District I
1625 N. French Dr., Hobbs, NM 88240
Phone: (575) 393-6161 Fax: (575) 393-0720
District II
811 S. First St., Artesia, NM 88210
Phone: (575) 748-1283 Fax: (575) 748-9720
District III
1000 Rio Brazos Road, Aztec, NM 87410
Phone: (505) 334-6178 Fax: (505) 334-6170
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505
Phone: (505) 476-3460 Fax: (505) 476-3462

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MAR 18 2014
NMOCD ARTESIA

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

Form C-102
Revised August 1, 2011
Submit one copy to appropriate District Office

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number	Pool Code	Pool Name
30-015-42196	~~49553~~ 96696	~~TURKEY TRACK~~ Parkway; Bone Spring, ~~East~~
Property Code	**Property Name**	**Well Number**
20667	SPARKPLUG STATE	2H
OGRID No.	**Operator Name**	**Elevation**
192463	OXY USA WTP LP	3359.5'

Surface Location

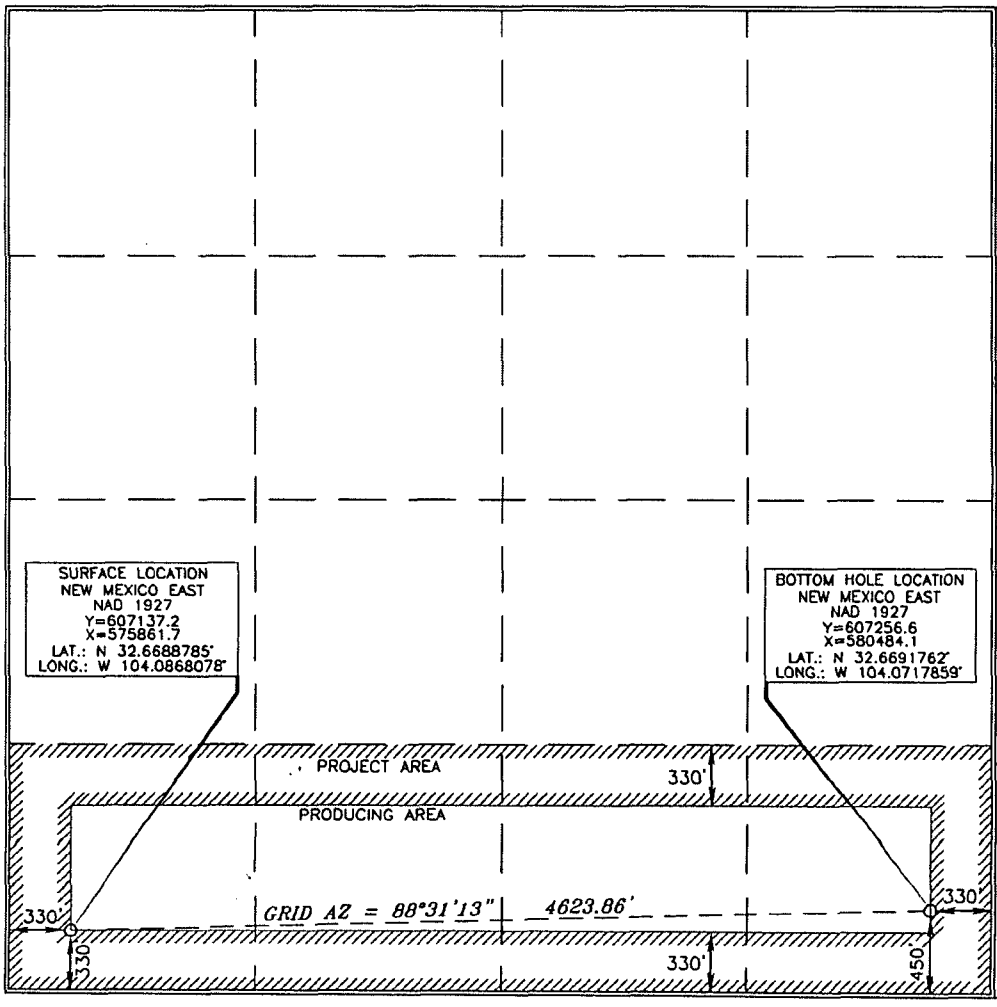
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
M	9	19 SOUTH	29 EAST, N.M.P.M.		330'	SOUTH	330'	WEST	EDDY

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
P	9	19 SOUTH	29 EAST, N.M.P.M.		450'	SOUTH	330'	EAST	EDDY

Dedicated Acres	Joint or Infill	Consolidation Code	Order No.
160			

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.

Signature: Jennifer Duarte Date: 3/11/14

Printed Name: Jennifer Duarte

E-mail Address: jennifer_duarte@oxy.com

SURVEYOR CERTIFICATION

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

GERRY JASO
15079
PROFESSIONAL LAND SURVEYOR

DECEMBER 12, 2013
Date of Survey

Signature and Seal of Professional Surveyor:

Certificate Number 15079 1/17/2014

WO# 111007WL-i (Rev. A) (KA)

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

Form C-102
Revised August 1, 2011
Submit one copy to appropriate District Office

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number	Pool Code	Pool Name
	49553	Palmillo; Bone Spring, East

Property Code	Property Name	Well Number
20 1067	OXY SPARKPLUG STATE	2H

OGRID No.	Operator Name	Elevation
192463	OXY USA WTP LP	3359.5'

Surface Location

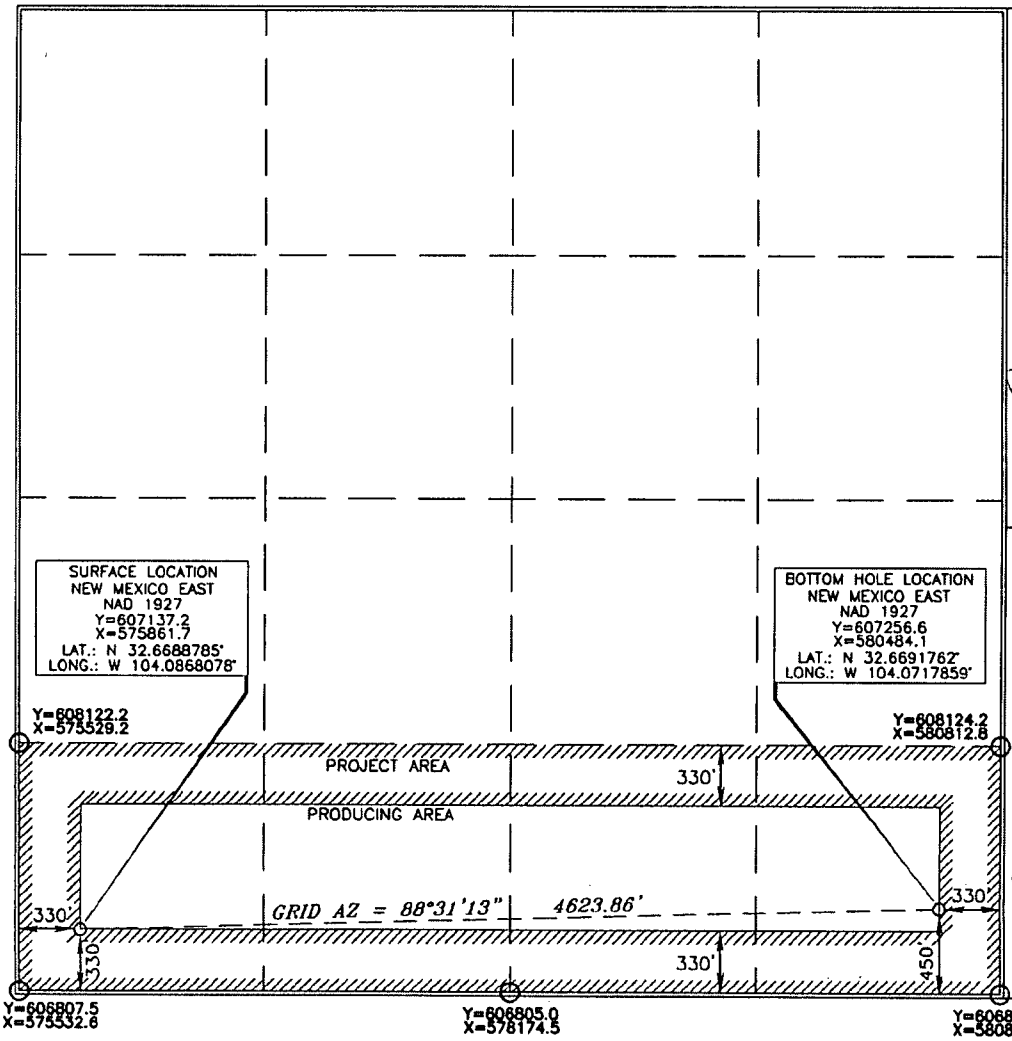
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
M	9	19 SOUTH	29 EAST, N.M.P.M.		330'	SOUTH	330'	WEST	EDDY

