State of New Mexico
Energy, Minerals and Natural Resources Department

Susana Martinez
Governor

Ken McQueen
Cabinet Secretary

Matthias Sayer
Deputy Cabinet Secretary

Heather Riley, Division Director
Oil Conservation Division

New Mexico Oil Conservation Division approval and conditions listed below are made in accordance with OCD Rule 19.15.7.11 and are in addition to the actions approved by BLM on the following 3160-3 APD form.

Operator Signature Date: 9/20/2018
Well information;
Operator Hilcorp, Well Name and Number San Juan 32-7 Unit 241H

API# 30-045-35885, Section 21, Township 32 N/S, Range 7 E/W

Conditions of Approval: (See the below checked and handwritten conditions)

- X Notify Aztec OCD 24hrs prior to casing & cement.
- X Hold C-104 for directional survey & "As Drilled" Plat
- o Hold C-104 for NSL, NSP, DHC
- o Spacing rule violation. Operator must follow up with change of status notification on other well to be shut in or abandoned
- o Regarding the use of a pit, closed loop system or below grade tank, the operator must comply with the following as applicable:
  - A pit requires a complete C-144 be submitted and approved prior to the construction or use of the pit, pursuant to 19.15.17.8.A
  - A closed loop system requires notification prior to use, pursuant to 19.15.17.9.A
  - A below grade tank requires a registration be filed prior to the construction or use of the below grade tank, pursuant to 19.15.17.8.C
- o Once the well is spud, to prevent ground water contamination through whole or partial conduits from the surface, the operator shall drill without interruption through the fresh water zone or zones and shall immediately set in cement the water protection string
- o Submit Gas Capture Plan form prior to spudding or initiating recompletion operations
- ✓ Regarding Hydraulic Fracturing, review EPA Underground Injection Control Guidance 84
- ✓ Oil base muds are not to be used until fresh water zones are cased and cemented providing isolation from the oil or diesel. This includes synthetic oils. Oil based mud, drilling fluids and solids must be contained in a steel closed loop system.
- ✓ Well-bore communication is regulated under 19.15.29 NMAC. This requires well-bore Communication to be reported in accordance with 19.15.29.8.

*COA- Submit sundry to BLM correcting SHL.

Brandon Powell — 12·18·18
NMOCD Approved by Signature — Date

49

NMOCD

DEC 04 2018

DISTRICT III

Form 3160-3
(June 2015)

FORM APPROVED
OMB No. 1004-0137
Expires: January 31, 2018

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

5. Lease Serial No.
NMSF0078460

6. If Indian, Allotee or Tribe Name

1a. Type of work: ☑ DRILL ☐ REENTER

1b. Type of Well: ☐ Oil Well ☐ Gas Well ☑ Other CBNG

1c. Type of Completion: ☐ Hydraulic Fracturing ☑ Single Zone ☐ Multiple Zone

7. If Unit or CA Agreement, Name and No.
SAN JUAN 32-7 / NMNM078423X

8. Lease Name and Well No.
SAN JUAN 32-7 UNIT
241H

2. Name of Operator
HILCORP ENERGY COMPANY

9. API Well No.
30-045-35885

3a. Address
1111 Travis Street Houston TX 77002

3b. Phone No. *(include area code)*
(713)209-2400

10. Field and Pool, or Exploratory
BASIN FRUITLAND COAL

4. Location of Well *(Report location clearly and in accordance with any State requirements.*)*

At surface NESE / 1812 FSL / 867 FEL / LAT 36.963704 / LONG -107.567117

At proposed prod. zone NWSW / 2112 FSL / 396 FWL / LAT 36.951204 / LONG -107.58044

11. Sec., T. R. M. or Blk. and Survey or Area
SEC 21 / T32N / R7W / NMP

14. Distance in miles and direction from nearest town or post office*

12. County or Parish
SAN JUAN

13. State
NM

15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any) 1812 feet

16. No of acres in lease
2484.35

17. Spacing Unit dedicated to this well
972.22

18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. 100 feet

19. Proposed Depth
2768 feet / 7200 feet

20. BLM/BIA Bond No. in file
FED: NMB001486

21. Elevations (Show whether DF, KDB, RT, GL, etc.)
6543 feet

22. Approximate date work will start*
04/01/2019

23. Estimated duration
45 days

24. Attachments

The following, completed in accordance with the requirements of Onshore Oil and Gas Order No. 1, and the Hydraulic Fracturing rule per 43 CFR 3162.3-3 (as applicable)

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

25. Signature
(Electronic Submission)

Name *(Printed/Typed)*
Priscilla Shorty / Ph: (505)324-5188

Date
09/20/2018

Title
Regulatory Technician

Approved by *(Signature)* Name *(Printed/Typed)* Date 11/30/18

Title AFM

Office
FARMINGTON

Application approval does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.

Conditions of approval, if any, are attached.

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

BLM'S APPROVAL OR ACCEPTANCE OF THIS ACTION DOES NOT RELIEVE THE LESSEE AND OPERATOR FROM OBTAINING ANY OTHER AUTHORIZATION REQUIRED FOR OPERATIONS ON FEDERAL AND INDIAN LANDS

DRILLING OPERATIONS AUTHORIZED ARE SUBJECT TO COMPLIANCE WITH ATTACHED "GENERAL REQUIREMENTS"

This action is subject to technical and procedural review pursuant to 43 CFR 3165.3 and appeal pursuant to 43 CFR 3165.4

NMOCD

(Continued on page 2)

*(Instructions on page 2)

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

Form C-102
Revised August 1, 2011

Submit one copy to
Appropriate District Office

☐ AMENDED REPORT

NMOCD

DEC 05 2018

DISTRICT III

WELL LOCATION AND ACREAGE DEDICATION PLAT

[1]API Number	[2]Pool Code	[3]Pool Name
30-045-35885	71629	BASIN FRUITLAND COAL

[4]Property Code	[5]Property Name	[6]Well Number
318434	SAN JUAN 32-7 UNIT	241H (LATERAL 1)

[7]OGRID No.	[8]Operator Name	[9]Elevation
372171	HILCORP ENERGY COMPANY	6543'

[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
I	21	32N	7W		1812	SOUTH	967	EAST	SAN JUAN

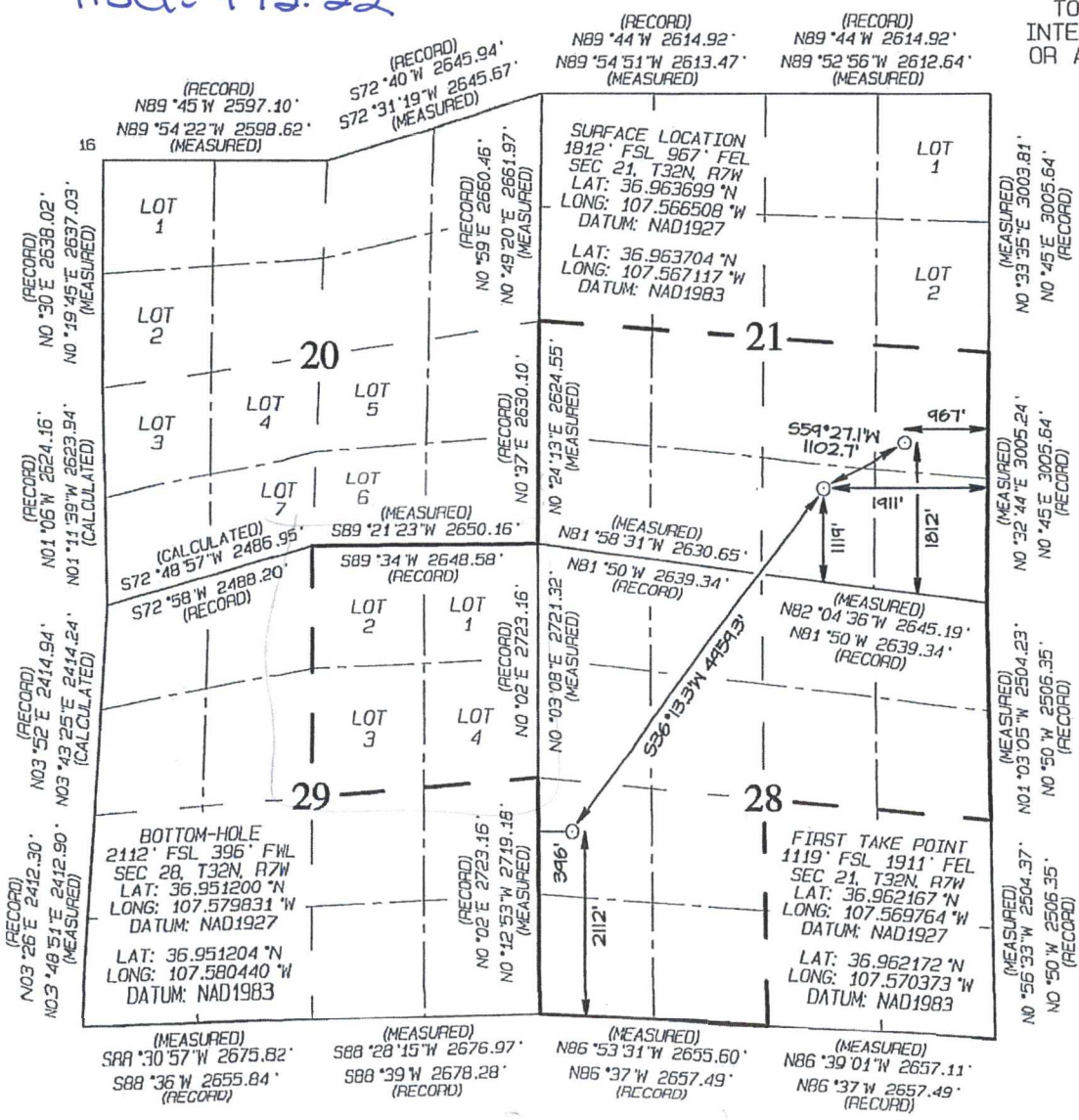
[11] Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
L	28	32N	7W		2112	SOUTH	396	WEST	SAN JUAN

[12] Dedicated Acres		[13] Joint or Infill	[14] Consolidation Code	[15] Order No.
~~972.22~~ 800	S/2 - Section 21 N/2 & SW/4 - Section 28 NE/4 - Section 29			

HSU: 972.22

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



[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.

Priscilla Shorty 10/8/18
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.

Date Revised: OCTOBER 5, 2018
Date of Survey: JUNE 11, 2018

Signature and Seal of Professional Surveyor

JASON C. EDWARDS
NEW MEXICO
15269
REGISTERED PROFESSIONAL SURVEYOR

JASON C. EDWARDS
Certificate Number 15269

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NMOCD

DEC 05 2018

DISTRICT III

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30-045-35885	71629	BASIN FRUITLAND COAL

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[7] OGRID No.	[8] Operator Name	[9] Elevation
372171	HILCORP ENERGY COMPANY	6543'

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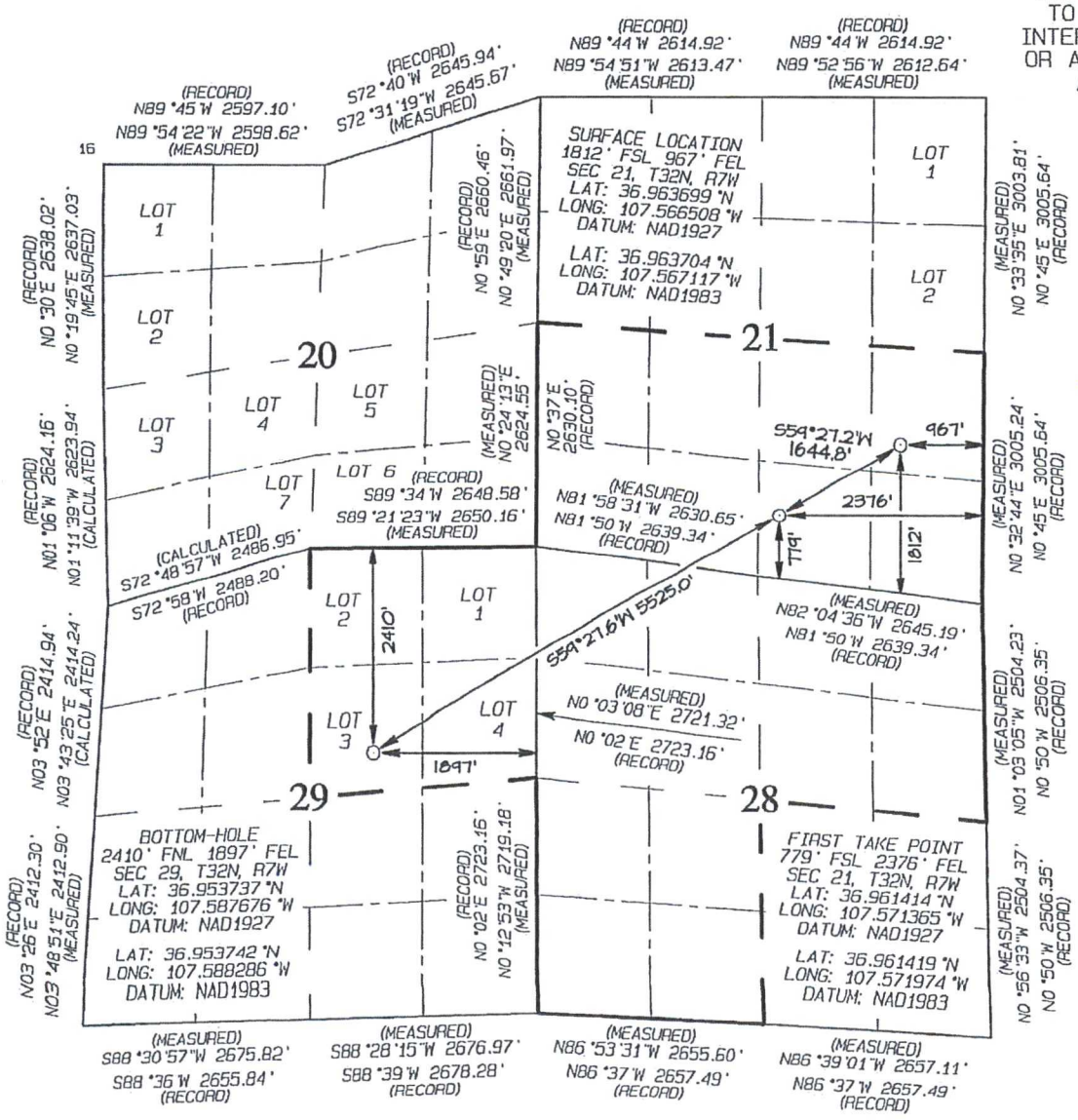
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
I	21	32N	7W		1812	SOUTH	967	EAST	SAN JUAN

[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
G	29	32N	7W	3	2410	NORTH	1897	EAST	SAN JUAN

[12] Dedicated Acres		[13] Joint or Infill	[14] Consolidation Code	[15] Order No.
HSU= 972.22	S/2 - Section 21 N/2 & SW/4 - Section 28 NE/4 - Section 29			

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



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Priscilla Shorty 10/8/18
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.

Date Revised: OCTOBER 5, 2018
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Signature and Seal of Professional Surveyor

JASON C. EDWARDS
NEW MEXICO
15269
REGISTERED PROFESSIONAL SURVEYOR

JASON C. EDWARDS
Certificate Number 15269

Hilcorp Energy Company

Hilcorp Energy Company

Technical Plan

1. Location

SAN JUAN 32-7 UNIT 241H
SHL: 1812' FSL, 967' FEL – Sec 21, T32N, R7W
Lat 1 BHL: 2112' FSL, 396' FWL – Sec 28, T32N, R7W
Lat 1 ST1 BHL: 2410' FNL, 1897' FEL – Sec 29, T32N, R7W
GL: 6543'

2. Geological Markers

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

Formation	Depth (TVD)	Remarks
Ojo Alamo	2147'	Wet
Kirtland	2257'	Wet
Fruitland	2768'	Possible Gas/Water
Pictured Cliffs	3441'	Wet

Formation Top Selection: The SJ 32-7 Un 4-22 was used because it was the nearest well with NMOCD tops; however the Kirtland was likely picked incorrectly; the Allison Unit 24 was used in conjunction with the SJ 32-7 Un 4-22 to correlate --the logs looked very similar. The 43M is very close to the prospect and will likely have the same adjacent tops

See attached directional plan for anticipated formation tops in measured depth.

3. Pressure Control Equipment

See Attached BOPE & Choke Manifold Schematic for a diagram of pressure control equipment.

- BOPE will be nippled up on top of wellhead after surface casing is set and cemented.
- Pressure control configuration will be designed 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				
Casing	**Hole Size**	**Casing Size**	**Weight/Grade**	**Depth**
Surface	12-1/4"	9-5/8"	32.3# H-40	0' - 500' (MD)
Intermediate	8-3/4"	7"	23# L-80	0' – 3,934.06' (MD)
Prod Liner (predrilled)	6-1/4"	4-1/2"	11.6# J-55/L-80	4,284' – 8,684.93' (MD)
Prod Liner (predrilled)	6-1/4"	4-1/2"	11.6# J-55/L-80	3,644' – 9,708.92' (MD)

The intermediate hole section (pilot hole) 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 target coal seam to allow for a lateral to be drilled. Whipstock / casing exit depth is 3,634.06' MD / 3,198.32' TVD.

Lat 1 will be drilled f/ 3,634.06' to TD at 8,684.93'. The 4-1/2" liner will be run outside the window with top of the liner dropped off at 4,284'.

Lat 1 ST will be drilled f/ 4,184.06' to TD at 9,708.92'. The 4-1/2" liner will be run outside the window with top of the liner dropped off at 3,644'.

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

The 7" casing shoe and the window / casing exit will be set inside the setback boundary line.

B) The proposed cement program is shown below:

Cement Program						
Interval	**Depth (MD)**	**Sacks**	**Slurry**	**Excess**	**Volume**	**Planned Cement Top**
Surface	500'	265	Lead Cmt: 2% Calcium Chloride, pellet 0.1250 lbm/sk Poly-E-Flake 1.18 ft3 / sk - 5.24 gal/sk 15.8 ppg	100%	313 ft^3	Surface
Intermediate	3,934.06'	421	Lead Cmt: Varicem Cement 0.3% Super CBL 0.3 % FE-2 5 lbm/sk Kol-Seal 0.125 lbm/sk Poly-E-Flake 2.11 ft3 / sk – 11.25 gal/sk 12.9 ppg	50%	887 ft^3	Surface
Production		N/A	N/A – Open hole with pre-drilled liner	N/A	N/A	N/A

Actual cement volumes will be determined and may be adjusted onsite based on well conditions. For the intermediate hole, 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) Closed loop equipment will be utilized for solids control. Cuttings from surface, intermediate, and production hole will be hauled to an approved disposal site.

6. Abnormal Pressures & Hazards

- No over-pressured intervals expected.
- Estimated Reservoir Pressure = 1500 psi.
- Maximum anticipated surface pressure = 1,300 psi
- There is some offset Fruitland Coal, Mesa Verde, and Picture Cliffs production within the area which could result in these respective formations being under pressured.
- No hydrogen sulfide gas is expected based on nearby well production.

7. Testing, Logging, Coring

Testing, Logging, Coring Procedure		
Evaluation Method	**Start Depth**	**End depth**
Mud Logs	Fruitland Coal Top	TD
MWD Directional Surveys	KOP	TD
LWD GR	7" window	TD
Temp Survey	If needed on intermediate casing	

8. Directional Plan

The planned wellbore directional plan and plot is attached.

The planned directional plan is built off 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.

