00	270.00	8,196.0	0.0	-34.6	10.00	10.00	0.00	270.00	
8,725.0	20.00	270.00	8,689.3	0.0	-214.1	0.00	0.00	0.00	0.00	

OXY

Planning Report

Database:	HOPSPP	Local Co-ordinate Reference:	Well NAG Avalon Horizontals
Company:	ENGINEERING CALCS	TVD Reference:	Default Datum @ 0.0ft (H&P.370)
Project:	Permian	MD Reference:	Default Datum @ 0.0ft (H&P.370)
Site:	NAG New Mexico Wells - Avalon	North Reference:	Grid
Well:	NAG Avalon Horizontals	Survey Calculation Method:	Minimum Curvature
Wellbore:	Rum Runner 1 Pilot		
Design:	APD Design Pilot		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
100.0	0.00	270.00	100.0	0.0	0.0	0.0	0.00	0.00	0.00
200.0	0.00	270.00	200.0	0.0	0.0	0.0	0.00	0.00	0.00
300.0	0.00	270.00	300.0	0.0	0.0	0.0	0.00	0.00	0.00
400.0	0.00	270.00	400.0	0.0	0.0	0.0	0.00	0.00	0.00
500.0	0.00	270.00	500.0	0.0	0.0	0.0	0.00	0.00	0.00
600.0	0.00	270.00	600.0	0.0	0.0	0.0	0.00	0.00	0.00
700.0	0.00	270.00	700.0	0.0	0.0	0.0	0.00	0.00	0.00
800.0	0.00	270.00	800.0	0.0	0.0	0.0	0.00	0.00	0.00
900.0	0.00	270.00	900.0	0.0	0.0	0.0	0.00	0.00	0.00
1,000.0	0.00	270.00	1,000.0	0.0	0.0	0.0	0.00	0.00	0.00
1,100.0	0.00	270.00	1,100.0	0.0	0.0	0.0	0.00	0.00	0.00
1,160.0	0.00	270.00	1,160.0	0.0	0.0	0.0	0.00	0.00	0.00
Rustler									
1,185.0	0.00	270.00	1,185.0	0.0	0.0	0.0	0.00	0.00	0.00
13 3/8"									
1,200.0	0.00	270.00	1,200.0	0.0	0.0	0.0	0.00	0.00	0.00
1,300.0	0.00	270.00	1,300.0	0.0	0.0	0.0	0.00	0.00	0.00
1,400.0	0.00	270.00	1,400.0	0.0	0.0	0.0	0.00	0.00	0.00
1,500.0	0.00	270.00	1,500.0	0.0	0.0	0.0	0.00	0.00	0.00
1,600.0	0.00	270.00	1,600.0	0.0	0.0	0.0	0.00	0.00	0.00
1,700.0	0.00	270.00	1,700.0	0.0	0.0	0.0	0.00	0.00	0.00
1,800.0	0.00	270.00	1,800.0	0.0	0.0	0.0	0.00	0.00	0.00
1,900.0	0.00	270.00	1,900.0	0.0	0.0	0.0	0.00	0.00	0.00
2,000.0	0.00	270.00	2,000.0	0.0	0.0	0.0	0.00	0.00	0.00
2,100.0	0.00	270.00	2,100.0	0.0	0.0	0.0	0.00	0.00	0.00
2,200.0	0.00	270.00	2,200.0	0.0	0.0	0.0	0.00	0.00	0.00
2,300.0	0.00	270.00	2,300.0	0.0	0.0	0.0	0.00	0.00	0.00
2,400.0	0.00	270.00	2,400.0	0.0	0.0	0.0	0.00	0.00	0.00
2,500.0	0.00	270.00	2,500.0	0.0	0.0	0.0	0.00	0.00	0.00
2,600.0	0.00	270.00	2,600.0	0.0	0.0	0.0	0.00	0.00	0.00
2,700.0	0.00	270.00	2,700.0	0.0	0.0	0.0	0.00	0.00	0.00
2,800.0	0.00	270.00	2,800.0	0.0	0.0	0.0	0.00	0.00	0.00
2,900.0	0.00	270.00	2,900.0	0.0	0.0	0.0	0.00	0.00	0.00
3,000.0	0.00	270.00	3,000.0	0.0	0.0	0.0	0.00	0.00	0.00
3,100.0	0.00	270.00	3,100.0	0.0	0.0	0.0	0.00	0.00	0.00
3,200.0	0.00	270.00	3,200.0	0.0	0.0	0.0	0.00	0.00	0.00
3,300.0	0.00	270.00	3,300.0	0.0	0.0	0.0	0.00	0.00	0.00
3,400.0	0.00	270.00	3,400.0	0.0	0.0	0.0	0.00	0.00	0.00
3,500.0	0.00	270.00	3,500.0	0.0	0.0	0.0	0.00	0.00	0.00
3,600.0	0.00	270.00	3,600.0	0.0	0.0	0.0	0.00	0.00	0.00
3,700.0	0.00	270.00	3,700.0	0.0	0.0	0.0	0.00	0.00	0.00
3,800.0	0.00	270.00	3,800.0	0.0	0.0	0.0	0.00	0.00	0.00
3,900.0	0.00	270.00	3,900.0	0.0	0.0	0.0	0.00	0.00	0.00
4,000.0	0.00	270.00	4,000.0	0.0	0.0	0.0	0.00	0.00	0.00
4,100.0	0.00	270.00	4,100.0	0.0	0.0	0.0	0.00	0.00	0.00
4,200.0	0.00	270.00	4,200.0	0.0	0.0	0.0	0.00	0.00	0.00
4,300.0	0.00	270.00	4,300.0	0.0	0.0	0.0	0.00	0.00	0.00
4,400.0	0.00	270.00	4,400.0	0.0	0.0	0.0	0.00	0.00	0.00
4,500.0	0.00	270.00	4,500.0	0.0	0.0	0.0	0.00	0.00	0.00
4,600.0	0.00	270.00	4,600.0	0.0	0.0	0.0	0.00	0.00	0.00
4,650.0	0.00	270.00	4,650.0	0.0	0.0	0.0	0.00	0.00	0.00
Base of Salt									