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
P	9	19 SOUTH	29 EAST, N.M.P.M.		450'	SOUTH	330'	EAST	EDDY

Dedicated Acres	Joint or Infill	Consolidation Code	Order No.
160			

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.

Signature — Date: 3/11/14

Jennifer Duarte
Printed Name

jennifer_duarte@oxy.com
E-mail Address

SURVEYOR CERTIFICATION

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

DECEMBER 12, 2013
Date of Survey

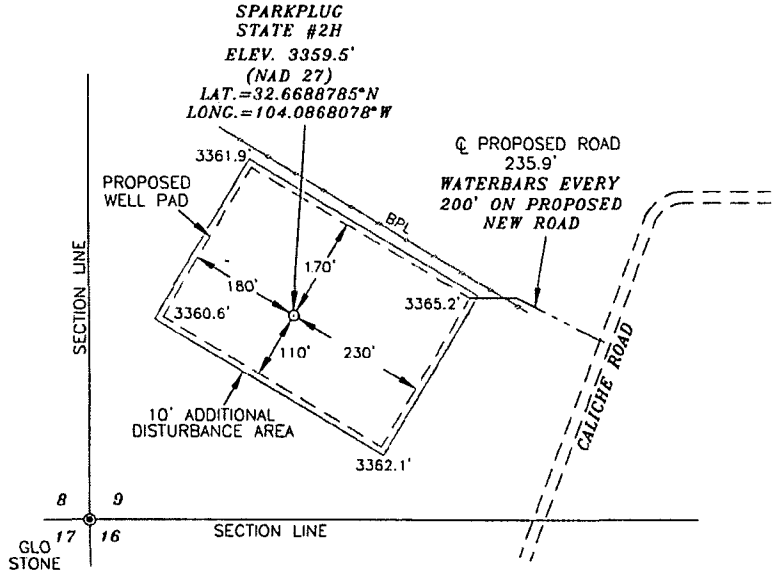
Signature and Seal of Professional Surveyor:

GARY L. JONES — NEW MEXICO — 15079 — PROFESSIONAL LAND SURVEYOR

Certificate Number 15079

WO# 111007WL-i-XY (Rev. A) (KA)

OXY USA INC.
SPARKPLUG STATE #2H
SITE PLAN



TERRY J ASEL
NEW MEXICO
15079
PROFESSIONAL LAND SURVEYOR

LEGEND

– – – – DENOTES PROPOSED WELL PAD

—·—·— DENOTES PROPOSED ROAD

300' 0 300' 600' FEET

SCALE: 1"=300'

SURVEYORS CERTIFICATE

I, TERRY J. ASEL, NEW MEXICO PROFESSIONAL SURVEYOR NO. 15079, DO HEREBY CERTIFY THAT I CONDUCTED AND AM RESPONSIBLE FOR THIS SURVEY, THAT THIS SURVEY IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF, AND MEETS THE "MINIMUM STANDARDS FOR SURVEYING IN NEW MEXICO" AS ADOPTED BY THE NEW MEXICO STATE BOARD OF REGISTRATION FOR PROFESSIONAL ENGINEERS AND SURVEYORS.

Terry J. Asel 1/17/2014

Terry J. Asel N.M. R.P.L.S. No. 15079

Asel Surveying

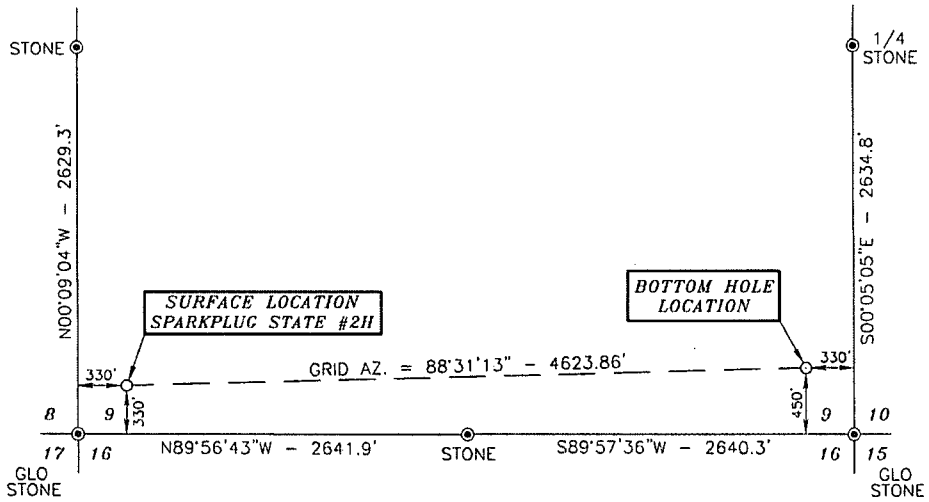
P.O. BOX 393 – 310 W. TAYLOR
HOBBS, NEW MEXICO – 575-393-9146

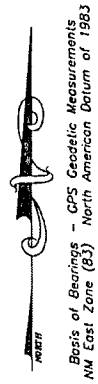
OXY USA INC.

