

Submit 1 Copy To Appropriate District
Office
District I - (575) 393-6161
1625 N. French Dr., Hobbs, NM 88240
District II - (575) 748-1283
811 S. First St., Artesia, NM 88210
District III - (505) 334-6178
1000 Rio Brazos Rd., Aztec, NM 87410
District IV - (505) 476-3460
1220 S. St. Francis Dr., Santa Fe, NM
87505

State of New Mexico
Energy, Minerals and Natural Resources

Form C-103
Revised July 18, 2013

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

WELL API NO. 30-045-35579
5. Indicate Type of Lease STATE ☒ FEE ☐
6. State Oil & Gas Lease No. V-88-1
7. Lease Name or Unit Agreement Name Susco 16 State
8. Well Number 101H
9. OGRID Number 372171
10. Pool name or Wildcat Basin Fruitland Coal

SUNDRY NOTICES AND REPORTS ON WELLS (DO NOT USE THIS FORM FOR PROPOSALS TO DRILL OR TO DEEPEN OR PLUG BACK TO A DIFFERENT RESERVOIR. USE "APPLICATION FOR PERMIT" (FORM C-101) FOR SUCH PROPOSALS.)	
1. Type of Well: Oil Well ☐ Gas Well ☒ Other	
2. Name of Operator HILCORP ENERGY COMPANY	
3. Address of Operator PO BOX 4700, FARMINGTON NM 87499	
4. Well Location Unit Letter <u>K</u> <u>2000</u> feet from the <u>South</u> line and <u>1691</u> feet from the <u>West</u> line Section <u>15</u> Township <u>32N</u> Range <u>8W</u> NMPM <u>San Juan</u> County	
11. Elevation (Show whether DR, RKB, RT, GR, etc.) 6916' GR	

12. Check Appropriate Box to Indicate Nature of Notice, Report or Other Data

NOTICE OF INTENTION TO:

PERFORM REMEDIAL WORK ☐ PLUG AND ABANDON ☐
TEMPORARILY ABANDON ☐ CHANGE PLANS ☒
PULL OR ALTER CASING ☐ MULTIPLE COMPL ☐
DOWNHOLE COMMINGLE ☐
CLOSED-LOOP SYSTEM ☐
OTHER: ☒ Revised C-102 & Drilling Plans

SUBSEQUENT REPORT OF:

REMEDIAL WORK ☐ ALTERING CASING ☐
COMMENCE DRILLING OPNS. ☐ P AND A ☐
CASING/CEMENT JOB ☐
OTHER: ☐

13. Describe proposed or completed operations. (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work). SEE RULE 19.15.7.14 NMAC. For Multiple Completions: Attach wellbore diagram of proposed completion or recompletion.

Hilcorp Energy Company intends to add a pilot hole to the subject well. The pilot hole will be drilled to target depth of 5036' (MD), then fully cased and cemented with 7" casing. A whipstock will be run, and a window will be cut into the 7" casing above the Blue Mesa formation to allow for a lateral to be drilled in the Blue Mesa. Window depth is 4644' MD / 3531' TVD. The whipstock will then be recovered. The 4-1/2" will be run outside the window, and not be tied back into the pilot to allow production tubing to be run to near the bottom of the pilot hole. This allows produced water to be evacuated from the production casing.

The revised C-102 and drilling plans are attached.

OIL CONS. DIV. DIST. 3
FEB 16 2018

Spud Date:

Rig Release Date:

I hereby certify that the information above is true and complete to the best of my knowledge and belief.

SIGNATURE Priscilla Shorty TITLE Operations / Regulatory Technician DATE 2/16/2018

Type or print name Priscilla Shorty E-mail address: pshorty@hilcorp.com PHONE: 505-324-5188
For State Use Only

APPROVED BY: Charles R. [Signature] TITLE nr DATE 2-21-18
Conditions of Approval (if any):

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

DISTRICT II
811 S. First St., Artesia, N.M. 88210
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DISTRICT III
1000 Rio Brazos Rd., Aztec, N.M. 87410
Phone: (505) 334-6178 Fax: (505) 334-6170

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

State of New Mexico
Energy, Minerals & Natural Resources Department

OIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Santa Fe, N.M. 87505

Form C-102

Revised August 1, 2011

Submit one copy to appropriate
District Office

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

¹ API Number 30-045-35579	² Pool Code 71629	³ Pool Name BASIN FRUITLAND COAL
⁴ Property Code 7575	⁵ Property Name SUSCO 16 STATE	⁶ Well Number 10IH
⁷ GRID No. 372171	⁸ Operator Name HILCORP ENERGY COMPANY	⁹ Elevation 6916

¹⁰ Surface Location

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
K	15	32 N	8 W		2000	SOUTH	1691	WEST	SAN JUAN

¹¹ 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	16	32 N	8 W		1937	NORTH	753	WEST	SAN JUAN

¹² Dedicated Acres 640.00	¹³ Joint or Infill	¹⁴ Consolidation Code	¹⁵ Order No.
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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

16 LEGEND: ○ = SURFACE LOCATION ● = BOTTOM HOLE LOCATION ⊙ = FOUND 1962 B.L.M. BRASS CAP ⊛ = EXISTING WELL ✕ = ENTRY POINT □ = TAKE POINT NOTE: BEARINGS & DISTANCES SHOWN ARE REFERENCED TO THE NEW MEXICO COORDINATE SYSTEM, WEST ZONE, NAD 83, UNLESS OTHERWISE NOTED. 17 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. <i>Priscilla Shorty</i> 2/15/18 Signature Date Priscilla Shorty Printed Name pshorty@hilcorp.com E-mail Address 18 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. 2/11/14 Date of Survey Signature and Seal of Professional Surveyor <i>Marshall W. Linden</i> MARSHALL W. LINDEN 17078 2-15-18 PROFESSIONAL SURVEYOR 17078 Certificate Number	The map shows a survey plat for sections 15 and 16, T32N, R8W. Section 15 is on the right and Section 16 is on the left. The plat includes bearings and distances for the section lines and well locations. Key features include: - Section 15: N 89°04'57" W 2596.86', N 89°03'38" W 2590.55', N 00°47'36" W 2643.44', N 89°52'34" W 5196.65', N 00°28'06" W 2636.63', N 74°26'09" W 2490.19', N 74°23'59" W 127.09', N 00°03'27" E 2847.49'. - Section 16: N 78°39'51" W 3695.14', N 89°04'57" W 2596.86', N 89°03'38" W 2590.55', N 00°47'36" W 2643.44', N 89°52'34" W 5196.65', N 00°28'06" W 2636.63', N 74°26'09" W 2490.19', N 74°23'59" W 127.09', N 00°03'27" E 2847.49'. - Well locations: SUSCO 16 STATE 3, SUSCO 16 STATE 101, SUSCO 16 STATE 100, SUSCO 16 STATE 1, SUSCO 16 STATE 2, SUSCO 16 STATE 101S. - Survey data: 1937', 753', 1691', 2000'. BOTTOM HOLE LOCATION SEC. 16, T32N, R8W 1937' FNL, 753' FWL LAT: 36.9859679° N LONG: 107.6867459° W NAD 83 LAT: 36°59.15788' N LONG: 107°41.16787' W NAD 27 TAKE POINT SEC. 16, T32N, R8W 2604' FNL, 831' FEL LAT: 36.9839570° N LONG: 107.6743450° W NAD 83 LAT: 36°59.03722' N LONG: 107°40.42385' W NAD 27 ENTRY POINT SEC. 16, T32N, R8W 2637' FNL, 709' FEL LAT: 36.9838625° N LONG: 107.6739261° W NAD 83 LAT: 36°59.03155' N LONG: 107°40.39872' W NAD 27 SURFACE LOCATION SEC. 15, T32N, R8W 2000' FSL, 1691' FWL LAT: 36.9820159° N LONG: 107.6657168° W NAD 83 LAT: 36°58.92075' N LONG: 107°39.90619' W NAD 27
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Susco 16 State 101H

Hilcorp Energy Company proposes to drill and complete the referenced horizontal well targeting a coal seam with in the Fruitland formation. The original procedure in the APD was modified to include a pilot hole, which will be fully cased and cemented.

1. Location

Susco 16 State 101H

SHL: 2000' FSL, 1691' FWL – T32N, R08W, Sec 15 (San Juan)

BHL: 1937' FNL, 753' FWL – T 32N, R08W, Sec 16 (San Juan)

GL: 6,916'

2. Geological Markers

Anticipated formation tops with comments of any possible water, gas, or oil shows are indicated below:

Formation	Depth (TVD)	Remarks
Nacimiento	277'	
Ojo Alamo	2,606'	
Kirtland	2,714'	
Blue Coal	3,450'	Gas
Big Blue Seam	3,519'	Gas

*See attached directional Plan for anticipated formation tops in measured depth.

3. Pressure Control Equipment

See attached BOPE and choke manifold schematic for a diagram of pressure control equipment.

- BOPE will be nipped up on top of wellhead after surface casing is set and cemented.
- Pressure control configuration will be designated to meet the minimum 2M standards.
- All equipment will have 3M pressure ratings.
- A rotating head will be rigged up on top of annular as seen in attached diagram.

4. Casing & Cement Program

a. The proposed casing program is outlined below:

Proposed Casing Program				
Casing	Hole Size	Casing Size	Weight/Grade	Set Depth TVD/MD
Surface	12-1/4"	9-5/8"	32.3# H-40	500' MD/TVD
Intermediate	8-3/4"	7"	23# J-55/L-80	5,036' MD / 3,697' TVD
Production Liner (Pre-Perforated)	6-1/4"	4-1/2"	11.6# J-55/L-80	8,589' MD / 3,597' TVD

The intermediate hole section will be drilled to target depth, then fully cased and cemented with 7" casing.

A whipstock will be run, and window will be cut in the 7" casing above the Blue Mesa formation to allow for a lateral to be drilled in the Blue Mesa. Window depth is 4644' MD / 3531' TVD.

The whipstock will then be recovered. The 4-1/2" liner will be run outside the window, and not tied back into the pilot hole to allow production tubing to be run to near the bottom of the pilot hole. This allows produced water to be evacuated from the production casing.

If the 6-1/4" hole is not drilled to total MD, the production liner setting depth and length will be adjusted accordingly.

The 7" casing string will be set inside the setback boundary line.

b. The proposed cement program is outlined below:

Cement Program				
Interval	Depth (MD)	Volume	Slurry	Planned Cement Top
Surface	500	253 ft ³	Lead Cmt: Type III Cmt 0.25 pps celloflake	Surface
Intermediate	5,036'	984 ft ³	Lead Cmt: Premium Lite 3% CaCl, 0.25 pps celloflake, 5 ppm LCM-1 0.4% FL-52, 8% Bentonite, 0.4%SMS 2.13 ft ³ /sk -- 11.29 gal/sk 12.1 ppg Tail Cmt: Type III 1% CaCl, 0.25 pps celloflake, 0.2% FL-52 1.38 ft ³ /sk -- 6.64 gal/sk 14.6 ppg	Surface
Production	8,589'	N/A	N/A - Open hole with pre-perforated liner.	N/A

Slurry additives may be adjusted as needed to accommodate required pump and compressive test times.

For the intermediate hole section a 2-stage cement job may be performed if hole conditions indicate during operations. Stage tool will be placed appropriately as conditions indicate.

- c. The proposed centralizer program is shown below:

Centralizer Program	
Interval	Centralizers
Surface	1 per joint on bottom 3 joints
Intermediate	10' above shoe joint with collar clamp On top of 2nd, 4th, 6th, 8th, 10th joints 1 every 4th joint to Ojo Alamo 1 every joint through Ojo Alamo 1 Turbolizer will be placed mid-way into Ojo Alamo 1 every 4th joint from top of Ojo Alamo to surface shoe 1 inside surface casing
Production	N/A

To allow adequate time for cement to achieve a minimum of 500 psi compressive strength, a minimum of 8 hours wait on cement time for each hole section will be observed. The wellhead will not be installed, casing will not be tested, and the prior casing shoe will not be drilled out until adequate wait on cement time is achieved.

5. Drilling Fluids

- a. The proposed drilling fluid program is outlined below:

Mud Program			
Interval	Mud Type	Weight (ppg)	Fluid Loss (cc)
Surface	Air / Water Gel System	Air 8.3 - 9.2	NC
Intermediate	LSND / Gel System	8.4 - 9.5	6 - 16
Production	LSND Brine (if needed)*	8.5 - 10	4 - 14

*In the production hole, Brine will be utilized only if a weighting agent is needed to raise MW (for either well control or wellbore stability purposes).

LCM may be added to the mud system if hole conditions indicate.

- b. If brine is utilized, any cuttings drilled with brine will be hauled off to an approved disposal site.

6. Abnormal Pressures and Hazards

- No over-pressured intervals expected.
- Estimated Reservoir Pressure = 1,500 psi
- Maximum Anticipated Surface Pressure = 1,300 psi
- No hydrogen sulfide gas is expected based off nearby well production.

7. Testing, Logging, Coring

Testing, Logging, Coring Procedure		
Evaluation Method	Start Depth	End depth
Mud Logs	KOP	TD
MWD Directional Surveys	KOP	TD
LWD GR	7" window	TD
Triple Combo	9-5/8" shoe	8-3/4" TD
Temp Survey	If needed on intermediate casing	

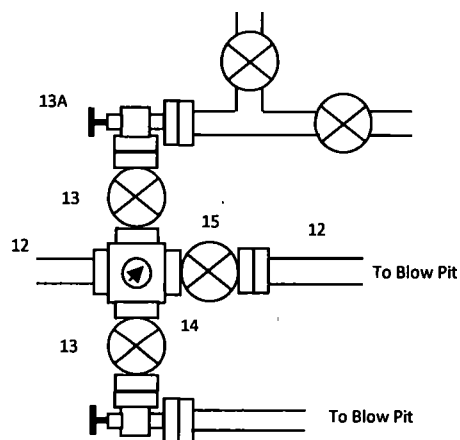
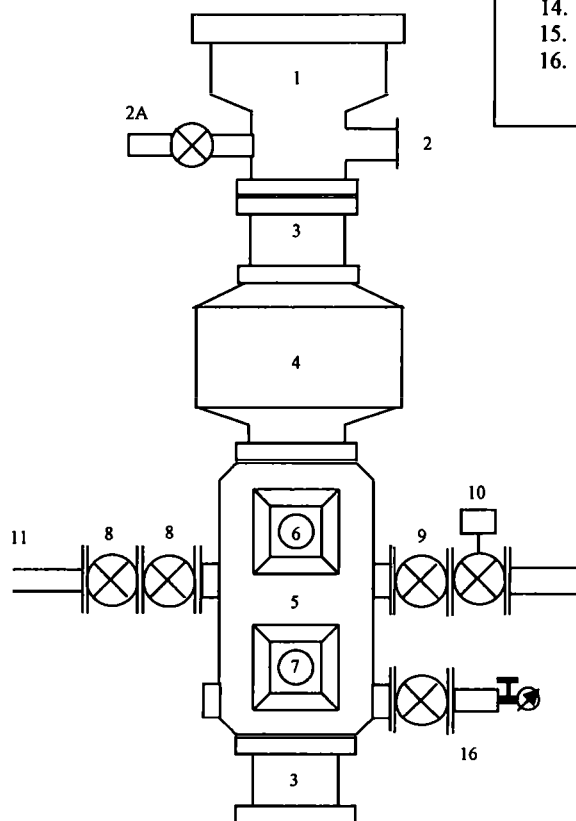
8. Directional Plan

The planned wellbore directional plan and plot are attached

The planned directional plan is built of geological targets from offset wells. The production hole will be landed and drilled within target formation horizontally utilizing LWD equipment to help steer the wellbore. On site adjustments will be made to the directional plan as formation and hole indicates.

BOPE & Choke Manifold Schematic

1. Rotating Head
2. Flow line
- 2A. Fill up line and valve
3. Spacer Spools (as needed)
4. 11" 3M Annular Preventer
5. 11" 3M Double Ram Preventer
6. Blind Rams
7. Pipe Rams
8. 3M Gate Valves (2")
9. 3M Gate Valve (3")
10. 3M HCR Valve (3")
11. Kill Line Connection
12. Choke Line (3" Hardline or Co-Flex)
13. 3M Valve (2")
- 13A. 3M Adjustable Choke (2")
- 13B. 3M Adjustable or Fixed Choke (2")
14. 3M Studded Cross & Manifold gauge
15. 3M Panic Line Valve (3")
16. Secondary outlet with valve, bull plug, needle valve, and pressure gauge





HILCORP ENERGY COMPANY
SUSCO 16 STATE 101H PILOT HOLE
SAN JUAN COUNTY, NEW MEXICO
6916' GL + 15' KB



CASING DETAILS

TVD	MD	Name	Size
500.00	500.00	Surface (9 5/8")	9.625
3697.00	5036.26	Intermediate (7")	7.000

WELL DETAILS: Susco 16 State 101H

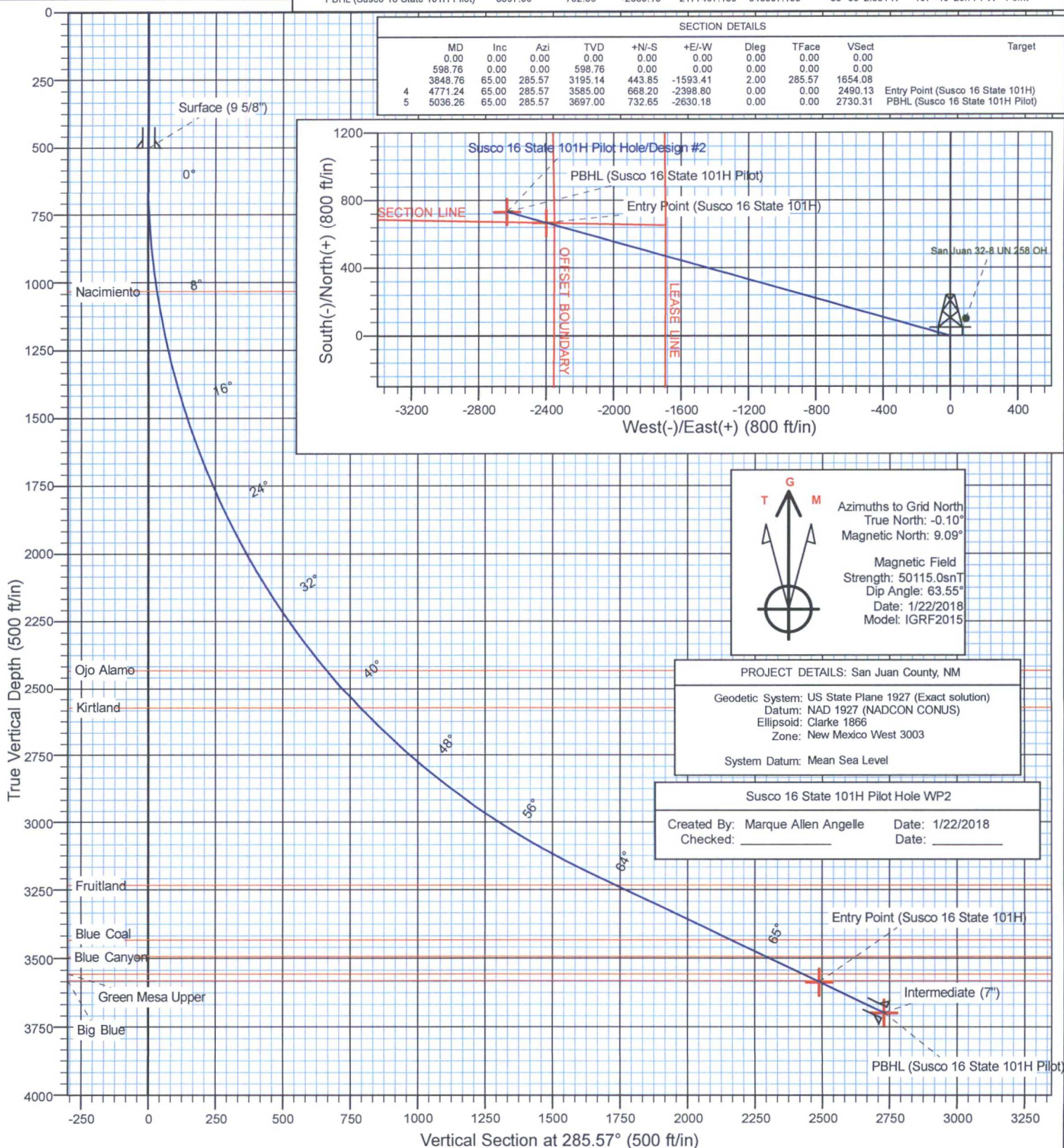
+N/-S	+E/-W	Northing	Ground Level: Easting	6916.00	Latitude	Longitude	Slot
0.00	0.00	2176764.540	549137.360	36° 58' 55.245 N	107° 39' 54.371 W		

