

State of New Mexico
Energy, Minerals and Natural Resources Department

Michelle Lujan Grisham
Governor

Sarah Cottrell Propst
Cabinet Secretary

Todd E. Leahy, JD, PhD
Deputy Secretary

Gabriel Wade, Acting 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: 10/19/2018

Well information;

Operator Oilcorp, Well Name and Number San Juan 32-7 Unit 232H

API# 30-045-35896, Section 8, Township 31 N, Range 7 E

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

- ☒ Notify Aztec OCD 24hrs prior to casing & cement.
- ☒ Hold C-104 for directional survey & "As Drilled" Plat - 5.9 compliance
- ☐ Hold C-104 for NSL, NSP, DHC
- ☐ Spacing rule violation. Operator must follow up with change of status notification on other well to be shut in or abandoned
- ☐ 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
- ☐ 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
- ☐ 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.

Brandon Randall
NMOCD Approved by Signature

4-22-19
Date

64

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
APPLICATION FOR PERMIT TO DRILL OR REENTER

1a. Type of work: ☒ DRILL ☐ REENTER		5. Lease Serial No. NMSF0078996
1b. Type of Well: ☐ Oil Well ☐ Gas Well ☒ Other CBNG		6. If Indian, Allottee or Tribe Name
1c. Type of Completion: ☐ Hydraulic Fracturing ☒ Single Zone ☐ Multiple Zone		7. If Unit or CA Agreement, Name and No. /1/INITIAL FRTLAND PA / NMNM078423/
2. Name of Operator HILCORP ENERGY COMPANY		8. Lease Name and Well No. SAN JUAN 32-7 UNIT 232H
3a. Address 1111 Travis Street Houston TX 77002	3b. Phone No. (include area code) (713)209-2400	9. API Well No. 30-045-35896
4. Location of Well (Report location clearly and in accordance with any State requirements. *) At surface ^D NWNW / 1251 FNL / 1270 FWL / LAT 36.91785 / LONG -107.599026 At proposed prod. zone ^N NESW / 2113 FSL / 824 FWL / LAT 36.927088 / LONG -107.615898		10. Field and Pool, or Exploratory BASIN FRUITLAND COAL
11. Sec., T. R. M. or Blk. and Survey or Area SEC 8 / T31N / 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) 1270 feet	16. No of acres in lease 2537.37	17. Spacing Unit dedicated to this well 1027.06 NMOC
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. 100 feet	19. Proposed Depth 3335 feet / 8760 feet	20. BLM/BIA Bond No. in file FED: NMB001486 MAR 07 2019 DISTRICT III
21. Elevations (Show whether DF, KDB, RT, GL, etc.) 6638 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. | 4. Bond to cover the operations unless covered by an existing bond on file (see Item 20 above). |
| 2. A Drilling Plan. | 5. Operator certification. |
| 3. A Surface Use Plan (if the location is on National Forest System Lands, the SUPO must be filed with the appropriate Forest Service Office). | 6. Such other site specific information and/or plans as may be requested by the BLM. |

25. Signature (Electronic Submission)	Name (Printed/Typed) Amanda Walker / Ph: (505)324-5122	Date 10/09/2018
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Title
Operations/Regulatory Technician

Approved by (Signature) 	Name (Printed/Typed) Richard A Fields	Date MAR 05 2019
Title Field Manager	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**

This action is subject to appeal
and request for review pursuant to
43 CFR 3165.3 and appeal
pursuant to 43 CFR 3165.4

NMOCDA

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

Revised August 1, 2011

Submit one copy to
 Appropriate District Office

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

☐ AMENDED REPORT

NMOCD

WELL LOCATION AND ACREAGE DEDICATION PLAT

MAR 28 2019

*API Number 30.045.358916		*Pool Code 71629	*Pool Name BASIN FRUITLAND COAL
*Property Code 318434	*Property Name SAN JUAN 32-7 UNIT		*Well Number 232H (LATERAL 1 SIDETRACK 1)
*GRID No. 372171	*Operator Name HILCORP ENERGY COMPANY		*Elevation 6638'

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
D	8	31N	7W		1251	NORTH	1270	WEST	SAN JUAN

¹¹ Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
G	6	31N	7W		825	NORTH	1710	EAST	SAN JUAN

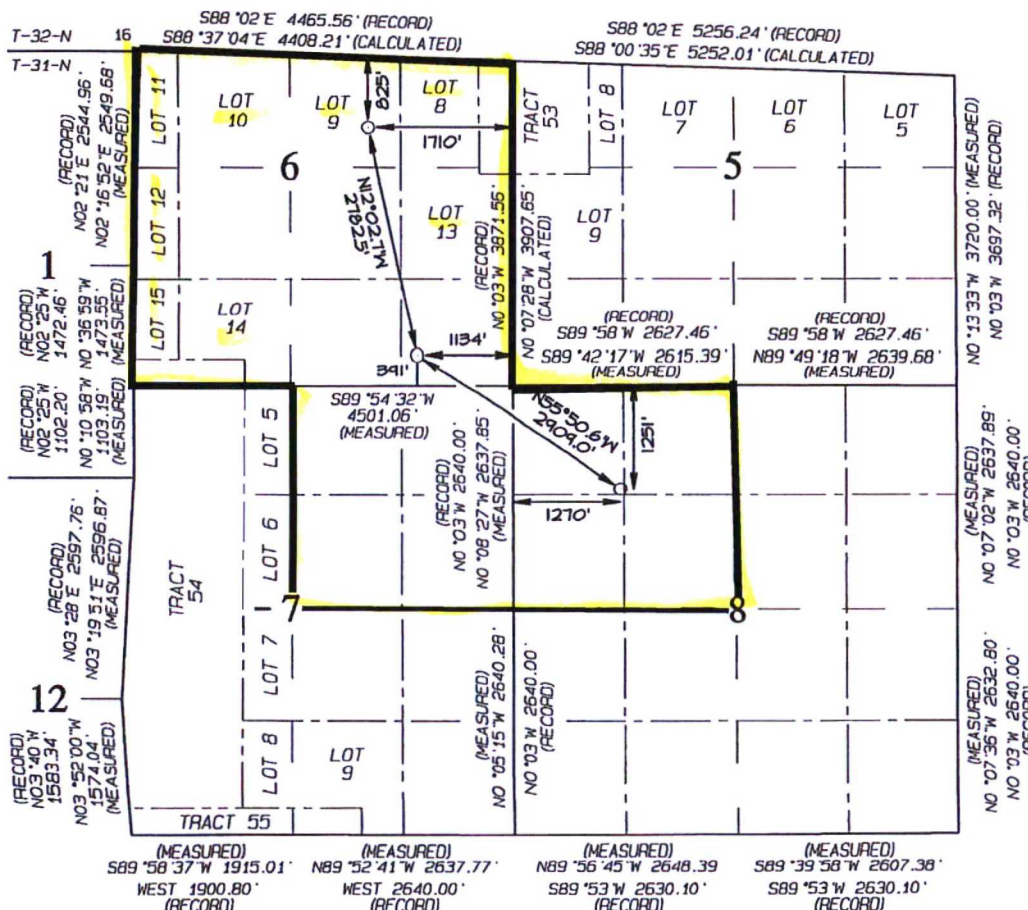
¹² Dedicated Acres 730.08 NW/4 - Section 8 Entire Section 6 NE/4 - Section 7		¹³ Joint or Infill	¹⁴ Consolidation Code	¹⁵ Order No.
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BOTTOM-HOLE LOCATION
 825' FNL 1710' FEL
 SEC 6, T31N, R7W
 LAT: 36.929826°N
 LONG: 107.608601°W
 DATUM: NAD1927
 LAT: 36.929830°N
 LONG: 107.609212°W
 DATUM: NAD1983