Hilcorp

Hilcorp Energy Company

San Juan Co., NM (NAD27)
Sec.21-T32N-R07W
San Juan 32-7 Unit 241H

Lat 01
Rev2

Anticollision Report

21 August, 2018

KOLTEK
ENERGY SERVICES

Company:	Hilcorp Energy Company	**Local Co-ordinate Reference:**	Well San Juan 32-7 Unit 241H
Project:	San Juan Co., NM (NAD27)	**TVD Reference:**	KB @ 6558.00usft
Reference Site:	Sec.21-T32N-R07W	**MD Reference:**	KB @ 6558.00usft
Site Error:	0.00 usft	**North Reference:**	Grid
Reference Well:	San Juan 32-7 Unit 241H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	Lat 01	**Database:**	EDM 5000.1 Single User Db
Reference Design:	Rev2	**Offset TVD Reference:**	Offset Datum

Reference Rev2

Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	Stations	**Error Model:**	ISCWSA
Depth Range:	Unlimited	**Scan Method:**	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 1,000.00 usft	**Error Surface:**	Elliptical Conic
Warning Levels Evaluated at:	2.00 **Sigma**	**Casing Method:**	Not applied

Survey Tool Program **Date** 08/21/18

From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
0.00	3,634.06	Rev2 (Pilot Hole)	MWD	MWD - Standard
3,634.06	8,684.93	Rev2 (Lat 01)	MWD	MWD - Standard

Summary

Site Name / Offset Well - Wellbore - Design	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
Sec.21-T32N-R07W						
San Juan 32-7 Unit 024N - Original Hole - Original Hole						Out of range
San Juan 32-7 Unit 043M - Original Hole - Original Hole	616.54	583.61	545.11	528.84	33.507	CC
San Juan 32-7 Unit 043M - Original Hole - Original Hole	1,800.00	1,765.43	550.30	492.96	9.598	ES
San Juan 32-7 Unit 043M - Original Hole - Original Hole	2,400.00	2,330.52	609.61	536.02	8.284	SF
San Juan 32-7 Unit 224 - Original Hole - Original Hole						Out of range
San Juan 32-7 Unit 241A - Original Hole - Original Hole	1,888.69	1,865.35	78.19	31.86	1.688	CC
San Juan 32-7 Unit 241A - Original Hole - Original Hole	1,900.00	1,876.38	78.23	31.57	1.677	ES, SF
San Juan 32-7 Unit 241H - Lat 01 ST01 - Rev2	4,184.06	4,184.06	0.00	0.00	0.000	Level 1, CC, SF
San Juan 32-7 Unit 241H - Lat 01 ST01 - Rev2	4,200.00	4,200.00	0.07	-0.39	0.146	Level 1, ES
San Juan 32-7 Unit 241H - Pilot Hole - Rev2	3,634.06	3,634.06	0.00	0.00	0.000	Level 1, CC, SF
San Juan 32-7 Unit 241H - Pilot Hole - Rev2	3,639.11	3,639.11	0.02	-0.05	0.290	Level 1, ES
Sec.28-T32N-R07W						
San Juan 32-7 Unit 014 - Original Hole - Original Hole						Out of range
San Juan 32-7 Unit 063 - Original Hole - Original Hole						Out of range
San Juan 32-7 Unit 236A - Original Hole - Original Hole	7,277.12	3,575.00	836.54	740.58	8.717	CC
San Juan 32-7 Unit 236A - Original Hole - Original Hole	7,300.00	3,575.00	836.85	740.45	8.680	ES
San Juan 32-7 Unit 236A - Original Hole - Original Hole	7,400.00	3,575.00	845.52	747.17	8.597	SF
Sec.29-T32N-R07W						
San Juan 32-7 Unit 238 - Original Hole - Original Hole						Out of range
San Juan Unit 235A - Original Hole - Original Hole						Out of range

Offset Design Sec.21-T32N-R07W - San Juan 32-7 Unit 043M - Original Hole - Original Hole

Offset Site Error: 0.00 usft
Offset Well Error: 0.00 usft

Survey Program: 230-INC_ONLY<10

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	0.00	0.00	0.00	0.00	-25.19	494.84	-232.77	547.85				
100.00	100.00	68.32	68.32	0.10	0.70	-25.21	494.52	-232.77	546.57	545.78	0.79	689.625	
148.00	148.00	115.01	115.00	0.20	1.17	-25.21	494.46	-232.77	546.51	545.13	1.38	396.985	
200.00	200.00	165.58	165.58	0.32	1.69	-25.21	494.53	-232.77	546.58	544.57	2.01	272.019	
300.00	300.00	271.78	271.77	0.55	3.84	-25.21	494.41	-232.77	546.48	542.10	4.39	124.549	
400.00	400.00	370.31	370.30	0.77	7.37	-25.25	493.61	-232.77	545.75	537.61	8.14	67.031	

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

Company:	Hilcorp Energy Company	**Local Co-ordinate Reference:**	Well San Juan 32-7 Unit 241H
Project:	San Juan Co., NM (NAD27)	**TVD Reference:**	KB @ 6558.00usft
Reference Site:	Sec.21-T32N-R07W	**MD Reference:**	KB @ 6558.00usft
Site Error:	0.00 usft	**North Reference:**	Grid
Reference Well:	San Juan 32-7 Unit 241H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	Lat 01	**Database:**	EDM 5000.1 Single User Db
Reference Design:	Rev2	**Offset TVD Reference:**	Offset Datum

Offset Design Sec.21-T32N-R07W - San Juan 32-7 Unit 043M - Original Hole - Original Hole

Offset Site Error: 0.00 usft
Survey Program: 230-INC_ONLY<10
Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
500.00	500.00	468.83	468.81	0.99	10.90	-25.27	493.11	-232.77	545.29	533.40	11.90	45.842	
600.00	600.00	567.32	567.30	1.22	14.43	-25.28	492.91	-232.77	545.11	529.46	15.65	34.836	
616.54	616.54	583.61	583.58	1.26	15.01	-25.28	492.91	-232.77	545.11	528.84	16.27	33.507	CC
700.00	700.00	665.79	665.77	1.44	17.96	-25.27	493.01	-232.77	545.20	525.80	19.40	28.104	
800.00	800.00	764.24	764.21	1.67	21.48	-25.26	493.41	-232.77	545.57	522.42	23.15	23.566	
900.00	900.00	862.65	862.63	1.89	25.01	-25.22	494.11	-232.77	546.21	519.31	26.90	20.305	
1,000.00	1,000.00	963.42	963.40	2.12	28.70	-25.18	495.05	-232.77	547.05	516.24	30.82	17.751	
1,100.00	1,100.00	1,066.27	1,066.23	2.34	32.71	-25.16	495.50	-232.77	547.45	512.40	35.05	15.618	
1,200.00	1,200.00	1,169.16	1,169.10	2.57	36.72	-25.17	495.36	-232.77	547.33	508.04	39.29	13.931	
1,300.00	1,300.00	1,267.08	1,267.00	2.79	40.32	-25.19	494.84	-232.77	546.85	503.73	43.12	12.683	
1,400.00	1,400.00	1,367.09	1,367.00	3.02	42.97	-25.19	494.84	-232.77	546.85	500.86	45.99	11.891	
1,467.40	1,467.40	1,434.49	1,434.40	3.17	44.75	-25.19	494.84	-232.77	546.85	498.93	47.92	11.411	
1,500.00	1,500.00	1,467.09	1,467.00	3.24	45.62	95.38	494.84	-232.77	546.88	498.03	48.85	11.195	
1,600.00	1,599.89	1,566.99	1,566.89	3.42	48.26	95.81	494.84	-232.77	547.30	495.62	51.68	10.590	
1,700.00	1,699.43	1,666.53	1,666.43	3.62	50.89	96.77	494.84	-232.77	548.35	493.84	54.51	10.060	
1,800.00	1,798.32	1,765.43	1,765.32	3.84	53.51	98.22	494.84	-232.77	550.30	492.96	57.34	9.598	ES
1,900.00	1,896.31	1,863.43	1,863.31	4.10	56.11	100.12	494.84	-232.77	553.53	493.37	60.16	9.200	
2,000.00	1,993.12	1,960.24	1,960.12	4.43	58.67	102.42	494.84	-232.77	558.58	495.60	62.98	8.869	
2,100.00	2,088.50	2,055.62	2,055.50	4.82	61.20	105.05	494.84	-232.77	566.04	500.27	65.77	8.606	
2,200.00	2,182.17	2,149.30	2,149.17	5.32	63.68	107.91	494.84	-232.77	576.59	508.09	68.50	8.418	
2,300.00	2,273.88	2,241.01	2,240.88	5.91	66.11	110.92	494.84	-232.77	590.90	519.78	71.12	8.308	
2,400.00	2,363.38	2,330.52	2,330.38	6.62	68.48	113.98	494.84	-232.77	609.61	536.02	73.59	8.284	SF
2,500.00	2,450.42	2,417.56	2,417.42	7.46	70.78	116.99	494.84	-232.77	633.26	557.41	75.85	8.348	
2,600.00	2,534.77	2,501.92	2,501.77	8.41	73.02	119.87	494.84	-232.77	662.29	584.41	77.88	8.504	
2,700.00	2,616.20	2,583.35	2,583.20	9.49	75.17	122.55	494.84	-232.77	696.97	617.32	79.65	8.751	
2,800.00	2,694.47	2,661.63	2,661.47	10.68	77.25	124.99	494.84	-232.77	737.41	656.25	81.16	9.086	
2,900.00	2,769.38	2,736.54	2,736.38	11.99	79.23	127.13	494.84	-232.77	783.60	701.18	82.43	9.507	
3,000.00	2,840.73	2,807.89	2,807.73	13.42	81.12	128.96	494.84	-232.77	835.40	751.90	83.50	10.005	
3,100.00	2,908.31	2,875.47	2,875.31	14.95	82.91	130.45	494.84	-232.77	892.59	808.15	84.44	10.571	
3,200.00	2,971.94	2,939.11	2,938.94	16.59	84.60	131.59	494.84	-232.77	954.87	869.54	85.32	11.191	

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

Company:	Hilcorp Energy Company	**Local Co-ordinate Reference:**	Well San Juan 32-7 Unit 241H
Project:	San Juan Co., NM (NAD27)	**TVD Reference:**	KB @ 6558.00usft
Reference Site:	Sec.21-T32N-R07W	**MD Reference:**	KB @ 6558.00usft
Site Error:	0.00 usft	**North Reference:**	Grid
Reference Well:	San Juan 32-7 Unit 241H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	Lat 01	**Database:**	EDM 5000.1 Single User Db
Reference Design:	Rev2	**Offset TVD Reference:**	Offset Datum

Offset Design Sec.21-T32N-R07W - San Juan 32-7 Unit 241A - Original Hole - Original Hole

Offset Site Error: 0.00 usft

Survey Program: 213-INC_ONLY<10

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	0.00	0.00	0.00	0.00	-61.16	43.83	-79.59	93.03				
100.00	100.00	80.05	80.05	0.10	0.58	-61.28	43.61	-79.59	90.75	90.08	0.68	133.875	
126.50	126.50	106.50	106.50	0.16	0.77	-61.29	43.60	-79.59	90.75	89.82	0.93	97.593	
200.00	200.00	179.87	179.87	0.32	1.31	-61.23	43.71	-79.59	90.80	89.17	1.63	55.753	
300.00	300.00	280.15	280.14	0.55	2.92	-61.30	43.58	-79.59	90.74	87.28	3.46	26.208	
400.00	400.00	380.08	380.07	0.77	4.95	-61.43	43.35	-79.59	90.63	84.90	5.72	15.837	
481.00	481.00	461.02	461.01	0.95	6.60	-61.46	43.29	-79.59	90.60	83.05	7.55	11.994	
500.00	500.00	480.00	479.99	0.99	6.99	-61.46	43.29	-79.59	90.60	82.62	7.98	11.349	
600.00	600.00	579.91	579.90	1.22	9.02	-61.39	43.41	-79.59	90.66	80.42	10.24	8.851	
700.00	700.00	679.82	679.81	1.44	11.06	-61.23	43.71	-79.59	90.80	78.30	12.50	7.262	
800.00	800.00	780.01	780.00	1.67	13.53	-61.16	43.83	-79.59	90.86	75.66	15.20	5.978	
900.00	900.00	880.01	880.00	1.89	16.18	-61.16	43.83	-79.59	90.86	72.79	18.07	5.028	
1,000.00	1,000.00	980.02	980.00	2.12	18.82	-61.16	43.83	-79.59	90.86	69.92	20.94	4.339	
1,100.00	1,100.00	1,080.03	1,080.00	2.34	21.46	-61.16	43.83	-79.59	90.86	67.05	23.81	3.816	
1,200.00	1,200.00	1,180.03	1,180.00	2.57	24.11	-61.16	43.83	-79.59	90.86	64.18	26.68	3.406	
1,300.00	1,300.00	1,280.04	1,280.00	2.79	26.76	-61.16	43.83	-79.59	90.86	61.31	29.55	3.075	
1,400.00	1,400.00	1,380.04	1,380.00	3.02	29.41	-61.16	43.83	-79.59	90.86	58.44	32.42	2.802	
1,467.40	1,467.40	1,447.44	1,447.40	3.17	31.19	-61.16	43.83	-79.59	90.86	56.50	34.36	2.644	
1,500.00	1,500.00	1,480.04	1,480.00	3.24	32.05	59.54	43.83	-79.59	90.72	55.43	35.29	2.571	
1,600.00	1,599.89	1,579.94	1,579.89	3.42	34.70	62.00	43.83	-79.59	88.60	50.50	38.11	2.325	
1,700.00	1,699.43	1,679.48	1,679.43	3.62	37.34	67.81	43.83	-79.59	84.54	43.61	40.92	2.066	
1,800.00	1,798.32	1,778.38	1,778.32	3.84	39.96	77.65	43.83	-79.59	80.10	36.33	43.78	1.830	
1,888.69	1,885.28	1,865.35	1,865.28	4.07	42.26	90.00	43.83	-79.59	78.19	31.86	46.33	1.688	CC
1,900.00	1,896.31	1,876.38	1,876.31	4.10	42.55	91.79	43.83	-79.59	78.23	31.57	46.66	1.677	ES, SF
2,000.00	1,993.12	1,973.19	1,973.12	4.43	45.12	108.68	43.83	-79.59	82.89	33.55	49.34	1.680	
2,100.00	2,088.50	2,068.57	2,068.50	4.82	47.65	124.83	43.83	-79.59	97.08	45.60	51.48	1.886	
2,200.00	2,182.17	2,162.25	2,162.17	5.32	50.13	137.65	43.83	-79.59	121.13	68.09	53.05	2.284	
2,300.00	2,273.88	2,253.96	2,253.88	5.91	52.56	146.91	43.83	-79.59	153.72	99.50	54.22	2.835	
2,400.00	2,363.38	2,343.47	2,343.38	6.62	54.93	153.42	43.83	-79.59	193.44	138.33	55.11	3.510	
2,500.00	2,450.42	2,430.52	2,430.42	7.46	57.24	158.04	43.83	-79.59	239.27	183.53	55.75	4.292	
2,600.00	2,534.77	2,514.87	2,514.77	8.41	59.47	161.38	43.83	-79.59	290.55	234.43	56.12	5.177	
2,700.00	2,616.20	2,596.30	2,596.20	9.49	61.63	163.84	43.83	-79.59	346.79	290.57	56.22	6.169	
2,800.00	2,694.47	2,674.58	2,674.47	10.68	63.71	165.69	43.83	-79.59	407.64	351.61	56.03	7.275	
2,900.00	2,769.38	2,749.99	2,749.88	11.99	65.85	167.11	43.74	-79.59	472.75	417.08	55.67	8.492	
3,000.00	2,840.73	2,821.10	2,820.99	13.42	67.95	168.18	43.65	-79.59	541.92	486.86	55.05	9.844	
3,100.00	2,908.31	2,888.41	2,888.29	14.95	69.95	168.97	43.63	-79.59	614.92	560.79	54.12	11.361	
3,200.00	2,971.94	2,951.72	2,951.60	16.59	71.82	169.55	43.66	-79.59	691.51	638.61	52.90	13.073	
3,300.00	3,031.44	3,010.86	3,010.74	18.33	73.57	169.93	43.73	-79.59	771.44	720.05	51.39	15.011	
3,400.00	3,086.66	3,066.00	3,065.87	20.16	75.20	170.15	43.83	-79.59	854.48	804.84	49.64	17.214	
3,500.00	3,137.44	3,117.57	3,117.44	22.08	76.88	170.24	43.83	-79.59	940.28	892.52	47.76	19.689	

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

Company:	Hilcorp Energy Company	**Local Co-ordinate Reference:**	Well San Juan 32-7 Unit 241H
Project:	San Juan Co., NM (NAD27)	**TVD Reference:**	KB @ 6558.00usft
Reference Site:	Sec.21-T32N-R07W	**MD Reference:**	KB @ 6558.00usft
Site Error:	0.00 usft	**North Reference:**	Grid
Reference Well:	San Juan 32-7 Unit 241H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	Lat 01	**Database:**	EDM 5000.1 Single User Db
Reference Design:	Rev2	**Offset TVD Reference:**	Offset Datum

Offset Design Sec.21-T32N-R07W - San Juan 32-7 Unit 241H - Lat 01 ST01 - Rev2

Survey Program: 0-MWD, 3634-MWD, 4184-MWD

Offset Site Error: 0.00 usft
Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
4,184.06	3,252.00	4,184.06	3,252.00	0.00	0.00	0.00	-835.82	-1,416.67	0.00	0.00	0.00	0.000	Level 1, CC, SF
4,189.11	3,252.00	4,189.11	3,252.00	0.08	0.06	91.00	-838.38	-1,421.02	0.01	-0.14	0.15	0.045	Level 1
4,200.00	3,252.00	4,200.00	3,252.00	0.28	0.18	91.00	-843.92	-1,430.40	0.07	-0.39	0.46	0.146	Level 1, ES
4,300.00	3,251.94	4,299.93	3,252.00	2.03	1.39	90.99	-894.69	-1,516.47	3.52	0.10	3.41	1.030	Level 2
4,400.00	3,251.79	4,399.54	3,252.00	3.84	2.72	90.99	-945.31	-1,602.26	12.19	5.66	6.54	1.866	
4,500.00	3,251.54	4,498.56	3,252.00	5.68	4.16	90.98	-995.63	-1,687.54	26.07	16.31	9.76	2.670	
4,600.00	3,251.21	4,596.72	3,252.00	7.55	5.69	90.97	-1,045.51	-1,772.09	45.11	32.07	13.05	3.458	
4,700.00	3,250.79	4,693.75	3,252.00	9.42	7.29	90.96	-1,094.81	-1,855.65	69.27	52.93	16.33	4.241	
4,800.00	3,250.29	4,789.38	3,252.00	11.28	8.94	90.94	-1,143.40	-1,938.02	98.46	78.89	19.57	5.030	
4,900.00	3,249.69	4,883.35	3,252.00	13.13	10.63	90.93	-1,191.15	-2,018.95	132.63	109.90	22.73	5.836	
5,000.00	3,249.02	4,975.40	3,252.00	14.97	12.34	90.91	-1,237.93	-2,098.24	171.66	145.91	25.75	6.667	
5,100.00	3,248.25	5,065.29	3,252.00	16.77	14.05	90.88	-1,283.60	-2,175.65	215.46	186.86	28.60	7.533	
5,153.27	3,247.82	5,112.20	3,252.00	17.72	14.96	90.87	-1,307.44	-2,216.06	240.69	210.65	30.04	8.012	
5,200.00	3,247.42	5,153.04	3,252.00	18.54	15.76	90.87	-1,328.20	-2,251.23	263.40	231.82	31.59	8.339	
5,300.00	3,246.58	5,240.44	3,252.00	20.30	17.50	90.87	-1,372.61	-2,326.51	312.00	277.10	34.91	8.939	
5,400.00	3,245.73	5,327.84	3,252.00	22.09	19.27	90.87	-1,417.02	-2,401.78	360.60	322.33	38.27	9.423	
5,500.00	3,244.89	5,415.23	3,252.00	23.90	21.07	90.87	-1,461.43	-2,477.05	409.20	367.52	41.67	9.819	
5,600.00	3,244.04	5,502.63	3,252.00	25.72	22.89	90.87	-1,505.84	-2,552.32	457.79	412.68	45.11	10.147	
5,700.00	3,243.20	5,590.03	3,252.00	27.56	24.74	90.87	-1,550.25	-2,627.60	506.39	457.80	48.59	10.422	
5,800.00	3,242.36	5,677.43	3,252.00	29.41	26.61	90.87	-1,594.66	-2,702.87	554.99	502.89	52.09	10.654	
5,900.00	3,241.51	5,764.82	3,252.00	31.27	28.50	90.87	-1,639.07	-2,778.14	603.59	547.96	55.62	10.851	
6,000.00	3,240.67	5,852.22	3,252.00	33.15	30.40	90.87	-1,683.48	-2,853.42	652.18	593.01	59.18	11.021	
6,100.00	3,239.82	5,939.62	3,252.00	35.03	32.32	90.87	-1,727.89	-2,928.69	700.78	638.03	62.75	11.167	
6,200.00	3,238.98	6,027.01	3,252.00	36.92	34.26	90.87	-1,772.30	-3,003.96	749.38	683.03	66.35	11.295	
6,300.00	3,238.14	6,114.41	3,252.00	38.82	36.20	90.87	-1,816.71	-3,079.24	797.98	728.02	69.96	11.406	
6,400.00	3,237.29	6,201.81	3,252.00	40.73	38.16	90.87	-1,861.12	-3,154.51	846.57	772.99	73.59	11.504	
6,500.00	3,236.45	6,289.21	3,252.00	42.64	40.13	90.87	-1,905.53	-3,229.78	895.17	817.94	77.23	11.590	
6,600.00	3,235.60	6,376.60	3,252.00	44.56	42.11	90.87	-1,949.94	-3,305.05	943.77	862.88	80.89	11.667	
6,700.00	3,234.76	6,464.00	3,252.00	46.48	44.10	90.87	-1,994.35	-3,380.33	992.37	907.80	84.56	11.735	

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

Company:	Hilcorp Energy Company	**Local Co-ordinate Reference:**	Well San Juan 32-7 Unit 241H
Project:	San Juan Co., NM (NAD27)	**TVD Reference:**	KB @ 6558.00usft
Reference Site:	Sec.21-T32N-R07W	**MD Reference:**	KB @ 6558.00usft
Site Error:	0.00 usft	**North Reference:**	Grid
Reference Well:	San Juan 32-7 Unit 241H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	Lat 01	**Database:**	EDM 5000.1 Single User Db
Reference Design:	Rev2	**Offset TVD Reference:**	Offset Datum

Offset Design Sec.21-T32N-R07W - San Juan 32-7 Unit 241H - Pilot Hole - Rev2

Offset Site Error: 0.00 usft
Offset Well Error: 0.00 usft

Survey Program: 0-MWD

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
3,634.06	3,198.32	3,634.06	3,198.32	0.00	0.00	0.00	-560.33	-949.74	0.00	0.00	0.00	0.000	Level 1, CC, SF
3,639.11	3,200.43	3,639.11	3,200.45	0.08	0.10	180.00	-562.66	-953.68	0.02	-0.05	0.08	0.290	Level 1, ES
3,650.00	3,204.85	3,650.00	3,205.05	0.26	0.33	180.00	-567.67	-962.18	0.22	-0.02	0.24	0.932	Level 1
3,700.00	3,222.69	3,699.85	3,226.12	0.72	1.36	-180.00	-590.63	-1,001.10	3.79	3.23	0.56	6.743	
3,750.00	3,236.39	3,749.21	3,246.98	1.26	2.39	180.00	-613.36	-1,039.62	11.69	10.83	0.86	13.570	
3,800.00	3,245.84	3,797.69	3,267.47	1.85	3.40	-180.00	-635.69	-1,077.47	23.86	22.74	1.12	21.218	
3,850.00	3,250.99	3,844.92	3,287.43	2.49	4.39	180.00	-657.44	-1,114.34	40.21	38.87	1.34	30.038	
3,884.06	3,252.00	3,876.20	3,300.65	2.96	5.05	180.00	-671.85	-1,138.75	53.68	52.24	1.44	37.164	
3,900.00	3,252.00	3,890.65	3,306.76	3.18	5.35	180.00	-678.50	-1,150.03	60.42	58.86	1.56	38.687	
4,000.00	3,252.00	3,934.06	3,325.10	4.66	6.26	180.00	-698.49	-1,183.92	113.02	110.95	2.07	54.630	
4,100.00	3,252.00	3,934.06	3,325.10	6.27	6.26	180.00	-698.49	-1,183.92	200.03	197.63	2.39	83.577	
4,184.06	3,252.00	3,934.06	3,325.10	7.71	6.26	180.00	-698.49	-1,183.92	279.96	277.25	2.71	103.155	
4,200.00	3,252.00	3,934.06	3,325.10	7.99	6.26	-178.18	-698.49	-1,183.92	295.38	292.56	2.82	104.684	
4,300.00	3,251.94	3,934.06	3,325.10	9.74	6.26	-164.70	-698.49	-1,183.92	393.00	387.69	5.31	73.989	
4,400.00	3,251.79	3,934.06	3,325.10	11.55	6.26	-149.47	-698.49	-1,183.92	491.38	481.76	9.62	51.097	
4,500.00	3,251.54	3,934.06	3,325.10	13.38	6.26	-135.53	-698.49	-1,183.92	589.93	575.93	14.01	42.115	
4,600.00	3,251.21	3,934.06	3,325.10	15.23	6.26	-124.58	-698.49	-1,183.92	688.37	670.71	17.66	38.980	
4,700.00	3,250.79	3,934.06	3,325.10	17.07	6.26	-116.58	-698.49	-1,183.92	786.52	765.98	20.55	38.280	
4,800.00	3,250.29	3,934.06	3,325.10	18.91	6.26	-110.84	-698.49	-1,183.92	884.25	861.37	22.88	38.646	
4,900.00	3,249.69	3,934.06	3,325.10	20.72	6.26	-106.68	-698.49	-1,183.92	981.47	956.62	24.84	39.510	