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
Entry Point (Susco 16 State 101H)	3585.00	668.20	-2398.80	2177432.739	546738.565	36° 59' 1.893 N	107° 40' 23.923 W	Point
PBHL (Susco 16 State 101H Pilot)	3697.00	732.65	-2630.18	2177497.189	546507.185	36° 59' 2.534 N	107° 40' 26.774 W	Point

SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VFace	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
598.76	0.00	0.00	598.76	0.00	0.00	0.00	0.00	0.00	
4	3848.76	65.00	285.57	3195.14	443.85	-1593.41	2.00	285.57	1654.08
5	4771.24	65.00	285.57	3585.00	668.20	-2398.80	0.00	0.00	2490.13
5	5036.26	65.00	285.57	3697.00	732.65	-2630.18	0.00	0.00	2730.31



Azimuths to Grid North
True North: -0.10°
Magnetic North: 9.09°
Magnetic Field
Strength: 50115.0snT
Dip Angle: 63.55°
Date: 1/22/2018
Model: IGRF2015

PROJECT DETAILS: San Juan County, NM

Geodetic System: US State Plane 1927 (Exact solution)
Datum: NAD 1927 (NADCON CONUS)
Ellipsoid: Clarke 1866
Zone: New Mexico West 3003

System Datum: Mean Sea Level

Susco 16 State 101H Pilot Hole WP2

Created By: Marque Allen Angelle Date: 1/22/2018
Checked: _____ Date: _____



Hilcorp Energy Company

San Juan County, NM

Susco 16 State 101H

Susco 16 State 101H

Pilot Hole

Plan: Design #2

Standard Planning Report

22 January, 2018





DDS Planning Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well Susco 16 State 101H
Company:	Hilcorp Energy Company	TVD Reference:	RKB @ 6931.00ft
Project:	San Juan County, NM	MD Reference:	RKB @ 6931.00ft
Site:	Susco 16 State 101H	North Reference:	Grid
Well:	Susco 16 State 101H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Pilot Hole		
Design:	Design #2		

Project	San Juan County, NM		
Map System:	US State Plane 1927 (Exact solution)	System Datum:	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	New Mexico West 3003		

Site	Susco 16 State 101H		
Site Position:		Northing:	2,176,764.540 usft
From:	Map	Easting:	549,137.360 usft
Position Uncertainty:	0.00 ft	Slot Radius:	13.200 in
		Latitude:	36° 58' 55.245 N
		Longitude:	107° 39' 54.371 W
		Grid Convergence:	0.10 °

Well	Susco 16 State 101H		
Well Position	+N/-S	0.00 ft	Northing:
	+E/-W	0.00 ft	Easting:
Position Uncertainty	0.00 ft	Wellhead Elevation:	0.00 ft
		Latitude:	36° 58' 55.245 N
		Longitude:	107° 39' 54.371 W
		Ground Level:	6,916.00 ft

Wellbore	Pilot Hole		
Magnetics	Model Name	Sample Date	Declination (°)
	IGRF2015	1/22/2018	9.19
			Dip Angle (°)
			63.55
			Field Strength (nT)
			50,115

Design	Design #2		
Audit Notes:			
Version:	Phase:	PLAN	Tie On Depth:
			0.00
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)
	0.00	0.00	0.00
			Direction (°)
			285.57

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
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
598.76	0.00	0.00	598.76	0.00	0.00	0.00	0.00	0.00	0.00	
3,848.76	65.00	285.57	3,195.14	443.85	-1,593.41	2.00	2.00	0.00	285.57	
4,771.24	65.00	285.57	3,585.00	668.20	-2,398.80	0.00	0.00	0.00	0.00	Entry Point (Susco 16
5,036.26	65.00	285.57	3,697.00	732.65	-2,630.18	0.00	0.00	0.00	0.00	PBHL (Susco 16 Stat



DDS
Planning Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well Susco 16 State 101H
Company:	Hilcorp Energy Company	TVD Reference:	RKB @ 6931.00ft
Project:	San Juan County, NM	MD Reference:	RKB @ 6931.00ft
Site:	Susco 16 State 101H	North Reference:	Grid
Well:	Susco 16 State 101H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Pilot Hole		
Design:	Design #2		

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)
0.00	0.00	0.00	0.00	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
Surface (9 5/8")									
598.76	0.00	0.00	598.76	0.00	0.00	0.00	0.00	0.00	0.00
600.00	0.02	285.57	600.00	0.00	0.00	0.00	2.00	2.00	0.00
700.00	2.02	285.57	699.98	0.48	-1.72	1.79	2.00	2.00	0.00
800.00	4.02	285.57	799.83	1.90	-6.81	7.07	2.00	2.00	0.00
900.00	6.02	285.57	899.45	4.25	-15.24	15.82	2.00	2.00	0.00
1,000.00	8.02	285.57	998.69	7.53	-27.02	28.05	2.00	2.00	0.00
1,032.66	8.68	285.57	1,031.00	8.80	-31.59	32.80	2.00	2.00	0.00
Nacimiento									
1,100.00	10.02	285.57	1,097.45	11.74	-42.13	43.74	2.00	2.00	0.00
1,200.00	12.02	285.57	1,195.60	16.87	-60.55	62.86	2.00	2.00	0.00
1,300.00	14.02	285.57	1,293.02	22.92	-82.26	85.40	2.00	2.00	0.00
1,400.00	16.02	285.57	1,389.59	29.87	-107.24	111.32	2.00	2.00	0.00
1,500.00	18.02	285.57	1,485.21	37.73	-135.44	140.60	2.00	2.00	0.00
1,600.00	20.02	285.57	1,579.74	46.47	-166.84	173.19	2.00	2.00	0.00
1,700.00	22.02	285.57	1,673.08	56.10	-201.40	209.07	2.00	2.00	0.00
1,800.00	24.02	285.57	1,765.11	66.60	-239.08	248.18	2.00	2.00	0.00
1,900.00	26.02	285.57	1,855.72	77.95	-279.82	290.48	2.00	2.00	0.00
2,000.00	28.02	285.57	1,944.79	90.14	-323.59	335.91	2.00	2.00	0.00
2,100.00	30.02	285.57	2,032.23	103.16	-370.33	384.43	2.00	2.00	0.00
2,200.00	32.02	285.57	2,117.92	116.99	-419.98	435.97	2.00	2.00	0.00
2,300.00	34.02	285.57	2,201.76	131.61	-472.48	490.46	2.00	2.00	0.00
2,400.00	36.02	285.57	2,283.64	147.01	-527.76	547.85	2.00	2.00	0.00
2,500.00	38.02	285.57	2,363.48	163.17	-585.77	608.07	2.00	2.00	0.00
2,586.76	39.76	285.57	2,431.00	177.78	-638.24	662.53	2.00	2.00	0.00
Ojo Alamo									
2,600.00	40.02	285.57	2,441.16	180.06	-646.42	671.03	2.00	2.00	0.00
2,700.00	42.02	285.57	2,516.60	197.68	-709.65	736.66	2.00	2.00	0.00
2,774.10	43.51	285.57	2,571.00	211.18	-758.12	786.98	2.00	2.00	0.00
Kirtland									
2,800.00	44.02	285.57	2,589.70	215.98	-775.37	804.89	2.00	2.00	0.00
2,900.00	46.02	285.57	2,660.38	234.97	-843.52	875.63	2.00	2.00	0.00
3,000.00	48.02	285.57	2,728.54	254.60	-913.99	948.79	2.00	2.00	0.00
3,100.00	50.02	285.57	2,794.11	274.86	-986.72	1,024.29	2.00	2.00	0.00
3,200.00	52.02	285.57	2,857.01	295.72	-1,061.61	1,102.02	2.00	2.00	0.00
3,300.00	54.02	285.57	2,917.15	317.15	-1,138.56	1,181.91	2.00	2.00	0.00
3,400.00	56.02	285.57	2,974.47	339.14	-1,217.49	1,263.85	2.00	2.00	0.00
3,500.00	58.02	285.57	3,028.90	361.65	-1,298.30	1,347.73	2.00	2.00	0.00
3,600.00	60.02	285.57	3,080.36	384.66	-1,380.89	1,433.47	2.00	2.00	0.00
3,700.00	62.02	285.57	3,128.80	408.13	-1,465.16	1,520.94	2.00	2.00	0.00
3,800.00	64.02	285.57	3,174.16	432.04	-1,551.01	1,610.06	2.00	2.00	0.00
3,848.76	65.00	285.57	3,195.14	443.85	-1,593.41	1,654.08	2.00	2.00	0.00
3,900.00	65.00	285.57	3,216.80	456.32	-1,638.15	1,700.51	0.00	0.00	0.00
3,933.61	65.00	285.57	3,231.00	464.49	-1,667.49	1,730.97	0.00	0.00	0.00
Fruitland									
4,000.00	65.00	285.57	3,259.06	480.64	-1,725.45	1,791.14	0.00	0.00	0.00
4,100.00	65.00	285.57	3,301.32	504.96	-1,812.76	1,881.78	0.00	0.00	0.00
4,200.00	65.00	285.57	3,343.58	529.27	-1,900.07	1,972.41	0.00	0.00	0.00
4,300.00	65.00	285.57	3,385.84	553.59	-1,987.37	2,063.04	0.00	0.00	0.00
4,400.00	65.00	285.57	3,428.11	577.91	-2,074.68	2,153.67	0.00	0.00	0.00
4,406.85	65.00	285.57	3,431.00	579.58	-2,080.66	2,159.87	0.00	0.00	0.00



DDS Planning Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well Susco 16 State 101H
Company:	Hilcorp Energy Company	TVD Reference:	RKB @ 6931.00ft
Project:	San Juan County, NM	MD Reference:	RKB @ 6931.00ft
Site:	Susco 16 State 101H	North Reference:	Grid
Well:	Susco 16 State 101H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Pilot Hole		
Design:	Design #2		

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)
Blue Coal									
4,500.00	65.00	285.57	3,470.37	602.23	-2,161.99	2,244.30	0.00	0.00	0.00
4,548.82	65.00	285.57	3,491.00	614.11	-2,204.61	2,288.54	0.00	0.00	0.00
Blue Canyon									
4,600.00	65.00	285.57	3,512.63	626.55	-2,249.29	2,334.93	0.00	0.00	0.00
4,700.00	65.00	285.57	3,554.89	650.87	-2,336.60	2,425.56	0.00	0.00	0.00
4,700.26	65.00	285.57	3,555.00	650.94	-2,336.82	2,425.79	0.00	0.00	0.00
Green Mesa Upper									
4,757.05	65.00	285.57	3,579.00	664.75	-2,386.40	2,477.26	0.00	0.00	0.00
Big Blue									
4,771.24	65.00	285.57	3,585.00	668.20	-2,398.80	2,490.13	0.00	0.00	0.00
4,800.00	65.00	285.57	3,597.15	675.19	-2,423.91	2,516.19	0.00	0.00	0.00
4,900.00	65.00	285.57	3,639.42	699.51	-2,511.21	2,606.82	0.00	0.00	0.00
5,000.00	65.00	285.57	3,681.68	723.83	-2,598.52	2,697.45	0.00	0.00	0.00
5,036.26	65.00	285.57	3,697.00	732.65	-2,630.18	2,730.31	0.00	0.00	0.00
Intermediate (7")									

Design Targets

Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- hit/miss target									
- Shape									
Entry Point (Susco 16 Si	0.00	0.00	3,585.00	668.20	-2,398.80	2,177,432.738	546,738.565	36° 59' 1.893 N	107° 40' 23.923 W
- plan hits target center									
- Point									
PBHL (Susco 16 State 1	0.00	0.01	3,697.00	732.65	-2,630.18	2,177,497.188	546,507.185	36° 59' 2.534 N	107° 40' 26.774 W
- plan hits target center									
- Point									

Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)
500.00	500.00	Surface (9 5/8")	9.625	12.250
5,036.26	3,697.00	Intermediate (7")	7.000	8.750



DDS
Planning Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well Susco 16 State 101H
Company:	Hilcorp Energy Company	TVD Reference:	RKB @ 6931.00ft
Project:	San Juan County, NM	MD Reference:	RKB @ 6931.00ft
Site:	Susco 16 State 101H	North Reference:	Grid
Well:	Susco 16 State 101H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Pilot Hole		
Design:	Design #2		

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
1,032.66	-5,900.00	Nacimiento		0.00		
2,586.76	-4,500.00	Ojo Alamo		0.00		
2,774.10	-4,360.00	Kirtland		0.00		
3,933.61	-3,700.00	Fruitland		0.00		
4,406.85	-3,500.00	Blue Coal		0.00		
4,548.82	-3,440.00	Blue Canyon		0.00		
4,700.26	-3,376.00	Green Mesa Upper		0.00		
4,757.05	-3,352.00	Big Blue		0.00		



Hilcorp Energy Company

San Juan County, NM

Susco 16 State 101H

Susco 16 State 101H

Pilot Hole

Plan: Design #2

Standard Planning Report - Geographic

22 January, 2018





DDS
Planning Report - Geographic



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well Susco 16 State 101H
Company:	Hilcorp Energy Company	TVD Reference:	RKB @ 6931.00ft
Project:	San Juan County, NM	MD Reference:	RKB @ 6931.00ft
Site:	Susco 16 State 101H	North Reference:	Grid
Well:	Susco 16 State 101H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Pilot Hole		
Design:	Design #2		

Project	San Juan County, NM		
Map System:	US State Plane 1927 (Exact solution)	System Datum:	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	New Mexico West 3003		

Site	Susco 16 State 101H		
Site Position:		Northing:	2,176,764.540 usft
From:	Map	Easting:	549,137.360 usft
Position Uncertainty:	0.00 ft	Slot Radius:	13.200 in
		Latitude:	36° 58' 55.245 N
		Longitude:	107° 39' 54.371 W
		Grid Convergence:	0.10 °

Well	Susco 16 State 101H		
Well Position	+N/-S	0.00 ft	Northing:
	+E/-W	0.00 ft	Easting:
Position Uncertainty	0.00 ft	Wellhead Elevation:	0.00 ft
		Latitude:	36° 58' 55.245 N
		Longitude:	107° 39' 54.371 W
		Ground Level:	6,916.00 ft

Wellbore	Pilot Hole		
Magnetics	Model Name	Sample Date	Declination (°)
	IGRF2015	1/22/2018	9.19
			Dip Angle (°)
			63.55
			Field Strength (nT)
			50,115

Design	Design #2		
Audit Notes:			
Version:	Phase:	PLAN	Tie On Depth:
			0.00
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)
	0.00	0.00	0.00
			Direction (°)
			285.57

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
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
598.76	0.00	0.00	598.76	0.00	0.00	0.00	0.00	0.00	0.00	
3,848.76	65.00	285.57	3,195.14	443.85	-1,593.41	2.00	2.00	0.00	285.57	
4,771.24	65.00	285.57	3,585.00	668.20	-2,398.80	0.00	0.00	0.00	0.00	Entry Point (Susco 16
5,036.26	65.00	285.57	3,697.00	732.65	-2,630.18	0.00	0.00	0.00	0.00	PBHL (Susco 16 Stat