FIRST TAKE POINT
 391' FSL 1134' FEL
 SEC 6, T31N, R7W
 LAT: 36.922347°N
 LONG: 107.606636°W
 DATUM: NAD1927
 LAT: 36.922352°N
 LONG: 107.607247°W
 DATUM: NAD1983

SURFACE LOCATION
 1251' FNL 1270' FWL
 SEC 8, T31N, R7W
 LAT: 36.917845°N
 LONG: 107.598415°W
 DATUM: NAD1927
 LAT: 36.917850°N
 LONG: 107.599026°W
 DATUM: NAD1983

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.
 Signature: *Priscilla Shorty* Date: 10/8/18
 Printed Name: Priscilla Shorty
 E-mail Address: pshorty@hilcorp.com

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: SEPTEMBER 21, 2018
 Date of Survey: JUNE 22, 2018
 Signature and Seal of Professional Surveyor

 JASON C. EDWARDS
 Certificate Number 15269

Federal Surface

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
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☐ AMENDED REPORT

NMOCO

WELL LOCATION AND ACREAGE DEDICATION PLAT

MAR 28 2019

1 API Number 30.045.35896		2 Pool Code 71629		3 Pool Name BASIN FRUITLAND COAL	
4 Property Code 318434		5 Property Name SAN JUAN 32-7 UNIT		6 Well Number 232H (LATERAL 1)	
7 GRID No. 372171		8 Operator Name HILCORP ENERGY COMPANY			9 Elevation 6638'

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
D	8	31N	7W		1251	NORTH	1270	WEST	SAN JUAN

11 Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
K	6	31N	7W		2113	SOUTH	824	WEST	SAN JUAN

12 Dedicated Acres 730.08 NE/4 - Section 7		NW/4 - Section 8 Entire Section 6		13 Joint or Infill		14 Consolidation Code		15 Order No.	
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BOTTOM-HOLE LOCATION

2113' FSL 824' FWL
SEC 6, T31N, R7W
LAT: 36.927083°N
LONG: 107.615287°W
DATUM: NAD1927
LAT: 36.927088°N
LONG: 107.615898°W
DATUM: NAD1983

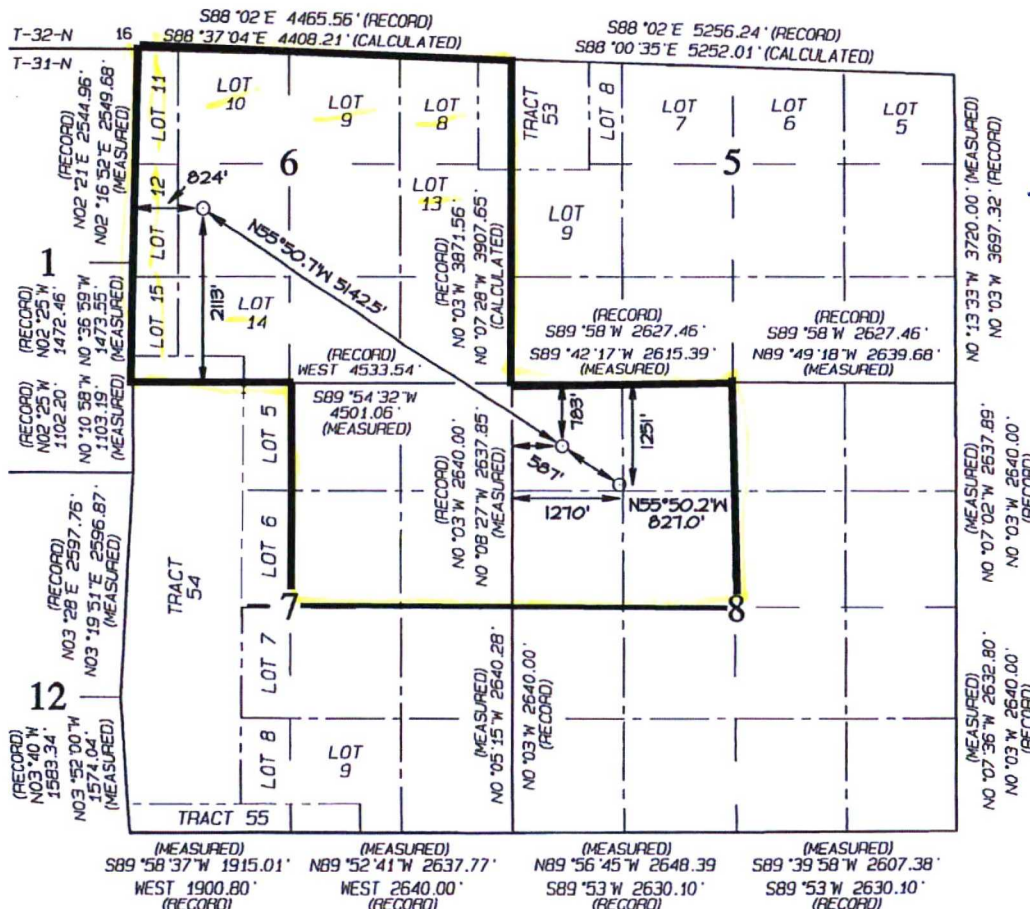
FIRST TAKE POINT

783' FNL 587' FWL
SEC 8, T31N, R7W
LAT: 36.919125°N
LONG: 107.600752°W
DATUM: NAD1927
LAT: 36.919130°N
LONG: 107.601362°W
DATUM: NAD1983

SURFACE LOCATION

1251' FNL 1270' FWL
SEC 8, T31N, R7W
LAT: 36.917845°N
LONG: 107.598415°W
DATUM: NAD1927
LAT: 36.917850°N
LONG: 107.599026°W
DATUM: NAD1983

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.