OXY

Planning Report

Database:	HOPSPP	Local Co-ordinate Reference:	Well NAG Avalon Horizontals
Company:	ENGINEERING CALCS	TVD Reference:	Default Datum @ 0.0ft (H&P 370)
Project:	Permian	MD Reference:	Default Datum @ 0.0ft (H&P 370)
Site:	NAG New Mexico Wells - Avalon	North Reference:	Grid
Well:	NAG Avalon Horizontals	Survey Calculation Method:	Minimum Curvature
Wellbore:	Rum Runner 1 Pilot		
Design:	APD Design Pilot		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
4,700.0	0.00	270.00	4,700.0	0.0	0.0	0.0	0.00	0.00	0.00
4,800.0	0.00	270.00	4,800.0	0.0	0.0	0.0	0.00	0.00	0.00
4,860.0	0.00	270.00	4,860.0	0.0	0.0	0.0	0.00	0.00	0.00
Base of Anhydrite - 9 5/8"									
4,900.0	0.00	270.00	4,900.0	0.0	0.0	0.0	0.00	0.00	0.00
Delaware - Ramsey									
5,000.0	0.00	270.00	5,000.0	0.0	0.0	0.0	0.00	0.00	0.00
5,100.0	0.00	270.00	5,100.0	0.0	0.0	0.0	0.00	0.00	0.00
5,200.0	0.00	270.00	5,200.0	0.0	0.0	0.0	0.00	0.00	0.00
5,300.0	0.00	270.00	5,300.0	0.0	0.0	0.0	0.00	0.00	0.00
5,400.0	0.00	270.00	5,400.0	0.0	0.0	0.0	0.00	0.00	0.00
5,500.0	0.00	270.00	5,500.0	0.0	0.0	0.0	0.00	0.00	0.00
5,600.0	0.00	270.00	5,600.0	0.0	0.0	0.0	0.00	0.00	0.00
5,675.0	0.00	270.00	5,675.0	0.0	0.0	0.0	0.00	0.00	0.00
Cherry Canyon									
5,700.0	0.00	270.00	5,700.0	0.0	0.0	0.0	0.00	0.00	0.00
5,800.0	0.00	270.00	5,800.0	0.0	0.0	0.0	0.00	0.00	0.00
5,900.0	0.00	270.00	5,900.0	0.0	0.0	0.0	0.00	0.00	0.00
6,000.0	0.00	270.00	6,000.0	0.0	0.0	0.0	0.00	0.00	0.00
6,100.0	0.00	270.00	6,100.0	0.0	0.0	0.0	0.00	0.00	0.00
6,200.0	0.00	270.00	6,200.0	0.0	0.0	0.0	0.00	0.00	0.00
6,300.0	0.00	270.00	6,300.0	0.0	0.0	0.0	0.00	0.00	0.00
6,400.0	0.00	270.00	6,400.0	0.0	0.0	0.0	0.00	0.00	0.00
6,500.0	0.00	270.00	6,500.0	0.0	0.0	0.0	0.00	0.00	0.00
6,600.0	0.00	270.00	6,600.0	0.0	0.0	0.0	0.00	0.00	0.00
6,700.0	0.00	270.00	6,700.0	0.0	0.0	0.0	0.00	0.00	0.00
6,800.0	0.00	270.00	6,800.0	0.0	0.0	0.0	0.00	0.00	0.00