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

Company:	Hilcorp Energy Company	**Local Co-ordinate Reference:**	Well San Juan 32-7 Unit 241H
Project:	San Juan Co., NM (NAD27)	**TVD Reference:**	KB @ 6558.00usft
Reference Site:	Sec.21-T32N-R07W	**MD Reference:**	KB @ 6558.00usft
Site Error:	0.00 usft	**North Reference:**	Grid
Reference Well:	San Juan 32-7 Unit 241H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	Lat 01	**Database:**	EDM 5000.1 Single User Db
Reference Design:	Rev2	**Offset TVD Reference:**	Offset Datum

Offset Design Sec.28-T32N-R07W - San Juan 32-7 Unit 236A - Original Hole - Original Hole

Offset Site Error: 0.00 usft

Survey Program: 232-MWD

Offset Well Error: 0.00 usft

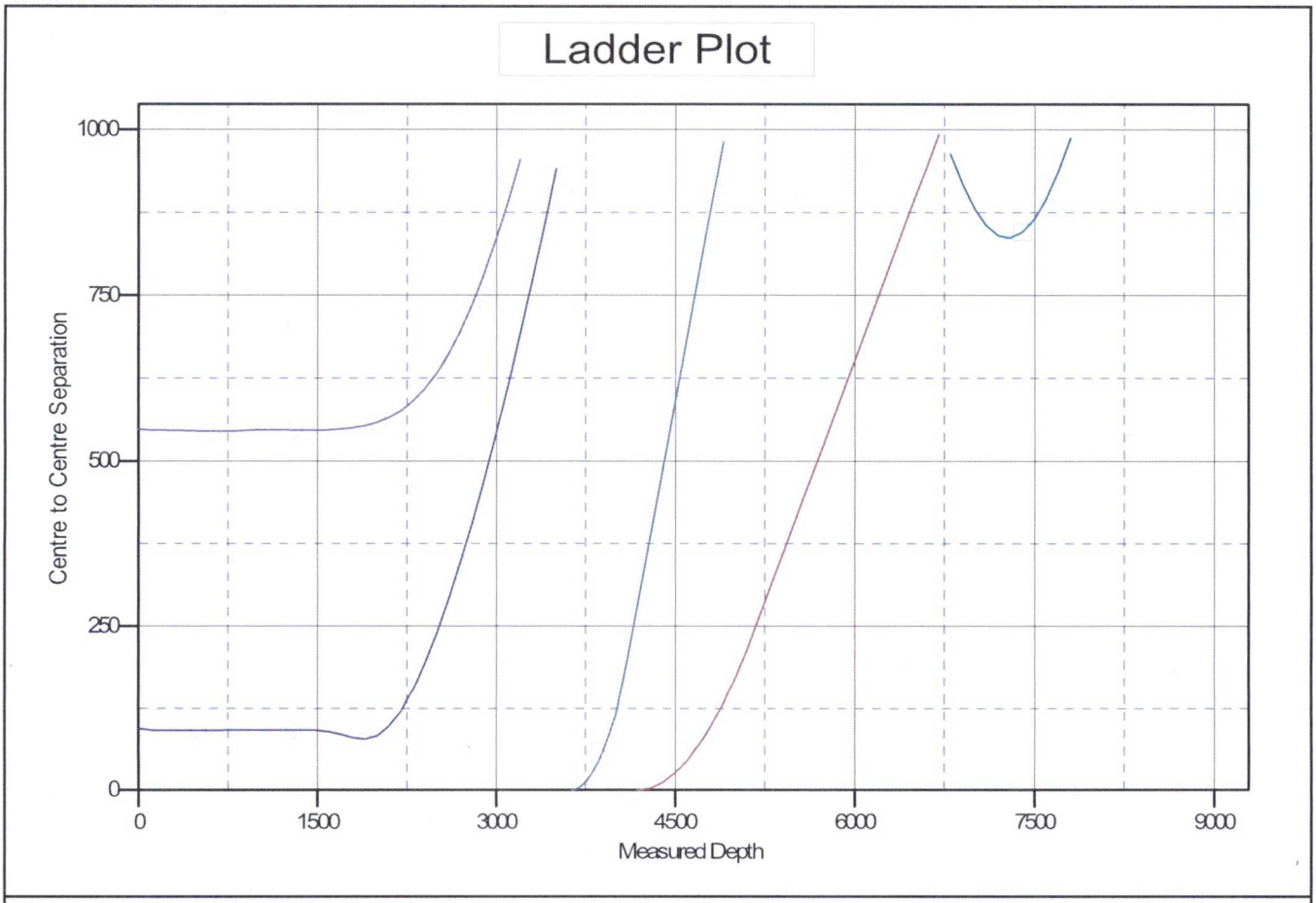
Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
6,800.00	3,233.91	3,575.00	3,217.77	78.58	27.48	-87.53	-3,769.24	-2,446.96	963.04	876.28	86.76	11.100	
6,900.00	3,233.07	3,575.00	3,217.77	80.44	27.48	-87.53	-3,769.24	-2,446.96	917.61	828.93	88.68	10.347	
7,000.00	3,232.23	3,575.00	3,217.77	82.31	27.48	-87.53	-3,769.24	-2,446.96	881.25	790.64	90.61	9.726	
7,100.00	3,231.38	3,575.00	3,217.77	84.18	27.48	-87.53	-3,769.24	-2,446.96	855.08	762.55	92.54	9.240	
7,200.00	3,230.54	3,575.00	3,217.77	86.06	27.48	-87.53	-3,769.24	-2,446.96	840.09	745.62	94.47	8.893	
7,277.12	3,229.89	3,575.00	3,217.77	87.52	27.48	-87.53	-3,769.24	-2,446.96	836.54	740.58	95.96	8.717	CC
7,300.00	3,229.69	3,575.00	3,217.77	87.95	27.48	-87.53	-3,769.24	-2,446.96	836.85	740.45	96.41	8.680	ES
7,400.00	3,228.85	3,575.00	3,217.77	89.84	27.48	-87.53	-3,769.24	-2,446.96	845.52	747.17	98.35	8.597	SF
7,500.00	3,228.00	3,575.00	3,217.77	91.73	27.48	-87.53	-3,769.24	-2,446.96	865.72	765.43	100.29	8.632	
7,600.00	3,227.16	3,575.00	3,217.77	93.64	27.48	-87.53	-3,769.24	-2,446.96	896.69	794.46	102.23	8.771	
7,700.00	3,226.32	3,575.00	3,217.77	95.54	27.48	-87.53	-3,769.24	-2,446.96	937.35	833.17	104.18	8.997	
7,800.00	3,225.47	3,575.00	3,217.77	97.45	27.48	-87.53	-3,769.24	-2,446.96	986.51	880.38	106.13	9.295	

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

Company:	Hilcorp Energy Company	**Local Co-ordinate Reference:**	Well San Juan 32-7 Unit 241H
Project:	San Juan Co., NM (NAD27)	**TVD Reference:**	KB @ 6558.00usft
Reference Site:	Sec.21-T32N-R07W	**MD Reference:**	KB @ 6558.00usft
Site Error:	0.00 usft	**North Reference:**	Grid
Reference Well:	San Juan 32-7 Unit 241H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	Lat 01	**Database:**	EDM 5000.1 Single User Db
Reference Design:	Rev2	**Offset TVD Reference:**	Offset Datum

Reference Depths are relative to KB @ 6558.00usft
Offset Depths are relative to Offset Datum
Central Meridian is 107° 50' 0.000 W

Coordinates are relative to: San Juan 32-7 Unit 241H
Coordinate System is US State Plane 1927 (Exact solution), New Mexico West 30
Grid Convergence at Surface is: 0.16°



LEGEND

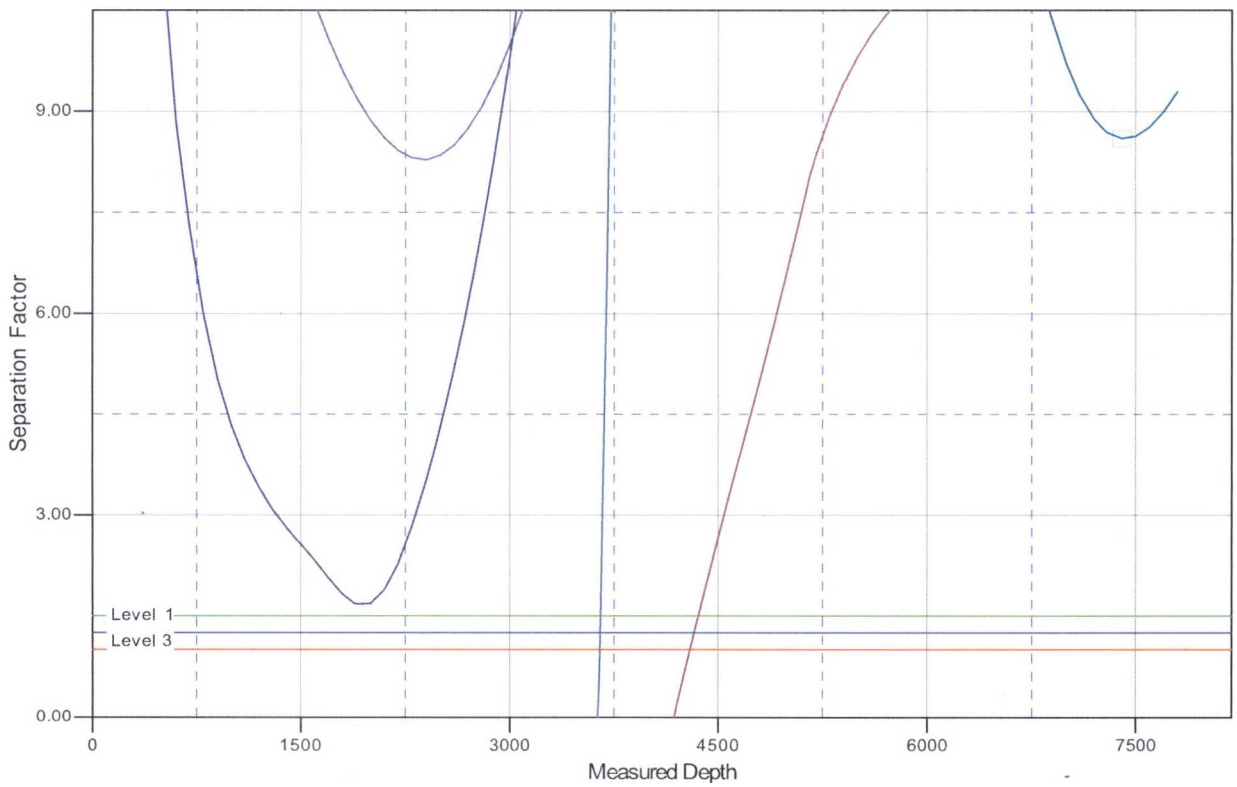
an 32-7 Unit241H, Pilot Hole, Rev2 V0
an 32-7 Unit241H, Lat01 ST01, Rev2 V0
San Juan 32-7 Unit043M, Original Hole, Original Hole V0
San Juan 32-7 Unit241A, Original Hole, Original Hole V0
San Juan 32-7 Unit236A, Original Hole, Ori

Company:	Hilcorp Energy Company	**Local Co-ordinate Reference:**	Well San Juan 32-7 Unit 241H
Project:	San Juan Co., NM (NAD27)	**TVD Reference:**	KB @ 6558.00usft
Reference Site:	Sec.21-T32N-R07W	**MD Reference:**	KB @ 6558.00usft
Site Error:	0.00 usft	**North Reference:**	Grid
Reference Well:	San Juan 32-7 Unit 241H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	Lat 01	**Database:**	EDM 5000.1 Single User Db
Reference Design:	Rev2	**Offset TVD Reference:**	Offset Datum

Reference Depths are relative to KB @ 6558.00usft
Offset Depths are relative to Offset Datum
Central Meridian is 107° 50' 0.000 W

Coordinates are relative to: San Juan 32-7 Unit 241H
Coordinate System is US State Plane 1927 (Exact solution), New Mexico West 30
Grid Convergence at Surface is: 0.16°

Separation Factor Plot



LEGEND

an 32-7 Unit241H, Pilot Hole, Rev2 V0
an 32-7 Unit241H, Lat01 ST01, Rev2 V0
San Juan 32-7 Unit043M, Original Hole, Original Hole V0
San Juan 32-7 Unit241A, Original Hole, Original Hole V0
San Juan 32-7 Unit236A, Original Hole, Ori

Hilcorp

Company: Hilcorp Energy Company
Field: San Juan Co., NM (NAD27)
Location: Sec.21-T32N-R07W
Well: San Juan 32-7 Unit 241H
Borehole: Lat 01
Plan: Rev2

KOLTEK ENERGY SERVICES

WELL DETAILS: San Juan 32-7 Unit 241H

GL 6543.00 KB @ 6558.00usft

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
0.00	0.00	2170163.11	577954.17	36.96370°N	107.56651°W

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect
1	3634.06	65.00	239.46	3198.32	-560.33	-949.74	0.00	0.00	1042.18
2	3884.06	90.00	239.46	3252.00	-683.37	-1158.29	10.00	0.00	1271.04
3	4184.06	90.00	239.46	3252.00	-835.82	-1416.67	0.00	0.00	1554.57
4	5153.27	90.48	210.39	3247.82	-1514.72	-2093.77	3.00	-89.00	2510.40
5	8684.93	90.48	210.39	3218.00	-4561.11	-3880.17	0.00	0.00	5988.27

DESIGN TARGET DETAILS

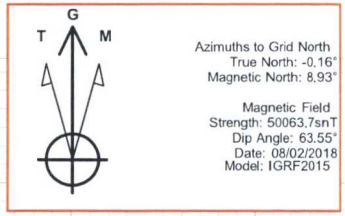
Name	TVD	+N/-S	+E/-W	Latitude	Longitude
SJ 32-7 Unit 241H FTP	3198.32	-560.33	-949.74	36.96217°N	107.56976°W
SJ 32-7 Unit 241H Toe Lat 1	3218.00	-4561.11	-3880.17	36.95120°N	107.57983°W

FORMATION TOP DETAILS

TVDPath	MDPath	Formation
2147.00	2162.23	Ojo Alamo
2257.00	2281.42	Kirtland
2768.00	2898.11	Fruitland
3246.00	3801.08	top of target

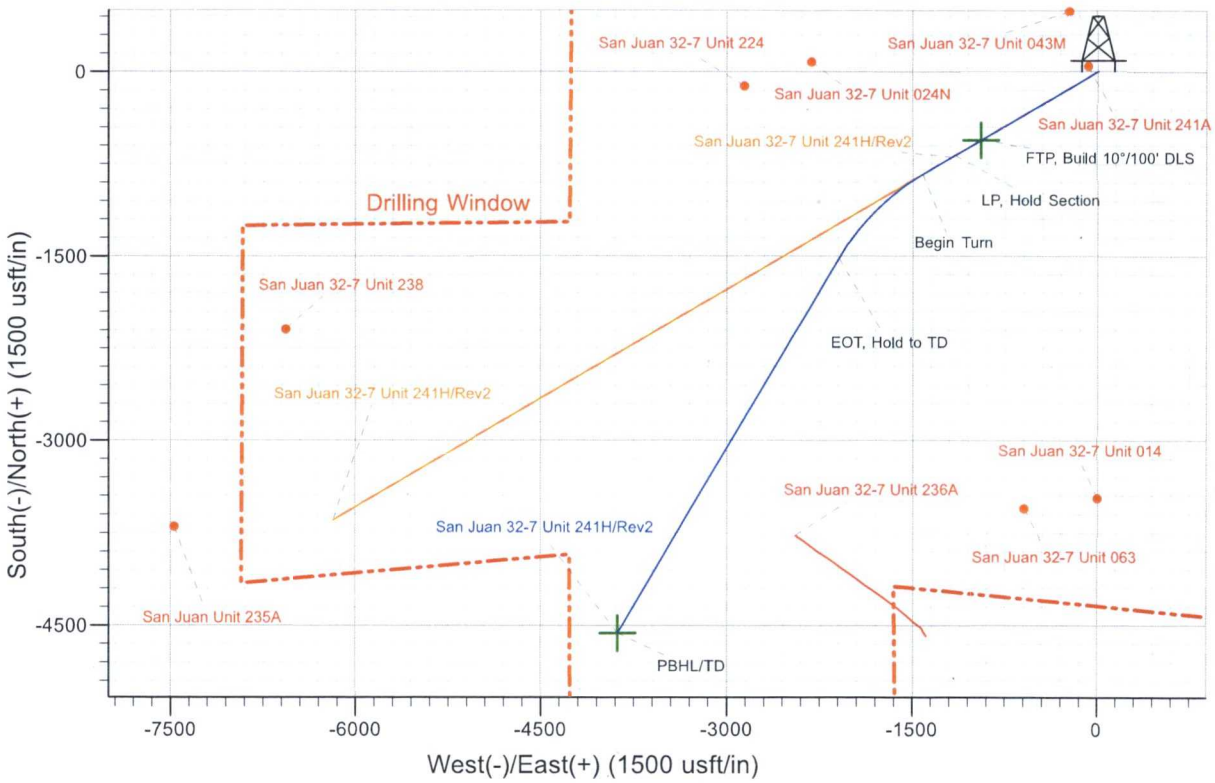
ANNOTATIONS

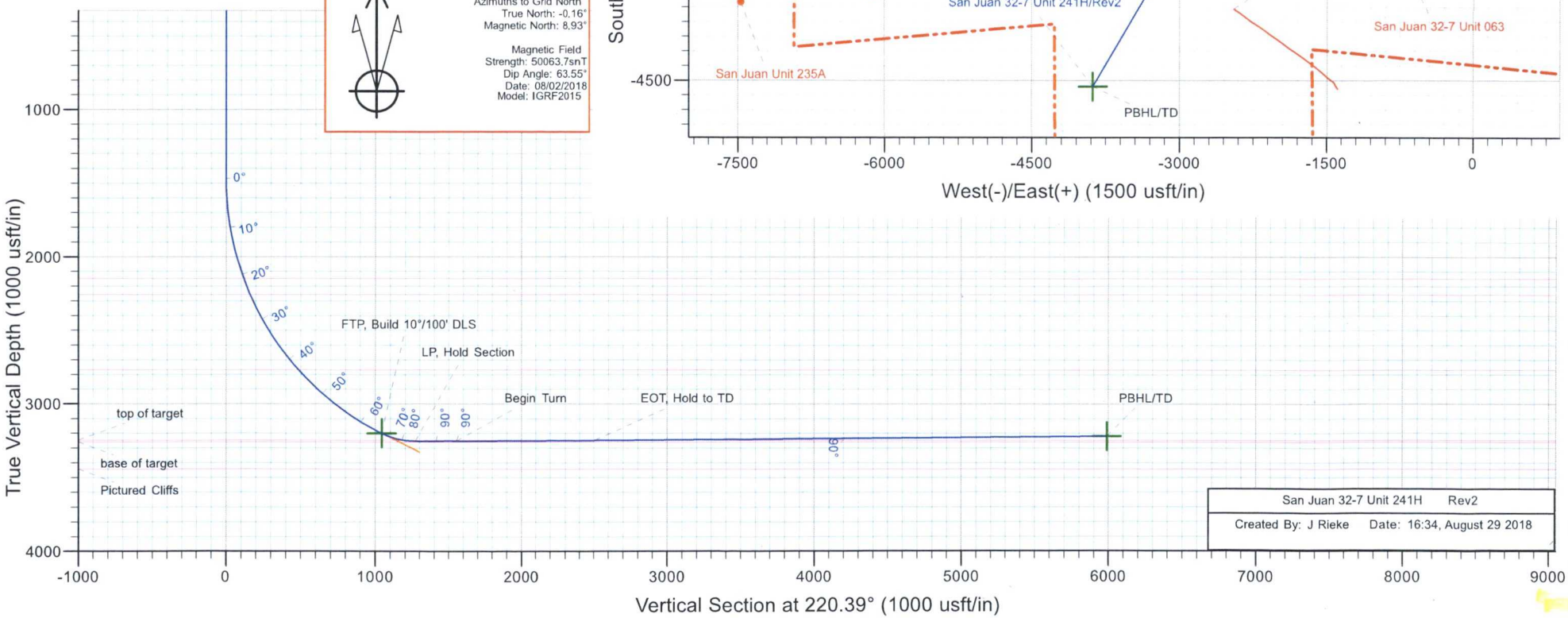
TVD	MD	Annotation
3198.32	3634.06	FTP, Build 10°/100' DLS
3252.00	3884.06	LP, Hold Section
3252.00	4184.06	Begin Turn
3247.82	5153.27	EOT, Hold to TD
3218.00	8684.93	PBHL/TD



Azimuths to Grid North
True North: -0.16°
Magnetic North: 8.93°

Magnetic Field
Strength: 50063.7snT
Dip Angle: 63.55°
Date: 08/02/2018
Model: IGRF2015