DDS Planning Report - Geographic



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well Susco 16 State 101H
Company:	Hilcorp Energy Company	TVD Reference:	RKB @ 6931.00ft
Project:	San Juan County, NM	MD Reference:	RKB @ 6931.00ft
Site:	Susco 16 State 101H	North Reference:	Grid
Well:	Susco 16 State 101H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Pilot Hole		
Design:	Design #2		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
0.00	0.00	0.00	0.00	0.00	0.00	2,176,764.540	549,137.360	36° 58' 55.245 N	107° 39' 54.371 W
500.00	0.00	0.00	500.00	0.00	0.00	2,176,764.540	549,137.360	36° 58' 55.245 N	107° 39' 54.371 W
Surface (9 5/8")									
598.76	0.00	0.00	598.76	0.00	0.00	2,176,764.540	549,137.360	36° 58' 55.245 N	107° 39' 54.371 W
600.00	0.02	285.57	600.00	0.00	0.00	2,176,764.540	549,137.360	36° 58' 55.245 N	107° 39' 54.371 W
700.00	2.02	285.57	699.98	0.48	-1.72	2,176,765.020	549,135.637	36° 58' 55.250 N	107° 39' 54.393 W
800.00	4.02	285.57	799.83	1.90	-6.81	2,176,766.435	549,130.554	36° 58' 55.264 N	107° 39' 54.455 W
900.00	6.02	285.57	899.45	4.25	-15.24	2,176,768.786	549,122.117	36° 58' 55.287 N	107° 39' 54.559 W
1,000.00	8.02	285.57	998.69	7.53	-27.02	2,176,772.067	549,110.336	36° 58' 55.320 N	107° 39' 54.704 W
1,032.66	8.68	285.57	1,031.00	8.80	-31.59	2,176,773.340	549,105.767	36° 58' 55.333 N	107° 39' 54.761 W
Nacimiento									
1,100.00	10.02	285.57	1,097.45	11.74	-42.13	2,176,776.276	549,095.226	36° 58' 55.362 N	107° 39' 54.890 W
1,200.00	12.02	285.57	1,195.60	16.87	-60.55	2,176,781.407	549,076.805	36° 58' 55.413 N	107° 39' 55.117 W
1,300.00	14.02	285.57	1,293.02	22.92	-82.26	2,176,787.455	549,055.096	36° 58' 55.473 N	107° 39' 55.385 W
1,400.00	16.02	285.57	1,389.59	29.87	-107.24	2,176,794.411	549,030.124	36° 58' 55.542 N	107° 39' 55.692 W
1,500.00	18.02	285.57	1,485.21	37.73	-135.44	2,176,802.267	549,001.921	36° 58' 55.620 N	107° 39' 56.040 W
1,600.00	20.02	285.57	1,579.74	46.47	-166.84	2,176,811.014	548,970.521	36° 58' 55.707 N	107° 39' 56.427 W
1,700.00	22.02	285.57	1,673.08	56.10	-201.40	2,176,820.640	548,935.961	36° 58' 55.803 N	107° 39' 56.852 W
1,800.00	24.02	285.57	1,765.11	66.60	-239.08	2,176,831.135	548,898.285	36° 58' 55.908 N	107° 39' 57.317 W
1,900.00	26.02	285.57	1,855.72	77.95	-279.82	2,176,842.486	548,857.538	36° 58' 56.021 N	107° 39' 57.819 W
2,000.00	28.02	285.57	1,944.79	90.14	-323.59	2,176,854.678	548,813.769	36° 58' 56.142 N	107° 39' 58.358 W
2,100.00	30.02	285.57	2,032.23	103.16	-370.33	2,176,867.697	548,767.032	36° 58' 56.271 N	107° 39' 58.934 W
2,200.00	32.02	285.57	2,117.92	116.99	-419.98	2,176,881.526	548,717.384	36° 58' 56.409 N	107° 39' 59.545 W
2,300.00	34.02	285.57	2,201.76	131.61	-472.48	2,176,896.150	548,664.886	36° 58' 56.555 N	107° 40' 0.192 W
2,400.00	36.02	285.57	2,283.64	147.01	-527.76	2,176,911.550	548,609.600	36° 58' 56.708 N	107° 40' 0.873 W
2,500.00	38.02	285.57	2,363.48	163.17	-585.77	2,176,927.708	548,551.596	36° 58' 56.869 N	107° 40' 1.588 W
2,586.76	39.76	285.57	2,431.00	177.78	-638.24	2,176,942.324	548,499.125	36° 58' 57.014 N	107° 40' 2.234 W
Ojo Alamo									
2,600.00	40.02	285.57	2,441.16	180.06	-646.42	2,176,944.603	548,490.943	36° 58' 57.037 N	107° 40' 2.335 W
2,700.00	42.02	285.57	2,516.60	197.68	-709.65	2,176,962.215	548,427.715	36° 58' 57.212 N	107° 40' 3.114 W
2,774.10	43.51	285.57	2,571.00	211.18	-758.12	2,176,975.717	548,379.246	36° 58' 57.346 N	107° 40' 3.711 W
Kirtland									
2,800.00	44.02	285.57	2,589.70	215.98	-775.37	2,176,980.524	548,361.990	36° 58' 57.394 N	107° 40' 3.923 W
2,900.00	46.02	285.57	2,660.38	234.97	-843.52	2,176,999.505	548,293.846	36° 58' 57.583 N	107° 40' 4.763 W
3,000.00	48.02	285.57	2,728.54	254.60	-913.99	2,177,019.137	548,223.369	36° 58' 57.778 N	107° 40' 5.631 W
3,100.00	50.02	285.57	2,794.11	274.86	-986.72	2,177,039.396	548,150.642	36° 58' 57.980 N	107° 40' 6.527 W
3,200.00	52.02	285.57	2,857.01	295.72	-1,061.61	2,177,060.256	548,075.756	36° 58' 58.188 N	107° 40' 7.450 W
3,300.00	54.02	285.57	2,917.15	317.15	-1,138.56	2,177,081.692	547,998.800	36° 58' 58.401 N	107° 40' 8.398 W
3,400.00	56.02	285.57	2,974.47	339.14	-1,217.49	2,177,103.679	547,919.870	36° 58' 58.620 N	107° 40' 9.370 W
3,500.00	58.02	285.57	3,028.90	361.65	-1,298.30	2,177,126.189	547,839.060	36° 58' 58.844 N	107° 40' 10.366 W
3,600.00	60.02	285.57	3,080.36	384.66	-1,380.89	2,177,149.195	547,756.470	36° 58' 59.072 N	107° 40' 11.383 W
3,700.00	62.02	285.57	3,128.80	408.13	-1,465.16	2,177,172.669	547,672.200	36° 58' 59.306 N	107° 40' 12.421 W
3,800.00	64.02	285.57	3,174.16	432.04	-1,551.01	2,177,196.582	547,586.353	36° 58' 59.544 N	107° 40' 13.479 W
3,848.76	65.00	285.57	3,195.14	443.85	-1,593.41	2,177,208.393	547,543.951	36° 58' 59.661 N	107° 40' 14.001 W
3,900.00	65.00	285.57	3,216.80	456.32	-1,638.15	2,177,220.854	547,499.217	36° 58' 59.785 N	107° 40' 14.552 W
3,933.61	65.00	285.57	3,231.00	464.49	-1,667.49	2,177,229.027	547,469.876	36° 58' 59.867 N	107° 40' 14.914 W
Fruitland									
4,000.00	65.00	285.57	3,259.06	480.64	-1,725.45	2,177,245.174	547,411.911	36° 59' 0.027 N	107° 40' 15.628 W
4,100.00	65.00	285.57	3,301.32	504.96	-1,812.76	2,177,269.494	547,324.604	36° 59' 0.269 N	107° 40' 16.703 W
4,200.00	65.00	285.57	3,343.58	529.27	-1,900.07	2,177,293.813	547,237.297	36° 59' 0.511 N	107° 40' 17.779 W
4,300.00	65.00	285.57	3,385.84	553.59	-1,987.37	2,177,318.133	547,149.991	36° 59' 0.753 N	107° 40' 18.855 W
4,400.00	65.00	285.57	3,428.11	577.91	-2,074.68	2,177,342.453	547,062.684	36° 59' 0.995 N	107° 40' 19.930 W
4,406.85	65.00	285.57	3,431.00	579.58	-2,080.66	2,177,344.118	547,056.706	36° 59' 1.012 N	107° 40' 20.004 W
Blue Coal									



DDS
Planning Report - Geographic



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well Susco 16 State 101H
Company:	Hilcorp Energy Company	TVD Reference:	RKB @ 6931.00ft
Project:	San Juan County, NM	MD Reference:	RKB @ 6931.00ft
Site:	Susco 16 State 101H	North Reference:	Grid
Well:	Susco 16 State 101H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Pilot Hole		
Design:	Design #2		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
4,500.00	65.00	285.57	3,470.37	602.23	-2,161.99	2,177,366.773	546,975.377	36° 59' 1.237 N	107° 40' 21.006 W
4,548.82	65.00	285.57	3,491.00	614.11	-2,204.61	2,177,378.645	546,932.755	36° 59' 1.355 N	107° 40' 21.531 W
Blue Canyon									
4,600.00	65.00	285.57	3,512.63	626.55	-2,249.29	2,177,391.093	546,888.071	36° 59' 1.479 N	107° 40' 22.081 W
4,700.00	65.00	285.57	3,554.89	650.87	-2,336.60	2,177,415.412	546,800.764	36° 59' 1.721 N	107° 40' 23.157 W
4,700.26	65.00	285.57	3,555.00	650.94	-2,336.82	2,177,415.475	546,800.540	36° 59' 1.722 N	107° 40' 23.160 W
Green Mesa Upper									
4,757.05	65.00	285.57	3,579.00	664.75	-2,386.40	2,177,429.286	546,750.960	36° 59' 1.859 N	107° 40' 23.770 W
Big Blue									
4,771.24	65.00	285.57	3,585.00	668.20	-2,398.80	2,177,432.738	546,738.565	36° 59' 1.893 N	107° 40' 23.923 W
4,800.00	65.00	285.57	3,597.15	675.19	-2,423.91	2,177,439.732	546,713.457	36° 59' 1.963 N	107° 40' 24.232 W
4,900.00	65.00	285.57	3,639.42	699.51	-2,511.21	2,177,464.052	546,626.151	36° 59' 2.205 N	107° 40' 25.308 W
5,000.00	65.00	285.57	3,681.68	723.83	-2,598.52	2,177,488.372	546,538.844	36° 59' 2.447 N	107° 40' 26.384 W
5,036.26	65.00	285.57	3,697.00	732.65	-2,630.18	2,177,497.189	546,507.189	36° 59' 2.534 N	107° 40' 26.774 W
Intermediate (7")									

Design Targets

Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- hit/miss target									
- Shape									
Entry Point (Susco 16 St	0.00	0.00	3,585.00	668.20	-2,398.80	2,177,432.738	546,738.565	36° 59' 1.893 N	107° 40' 23.923 W
- plan hits target center									
- Point									
PBHL (Susco 16 State 1	0.00	0.01	3,697.00	732.65	-2,630.18	2,177,497.188	546,507.185	36° 59' 2.534 N	107° 40' 26.774 W
- plan hits target center									
- Point									

Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)
500.00	500.00	Surface (9 5/8")	9.625	12.250
5,036.26	3,697.00	Intermediate (7")	7.000	8.750



Hilcorp Energy Company

San Juan County, NM

Susco 16 State 101H

Susco 16 State 101H

Pilot Hole

Design #2

Anticollision Report

23 January, 2018





DDS Anticollision Report



Company:	Hilcorp Energy Company	Local Co-ordinate Reference:	Well Susco 16 State 101H
Project:	San Juan County, NM	TVD Reference:	RKB @ 6931.00ft
Reference Site:	Susco 16 State 101H	MD Reference:	RKB @ 6931.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Susco 16 State 101H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Pilot Hole	Database:	EDM 5000.1 Single User Db
Reference Design:	Design #2	Offset TVD Reference:	Offset Datum

Reference	Design #2		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	MD Interval 100.00ft	Error Model:	ISCWSA
Depth Range:	Unlimited	Scan Method:	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 1,554.62 ft	Error Surface:	Elliptical Conic
Warning Levels Evaluated at:	2.00 Sigma	Casing Method:	Not applied

Survey Tool Program		Date	1/23/2018		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
0.00	5,036.26	Design #2 (Pilot Hole)	MWD	MWD - Standard	

Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offet Well - Wellbore - Design						
Susco 16 State 101H Offsets						
San Juan 32-8 UN 004 - Wellbore #1 - OH	500.00	500.00	505.95	503.03	172.932	CC
San Juan 32-8 UN 004 - Wellbore #1 - OH	600.00	600.00	505.95	502.40	142.235	ES
San Juan 32-8 UN 004 - Wellbore #1 - OH	2,300.00	2,201.76	762.29	745.68	45.898	SF
San Juan 32-8 UN 258 - Wellbore #1 - OH	500.00	500.00	138.26	135.34	47.258	CC
San Juan 32-8 UN 258 - Wellbore #1 - OH	600.00	600.00	138.26	134.71	38.869	ES
San Juan 32-8 UN 258 - Wellbore #1 - OH	1,300.00	1,293.02	193.06	186.16	27.974	SF
Susco 16 State 001 - Wellbore #1 - OH						Out of range
Susco 16 State 002 - Wellbore #1 - OH						Out of range
Susco 16 State 003 - Wellbore #1 - OH						Out of range
Susco 16 State 100 - Wellbore #1 - OH						Out of range
Susco 16 State 101 - Wellbore #1 - OH	5,036.26	3,697.00	1,189.61	1,120.76	17.278	CC, ES, SF
Susco 16 State 101S - Wellbore #1 - OH						Out of range

Offset Design Susco 16 State 101H Offsets - San Juan 32-8 UN 004 - Wellbore #1 - OH												Offset Site Error: 0.00 ft		
Survey Program: 3697-MWD												Offset Well Error: 0.00 ft		
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)				Minimum Separation (ft)
0.00	0.00	0.00	0.00	0.00	0.00	-174.24	-503.40	-50.76	505.95					
100.00	100.00	100.00	100.00	0.18	0.21	-174.24	-503.40	-50.76	505.95	505.56	0.39	1,295.596		
200.00	200.00	200.00	200.00	0.60	0.42	-174.24	-503.40	-50.76	505.95	504.93	1.02	493.939		
300.00	300.00	300.00	300.00	1.03	0.63	-174.24	-503.40	-50.76	505.95	504.30	1.66	305.135		
400.00	400.00	400.00	400.00	1.45	0.84	-174.24	-503.40	-50.76	505.95	503.66	2.29	220.754		
500.00	500.00	500.00	500.00	1.87	1.05	-174.24	-503.40	-50.76	505.95	503.03	2.93	172.932	CC	
566.25	566.25	566.25	566.25	2.15	1.19	-99.81	-503.40	-50.76	505.96	502.61	3.34	151.300		
600.00	600.00	600.00	600.00	2.29	1.26	-99.81	-503.40	-50.76	505.95	502.40	3.56	142.235	ES	
700.00	699.98	699.98	699.98	2.37	1.47	-100.00	-503.40	-50.76	506.26	502.42	3.84	131.713		
800.00	799.83	799.83	799.83	2.52	1.69	-100.57	-503.40	-50.76	507.20	503.00	4.21	120.595		
900.00	899.45	899.45	899.45	2.75	1.90	-101.50	-503.40	-50.76	508.89	504.25	4.64	109.616		
1,000.00	998.69	998.69	998.69	3.05	2.10	-102.78	-503.40	-50.76	511.48	506.33	5.15	99.243		
1,100.00	1,097.45	1,097.45	1,097.45	3.43	2.31	-104.39	-503.40	-50.76	515.21	509.47	5.74	89.748		
1,200.00	1,195.60	1,195.60	1,195.60	3.90	2.52	-106.30	-503.40	-50.76	520.36	513.96	6.40	81.270		
1,300.00	1,293.02	1,293.02	1,293.02	4.45	2.72	-108.46	-503.40	-50.76	527.26	520.12	7.14	73.858		
1,400.00	1,389.59	1,389.59	1,389.59	5.10	2.93	-110.84	-503.40	-50.76	536.25	528.31	7.94	67.504		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



DDS
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Reference Site:	Susco 16 State 101H	MD Reference:	RKB @ 6931.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Susco 16 State 101H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Pilot Hole	Database:	EDM 5000.1 Single User Db
Reference Design:	Design #2	Offset TVD Reference:	Offset Datum

Offset Design Susco 16 State 101H Offsets - San Juan 32-8 UN 004 - Wellbore #1 - OH													Offset Site Error:	0.00 ft
Survey Program: 3697-MWD													Offset Well Error:	0.00 ft
Reference		Offset		Semi Major Axis			Distance							
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor	Warning	
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)			
1,500.00	1,485.21	1,485.21	1,485.21	5.84	3.13	-113.39	-503.40	-50.76	547.71	538.90	8.81	62.158		
1,600.00	1,579.74	1,579.74	1,579.74	6.68	3.33	-116.05	-503.40	-50.76	561.99	552.26	9.73	57.749		
1,700.00	1,673.08	1,673.08	1,673.08	7.62	3.53	-118.77	-503.40	-50.76	579.43	568.73	10.69	54.191		
1,800.00	1,765.11	1,765.11	1,765.11	8.67	3.72	-121.49	-503.40	-50.76	600.30	588.62	11.68	51.394		
1,900.00	1,855.72	1,855.72	1,855.72	9.83	3.91	-124.17	-503.40	-50.76	624.85	612.17	12.68	49.269		
2,000.00	1,944.79	1,944.79	1,944.79	11.10	4.10	-126.77	-503.40	-50.76	653.24	639.56	13.69	47.730		
2,100.00	2,032.23	2,032.23	2,032.23	12.49	4.28	-129.26	-503.40	-50.76	685.59	670.91	14.68	46.701		
2,200.00	2,117.92	2,117.92	2,117.92	13.99	4.46	-131.60	-503.40	-50.76	721.94	706.29	15.66	46.111		
2,300.00	2,201.76	2,201.76	2,201.76	15.61	4.64	-133.79	-503.40	-50.76	762.29	745.68	16.61	45.898 SF		
2,400.00	2,283.64	2,283.64	2,283.64	17.36	4.81	-135.81	-503.40	-50.76	806.58	789.05	17.53	46.009		
2,500.00	2,363.48	2,363.48	2,363.48	19.22	4.98	-137.65	-503.40	-50.76	854.72	836.30	18.42	46.397		
2,600.00	2,441.16	2,441.16	2,441.16	21.21	5.14	-139.31	-503.40	-50.76	906.61	887.33	19.28	47.024		
2,700.00	2,516.60	2,516.60	2,516.60	23.32	5.30	-140.80	-503.40	-50.76	962.10	942.00	20.10	47.855		
2,800.00	2,589.70	2,589.70	2,589.70	25.56	5.46	-142.11	-503.40	-50.76	1,021.07	1,000.17	20.90	48.864		
2,900.00	2,660.38	2,660.38	2,660.38	27.92	5.61	-143.26	-503.40	-50.76	1,083.35	1,061.69	21.66	50.026		
3,000.00	2,728.54	2,728.54	2,728.54	30.40	5.75	-144.24	-503.40	-50.76	1,148.80	1,126.41	22.38	51.323		
3,100.00	2,794.11	2,794.11	2,794.11	33.01	5.89	-145.05	-503.40	-50.76	1,217.25	1,194.17	23.08	52.739		
3,200.00	2,857.01	2,857.01	2,857.01	35.73	6.02	-145.71	-503.40	-50.76	1,288.56	1,264.82	23.75	54.261		
3,300.00	2,917.15	2,917.15	2,917.15	38.57	6.15	-146.21	-503.40	-50.76	1,362.58	1,338.19	24.39	55.877		
3,400.00	2,974.47	2,974.47	2,974.47	41.52	6.27	-146.54	-503.40	-50.76	1,439.15	1,414.15	24.99	57.581		
3,500.00	3,028.90	3,028.90	3,028.90	44.58	6.38	-146.71	-503.40	-50.76	1,518.12	1,492.54	25.57	59.364		



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Project:	San Juan County, NM	TVD Reference:	RKB @ 6931.00ft
Reference Site:	Susco 16 State 101H	MD Reference:	RKB @ 6931.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Susco 16 State 101H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Pilot Hole	Database:	EDM 5000.1 Single User Db
Reference Design:	Design #2	Offset TVD Reference:	Offset Datum