6,900.0	0.00	270.00	6,900.0	0.0	0.0	0.0	0.00	0.00	0.00
7,000.0	0.00	270.00	7,000.0	0.0	0.0	0.0	0.00	0.00	0.00
7,045.0	0.00	270.00	7,045.0	0.0	0.0	0.0	0.00	0.00	0.00
Brushy Canyon									
7,100.0	0.00	270.00	7,100.0	0.0	0.0	0.0	0.00	0.00	0.00
7,200.0	0.00	270.00	7,200.0	0.0	0.0	0.0	0.00	0.00	0.00
7,300.0	0.00	270.00	7,300.0	0.0	0.0	0.0	0.00	0.00	0.00
7,400.0	0.00	270.00	7,400.0	0.0	0.0	0.0	0.00	0.00	0.00
7,500.0	0.00	270.00	7,500.0	0.0	0.0	0.0	0.00	0.00	0.00
7,600.0	0.00	270.00	7,600.0	0.0	0.0	0.0	0.00	0.00	0.00
7,700.0	0.00	270.00	7,700.0	0.0	0.0	0.0	0.00	0.00	0.00
7,800.0	0.00	270.00	7,800.0	0.0	0.0	0.0	0.00	0.00	0.00
7,900.0	0.00	270.00	7,900.0	0.0	0.0	0.0	0.00	0.00	0.00
8,000.0	0.00	270.00	8,000.0	0.0	0.0	0.0	0.00	0.00	0.00
8,100.0	10.00	270.00	8,099.5	0.0	-8.7	8.7	10.00	10.00	0.00
8,200.0	20.00	270.00	8,196.0	0.0	-34.6	34.6	10.00	10.00	0.00
8,300.0	20.00	270.00	8,289.9	0.0	-68.8	68.8	0.00	0.00	0.00
8,400.0	20.00	270.00	8,383.9	0.0	-103.0	103.0	0.00	0.00	0.00
8,427.8	20.00	270.00	8,410.0	0.0	-112.5	112.5	0.00	0.00	0.00
Brushy Canyon A									
8,500.0	20.00	270.00	8,477.9	0.0	-137.2	137.2	0.00	0.00	0.00
8,600.0	20.00	270.00	8,571.8	0.0	-171.4	171.4	0.00	0.00	0.00
8,700.0	20.00	270.00	8,665.8	0.0	-205.6	205.6	0.00	0.00	0.00
8,725.0	20.00	270.00	8,689.3	0.0	-214.1	214.1	0.00	0.00	0.00

OXY

Planning Report

Database:	HOPSPP	Local Co-ordinate Reference:	Well NAG Avalon Horizontals
Company:	ENGINEERING CALCS	TVD Reference:	Default Datum @ 0.0ft (H&P 370)
Project:	Permian	MD Reference:	Default Datum @ 0.0ft (H&P 370)
Site:	NAG New Mexico Wells - Avalon	North Reference:	Grid
Well:	NAG Avalon Horizontals	Survey Calculation Method:	Minimum Curvature
Wellbore:	Rum Runner 1 Pilot		
Design:	APD Design Pilot		

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)		Name	Casing Diameter (in)	Hole Diameter (in)
1,185.0	1,185.0	13 3/8"		13.375	17.500
4,860.0	4,860.0	9 5/8"		9.625	12.250