San Juan 32-7 Unit 241H Rev2

Created By: J Rieke Date: 16:34, August 29 2018

Hilcorp

Hilcorp Energy Company

San Juan Co., NM (NAD27)
Sec.21-T32N-R07W
San Juan 32-7 Unit 241H

Lat 01

Plan: Rev2

Standard Planning Report - Geographic

29 August, 2018

KOLTEK
ENERGY SERVICES

Database:	EDM 5000.1 Single User Db	**Local Co-ordinate Reference:**	Well San Juan 32-7 Unit 241H
Company:	Hilcorp Energy Company	**TVD Reference:**	KB @ 6558.00usft
Project:	San Juan Co., NM (NAD27)	**MD Reference:**	KB @ 6558.00usft
Site:	Sec.21-T32N-R07W	**North Reference:**	Grid
Well:	San Juan 32-7 Unit 241H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Lat 01		
Design:	Rev2		

Project San Juan Co., NM (NAD27)

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 Sec.21-T32N-R07W

Site Position:		**Northing:**	2,170,163.10 usft	**Latitude:**	36.96370°N
From:	Lat/Long	**Easting:**	577,954.17 usft	**Longitude:**	107.56651°W
Position Uncertainty:	0.00 usft	**Slot Radius:**	13.200 in	**Grid Convergence:**	0.16 °

Well San Juan 32-7 Unit 241H

Well Position	**+N/-S**	0.00 usft	**Northing:**	2,170,163.10 usft	**Latitude:**	36.96370°N
	+E/-W	0.00 usft	**Easting:**	577,954.17 usft	**Longitude:**	107.56651°W
Position Uncertainty		0.00 usft	**Wellhead Elevation:**	0.00 usft	**Ground Level:**	6,543.00 usft

Wellbore Lat 01

Magnetics	**Model Name**	**Sample Date**	**Declination (°)**	**Dip Angle (°)**	**Field Strength (nT)**
	IGRF2015	08/02/18	9.09	63.55	50,064

Design Rev2

Audit Notes:

Version:		**Phase:**	PROTOTYPE	**Tie On Depth:**	3,634.06

Vertical Section:	**Depth From (TVD) (usft)**	**+N/-S (usft)**	**+E/-W (usft)**	**Direction (°)**
	0.00	0.00	0.00	220.39

Plan Sections

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
3,634.06	65.00	239.46	3,198.32	-560.33	-949.74	0.00	0.00	0.00	0.00	
3,884.06	90.00	239.46	3,252.00	-683.37	-1,158.29	10.00	10.00	0.00	0.00	
4,184.06	90.00	239.46	3,252.00	-835.82	-1,416.67	0.00	0.00	0.00	0.00	
5,153.27	90.48	210.39	3,247.82	-1,514.72	-2,093.77	3.00	0.05	-3.00	-89.00	
8,684.93	90.48	210.39	3,218.00	-4,561.11	-3,880.17	0.00	0.00	0.00	0.00	SJ 32-7 Unit 241H To

Database:	EDM 5000.1 Single User Db	**Local Co-ordinate Reference:**	Well San Juan 32-7 Unit 241H
Company:	Hilcorp Energy Company	**TVD Reference:**	KB @ 6558.00usft
Project:	San Juan Co., NM (NAD27)	**MD Reference:**	KB @ 6558.00usft
Site:	Sec.21-T32N-R07W	**North Reference:**	Grid
Well:	San Juan 32-7 Unit 241H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Lat 01		
Design:	Rev2		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
3,634.06	65.00	239.46	3,198.32	-560.33	-949.74	2,169,602.77	577,004.43	36.96217°N	107.56977°W
FTP, Build 10°/100' DLS									
3,700.00	71.59	239.46	3,222.69	-591.45	-1,002.48	2,169,571.66	576,951.69	36.96208°N	107.56995°W
3,800.00	81.59	239.46	3,245.84	-640.81	-1,086.15	2,169,522.29	576,868.02	36.96195°N	107.57023°W
3,884.06	90.00	239.46	3,252.00	-683.37	-1,158.29	2,169,479.73	576,795.88	36.96183°N	107.57048°W
LP, Hold Section									
3,900.00	90.00	239.46	3,252.00	-691.47	-1,172.02	2,169,471.63	576,782.15	36.96181°N	107.57053°W
4,000.00	90.00	239.46	3,252.00	-742.29	-1,258.15	2,169,420.82	576,696.02	36.96167°N	107.57082°W
4,100.00	90.00	239.46	3,252.00	-793.10	-1,344.27	2,169,370.00	576,609.89	36.96153°N	107.57112°W
4,184.06	90.00	239.46	3,252.00	-835.82	-1,416.67	2,169,327.29	576,537.50	36.96141°N	107.57137°W
Begin Turn									
4,200.00	90.01	238.98	3,252.00	-843.97	-1,430.37	2,169,319.13	576,523.80	36.96139°N	107.57141°W
4,300.00	90.06	235.98	3,251.94	-897.72	-1,514.68	2,169,265.38	576,439.49	36.96125°N	107.57170°W
4,400.00	90.11	232.98	3,251.79	-955.81	-1,596.06	2,169,207.29	576,358.10	36.96109°N	107.57198°W
4,500.00	90.16	229.98	3,251.54	-1,018.08	-1,674.30	2,169,145.02	576,279.87	36.96092°N	107.57225°W
4,600.00	90.22	226.98	3,251.21	-1,084.36	-1,749.17	2,169,078.75	576,205.00	36.96073°N	107.57251°W
4,700.00	90.27	223.98	3,250.79	-1,154.46	-1,820.46	2,169,008.65	576,133.71	36.96054°N	107.57275°W
4,800.00	90.32	220.98	3,250.29	-1,228.19	-1,887.99	2,168,934.91	576,066.18	36.96034°N	107.57298°W
4,900.00	90.36	217.98	3,249.69	-1,305.36	-1,951.57	2,168,857.74	576,002.60	36.96013°N	107.57320°W
5,000.00	90.41	214.99	3,249.02	-1,385.75	-2,011.02	2,168,777.35	575,943.15	36.95991°N	107.57341°W
5,100.00	90.46	211.99	3,248.25	-1,469.15	-2,066.19	2,168,693.96	575,887.98	36.95968°N	107.57360°W
5,153.27	90.48	210.39	3,247.82	-1,514.72	-2,093.77	2,168,648.39	575,860.40	36.95956°N	107.57369°W
EOT, Hold to TD									
5,200.00	90.48	210.39	3,247.42	-1,555.02	-2,117.41	2,168,608.08	575,836.76	36.95944°N	107.57377°W
5,300.00	90.48	210.39	3,246.58	-1,641.28	-2,167.99	2,168,521.82	575,786.18	36.95921°N	107.57395°W
5,400.00	90.48	210.39	3,245.73	-1,727.54	-2,218.57	2,168,435.56	575,735.60	36.95897°N	107.57412°W
5,500.00	90.48	210.39	3,244.89	-1,813.80	-2,269.15	2,168,349.30	575,685.01	36.95874°N	107.57429°W
5,600.00	90.48	210.39	3,244.04	-1,900.06	-2,319.74	2,168,263.04	575,634.43	36.95850°N	107.57447°W
5,700.00	90.48	210.39	3,243.20	-1,986.32	-2,370.32	2,168,176.78	575,583.85	36.95826°N	107.57464°W
5,800.00	90.48	210.39	3,242.36	-2,072.58	-2,420.90	2,168,090.52	575,533.27	36.95803°N	107.57482°W
5,900.00	90.48	210.39	3,241.51	-2,158.84	-2,471.48	2,168,004.26	575,482.68	36.95779°N	107.57499°W
6,000.00	90.48	210.39	3,240.67	-2,245.10	-2,522.07	2,167,918.00	575,432.10	36.95755°N	107.57516°W
6,100.00	90.48	210.39	3,239.82	-2,331.36	-2,572.65	2,167,831.74	575,381.52	36.95732°N	107.57534°W
6,200.00	90.48	210.39	3,238.98	-2,417.62	-2,623.23	2,167,745.49	575,330.94	36.95708°N	107.57551°W
6,300.00	90.48	210.39	3,238.14	-2,503.88	-2,673.81	2,167,659.23	575,280.36	36.95684°N	107.57569°W
6,400.00	90.48	210.39	3,237.29	-2,590.14	-2,724.40	2,167,572.97	575,229.77	36.95661°N	107.57586°W
6,500.00	90.48	210.39	3,236.45	-2,676.40	-2,774.98	2,167,486.71	575,179.19	36.95637°N	107.57603°W
6,600.00	90.48	210.39	3,235.60	-2,762.66	-2,825.56	2,167,400.45	575,128.61	36.95613°N	107.57621°W
6,700.00	90.48	210.39	3,234.76	-2,848.92	-2,876.14	2,167,314.19	575,078.03	36.95590°N	107.57638°W
6,800.00	90.48	210.39	3,233.91	-2,935.18	-2,926.73	2,167,227.93	575,027.44	36.95566°N	107.57656°W
6,900.00	90.48	210.39	3,233.07	-3,021.44	-2,977.31	2,167,141.67	574,976.86	36.95542°N	107.57673°W
7,000.00	90.48	210.39	3,232.23	-3,107.70	-3,027.89	2,167,055.41	574,926.28	36.95519°N	107.57690°W
7,100.00	90.48	210.39	3,231.38	-3,193.96	-3,078.47	2,166,969.15	574,875.70	36.95495°N	107.57708°W
7,200.00	90.48	210.39	3,230.54	-3,280.21	-3,129.05	2,166,882.89	574,825.11	36.95471°N	107.57725°W
7,300.00	90.48	210.39	3,229.69	-3,366.47	-3,179.64	2,166,796.63	574,774.53	36.95448°N	107.57742°W
7,400.00	90.48	210.39	3,228.85	-3,452.73	-3,230.22	2,166,710.37	574,723.95	36.95424°N	107.57760°W
7,500.00	90.48	210.39	3,228.00	-3,538.99	-3,280.80	2,166,624.11	574,673.37	36.95400°N	107.57777°W
7,600.00	90.48	210.39	3,227.16	-3,625.25	-3,331.38	2,166,537.85	574,622.78	36.95377°N	107.57795°W
7,700.00	90.48	210.39	3,226.32	-3,711.51	-3,381.97	2,166,451.59	574,572.20	36.95353°N	107.57812°W
7,800.00	90.48	210.39	3,225.47	-3,797.77	-3,432.55	2,166,365.33	574,521.62	36.95329°N	107.57829°W
7,900.00	90.48	210.39	3,224.63	-3,884.03	-3,483.13	2,166,279.07	574,471.04	36.95306°N	107.57847°W
8,000.00	90.48	210.39	3,223.78	-3,970.29	-3,533.71	2,166,192.81	574,420.45	36.95282°N	107.57864°W
8,100.00	90.48	210.39	3,222.94	-4,056.55	-3,584.30	2,166,106.55	574,369.87	36.95258°N	107.57882°W
8,200.00	90.48	210.39	3,222.09	-4,142.81	-3,634.88	2,166,020.29	574,319.29	36.95235°N	107.57899°W

Database:	EDM 5000.1 Single User Db	**Local Co-ordinate Reference:**	Well San Juan 32-7 Unit 241H
Company:	Hilcorp Energy Company	**TVD Reference:**	KB @ 6558.00usft
Project:	San Juan Co., NM (NAD27)	**MD Reference:**	KB @ 6558.00usft
Site:	Sec.21-T32N-R07W	**North Reference:**	Grid
Well:	San Juan 32-7 Unit 241H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Lat 01		
Design:	Rev2		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
8,300.00	90.48	210.39	3,221.25	-4,229.07	-3,685.46	2,165,934.03	574,268.71	36.95211°N	107.57916°W
8,400.00	90.48	210.39	3,220.41	-4,315.33	-3,736.04	2,165,847.77	574,218.13	36.95187°N	107.57934°W
8,500.00	90.48	210.39	3,219.56	-4,401.59	-3,786.63	2,165,761.52	574,167.54	36.95164°N	107.57951°W
8,600.00	90.48	210.39	3,218.72	-4,487.85	-3,837.21	2,165,675.26	574,116.96	36.95140°N	107.57969°W
8,684.93	90.48	210.39	3,218.00	-4,561.11	-3,880.17	2,165,602.00	574,074.00	36.95120°N	107.57983°W
PBHL/TD									

Design Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
SJ 32-7 Unit 241H FTP - plan hits target center - Point	0.00	0.00	3,198.32	-560.33	-949.74	2,169,602.77	577,004.43	36.96217°N	107.56977°W
SJ 32-7 Unit 241H Toe L - plan hits target center - Point	0.00	0.00	3,218.00	-4,561.11	-3,880.17	2,165,602.00	574,074.00	36.95120°N	107.57983°W

Formations

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
2,162.23	2,147.00	Ojo Alamo		0.00	
2,281.42	2,257.00	Kirtland		0.00	
2,898.11	2,768.00	Fruitland		0.00	
3,801.08	3,246.00	top of target		0.00	

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates +N/-S (usft)	Local Coordinates +E/-W (usft)	Comment
3,634.06	3,198.32	-560.33	-949.74	FTP, Build 10°/100' DLS
3,884.06	3,252.00	-683.37	-1,158.29	LP, Hold Section
4,184.06	3,252.00	-835.82	-1,416.67	Begin Turn
5,153.27	3,247.82	-1,514.72	-2,093.77	EOT, Hold to TD
8,684.93	3,218.00	-4,561.11	-3,880.17	PBHL/TD

Hilcorp

Hilcorp Energy Company

San Juan Co., NM (NAD27)
Sec.21-T32N-R07W
San Juan 32-7 Unit 241H

Lat 01 ST01
Rev2

Anticollision Report

21 August, 2018

KOLTEK
ENERGY SERVICES

Company:	Hilcorp Energy Company	**Local Co-ordinate Reference:**	Well San Juan 32-7 Unit 241H
Project:	San Juan Co., NM (NAD27)	**TVD Reference:**	KB @ 6558.00usft
Reference Site:	Sec.21-T32N-R07W	**MD Reference:**	KB @ 6558.00usft
Site Error:	0.00 usft	**North Reference:**	Grid
Reference Well:	San Juan 32-7 Unit 241H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	Lat 01 ST01	**Database:**	EDM 5000.1 Single User Db
Reference Design:	Rev2	**Offset TVD Reference:**	Offset Datum

Reference Rev2

Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	Stations	**Error Model:**	ISCWSA
Depth Range:	Unlimited	**Scan Method:**	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 1,000.00 usft	**Error Surface:**	Elliptical Conic
Warning Levels Evaluated at:	2.00 **Sigma**	**Casing Method:**	Not applied

Survey Tool Program **Date** 08/21/18

From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
0.00	3,634.06	Rev2 (Pilot Hole)	MWD	MWD - Standard
3,634.06	4,184.06	Rev2 (Lat 01)	MWD	MWD - Standard
4,184.06	9,708.92	Rev2 (Lat 01 ST01)	MWD	MWD - Standard

Summary

Site Name Offset Well - Wellbore - Design	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
Sec.21-T32N-R07W						
San Juan 32-7 Unit 024N - Original Hole - Original Hole						Out of range
San Juan 32-7 Unit 043M - Original Hole - Original Hole	616.54	583.61	545.11	528.84	33.507	CC
San Juan 32-7 Unit 043M - Original Hole - Original Hole	1,800.00	1,765.43	550.30	492.96	9.598	ES
San Juan 32-7 Unit 043M - Original Hole - Original Hole	2,400.00	2,330.52	609.61	536.02	8.284	SF
San Juan 32-7 Unit 224 - Original Hole - Original Hole						Out of range
San Juan 32-7 Unit 241A - Original Hole - Original Hole	1,888.69	1,865.35	78.19	31.86	1.688	CC
San Juan 32-7 Unit 241A - Original Hole - Original Hole	1,900.00	1,876.38	78.23	31.57	1.677	ES, SF
San Juan 32-7 Unit 241H - Lat 01 - Rev2	4,184.06	4,184.06	0.00	0.00	10,000.000	CC
San Juan 32-7 Unit 241H - Lat 01 - Rev2	4,194.33	4,194.33	0.03	-0.30	0.085	Level 1, SF
San Juan 32-7 Unit 241H - Lat 01 - Rev2	4,207.87	4,207.87	0.15	-0.61	0.197	Level 1, ES
San Juan 32-7 Unit 241H - Pilot Hole - Rev2	3,634.06	3,634.06	0.00	0.00	0.000	Level 1, CC, SF
San Juan 32-7 Unit 241H - Pilot Hole - Rev2	3,639.11	3,639.11	0.02	-0.05	0.290	Level 1, ES
Sec.28-T32N-R07W						
San Juan 32-7 Unit 014 - Original Hole - Original Hole						Out of range
San Juan 32-7 Unit 063 - Original Hole - Original Hole						Out of range
San Juan 32-7 Unit 236A - Original Hole - Original Hole						Out of range
Sec.29-T32N-R07W						
San Juan 32-7 Unit 238 - Original Hole - Original Hole						Out of range
San Juan Unit 235A - Original Hole - Original Hole						Out of range

Offset Design Sec.21-T32N-R07W - San Juan 32-7 Unit 043M - Original Hole - Original Hole

Offset Site Error: 0.00 usft
Offset Well Error: 0.00 usft

Survey Program: 230-INC_ONLY<10

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	0.00	0.00	0.00	0.00	-25.19	494.84	-232.77	547.85				
100.00	100.00	68.32	68.32	0.10	0.70	-25.21	494.52	-232.77	546.57	545.78	0.79	689.625	
148.00	148.00	115.01	115.00	0.20	1.17	-25.21	494.46	-232.77	546.51	545.13	1.38	396.985	
200.00	200.00	165.58	165.58	0.32	1.69	-25.21	494.53	-232.77	546.58	544.57	2.01	272.019	
300.00	300.00	271.78	271.77	0.55	3.84	-25.21	494.41	-232.77	546.48	542.10	4.39	124.549	
400.00	400.00	370.31	370.30	0.77	7.37	-25.25	493.61	-232.77	545.75	537.61	8.14	67.031	

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

Company:	Hilcorp Energy Company	**Local Co-ordinate Reference:**	Well San Juan 32-7 Unit 241H
Project:	San Juan Co., NM (NAD27)	**TVD Reference:**	KB @ 6558.00usft
Reference Site:	Sec.21-T32N-R07W	**MD Reference:**	KB @ 6558.00usft
Site Error:	0.00 usft	**North Reference:**	Grid
Reference Well:	San Juan 32-7 Unit 241H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	Lat 01 ST01	**Database:**	EDM 5000.1 Single User Db
Reference Design:	Rev2	**Offset TVD Reference:**	Offset Datum

Offset Design Sec.21-T32N-R07W - San Juan 32-7 Unit 043M - Original Hole - Original Hole

Survey Program: 230-INC_ONLY<10

Offset Site Error: 0.00 usft
Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
500.00	500.00	468.83	468.81	0.99	10.90	-25.27	493.11	-232.77	545.29	533.40	11.90	45.842	
600.00	600.00	567.32	567.30	1.22	14.43	-25.28	492.91	-232.77	545.11	529.46	15.65	34.836	
616.54	616.54	583.61	583.58	1.26	15.01	-25.28	492.91	-232.77	545.11	528.84	16.27	33.507	CC
700.00	700.00	665.79	665.77	1.44	17.96	-25.27	493.01	-232.77	545.20	525.80	19.40	28.104	
800.00	800.00	764.24	764.21	1.67	21.48	-25.26	493.41	-232.77	545.57	522.42	23.15	23.566	
900.00	900.00	862.65	862.63	1.89	25.01	-25.22	494.11	-232.77	546.21	519.31	26.90	20.305	
1,000.00	1,000.00	963.42	963.40	2.12	28.70	-25.18	495.05	-232.77	547.05	516.24	30.82	17.751	
1,100.00	1,100.00	1,066.27	1,066.23	2.34	32.71	-25.16	495.50	-232.77	547.45	512.40	35.05	15.618	
1,200.00	1,200.00	1,169.16	1,169.10	2.57	36.72	-25.17	495.36	-232.77	547.33	508.04	39.29	13.931	
1,300.00	1,300.00	1,267.08	1,267.00	2.79	40.32	-25.19	494.84	-232.77	546.85	503.73	43.12	12.683	
1,400.00	1,400.00	1,367.09	1,367.00	3.02	42.97	-25.19	494.84	-232.77	546.85	500.86	45.99	11.891	
1,467.40	1,467.40	1,434.49	1,434.40	3.17	44.75	-25.19	494.84	-232.77	546.85	498.93	47.92	11.411	
1,500.00	1,500.00	1,467.09	1,467.00	3.24	45.62	95.38	494.84	-232.77	546.88	498.03	48.85	11.195	
1,600.00	1,599.89	1,566.99	1,566.89	3.42	48.26	95.81	494.84	-232.77	547.30	495.62	51.68	10.590	
1,700.00	1,699.43	1,666.53	1,666.43	3.62	50.89	96.77	494.84	-232.77	548.35	493.84	54.51	10.060	
1,800.00	1,798.32	1,765.43	1,765.32	3.84	53.51	98.22	494.84	-232.77	550.30	492.96	57.34	9.598	ES
1,900.00	1,896.31	1,863.43	1,863.31	4.10	56.11	100.12	494.84	-232.77	553.53	493.37	60.16	9.200	
2,000.00	1,993.12	1,960.24	1,960.12	4.43	58.67	102.42	494.84	-232.77	558.58	495.60	62.98	8.869	
2,100.00	2,088.50	2,055.62	2,055.50	4.82	61.20	105.05	494.84	-232.77	566.04	500.27	65.77	8.606	
2,200.00	2,182.17	2,149.30	2,149.17	5.32	63.68	107.91	494.84	-232.77	576.59	508.09	68.50	8.418	
2,300.00	2,273.88	2,241.01	2,240.88	5.91	66.11	110.92	494.84	-232.77	590.90	519.78	71.12	8.308	
2,400.00	2,363.38	2,330.52	2,330.38	6.62	68.48	113.98	494.84	-232.77	609.61	536.02	73.59	8.284	SF
2,500.00	2,450.42	2,417.56	2,417.42	7.46	70.78	116.99	494.84	-232.77	633.26	557.41	75.85	8.348	
2,600.00	2,534.77	2,501.92	2,501.77	8.41	73.02	119.87	494.84	-232.77	662.29	584.41	77.88	8.504	
2,700.00	2,616.20	2,583.35	2,583.20	9.49	75.17	122.55	494.84	-232.77	696.97	617.32	79.65	8.751	
2,800.00	2,694.47	2,661.63	2,661.47	10.68	77.25	124.99	494.84	-232.77	737.41	656.25	81.16	9.086	
2,900.00	2,769.38	2,736.54	2,736.38	11.99	79.23	127.13	494.84	-232.77	783.60	701.18	82.43	9.507	
3,000.00	2,840.73	2,807.89	2,807.73	13.42	81.12	128.96	494.84	-232.77	835.40	751.90	83.50	10.005	
3,100.00	2,908.31	2,875.47	2,875.31	14.95	82.91	130.45	494.84	-232.77	892.59	808.15	84.44	10.571	
3,200.00	2,971.94	2,939.11	2,938.94	16.59	84.60	131.59	494.84	-232.77	954.87	869.54	85.32	11.191	