Signature: *Priscilla Shorty* Date: 10/8/18
Printed Name: Priscilla Shorty
E-mail Address: pshorty@hilcorp.com

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: SEPTEMBER 21, 2018
Date of Survey: JUNE 22, 2018

Signature and Seal of Professional Surveyor



JASON C. EDWARDS
Certificate Number 15269

Hilcorp Energy Company

Technical Plan

1. Location

SAN JUAN 32-7 UNIT 232H

SHL: 1251' FNL, 1270' FWL – Sec 8, T31N, R7W

Lat 1 BHL: 2113' FSL, 824' FWL – Sec 6, T31N, R7W

Lat 1 ST1 BHL: 825' FNL, 1710' FEL – Sec 6, T31N, R7W

GL: 6638'

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	2392'	Wet
Kirtland	2494'	Wet
Fruitland	3126'	Possible Gas/Water
Pictured Cliffs	3434'	Wet

Formation Top Selection: Used NMOCD tops from ALBINO CANYON 003 to correlate to San Juan 32-7 Un 218 (near Surface location of prospect).

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 nipped 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' - 3,966.67' (MD)
Prod Liner (predrilled)	6-1/4"	4-1/2"	11.6# J-55/L-80	5,800' - 8,760.35' (MD)
Prod Liner (predrilled)	6-1/4"	4-1/2"	11.6# J-55/L-80	3,620' - 8,632.76' (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 3,610.13' MD / 3,283.32' TVD.

Lat 1 will be drilled f/ 3,610.13' to TD at 8,760.35'. The 4-1/2" liner will be run outside the window with top of the liner dropped off at 5,800'.

Lat 1 ST will be drilled f/ 5,700' to TD at 8,632.71'. The 4-1/2" liner will be run outside the window with top of the liner dropped off at 3,620'.

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 ft ³ / sk - 5.24 gal/sk 15.8 ppg	100%	313 ft ³	Surface
Intermediate	3,966.67'	424	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 ft ³ / sk - 11.25 gal/sk 12.9 ppg	50%	894 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.



San Juan 32-7 Unit 232H

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.



Hilcorp Energy Company

San Juan 32-7 Unit 232H

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	

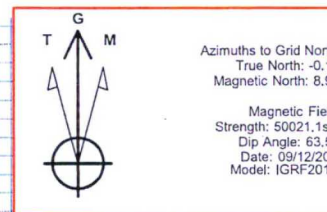
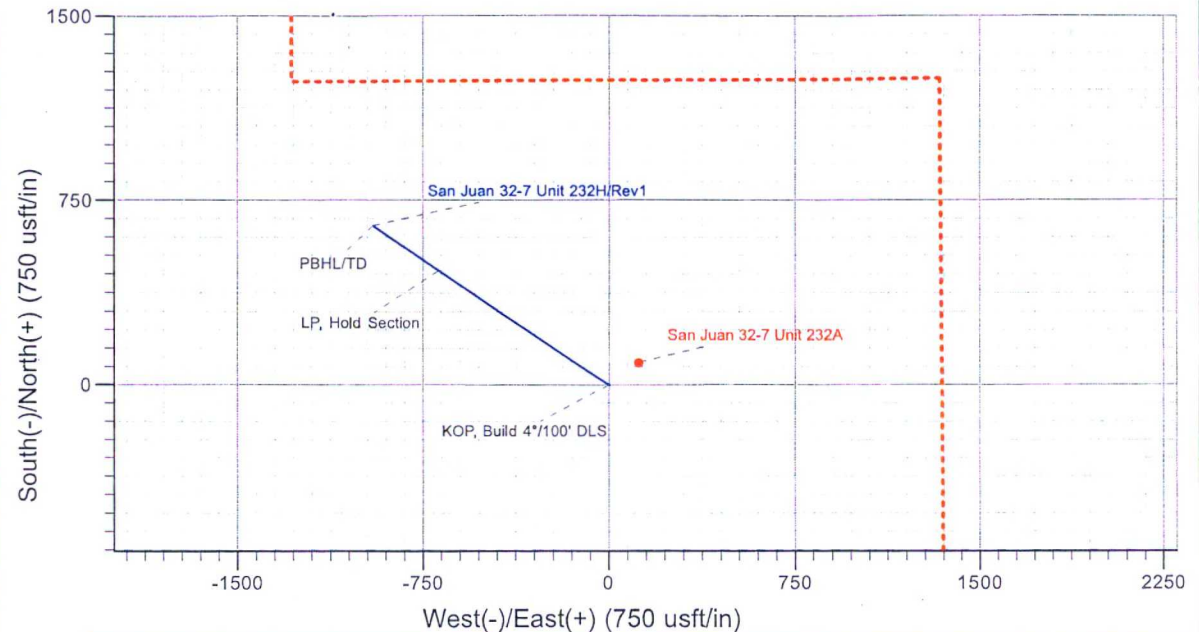
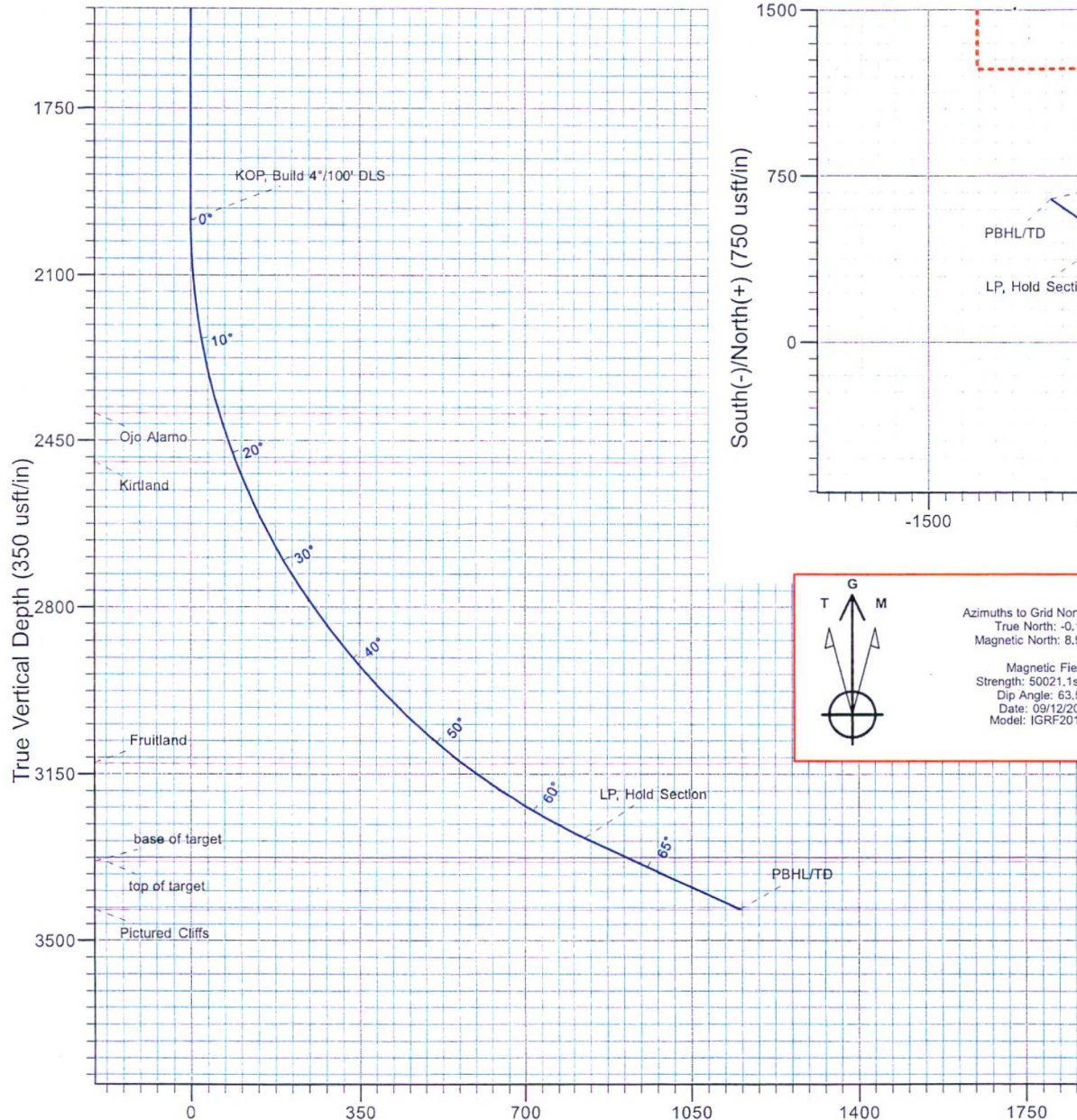
8. Directional Plan