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
1,160.0	1,160.0	Rustler		0.00		
4,650.0	4,650.0	Base of Salt		0.00		
4,860.0	4,860.0	Base of Anhydrite		0.00		
4,900.0	4,900.0	Delaware - Ramsey		0.00		
5,675.0	5,675.0	Cherry Canyon		0.00		
7,045.0	7,045.0	Brushy Canyon		0.00		
8,427.8	8,410.0	Brushy Canyon A		0.00		

ENGINEERING CALCS

Permian

NAG New Mexico Wells - Avalon

NAG Avalon Horizontals

Rum Runner 2 Lateral

Plan: APD Design Lateral

Standard Planning Report

22 December, 2010

OXY

Planning Report

Database:	HOPSPP	Local Co-ordinate Reference:	Well NAG Avalon Horizontals
Company:	ENGINEERING CALCS	TVD Reference:	Default Datum @ 0.0ft (H&P 370)
Project:	Permian	MD Reference:	Default Datum @ 0.0ft (H&P 370)
Site:	NAG New Mexico Wells - Avalon	North Reference:	Grid
Well:	NAG Avalon Horizontals	Survey Calculation Method:	Minimum Curvature
Wellbore:	Rum Runner 2 Lateral		
Design:	APD Design Lateral		

Project	Permian		
Map System:	Flat Earth	System Datum:	Mean Sea Level
Geo Datum:	WGS 1984		
Map Zone:	No Conversions		

Site		NAG New Mexico Wells - Avalon			
Site Position:		Northing:	518,124.20 ft	Latitude:	0° 0' 0.000 N
From:	Map	Easting:	714,702.70 ft	Longitude:	0° 0' 0.000 E
Position Uncertainty:	0.0 ft	Slot Radius:	0.000 in	Grid Convergence:	

Well	NAG Avalon Horizontals					
Well Position	+N/-S	0.0 ft	Northing:	518,124.20 ft	Latitude:	0° 0' 0.000 N
	+E/-W	0.0 ft	Easting:	714,702.70 ft	Longitude:	0° 0' 0.000 E
Position Uncertainty		0.0 ft	Wellhead Elevation:		Ground Level:	0.0 ft

Wellbore		Rum Runner 2:Lateral			
Magnetics	Model Name	Sample Date	Declination	Dip Angle	Field Strength
			(°)	(°)	(nT)
	User Defined	12/21/2010	0.00	0.00	0

Design		APD Design Lateral			
Audit Notes:					
Version:		Phase:	PROTOTYPE	Tie On Depth:	0.0
Vertical Section:		Depth From (TVD)	+N/-S	+E/-W	Direction
		(ft)	(ft)	(ft)	(°)
		0.0	0.0	0.0	270.00

Plan Sections										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (%/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
8,000.0	0.00	0.00	8,000.0	0.0	0.0	0.00	0.00	0.00	0.00	
8,200.0	20.00	270.00	8,196.0	0.0	-34.6	10.00	10.00	0.00	270.00	
8,850.0	90.00	270.00	8,546.0	0.0	-534.5	10.77	10.77	0.00	0.00	
12,925.0	90.00	270.00	8,546.0	0.0	-4,609.5	0.00	0.00	0.00	0.00	