Offset Design													Susco 16 State 101H Offsets - San Juan 32-8 UN 258 - Wellbore #1 - OH		Offset Site Error:		0.00 ft
Survey Program: 3697-MWD													Offset Well Error:		0.00 ft		
Reference		Offset		Semi Major Axis			Distance										
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre		Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning				
0.00	0.00	0.00	0.00	0.00	0.00	42.95	101.20	94.21	138.26								
100.00	100.00	100.00	100.00	0.18	0.21	42.95	101.20	94.21	138.26	137.87	0.39	354.054					
200.00	200.00	200.00	200.00	0.60	0.42	42.95	101.20	94.21	138.26	137.24	1.02	134.981					
300.00	300.00	300.00	300.00	1.03	0.63	42.95	101.20	94.21	138.26	136.61	1.66	83.386					
400.00	400.00	400.00	400.00	1.45	0.84	42.95	101.20	94.21	138.26	135.97	2.29	60.326					
500.00	500.00	500.00	500.00	1.87	1.05	42.95	101.20	94.21	138.26	135.34	2.93	47.258 CC					
566.25	566.25	566.25	566.25	2.15	1.19	117.39	101.20	94.21	138.27	134.92	3.34	41.348					
600.00	600.00	600.00	600.00	2.29	1.26	117.39	101.20	94.21	138.26	134.71	3.56	38.869 ES					
700.00	699.98	699.98	699.98	2.37	1.47	118.03	101.20	94.21	139.10	135.25	3.84	36.189					
800.00	799.83	799.83	799.83	2.52	1.69	119.86	101.20	94.21	141.65	137.45	4.21	33.685					
900.00	899.45	899.45	899.45	2.75	1.90	122.76	101.20	94.21	146.22	141.58	4.64	31.529					
1,000.00	998.69	998.69	998.69	3.05	2.10	126.47	101.20	94.21	153.21	148.07	5.13	29.840					
1,100.00	1,097.45	1,097.45	1,097.45	3.43	2.31	130.73	101.20	94.21	163.07	157.39	5.69	28.680					
1,200.00	1,195.60	1,195.60	1,195.60	3.90	2.52	135.21	101.20	94.21	176.25	169.97	6.28	28.067					
1,300.00	1,293.02	1,293.02	1,293.02	4.45	2.72	139.66	101.20	94.21	193.06	186.16	6.90	27.974 SF					
1,400.00	1,389.59	1,389.59	1,389.59	5.10	2.93	143.86	101.20	94.21	213.70	206.16	7.54	28.347					
1,500.00	1,485.21	1,485.21	1,485.21	5.84	3.13	147.70	101.20	94.21	238.26	230.08	8.18	29.116					
1,600.00	1,579.74	1,579.74	1,579.74	6.68	3.33	151.11	101.20	94.21	266.72	257.90	8.83	30.212					
1,700.00	1,673.08	1,673.08	1,673.08	7.62	3.53	154.09	101.20	94.21	299.03	289.56	9.47	31.570					
1,800.00	1,765.11	1,765.11	1,765.11	8.67	3.72	156.68	101.20	94.21	335.08	324.96	10.11	33.135					
1,900.00	1,855.72	1,855.72	1,855.72	9.83	3.91	158.90	101.20	94.21	374.76	364.01	10.75	34.864					
2,000.00	1,944.79	1,944.79	1,944.79	11.10	4.10	160.81	101.20	94.21	417.95	406.57	11.38	36.721					
2,100.00	2,032.23	2,032.23	2,032.23	12.49	4.28	162.44	101.20	94.21	464.54	452.53	12.01	38.680					
2,200.00	2,117.92	2,117.92	2,117.92	13.99	4.46	163.84	101.20	94.21	514.43	501.80	12.63	40.718					
2,300.00	2,201.76	2,201.76	2,201.76	15.61	4.64	165.03	101.20	94.21	567.50	554.25	13.25	42.822					
2,400.00	2,283.64	2,283.64	2,283.64	17.36	4.81	166.06	101.20	94.21	623.66	609.79	13.87	44.980					
2,500.00	2,363.48	2,363.48	2,363.48	19.22	4.98	166.94	101.20	94.21	682.79	668.32	14.47	47.183					
2,600.00	2,441.16	2,441.16	2,441.16	21.21	5.14	167.69	101.20	94.21	744.82	729.75	15.07	49.426					
2,700.00	2,516.60	2,516.60	2,516.60	23.32	5.30	168.33	101.20	94.21	809.63	793.97	15.66	51.706					
2,800.00	2,589.70	2,589.70	2,589.70	25.56	5.46	168.88	101.20	94.21	877.13	860.89	16.24	54.021					
2,900.00	2,660.38	2,660.38	2,660.38	27.92	5.61	169.34	101.20	94.21	947.22	930.41	16.80	56.369					
3,000.00	2,728.54	2,728.54	2,728.54	30.40	5.75	169.72	101.20	94.21	1,019.81	1,002.45	17.36	58.750					
3,100.00	2,794.11	2,794.11	2,794.11	33.01	5.89	170.04	101.20	94.21	1,094.79	1,076.89	17.90	61.167					
3,200.00	2,857.01	2,857.01	2,857.01	35.73	6.02	170.29	101.20	94.21	1,172.07	1,153.65	18.42	63.621					
3,300.00	2,917.15	2,917.15	2,917.15	38.57	6.15	170.47	101.20	94.21	1,251.54	1,232.61	18.93	66.113					
3,400.00	2,974.47	2,974.47	2,974.47	41.52	6.27	170.60	101.20	94.21	1,333.11	1,313.69	19.42	68.647					
3,500.00	3,028.90	3,028.90	3,028.90	44.58	6.38	170.67	101.20	94.21	1,416.66	1,396.77	19.89	71.227					
3,600.00	3,080.36	3,080.36	3,080.36	47.75	6.49	170.68	101.20	94.21	1,502.09	1,481.75	20.34	73.855					



DDS
Anticollision Report



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Project:	San Juan County, NM	TVD Reference:	RKB @ 6931.00ft
Reference Site:	Susco 16 State 101H	MD Reference:	RKB @ 6931.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Susco 16 State 101H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Pilot Hole	Database:	EDM 5000.1 Single User Db
Reference Design:	Design #2	Offset TVD Reference:	Offset Datum

Offset Design Susco 16 State 101H Offsets - Susco 16 State 101 - Wellbore #1 - OH												Offset Site Error:	0.00 ft
Survey Program: 3697-MWD												Offset Well Error:	0.00 ft
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	
4,600.00	3,512.63	3,512.63	3,512.63	82.29	7.40	51.93	1,682.62	-3,346.23	1,522.68	1,473.57	49.11	31.006	
4,700.00	3,554.89	3,554.89	3,554.89	85.81	7.49	53.86	1,682.62	-3,346.23	1,443.56	1,390.67	52.89	27.294	
4,800.00	3,597.15	3,597.15	3,597.15	89.33	7.58	55.89	1,682.62	-3,346.23	1,365.86	1,308.79	57.07	23.931	
4,900.00	3,639.42	3,639.42	3,639.42	92.86	7.67	58.02	1,682.62	-3,346.23	1,289.86	1,228.15	61.71	20.901	
5,000.00	3,681.68	3,681.68	3,681.68	96.38	7.76	60.26	1,682.62	-3,346.23	1,215.87	1,149.02	66.85	18.187	
5,036.26	3,697.00	3,697.00	3,697.00	97.66	7.79	61.09	1,682.62	-3,346.23	1,189.61	1,120.76	68.85	17.278 CC, ES, SF	



DDS Anticollision Report



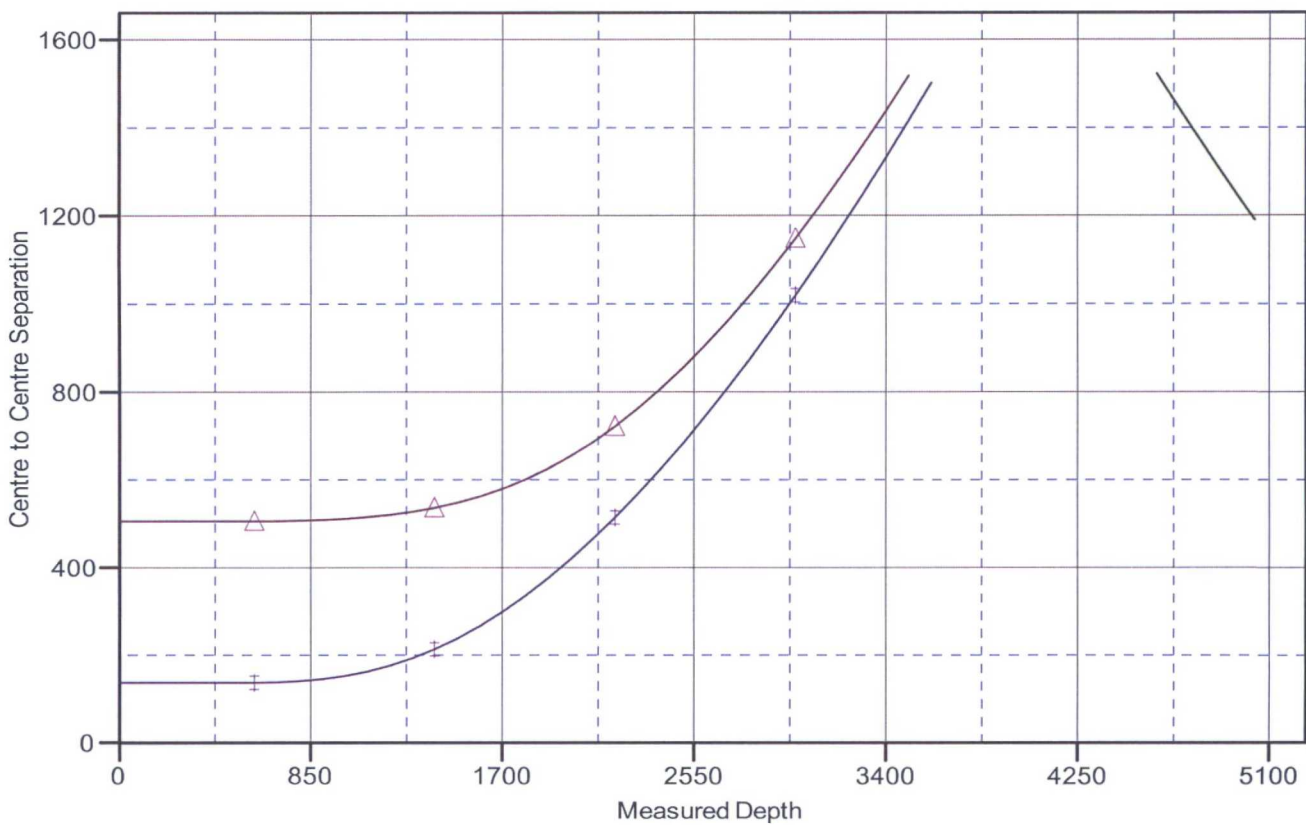
Company: Hilcorp Energy Company
Project: San Juan County, NM
Reference Site: Susco 16 State 101H
Site Error: 0.00 ft
Reference Well: Susco 16 State 101H
Well Error: 0.00 ft
Reference Wellbore: Pilot Hole
Reference Design: Design #2

Local Co-ordinate Reference: Well Susco 16 State 101H
TVD Reference: RKB @ 6931.00ft
MD Reference: RKB @ 6931.00ft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: EDM 5000.1 Single User Db
Offset TVD Reference: Offset Datum

Reference Depths are relative to RKB @ 6931.00ft
Offset Depths are relative to Offset Datum
Central Meridian is 107° 50' 0.000 W

Coordinates are relative to: Susco 16 State 101H
Coordinate System is US State Plane 1927 (Exact solution), New Mexico West 30
Grid Convergence at Surface is: 0.10°

Ladder Plot



LEGEND

▲ San Juan 32-8 UN 004, Wellbore #1, OH V0 ■ San Juan 32-8 UN 258, Wellbore #1, OH V0 ● Susco 16 State 101, Wellbore #1, OH V0



DDS Anticollision Report

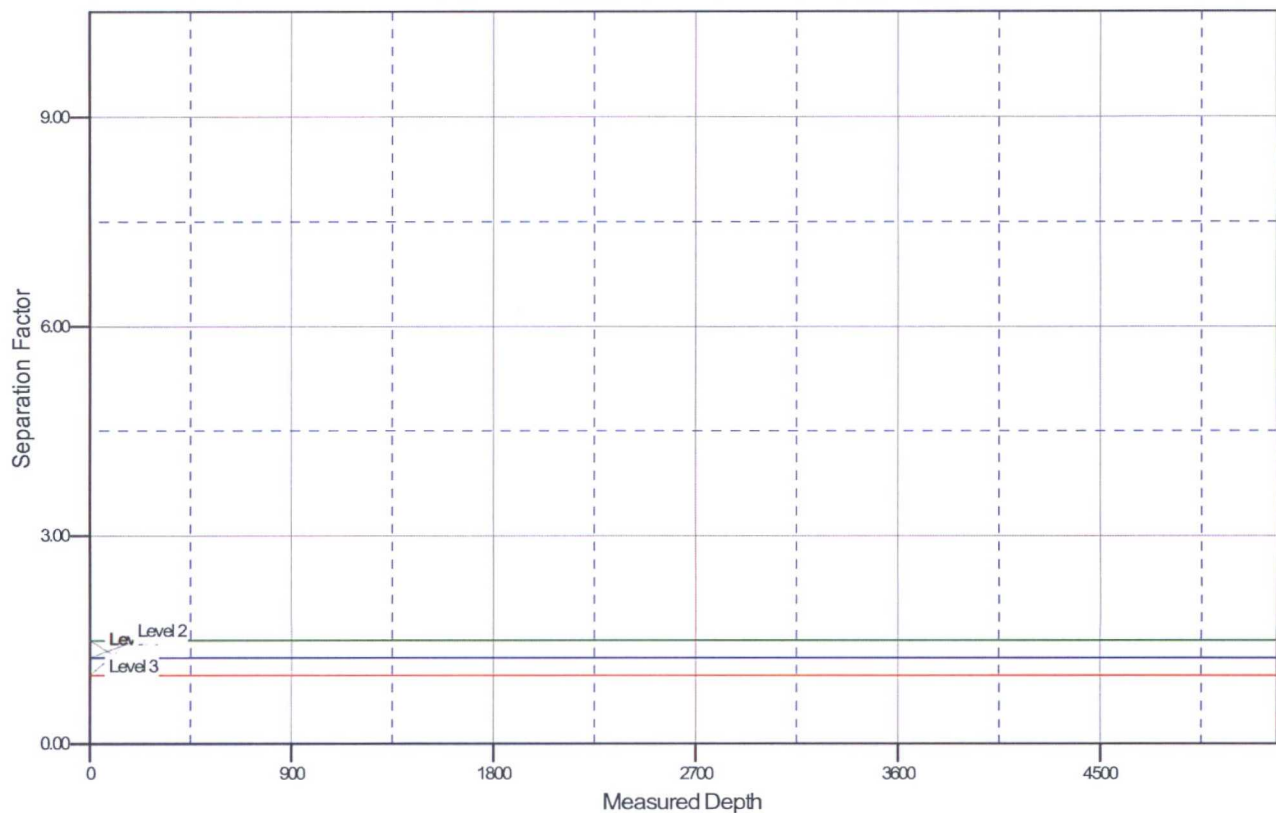


Company:	Hilcorp Energy Company	Local Co-ordinate Reference:	Well Susco 16 State 101H
Project:	San Juan County, NM	TVD Reference:	RKB @ 6931.00ft
Reference Site:	Susco 16 State 101H	MD Reference:	RKB @ 6931.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Susco 16 State 101H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Pilot Hole	Database:	EDM 5000.1 Single User Db
Reference Design:	Design #2	Offset TVD Reference:	Offset Datum

Reference Depths are relative to RKB @ 6931.00ft
Offset Depths are relative to Offset Datum
Central Meridian is 107° 50' 0.000 W

Coordinates are relative to: Susco 16 State 101H
Coordinate System is US State Plane 1927 (Exact solution), New Mexico West 30
Grid Convergence at Surface is: 0.10°

Separation Factor Plot



LEGEND

San Juan 32-8 UN 004, Wellbore #1, OH V0 San Juan 32-8 UN 258, Wellbore #1, OH V0 Susco 16 State 101, Wellbore #1, OH V0