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

Company:	Hilcorp Energy Company	**Local Co-ordinate Reference:**	Well San Juan 32-7 Unit 241H
Project:	San Juan Co., NM (NAD27)	**TVD Reference:**	KB @ 6558.00usft
Reference Site:	Sec.21-T32N-R07W	**MD Reference:**	KB @ 6558.00usft
Site Error:	0.00 usft	**North Reference:**	Grid
Reference Well:	San Juan 32-7 Unit 241H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	Lat 01 ST01	**Database:**	EDM 5000.1 Single User Db
Reference Design:	Rev2	**Offset TVD Reference:**	Offset Datum

Offset Design Sec.21-T32N-R07W - San Juan 32-7 Unit 241A - Original Hole - Original Hole

Offset Site Error: 0.00 usft

Survey Program: 213-INC_ONLY<10

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	0.00	0.00	0.00	0.00	-61.16	43.83	-79.59	93.03				
100.00	100.00	80.05	80.05	0.10	0.58	-61.28	43.61	-79.59	90.75	90.08	0.68	133.875	
126.50	126.50	106.50	106.50	0.16	0.77	-61.29	43.60	-79.59	90.75	89.82	0.93	97.593	
200.00	200.00	179.87	179.87	0.32	1.31	-61.23	43.71	-79.59	90.80	89.17	1.63	55.753	
300.00	300.00	280.15	280.14	0.55	2.92	-61.30	43.58	-79.59	90.74	87.28	3.46	26.208	
400.00	400.00	380.08	380.07	0.77	4.95	-61.43	43.35	-79.59	90.63	84.90	5.72	15.837	
481.00	481.00	461.02	461.01	0.95	6.60	-61.46	43.29	-79.59	90.60	83.05	7.55	11.994	
500.00	500.00	480.00	479.99	0.99	6.99	-61.46	43.29	-79.59	90.60	82.62	7.98	11.349	
600.00	600.00	579.91	579.90	1.22	9.02	-61.39	43.41	-79.59	90.66	80.42	10.24	8.851	
700.00	700.00	679.82	679.81	1.44	11.06	-61.23	43.71	-79.59	90.80	78.30	12.50	7.262	
800.00	800.00	780.01	780.00	1.67	13.53	-61.16	43.83	-79.59	90.86	75.66	15.20	5.978	
900.00	900.00	880.01	880.00	1.89	16.18	-61.16	43.83	-79.59	90.86	72.79	18.07	5.028	
1,000.00	1,000.00	980.02	980.00	2.12	18.82	-61.16	43.83	-79.59	90.86	69.92	20.94	4.339	
1,100.00	1,100.00	1,080.03	1,080.00	2.34	21.46	-61.16	43.83	-79.59	90.86	67.05	23.81	3.816	
1,200.00	1,200.00	1,180.03	1,180.00	2.57	24.11	-61.16	43.83	-79.59	90.86	64.18	26.68	3.406	
1,300.00	1,300.00	1,280.04	1,280.00	2.79	26.76	-61.16	43.83	-79.59	90.86	61.31	29.55	3.075	
1,400.00	1,400.00	1,380.04	1,380.00	3.02	29.41	-61.16	43.83	-79.59	90.86	58.44	32.42	2.802	
1,467.40	1,467.40	1,447.44	1,447.40	3.17	31.19	-61.16	43.83	-79.59	90.86	56.50	34.36	2.644	
1,500.00	1,500.00	1,480.04	1,480.00	3.24	32.05	59.54	43.83	-79.59	90.72	55.43	35.29	2.571	
1,600.00	1,599.89	1,579.94	1,579.89	3.42	34.70	62.00	43.83	-79.59	88.60	50.50	38.11	2.325	
1,700.00	1,699.43	1,679.48	1,679.43	3.62	37.34	67.81	43.83	-79.59	84.54	43.61	40.92	2.066	
1,800.00	1,798.32	1,778.38	1,778.32	3.84	39.96	77.65	43.83	-79.59	80.10	36.33	43.78	1.830	
1,888.69	1,885.28	1,865.35	1,865.28	4.07	42.26	90.00	43.83	-79.59	78.19	31.86	46.33	1.688	CC
1,900.00	1,896.31	1,876.38	1,876.31	4.10	42.55	91.79	43.83	-79.59	78.23	31.57	46.66	1.677	ES, SF
2,000.00	1,993.12	1,973.19	1,973.12	4.43	45.12	108.68	43.83	-79.59	82.89	33.55	49.34	1.680	
2,100.00	2,088.50	2,068.57	2,068.50	4.82	47.65	124.83	43.83	-79.59	97.08	45.60	51.48	1.886	
2,200.00	2,182.17	2,162.25	2,162.17	5.32	50.13	137.65	43.83	-79.59	121.13	68.09	53.05	2.284	
2,300.00	2,273.88	2,253.96	2,253.88	5.91	52.56	146.91	43.83	-79.59	153.72	99.50	54.22	2.835	
2,400.00	2,363.38	2,343.47	2,343.38	6.62	54.93	153.42	43.83	-79.59	193.44	138.33	55.11	3.510	
2,500.00	2,450.42	2,430.52	2,430.42	7.46	57.24	158.04	43.83	-79.59	239.27	183.53	55.75	4.292	
2,600.00	2,534.77	2,514.87	2,514.77	8.41	59.47	161.38	43.83	-79.59	290.55	234.43	56.12	5.177	
2,700.00	2,616.20	2,596.30	2,596.20	9.49	61.63	163.84	43.83	-79.59	346.79	290.57	56.22	6.169	
2,800.00	2,694.47	2,674.58	2,674.47	10.68	63.71	165.69	43.83	-79.59	407.64	351.61	56.03	7.275	
2,900.00	2,769.38	2,749.99	2,749.88	11.99	65.85	167.11	43.74	-79.59	472.75	417.08	55.67	8.492	
3,000.00	2,840.73	2,821.10	2,820.99	13.42	67.95	168.18	43.65	-79.59	541.92	486.86	55.05	9.844	
3,100.00	2,908.31	2,888.41	2,888.29	14.95	69.95	168.97	43.63	-79.59	614.92	560.79	54.12	11.361	
3,200.00	2,971.94	2,951.72	2,951.60	16.59	71.82	169.55	43.66	-79.59	691.51	638.61	52.90	13.073	
3,300.00	3,031.44	3,010.86	3,010.74	18.33	73.57	169.93	43.73	-79.59	771.44	720.05	51.39	15.011	
3,400.00	3,086.66	3,066.00	3,065.87	20.16	75.20	170.15	43.83	-79.59	854.48	804.84	49.64	17.214	
3,500.00	3,137.44	3,117.57	3,117.44	22.08	76.88	170.24	43.83	-79.59	940.28	892.52	47.76	19.689	

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

Company:	Hilcorp Energy Company	**Local Co-ordinate Reference:**	Well San Juan 32-7 Unit 241H
Project:	San Juan Co., NM (NAD27)	**TVD Reference:**	KB @ 6558.00usft
Reference Site:	Sec.21-T32N-R07W	**MD Reference:**	KB @ 6558.00usft
Site Error:	0.00 usft	**North Reference:**	Grid
Reference Well:	San Juan 32-7 Unit 241H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	Lat 01 ST01	**Database:**	EDM 5000.1 Single User Db
Reference Design:	Rev2	**Offset TVD Reference:**	Offset Datum

Offset Design Sec.21-T32N-R07W - San Juan 32-7 Unit 241H - Lat 01 - Rev2

Offset Site Error: 0.00 usft

Survey Program: 0-MWD, 3634-MWD

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
4,184.06	3,252.00	4,184.06	3,252.00	0.00	0.00	0.00	-835.82	-1,416.67	0.00	0.00	0.00	N/A	CC
4,194.33	3,252.00	4,194.33	3,252.00	0.15	0.18	-89.00	-841.06	-1,425.51	0.03	-0.30	0.33	0.085	Level 1, SF
4,207.87	3,252.00	4,207.87	3,252.00	0.34	0.41	-89.00	-848.04	-1,437.11	0.15	-0.61	0.76	0.197	Level 1, ES
4,300.00	3,252.00	4,299.86	3,251.94	1.44	2.03	-89.00	-897.64	-1,514.56	3.52	0.04	3.47	1.012	Level 2
4,400.00	3,252.00	4,399.09	3,251.79	2.77	3.83	-89.00	-955.26	-1,595.34	12.17	5.58	6.59	1.848	
4,500.00	3,252.00	4,497.16	3,251.55	4.21	5.63	-89.00	-1,016.26	-1,672.12	25.96	16.13	9.82	2.642	
4,600.00	3,252.00	4,593.60	3,251.24	5.76	7.43	-89.00	-1,080.00	-1,744.48	44.77	31.63	13.14	3.406	
4,700.00	3,252.00	4,687.97	3,250.85	7.40	9.19	-89.00	-1,145.83	-1,812.08	68.46	51.95	16.51	4.147	
4,800.00	3,252.00	4,779.89	3,250.40	9.12	10.91	-89.00	-1,213.08	-1,874.72	96.87	76.97	19.89	4.870	
4,900.00	3,252.00	4,869.04	3,249.89	10.91	12.56	-89.00	-1,281.12	-1,932.32	129.78	106.51	23.27	5.577	
5,000.00	3,252.00	4,955.17	3,249.33	12.77	14.14	-89.00	-1,349.33	-1,984.89	166.99	140.37	26.62	6.272	
5,100.00	3,252.00	5,038.12	3,248.74	14.68	15.65	-89.00	-1,417.20	-2,032.56	208.28	178.33	29.95	6.955	
5,200.00	3,252.00	5,117.74	3,248.11	16.64	17.09	-89.00	-1,484.24	-2,075.52	253.40	220.17	33.23	7.626	
5,300.00	3,252.00	5,200.43	3,247.42	18.65	18.55	-89.00	-1,555.39	-2,117.62	301.63	265.06	36.56	8.249	
5,400.00	3,252.00	5,287.83	3,246.68	20.69	20.09	-89.00	-1,630.78	-2,161.83	350.22	310.23	40.00	8.756	
5,500.00	3,252.00	5,375.22	3,245.94	22.77	21.65	-89.00	-1,706.17	-2,206.04	398.82	355.34	43.48	9.173	
5,600.00	3,252.00	5,462.62	3,245.20	24.88	23.22	-89.00	-1,781.56	-2,250.25	447.42	400.42	46.99	9.521	
5,700.00	3,252.00	5,550.02	3,244.47	27.02	24.81	-89.00	-1,856.95	-2,294.45	496.02	445.47	50.55	9.813	
5,800.00	3,252.00	5,637.42	3,243.73	29.18	26.41	-89.00	-1,932.34	-2,338.66	544.61	490.48	54.13	10.061	
5,900.00	3,252.00	5,724.81	3,242.99	31.36	28.02	-89.00	-2,007.72	-2,382.87	593.21	535.47	57.74	10.273	
6,000.00	3,252.00	5,812.21	3,242.25	33.57	29.64	-89.00	-2,083.11	-2,427.08	641.81	580.43	61.38	10.456	
6,100.00	3,252.00	5,899.61	3,241.52	35.79	31.27	-89.00	-2,158.50	-2,471.28	690.41	625.36	65.04	10.615	
6,200.00	3,252.00	5,987.00	3,240.78	38.02	32.90	-89.00	-2,233.89	-2,515.49	739.00	670.28	68.73	10.753	
6,300.00	3,252.00	6,074.40	3,240.04	40.28	34.55	-89.00	-2,309.28	-2,559.70	787.60	715.17	72.43	10.874	
6,400.00	3,252.00	6,161.80	3,239.30	42.54	36.20	-89.00	-2,384.67	-2,603.91	836.20	760.05	76.15	10.981	
6,500.00	3,252.00	6,249.20	3,238.56	44.82	37.86	-89.00	-2,460.06	-2,648.12	884.80	804.91	79.88	11.076	
6,600.00	3,252.00	6,336.59	3,237.83	47.11	39.52	-89.00	-2,535.44	-2,692.32	933.39	849.76	83.63	11.160	
6,700.00	3,252.00	6,423.99	3,237.09	49.41	41.19	-89.00	-2,610.83	-2,736.53	981.99	894.59	87.40	11.236	

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

Company:	Hilcorp Energy Company	**Local Co-ordinate Reference:**	Well San Juan 32-7 Unit 241H
Project:	San Juan Co., NM (NAD27)	**TVD Reference:**	KB @ 6558.00usft
Reference Site:	Sec.21-T32N-R07W	**MD Reference:**	KB @ 6558.00usft
Site Error:	0.00 usft	**North Reference:**	Grid
Reference Well:	San Juan 32-7 Unit 241H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	Lat 01 ST01	**Database:**	EDM 5000.1 Single User Db
Reference Design:	Rev2	**Offset TVD Reference:**	Offset Datum

Offset Design Sec.21-T32N-R07W - San Juan 32-7 Unit 241H - Pilot Hole - Rev2

Survey Program: 0-MWD

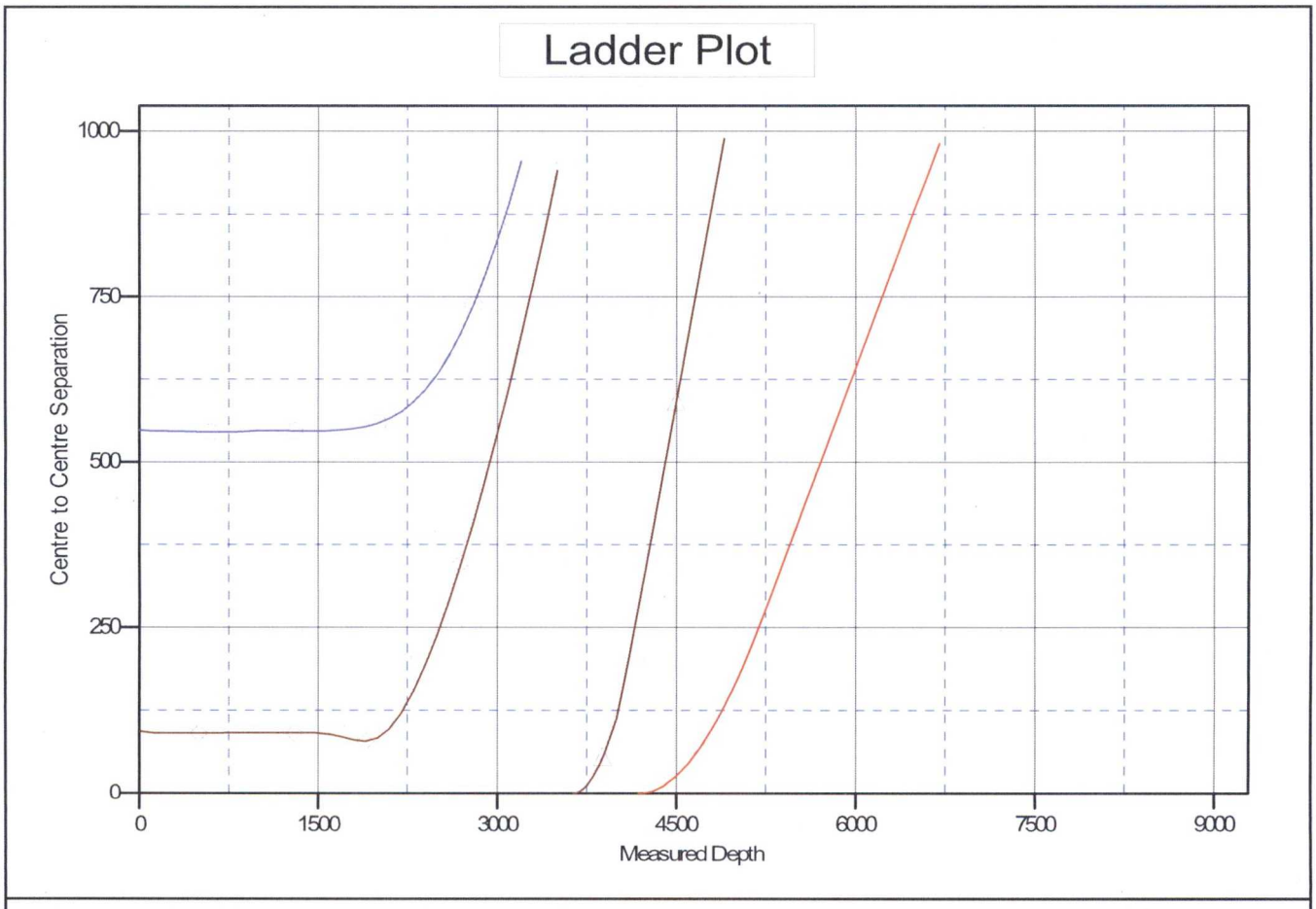
Offset Site Error: 0.00 usft
Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
3,634.06	3,198.32	3,634.06	3,198.32	0.00	0.00	0.00	-560.33	-949.74	0.00	0.00	0.00	0.000	Level 1, CC, SF
3,639.11	3,200.43	3,639.11	3,200.45	0.08	0.10	180.00	-562.66	-953.68	0.02	-0.05	0.08	0.290	Level 1, ES
3,650.00	3,204.85	3,650.00	3,205.05	0.26	0.33	180.00	-567.67	-962.18	0.22	-0.02	0.24	0.932	Level 1
3,700.00	3,222.69	3,699.85	3,226.12	0.72	1.36	180.00	-590.63	-1,001.10	3.79	3.23	0.56	6.743	
3,750.00	3,236.39	3,749.21	3,246.98	1.26	2.39	180.00	-613.36	-1,039.62	11.69	10.83	0.86	13.570	
3,800.00	3,245.84	3,797.69	3,267.47	1.85	3.40	180.00	-635.69	-1,077.47	23.86	22.74	1.12	21.218	
3,850.00	3,250.99	3,844.92	3,287.43	2.49	4.39	180.00	-657.44	-1,114.34	40.21	38.87	1.34	30.038	
3,884.06	3,252.00	3,876.20	3,300.65	2.96	5.05	180.00	-671.85	-1,138.75	53.68	52.24	1.44	37.164	
3,900.00	3,252.00	3,890.65	3,306.76	3.18	5.35	180.00	-678.50	-1,150.03	60.42	58.86	1.56	38.687	
4,000.00	3,252.00	3,934.06	3,325.10	4.66	6.26	180.00	-698.49	-1,183.92	113.02	110.95	2.07	54.630	
4,100.00	3,252.00	3,934.06	3,325.10	6.27	6.26	180.00	-698.49	-1,183.92	200.03	197.63	2.39	83.577	
4,184.06	3,252.00	3,934.06	3,325.10	7.71	6.26	180.00	-698.49	-1,183.92	279.96	277.25	2.71	103.155	
4,207.87	3,252.00	3,934.06	3,325.10	8.05	6.26	-180.00	-698.49	-1,183.92	303.01	300.25	2.76	109.662	
4,300.00	3,252.00	3,934.06	3,325.10	9.15	6.26	-180.00	-698.49	-1,183.92	393.05	390.24	2.80	140.188	
4,400.00	3,252.00	3,934.06	3,325.10	10.48	6.26	-180.00	-698.49	-1,183.92	491.65	488.73	2.92	168.407	
4,500.00	3,252.00	3,934.06	3,325.10	11.92	6.26	-180.00	-698.49	-1,183.92	590.73	587.62	3.11	190.167	
4,600.00	3,252.00	3,934.06	3,325.10	13.47	6.26	-180.00	-698.49	-1,183.92	690.07	686.71	3.36	205.424	
4,700.00	3,252.00	3,934.06	3,325.10	15.11	6.26	-180.00	-698.49	-1,183.92	789.58	785.91	3.67	215.036	
4,800.00	3,252.00	3,934.06	3,325.10	16.83	6.26	-180.00	-698.49	-1,183.92	889.20	885.16	4.04	220.239	
4,900.00	3,252.00	3,934.06	3,325.10	18.62	6.26	-180.00	-698.49	-1,183.92	988.89	984.44	4.45	222.257	

Company:	Hilcorp Energy Company	**Local Co-ordinate Reference:**	Well San Juan 32-7 Unit 241H
Project:	San Juan Co., NM (NAD27)	**TVD Reference:**	KB @ 6558.00usft
Reference Site:	Sec.21-T32N-R07W	**MD Reference:**	KB @ 6558.00usft
Site Error:	0.00 usft	**North Reference:**	Grid
Reference Well:	San Juan 32-7 Unit 241H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	Lat 01 ST01	**Database:**	EDM 5000.1 Single User Db
Reference Design:	Rev2	**Offset TVD Reference:**	Offset Datum

Reference Depths are relative to KB @ 6558.00usft
Offset Depths are relative to Offset Datum
Central Meridian is 107° 50' 0.000 W

Coordinates are relative to: San Juan 32-7 Unit 241H
Coordinate System is US State Plane 1927 (Exact solution), New Mexico West 30
Grid Convergence at Surface is: 0.16°