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.



Company: Hilcorp Energy Company
 Field: San Juan Co., NM (NAD27)
 Location: Sec.08-T31N-R07W
 Well: San Juan 32-7 Unit 232H
 Borehole: Pilot Hole
 Plan: Rev1



WELL DETAILS: San Juan 32-7 Unit 232H							
+N/-S	+E/-W	GL	KB	North	East	Latitude	Longitude
0.00	0.00	6638.00	@ 6653.00usft	2153445.07	568673.52	36.91785°N	107.59841°W

SECTION DETAILS									
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	1985.13	0.00	0.00	1985.13	0.00	0.00	0.00	0.00	0.00
3	3610.13	65.00	304.16	3283.32	464.39	-684.35	4.00	304.16	827.04
4	3966.67	65.00	304.16	3434.00	645.83	-951.74	0.00	0.00	1150.18

FORMATION TOP DETAILS		
TVDPath	MDPath	Formation
2392.00	2397.68	Ojo Alamo
2494.00	2505.36	Kirtland
3126.00	3305.01	Fruitland
3323.00	3704.02	top of target
3333.00	3727.69	base of target
3434.00	3966.67	Pictured Cliffs

ANNOTATIONS		
TVD	MD	Annotation
1985.13	1985.13	KOP, Build 4°/100' DLS
3283.32	3610.13	LP, Hold Section
3434.00	3966.67	PBHL/TD

San Juan 32-7 Unit 232H Rev1
 Created By: J Rieke Date: 10:13, September 19 2018

Vertical Section at 304.16° (350 usft/in)



Hilcorp Energy Company

San Juan Co., NM (NAD27)

Sec.08-T31N-R07W

San Juan 32-7 Unit 232H

Pilot Hole

Plan: Rev1

Standard Planning Report - Geographic

19 September, 2018





Koltek Energy Services
Planning Report - Geographic



Database: EDM 5000.1 Single User Db
Company: Hilcorp Energy Company
Project: San Juan Co., NM (NAD27)
Site: Sec.08-T31N-R07W
Well: San Juan 32-7 Unit 232H
Wellbore: Pilot Hole
Design: Rev1

Local Co-ordinate Reference: Well San Juan 32-7 Unit 232H
TVD Reference: KB @ 6653.00usft
MD Reference: KB @ 6653.00usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature

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.08-T31N-R07W				
Site Position:		Northing:	2,153,445.07 usft	Latitude:	36.91785°N
From:	Map	Easting:	568,673.52 usft	Longitude:	107.59842°W
Position Uncertainty:	0.00 usft	Slot Radius:	13.200 in	Grid Convergence:	0.14 °

Well	San Juan 32-7 Unit 232H					
Well Position	+N/-S	0.00 usft	Northing:	2,153,445.07 usft	Latitude:	36.91785°N
	+E/-W	0.00 usft	Easting:	568,673.52 usft	Longitude:	107.59842°W
Position Uncertainty		0.00 usft	Wellhead Elevation:	0.00 usft	Ground Level:	6,638.00 usft

Wellbore	Pilot Hole				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	09/12/18	9.09	63.50	50,021

Design	Rev1			
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	304.16

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	
1,985.13	0.00	0.00	1,985.13	0.00	0.00	0.00	0.00	0.00	0.00	
3,610.13	65.00	304.16	3,283.32	464.39	-684.35	4.00	4.00	0.00	304.16	
3,966.67	65.00	304.16	3,434.00	645.83	-951.74	0.00	0.00	0.00	0.00	



Koltek Energy Services
Planning Report - Geographic



Database: EDM 5000.1 Single User Db
Company: Hilcorp Energy Company
Project: San Juan Co., NM (NAD27)
Site: Sec.08-T31N-R07W
Well: San Juan 32-7 Unit 232H
Wellbore: Pilot Hole
Design: Rev1