HILCORP ENERGY COMPANY
SUSCO 16 STATE 101H ST
SAN JUAN COUNTY, NEW MEXICO
6916' GL + 15' KB



WELL DETAILS: Susco 16 State 101H

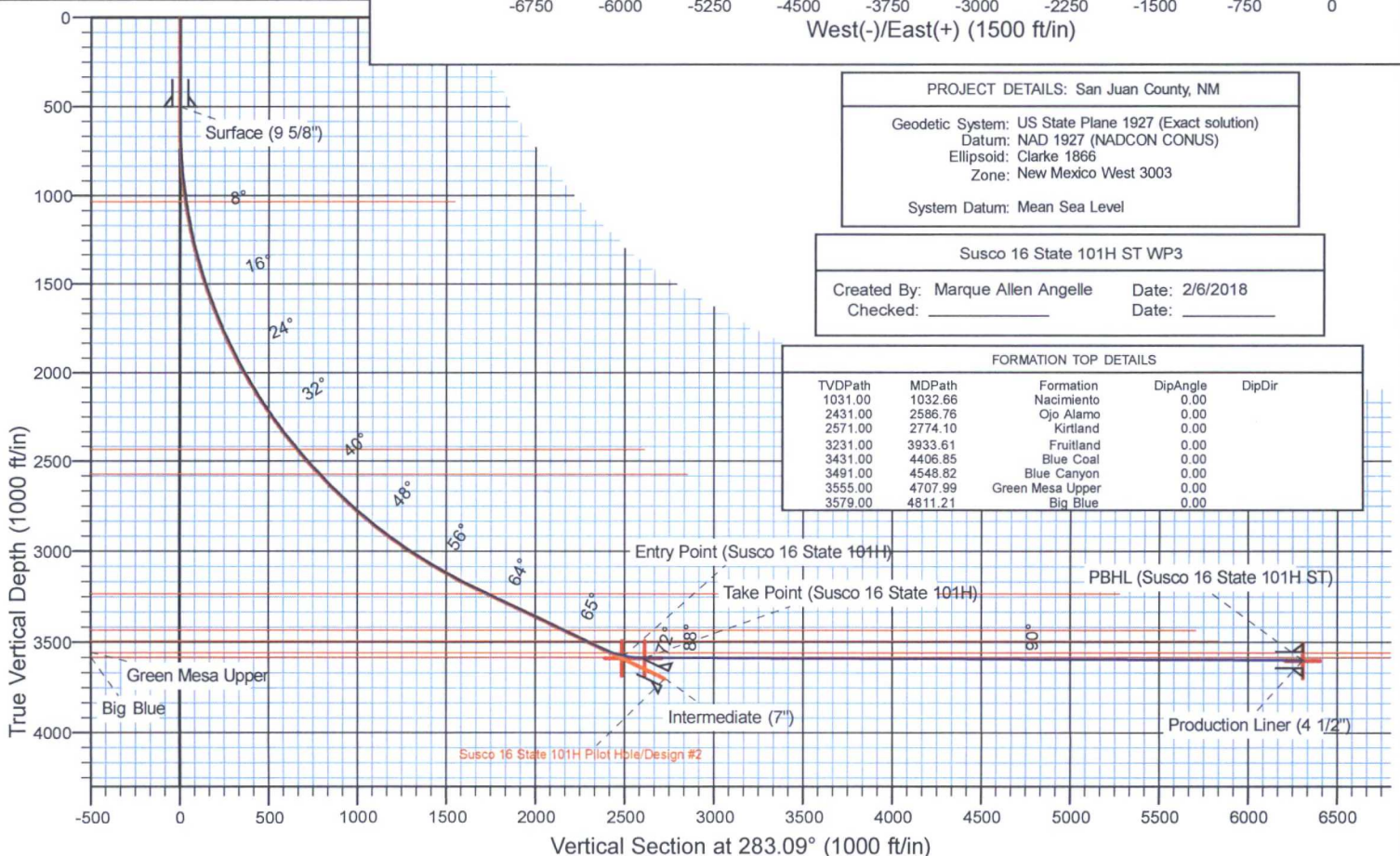
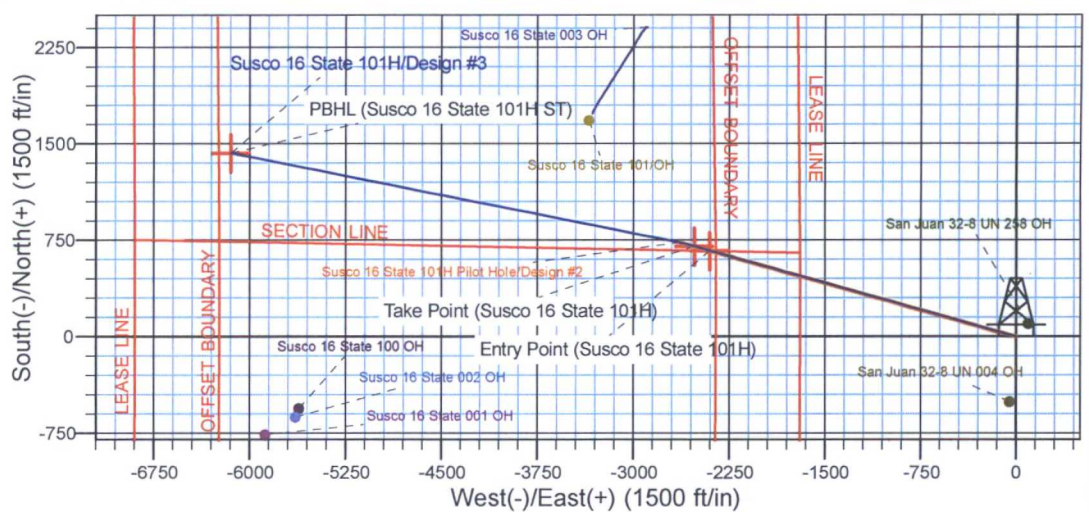
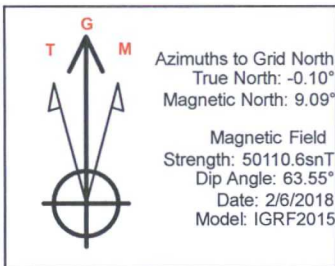
+N/-S	+E/-W	Northing	Ground Level: Easting	Latitude	Longitude	Slot
0.00	0.00	2176764.540	549137.360	36° 58' 55.245 N	107° 39' 54.371 W	

WELLBORE TARGET DETAILS (MAP CO-ORDINATES AND LAT/LONG)

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
Entry Point (Susco 16 State 101H)	3585.00	668.20	-2398.80	2177432.739	546738.565	36° 59' 1.893 N	107° 40' 23.923 W	Point
Take Point (Susco 16 State 101H)	3585.00	702.30	-2521.17	2177466.839	546616.195	36° 59' 2.233 N	107° 40' 25.431 W	Point
PBHL (Susco 16 State 101H ST)	3597.00	1428.63	-6144.14	2178193.165	542993.237	36° 59' 9.473 N	107° 41' 10.072 W	Point

SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VFace	Target
4644.23	65.00	285.57	3531.32	637.31	-2287.91	0.00	0.00	2372.80	
4894.23	90.00	285.57	3585.00	702.30	-2521.17	10.00	0.01	2614.71	
5112.56	89.81	281.21	3585.37	752.84	-2733.52	2.00	-92.52	2832.99	
8589.51	89.81	281.21	3597.00	1428.63	-6144.14	0.00	0.00	6308.04	PBHL (Susco 16 State 101H ST)



PROJECT DETAILS: San Juan County, NM

Geodetic System: US State Plane 1927 (Exact solution)
 Datum: NAD 1927 (NADCON CONUS)
 Ellipsoid: Clarke 1866
 Zone: New Mexico West 3003
 System Datum: Mean Sea Level

Susco 16 State 101H ST WP3

Created By: Marque Allen Angelle Date: 2/6/2018
 Checked: _____ Date: _____

FORMATION TOP DETAILS

TVDPath	MDPath	Formation	DipAngle	DipDir
1031.00	1032.66	Nacimiento	0.00	
2431.00	2586.76	Ojo Alamo	0.00	
2571.00	2774.10	Kirtland	0.00	
3231.00	3933.61	Fruitland	0.00	
3431.00	4406.85	Blue Coal	0.00	
3491.00	4548.82	Blue Canyon	0.00	
3555.00	4707.99	Green Mesa Upper	0.00	
3579.00	4811.21	Big Blue	0.00	



Hilcorp Energy Company

San Juan County, NM

Susco 16 State 101H

Susco 16 State 101H

ST

Plan: Design #3

Standard Planning Report

06 February, 2018





DDS Planning Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well Susco 16 State 101H
Company:	Hilcorp Energy Company	TVD Reference:	RKB @ 6931.00ft
Project:	San Juan County, NM	MD Reference:	RKB @ 6931.00ft
Site:	Susco 16 State 101H	North Reference:	Grid
Well:	Susco 16 State 101H	Survey Calculation Method:	Minimum Curvature
Wellbore:	ST		
Design:	Design #3		

Project	San Juan County, NM		
Map System:	US State Plane 1927 (Exact solution)	System Datum:	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	New Mexico West 3003		

Site	Susco 16 State 101H		
Site Position:		Northing:	2,176,764.540 usft
From:	Map	Easting:	549,137.360 usft
Position Uncertainty:	0.00 ft	Slot Radius:	13.200 in
		Latitude:	36° 58' 55.245 N
		Longitude:	107° 39' 54.371 W
		Grid Convergence:	0.10 °

Well	Susco 16 State 101H		
Well Position	+N/-S	0.00 ft	Northing:
	+E/-W	0.00 ft	Easting:
Position Uncertainty	0.00 ft	Wellhead Elevation:	0.00 ft
		Latitude:	36° 58' 55.245 N
		Longitude:	107° 39' 54.371 W
		Ground Level:	6,916.00 ft

Wellbore	ST		
Magnetics	Model Name	Sample Date	Declination (°)
	IGRF2015	2/6/2018	9.19
			Dip Angle (°)
			63.55
			Field Strength (nT)
			50,111

Design	Design #3		
Audit Notes:			
Version:	Phase:	PLAN	Tie On Depth:
			4,644.23
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W
	(ft)	(ft)	(ft)
	0.00	0.00	0.00
			Direction (°)
			283.09

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
4,644.23	65.00	285.57	3,531.32	637.31	-2,287.91	0.00	0.00	0.00	0.00	
4,894.23	90.00	285.57	3,585.00	702.30	-2,521.17	10.00	10.00	0.00	0.01	
5,112.56	89.81	281.21	3,585.37	752.84	-2,733.52	2.00	-0.09	-2.00	-92.52	
8,589.51	89.81	281.21	3,597.00	1,428.63	-6,144.14	0.00	0.00	0.00	0.00	PBHL (Susco 16 State)



DDS Planning Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well Susco 16 State 101H
Company:	Hilcorp Energy Company	TVD Reference:	RKB @ 6931.00ft
Project:	San Juan County, NM	MD Reference:	RKB @ 6931.00ft
Site:	Susco 16 State 101H	North Reference:	Grid
Well:	Susco 16 State 101H	Survey Calculation Method:	Minimum Curvature
Wellbore:	ST		
Design:	Design #3		

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)
600.00	0.02	285.57	600.00	0.00	0.00	0.00	0.00	0.00	0.00
700.00	2.02	285.57	699.98	0.48	-1.72	1.79	2.00	2.00	0.00
800.00	4.02	285.57	799.83	1.90	-6.81	7.06	2.00	2.00	0.00
900.00	6.02	285.57	899.45	4.25	-15.24	15.81	2.00	2.00	0.00
1,000.00	8.02	285.57	998.69	7.53	-27.02	28.03	2.00	2.00	0.00
1,100.00	10.02	285.57	1,097.45	11.74	-42.13	43.70	2.00	2.00	0.00
1,200.00	12.02	285.57	1,195.60	16.87	-60.55	62.80	2.00	2.00	0.00
1,300.00	14.02	285.57	1,293.02	22.92	-82.26	85.32	2.00	2.00	0.00
1,400.00	16.02	285.57	1,389.59	29.87	-107.24	111.21	2.00	2.00	0.00
1,500.00	18.02	285.57	1,485.21	37.73	-135.44	140.46	2.00	2.00	0.00
1,600.00	20.02	285.57	1,579.74	46.47	-166.84	173.03	2.00	2.00	0.00
1,700.00	22.02	285.57	1,673.08	56.10	-201.40	208.87	2.00	2.00	0.00
1,800.00	24.02	285.57	1,765.11	66.60	-239.08	247.95	2.00	2.00	0.00
1,900.00	26.02	285.57	1,855.72	77.95	-279.82	290.21	2.00	2.00	0.00
2,000.00	28.02	285.57	1,944.79	90.14	-323.59	335.60	2.00	2.00	0.00
2,100.00	30.02	285.57	2,032.23	103.16	-370.33	384.07	2.00	2.00	0.00
2,200.00	32.02	285.57	2,117.92	116.99	-419.98	435.56	2.00	2.00	0.00
2,300.00	34.02	285.57	2,201.76	131.61	-472.48	490.01	2.00	2.00	0.00
2,400.00	36.02	285.57	2,283.64	147.01	-527.76	547.34	2.00	2.00	0.00
2,500.00	38.02	285.57	2,363.48	163.17	-585.77	607.50	2.00	2.00	0.00
2,600.00	40.02	285.57	2,441.16	180.06	-646.42	670.40	2.00	2.00	0.00
2,700.00	42.02	285.57	2,516.60	197.68	-709.65	735.98	2.00	2.00	0.00
2,800.00	44.02	285.57	2,589.70	215.98	-775.37	804.14	2.00	2.00	0.00
2,900.00	46.02	285.57	2,660.38	234.97	-843.52	874.81	2.00	2.00	0.00
3,000.00	48.02	285.57	2,728.54	254.60	-913.99	947.90	2.00	2.00	0.00
3,100.00	50.02	285.57	2,794.11	274.86	-986.72	1,023.33	2.00	2.00	0.00
3,200.00	52.02	285.57	2,857.01	295.72	-1,061.61	1,101.00	2.00	2.00	0.00
3,300.00	54.02	285.57	2,917.15	317.15	-1,138.56	1,180.81	2.00	2.00	0.00
3,400.00	56.02	285.57	2,974.47	339.14	-1,217.49	1,262.67	2.00	2.00	0.00
3,500.00	58.02	285.57	3,028.90	361.65	-1,298.30	1,346.47	2.00	2.00	0.00
3,600.00	60.02	285.57	3,080.36	384.66	-1,380.89	1,432.13	2.00	2.00	0.00
3,700.00	62.02	285.57	3,128.80	408.13	-1,465.16	1,519.52	2.00	2.00	0.00
3,800.00	64.02	285.57	3,174.16	432.04	-1,551.01	1,608.56	2.00	2.00	0.00
3,900.00	65.00	285.57	3,216.80	456.32	-1,638.15	1,698.93	0.98	0.98	0.00
4,000.00	65.00	285.57	3,259.06	480.64	-1,725.45	1,789.47	0.00	0.00	0.00
4,100.00	65.00	285.57	3,301.32	504.96	-1,812.76	1,880.02	0.00	0.00	0.00
4,200.00	65.00	285.57	3,343.58	529.27	-1,900.07	1,970.56	0.00	0.00	0.00
4,300.00	65.00	285.57	3,385.84	553.59	-1,987.37	2,061.11	0.00	0.00	0.00
4,400.00	65.00	285.57	3,428.11	577.91	-2,074.68	2,151.66	0.00	0.00	0.00
4,406.85	65.00	285.57	3,431.00	579.58	-2,080.66	2,157.86	0.00	0.00	0.00
Blue Coal									
4,500.00	65.00	285.57	3,470.37	602.23	-2,161.99	2,242.20	0.00	0.00	0.00
4,548.82	65.00	285.57	3,491.00	614.11	-2,204.61	2,286.41	0.00	0.00	0.00
Blue Canyon									
4,600.00	65.00	285.57	3,512.63	626.55	-2,249.29	2,332.75	0.00	0.00	0.00
4,644.23	65.00	285.57	3,531.32	637.31	-2,287.91	2,372.80	0.00	0.00	0.00
4,700.00	70.58	285.57	3,552.40	651.16	-2,337.63	2,424.36	10.00	10.00	0.00
4,707.99	71.38	285.57	3,555.00	653.19	-2,344.90	2,431.90	10.00	10.00	0.00
Green Mesa Upper									
4,800.00	80.58	285.57	3,577.27	677.12	-2,430.80	2,521.00	10.00	10.00	0.00
4,811.21	81.70	285.57	3,579.00	680.09	-2,441.48	2,532.06	10.00	10.00	0.00
Big Blue									
4,894.23	90.00	285.57	3,585.00	702.30	-2,521.17	2,614.71	10.00	10.00	0.00
4,900.00	89.99	285.45	3,585.00	703.84	-2,526.73	2,620.48	2.00	-0.09	-2.00



DDS Planning Report



Database: EDM 5000.1 Single User Db
Company: Hilcorp Energy Company
Project: San Juan County, NM
Site: Susco 16 State 101H
Well: Susco 16 State 101H
Wellbore: ST
Design: Design #3

Local Co-ordinate Reference: Well Susco 16 State 101H
TVD Reference: RKB @ 6931.00ft
MD Reference: RKB @ 6931.00ft
North Reference: Grid
Survey Calculation Method: Minimum Curvature

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)
5,000.00	89.91	283.46	3,585.09	728.80	-2,623.56	2,720.45	2.00	-0.09	-2.00
5,100.00	89.82	281.46	3,585.33	750.37	-2,721.20	2,820.43	2.00	-0.09	-2.00
5,112.56	89.81	281.21	3,585.37	752.84	-2,733.52	2,832.99	2.00	-0.09	-2.00
5,200.00	89.81	281.21	3,585.66	769.84	-2,819.29	2,920.38	0.00	0.00	0.00
5,300.00	89.81	281.21	3,586.00	789.27	-2,917.38	3,020.33	0.00	0.00	0.00
5,400.00	89.81	281.21	3,586.33	808.71	-3,015.47	3,120.27	0.00	0.00	0.00
5,500.00	89.81	281.21	3,586.67	828.14	-3,113.56	3,220.22	0.00	0.00	0.00
5,600.00	89.81	281.21	3,587.00	847.58	-3,211.65	3,320.16	0.00	0.00	0.00
5,700.00	89.81	281.21	3,587.33	867.02	-3,309.75	3,420.11	0.00	0.00	0.00
5,800.00	89.81	281.21	3,587.67	886.45	-3,407.84	3,520.05	0.00	0.00	0.00
5,900.00	89.81	281.21	3,588.00	905.89	-3,505.93	3,620.00	0.00	0.00	0.00
6,000.00	89.81	281.21	3,588.34	925.33	-3,604.02	3,719.94	0.00	0.00	0.00
6,100.00	89.81	281.21	3,588.67	944.76	-3,702.12	3,819.89	0.00	0.00	0.00
6,200.00	89.81	281.21	3,589.01	964.20	-3,800.21	3,919.84	0.00	0.00	0.00
6,300.00	89.81	281.21	3,589.34	983.63	-3,898.30	4,019.78	0.00	0.00	0.00
6,400.00	89.81	281.21	3,589.68	1,003.07	-3,996.39	4,119.73	0.00	0.00	0.00
6,500.00	89.81	281.21	3,590.01	1,022.51	-4,094.49	4,219.67	0.00	0.00	0.00
6,600.00	89.81	281.21	3,590.35	1,041.94	-4,192.58	4,319.62	0.00	0.00	0.00
6,700.00	89.81	281.21	3,590.68	1,061.38	-4,290.67	4,419.56	0.00	0.00	0.00
6,800.00	89.81	281.21	3,591.01	1,080.82	-4,388.76	4,519.51	0.00	0.00	0.00
6,900.00	89.81	281.21	3,591.35	1,100.25	-4,486.86	4,619.45	0.00	0.00	0.00
7,000.00	89.81	281.21	3,591.68	1,119.69	-4,584.95	4,719.40	0.00	0.00	0.00
7,100.00	89.81	281.21	3,592.02	1,139.12	-4,683.04	4,819.34	0.00	0.00	0.00
7,200.00	89.81	281.21	3,592.35	1,158.56	-4,781.13	4,919.29	0.00	0.00	0.00
7,300.00	89.81	281.21	3,592.69	1,178.00	-4,879.23	5,019.24	0.00	0.00	0.00
7,400.00	89.81	281.21	3,593.02	1,197.43	-4,977.32	5,119.18	0.00	0.00	0.00
7,500.00	89.81	281.21	3,593.36	1,216.87	-5,075.41	5,219.13	0.00	0.00	0.00
7,600.00	89.81	281.21	3,593.69	1,236.30	-5,173.50	5,319.07	0.00	0.00	0.00
7,700.00	89.81	281.21	3,594.02	1,255.74	-5,271.60	5,419.02	0.00	0.00	0.00
7,800.00	89.81	281.21	3,594.36	1,275.18	-5,369.69	5,518.96	0.00	0.00	0.00
7,900.00	89.81	281.21	3,594.69	1,294.61	-5,467.78	5,618.91	0.00	0.00	0.00
8,000.00	89.81	281.21	3,595.03	1,314.05	-5,565.87	5,718.85	0.00	0.00	0.00
8,100.00	89.81	281.21	3,595.36	1,333.49	-5,663.97	5,818.80	0.00	0.00	0.00
8,200.00	89.81	281.21	3,595.70	1,352.92	-5,762.06	5,918.75	0.00	0.00	0.00
8,300.00	89.81	281.21	3,596.03	1,372.36	-5,860.15	6,018.69	0.00	0.00	0.00
8,400.00	89.81	281.21	3,596.37	1,391.79	-5,958.24	6,118.64	0.00	0.00	0.00
8,500.00	89.81	281.21	3,596.70	1,411.23	-6,056.33	6,218.58	0.00	0.00	0.00
8,589.51	89.81	281.21	3,597.00	1,428.63	-6,144.14	6,308.04	0.00	0.00	0.00
Production Liner (4 1/2")									