OXY

Planning Report

Database:	HOPSPP	Local/Co-ordinate Reference:	Well NAG Avalon Horizontals.
Company:	ENGINEERING CALCS	TVD Reference:	Default Datum @ 0.0ft (H&P 370)
Project:	Permian	MD Reference:	Default Datum @ 0.0ft (H&P 370)
Site:	NAG New Mexico Wells - Avalon.	North Reference:	Grid
Well:	NAG Avalon Horizontals	Survey Calculation Method:	Minimum Curvature
Wellbore:	Rum Runner 2 Lateral		
Design:	APD Design Lateral		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	0.00
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	0.00
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	0.00
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	0.00
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	0.00
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	0.00
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	0.00	0.00
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	0.00
900.0	0.00	0.00	900.0	0.0	0.0	0.0	0.00	0.00	0.00
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	0.00	0.00
1,100.0	0.00	0.00	1,100.0	0.0	0.0	0.0	0.00	0.00	0.00
1,160.0	0.00	0.00	1,160.0	0.0	0.0	0.0	0.00	0.00	0.00
Rustler									
1,185.0	0.00	0.00	1,185.0	0.0	0.0	0.0	0.00	0.00	0.00
13 3/8"									
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.0	0.00	0.00	0.00
1,300.0	0.00	0.00	1,300.0	0.0	0.0	0.0	0.00	0.00	0.00
1,400.0	0.00	0.00	1,400.0	0.0	0.0	0.0	0.00	0.00	0.00
1,500.0	0.00	0.00	1,500.0	0.0	0.0	0.0	0.00	0.00	0.00
1,600.0	0.00	0.00	1,600.0	0.0	0.0	0.0	0.00	0.00	0.00
1,700.0	0.00	0.00	1,700.0	0.0	0.0	0.0	0.00	0.00	0.00
1,800.0	0.00	0.00	1,800.0	0.0	0.0	0.0	0.00	0.00	0.00
1,900.0	0.00	0.00	1,900.0	0.0	0.0	0.0	0.00	0.00	0.00
2,000.0	0.00	0.00	2,000.0	0.0	0.0	0.0	0.00	0.00	0.00
2,100.0	0.00	0.00	2,100.0	0.0	0.0	0.0	0.00	0.00	0.00
2,200.0	0.00	0.00	2,200.0	0.0	0.0	0.0	0.00	0.00	0.00
2,300.0	0.00	0.00	2,300.0	0.0	0.0	0.0	0.00	0.00	0.00
2,400.0	0.00	0.00	2,400.0	0.0	0.0	0.0	0.00	0.00	0.00
2,500.0	0.00	0.00	2,500.0	0.0	0.0	0.0	0.00	0.00	0.00
2,600.0	0.00	0.00	2,600.0	0.0	0.0	0.0	0.00	0.00	0.00
2,700.0	0.00	0.00	2,700.0	0.0	0.0	0.0	0.00	0.00	0.00
2,800.0	0.00	0.00	2,800.0	0.0	0.0	0.0	0.00	0.00	0.00
2,900.0	0.00	0.00	2,900.0	0.0	0.0	0.0	0.00	0.00	0.00
3,000.0	0.00	0.00	3,000.0	0.0	0.0	0.0	0.00	0.00	0.00
3,100.0	0.00	0.00	3,100.0	0.0	0.0	0.0	0.00	0.00	0.00
3,200.0	0.00	0.00	3,200.0	0.0	0.0	0.0	0.00	0.00	0.00
3,300.0	0.00	0.00	3,300.0	0.0	0.0	0.0	0.00	0.00	0.00
3,400.0	0.00	0.00	3,400.0	0.0	0.0	0.0	0.00	0.00	0.00
3,500.0	0.00	0.00	3,500.0	0.0	0.0	0.0	0.00	0.00	0.00
3,600.0	0.00	0.00	3,600.0	0.0	0.0	0.0	0.00	0.00	0.00
3,700.0	0.00	0.00	3,700.0	0.0	0.0	0.0	0.00	0.00	0.00
3,800.0	0.00	0.00	3,800.0	0.0	0.0	0.0	0.00	0.00	0.00
3,900.0	0.00	0.00	3,900.0	0.0	0.0	0.0	0.00	0.00	0.00
4,000.0	0.00	0.00	4,000.0	0.0	0.0	0.0	0.00	0.00	0.00
4,100.0	0.00	0.00	4,100.0	0.0	0.0	0.0	0.00	0.00	0.00
4,200.0	0.00	0.00	4,200.0	0.0	0.0	0.0	0.00	0.00	0.00
4,300.0	0.00	0.00	4,300.0	0.0	0.0	0.0	0.00	0.00	0.00
4,400.0	0.00	0.00	4,400.0	0.0	0.0	0.0	0.00	0.00	0.00
4,500.0	0.00	0.00	4,500.0	0.0	0.0	0.0	0.00	0.00	0.00
4,600.0	0.00	0.00	4,600.0	0.0	0.0	0.0	0.00	0.00	0.00
4,650.0	0.00	0.00	4,650.0	0.0	0.0	0.0	0.00	0.00	0.00
Base of Salt									