Local Co-ordinate Reference: Well San Juan 32-7 Unit 232H
TVD Reference: KB @ 6653.00usft
MD Reference: KB @ 6653.00usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
0.00	0.00	0.00	0.00	0.00	0.00	2,153,445.07	568,673.52	36.91785°N	107.59842°W
100.00	0.00	0.00	100.00	0.00	0.00	2,153,445.07	568,673.52	36.91785°N	107.59842°W
200.00	0.00	0.00	200.00	0.00	0.00	2,153,445.07	568,673.52	36.91785°N	107.59842°W
300.00	0.00	0.00	300.00	0.00	0.00	2,153,445.07	568,673.52	36.91785°N	107.59842°W
400.00	0.00	0.00	400.00	0.00	0.00	2,153,445.07	568,673.52	36.91785°N	107.59842°W
500.00	0.00	0.00	500.00	0.00	0.00	2,153,445.07	568,673.52	36.91785°N	107.59842°W
600.00	0.00	0.00	600.00	0.00	0.00	2,153,445.07	568,673.52	36.91785°N	107.59842°W
700.00	0.00	0.00	700.00	0.00	0.00	2,153,445.07	568,673.52	36.91785°N	107.59842°W
800.00	0.00	0.00	800.00	0.00	0.00	2,153,445.07	568,673.52	36.91785°N	107.59842°W
900.00	0.00	0.00	900.00	0.00	0.00	2,153,445.07	568,673.52	36.91785°N	107.59842°W
1,000.00	0.00	0.00	1,000.00	0.00	0.00	2,153,445.07	568,673.52	36.91785°N	107.59842°W
1,100.00	0.00	0.00	1,100.00	0.00	0.00	2,153,445.07	568,673.52	36.91785°N	107.59842°W
1,200.00	0.00	0.00	1,200.00	0.00	0.00	2,153,445.07	568,673.52	36.91785°N	107.59842°W
1,300.00	0.00	0.00	1,300.00	0.00	0.00	2,153,445.07	568,673.52	36.91785°N	107.59842°W
1,400.00	0.00	0.00	1,400.00	0.00	0.00	2,153,445.07	568,673.52	36.91785°N	107.59842°W
1,500.00	0.00	0.00	1,500.00	0.00	0.00	2,153,445.07	568,673.52	36.91785°N	107.59842°W
1,600.00	0.00	0.00	1,600.00	0.00	0.00	2,153,445.07	568,673.52	36.91785°N	107.59842°W
1,700.00	0.00	0.00	1,700.00	0.00	0.00	2,153,445.07	568,673.52	36.91785°N	107.59842°W
1,800.00	0.00	0.00	1,800.00	0.00	0.00	2,153,445.07	568,673.52	36.91785°N	107.59842°W
1,900.00	0.00	0.00	1,900.00	0.00	0.00	2,153,445.07	568,673.52	36.91785°N	107.59842°W
1,985.13	0.00	0.00	1,985.13	0.00	0.00	2,153,445.07	568,673.52	36.91785°N	107.59842°W
KOP, Build 4"/100' DLS									
2,000.00	0.59	304.16	2,000.00	0.04	-0.06	2,153,445.11	568,673.46	36.91785°N	107.59842°W
2,100.00	4.59	304.16	2,099.88	2.58	-3.81	2,153,447.66	568,669.71	36.91785°N	107.59843°W
2,200.00	8.59	304.16	2,199.20	9.03	-13.31	2,153,454.10	568,660.21	36.91787°N	107.59846°W
2,300.00	12.59	304.16	2,297.47	19.35	-28.52	2,153,464.43	568,645.00	36.91790°N	107.59852°W
2,400.00	16.59	304.16	2,394.22	33.50	-49.37	2,153,478.57	568,624.15	36.91794°N	107.59859°W
2,500.00	20.59	304.16	2,488.98	51.40	-75.75	2,153,496.47	568,597.77	36.91799°N	107.59868°W
2,600.00	24.59	304.16	2,581.29	72.97	-107.53	2,153,518.04	568,565.99	36.91805°N	107.59878°W
2,700.00	28.59	304.16	2,670.69	98.10	-144.57	2,153,543.17	568,528.95	36.91812°N	107.59891°W
2,800.00	32.59	304.16	2,756.75	126.68	-186.68	2,153,571.75	568,486.84	36.91820°N	107.59906°W
2,900.00	36.59	304.16	2,839.05	158.55	-233.65	2,153,603.62	568,439.87	36.91828°N	107.59922°W
3,000.00	40.59	304.16	2,917.20	193.57	-285.26	2,153,638.64	568,388.26	36.91838°N	107.59939°W
3,100.00	44.59	304.16	2,990.80	231.57	-341.25	2,153,676.64	568,332.27	36.91848°N	107.59958°W
3,200.00	48.59	304.16	3,059.50	272.35	-401.36	2,153,717.42	568,272.16	36.91860°N	107.59979°W
3,300.00	52.59	304.16	3,122.97	315.73	-465.28	2,153,760.80	568,208.24	36.91872°N	107.60001°W
3,400.00	56.59	304.16	3,180.89	361.49	-532.71	2,153,806.56	568,140.81	36.91884°N	107.60024°W
3,500.00	60.59	304.16	3,232.99	409.40	-603.32	2,153,854.47	568,070.20	36.91897°N	107.60048°W
3,600.00	64.59	304.16	3,279.01	459.24	-676.77	2,153,904.31	567,996.75	36.91911°N	107.60073°W
3,610.13	65.00	304.16	3,283.32	464.39	-684.35	2,153,909.46	567,989.17	36.91913°N	107.60075°W
LP, Hold Section									
3,700.00	65.00	304.16	3,321.30	510.12	-751.75	2,153,955.19	567,921.77	36.91925°N	107.60099°W
3,800.00	65.00	304.16	3,363.56	561.01	-826.74	2,154,006.08	567,846.78	36.91939°N	107.60124°W
3,900.00	65.00	304.16	3,405.82	611.90	-901.74	2,154,056.97	567,771.78	36.91953°N	107.60150°W
3,966.67	65.00	304.16	3,434.00	645.83	-951.74	2,154,090.90	567,721.78	36.91963°N	107.60167°W
PBHL/TD									



Koltek Energy Services
Planning Report - Geographic



Database: EDM 5000.1 Single User Db
Company: Hilcorp Energy Company
Project: San Juan Co., NM (NAD27)
Site: Sec.08-T31N-R07W
Well: San Juan 32-7 Unit 232H
Wellbore: Pilot Hole
Design: Rev1

Local Co-ordinate Reference: Well San Juan 32-7 Unit 232H
TVD Reference: KB @ 6653.00usft
MD Reference: KB @ 6653.00usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature

Formations

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
2,397.68	2,392.00	Ojo Alamo		0.00	
2,505.36	2,494.00	Kirtland		0.00	
3,305.01	3,126.00	Fruitland		0.00	
3,704.02	3,323.00	top of target		0.00	
3,727.69	3,333.00	base of target		0.00	
3,966.67	3,434.00	Pictured Cliffs		0.00	