DDS Planning Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well Susco 16 State 101H
Company:	Hilcorp Energy Company	TVD Reference:	RKB @ 6931.00ft
Project:	San Juan County, NM	MD Reference:	RKB @ 6931.00ft
Site:	Susco 16 State 101H	North Reference:	Grid
Well:	Susco 16 State 101H	Survey Calculation Method:	Minimum Curvature
Wellbore:	ST		
Design:	Design #3		

Design Targets									
Target Name									
- hit/miss target	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- Shape	(°)	(°)	(ft)	(ft)	(ft)	(usft)	(usft)		
Take Point (Susco 16 St - plan hits target center - Point	0.00	0.00	3,585.00	702.30	-2,521.17	2,177,466.838	546,616.195	36° 59' 2.233 N	107° 40' 25.431 W
Entry Point (Susco 16 St - plan misses target center by 13.91ft at 4769.61ft MD (3571.50 TVD, 669.11 N, -2402.06 E) - Point	0.00	0.00	3,585.00	668.20	-2,398.80	2,177,432.738	546,738.565	36° 59' 1.893 N	107° 40' 23.923 W
PBHL (Susco 16 State 1 - plan hits target center - Point	0.00	0.00	3,597.00	1,428.63	-6,144.14	2,178,193.164	542,993.237	36° 59' 9.473 N	107° 41' 10.072 W

Casing Points					
	Measured Depth	Vertical Depth	Name	Casing Diameter	Hole Diameter
	(ft)	(ft)		(in)	(in)
	500.00	500.00	Surface (9 5/8")	9.625	12.250
	8,589.51	3,597.00	Production Liner (4 1/2")	5.500	6.000

Formations						
	Measured Depth	Vertical Depth	Name	Lithology	Dip	Dip Direction
	(ft)	(ft)			(°)	(°)
	1,032.66	1,031.00	Nacimiento		0.00	
	2,586.76	2,431.00	Ojo Alamo		0.00	
	2,774.10	2,571.00	Kirtland		0.00	
	3,933.61	3,231.00	Fruitland		0.00	
	4,406.85	3,431.00	Blue Coal		0.00	
	4,548.82	3,491.00	Blue Canyon		0.00	
	4,707.99	3,555.00	Green Mesa Upper		0.00	
	4,811.21	3,579.00	Big Blue		0.00	



Hilcorp Energy Company

San Juan County, NM

Susco 16 State 101H

Susco 16 State 101H

ST

Plan: Design #3

Standard Planning Report - Geographic

06 February, 2018





DDS
Planning Report - Geographic



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well Susco 16 State 101H
Company:	Hilcorp Energy Company	TVD Reference:	RKB @ 6931.00ft
Project:	San Juan County, NM	MD Reference:	RKB @ 6931.00ft
Site:	Susco 16 State 101H	North Reference:	Grid
Well:	Susco 16 State 101H	Survey Calculation Method:	Minimum Curvature
Wellbore:	ST		
Design:	Design #3		

Project	San Juan County, NM		
Map System:	US State Plane 1927 (Exact solution)	System Datum:	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	New Mexico West 3003		

Site	Susco 16 State 101H		
Site Position:		Northing:	2,176,764.540 usft
From:	Map	Easting:	549,137.360 usft
Position Uncertainty:	0.00 ft	Slot Radius:	13.200 in
		Latitude:	36° 58' 55.245 N
		Longitude:	107° 39' 54.371 W
		Grid Convergence:	0.10 °

Well	Susco 16 State 101H		
Well Position	+N/-S	0.00 ft	Northing:
	+E/-W	0.00 ft	Easting:
Position Uncertainty	0.00 ft	Wellhead Elevation:	0.00 ft
		Latitude:	36° 58' 55.245 N
		Longitude:	107° 39' 54.371 W
		Ground Level:	6,916.00 ft

Wellbore	ST		
Magnetics	Model Name	Sample Date	Declination (°)
	IGRF2015	2/6/2018	9.19
			Dip Angle (°)
			63.55
			Field Strength (nT)
			50,111

Design	Design #3		
Audit Notes:			
Version:	Phase:	PLAN	Tie On Depth:
			4,644.23
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)
	0.00	0.00	0.00
			Direction (°)
			283.09

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
4,644.23	65.00	285.57	3,531.32	637.31	-2,287.91	0.00	0.00	0.00	0.00	
4,894.23	90.00	285.57	3,585.00	702.30	-2,521.17	10.00	10.00	0.00	0.01	
5,112.56	89.81	281.21	3,585.37	752.84	-2,733.52	2.00	-0.09	-2.00	-92.52	
8,589.51	89.81	281.21	3,597.00	1,428.63	-6,144.14	0.00	0.00	0.00	0.00	PBHL (Susco 16 State)



DDS

Planning Report - Geographic



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well Susco 16 State 101H
Company:	Hilcorp Energy Company	TVD Reference:	RKB @ 6931.00ft
Project:	San Juan County, NM	MD Reference:	RKB @ 6931.00ft
Site:	Susco 16 State 101H	North Reference:	Grid
Well:	Susco 16 State 101H	Survey Calculation Method:	Minimum Curvature
Wellbore:	ST		
Design:	Design #3		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
600.00	0.02	285.57	600.00	0.00	0.00	2,176,764.540	549,137.360	36° 58' 55.245 N	107° 39' 54.371 W
700.00	2.02	285.57	699.98	0.48	-1.72	2,176,765.020	549,135.637	36° 58' 55.250 N	107° 39' 54.393 W
800.00	4.02	285.57	799.83	1.90	-6.81	2,176,766.435	549,130.554	36° 58' 55.264 N	107° 39' 54.455 W
900.00	6.02	285.57	899.45	4.25	-15.24	2,176,768.786	549,122.117	36° 58' 55.287 N	107° 39' 54.559 W
1,000.00	8.02	285.57	998.69	7.53	-27.02	2,176,772.067	549,110.336	36° 58' 55.320 N	107° 39' 54.704 W
1,100.00	10.02	285.57	1,097.45	11.74	-42.13	2,176,776.276	549,095.226	36° 58' 55.362 N	107° 39' 54.890 W
1,200.00	12.02	285.57	1,195.60	16.87	-60.55	2,176,781.407	549,076.805	36° 58' 55.413 N	107° 39' 55.117 W
1,300.00	14.02	285.57	1,293.02	22.92	-82.26	2,176,787.455	549,055.096	36° 58' 55.473 N	107° 39' 55.385 W
1,400.00	16.02	285.57	1,389.59	29.87	-107.24	2,176,794.411	549,030.124	36° 58' 55.542 N	107° 39' 55.692 W
1,500.00	18.02	285.57	1,485.21	37.73	-135.44	2,176,802.267	549,001.921	36° 58' 55.620 N	107° 39' 56.040 W
1,600.00	20.02	285.57	1,579.74	46.47	-166.84	2,176,811.014	548,970.521	36° 58' 55.707 N	107° 39' 56.427 W
1,700.00	22.02	285.57	1,673.08	56.10	-201.40	2,176,820.640	548,935.961	36° 58' 55.803 N	107° 39' 56.852 W
1,800.00	24.02	285.57	1,765.11	66.60	-239.08	2,176,831.135	548,898.285	36° 58' 55.908 N	107° 39' 57.317 W
1,900.00	26.02	285.57	1,855.72	77.95	-279.82	2,176,842.486	548,857.538	36° 58' 56.021 N	107° 39' 57.819 W
2,000.00	28.02	285.57	1,944.79	90.14	-323.59	2,176,854.678	548,813.769	36° 58' 56.142 N	107° 39' 58.358 W
2,100.00	30.02	285.57	2,032.23	103.16	-370.33	2,176,867.697	548,767.032	36° 58' 56.271 N	107° 39' 58.934 W
2,200.00	32.02	285.57	2,117.92	116.99	-419.98	2,176,881.526	548,717.384	36° 58' 56.409 N	107° 39' 59.545 W
2,300.00	34.02	285.57	2,201.76	131.61	-472.48	2,176,896.150	548,664.886	36° 58' 56.555 N	107° 40' 0.192 W
2,400.00	36.02	285.57	2,283.64	147.01	-527.76	2,176,911.550	548,609.600	36° 58' 56.708 N	107° 40' 0.873 W
2,500.00	38.02	285.57	2,363.48	163.17	-585.77	2,176,927.708	548,551.596	36° 58' 56.869 N	107° 40' 1.588 W
2,600.00	40.02	285.57	2,441.16	180.06	-646.42	2,176,944.603	548,490.943	36° 58' 57.037 N	107° 40' 2.335 W
2,700.00	42.02	285.57	2,516.60	197.68	-709.65	2,176,962.215	548,427.715	36° 58' 57.212 N	107° 40' 3.114 W
2,800.00	44.02	285.57	2,589.70	215.98	-775.37	2,176,980.524	548,361.990	36° 58' 57.394 N	107° 40' 3.923 W
2,900.00	46.02	285.57	2,660.38	234.97	-843.52	2,176,999.505	548,293.846	36° 58' 57.583 N	107° 40' 4.763 W
3,000.00	48.02	285.57	2,728.54	254.60	-913.99	2,177,019.137	548,223.369	36° 58' 57.778 N	107° 40' 5.631 W
3,100.00	50.02	285.57	2,794.11	274.86	-986.72	2,177,039.396	548,150.642	36° 58' 57.980 N	107° 40' 6.527 W
3,200.00	52.02	285.57	2,857.01	295.72	-1,061.61	2,177,060.256	548,075.756	36° 58' 58.188 N	107° 40' 7.450 W
3,300.00	54.02	285.57	2,917.15	317.15	-1,138.56	2,177,081.692	547,998.800	36° 58' 58.401 N	107° 40' 8.398 W
3,400.00	56.02	285.57	2,974.47	339.14	-1,217.49	2,177,103.679	547,919.870	36° 58' 58.620 N	107° 40' 9.370 W
3,500.00	58.02	285.57	3,028.90	361.65	-1,298.30	2,177,126.189	547,839.060	36° 58' 58.844 N	107° 40' 10.366 W
3,600.00	60.02	285.57	3,080.36	384.66	-1,380.89	2,177,149.195	547,756.470	36° 58' 59.072 N	107° 40' 11.383 W
3,700.00	62.02	285.57	3,128.80	408.13	-1,465.16	2,177,172.669	547,672.200	36° 58' 59.306 N	107° 40' 12.421 W
3,800.00	64.02	285.57	3,174.16	432.04	-1,551.01	2,177,196.582	547,586.353	36° 58' 59.544 N	107° 40' 13.479 W
3,900.00	65.00	285.57	3,216.80	456.32	-1,638.15	2,177,220.854	547,499.217	36° 58' 59.785 N	107° 40' 14.552 W
4,000.00	65.00	285.57	3,259.06	480.64	-1,725.45	2,177,245.174	547,411.911	36° 59' 0.027 N	107° 40' 15.628 W
4,100.00	65.00	285.57	3,301.32	504.96	-1,812.76	2,177,269.494	547,324.604	36° 59' 0.269 N	107° 40' 16.703 W
4,200.00	65.00	285.57	3,343.58	529.27	-1,900.07	2,177,293.813	547,237.297	36° 59' 0.511 N	107° 40' 17.779 W
4,300.00	65.00	285.57	3,385.84	553.59	-1,987.37	2,177,318.133	547,149.991	36° 59' 0.753 N	107° 40' 18.855 W
4,400.00	65.00	285.57	3,428.11	577.91	-2,074.68	2,177,342.453	547,062.684	36° 59' 0.995 N	107° 40' 19.930 W
4,406.85	65.00	285.57	3,431.00	579.58	-2,080.66	2,177,344.118	547,056.706	36° 59' 1.012 N	107° 40' 20.004 W
Blue Coal									
4,500.00	65.00	285.57	3,470.37	602.23	-2,161.99	2,177,366.773	546,975.377	36° 59' 1.237 N	107° 40' 21.006 W
4,548.82	65.00	285.57	3,491.00	614.11	-2,204.61	2,177,378.645	546,932.755	36° 59' 1.355 N	107° 40' 21.531 W
Blue Canyon									
4,600.00	65.00	285.57	3,512.63	626.55	-2,249.29	2,177,391.093	546,888.071	36° 59' 1.479 N	107° 40' 22.081 W
4,644.23	65.00	285.57	3,531.32	637.31	-2,287.91	2,177,401.849	546,849.455	36° 59' 1.586 N	107° 40' 22.557 W
4,700.00	70.58	285.57	3,552.40	651.16	-2,337.63	2,177,415.699	546,799.737	36° 59' 1.724 N	107° 40' 23.170 W
4,707.99	71.38	285.57	3,555.00	653.19	-2,344.90	2,177,417.725	546,792.463	36° 59' 1.744 N	107° 40' 23.259 W
Green Mesa Upper									
4,800.00	80.58	285.57	3,577.27	677.12	-2,430.80	2,177,441.657	546,706.560	36° 59' 1.982 N	107° 40' 24.317 W
4,811.21	81.70	285.57	3,579.00	680.09	-2,441.48	2,177,444.630	546,695.889	36° 59' 2.012 N	107° 40' 24.449 W
Big Blue									
4,894.23	90.00	285.57	3,585.00	702.30	-2,521.17	2,177,466.835	546,616.196	36° 59' 2.233 N	107° 40' 25.431 W
4,900.00	89.99	285.45	3,585.00	703.84	-2,526.73	2,177,468.378	546,610.637	36° 59' 2.248 N	107° 40' 25.499 W



DDS
Planning Report - Geographic



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well Susco 16 State 101H
Company:	Hilcorp Energy Company	TVD Reference:	RKB @ 6931.00ft
Project:	San Juan County, NM	MD Reference:	RKB @ 6931.00ft
Site:	Susco 16 State 101H	North Reference:	Grid
Well:	Susco 16 State 101H	Survey Calculation Method:	Minimum Curvature
Wellbore:	ST		
Design:	Design #3		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
5,000.00	89.91	283.46	3,585.09	728.80	-2,623.56	2,177,493.340	546,513.808	36° 59' 2.496 N	107° 40' 26.692 W
5,100.00	89.82	281.46	3,585.33	750.37	-2,721.20	2,177,514.911	546,416.167	36° 59' 2.711 N	107° 40' 27.895 W
5,112.56	89.81	281.21	3,585.37	752.84	-2,733.52	2,177,517.379	546,403.849	36° 59' 2.736 N	107° 40' 28.047 W
5,200.00	89.81	281.21	3,585.66	769.84	-2,819.29	2,177,534.374	546,318.081	36° 59' 2.905 N	107° 40' 29.104 W
5,300.00	89.81	281.21	3,586.00	789.27	-2,917.38	2,177,553.810	546,219.988	36° 59' 3.099 N	107° 40' 30.312 W
5,400.00	89.81	281.21	3,586.33	808.71	-3,015.47	2,177,573.246	546,121.896	36° 59' 3.293 N	107° 40' 31.521 W
5,500.00	89.81	281.21	3,586.67	828.14	-3,113.56	2,177,592.682	546,023.804	36° 59' 3.487 N	107° 40' 32.730 W
5,600.00	89.81	281.21	3,587.00	847.58	-3,211.65	2,177,612.118	545,925.712	36° 59' 3.681 N	107° 40' 33.938 W
5,700.00	89.81	281.21	3,587.33	867.02	-3,309.75	2,177,631.555	545,827.620	36° 59' 3.874 N	107° 40' 35.147 W
5,800.00	89.81	281.21	3,587.67	886.45	-3,407.84	2,177,650.991	545,729.527	36° 59' 4.068 N	107° 40' 36.356 W
5,900.00	89.81	281.21	3,588.00	905.89	-3,505.93	2,177,670.427	545,631.435	36° 59' 4.262 N	107° 40' 37.564 W
6,000.00	89.81	281.21	3,588.34	925.33	-3,604.02	2,177,689.863	545,533.343	36° 59' 4.456 N	107° 40' 38.773 W
6,100.00	89.81	281.21	3,588.67	944.76	-3,702.12	2,177,709.299	545,435.251	36° 59' 4.649 N	107° 40' 39.982 W
6,200.00	89.81	281.21	3,589.01	964.20	-3,800.21	2,177,728.735	545,337.158	36° 59' 4.843 N	107° 40' 41.190 W
6,300.00	89.81	281.21	3,589.34	983.63	-3,898.30	2,177,748.172	545,239.066	36° 59' 5.037 N	107° 40' 42.399 W
6,400.00	89.81	281.21	3,589.68	1,003.07	-3,996.39	2,177,767.608	545,140.974	36° 59' 5.231 N	107° 40' 43.607 W
6,500.00	89.81	281.21	3,590.01	1,022.51	-4,094.49	2,177,787.044	545,042.882	36° 59' 5.425 N	107° 40' 44.816 W
6,600.00	89.81	281.21	3,590.35	1,041.94	-4,192.58	2,177,806.480	544,944.790	36° 59' 5.618 N	107° 40' 46.025 W
6,700.00	89.81	281.21	3,590.68	1,061.38	-4,290.67	2,177,825.916	544,846.697	36° 59' 5.812 N	107° 40' 47.233 W
6,800.00	89.81	281.21	3,591.01	1,080.82	-4,388.76	2,177,845.352	544,748.605	36° 59' 6.006 N	107° 40' 48.442 W
6,900.00	89.81	281.21	3,591.35	1,100.25	-4,486.86	2,177,864.789	544,650.513	36° 59' 6.200 N	107° 40' 49.651 W
7,000.00	89.81	281.21	3,591.68	1,119.69	-4,584.95	2,177,884.225	544,552.421	36° 59' 6.393 N	107° 40' 50.859 W
7,100.00	89.81	281.21	3,592.02	1,139.12	-4,683.04	2,177,903.661	544,454.329	36° 59' 6.587 N	107° 40' 52.068 W
7,200.00	89.81	281.21	3,592.35	1,158.56	-4,781.13	2,177,923.097	544,356.236	36° 59' 6.781 N	107° 40' 53.277 W
7,300.00	89.81	281.21	3,592.69	1,178.00	-4,879.23	2,177,942.533	544,258.144	36° 59' 6.975 N	107° 40' 54.485 W
7,400.00	89.81	281.21	3,593.02	1,197.43	-4,977.32	2,177,961.969	544,160.052	36° 59' 7.168 N	107° 40' 55.694 W
7,500.00	89.81	281.21	3,593.36	1,216.87	-5,075.41	2,177,981.406	544,061.960	36° 59' 7.362 N	107° 40' 56.903 W
7,600.00	89.81	281.21	3,593.69	1,236.30	-5,173.50	2,178,000.842	543,963.868	36° 59' 7.556 N	107° 40' 58.112 W
7,700.00	89.81	281.21	3,594.02	1,255.74	-5,271.60	2,178,020.278	543,865.775	36° 59' 7.749 N	107° 40' 59.320 W
7,800.00	89.81	281.21	3,594.36	1,275.18	-5,369.69	2,178,039.714	543,767.683	36° 59' 7.943 N	107° 41' 0.529 W
7,900.00	89.81	281.21	3,594.69	1,294.61	-5,467.78	2,178,059.150	543,669.591	36° 59' 8.137 N	107° 41' 1.738 W
8,000.00	89.81	281.21	3,595.03	1,314.05	-5,565.87	2,178,078.587	543,571.499	36° 59' 8.331 N	107° 41' 2.946 W
8,100.00	89.81	281.21	3,595.36	1,333.49	-5,663.97	2,178,098.023	543,473.406	36° 59' 8.524 N	107° 41' 4.155 W
8,200.00	89.81	281.21	3,595.70	1,352.92	-5,762.06	2,178,117.459	543,375.314	36° 59' 8.718 N	107° 41' 5.364 W
8,300.00	89.81	281.21	3,596.03	1,372.36	-5,860.15	2,178,136.895	543,277.222	36° 59' 8.912 N	107° 41' 6.572 W
8,400.00	89.81	281.21	3,596.37	1,391.79	-5,958.24	2,178,156.331	543,179.130	36° 59' 9.105 N	107° 41' 7.781 W
8,500.00	89.81	281.21	3,596.70	1,411.23	-6,056.33	2,178,175.767	543,081.038	36° 59' 9.299 N	107° 41' 8.990 W
8,589.51	89.81	281.21	3,597.00	1,428.63	-6,144.14	2,178,193.164	542,993.237	36° 59' 9.473 N	107° 41' 10.072 W
Production Liner (4 1/2")									