OXY Planning Report

Database:	HOPSPP	Local Co-ordinate Reference:	Well NAG Avalon Horizontals
Company:	ENGINEERING CALCS	TVD Reference:	Default Datum @ 0.0ft (H&P 370)
Project:	Permian	MD Reference:	Default Datum @ 0.0ft (H&P 370)
Site:	NAG New Mexico Wells - Avalon	North Reference:	Grid
Well:	NAG Avalon Horizontals	Survey Calculation Method:	Minimum Curvature
Wellbore:	Rum Runner 2 Lateral		
Design:	APD Design Lateral		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
4,700.0	0.00	0.00	4,700.0	0.0	0.0	0.0	0.00	0.00	0.00
4,800.0	0.00	0.00	4,800.0	0.0	0.0	0.0	0.00	0.00	0.00
4,860.0	0.00	0.00	4,860.0	0.0	0.0	0.0	0.00	0.00	0.00
Base of Anhydrite - 9 5/8"									
4,900.0	0.00	0.00	4,900.0	0.0	0.0	0.0	0.00	0.00	0.00
Delaware - Ramsey									
5,000.0	0.00	0.00	5,000.0	0.0	0.0	0.0	0.00	0.00	0.00
5,100.0	0.00	0.00	5,100.0	0.0	0.0	0.0	0.00	0.00	0.00
5,200.0	0.00	0.00	5,200.0	0.0	0.0	0.0	0.00	0.00	0.00
5,300.0	0.00	0.00	5,300.0	0.0	0.0	0.0	0.00	0.00	0.00
5,400.0	0.00	0.00	5,400.0	0.0	0.0	0.0	0.00	0.00	0.00
5,500.0	0.00	0.00	5,500.0	0.0	0.0	0.0	0.00	0.00	0.00
5,600.0	0.00	0.00	5,600.0	0.0	0.0	0.0	0.00	0.00	0.00
5,675.0	0.00	0.00	5,675.0	0.0	0.0	0.0	0.00	0.00	0.00
Cherry Canyon									
5,700.0	0.00	0.00	5,700.0	0.0	0.0	0.0	0.00	0.00	0.00
5,800.0	0.00	0.00	5,800.0	0.0	0.0	0.0	0.00	0.00	0.00
5,900.0	0.00	0.00	5,900.0	0.0	0.0	0.0	0.00	0.00	0.00
6,000.0	0.00	0.00	6,000.0	0.0	0.0	0.0	0.00	0.00	0.00
6,100.0	0.00	0.00	6,100.0	0.0	0.0	0.0	0.00	0.00	0.00
6,200.0	0.00	0.00	6,200.0	0.0	0.0	0.0	0.00	0.00	0.00
6,300.0	0.00	0.00	6,300.0	0.0	0.0	0.0	0.00	0.00	0.00
6,400.0	0.00	0.00	6,400.0	0.0	0.0	0.0	0.00	0.00	0.00
6,500.0	0.00	0.00	6,500.0	0.0	0.0	0.0	0.00	0.00	0.00
6,600.0	0.00	0.00	6,600.0	0.0	0.0	0.0	0.00	0.00	0.00
6,700.0	0.00	0.00	6,700.0	0.0	0.0	0.0	0.00	0.00	0.00
6,800.0	0.00	0.00	6,800.0	0.0	0.0	0.0	0.00	0.00	0.00
6,900.0	0.00	0.00	6,900.0	0.0	0.0	0.0	0.00	0.00	0.00
7,000.0	0.00	0.00	7,000.0	0.0	0.0	0.0	0.00	0.00	0.00
7,045.0	0.00	0.00	7,045.0	0.0	0.0	0.0	0.00	0.00	0.00
Brushy Canyon									
7,100.0	0.00	0.00	7,100.0	0.0	0.0	0.0	0.00	0.00	0.00
7,200.0	0.00	0.00	7,200.0	0.0	0.0	0.0	0.00	0.00	0.00
7,300.0	0.00	0.00	7,300.0	0.0	0.0	0.0	0.00	0.00	0.00
7,400.0	0.00	0.00	7,400.0	0.0	0.0	0.0	0.00	0.00	0.00
7,500.0	0.00	0.00	7,500.0	0.0	0.0	0.0	0.00	0.00	0.00
7,600.0	0.00	0.00	7,600.0	0.0	0.0	0.0	0.00	0.00	0.00
7,700.0	0.00	0.00	7,700.0	0.0	0.0	0.0	0.00	0.00	0.00
7,800.0	0.00	0.00	7,800.0	0.0	0.0	0.0	0.00	0.00	0.00
7,900.0	0.00	0.00	7,900.0	0.0	0.0	0.0	0.00	0.00	0.00
8,000.0	0.00	0.00	8,000.0	0.0	0.0	0.0	0.00	0.00	0.00
8,100.0	10.00	270.00	8,099.5	0.0	-8.7	8.7	10.00	10.00	0.00
8,200.0	20.00	270.00	8,196.0	0.0	-34.6	34.6	10.00	10.00	0.00
8,300.0	30.77	270.00	8,286.2	0.0	-77.4	77.4	10.77	10.77	0.00
8,400.0	41.54	270.00	8,366.8	0.0	-136.3	136.3	10.77	10.77	0.00
8,460.9	48.10	270.00	8,410.0	0.0	-179.2	179.2	10.77	10.77	0.00
Brushy Canyon A									
8,500.0	52.31	270.00	8,435.0	0.0	-209.2	209.2	10.77	10.77	0.00
8,600.0	63.08	270.00	8,488.4	0.0	-293.6	293.6	10.77	10.77	0.00
8,700.0	73.85	270.00	8,525.0	0.0	-386.5	386.5	10.77	10.77	0.00
8,800.0	84.62	270.00	8,543.7	0.0	-484.6	484.6	10.77	10.77	0.00
8,850.0	90.00	270.00	8,546.0	0.0	-534.5	534.5	10.77	10.77	0.00
8,900.0	90.00	270.00	8,546.0	0.0	-584.5	584.5	0.00	0.00	0.00
9,000.0	90.00	270.00	8,546.0	0.0	-684.5	684.5	0.00	0.00	0.00