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
1,985.13	1,985.13	0.00	0.00	KOP, Build 4"/100' DLS
3,610.13	3,283.32	464.39	-684.35	LP, Hold Section
3,966.67	3,434.00	645.83	-951.74	PBHL/TD



Hilcorp Energy Company

San Juan Co., NM (NAD27)

Sec.08-T31N-R07W

San Juan 32-7 Unit 232H

Pilot Hole

Rev1

Anticollision Report

13 September, 2018





Koltek Energy Services

Anticollision Report



Company: Hilcorp Energy Company
Project: San Juan Co., NM (NAD27)
Reference Site: Sec.08-T31N-R07W
Site Error: 0.00 usft
Reference Well: San Juan 32-7 Unit 232H
Well Error: 0.00 usft
Reference Wellbore: Pilot Hole
Reference Design: Rev1

Local Co-ordinate Reference: Well San Juan 32-7 Unit 232H
TVD Reference: KB @ 6653.00usft
MD Reference: KB @ 6653.00usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at 2.00 sigma
Database: EDM 5000.1 Single User Db
Offset TVD Reference: Offset Datum

Reference	Rev1
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria
Interpolation Method:	Stations
Depth Range:	Unlimited
Results Limited by:	Maximum center-center distance of 10,000.00 usft
Warning Levels Evaluated at:	2.00 Sigma
Error Model:	ISCWSA
Scan Method:	Closest Approach 3D
Error Surface:	Elliptical Conic
Casing Method:	Not applied

Survey Tool Program		Date	09/13/18		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
0.00	3,966.67	Rev1 (Pilot Hole)	MWD	MWD - Standard	

Summary						
Site Name	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
Sec.08-T31N-R07W						
San Juan 32-7 Unit 232A - Original Hole - Original Hole	750.65	739.68	151.97	135.68	9.329	CC
San Juan 32-7 Unit 232A - Original Hole - Original Hole	2,100.00	2,088.95	153.84	100.45	2.881	ES
San Juan 32-7 Unit 232A - Original Hole - Original Hole	2,200.00	2,188.27	158.16	102.00	2.816	SF

Offset Design	Sec.08-T31N-R07W - San Juan 32-7 Unit 232A - Original Hole - Original Hole											Offset Site Error: 0.00 usft
Survey Program: 126-INC_ONLY<10												Offset Well Error: 0.00 usft
Reference	Offset	Semi Major Axis		Distance		Minimum Separation		Separation Factor	Warning			
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	
0.00	0.00	0.00	0.00	0.00	0.00	52.65	92.40	121.09	152.72			
100.00	100.00	88.83	88.83	0.10	0.65	52.69	92.29	121.09	152.25	151.51	0.74	205.259
200.00	200.00	188.93	188.93	0.32	2.01	52.67	92.36	121.09	152.29	149.96	2.33	65.309
300.00	300.00	289.18	289.18	0.55	4.18	52.70	92.26	121.09	152.23	147.50	4.73	32.189
400.00	400.00	389.15	389.14	0.77	6.52	52.75	92.09	121.09	152.13	144.84	7.29	20.855
500.00	500.00	489.12	489.11	0.99	8.87	52.78	91.97	121.09	152.05	142.19	9.86	15.421
600.00	600.00	589.09	589.07	1.22	11.21	52.81	91.88	121.09	152.00	139.58	12.43	12.233
700.00	700.00	689.05	689.03	1.44	13.55	52.82	91.84	121.09	151.98	136.98	14.99	10.138
750.65	750.65	739.68	739.66	1.56	14.73	52.82	91.83	121.09	151.97	135.68	16.29	9.329 CC
800.00	800.00	789.01	788.99	1.67	15.89	52.82	91.83	121.09	151.97	134.42	17.56	8.656
900.00	900.00	888.97	888.95	1.89	18.23	52.81	91.87	121.09	152.00	131.88	20.12	7.554
1,000.00	1,000.00	988.93	988.90	2.12	20.57	52.79	91.95	121.09	152.05	129.36	22.69	6.702
1,100.00	1,100.00	1,088.88	1,088.86	2.34	22.91	52.75	92.07	121.09	152.12	126.87	25.25	6.024
1,200.00	1,200.00	1,188.84	1,188.81	2.57	25.25	52.70	92.24	121.09	152.22	124.40	27.82	5.472
1,300.00	1,300.00	1,289.03	1,289.00	2.79	27.64	52.65	92.40	121.09	152.32	121.88	30.44	5.004
1,400.00	1,400.00	1,389.04	1,389.00	3.02	30.29	52.65	92.40	121.09	152.32	119.01	33.31	4.573
1,500.00	1,500.00	1,489.04	1,489.00	3.24	32.94	52.65	92.40	121.09	152.32	116.14	36.18	4.210
1,600.00	1,600.00	1,589.05	1,589.00	3.47	35.59	52.65	92.40	121.09	152.32	113.26	39.06	3.900
1,700.00	1,700.00	1,689.05	1,689.00	3.69	38.24	52.65	92.40	121.09	152.32	110.39	41.93	3.633
1,800.00	1,800.00	1,789.06	1,789.00	3.92	40.89	52.65	92.40	121.09	152.32	107.51	44.81	3.400
1,900.00	1,900.00	1,889.06	1,889.00	4.14	43.54	52.65	92.40	121.09	152.32	104.64	47.68	3.195
1,985.13	1,985.13	1,974.20	1,974.13	4.33	45.79	52.65	92.40	121.09	152.32	102.19	50.13	3.039
2,000.00	2,000.00	1,989.07	1,989.00	4.37	46.19	108.52	92.40	121.09	152.34	101.79	50.55	3.014
2,100.00	2,099.88	2,088.95	2,088.88	4.58	48.83	110.06	92.40	121.09	153.84	100.45	53.39	2.881 ES

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



Koltek Energy Services
Anticollision Report



Company: Hilcorp Energy Company
Project: San Juan Co., NM (NAD27)
Reference Site: Sec.08-T31N-R07W
Site Error: 0.00 usft
Reference Well: San Juan 32-7 Unit 232H
Well Error: 0.00 usft
Reference Wellbore: Pilot Hole
Reference Design: Rev1

Local Co-ordinate Reference: Well San Juan 32-7 Unit 232H
TVD Reference: KB @ 6653.00usft
MD Reference: KB @ 6653.00usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at 2.00 sigma
Database: EDM 5000.1 Single User Db
Offset TVD Reference: Offset Datum