SPARKPLUG STATE #2H WELL PAD LOCATED AT 330' FSL & 330' FWL IN SECTION 9, TOWNSHIP 19 SOUTH, RANGE 29 EAST, N.M.P.M., EDDY COUNTY, NEW MEXICO

Survey Date: 12/12/13	Sheet 1 of 1 Sheets	
W.O. Number: 111007WL-i (Rev. A)	Drawn By: KA	Rev: A
Date: 01/09/14	111007WL-i	Scale: 1"=300'

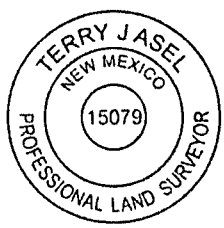
SECTION 9, TOWNSHIP 19 SOUTH, RANGE 29 EAST, N.M.P.M.,
EDDY COUNTY NEW MEXICO





Basis of Bearings - GPS Geodetic Measurements
NM East Zone (83) North American Datum of 1983

DRIVING DIRECTIONS:
FROM THE INTERSECTION OF U.S. HWY. #82 AND COUNTY ROAD #360 (BLUESTEM ROAD), GO SOUTHEAST ON COUNTY ROAD #360 FOR 7.9 MILES, TURN RIGHT ON COUNTY ROAD #210 (OLD LOCO ROAD) AND GO SOUTH FOR 5.7 MILES, TURN RIGHT ON COUNTY ROAD 235 (CURRY COMB ROAD) AND GO WEST FOR 0.5 MILES, TURN RIGHT ON CALICHE ROAD AND GO NORTHEAST FOR 0.9 MILES, TURN LEFT ON PROPOSED ROAD AND GO NORTHWEST FOR 235.9 FEET TO LOCATION.



LEGEND
◉ – DENOTES FOUND MONUMENT AS NOTED

1000' 0 1000' 2000' FEET
SCALE: 1"=1000'

SURVEYORS CERTIFICATE

I, TERRY J. ASEL, NEW MEXICO PROFESSIONAL SURVEYOR NO. 15079, DO HEREBY CERTIFY THAT I CONDUCTED AND AM RESPONSIBLE FOR THIS SURVEY, THAT THIS SURVEY IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF, AND MEETS THE "MINIMUM STANDARDS FOR SURVEYING IN NEW MEXICO" AS ADOPTED BY THE NEW MEXICO STATE BOARD OF REGISTRATION FOR PROFESSIONAL ENGINEERS AND SURVEYORS.

Terry J. Asel 1/17/2014
Terry J. Asel, N.M. R.P.L.S. No. 15079

Asel Surveying

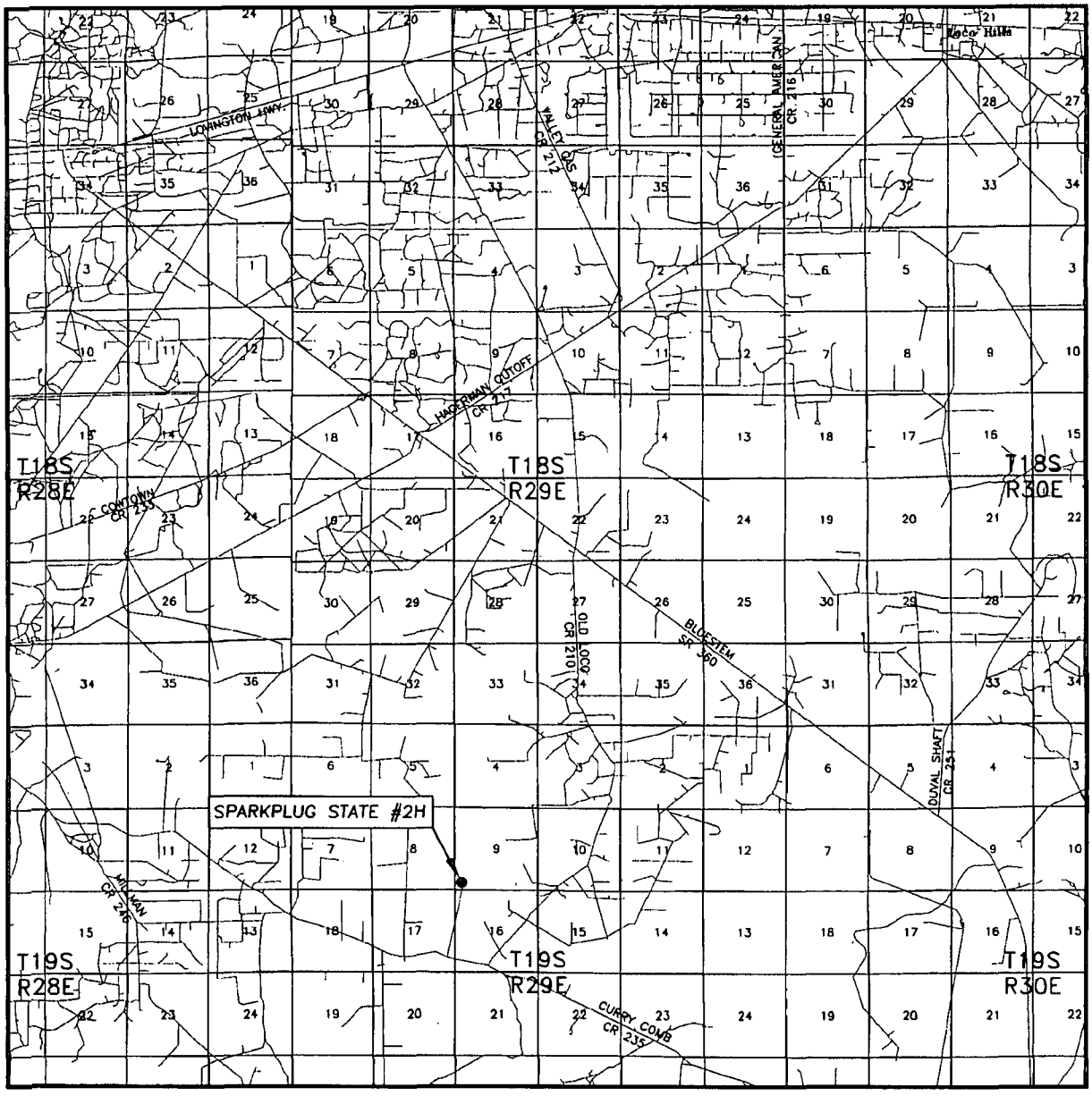
P.O. BOX 393 – 310 W. TAYLOR
HOBBS, NEW MEXICO – 575-393-9146

OXY USA INC.

SPARKPLUG STATE #2H LOCATED AT
330' FSL & 330' FWL IN SECTION 9,
TOWNSHIP 19 SOUTH, RANGE 29 EAST,
N.M.P.M., EDDY COUNTY, NEW MEXICO

Survey Date: 12/12/13	Sheet 1 of 1 Sheets	
W.O. Number: 111007WL-i (Rev. A)	Drawn By: KA	Rev: A
Date: 01/09/14	111007WL-i	Scale: 1"=1000'