LEGEND

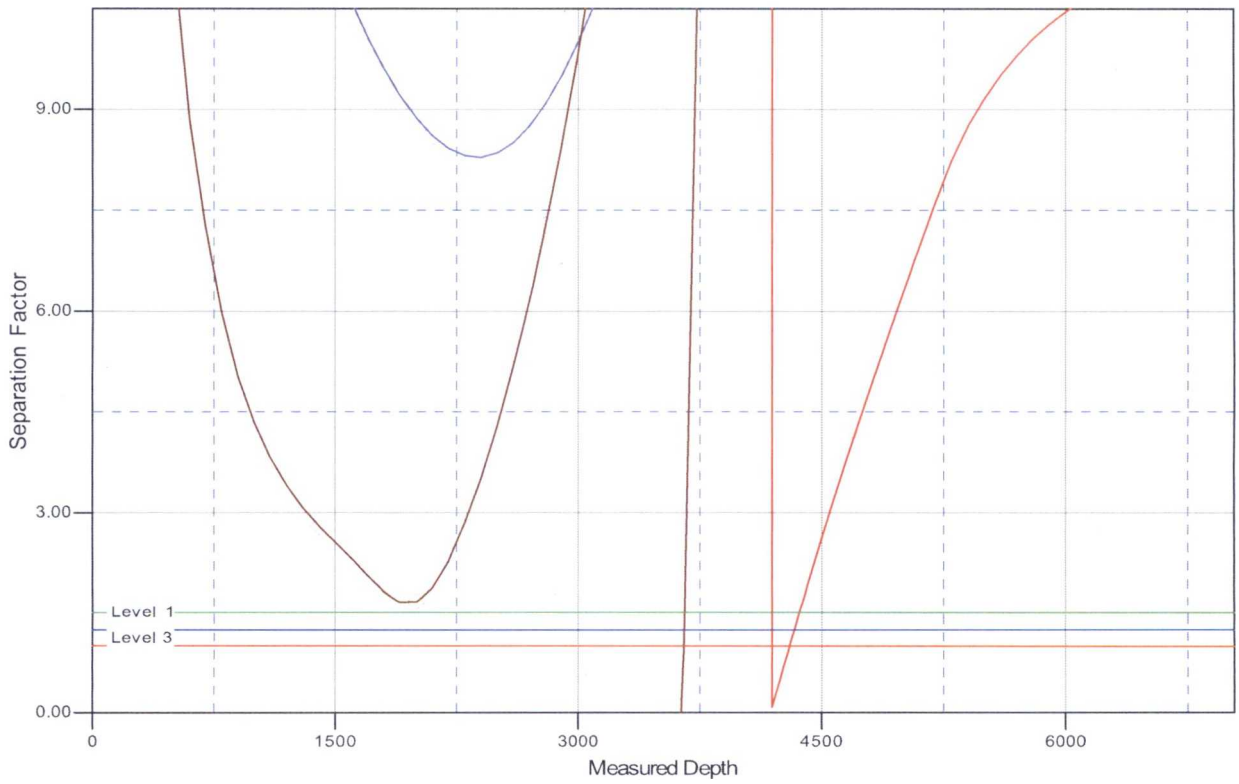
an 32-7 Unit241H, Lat01, Rev2 V0
an 32-7 Unit241H, Pilot Hole, Rev2 V0
San Juan 32-7 Unit043M, Original Hole, Original Hole V0
San Juan 32-7 Unit241A, Original Hole, Original Hole V0

Company:	Hilcorp Energy Company	**Local Co-ordinate Reference:**	Well San Juan 32-7 Unit 241H
Project:	San Juan Co., NM (NAD27)	**TVD Reference:**	KB @ 6558.00usft
Reference Site:	Sec.21-T32N-R07W	**MD Reference:**	KB @ 6558.00usft
Site Error:	0.00 usft	**North Reference:**	Grid
Reference Well:	San Juan 32-7 Unit 241H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	Lat 01 ST01	**Database:**	EDM 5000.1 Single User Db
Reference Design:	Rev2	**Offset TVD Reference:**	Offset Datum

Reference Depths are relative to KB @ 6558.00usft
Offset Depths are relative to Offset Datum
Central Meridian is 107° 50' 0.000 W

Coordinates are relative to: San Juan 32-7 Unit 241H
Coordinate System is US State Plane 1927 (Exact solution), New Mexico West 30
Grid Convergence at Surface is: 0.16°

Separation Factor Plot



LEGEND

ar 32-7 Unit241H, Lat01, Rev2 V0
ar 32-7 Unit241H, Pilot Hole, Rev2 V0
San Juan 32-7 Unit043M, Original Hole, Original Hole V0
San Juan 32-7 Unit241A, Original Hole, Original Hole V0

Hilcorp

Hilcorp Energy Company

San Juan Co., NM (NAD27)
Sec.21-T32N-R07W
San Juan 32-7 Unit 241H

Pilot Hole
Rev2

Anticollision Report

21 August, 2018

KOLTEK
ENERGY SERVICES

Company:	Hilcorp Energy Company	**Local Co-ordinate Reference:**	Well San Juan 32-7 Unit 241H
Project:	San Juan Co., NM (NAD27)	**TVD Reference:**	KB @ 6558.00usft
Reference Site:	Sec.21-T32N-R07W	**MD Reference:**	KB @ 6558.00usft
Site Error:	0.00 usft	**North Reference:**	Grid
Reference Well:	San Juan 32-7 Unit 241H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	Pilot Hole	**Database:**	EDM 5000.1 Single User Db
Reference Design:	Rev2	**Offset TVD Reference:**	Offset Datum

Reference Rev2

Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	Stations	**Error Model:**	ISCWSA
Depth Range:	Unlimited	**Scan Method:**	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 1,000.00 usft	**Error Surface:**	Elliptical Conic
Warning Levels Evaluated at:	2.00 **Sigma**	**Casing Method:**	Not applied

Survey Tool Program **Date** 08/21/18

From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
0.00	3,934.06	Rev2 (Pilot Hole)	MWD	MWD - Standard

Summary

Site Name Offset Well - Wellbore - Design	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
Sec.21-T32N-R07W						
San Juan 32-7 Unit 241A - Original Hole - Original Hole	1,888.69	1,865.35	78.19	31.86	1.688	CC
San Juan 32-7 Unit 241A - Original Hole - Original Hole	1,900.00	1,876.38	78.23	31.57	1.677	ES, SF

Offset Design Sec.21-T32N-R07W - San Juan 32-7 Unit 241A - Original Hole - Original Hole

Offset Site Error: 0.00 usft
Offset Well Error: 0.00 usft

Survey Program: 213-INC_ONLY<10

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	0.00	0.00	0.00	0.00	-61.16	43.83	-79.59	93.03				
100.00	100.00	80.05	80.05	0.10	0.58	-61.28	43.61	-79.59	90.75	90.08	0.68	133.875	
126.50	126.50	106.50	106.50	0.16	0.77	-61.29	43.60	-79.59	90.75	89.82	0.93	97.593	
200.00	200.00	179.87	179.87	0.32	1.31	-61.23	43.71	-79.59	90.80	89.17	1.63	55.753	
300.00	300.00	280.15	280.14	0.55	2.92	-61.30	43.58	-79.59	90.74	87.28	3.46	26.208	
400.00	400.00	380.08	380.07	0.77	4.95	-61.43	43.35	-79.59	90.63	84.90	5.72	15.837	
481.00	481.00	461.02	461.01	0.95	6.60	-61.46	43.29	-79.59	90.60	83.05	7.55	11.994	
500.00	500.00	480.00	479.99	0.99	6.99	-61.46	43.29	-79.59	90.60	82.62	7.98	11.349	
600.00	600.00	579.91	579.90	1.22	9.02	-61.39	43.41	-79.59	90.66	80.42	10.24	8.851	
700.00	700.00	679.82	679.81	1.44	11.06	-61.23	43.71	-79.59	90.80	78.30	12.50	7.262	
800.00	800.00	780.01	780.00	1.67	13.53	-61.16	43.83	-79.59	90.86	75.66	15.20	5.978	
900.00	900.00	880.01	880.00	1.89	16.18	-61.16	43.83	-79.59	90.86	72.79	18.07	5.028	
1,000.00	1,000.00	980.02	980.00	2.12	18.82	-61.16	43.83	-79.59	90.86	69.92	20.94	4.339	
1,100.00	1,100.00	1,080.03	1,080.00	2.34	21.46	-61.16	43.83	-79.59	90.86	67.05	23.81	3.816	
1,200.00	1,200.00	1,180.03	1,180.00	2.57	24.11	-61.16	43.83	-79.59	90.86	64.18	26.68	3.406	
1,300.00	1,300.00	1,280.04	1,280.00	2.79	26.76	-61.16	43.83	-79.59	90.86	61.31	29.55	3.075	
1,400.00	1,400.00	1,380.04	1,380.00	3.02	29.41	-61.16	43.83	-79.59	90.86	58.44	32.42	2.802	
1,467.40	1,467.40	1,447.44	1,447.40	3.17	31.19	-61.16	43.83	-79.59	90.86	56.50	34.36	2.644	
1,500.00	1,500.00	1,480.04	1,480.00	3.24	32.05	59.54	43.83	-79.59	90.72	55.43	35.29	2.571	
1,600.00	1,599.89	1,579.94	1,579.89	3.42	34.70	62.00	43.83	-79.59	88.60	50.50	38.11	2.325	
1,700.00	1,699.43	1,679.48	1,679.43	3.62	37.34	67.81	43.83	-79.59	84.54	43.61	40.92	2.066	
1,800.00	1,798.32	1,778.38	1,778.32	3.84	39.96	77.65	43.83	-79.59	80.10	36.33	43.78	1.830	
1,888.69	1,885.28	1,865.35	1,865.28	4.07	42.26	90.00	43.83	-79.59	78.19	31.86	46.33	1.688	CC
1,900.00	1,896.31	1,876.38	1,876.31	4.10	42.55	91.79	43.83	-79.59	78.23	31.57	46.66	1.677	ES, SF
2,000.00	1,993.12	1,973.19	1,973.12	4.43	45.12	108.68	43.83	-79.59	82.89	33.55	49.34	1.680	

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

Company:	Hilcorp Energy Company	**Local Co-ordinate Reference:**	Well San Juan 32-7 Unit 241H
Project:	San Juan Co., NM (NAD27)	**TVD Reference:**	KB @ 6558.00usft
Reference Site:	Sec.21-T32N-R07W	**MD Reference:**	KB @ 6558.00usft
Site Error:	0.00 usft	**North Reference:**	Grid
Reference Well:	San Juan 32-7 Unit 241H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	Pilot Hole	**Database:**	EDM 5000.1 Single User Db
Reference Design:	Rev2	**Offset TVD Reference:**	Offset Datum

Offset Design Sec.21-T32N-R07W - San Juan 32-7 Unit 241A - Original Hole - Original Hole

Survey Program: 213-INC_ONLY<10

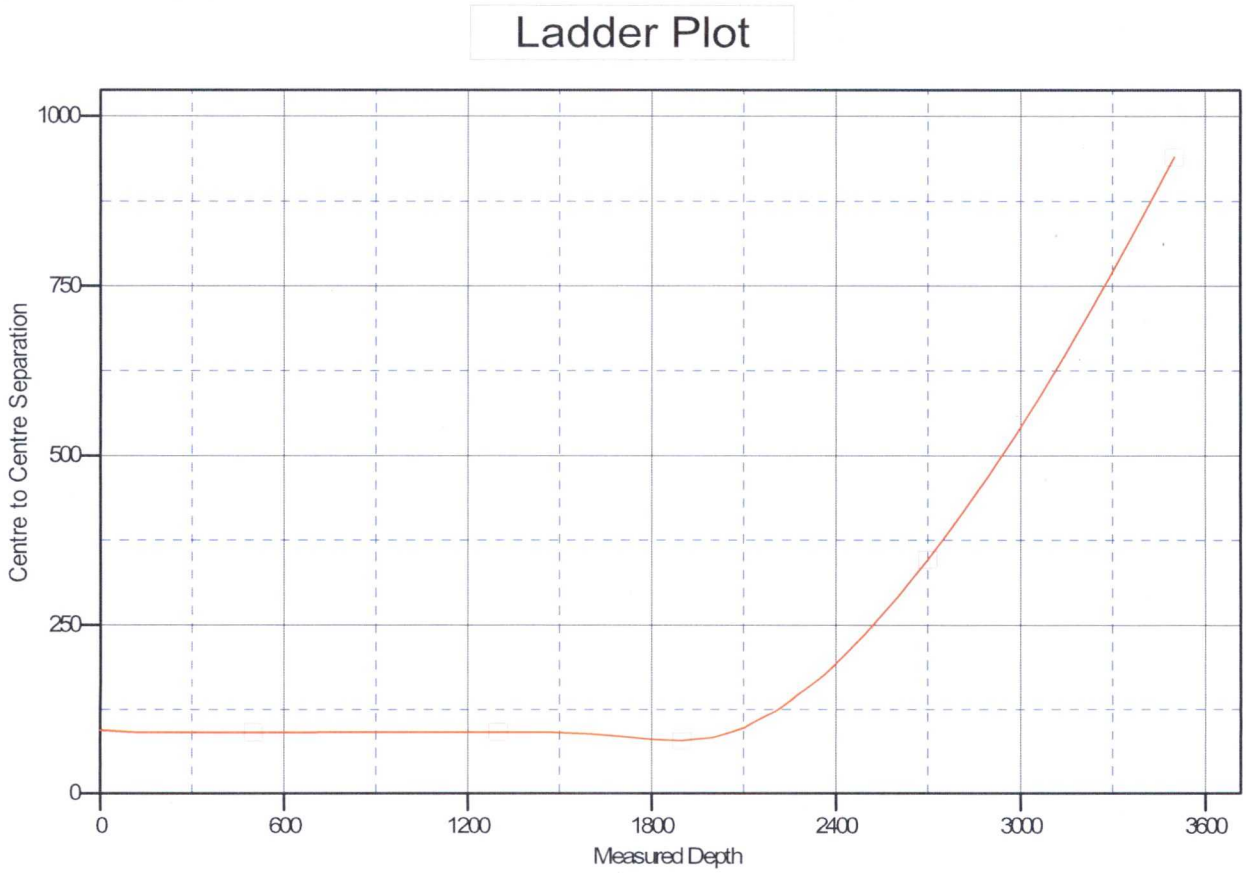
Offset Site Error: 0.00 usft
Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
2,100.00	2,088.50	2,068.57	2,068.50	4.82	47.65	124.83	43.83	-79.59	97.08	45.60	51.48	1.886	
2,200.00	2,182.17	2,162.25	2,162.17	5.32	50.13	137.65	43.83	-79.59	121.13	68.09	53.05	2.284	
2,300.00	2,273.88	2,253.96	2,253.88	5.91	52.56	146.91	43.83	-79.59	153.72	99.50	54.22	2.835	
2,400.00	2,363.38	2,343.47	2,343.38	6.62	54.93	153.42	43.83	-79.59	193.44	138.33	55.11	3.510	
2,500.00	2,450.42	2,430.52	2,430.42	7.46	57.24	158.04	43.83	-79.59	239.27	183.53	55.75	4.292	
2,600.00	2,534.77	2,514.87	2,514.77	8.41	59.47	161.38	43.83	-79.59	290.55	234.43	56.12	5.177	
2,700.00	2,616.20	2,596.30	2,596.20	9.49	61.63	163.84	43.83	-79.59	346.79	290.57	56.22	6.169	
2,800.00	2,694.47	2,674.58	2,674.47	10.68	63.71	165.69	43.83	-79.59	407.64	351.61	56.03	7.275	
2,900.00	2,769.38	2,749.99	2,749.88	11.99	65.85	167.11	43.74	-79.59	472.75	417.08	55.67	8.492	
3,000.00	2,840.73	2,821.10	2,820.99	13.42	67.95	168.18	43.65	-79.59	541.92	486.86	55.05	9.844	
3,100.00	2,908.31	2,888.41	2,888.29	14.95	69.95	168.97	43.63	-79.59	614.92	560.79	54.12	11.361	
3,200.00	2,971.94	2,951.72	2,951.60	16.59	71.82	169.55	43.66	-79.59	691.51	638.61	52.90	13.073	
3,300.00	3,031.44	3,010.86	3,010.74	18.33	73.57	169.93	43.73	-79.59	771.44	720.05	51.39	15.011	
3,400.00	3,086.66	3,066.00	3,065.87	20.16	75.20	170.15	43.83	-79.59	854.48	804.84	49.64	17.214	
3,500.00	3,137.44	3,117.57	3,117.44	22.08	76.88	170.24	43.83	-79.59	940.28	892.52	47.76	19.689	

Company:	Hilcorp Energy Company	**Local Co-ordinate Reference:**	Well San Juan 32-7 Unit 241H
Project:	San Juan Co., NM (NAD27)	**TVD Reference:**	KB @ 6558.00usft
Reference Site:	Sec.21-T32N-R07W	**MD Reference:**	KB @ 6558.00usft
Site Error:	0.00 usft	**North Reference:**	Grid
Reference Well:	San Juan 32-7 Unit 241H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	Pilot Hole	**Database:**	EDM 5000.1 Single User Db
Reference Design:	Rev2	**Offset TVD Reference:**	Offset Datum

Reference Depths are relative to KB @ 6558.00usft
Offset Depths are relative to Offset Datum
Central Meridian is 107° 50' 0.000 W

Coordinates are relative to: San Juan 32-7 Unit 241H
Coordinate System is US State Plane 1927 (Exact solution), New Mexico West 30
Grid Convergence at Surface is: 0.16°



LEGEND

an 32-7 Unit241A, Original Hole, Original Hole V0

Hilcorp

Koltek Energy Services

Anticollision Report

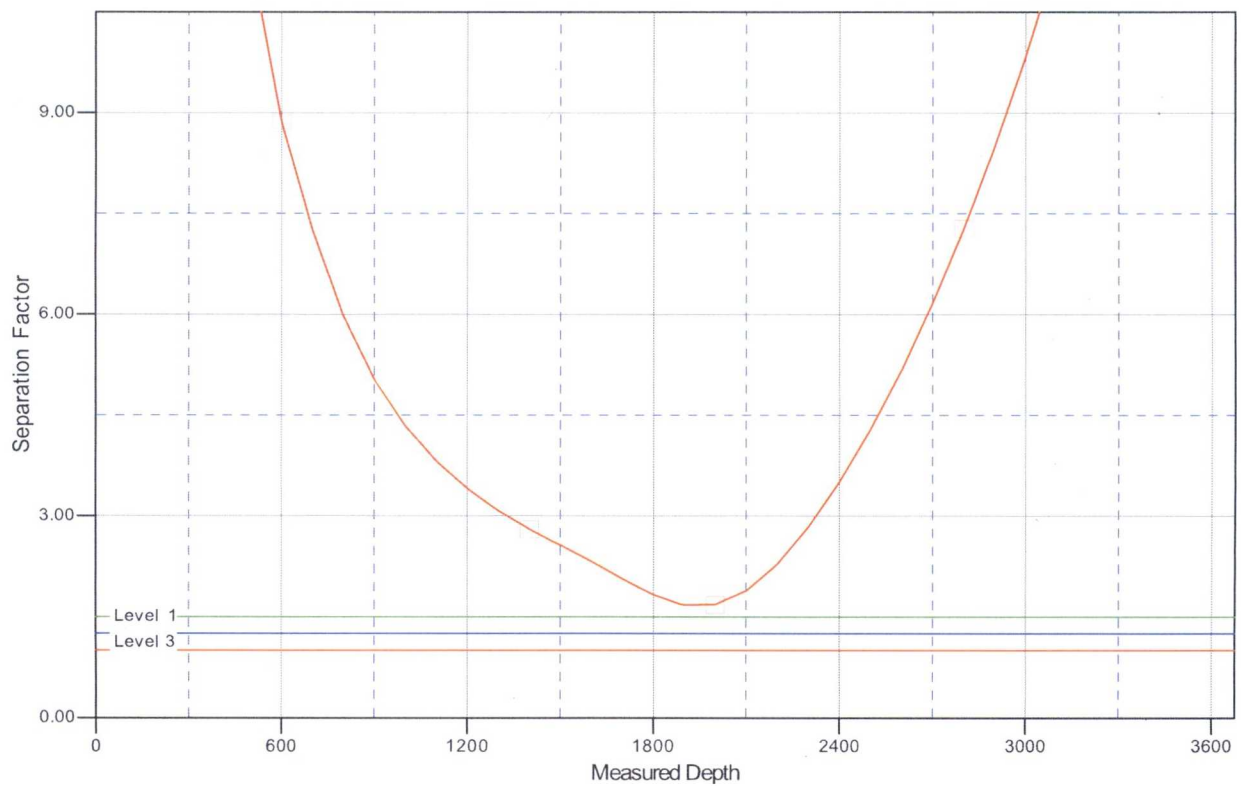
KOLTEK ENERGY SERVICES

Company:	Hilcorp Energy Company	**Local Co-ordinate Reference:**	Well San Juan 32-7 Unit 241H
Project:	San Juan Co., NM (NAD27)	**TVD Reference:**	KB @ 6558.00usft
Reference Site:	Sec.21-T32N-R07W	**MD Reference:**	KB @ 6558.00usft
Site Error:	0.00 usft	**North Reference:**	Grid
Reference Well:	San Juan 32-7 Unit 241H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	Pilot Hole	**Database:**	EDM 5000.1 Single User Db
Reference Design:	Rev2	**Offset TVD Reference:**	Offset Datum

Reference Depths are relative to KB @ 6558.00usft
Offset Depths are relative to Offset Datum
Central Meridian is 107° 50' 0.000 W

Coordinates are relative to: San Juan 32-7 Unit 241H
Coordinate System is US State Plane 1927 (Exact solution), New Mexico West 30
Grid Convergence at Surface is: 0.16°

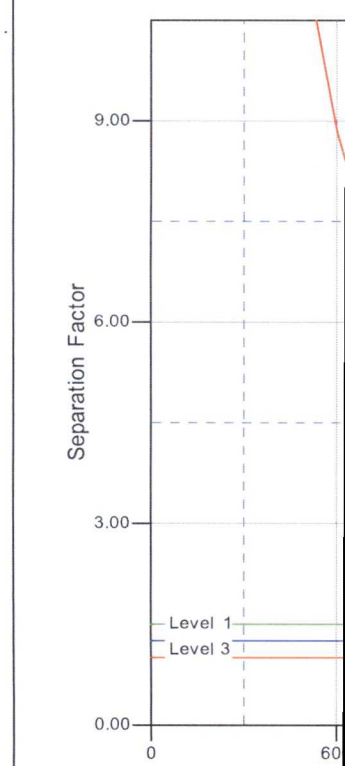
Separation Factor Plot



Hilcorp

Company:	Hilcorp Energy Cor
Project:	San Juan Co., NM
Reference Site:	Sec.21-T32N-R07W
Site Error:	0.00 usft
Reference Well:	San Juan 32-7 Unit
Well Error:	0.00 usft
Reference Wellbore	Pilot Hole
Reference Design:	Rev2