DDS
Planning Report - Geographic



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well Susco 16 State 101H
Company:	Hilcorp Energy Company	TVD Reference:	RKB @ 6931.00ft
Project:	San Juan County, NM	MD Reference:	RKB @ 6931.00ft
Site:	Susco 16 State 101H	North Reference:	Grid
Well:	Susco 16 State 101H	Survey Calculation Method:	Minimum Curvature
Wellbore:	ST		
Design:	Design #3		

Design Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
Take Point (Susco 16 St - plan hits target center - Point	0.00	0.00	3,585.00	702.30	-2,521.17	2,177,466.838	546,616.195	36° 59' 2.233 N	107° 40' 25.431 W
Entry Point (Susco 16 St - plan misses target center by 13.91ft at 4769.61ft MD (3571.50 TVD, 669.11 N, -2402.06 E) - Point	0.00	0.00	3,585.00	668.20	-2,398.80	2,177,432.738	546,738.565	36° 59' 1.893 N	107° 40' 23.923 W
PBHL (Susco 16 State 1 - plan hits target center - Point	0.00	0.00	3,597.00	1,428.63	-6,144.14	2,178,193.164	542,993.237	36° 59' 9.473 N	107° 41' 10.072 W

Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)
500.00	500.00	Surface (9 5/8")	9.625	12.250
8,589.51	3,597.00	Production Liner (4 1/2")	5.500	6.000

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
4,406.85	3,431.00	Blue Coal		0.00	
4,548.82	3,491.00	Blue Canyon		0.00	
4,707.99	3,555.00	Green Mesa Upper		0.00	
4,811.21	3,579.00	Big Blue		0.00	



DDS Anticollision Report



Company: Hilcorp Energy Company
Project: San Juan County, NM
Reference Site: Susco 16 State 101H
Site Error: 0.00 ft
Reference Well: Susco 16 State 101H
Well Error: 0.00 ft
Reference Wellbore: ST
Reference Design: Design #3

Local Co-ordinate Reference: Well Susco 16 State 101H
TVD Reference: RKB @ 6931.00ft
MD Reference: RKB @ 6931.00ft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: EDM 5000.1 Single User Db
Offset TVD Reference: Offset Datum

Reference Depths are relative to RKB @ 6931.00ft

Offset Depths are relative to Offset Datum

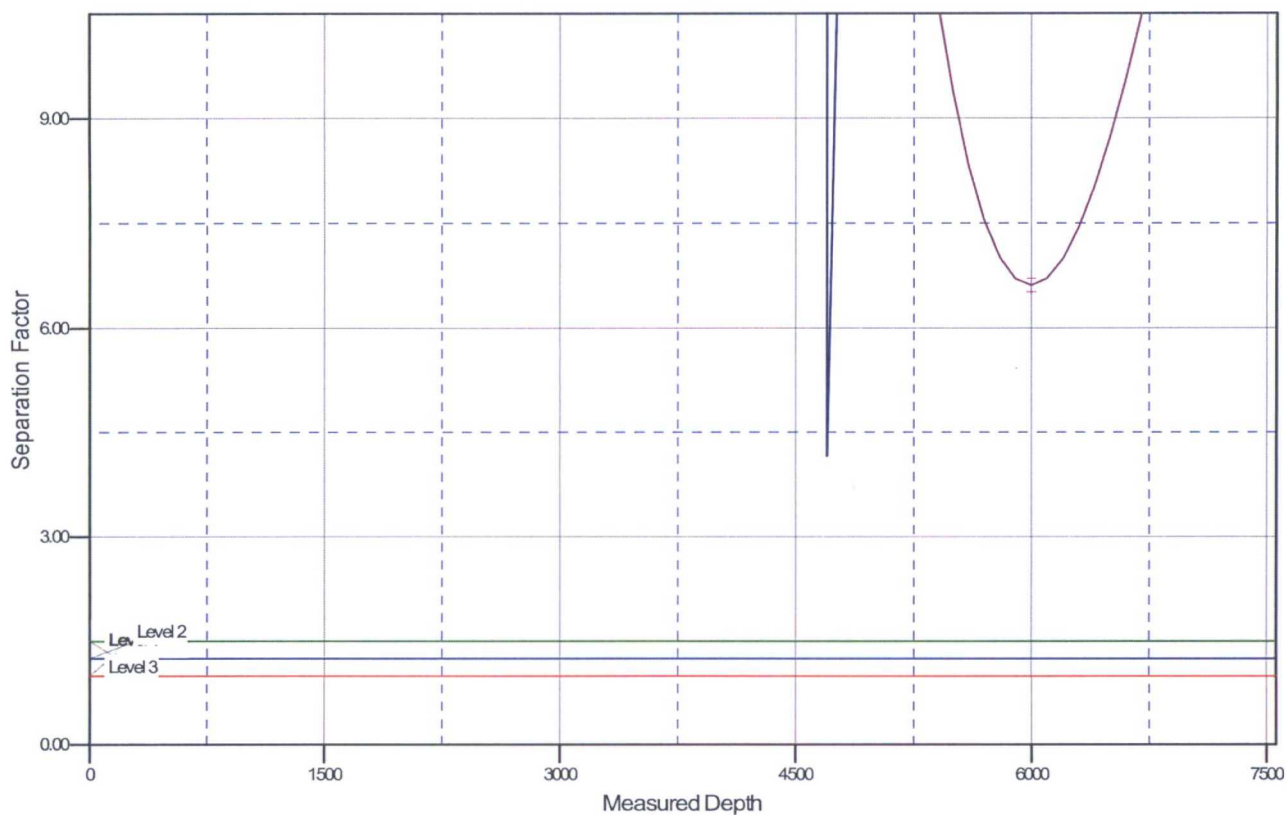
Central Meridian is 107° 50' 0.000 W

Coordinates are relative to: Susco 16 State 101H

Coordinate System is US State Plane 1927 (Exact solution), New Mexico West 30

Grid Convergence at Surface is: 0.10°

Separation Factor Plot



LEGEND

- ▲ Susco 16 State 101H, Pilot Hole, Design #2 V0
- ◆ San Juan 32-8 UN 004, Wellbore #1, OH V0
- ✱ Susco 16 State 101, Wellbore #1, OH V0
- ✱ San Juan 32-8 UN 258, Wellbore #1, OH V0



Hilcorp Energy Company

San Juan County, NM

Susco 16 State 101H

Susco 16 State 101H

ST

Design #3

Anticollision Report

06 February, 2018





DDS Anticollision Report



Company:	Hilcorp Energy Company	Local Co-ordinate Reference:	Well Susco 16 State 101H
Project:	San Juan County, NM	TVD Reference:	RKB @ 6931.00ft
Reference Site:	Susco 16 State 101H	MD Reference:	RKB @ 6931.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Susco 16 State 101H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	ST	Database:	EDM 5000.1 Single User Db
Reference Design:	Design #3	Offset TVD Reference:	Offset Datum

Reference	Design #3		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	MD Interval 100.00ft	Error Model:	ISCWSA
Depth Range:	Unlimited	Scan Method:	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 1,554.62 ft	Error Surface:	Elliptical Conic
Warning Levels Evaluated at:	2.00 Sigma	Casing Method:	Not applied

Survey Tool Program		Date	2/6/2018		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
0.00	4,644.23	Design #2 (Pilot Hole)	MWD	MWD - Standard	
4,644.23	8,589.51	Design #3 (ST)	MWD	MWD - Standard	

Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Separation Between Ellipses (ft)	Warning
Offset Well - Wellbore - Design					
Susco 16 State 101H					
Susco 16 State 101H - Pilot Hole - Design #2	5,000.00	4,982.25	98.31	95.50	34.961 CC, ES, SF
Susco 16 State 101H Offsets					
San Juan 32-8 UN 004 - Wellbore #1 - OH	500.00	500.00	505.95	503.03	172.932 CC
San Juan 32-8 UN 004 - Wellbore #1 - OH	600.00	600.00	505.95	502.40	142.235 ES
San Juan 32-8 UN 004 - Wellbore #1 - OH	2,300.00	2,201.76	762.29	745.68	45.898 SF
San Juan 32-8 UN 258 - Wellbore #1 - OH	500.00	500.00	138.26	135.34	47.258 CC
San Juan 32-8 UN 258 - Wellbore #1 - OH	600.00	600.00	138.26	134.71	38.869 ES
San Juan 32-8 UN 258 - Wellbore #1 - OH	1,300.00	1,293.02	193.06	186.16	27.974 SF
Susco 16 State 001 - Wellbore #1 - OH					Out of range
Susco 16 State 002 - Wellbore #1 - OH					Out of range
Susco 16 State 003 - Wellbore #1 - OH					Out of range
Susco 16 State 100 - Wellbore #1 - OH					Out of range
Susco 16 State 101 - Wellbore #1 - OH	5,894.31	3,587.98	792.96	674.88	6.715 CC
Susco 16 State 101 - Wellbore #1 - OH	5,900.00	3,588.00	792.98	674.70	6.704 ES
Susco 16 State 101 - Wellbore #1 - OH	6,000.00	3,588.34	799.97	678.98	6.611 SF
Susco 16 State 101S - Wellbore #1 - OH					Out of range

Offset Design		Susco 16 State 101H - Susco 16 State 101H - Pilot Hole - Design #2										Offset Site Error:		0.00 ft	
Survey Program: 0-MWD												Offset Well Error:		0.00 ft	
Reference		Offset		Semi Major Axis			Distance							Warning	
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre +N/-S	Offset Wellbore Centre +E/-W	Between Centres	Between Ellipses	Minimum Separation	Separation Factor			
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)			
4,644.23	3,530.45	4,644.22	3,531.32	0.00	0.00	-179.99	637.31	-2,287.90	0.95	0.95	0.00	N/A			
4,700.00	3,552.40	4,699.91	3,554.85	1.28	1.96	-179.99	650.85	-2,336.52	2.71	2.06	0.65	4.154			
4,800.00	3,577.27	4,798.09	3,596.35	2.64	5.42	-179.99	674.73	-2,422.24	21.04	19.63	1.41	14.874			
4,900.00	3,585.00	4,891.60	3,635.87	4.21	8.71	-179.94	697.47	-2,503.88	56.12	53.98	2.14	26.271			
5,000.00	3,585.09	4,982.25	3,674.17	5.95	11.91	179.74	719.52	-2,583.02	98.31	95.50	2.81	34.961	CC, ES, SF		
5,100.00	3,585.33	5,036.26	3,697.00	7.85	13.82	179.63	732.65	-2,630.18	145.15	141.96	3.20	45.407			
5,200.00	3,585.66	5,036.26	3,697.00	9.90	13.82	179.86	732.65	-2,630.18	222.58	219.80	2.77	80.234			
5,300.00	3,586.00	5,036.26	3,697.00	12.09	13.82	179.86	732.65	-2,630.18	313.07	310.15	2.92	107.091			
5,400.00	3,586.33	5,036.26	3,697.00	14.40	13.82	179.86	732.65	-2,630.18	408.02	404.94	3.09	132.208			
5,500.00	3,586.67	5,036.26	3,697.00	16.84	13.82	179.86	732.65	-2,630.18	504.93	501.65	3.28	153.756			

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation



DDS
Anticollision Report



Company:	Hilcorp Energy Company	Local Co-ordinate Reference:	Well Susco 16 State 101H
Project:	San Juan County, NM	TVD Reference:	RKB @ 6931.00ft
Reference Site:	Susco 16 State 101H	MD Reference:	RKB @ 6931.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Susco 16 State 101H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	ST	Database:	EDM 5000.1 Single User Db
Reference Design:	Design #3	Offset TVD Reference:	Offset Datum

Offset Design Susco 16 State 101H - Susco 16 State 101H - Pilot Hole - Design #2												Offset Site Error:	0.00 ft
Survey Program: 0-MWD												Offset Well Error:	0.00 ft
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (")	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,600.00	3,587.00	5,036.26	3,697.00	19.39	13.82	179.86	732.65	-2,630.18	602.85	599.34	3.51	171.864	
5,700.00	3,587.33	5,036.26	3,697.00	22.04	13.82	179.86	732.65	-2,630.18	701.35	697.60	3.75	187.030	
5,800.00	3,587.67	5,036.26	3,697.00	24.79	13.82	179.86	732.65	-2,630.18	800.23	796.23	4.01	199.775	
5,900.00	3,588.00	5,036.26	3,697.00	27.62	13.82	179.86	732.65	-2,630.18	899.36	895.08	4.27	210.552	
6,000.00	3,588.34	5,036.26	3,697.00	30.54	13.82	179.86	732.65	-2,630.18	998.66	994.11	4.54	219.739	
6,100.00	3,588.67	5,036.26	3,697.00	33.54	13.82	179.86	732.65	-2,630.18	1,098.08	1,093.26	4.82	227.636	
6,200.00	3,589.01	5,036.26	3,697.00	36.60	13.82	179.86	732.65	-2,630.18	1,197.60	1,192.50	5.11	234.486	
6,300.00	3,589.34	5,036.26	3,697.00	39.73	13.82	179.86	732.65	-2,630.18	1,297.20	1,291.81	5.39	240.481	
6,400.00	3,589.68	5,036.26	3,697.00	42.92	13.82	179.86	732.65	-2,630.18	1,396.85	1,391.17	5.68	245.775	
6,500.00	3,590.01	5,036.26	3,697.00	46.16	13.82	179.86	732.65	-2,630.18	1,496.55	1,490.58	5.97	250.492	



DDS Anticollision Report



Company:	Hilcorp Energy Company	Local Co-ordinate Reference:	Well Susco 16 State 101H
Project:	San Juan County, NM	TVD Reference:	RKB @ 6931.00ft
Reference Site:	Susco 16 State 101H	MD Reference:	RKB @ 6931.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Susco 16 State 101H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	ST	Database:	EDM 5000.1 Single User Db
Reference Design:	Design #3	Offset TVD Reference:	Offset Datum

Offset Design Susco 16 State 101H Offsets - San Juan 32-8 UN 004 - Wellbore #1 - OH													Offset Site Error:	0.00 ft
Survey Program: 3697-MWD													Offset Well Error:	0.00 ft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
0.00	0.00	0.00	0.00	0.00	0.00	-174.24	-503.40	-50.76	505.95					
100.00	100.00	100.00	100.00	0.18	0.21	-174.24	-503.40	-50.76	505.95	505.56	0.39	1,295.596		
200.00	200.00	200.00	200.00	0.60	0.42	-174.24	-503.40	-50.76	505.95	504.93	1.02	493.939		
300.00	300.00	300.00	300.00	1.03	0.63	-174.24	-503.40	-50.76	505.95	504.30	1.66	305.135		
400.00	400.00	400.00	400.00	1.45	0.84	-174.24	-503.40	-50.76	505.95	503.66	2.29	220.754		
500.00	500.00	500.00	500.00	1.87	1.05	-174.24	-503.40	-50.76	505.95	503.03	2.93	172.932	CC	
566.25	566.25	566.25	566.25	2.15	1.19	-99.81	-503.40	-50.76	505.96	502.61	3.34	151.300		
600.00	600.00	600.00	600.00	2.29	1.26	-99.81	-503.40	-50.76	505.95	502.40	3.56	142.235	ES	
700.00	699.98	699.98	699.98	2.37	1.47	-100.00	-503.40	-50.76	506.26	502.42	3.84	131.713		
800.00	799.83	799.83	799.83	2.52	1.69	-100.57	-503.40	-50.76	507.20	503.00	4.21	120.595		
900.00	899.45	899.45	899.45	2.75	1.90	-101.50	-503.40	-50.76	508.89	504.25	4.64	109.616		
1,000.00	998.69	998.69	998.69	3.05	2.10	-102.78	-503.40	-50.76	511.48	506.33	5.15	99.243		
1,100.00	1,097.45	1,097.45	1,097.45	3.43	2.31	-104.39	-503.40	-50.76	515.21	509.47	5.74	89.748		
1,200.00	1,195.60	1,195.60	1,195.60	3.90	2.52	-106.30	-503.40	-50.76	520.36	513.96	6.40	81.270		
1,300.00	1,293.02	1,293.02	1,293.02	4.45	2.72	-108.46	-503.40	-50.76	527.26	520.12	7.14	73.858		
1,400.00	1,389.59	1,389.59	1,389.59	5.10	2.93	-110.84	-503.40	-50.76	536.25	528.31	7.94	67.504		
1,500.00	1,485.21	1,485.21	1,485.21	5.84	3.13	-113.39	-503.40	-50.76	547.71	538.90	8.81	62.158		
1,600.00	1,579.74	1,579.74	1,579.74	6.68	3.33	-116.05	-503.40	-50.76	561.99	552.26	9.73	57.749		
1,700.00	1,673.08	1,673.08	1,673.08	7.62	3.53	-118.77	-503.40	-50.76	579.43	568.73	10.69	54.191		
1,800.00	1,765.11	1,765.11	1,765.11	8.67	3.72	-121.49	-503.40	-50.76	600.30	588.62	11.68	51.394		
1,900.00	1,855.72	1,855.72	1,855.72	9.83	3.91	-124.17	-503.40	-50.76	624.85	612.17	12.68	49.269		
2,000.00	1,944.79	1,944.79	1,944.79	11.10	4.10	-126.77	-503.40	-50.76	653.24	639.56	13.69	47.730		
2,100.00	2,032.23	2,032.23	2,032.23	12.49	4.28	-129.26	-503.40	-50.76	685.59	670.91	14.68	46.701		
2,200.00	2,117.92	2,117.92	2,117.92	13.99	4.46	-131.60	-503.40	-50.76	721.94	706.29	15.66	46.111		
2,300.00	2,201.76	2,201.76	2,201.76	15.61	4.64	-133.79	-503.40	-50.76	762.29	745.68	16.61	45.898	SF	
2,400.00	2,283.64	2,283.64	2,283.64	17.36	4.81	-135.81	-503.40	-50.76	806.58	789.05	17.53	46.009		
2,500.00	2,363.48	2,363.48	2,363.48	19.22	4.98	-137.65	-503.40	-50.76	854.72	836.30	18.42	46.397		
2,600.00	2,441.16	2,441.16	2,441.16	21.21	5.14	-139.31	-503.40	-50.76	906.61	887.33	19.28	47.024		
2,700.00	2,516.60	2,516.60	2,516.60	23.32	5.30	-140.80	-503.40	-50.76	962.10	942.00	20.10	47.855		
2,800.00	2,589.70	2,589.70	2,589.70	25.56	5.46	-142.11	-503.40	-50.76	1,021.07	1,000.17	20.90	48.864		
2,900.00	2,660.38	2,660.38	2,660.38	27.92	5.61	-143.26	-503.40	-50.76	1,083.35	1,061.69	21.66	50.026		
3,000.00	2,728.54	2,728.54	2,728.54	30.40	5.75	-144.24	-503.40	-50.76	1,148.80	1,126.41	22.38	51.323		
3,100.00	2,794.11	2,794.11	2,794.11	33.01	5.89	-145.05	-503.40	-50.76	1,217.25	1,194.17	23.08	52.739		
3,200.00	2,857.01	2,857.01	2,857.01	35.73	6.02	-145.71	-503.40	-50.76	1,288.56	1,264.82	23.75	54.261		
3,300.00	2,917.15	2,917.15	2,917.15	38.57	6.15	-146.21	-503.40	-50.76	1,362.58	1,338.19	24.39	55.877		
3,400.00	2,974.47	2,974.47	2,974.47	41.52	6.27	-146.54	-503.40	-50.76	1,439.15	1,414.15	24.99	57.581		
3,500.00	3,028.90	3,028.90	3,028.90	44.58	6.38	-146.71	-503.40	-50.76	1,518.12	1,492.54	25.57	59.364		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