VICINITY MAP



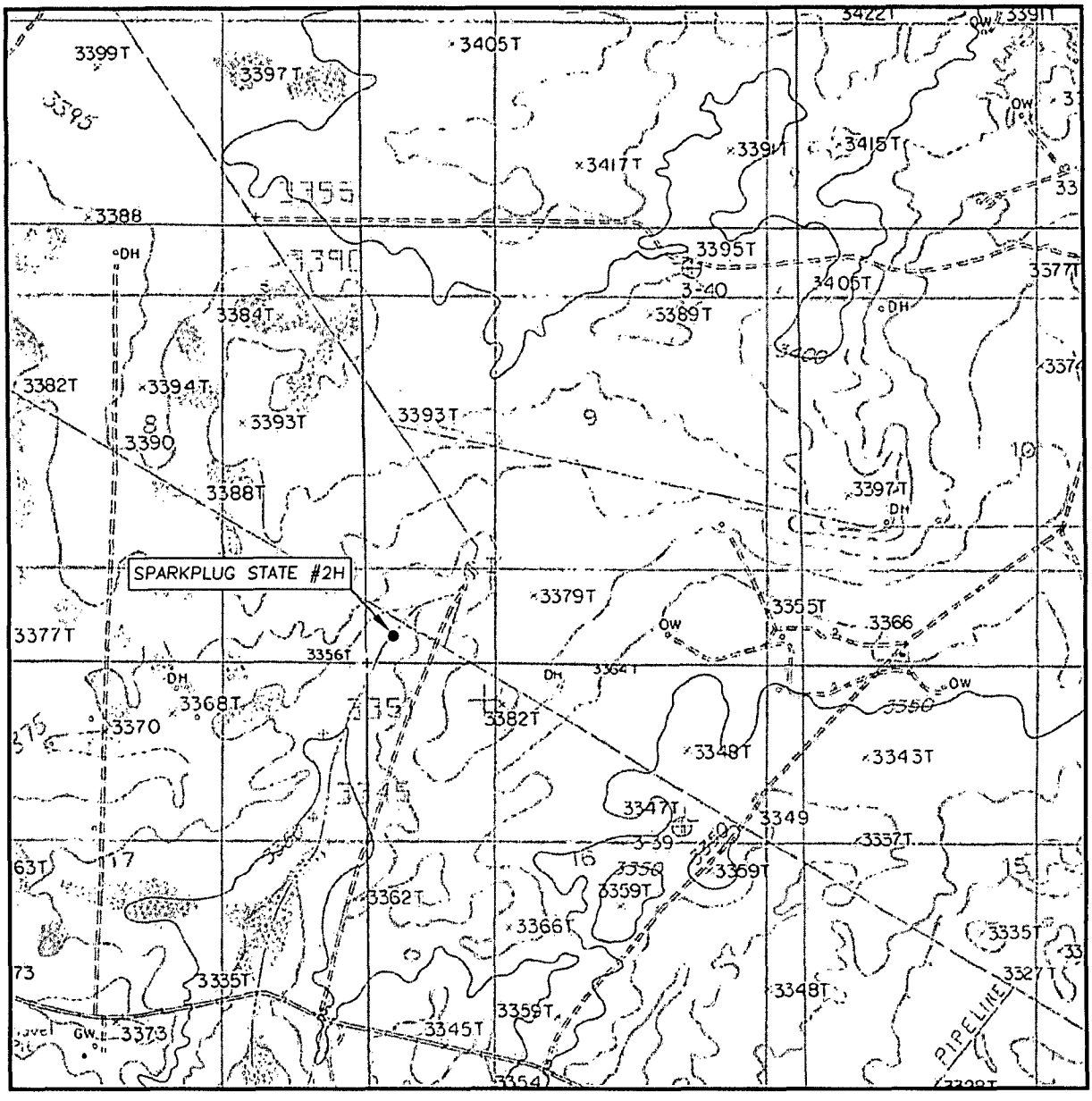
SCALE: 1" = 2 MILES

SEC. 9 TWP. 19-S RGE. 29-E
SURVEY N.M.P.M.
COUNTY EDDY
DESCRIPTION 330' FSL & 330' FWL
ELEVATION 3359.5'
OPERATOR OXY USA INC.
LEASE SPARKPLUG STATE #2H

Asel Surveying
P.O. BOX 393 - 310 W. TAYLOR
HOBBS, NEW MEXICO - 575-393-9146

DIRECTIONS FROM THE INTERSECTION OF U.S. HWY. #82 AND COUNTY ROAD #360 (BLUESTEM ROAD), GO SOUTHEAST ON COUNTY ROAD #360 FOR 7.9 MILES, TURN RIGHT ON COUNTY ROAD #210 (OLD LOCO ROAD) AND GO SOUTH FOR 5.7 MILES, TURN RIGHT ON COUNTY ROAD #235 (CURRY COMB ROAD) AND GO WEST FOR 0.5 MILES, TURN RIGHT ON CALICHE ROAD AND GO NORTHEAST FOR 0.9 MILES, TURN LEFT ON PROPOSED ROAD AND GO NORTHWEST FOR 235.9 FEET TO LOCATION.

LOCATION VERIFICATION MAP



SCALE: 1" = 2000'

CONTOUR INTERVAL: 10'

SEC. 9 TWP. 19-S RGE. 29-E

SURVEY N.M.P.M.

COUNTY EDDY

DESCRIPTION 330' FSL & 330' FWL

ELEVATION 3359.5'

OPERATOR OXY USA INC.

LEASE SPARKPLUG STATE #2H

U.S.G.S. TOPOGRAPHIC MAP
ILLINOIS CAMP NE, N.M.

Asel Surveying

P.O. BOX 393 - 310 W. TAYLOR
HOBBS, NEW MEXICO - 575-393-9146

OXY USA Inc
Sparkplug St. #2H
APD DATA

OPERATOR NAME / NUMBER: OXY USA INC

LEASE NAME / NUMBER: Sparkplug St. #2H

STATE: NM **COUNTY:** Eddy

SURFACE LOCATION: 330' FSL & 330' FWL, Sec 9, T19S, R29E

BOTTOM HOLE LOCATION: 450' FSL & 330' FEL, Sec 9, T19S, R29E

APPROX GR ELEV: 3359.5'

EST KB ELEV: 3383.5' (24' KB-GL)

1. **GEOLOGIC NAME OF SURFACE FORMATION**
   a. Permian

2. **ESTIMATED TOPS OF GEOLOGICAL MARKERS & DEPTHS OF ANTICIPATED FRESH WATER, OIL OR GAS**

Formation	TVD - RKB	Expected Fluids
T. Rustler	320	--
T. Salt	375	--
T. Seven Rivers	1525	
T. Queen	2050	
T. Delaware	3125	Form Water
T. 1st Bone Spring	4075	Oil/Gas
T. 2nd Bone Spring	6890	Oil/Gas
Target 2nd BSPG Horizontal	**7970**	**Oil/Gas**
T. 3rd Bone Spring	8000	Oil/Gas

- **Fresh water may be present above the Rustler formation. Surface casing will be set below the top of the Rustler to protect any possible fresh water.**

GREATEST PROJECTED TD "HZ": 12228' MD / 7970' TVD **OBJECTIVE:** 2nd BSPG

3. CASING PROGRAM

Surface Casing ran in a 14.75" hole filled with 8.50 ppg mud

Hole Size (in)	Interval (ft)	OD (in)	Wt (ppf)	Grade	Conn	ID (in)	Condition	Burst (psi)	Collapse (psi)	**Burst SF**	**Coll SF**	**Ten SF**
14.75	350	11.75	47	J55	BTC	11.000	New	3072	1514	1.43	5.92	5.86

Intermediate Casing ran in a 10.625" hole filled with 10.2 ppg mud

Hole Size (in)	Interval (ft)	OD (in)	Wt (ppf)	Grade	Conn	ID (in)	Condition	Burst (psi)	Collapse (psi)	**Burst SF**	**Coll SF**	**Ten SF**
10.625	3200	8.625	32	J55	LTC	7.921*	New	3928	2533	1.35	2.28	2.08

Production Casing ran in a 7.875" hole filled with 9.2 ppg mud

Hole Size (in)	Interval (ft)	OD (in)	Wt (ppf)	Grade	Conn	ID (in)	Condition	Burst (psi)	Collapse (psi)	**Burst SF**	**Coll SF**	**Ten SF**
7.875	12228	5.500	17	P110	BTC	4.892	New	10640	7480	1.22	1.43	2.09

*SPECIAL DRIFT TO 7.875"

Casing Design Assumptions:

Burst Loads

CSG Test (Surface)

- Internal: Displacement fluid + 70% CSG Burst rating
- External: Pore Pressure from section TD to surface

CSG Test (Intermediate)

- Internal: Displacement fluid + 70% CSG Burst rating
- External: Pore Pressure from the Intermediate hole TD to Surface CSG shoe and MW of the drilling mud that was in the hole when the CSG was run to surface

CSG Test (Production)

- Internal: Displacement fluid + 80% CSG Burst rating
- External: Pore Pressure from the well TD the Intermediate CSG shoe and MW of the drilling mud that was in the hole when the CSG was run to surface

Gas Kick (Surface/Intermediate)

- Internal: Gas Kick based on Pore Pressure or Fracture Gradient @ CSG shoe with a gas 0.115psi/ft Gas gradient to surface while drilling the next hole section (e.g. Gas Kick while drilling the production hole section is a burst load used to design the intermediate CSG)
- External: Pore Pressure from section TD to previous CSG shoe and MW of the drilling mud that was in the hole when the CSG was run to surface

Stimulation (Production)

- Internal: Displacement fluid + Max Frac treating pressure (not to exceed 80% CSG Burst rating)
- External: Pore Pressure from the well TD to the Intermediate CSG shoe and 8.5 ppg MWE to surface

Collapse Loads

Lost Circulation (Surface/Intermediate)

- Internal: Losses experienced while drilling the next hole section (e.g. losses while drilling the production hole section are used as a collapse load to design the intermediate CSG). After losses there will be a column of mud inside the CSG with an equivalent weight to the Pore Pressure of the lost circulation zone
- External: MW of the drilling mud that was in the hole when the CSG was run

Cementing (Surface/Intermediate/Production)

- Internal: Displacement Fluid
- External: Cement Slurries to TOC, MW to surface

Full Evacuation (Production)

- Internal: Atmospheric Pressure
- External: MW of the drilling mud that was in the hole when the CSG was run

Tension Loads

Running CSG (Surface/Intermediate/Production)

- Axial load of the buoyant weight of the string plus either 100 klb over-pull or string weight in air, whichever is less

Green Cement (Surface/Intermediate/Production)

- Axial load of the buoyant weight of the string plus the cement plug bump pressure (Final displacement pressure + 500 psi)

Burst, Collapse and Tensile SF are calculated using Landmark's Stress Check (Casing Design) software.

4. CEMENT PROGRAM:

Surface Interval

Interval	Amount sx	Ft of Fill	Type	Gal/Sk	PPG	Ft^3/sk	24 Hr Comp
0' – 350' (125% Excess)	300	350	Premium Plus cement with 2 % Calcium Chloride (Accelerator)	6.37	14.8	1.35	1500

Intermediate Interval

Interval	Amount sx	Ft of Fill	Type	Gal/Sk	PPG	Ft^3/sk	24 Hr Comp
Lead: 0' – 2700' (120% Excess)	650	2700	Halliburton Light Premium Plus Cement with 5% Salt (Salt), 0.1250 lbm Poly-E-Flake (Lost Circulation Additive), 2 lbm Kol-Seal (Lost Circulation Additive)	10.01	12.9	1.89	700
Tail: 2700' – 3200' (120% Excess)	200	500	Premium Plus cement with 1 % Calcium Chloride (Accelerator)	6.36	14.8	1.33	2100

Production Casing

Interval	Amount sx	Ft of Fill	Type	Gal/Sk	PPG	Ft^3/sk	24 Hr Comp
Lead: 2200' – 7200' (100% Excess)	550	5000	TUNED LIGHT (TM) SYSTEM 3 lbm/sk Kol-Seal (Lost Circulation Additive), 0.125 lbm/sk Poly-E-Flake (Lost Circulation Additive), 0.25 lbm/sk HR-800 (Retarder)	14.04	10.2	2.95	900
Tail: 7200' – 12228' (40% Excess)	750	5028	Super H Cement, 0.5 % Halad(R)-344 (Low Fluid Loss Control), 0.4 % CFR-3 (Dispersant), 3 lbm/sk Salt (Salt), 0.3 % HR-800 (Retarder), 0.125 lbm/sk Poly-E-Flake (Lost Circulation Additive)	8.44	13.2	1.66	620

The volumes indicated above may be revised depending on caliper measurement.

5. DIRECTIONAL PLAN

Please see attached directional plan

6. PRESSURE CONTROL EQUIPMENT

Surface: 0' – 350' None.

Intermediate and Production: 350' MD/TVD – 12228' MD / 7970' TVD. Intermediate and Production hole will be drilled with a 13-5/8" 10M three ram stack with a 5M annular preventer and a 5M Choke Manifold.

- **a.** 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 psi for 10 minutes for annular preventer, equal to 70% of working pressure) with a third party BOP testing service before drilling out the surface casing shoe. A Multibowl wellhead system will be used in this well therefore the BOPE test will cover the test requirements for the Intermediate and Production sections.
- **b.** The Surface and Intermediate casings strings will be tested to 70% of their burst rating for 30 minutes. This will also test the seals of the lock down pins that hold the pack-off in place in the Multibowl wellhead system.
- **c.** Pipe rams will be function tested every 24 hours and blind rams will be tested 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.
- **d.** The BOPE test will be repeated within 21 days of the original test, on the first trip, if drilling the intermediate or production section takes more time than planned.
- **e.** Other accessory BOP equipment will include a floor safety valve, choke lines, and choke manifold having a 5000 psi working pressure rating and tested to 5000 psi.
- **f.** The Operator also requests a variance to connect the BOP choke outlet to the choke manifold using a co-flex hose manufactured by Contitech Rubber Industrial KFT. It is a 3" ID x 35' flexible hose with a 10,000 psi working pressure. It has been tested to 15,000 psi and is built to API Spec 16C. Once the flex line is installed it will be tied down with safety clamps (certifications attached).
- **g.** BOP & Choke manifold diagrams attached.

7. MUD PROGRAM:

Depth	Mud Wt ppg	Vis Sec	Fluid Loss	Type System
0' – 350'	8.5	28 – 38	NC	Fresh Water / Spud Mud
350' – 3200'	10.2	28 – 32	NC	Fresh Water / NaCl Brine
3200' – 12228'	9.2	32 – 50	< 18	Cut Brine / Sweeps

Remarks: 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. Appropriately weighted mud will be used to isolate potential gas, oil, and water zones until such time as casing can be cemented into place for zonal isolation.

8. AUXILIARY WELL CONTROL AND MONITORING EQUIPMENT

a. A full opening drill pipe stabbing valve having the appropriate connections will be on the rig floor unobstructed and readily accessible at all times.