Offset Design Sec.08-T31N-R07W - San Juan 32-7 Unit 232A - Original Hole - Original Hole													Offset Site Error:	0.00 usft
Survey Program: 126-INC_ONLY<10													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
2,200.00	2,199.20	2,188.27	2,188.20	4.81	51.46	113.79	92.40	121.09	158.16	102.00	56.16	2.816 SF		
2,300.00	2,297.47	2,286.55	2,286.47	5.05	54.07	119.22	92.40	121.09	166.49	107.72	58.77	2.833		
2,400.00	2,394.22	2,383.31	2,383.22	5.34	56.63	125.61	92.40	121.09	180.35	119.27	61.08	2.953		
2,500.00	2,488.98	2,478.08	2,477.98	5.71	59.14	132.19	92.40	121.09	201.06	138.14	62.93	3.195		
2,600.00	2,581.29	2,570.39	2,570.29	6.17	61.59	138.29	92.40	121.09	229.45	165.23	64.22	3.573		
2,700.00	2,670.69	2,659.79	2,659.69	6.77	63.96	143.58	92.40	121.09	265.72	200.80	64.92	4.093		
2,800.00	2,756.75	2,745.86	2,745.75	7.52	66.24	147.95	92.40	121.09	309.67	244.62	65.05	4.761		
2,900.00	2,839.05	2,828.16	2,828.05	8.43	68.42	151.45	92.40	121.09	360.85	296.21	64.64	5.582		
3,000.00	2,917.20	2,906.31	2,906.20	9.53	70.49	154.17	92.40	121.09	418.75	355.00	63.75	6.569		
3,100.00	2,990.80	2,979.92	2,979.80	10.81	72.44	156.24	92.40	121.09	482.83	420.41	62.42	7.735		
3,200.00	3,059.50	3,048.62	3,048.50	12.27	74.26	157.73	92.40	121.09	552.57	491.85	60.72	9.100		
3,300.00	3,122.97	3,112.09	3,111.97	13.91	75.95	158.72	92.40	121.09	627.46	568.72	58.74	10.682		
3,400.00	3,180.89	3,172.00	3,171.87	15.70	77.53	159.32	92.40	121.09	707.01	650.42	56.59	12.494		
3,500.00	3,232.99	3,222.12	3,221.99	17.65	78.86	159.27	92.40	121.09	790.73	736.21	54.53	14.502		
3,600.00	3,279.01	3,268.14	3,268.01	19.73	80.08	158.76	92.40	121.09	878.15	825.33	52.81	16.627		
3,610.13	3,283.32	3,272.45	3,272.32	19.94	80.20	158.67	92.40	121.09	887.19	834.51	52.68	16.841		
3,700.00	3,321.30	3,310.43	3,310.30	21.90	81.20	160.34	92.40	121.09	967.65	915.17	52.48	18.438		
3,800.00	3,363.56	3,352.70	3,352.56	24.09	82.32	161.93	92.40	121.09	1,057.35	1,004.87	52.48	20.149		
3,900.00	3,405.82	3,394.96	3,394.82	26.31	83.44	163.28	92.40	121.09	1,147.19	1,094.54	52.65	21.787		
3,966.67	3,434.00	3,423.14	3,423.00	27.80	84.19	164.08	92.40	121.09	1,207.16	1,154.31	52.86	22.839		



Koltek Energy Services
Anticollision Report



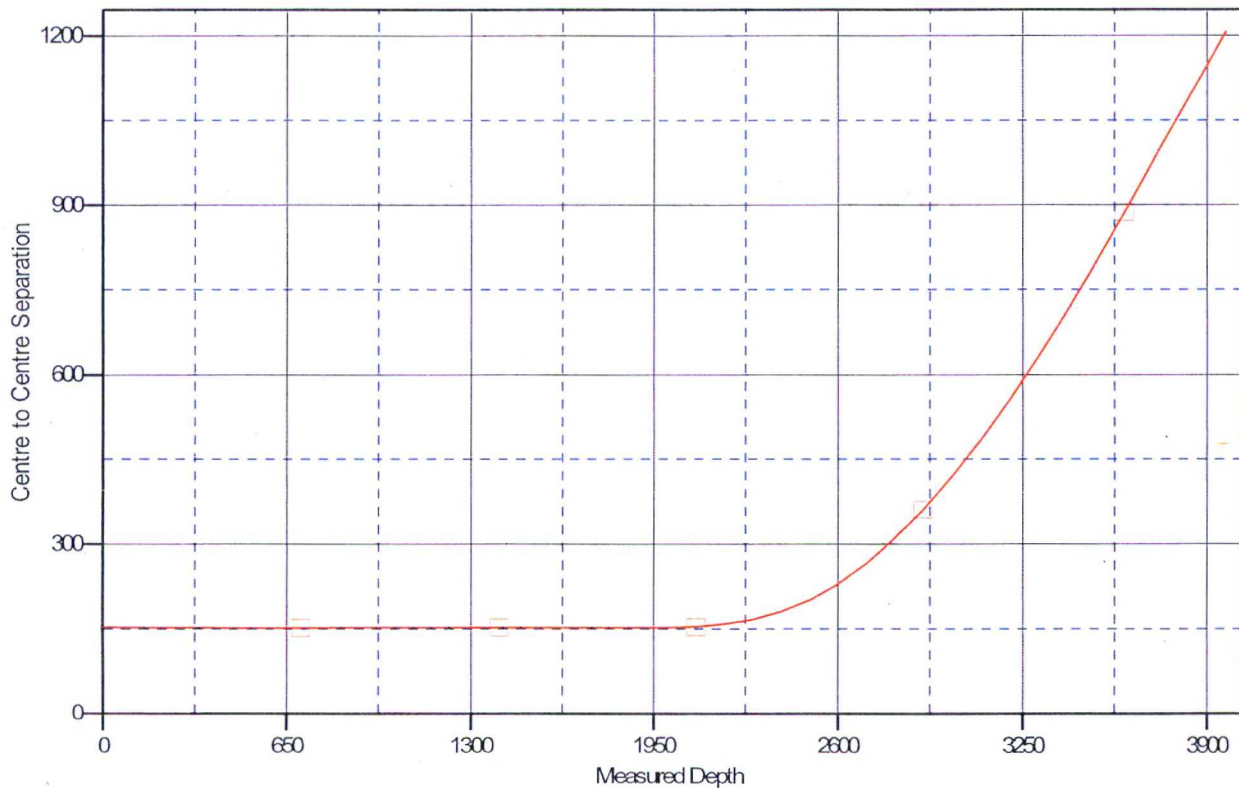
Company: Hilcorp Energy Company
Project: San Juan Co., NM (NAD27)
Reference Site: Sec.08-T31N-R07W
Site Error: 0.00 usft
Reference Well: San Juan 32-7 Unit 232H
Well Error: 0.00 usft
Reference Wellbore: Pilot Hole
Reference Design: Rev1