DDS Anticollision Report



Company:	Hilcorp Energy Company	Local Co-ordinate Reference:	Well Susco 16 State 101H
Project:	San Juan County, NM	TVD Reference:	RKB @ 6931.00ft
Reference Site:	Susco 16 State 101H	MD Reference:	RKB @ 6931.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Susco 16 State 101H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	ST	Database:	EDM 5000.1 Single User Db
Reference Design:	Design #3	Offset TVD Reference:	Offset Datum

Offset Design Susco 16 State 101H Offsets - San Juan 32-8 UN 258 - Wellbore #1 - OH												Offset Site Error:	0.00 ft
Survey Program: 3697-MWD												Offset Well Error:	0.00 ft
Reference		Offset		Semi Major Axis		Highside Tooface (")	Distance		Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)					
0.00	0.00	0.00	0.00	0.00	0.00	42.95	101.20	94.21	138.26				
100.00	100.00	100.00	100.00	0.18	0.21	42.95	101.20	94.21	138.26	137.87	0.39	354.054	
200.00	200.00	200.00	200.00	0.60	0.42	42.95	101.20	94.21	138.26	137.24	1.02	134.981	
300.00	300.00	300.00	300.00	1.03	0.63	42.95	101.20	94.21	138.26	136.61	1.66	83.386	
400.00	400.00	400.00	400.00	1.45	0.84	42.95	101.20	94.21	138.26	135.97	2.29	60.326	
500.00	500.00	500.00	500.00	1.87	1.05	42.95	101.20	94.21	138.26	135.34	2.93	47.258 CC	
566.25	566.25	566.25	566.25	2.15	1.19	117.39	101.20	94.21	138.27	134.92	3.34	41.348	
600.00	600.00	600.00	600.00	2.29	1.26	117.39	101.20	94.21	138.26	134.71	3.56	38.869 ES	
700.00	699.98	699.98	699.98	2.37	1.47	118.03	101.20	94.21	139.10	135.25	3.84	36.189	
800.00	799.83	799.83	799.83	2.52	1.69	119.86	101.20	94.21	141.65	137.45	4.21	33.685	
900.00	899.45	899.45	899.45	2.75	1.90	122.76	101.20	94.21	146.22	141.58	4.64	31.529	
1,000.00	998.69	998.69	998.69	3.05	2.10	126.47	101.20	94.21	153.21	148.07	5.13	29.840	
1,100.00	1,097.45	1,097.45	1,097.45	3.43	2.31	130.73	101.20	94.21	163.07	157.39	5.69	28.680	
1,200.00	1,195.60	1,195.60	1,195.60	3.90	2.52	135.21	101.20	94.21	176.25	169.97	6.28	28.067	
1,300.00	1,293.02	1,293.02	1,293.02	4.45	2.72	139.66	101.20	94.21	193.06	186.16	6.90	27.974 SF	
1,400.00	1,389.59	1,389.59	1,389.59	5.10	2.93	143.86	101.20	94.21	213.70	206.16	7.54	28.347	
1,500.00	1,485.21	1,485.21	1,485.21	5.84	3.13	147.70	101.20	94.21	238.26	230.08	8.18	29.116	
1,600.00	1,579.74	1,579.74	1,579.74	6.68	3.33	151.11	101.20	94.21	266.72	257.90	8.83	30.212	
1,700.00	1,673.08	1,673.08	1,673.08	7.62	3.53	154.09	101.20	94.21	299.03	289.56	9.47	31.570	
1,800.00	1,765.11	1,765.11	1,765.11	8.67	3.72	156.68	101.20	94.21	335.08	324.96	10.11	33.135	
1,900.00	1,855.72	1,855.72	1,855.72	9.83	3.91	158.90	101.20	94.21	374.76	364.01	10.75	34.864	
2,000.00	1,944.79	1,944.79	1,944.79	11.10	4.10	160.81	101.20	94.21	417.95	406.57	11.38	36.721	
2,100.00	2,032.23	2,032.23	2,032.23	12.49	4.28	162.44	101.20	94.21	464.54	452.53	12.01	38.680	
2,200.00	2,117.92	2,117.92	2,117.92	13.99	4.46	163.84	101.20	94.21	514.43	501.80	12.63	40.718	
2,300.00	2,201.76	2,201.76	2,201.76	15.61	4.64	165.03	101.20	94.21	567.50	554.25	13.25	42.822	
2,400.00	2,283.64	2,283.64	2,283.64	17.36	4.81	166.06	101.20	94.21	623.66	609.79	13.87	44.980	
2,500.00	2,363.48	2,363.48	2,363.48	19.22	4.98	166.94	101.20	94.21	682.79	668.32	14.47	47.183	
2,600.00	2,441.16	2,441.16	2,441.16	21.21	5.14	167.69	101.20	94.21	744.82	729.75	15.07	49.426	
2,700.00	2,516.60	2,516.60	2,516.60	23.32	5.30	168.33	101.20	94.21	809.63	793.97	15.66	51.706	
2,800.00	2,589.70	2,589.70	2,589.70	25.56	5.46	168.88	101.20	94.21	877.13	860.89	16.24	54.021	
2,900.00	2,660.38	2,660.38	2,660.38	27.92	5.61	169.34	101.20	94.21	947.22	930.41	16.80	56.369	
3,000.00	2,728.54	2,728.54	2,728.54	30.40	5.75	169.72	101.20	94.21	1,019.81	1,002.45	17.36	58.750	
3,100.00	2,794.11	2,794.11	2,794.11	33.01	5.89	170.04	101.20	94.21	1,094.79	1,076.89	17.90	61.167	
3,200.00	2,857.01	2,857.01	2,857.01	35.73	6.02	170.29	101.20	94.21	1,172.07	1,153.65	18.42	63.621	
3,300.00	2,917.15	2,917.15	2,917.15	38.57	6.15	170.47	101.20	94.21	1,251.54	1,232.61	18.93	66.113	
3,400.00	2,974.47	2,974.47	2,974.47	41.52	6.27	170.60	101.20	94.21	1,333.11	1,313.69	19.42	68.647	
3,500.00	3,028.90	3,028.90	3,028.90	44.58	6.38	170.67	101.20	94.21	1,416.66	1,396.77	19.89	71.227	
3,600.00	3,080.36	3,080.36	3,080.36	47.75	6.49	170.68	101.20	94.21	1,502.09	1,481.75	20.34	73.855	

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



DDS Anticollision Report



Company:	Hilcorp Energy Company	Local Co-ordinate Reference:	Well Susco 16 State 101H
Project:	San Juan County, NM	TVD Reference:	RKB @ 6931.00ft
Reference Site:	Susco 16 State 101H	MD Reference:	RKB @ 6931.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Susco 16 State 101H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	ST	Database:	EDM 5000.1 Single User Db
Reference Design:	Design #3	Offset TVD Reference:	Offset Datum

Offset Design Susco 16 State 101H Offsets - Susco 16 State 101 - Wellbore #1 - OH													Offset Site Error:	0.00 ft
Survey Program: 3697-MWD													Offset Well Error:	0.00 ft
Reference	Offset	Semi Major Axis		Distance								Warning		
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
4,600.00	3,512.63	3,512.63	3,512.63	82.29	7.40	51.93	1,682.62	-3,346.23	1,522.68	1,473.57	49.11	31.006		
4,700.00	3,552.40	3,552.40	3,552.40	84.58	7.48	60.13	1,682.62	-3,346.23	1,442.63	1,390.11	52.53	27.465		
4,800.00	3,577.27	3,577.27	3,577.27	85.94	7.54	75.38	1,682.62	-3,346.23	1,359.79	1,304.18	55.61	24.452		
4,900.00	3,585.00	3,585.00	3,585.00	87.51	7.55	89.99	1,682.62	-3,346.23	1,276.56	1,217.35	59.21	21.560		
5,000.00	3,585.09	3,585.09	3,585.09	89.25	7.55	89.89	1,682.62	-3,346.23	1,196.67	1,133.22	63.45	18.860		
5,100.00	3,585.33	3,585.33	3,585.33	91.15	7.55	89.82	1,682.62	-3,346.23	1,122.39	1,053.91	68.48	16.390		
5,200.00	3,585.66	3,585.66	3,585.66	93.20	7.55	89.83	1,682.62	-3,346.23	1,053.97	979.73	74.24	14.196		
5,300.00	3,586.00	3,586.00	3,586.00	95.38	7.56	89.86	1,682.62	-3,346.23	990.95	910.36	80.59	12.296		
5,400.00	3,586.33	3,586.33	3,586.33	97.69	7.56	89.88	1,682.62	-3,346.23	934.41	847.00	87.41	10.689		
5,500.00	3,586.67	3,586.67	3,586.67	100.11	7.56	89.90	1,682.62	-3,346.23	885.59	791.07	94.52	9.369		
5,600.00	3,587.00	3,587.00	3,587.00	102.65	7.56	89.93	1,682.62	-3,346.23	845.82	744.22	101.60	8.325		
5,700.00	3,587.33	3,587.33	3,587.33	105.30	7.56	89.95	1,682.62	-3,346.23	816.42	708.19	108.23	7.543		
5,800.00	3,587.67	3,587.67	3,587.67	108.03	7.56	89.98	1,682.62	-3,346.23	798.55	684.62	113.94	7.009		
5,894.31	3,587.98	3,587.98	3,587.98	110.70	7.56	90.00	1,682.62	-3,346.23	792.96	674.88	118.08	6.715 CC		
5,900.00	3,588.00	3,588.00	3,588.00	110.86	7.56	90.00	1,682.62	-3,346.23	792.98	674.70	118.28	6.704 ES		
6,000.00	3,588.34	3,588.34	3,588.34	113.77	7.56	90.03	1,682.62	-3,346.23	799.97	678.98	121.00	6.611 SF		
6,100.00	3,588.67	3,588.67	3,588.67	116.75	7.56	90.05	1,682.62	-3,346.23	819.21	697.18	122.03	6.713		
6,200.00	3,589.01	3,589.01	3,589.01	119.81	7.56	90.07	1,682.62	-3,346.23	849.84	728.29	121.55	6.992		
6,300.00	3,589.34	3,589.34	3,589.34	122.93	7.56	90.10	1,682.62	-3,346.23	890.71	770.84	119.87	7.430		
6,400.00	3,589.68	3,589.68	3,589.68	126.11	7.56	90.12	1,682.62	-3,346.23	940.48	823.12	117.36	8.014		
6,500.00	3,590.01	3,590.01	3,590.01	129.34	7.56	90.15	1,682.62	-3,346.23	997.82	883.48	114.34	8.727		
6,600.00	3,590.35	3,590.35	3,590.35	132.63	7.56	90.17	1,682.62	-3,346.23	1,061.50	950.43	111.07	9.557		
6,700.00	3,590.68	3,590.68	3,590.68	135.97	7.57	90.19	1,682.62	-3,346.23	1,130.45	1,022.70	107.75	10.492		
6,800.00	3,591.01	3,591.01	3,591.01	139.35	7.57	90.22	1,682.62	-3,346.23	1,203.77	1,099.28	104.49	11.521		
6,900.00	3,591.35	3,591.35	3,591.35	142.77	7.57	90.24	1,682.62	-3,346.23	1,280.70	1,179.33	101.37	12.634		
7,000.00	3,591.68	3,591.68	3,591.68	146.23	7.57	90.27	1,682.62	-3,346.23	1,360.64	1,262.21	98.42	13.824		
7,100.00	3,592.02	3,592.02	3,592.02	149.73	7.57	90.29	1,682.62	-3,346.23	1,443.07	1,347.40	95.68	15.083		
7,200.00	3,592.35	3,592.35	3,592.35	153.26	7.57	90.32	1,682.62	-3,346.23	1,527.61	1,434.48	93.13	16.403		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



DDS Anticollision Report



Company: Hilcorp Energy Company
Project: San Juan County, NM
Reference Site: Susco 16 State 101H
Site Error: 0.00 ft
Reference Well: Susco 16 State 101H
Well Error: 0.00 ft
Reference Wellbore: ST
Reference Design: Design #3

Local Co-ordinate Reference: Well Susco 16 State 101H
TVD Reference: RKB @ 6931.00ft
MD Reference: RKB @ 6931.00ft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: EDM 5000.1 Single User Db
Offset TVD Reference: Offset Datum

Reference Depths are relative to RKB @ 6931.00ft

Offset Depths are relative to Offset Datum

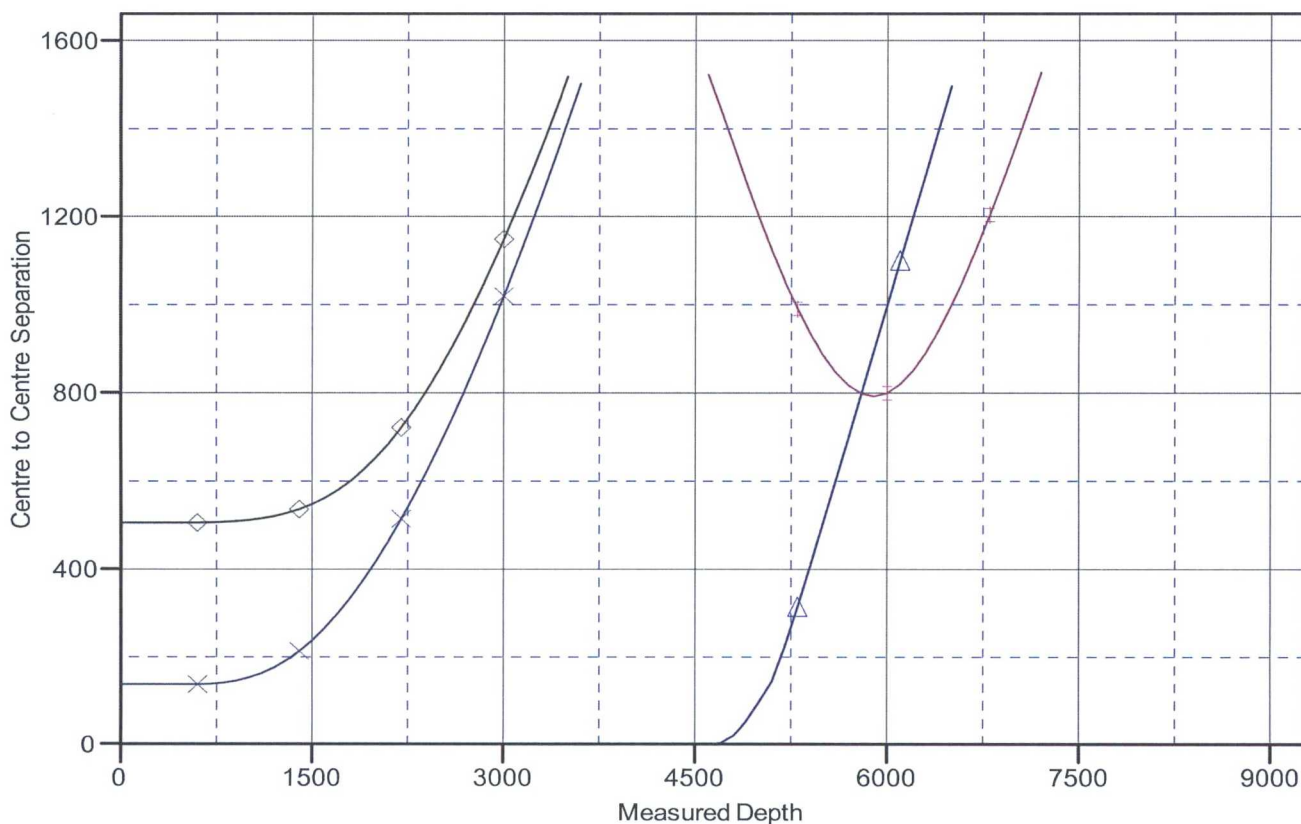
Central Meridian is 107° 50' 0.000 W

Coordinates are relative to: Susco 16 State 101H

Coordinate System is US State Plane 1927 (Exact solution), New Mexico West 30

Grid Convergence at Surface is: 0.10°

Ladder Plot



LEGEND

- ▲ Susco 16 State 101H, Pilot Hole, Design #2 V0
- ◆ San Juan 32-8 UN 004, Wellbore #1, OH V0
- Susco 16 State 101, Wellbore #1, OH V0
- ✕ San Juan 32-8 UN 258, Wellbore #1, OH V0