9. POTENTIAL HAZARDS:

a. No abnormal temperatures or pressures are anticipated. The highest anticipated pressure gradient is **0.463 psi/ft.** Maximum anticipated bottom hole pressure is **3702 psi.**
b. 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. WIRELINE LOGGING / MUD LOGGING / LWD

a. Wireline Logging: Triple Combo (GR, Den/Neut/Resist) from Int Casing Shoe to KOP.
b. Mud loggers to be rigged up from surface casing shoe to TD
c. Acquire GR while drilling, from KOP to TD

COMPANY PERSONNEL:

Name	Title	Office Phone	Mobile Phone
Anar Khalilov	Drilling Engineer	(713)985-6959	(832) 205-6365
Sebastian Millan	Drilling Engineer Supervisor	(713)350-4950	(832) 528-3268
Roger Allen	Drilling Superintendent	(713)215-7617	(281) 682-3919
Oscar Quintero	Drilling Manager	(713)985-6343	(713) 689-4946

OXY Permian

OXY

Eddy County, New Mexico
Sparkplug State 2H
SS 2H

Original Wellbore

Plan: Design #1

Standard Planning Report

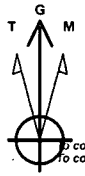
28 February, 2014

Scientific Drilling

OXY Permian

SS 2H
Eddy County, New Mexico
Northing: 607137.20
Easting: 575861.70
Design #1

Scientific Drilling



To convert a Magnetic Direction to a Grid Direction, Add 7.39°
To convert a True Direction to a Grid Direction, Subtract 0.13°

Azimuths to Grid North
True North: -0.13°
Magnetic North: 7.39°

Magnetic Field
Strength: 48557.1snT
Dip Angle: 60.44°
Date: 02/28/2014
Model: IGRF2010

KB @ 3383.50usft
Gr@ 3359.50

WELL DETAILS SS 2H
Ground Level: 3359.50

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
0.00	0.00	607137.20	575861.70	32.669	-104.087

DESIGN TARGET DETAILS

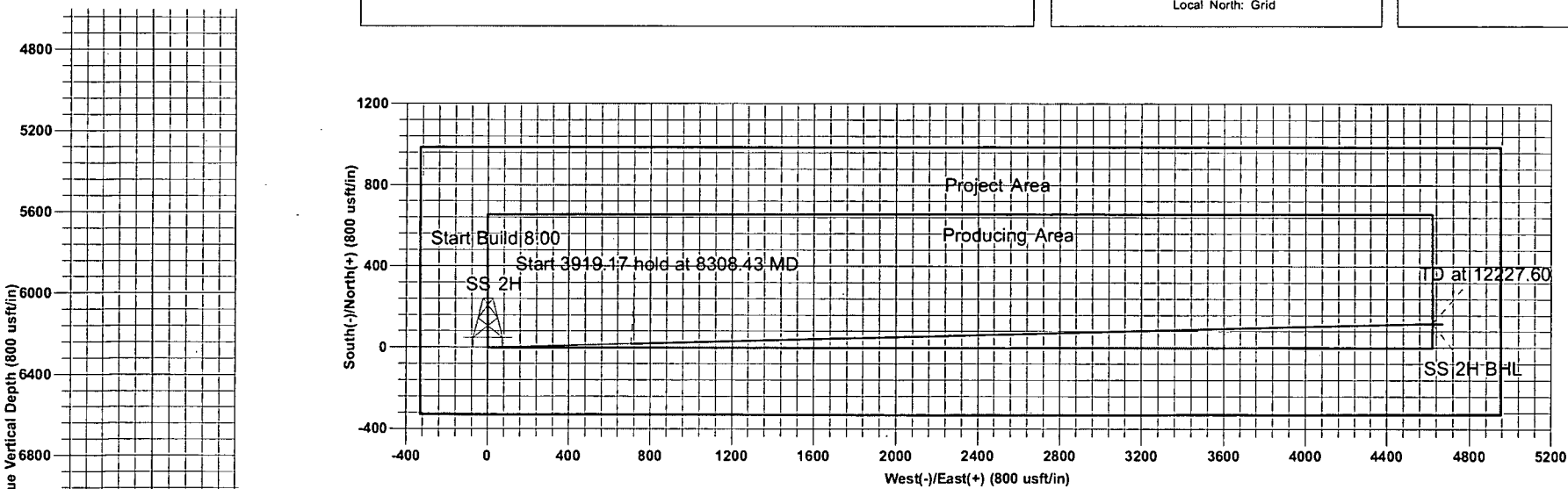
Name	TVD	+N/-S	+E/-W	Northing	Easting
SS 2H BHL	7970.50	119.40	4622.40	607256.60	580484.10

SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
7194.39	0.00	0.00	7194.39	0.00	0.00	0.00	0.00	0.00	
8308.43	89.12	88.52	7910.51	18.21	705.00	8.00	88.52	705.23	
12227.60	89.12	88.52	7970.50	119.40	4622.40	0.00	0.00	4623.94	SS 2H BHL

SITE DETAILS:
Sparkplug State 2H
Site Centre Northing: 607137.20
Easting: 575861.70
Positional Uncertainty: 0.00
Convergence: 0.13
Local North: Grid

PROJECT DETAILS:
Eddy County, New Mexico
Geodetic System: US State Plane 1927 (Exact solution)
Datum: NAD 1927 (NADCON CONUS)
Ellipsoid: Clarke 1866
Zone: New Mexico East 3001
System Datum: Mean Sea Level



Jody Barclay
11:30, February 28 2014

Scientific Drilling
2740 N. Highway 287
Decatur, TX 76234

Database:	CompassC	**Local Co-ordinate Reference:**	Well SS 2H
Company:	OXY	**TVD Reference:**	KB @ 3383.50usft
Project:	Eddy County, New Mexico	**MD Reference:**	KB @ 3383.50usft
Site:	Sparkplug State 2H	**North Reference:**	Grid
Well:	SS 2H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Original Wellbore		
Design:	Design #1		

Project Eddy County, New Mexico, New Mexico

Map System:	US State Plane 1927 (Exact solution)	**System Datum:**	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	New Mexico East 3001		

Site Sparkplug State 2H

Site Position:		**Northing:**	607,137.20 usft	**Latitude:**	32.669
From:	Map	**Easting:**	575,861.70 usft	**Longitude:**	-104.087
Position Uncertainty:	0.00 usft	**Slot Radius:**	13-3/16 "	**Grid Convergence:**	0.13 °

Well SS 2H

Well Position	**+N/-S**	0.00 usft	**Northing:**	607,137.20 usft	**Latitude:**	32.669
	+E/-W	0.00 usft	**Easting:**	575,861.70 usft	**Longitude:**	-104.087
Position Uncertainty		0.00 usft	**Wellhead Elevation:**	0.00 usft	**Ground Level:**	3,359.50 usft

Wellbore Original Wellbore

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	02/28/14	7.52	60.44	48,557

Design Design #1

Audit Notes:

Version:		**Phase:**	PROTOTYPE	**Tie On Depth:**	0.00

Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.00	0.00	0.00	88.52

Plan Sections

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
7,194.39	0.00	0.00	7,194.39	0.00	0.00	0.00	0.00	0.00	0.00	
8,308.43	89.12	88.52	7,910.51	18.21	705.00	8.00	8.00	0.00	88.52	
12,227.60	89.12	88.52	7,970.50	119.40	4,622.40	0.00	0.00	0.00	0.00	SS 2H BHL