Reference Depths are relative to KB @ 655
Offset Depths are relative to Offset Datum
Central Meridian is 107° 50' 0.000 W



Company: Hilcorp Energy Company
Field: San Juan Co., NM (NAD27)
Location: Sec.21-T32N-R07W
Well: San Juan 32-7 Unit 241H
Borehole: Lat 01 ST01
Plan: Rev2

KOLTEK ENERGY SERVICES

WELL DETAILS: San Juan 32-7 Unit 241H

GL 6543.00 KB @ 6558.00usft

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
0.00	0.00	2170163.11	577954.17	36.96370°N	107.56651°W

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DIeg	TFace	VSect
1	4184.06	90.00	239.46	3252.00	-835.82	-1416.67	0.00	0.00	1644.86
2	4207.87	90.00	239.46	3252.00	-847.92	-1437.18	0.00	0.00	1668.67
3	9708.92	90.00	239.46	3252.00	-3643.11	-6175.17	0.00	0.00	7169.72

DESIGN TARGET DETAILS

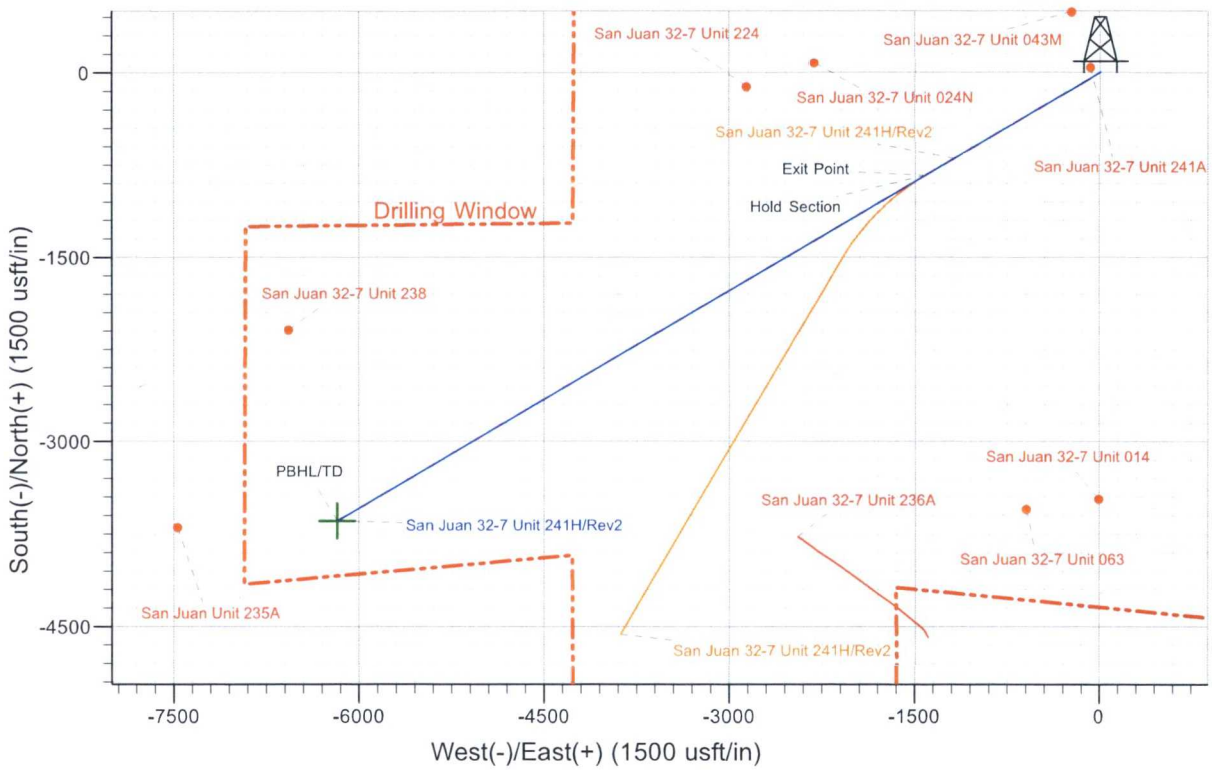
Name	TVD	+N/-S	+E/-W	Latitude	Longitude
Toe Lat 1 ST1	3252.00	-3643.11	-6175.17	36.95374°N	107.58768°W

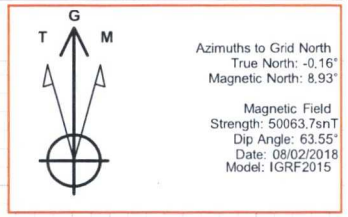
FORMATION TOP DETAILS

TVDPath	MDPath	Formation
2147.00	2162.23	Ojo Alamo
2257.00	2281.42	Kirtland
2768.00	2898.11	Fruitland
3246.00	3801.08	top of target

ANNOTATIONS

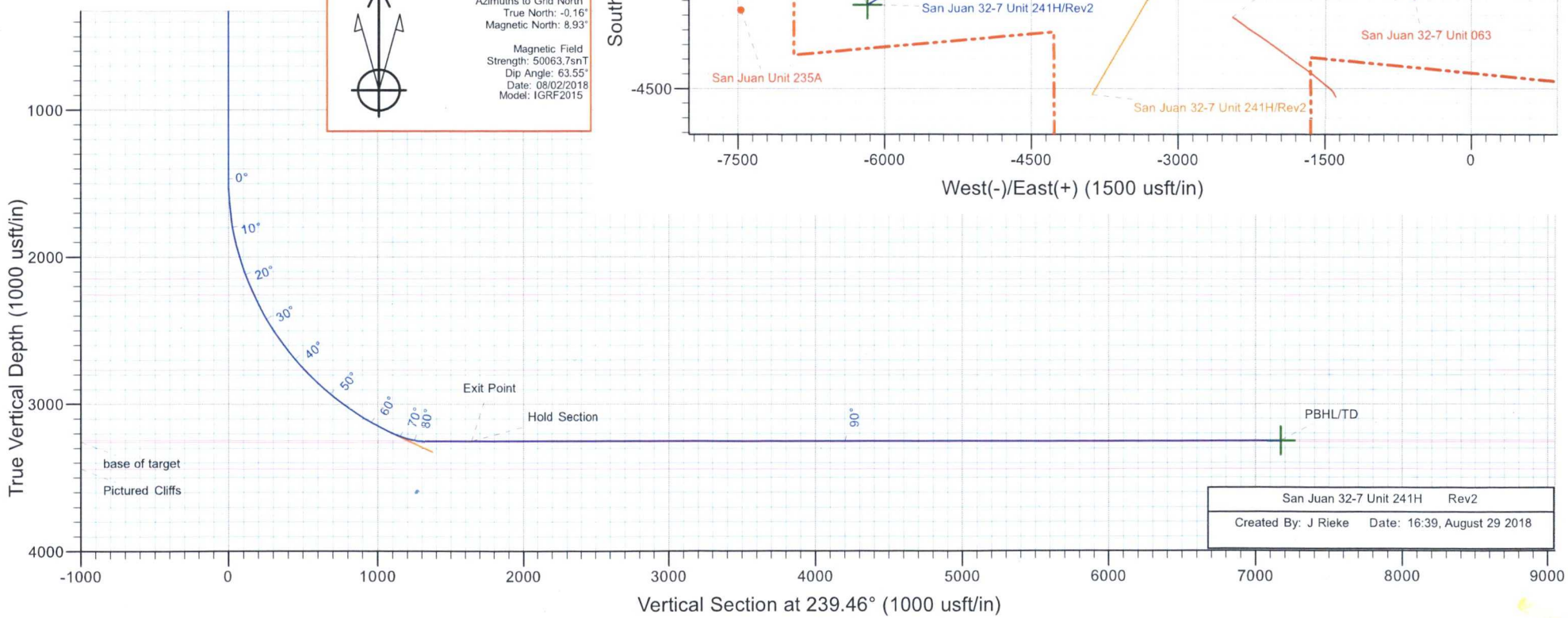
TVD	MD	Annotation
3252.00	4184.06	Exit Point
3252.00	4184.20	Hold Section
3252.00	9708.92	PBHL/TD





Azimuths to Grid North
True North: -0.16°
Magnetic North: 8.93°

Magnetic Field
Strength: 50063.7snT
Dip Angle: 63.55°
Date: 08/02/2018
Model: IGRF2015



San Juan 32-7 Unit 241H Rev2
Created By: J Rieke Date: 16:39, August 29 2018

Hilcorp

Hilcorp Energy Company

San Juan Co., NM (NAD27)
Sec.21-T32N-R07W
San Juan 32-7 Unit 241H

Lat 01 ST01

Plan: Rev2

Standard Planning Report - Geographic

29 August, 2018

KOLTEK
ENERGY SERVICES

Database:	EDM 5000.1 Single User Db	**Local Co-ordinate Reference:**	Well San Juan 32-7 Unit 241H
Company:	Hilcorp Energy Company	**TVD Reference:**	KB @ 6558.00usft
Project:	San Juan Co., NM (NAD27)	**MD Reference:**	KB @ 6558.00usft
Site:	Sec.21-T32N-R07W	**North Reference:**	Grid
Well:	San Juan 32-7 Unit 241H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Lat 01 ST01		
Design:	Rev2		

Project San Juan Co., NM (NAD27)

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 Sec.21-T32N-R07W

Site Position:		**Northing:**	2,170,163.10 usft	**Latitude:**	36.96370°N
From:	Lat/Long	**Easting:**	577,954.17 usft	**Longitude:**	107.56651°W
Position Uncertainty:	0.00 usft	**Slot Radius:**	13.200 in	**Grid Convergence:**	0.16 °

Well San Juan 32-7 Unit 241H

Well Position	**+N/-S**	0.00 usft	**Northing:**	2,170,163.10 usft	**Latitude:**	36.96370°N
	+E/-W	0.00 usft	**Easting:**	577,954.17 usft	**Longitude:**	107.56651°W
Position Uncertainty		0.00 usft	**Wellhead Elevation:**	0.00 usft	**Ground Level:**	6,543.00 usft

Wellbore Lat 01 ST01

Magnetics	**Model Name**	**Sample Date**	**Declination (°)**	**Dip Angle (°)**	**Field Strength (nT)**
	IGRF2015	08/02/18	9.09	63.55	50,064

Design Rev2

Audit Notes:

Version:		**Phase:**	PROTOTYPE	**Tie On Depth:**	4,184.06

Vertical Section:	**Depth From (TVD) (usft)**	**+N/-S (usft)**	**+E/-W (usft)**	**Direction (°)**
	0.00	0.00	0.00	239.46

Plan Sections

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
4,184.06	90.00	239.46	3,252.00	-835.82	-1,416.67	0.00	0.00	0.00	0.00	
4,184.11	90.00	239.46	3,252.00	-835.84	-1,416.71	0.00	0.00	0.00	0.00	
9,708.92	90.00	239.46	3,252.00	-3,643.11	-6,175.17	0.00	0.00	0.00	0.00	Toe Lat 1 ST1

Database:	EDM 5000.1 Single User Db	**Local Co-ordinate Reference:**	Well San Juan 32-7 Unit 241H
Company:	Hilcorp Energy Company	**TVD Reference:**	KB @ 6558.00usft
Project:	San Juan Co., NM (NAD27)	**MD Reference:**	KB @ 6558.00usft
Site:	Sec.21-T32N-R07W	**North Reference:**	Grid
Well:	San Juan 32-7 Unit 241H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Lat 01 ST01		
Design:	Rev2		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
4,184.06	90.00	239.46	3,252.00	-835.82	-1,416.67	2,169,327.29	576,537.50	36.96141°N	107.57137°W
Exit Point									
4,184.11	90.00	239.46	3,252.00	-835.84	-1,416.71	2,169,327.26	576,537.46	36.96141°N	107.57137°W
4,184.20	90.00	239.46	3,252.00	-835.89	-1,416.79	2,169,327.22	576,537.38	36.96141°N	107.57137°W
Hold Section									
4,200.00	90.00	239.46	3,252.00	-843.92	-1,430.40	2,169,319.19	576,523.77	36.96139°N	107.57141°W
4,300.00	90.00	239.46	3,252.00	-894.73	-1,516.53	2,169,268.37	576,437.64	36.96125°N	107.57171°W
4,400.00	90.00	239.46	3,252.00	-945.54	-1,602.66	2,169,217.56	576,351.51	36.96111°N	107.57201°W
4,500.00	90.00	239.46	3,252.00	-996.36	-1,688.78	2,169,166.75	576,265.38	36.96098°N	107.57230°W
4,600.00	90.00	239.46	3,252.00	-1,047.17	-1,774.91	2,169,115.93	576,179.26	36.96084°N	107.57260°W
4,700.00	90.00	239.46	3,252.00	-1,097.99	-1,861.04	2,169,065.12	576,093.13	36.96070°N	107.57289°W
4,800.00	90.00	239.46	3,252.00	-1,148.80	-1,947.17	2,169,014.30	576,007.00	36.96056°N	107.57319°W
4,900.00	90.00	239.46	3,252.00	-1,199.61	-2,033.29	2,168,963.49	575,920.87	36.96042°N	107.57348°W
5,000.00	90.00	239.46	3,252.00	-1,250.43	-2,119.42	2,168,912.68	575,834.75	36.96028°N	107.57378°W
5,100.00	90.00	239.46	3,252.00	-1,301.24	-2,205.55	2,168,861.86	575,748.62	36.96014°N	107.57407°W
5,200.00	90.00	239.46	3,252.00	-1,352.06	-2,291.68	2,168,811.05	575,662.49	36.96000°N	107.57437°W
5,300.00	90.00	239.46	3,252.00	-1,402.87	-2,377.80	2,168,760.23	575,576.36	36.95986°N	107.57466°W
5,400.00	90.00	239.46	3,252.00	-1,453.68	-2,463.93	2,168,709.42	575,490.24	36.95973°N	107.57496°W
5,500.00	90.00	239.46	3,252.00	-1,504.50	-2,550.06	2,168,658.61	575,404.11	36.95959°N	107.57525°W
5,600.00	90.00	239.46	3,252.00	-1,555.31	-2,636.19	2,168,607.79	575,317.98	36.95945°N	107.57555°W
5,700.00	90.00	239.46	3,252.00	-1,606.13	-2,722.31	2,168,556.98	575,231.85	36.95931°N	107.57584°W
5,800.00	90.00	239.46	3,252.00	-1,656.94	-2,808.44	2,168,506.16	575,145.73	36.95917°N	107.57614°W
5,900.00	90.00	239.46	3,252.00	-1,707.75	-2,894.57	2,168,455.35	575,059.60	36.95903°N	107.57643°W
6,000.00	90.00	239.46	3,252.00	-1,758.57	-2,980.70	2,168,404.54	574,973.47	36.95889°N	107.57673°W
6,100.00	90.00	239.46	3,252.00	-1,809.38	-3,066.82	2,168,353.72	574,887.35	36.95875°N	107.57702°W
6,200.00	90.00	239.46	3,252.00	-1,860.20	-3,152.95	2,168,302.91	574,801.22	36.95861°N	107.57732°W
6,300.00	90.00	239.46	3,252.00	-1,911.01	-3,239.08	2,168,252.09	574,715.09	36.95848°N	107.57762°W
6,400.00	90.00	239.46	3,252.00	-1,961.82	-3,325.21	2,168,201.28	574,628.96	36.95834°N	107.57791°W
6,500.00	90.00	239.46	3,252.00	-2,012.64	-3,411.33	2,168,150.47	574,542.84	36.95820°N	107.57821°W
6,600.00	90.00	239.46	3,252.00	-2,063.45	-3,497.46	2,168,099.65	574,456.71	36.95806°N	107.57850°W
6,700.00	90.00	239.46	3,252.00	-2,114.27	-3,583.59	2,168,048.84	574,370.58	36.95792°N	107.57880°W
6,800.00	90.00	239.46	3,252.00	-2,165.08	-3,669.72	2,167,998.02	574,284.45	36.95778°N	107.57909°W
6,900.00	90.00	239.46	3,252.00	-2,215.89	-3,755.84	2,167,947.21	574,198.33	36.95764°N	107.57939°W
7,000.00	90.00	239.46	3,252.00	-2,266.71	-3,841.97	2,167,896.40	574,112.20	36.95750°N	107.57968°W
7,100.00	90.00	239.46	3,252.00	-2,317.52	-3,928.10	2,167,845.58	574,026.07	36.95736°N	107.57998°W
7,200.00	90.00	239.46	3,252.00	-2,368.34	-4,014.23	2,167,794.77	573,939.94	36.95722°N	107.58027°W
7,300.00	90.00	239.46	3,252.00	-2,419.15	-4,100.35	2,167,743.95	573,853.82	36.95709°N	107.58057°W
7,400.00	90.00	239.46	3,252.00	-2,469.96	-4,186.48	2,167,693.14	573,767.69	36.95695°N	107.58086°W
7,500.00	90.00	239.46	3,252.00	-2,520.78	-4,272.61	2,167,642.33	573,681.56	36.95681°N	107.58116°W
7,600.00	90.00	239.46	3,252.00	-2,571.59	-4,358.74	2,167,591.51	573,595.43	36.95667°N	107.58145°W
7,700.00	90.00	239.46	3,252.00	-2,622.41	-4,444.86	2,167,540.70	573,509.31	36.95653°N	107.58175°W
7,800.00	90.00	239.46	3,252.00	-2,673.22	-4,530.99	2,167,489.88	573,423.18	36.95639°N	107.58204°W
7,900.00	90.00	239.46	3,252.00	-2,724.03	-4,617.12	2,167,439.07	573,337.05	36.95625°N	107.58234°W
8,000.00	90.00	239.46	3,252.00	-2,774.85	-4,703.25	2,167,388.26	573,250.92	36.95611°N	107.58263°W
8,100.00	90.00	239.46	3,252.00	-2,825.66	-4,789.37	2,167,337.44	573,164.80	36.95597°N	107.58293°W
8,200.00	90.00	239.46	3,252.00	-2,876.48	-4,875.50	2,167,286.63	573,078.67	36.95584°N	107.58322°W
8,300.00	90.00	239.46	3,252.00	-2,927.29	-4,961.63	2,167,235.81	572,992.54	36.95570°N	107.58352°W
8,400.00	90.00	239.46	3,252.00	-2,978.10	-5,047.75	2,167,185.00	572,906.41	36.95556°N	107.58381°W
8,500.00	90.00	239.46	3,252.00	-3,028.92	-5,133.88	2,167,134.19	572,820.29	36.95542°N	107.58411°W
8,600.00	90.00	239.46	3,252.00	-3,079.73	-5,220.01	2,167,083.37	572,734.16	36.95528°N	107.58441°W
8,700.00	90.00	239.46	3,252.00	-3,130.55	-5,306.14	2,167,032.56	572,648.03	36.95514°N	107.58470°W
8,800.00	90.00	239.46	3,252.00	-3,181.36	-5,392.26	2,166,981.75	572,561.90	36.95500°N	107.58500°W
8,900.00	90.00	239.46	3,252.00	-3,232.17	-5,478.39	2,166,930.93	572,475.78	36.95486°N	107.58529°W
9,000.00	90.00	239.46	3,252.00	-3,282.99	-5,564.52	2,166,880.12	572,389.65	36.95472°N	107.58559°W

Database:	EDM 5000.1 Single User Db	**Local Co-ordinate Reference:**	Well San Juan 32-7 Unit 241H
Company:	Hilcorp Energy Company	**TVD Reference:**	KB @ 6558.00usft
Project:	San Juan Co., NM (NAD27)	**MD Reference:**	KB @ 6558.00usft
Site:	Sec.21-T32N-R07W	**North Reference:**	Grid
Well:	San Juan 32-7 Unit 241H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Lat 01 ST01		
Design:	Rev2		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
9,100.00	90.00	239.46	3,252.00	-3,333.80	-5,650.65	2,166,829.30	572,303.52	36.95458°N	107.58588°W
9,200.00	90.00	239.46	3,252.00	-3,384.62	-5,736.77	2,166,778.49	572,217.39	36.95445°N	107.58618°W
9,300.00	90.00	239.46	3,252.00	-3,435.43	-5,822.90	2,166,727.68	572,131.27	36.95431°N	107.58647°W
9,400.00	90.00	239.46	3,252.00	-3,486.24	-5,909.03	2,166,676.86	572,045.14	36.95417°N	107.58677°W
9,500.00	90.00	239.46	3,252.00	-3,537.06	-5,995.16	2,166,626.05	571,959.01	36.95403°N	107.58706°W
9,600.00	90.00	239.46	3,252.00	-3,587.87	-6,081.28	2,166,575.23	571,872.88	36.95389°N	107.58736°W
9,700.00	90.00	239.46	3,252.00	-3,638.69	-6,167.41	2,166,524.42	571,786.76	36.95375°N	107.58765°W
9,708.92	90.00	239.46	3,252.00	-3,643.22	-6,175.09	2,166,519.89	571,779.07	36.95374°N	107.58768°W
PBHL/TD									

Design Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
Toe Lat 1 ST1	0.00	0.00	3,252.00	-3,643.11	-6,175.17	2,166,520.00	571,779.00	36.95374°N	107.58768°W
- plan misses target center by 0.13usft at 9708.92usft MD (3252.00 TVD, -3643.22 N, -6175.09 E)									
- Point									