OXY

Planning Report

Database:	HOPSP	Local Co-ordinate Reference:	Well NAG Avalon Horizontals
Company:	ENGINEERING CALCS	TVD Reference:	Default Datum @ 0.0ft (H&P 370)
Project:	Permian	MD Reference:	Default Datum @ 0.0ft (H&P 370)
Site:	NAG New Mexico Wells - Avalon	North Reference:	Grid
Well:	NAG Avalon Horizontals	Survey Calculation Method:	Minimum Curvature
Wellbore:	Rum Runner 2 Lateral		
Design:	APD Design Lateral		

Planned Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	
9,100.0	90.00	270.00	8,546.0	0.0	-784.5	784.5	0.00	0.00	0.00	
9,200.0	90.00	270.00	8,546.0	0.0	-884.5	884.5	0.00	0.00	0.00	
9,300.0	90.00	270.00	8,546.0	0.0	-984.5	984.5	0.00	0.00	0.00	
9,400.0	90.00	270.00	8,546.0	0.0	-1,084.5	1,084.5	0.00	0.00	0.00	
9,500.0	90.00	270.00	8,546.0	0.0	-1,184.5	1,184.5	0.00	0.00	0.00	
9,600.0	90.00	270.00	8,546.0	0.0	-1,284.5	1,284.5	0.00	0.00	0.00	
9,700.0	90.00	270.00	8,546.0	0.0	-1,384.5	1,384.5	0.00	0.00	0.00	
9,800.0	90.00	270.00	8,546.0	0.0	-1,484.5	1,484.5	0.00	0.00	0.00	
9,900.0	90.00	270.00	8,546.0	0.0	-1,584.5	1,584.5	0.00	0.00	0.00	
10,000.0	90.00	270.00	8,546.0	0.0	-1,684.5	1,684.5	0.00	0.00	0.00	
10,100.0	90.00	270.00	8,546.0	0.0	-1,784.5	1,784.5	0.00	0.00	0.00	
10,200.0	90.00	270.00	8,546.0	0.0	-1,884.5	1,884.5	0.00	0.00	0.00	
10,300.0	90.00	270.00	8,546.0	0.0	-1,984.5	1,984.5	0.00	0.00	0.00	
10,400.0	90.00	270.00	8,546.0	0.0	-2,084.5	2,084.5	0.00	0.00	0.00	
10,500.0	90.00	270.00	8,546.0	0.0	-2,184.5	2,184.5	0.00	0.00	0.00	
10,600.0	90.00	270.00	8,546.0	0.0	-2,284.5	2,284.5	0.00	0.00	0.00	
10,700.0	90.00	270.00	8,546.0	0.0	-2,384.5	2,384.5	0.00	0.00	0.00	
10,800.0	90.00	270.00	8,546.0	0.0	-2,484.5	2,484.5	0.00	0.00	0.00	
10,900.0	90.00	270.00	8,546.0	0.0	-2,584.5	2,584.5	0.00	0.00	0.00	
11,000.0	90.00	270.00	8,546.0	0.0	-2,684.5	2,684.5	0.00	0.00	0.00	
11,100.0	90.00	270.00	8,546.0	0.0	-2,784.5	2,784.5	0.00	0.00	0.00	
11,200.0	90.00	270.00	8,546.0	0.0	-2,884.5	2,884.5	0.00	0.00	0.00	
11,300.0	90.00	270.00	8,546.0	0.0	-2,984.5	2,984.5	0.00	0.00	0.00	