Database:	CompassC	**Local Co-ordinate Reference:**	Well SS 2H
Company:	OXY	**TVD Reference:**	KB @ 3383.50usft
Project:	Eddy County, New Mexico	**MD Reference:**	KB @ 3383.50usft
Site:	Sparkplug State 2H	**North Reference:**	Grid
Well:	SS 2H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Original Wellbore		
Design:	Design #1		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	0.00	0.00
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	0.00	0.00
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00
1,100.00	0.00	0.00	1,100.00	0.00	0.00	0.00	0.00	0.00	0.00
1,200.00	0.00	0.00	1,200.00	0.00	0.00	0.00	0.00	0.00	0.00
1,300.00	0.00	0.00	1,300.00	0.00	0.00	0.00	0.00	0.00	0.00
1,400.00	0.00	0.00	1,400.00	0.00	0.00	0.00	0.00	0.00	0.00
1,500.00	0.00	0.00	1,500.00	0.00	0.00	0.00	0.00	0.00	0.00
1,600.00	0.00	0.00	1,600.00	0.00	0.00	0.00	0.00	0.00	0.00
1,700.00	0.00	0.00	1,700.00	0.00	0.00	0.00	0.00	0.00	0.00
1,800.00	0.00	0.00	1,800.00	0.00	0.00	0.00	0.00	0.00	0.00
1,900.00	0.00	0.00	1,900.00	0.00	0.00	0.00	0.00	0.00	0.00
2,000.00	0.00	0.00	2,000.00	0.00	0.00	0.00	0.00	0.00	0.00
2,100.00	0.00	0.00	2,100.00	0.00	0.00	0.00	0.00	0.00	0.00
2,200.00	0.00	0.00	2,200.00	0.00	0.00	0.00	0.00	0.00	0.00
2,300.00	0.00	0.00	2,300.00	0.00	0.00	0.00	0.00	0.00	0.00
2,400.00	0.00	0.00	2,400.00	0.00	0.00	0.00	0.00	0.00	0.00
2,500.00	0.00	0.00	2,500.00	0.00	0.00	0.00	0.00	0.00	0.00
2,600.00	0.00	0.00	2,600.00	0.00	0.00	0.00	0.00	0.00	0.00
2,700.00	0.00	0.00	2,700.00	0.00	0.00	0.00	0.00	0.00	0.00
2,800.00	0.00	0.00	2,800.00	0.00	0.00	0.00	0.00	0.00	0.00
2,900.00	0.00	0.00	2,900.00	0.00	0.00	0.00	0.00	0.00	0.00
3,000.00	0.00	0.00	3,000.00	0.00	0.00	0.00	0.00	0.00	0.00
3,100.00	0.00	0.00	3,100.00	0.00	0.00	0.00	0.00	0.00	0.00
3,200.00	0.00	0.00	3,200.00	0.00	0.00	0.00	0.00	0.00	0.00
3,300.00	0.00	0.00	3,300.00	0.00	0.00	0.00	0.00	0.00	0.00
3,400.00	0.00	0.00	3,400.00	0.00	0.00	0.00	0.00	0.00	0.00
3,500.00	0.00	0.00	3,500.00	0.00	0.00	0.00	0.00	0.00	0.00
3,600.00	0.00	0.00	3,600.00	0.00	0.00	0.00	0.00	0.00	0.00
3,700.00	0.00	0.00	3,700.00	0.00	0.00	0.00	0.00	0.00	0.00
3,800.00	0.00	0.00	3,800.00	0.00	0.00	0.00	0.00	0.00	0.00
3,900.00	0.00	0.00	3,900.00	0.00	0.00	0.00	0.00	0.00	0.00
4,000.00	0.00	0.00	4,000.00	0.00	0.00	0.00	0.00	0.00	0.00
4,100.00	0.00	0.00	4,100.00	0.00	0.00	0.00	0.00	0.00	0.00
4,200.00	0.00	0.00	4,200.00	0.00	0.00	0.00	0.00	0.00	0.00
4,300.00	0.00	0.00	4,300.00	0.00	0.00	0.00	0.00	0.00	0.00
4,400.00	0.00	0.00	4,400.00	0.00	0.00	0.00	0.00	0.00	0.00
4,500.00	0.00	0.00	4,500.00	0.00	0.00	0.00	0.00	0.00	0.00
4,600.00	0.00	0.00	4,600.00	0.00	0.00	0.00	0.00	0.00	0.00
4,700.00	0.00	0.00	4,700.00	0.00	0.00	0.00	0.00	0.00	0.00
4,800.00	0.00	0.00	4,800.00	0.00	0.00	0.00	0.00	0.00	0.00
4,900.00	0.00	0.00	4,900.00	0.00	0.00	0.00	0.00	0.00	0.00
5,000.00	0.00	0.00	5,000.00	0.00	0.00	0.00	0.00	0.00	0.00
5,100.00	0.00	0.00	5,100.00	0.00	0.00	0.00	0.00	0.00	0.00
5,200.00	0.00	0.00	5,200.00	0.00	0.00	0.00	0.00	0.00	0.00
5,300.00	0.00	0.00	5,300.00	0.00	0.00	0.00	0.00	0.00	0.00