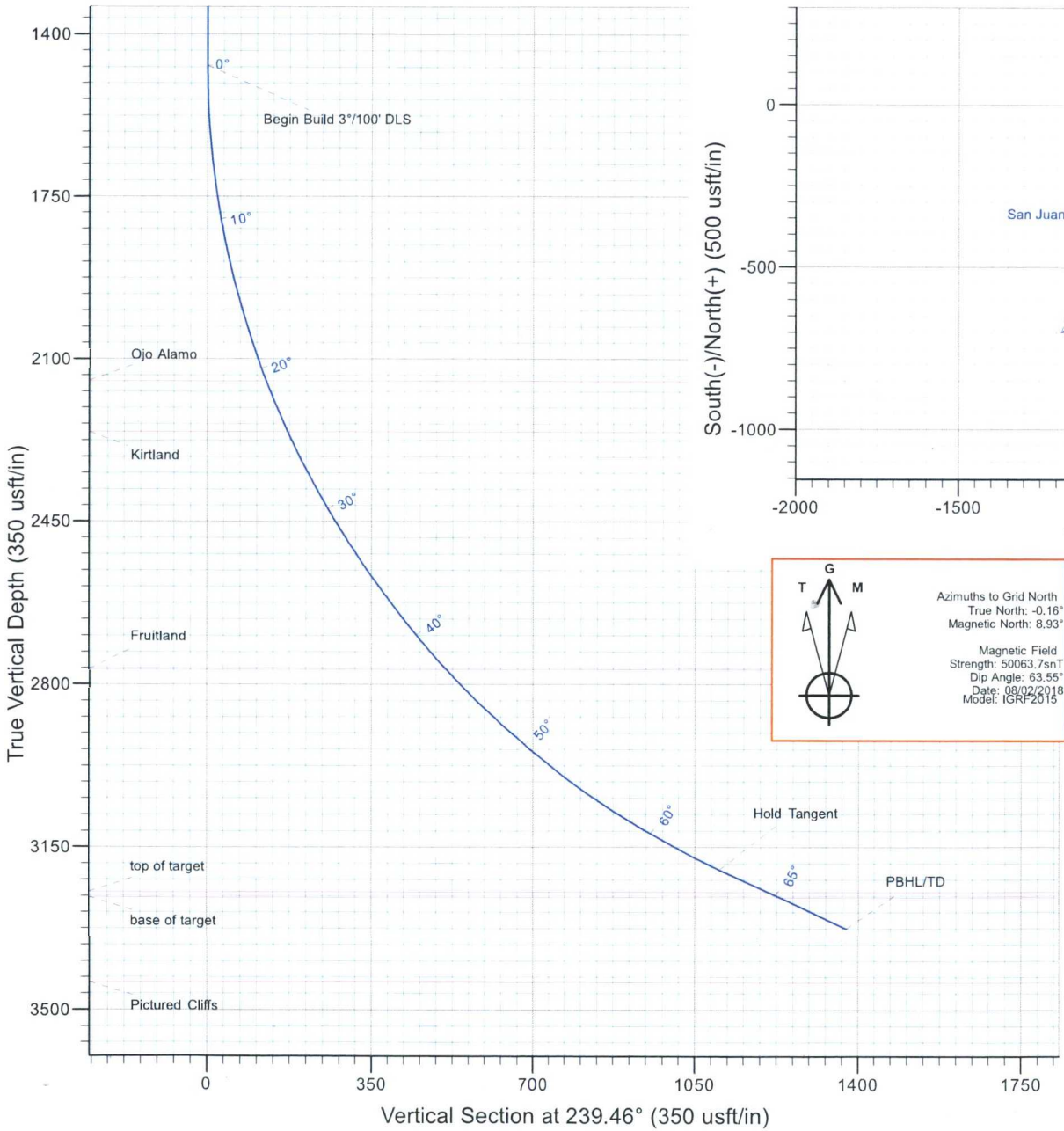
Formations

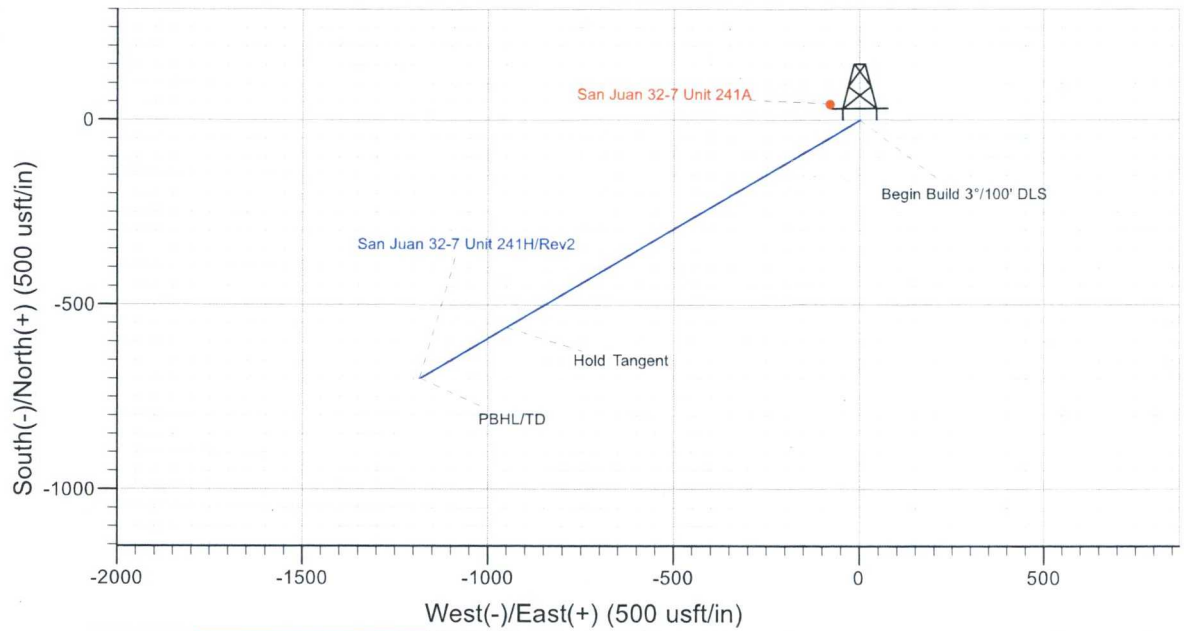
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
2,162.23	2,147.00	Ojo Alamo		0.00	
2,281.42	2,257.00	Kirtland		0.00	
2,898.11	2,768.00	Fruitland		0.00	
3,801.08	3,246.00	top of target		0.00	

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates +N/-S (usft)	Local Coordinates +E/-W (usft)	Comment
4,184.06	3,252.00	-835.82	-1,416.67	Exit Point
4,184.20	3,252.00	-835.89	-1,416.79	Hold Section
9,708.92	3,252.00	-3,643.22	-6,175.09	PBHL/TD

Company: Hilcorp Energy Company
Field: San Juan Co., NM (NAD27)
Location: Sec.21-T32N-R07W
Well: San Juan 32-7 Unit 241H
Borehole: Pilot Hole
Plan: Rev2





Azimuths to Grid North
True North: -0.16°
Magnetic North: 8.93°

Magnetic Field
Strength: 50063.7snT
Dip Angle: 63.55°
Date: 08/02/2018
Model: IGRF2015

WELL DETAILS: San Juan 32-7 Unit 241H

GL 6543.00 KB @ 6558.00usft

+N/-S	+E/-W	Northing	Easting	Latittude	Longitude
0.00	0.00	2170163.11	577954.17	36° 57' 49.316 N	107° 33' 59.429 W

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DIeg	TFace	VSect
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	1467.40	0.00	0.00	1467.40	0.00	0.00	0.00	0.00	0.00
3	3634.06	65.00	239.46	3198.32	-560.33	-949.74	3.00	239.46	1102.72
4	3934.06	65.00	239.46	3325.10	-698.49	-1183.92	0.00	0.00	1374.61

FORMATION TOP DETAILS

TVDPath	MDPath	Formation
2147.00	2162.23	Ojo Alamo
2257.00	2281.42	Kirtland
2768.00	2898.11	Fruitland
3246.00	3746.89	top of target
3258.00	3775.28	base of target

ANNOTATIONS

TVD	MD	Annotation
1467.40	1467.40	Begin Build 3°/100' DLS
3198.32	3634.06	Hold Tangent
3325.10	3934.06	PBHL/TD

San Juan 32-7 Unit 241H Rev2

Created By: J Rieke Date: 10:55, August 21 2018

Hilcorp

Hilcorp Energy Company

San Juan Co., NM (NAD27)
Sec.21-T32N-R07W
San Juan 32-7 Unit 241H

Pilot Hole

Plan: Rev2

Standard Planning Report

07 August, 2018

KOLTEK
ENERGY SERVICES

Database:	EDM 5000.1 Single User Db	**Local Co-ordinate Reference:**	Well San Juan 32-7 Unit 241H
Company:	Hilcorp Energy Company	**TVD Reference:**	KB @ 6558.00usft
Project:	San Juan Co., NM (NAD27)	**MD Reference:**	KB @ 6558.00usft
Site:	Sec.21-T32N-R07W	**North Reference:**	Grid
Well:	San Juan 32-7 Unit 241H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Pilot Hole		
Design:	Rev2		

Project San Juan Co., NM (NAD27)

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 Sec.21-T32N-R07W

Site Position:		**Northing:**	2,170,163.10 usft	**Latitude:**	36° 57' 49.316 N
From:	Lat/Long	**Easting:**	577,954.17 usft	**Longitude:**	107° 33' 59.429 W
Position Uncertainty:	0.00 usft	**Slot Radius:**	13.200 in	**Grid Convergence:**	0.16 °

Well San Juan 32-7 Unit 241H

Well Position	**+N/-S**	0.00 usft	**Northing:**	2,170,163.10 usft	**Latitude:**	36° 57' 49.316 N
	+E/-W	0.00 usft	**Easting:**	577,954.17 usft	**Longitude:**	107° 33' 59.429 W
Position Uncertainty		0.00 usft	**Wellhead Elevation:**	0.00 usft	**Ground Level:**	6,543.00 usft

Wellbore Pilot Hole

Magnetics	**Model Name**	**Sample Date**	**Declination (°)**	**Dip Angle (°)**	**Field Strength (nT)**
	IGRF2015	08/02/18	9.09	63.55	50,064

Design Rev2

Audit Notes:

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

Vertical Section:	**Depth From (TVD) (usft)**	**+N/-S (usft)**	**+E/-W (usft)**	**Direction (°)**
	0.00	0.00	0.00	239.46

Plan Sections

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	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	
1,467.40	0.00	0.00	1,467.40	0.00	0.00	0.00	0.00	0.00	0.00	
3,634.06	65.00	239.46	3,198.32	-560.33	-949.74	3.00	3.00	0.00	239.46	
3,934.06	65.00	239.46	3,325.10	-698.49	-1,183.92	0.00	0.00	0.00	0.00	

Database:	EDM 5000.1 Single User Db	**Local Co-ordinate Reference:**	Well San Juan 32-7 Unit 241H
Company:	Hilcorp Energy Company	**TVD Reference:**	KB @ 6558.00usft
Project:	San Juan Co., NM (NAD27)	**MD Reference:**	KB @ 6558.00usft
Site:	Sec.21-T32N-R07W	**North Reference:**	Grid
Well:	San Juan 32-7 Unit 241H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Pilot Hole		
Design:	Rev2		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	0.00	0.00
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	0.00	0.00
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00
1,100.00	0.00	0.00	1,100.00	0.00	0.00	0.00	0.00	0.00	0.00
1,200.00	0.00	0.00	1,200.00	0.00	0.00	0.00	0.00	0.00	0.00
1,300.00	0.00	0.00	1,300.00	0.00	0.00	0.00	0.00	0.00	0.00
1,400.00	0.00	0.00	1,400.00	0.00	0.00	0.00	0.00	0.00	0.00
1,467.40	0.00	0.00	1,467.40	0.00	0.00	0.00	0.00	0.00	0.00
Begin Build 3°/100' DLS									
1,500.00	0.98	239.46	1,500.00	-0.14	-0.24	0.28	3.00	3.00	0.00
1,600.00	3.98	239.46	1,599.89	-2.34	-3.96	4.60	3.00	3.00	0.00
1,700.00	6.98	239.46	1,699.43	-7.19	-12.18	14.15	3.00	3.00	0.00
1,800.00	9.98	239.46	1,798.32	-14.68	-24.88	28.89	3.00	3.00	0.00
1,900.00	12.98	239.46	1,896.31	-24.79	-42.02	48.78	3.00	3.00	0.00
2,000.00	15.98	239.46	1,993.12	-37.49	-63.55	73.78	3.00	3.00	0.00
2,100.00	18.98	239.46	2,088.50	-52.75	-89.41	103.81	3.00	3.00	0.00
2,200.00	21.98	239.46	2,182.17	-70.53	-119.54	138.79	3.00	3.00	0.00
2,300.00	24.98	239.46	2,273.88	-90.77	-153.85	178.63	3.00	3.00	0.00
2,400.00	27.98	239.46	2,363.38	-113.42	-192.25	223.21	3.00	3.00	0.00
2,500.00	30.98	239.46	2,450.42	-138.42	-234.62	272.41	3.00	3.00	0.00
2,600.00	33.98	239.46	2,534.77	-165.71	-280.87	326.10	3.00	3.00	0.00
2,700.00	36.98	239.46	2,616.20	-195.20	-330.85	384.14	3.00	3.00	0.00
2,800.00	39.98	239.46	2,694.47	-226.81	-384.43	446.35	3.00	3.00	0.00
2,900.00	42.98	239.46	2,769.38	-260.46	-441.47	512.58	3.00	3.00	0.00
3,000.00	45.98	239.46	2,840.73	-296.06	-501.81	582.63	3.00	3.00	0.00
3,100.00	48.98	239.46	2,908.31	-333.51	-565.28	656.33	3.00	3.00	0.00
3,200.00	51.98	239.46	2,971.94	-372.70	-631.71	733.46	3.00	3.00	0.00
3,300.00	54.98	239.46	3,031.44	-413.53	-700.91	813.81	3.00	3.00	0.00
3,400.00	57.98	239.46	3,086.66	-455.89	-772.71	897.17	3.00	3.00	0.00
3,500.00	60.98	239.46	3,137.44	-499.65	-846.89	983.30	3.00	3.00	0.00
3,600.00	63.98	239.46	3,183.65	-544.71	-923.26	1,071.97	3.00	3.00	0.00
3,634.06	65.00	239.46	3,198.32	-560.33	-949.74	1,102.71	3.00	3.00	0.00
Hold Tangent									
3,700.00	65.00	239.46	3,226.18	-590.70	-1,001.21	1,162.48	0.00	0.00	0.00
3,800.00	65.00	239.46	3,268.45	-636.75	-1,079.27	1,253.11	0.00	0.00	0.00
3,900.00	65.00	239.46	3,310.71	-682.81	-1,157.33	1,343.74	0.00	0.00	0.00
3,934.06	65.00	239.46	3,325.10	-698.49	-1,183.91	1,374.61	0.00	0.00	0.00
PBHL/TD									

Database:	EDM 5000.1 Single User Db	**Local Co-ordinate Reference:**	Well San Juan 32-7 Unit 241H
Company:	Hilcorp Energy Company	**TVD Reference:**	KB @ 6558.00usft
Project:	San Juan Co., NM (NAD27)	**MD Reference:**	KB @ 6558.00usft
Site:	Sec.21-T32N-R07W	**North Reference:**	Grid
Well:	San Juan 32-7 Unit 241H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Pilot Hole		
Design:	Rev2		

Formations

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
2,162.23	2,147.00	Ojo Alamo		0.00	
2,281.42	2,257.00	Kirtland		0.00	
2,898.11	2,768.00	Fruitland		0.00	
3,746.89	3,246.00	top of target		0.00	
3,775.28	3,258.00	base of target		0.00	

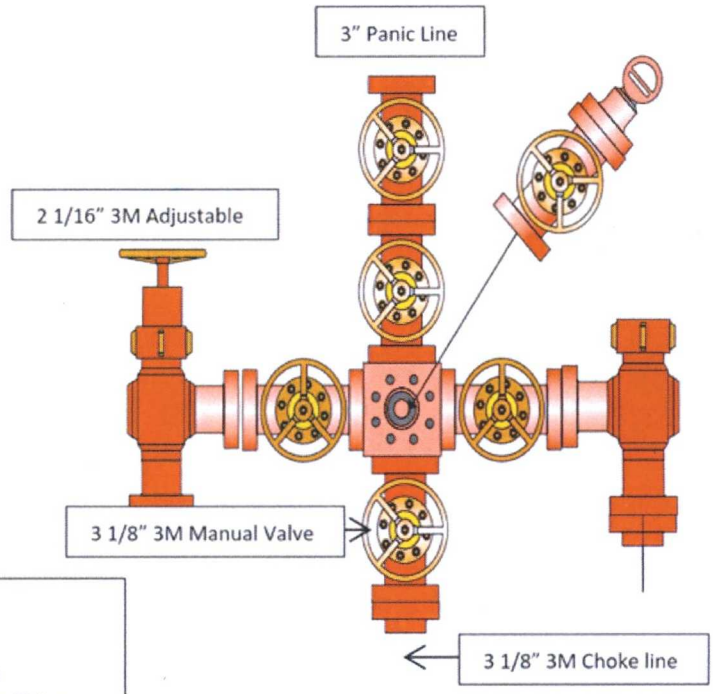
Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates +N/-S (usft)	Local Coordinates +E/-W (usft)	Comment
1,467.40	1,467.40	0.00	0.00	Begin Build 3°/100' DLS
3,634.06	3,198.32	-560.33	-949.74	Hold Tangent
3,934.06	3,325.10	-698.49	-1,183.91	PBHL/TD

San Juan 32-7 Unit 241H

Hilcorp Energy Company

Choke Manifold Schematic – Aztec 777



Choke Diagram for a 3,000psi system

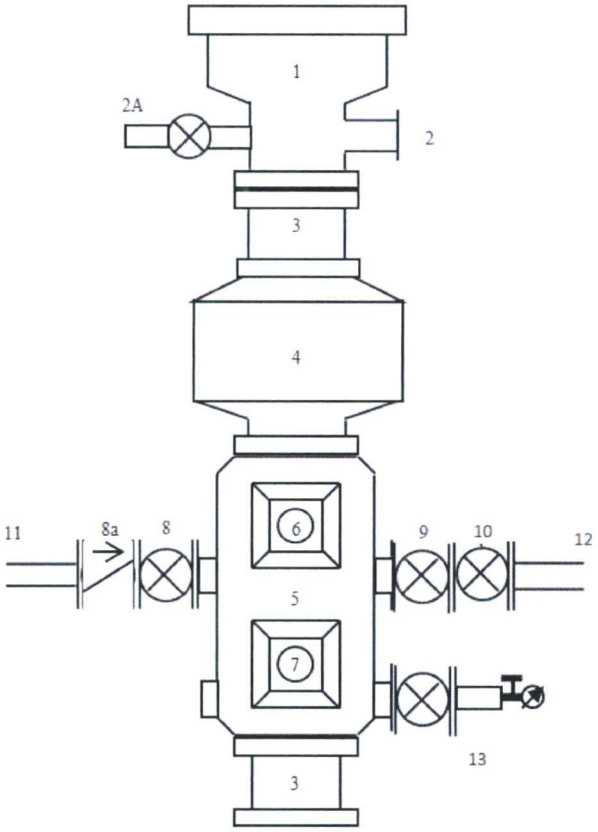
- Features all 3 1/8" 3M Manual Valves
- Two 2 1/16" Manual Adjustable Choke Valves
- 3" Panic Line and 2" Vent lines

San Juan 32-7 Unit 241H

Hilcorp Energy Company

BOPE Schematic – Aztec 777

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 Valve (2")
8a. Check valve
9. 3M Manual Gate Valve (3")
10. 3M Manual Gate Valve (3")
11. Kill Line Connection, 2" hard line
12. Choke Line (3" Co-Flex)
13. Secondary outlet with valve, bull plug, needle valve, and pressure gauge



E. Construction equipment may include chain saws, a bush hog, scraper, maintainer, excavator, hydraulic mulcher, chippers, and dozer.

F. Construction and maintenance activities would cease if soil or road surfaces become saturated to the extent that construction equipment is unable to stay within the project area and/or when activities cause irreparable harm to roads, soils, or streams.

7) METHODS FOR HANDLING WASTE

A. Cuttings

1 Drilling operations would utilize a closed-loop system. Drilling of the horizontal lateral would be accomplished with water-based mud. All cuttings would be placed in roll-off bins and hauled to a commercial disposal facility or land farm. Hilcorp would follow Onshore Oil and Gas Order No. 1 regarding the placement, operation, and removal of closed-loop systems. No blow pit would be used.

2 Closed-loop tanks would be adequately sized for containment of all fluids.

B. Drilling Fluids

1 Drilling fluids would be stored onsite in above-ground storage tanks. Upon termination of drilling operations, the drilling fluids would be recycled and transferred to other permitted closed-loop systems or returned to the vendor for reuse, as practical. All residual fluids will be hauled to a commercial disposal facility.

C. Spills

1 Any spills of non-freshwater fluids would be immediately cleaned up and removed to an approved disposal site.

D. Sewage

1 Portable toilets would be provided and maintained as needed during construction.

E. Garbage and other waste material

1 All garbage and trash would be placed in an enclosed metal trash containment. The trash and garbage would be hauled off site and dumped in an approved landfill, as needed.

F. Hazardous Waste

1 No chemicals subject to reporting under Superfund Amendments and Reauthorization Act Title III in an amount equal to or greater than 10,000 pounds would be used, produced, stored, transported, or disposed of annually in association with the drilling, testing, or completing of these wells.

2 No extremely hazardous substances, as defined in 40 CFR 355, in threshold planning quantities would be used, produced, stored, transported, or disposed of annually in association with the drilling, testing, or completing of these wells.

3 All fluids (i.e., scrubber cleaners) used during washing of production equipment would be properly disposed of to avoid ground contamination or hazard to livestock or wildlife.

G. Produced Water:

1 Hilcorp would dispose of produced water from the San Juan 32-7 Unit 241H well at the following facility:

Directions from the Intersection of State Hwy 172 & State Hwy 151

in Ignacio, CO to Hilcorp Energy Company San Juan 32-7 Unit #241H

1812' FSL & 967' FEL, Section 21, T32N, R7W, N.M.P.M., San Juan County, NM

Latitude: 36.963704°N Longitude: 107.567117°W Datum: NAD1983

From the intersection of State Hwy 172 & State Hwy 151 in Ignacio, CO, travel Easterly on State Hwy 151 for 9.7 miles to County Road #328;

Go Right (Southerly) on County Road #328, crossing borderline then proceeding on County Road #4010 for 4.3 miles to fork in roadway;

Go Right (Westerly) on County Road #4008 for 0.9 miles to fork in roadway;

Go Left (Southerly) remaining on County Road #4008 for 1.7 miles to T-intersection;

Go Left (Easterly) on County Road #4000 for 0.6 miles to fork in roadway;

Go Right (Westerly) exiting County Road #4000 onto existing roadway for 385' to existing Hilcorp San Juan 32-7 #241A location, with the Hilcorp San Juan 32-7 Unit #241H staked offset #241A wellhead;