11,400.0	90.00	270.00	8,546.0	0.0	-3,084.5	3,084.5	0.00	0.00	0.00	
11,500.0	90.00	270.00	8,546.0	0.0	-3,184.5	3,184.5	0.00	0.00	0.00	
11,600.0	90.00	270.00	8,546.0	0.0	-3,284.5	3,284.5	0.00	0.00	0.00	
11,700.0	90.00	270.00	8,546.0	0.0	-3,384.5	3,384.5	0.00	0.00	0.00	
11,800.0	90.00	270.00	8,546.0	0.0	-3,484.5	3,484.5	0.00	0.00	0.00	
11,900.0	90.00	270.00	8,546.0	0.0	-3,584.5	3,584.5	0.00	0.00	0.00	
12,000.0	90.00	270.00	8,546.0	0.0	-3,684.5	3,684.5	0.00	0.00	0.00	
12,100.0	90.00	270.00	8,546.0	0.0	-3,784.5	3,784.5	0.00	0.00	0.00	
12,200.0	90.00	270.00	8,546.0	0.0	-3,884.5	3,884.5	0.00	0.00	0.00	
12,300.0	90.00	270.00	8,546.0	0.0	-3,984.5	3,984.5	0.00	0.00	0.00	
12,400.0	90.00	270.00	8,546.0	0.0	-4,084.5	4,084.5	0.00	0.00	0.00	
12,500.0	90.00	270.00	8,546.0	0.0	-4,184.5	4,184.5	0.00	0.00	0.00	
12,600.0	90.00	270.00	8,546.0	0.0	-4,284.5	4,284.5	0.00	0.00	0.00	
12,700.0	90.00	270.00	8,546.0	0.0	-4,384.5	4,384.5	0.00	0.00	0.00	
12,800.0	90.00	270.00	8,546.0	0.0	-4,484.5	4,484.5	0.00	0.00	0.00	
12,900.0	90.00	270.00	8,546.0	0.0	-4,584.5	4,584.5	0.00	0.00	0.00	
12,925.0	90.00	270.00	8,546.0	0.0	-4,609.5	4,609.5	0.00	0.00	0.00	

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)	
1,185.0	1,185.0	13 3/8"	13.375	17.500	
4,860.0	4,860.0	9 5/8"	9.625	12.250	
13,110.0		5 1/2"	5.500	8.750	

OXY

Planning Report

Database:	HOPSPP	Local Co-ordinate Reference:	Well NAG Avalon Horizontals
Company:	ENGINEERING.CALCS	TVD Reference:	Default Datum @ 0.0ft (H&P 370)
Project:	Permian	MD Reference:	Default Datum @ 0.0ft (H&P 370)
Site:	NAG New Mexico Wells - Avalon	North Reference:	Grid
Well:	NAG Avalon Horizontals	Survey Calculation Method:	Minimum Curvature
Wellbore:	Rum Runner 2 Lateral		
Design:	APD Design Lateral		

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
1,160.0	1,160.0	Rustler		0.00		
4,650.0	4,650.0	Base of Salt		0.00		
4,860.0	4,860.0	Base of Anhydrite		0.00		
4,900.0	4,900.0	Delaware - Ramsey		0.00		
5,675.0	5,675.0	Cherry Canyon		0.00		
7,045.0	7,045.0	Brushy Canyon		0.00		
8,460.9	8,410.0	Brushy Canyon A		0.00		