Database:	CompassC	**Local Co-ordinate Reference:**	Well SS 2H
Company:	OXY	**TVD Reference:**	KB @ 3383.50usft
Project:	Eddy County, New Mexico	**MD Reference:**	KB @ 3383.50usft
Site:	Sparkplug State 2H	**North Reference:**	Grid
Well:	SS 2H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Original Wellbore		
Design:	Design #1		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
5,400.00	0.00	0.00	5,400.00	0.00	0.00	0.00	0.00	0.00	0.00
5,500.00	0.00	0.00	5,500.00	0.00	0.00	0.00	0.00	0.00	0.00
5,600.00	0.00	0.00	5,600.00	0.00	0.00	0.00	0.00	0.00	0.00
5,700.00	0.00	0.00	5,700.00	0.00	0.00	0.00	0.00	0.00	0.00
5,800.00	0.00	0.00	5,800.00	0.00	0.00	0.00	0.00	0.00	0.00
5,900.00	0.00	0.00	5,900.00	0.00	0.00	0.00	0.00	0.00	0.00
6,000.00	0.00	0.00	6,000.00	0.00	0.00	0.00	0.00	0.00	0.00
6,100.00	0.00	0.00	6,100.00	0.00	0.00	0.00	0.00	0.00	0.00
6,200.00	0.00	0.00	6,200.00	0.00	0.00	0.00	0.00	0.00	0.00
6,300.00	0.00	0.00	6,300.00	0.00	0.00	0.00	0.00	0.00	0.00
6,400.00	0.00	0.00	6,400.00	0.00	0.00	0.00	0.00	0.00	0.00
6,500.00	0.00	0.00	6,500.00	0.00	0.00	0.00	0.00	0.00	0.00
6,600.00	0.00	0.00	6,600.00	0.00	0.00	0.00	0.00	0.00	0.00
6,700.00	0.00	0.00	6,700.00	0.00	0.00	0.00	0.00	0.00	0.00
6,800.00	0.00	0.00	6,800.00	0.00	0.00	0.00	0.00	0.00	0.00
6,900.00	0.00	0.00	6,900.00	0.00	0.00	0.00	0.00	0.00	0.00
7,000.00	0.00	0.00	7,000.00	0.00	0.00	0.00	0.00	0.00	0.00
7,100.00	0.00	0.00	7,100.00	0.00	0.00	0.00	0.00	0.00	0.00
7,194.39	0.00	0.00	7,194.39	0.00	0.00	0.00	0.00	0.00	0.00
7,200.00	0.45	88.52	7,200.00	0.00	0.02	0.02	8.00	8.00	0.00
7,250.00	4.45	88.52	7,249.94	0.06	2.16	2.16	8.00	8.00	0.00
7,300.00	8.45	88.52	7,299.62	0.20	7.77	7.77	8.00	8.00	0.00
7,350.00	12.45	88.52	7,348.78	0.43	16.83	16.84	8.00	8.00	0.00
7,400.00	16.45	88.52	7,397.19	0.76	29.30	29.31	8.00	8.00	0.00
7,450.00	20.45	88.52	7,444.61	1.17	45.12	45.13	8.00	8.00	0.00
7,500.00	24.45	88.52	7,490.81	1.66	64.20	64.22	8.00	8.00	0.00
7,550.00	28.45	88.52	7,535.57	2.23	86.46	86.48	8.00	8.00	0.00
7,600.00	32.45	88.52	7,578.66	2.89	111.78	111.82	8.00	8.00	0.00
7,650.00	36.45	88.52	7,619.89	3.62	140.05	140.09	8.00	8.00	0.00
7,700.00	40.45	88.52	7,659.04	4.42	171.12	171.18	8.00	8.00	0.00
7,750.00	44.45	88.52	7,695.92	5.29	204.85	204.92	8.00	8.00	0.00
7,800.00	48.45	88.52	7,730.37	6.23	241.07	241.15	8.00	8.00	0.00
7,850.00	52.45	88.52	7,762.20	7.22	279.60	279.69	8.00	8.00	0.00
7,900.00	56.45	88.52	7,791.26	8.27	320.26	320.37	8.00	8.00	0.00
7,950.00	60.45	88.52	7,817.42	9.37	362.84	362.97	8.00	8.00	0.00
8,000.00	64.45	88.52	7,840.55	10.52	407.15	407.29	8.00	8.00	0.00
8,050.00	68.45	88.52	7,860.52	11.70	452.96	453.11	8.00	8.00	0.00
8,100.00	72.45	88.52	7,877.25	12.92	500.05	500.22	8.00	8.00	0.00
8,150.00	76.45	88.52	7,890.65	14.16	548.20	548.38	8.00	8.00	0.00
8,200.00	80.45	88.52	7,900.66	15.43	597.16	597.36	8.00	8.00	0.00
8,250.00	84.45	88.52	7,907.23	16.70	646.70	646.91	8.00	8.00	0.00
8,300.00	88.45	88.52	7,910.33	17.99	696.57	696.81	8.00	8.00	0.00
8,308.43	89.12	88.52	7,910.51	18.21	705.00	705.23	8.00	8.00	0.00
8,400.00	89.12	88.52	7,911.91	20.57	796.53	796.79	0.00	0.00	0.00
8,500.00	89.12	88.52	7,913.44	23.16	896.48	896.78	0.00	0.00	0.00
8,600.00	89.12	88.52	7,914.97	25.74	996.44	996.77	0.00	0.00	0.00
8,700.00	89.12	88.52	7,916.50	28.32	1,096.39	1,096.76	0.00	0.00	0.00
8,800.00	89.12	88.52	7,918.03	30.90	1,196.35	1,196.75	0.00	0.00	0.00
8,900.00	89.12	88.52	7,919.56	33.48	1,296.30	1,296.74	0.00	0.00	0.00
9,000.00	89.12	88.52	7,921.09	36.07	1,396.26	1,396.72	0.00	0.00	0.00
9,100.00	89.12	88.52	7,922.62	38.65	1,496.21	1,496.71	0.00	0.00	0.00
9,200.00	89.12	88.52	7,924.15	41.23	1,596.17	1,596.70	0.00	0.00	0.00
9,300.00	89.12	88.52	7,925.69	43.81	1,696.12	1,696.69	0.00	0.00	0.00
9,400.00	89.12	88.52	7,927.22	46.39	1,796.08	1,796.68	0.00	0.00	0.00

Database:	CompassC	**Local Co-ordinate Reference:**	Well SS 2H
Company:	OXY	**TVD Reference:**	KB @ 3383.50usft
Project:	Eddy County, New Mexico	**MD Reference:**	KB @ 3383.50usft
Site:	Sparkplug State 2H	**North Reference:**	Grid
Well:	SS 2H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Original Wellbore		
Design:	Design #1		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
9,500.00	89.12	88.52	7,928.75	48.98	1,896.03	1,896.66	0.00	0.00	0.00
9,600.00	89.12	88.52	7,930.28	51.56	1,995.99	1,996.65	0.00	0.00	0.00
9,700.00	89.12	88.52	7,931.81	54.14	2,095.94	2,096.64	0.00	0.00	0.00
9,800.00	89.12	88.52	7,933.34	56.72	2,195.90	2,196.63	0.00	0.00	0.00
9,900.00	89.12	88.52	7,934.87	59.30	2,295.85	2,296.62	0.00	0.00	0.00
10,000.00	89.12	88.52	7,936.40	61.89	2,395.81	2,396.61	0.00	0.00	0.00
10,100.00	89.12	88.52	7,937.93	64.47	2,495.76	2,496.59	0.00	0.00	0.00
10,200.00	89.12	88.52	7,939.46	67.05	2,595.72	2,596.58	0.00	0.00	0.00
10,300.00	89.12	88.52	7,940.99	69.63	2,695.67	2,696.57	0.00	0.00	0.00
10,400.00	89.12	88.52	7,942.52	72.21	2,795.63	2,796.56	0.00	0.00	0.00
10,500.00	89.12	88.52	7,944.05	74.80	2,895.58	2,896.55	0.00	0.00	0.00
10,600.00	89.12	88.52	7,945.59	77.38	2,995.54	2,996.54	0.00	0.00	0.00
10,700.00	89.12	88.52	7,947.12	79.96	3,095.49	3,096.52	0.00	0.00	0.00
10,800.00	89.12	88.52	7,948.65	82.54	3,195.45	3,196.51	0.00	0.00	0.00
10,900.00	89.12	88.52	7,950.18	85.12	3,295.40	3,296.50	0.00	0.00	0.00
11,000.00	89.12	88.52	7,951.71	87.70	3,395.36	3,396.49	0.00	0.00	0.00
11,100.00	89.12	88.52	7,953.24	90.29	3,495.31	3,496.48	0.00	0.00	0.00
11,200.00	89.12	88.52	7,954.77	92.87	3,595.27	3,596.47	0.00	0.00	0.00
11,300.00	89.12	88.52	7,956.30	95.45	3,695.22	3,696.45	0.00	0.00	0.00
11,400.00	89.12	88.52	7,957.83	98.03	3,795.18	3,796.44	0.00	0.00	0.00
11,500.00	89.12	88.52	7,959.36	100.61	3,895.13	3,896.43	0.00	0.00	0.00
11,600.00	89.12	88.52	7,960.89	103.20	3,995.09	3,996.42	0.00	0.00	0.00
11,700.00	89.12	88.52	7,962.42	105.78	4,095.04	4,096.41	0.00	0.00	0.00
11,800.00	89.12	88.52	7,963.95	108.36	4,195.00	4,196.40	0.00	0.00	0.00
11,900.00	89.12	88.52	7,965.49	110.94	4,294.95	4,296.38	0.00	0.00	0.00
12,000.00	89.12	88.52	7,967.02	113.52	4,394.91	4,396.37	0.00	0.00	0.00
12,100.00	89.12	88.52	7,968.55	116.11	4,494.86	4,496.36	0.00	0.00	0.00
12,200.00	89.12	88.52	7,970.08	118.69	4,594.82	4,596.35	0.00	0.00	0.00
12,227.60	89.12	88.52	7,970.50	119.40	4,622.40	4,623.94	0.00	0.00	0.00
SS 2H BHL									

Design Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
SS 2H BHL	0.90	88.52	7,970.50	119.40	4,622.40	607,256.60	580,484.10	32.669	-104.072
- plan hits target center									
- Rectangle (sides W0.00 H3,919.00 D30.00)									