Local Co-ordinate Reference: Well San Juan 32-7 Unit 232H
TVD Reference: KB @ 6653.00usft
MD Reference: KB @ 6653.00usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: EDM 5000.1 Single User Db
Offset TVD Reference: Offset Datum

Reference Depths are relative to KB @ 6653.00usft
Offset Depths are relative to Offset Datum
Central Meridian is 107.83334°W

Coordinates are relative to: San Juan 32-7 Unit 232H
Coordinate System is US State Plane 1927 (Exact solution), New Mexico West 30
Grid Convergence at Surface is: 0.14°

Ladder Plot



LEGEND

ar 32-7 Unit232A, Original Hole, Original Hole V0



Koltek Energy Services
Anticollision Report



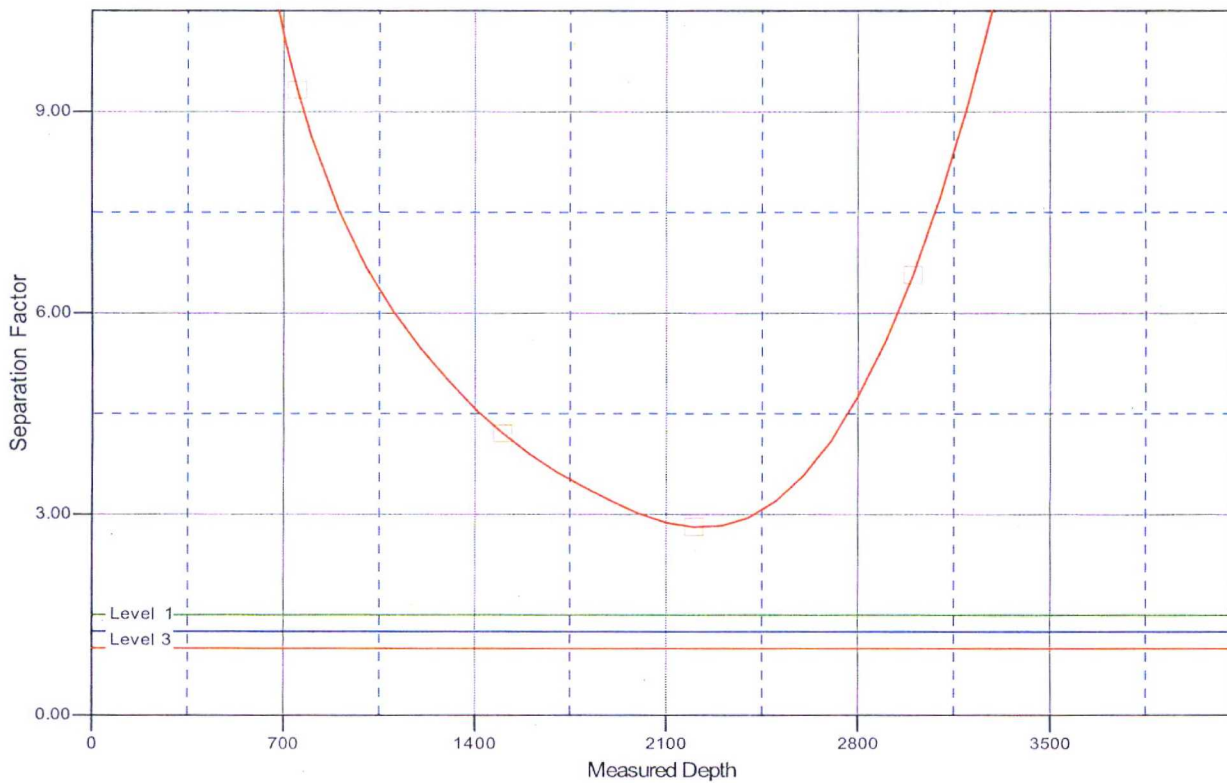
Company: Hilcorp Energy Company
Project: San Juan Co., NM (NAD27)
Reference Site: Sec.08-T31N-R07W
Site Error: 0.00 usft
Reference Well: San Juan 32-7 Unit 232H
Well Error: 0.00 usft
Reference Wellbore: Pilot Hole
Reference Design: Rev1

Local Co-ordinate Reference: Well San Juan 32-7 Unit 232H
TVD Reference: KB @ 6653.00usft
MD Reference: KB @ 6653.00usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at 2.00 sigma
Database: EDM 5000.1 Single User Db
Offset TVD Reference: Offset Datum

Reference Depths are relative to KB @ 6653.00usft
Offset Depths are relative to Offset Datum
Central Meridian is 107.83334°W

Coordinates are relative to: San Juan 32-7 Unit 232H
Coordinate System is US State Plane 1927 (Exact solution), New Mexico West 30
Grid Convergence at Surface is: 0.14°

Separation Factor Plot



LEGEND

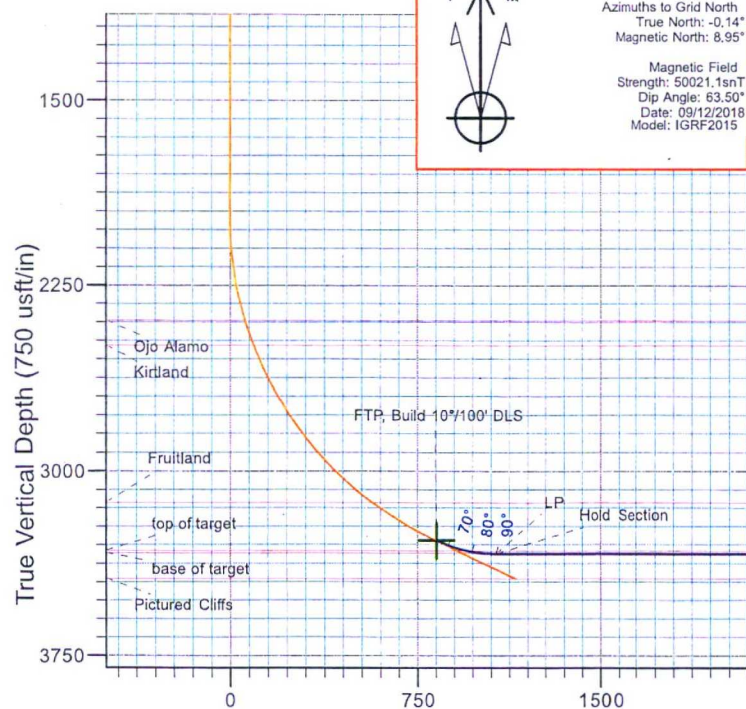
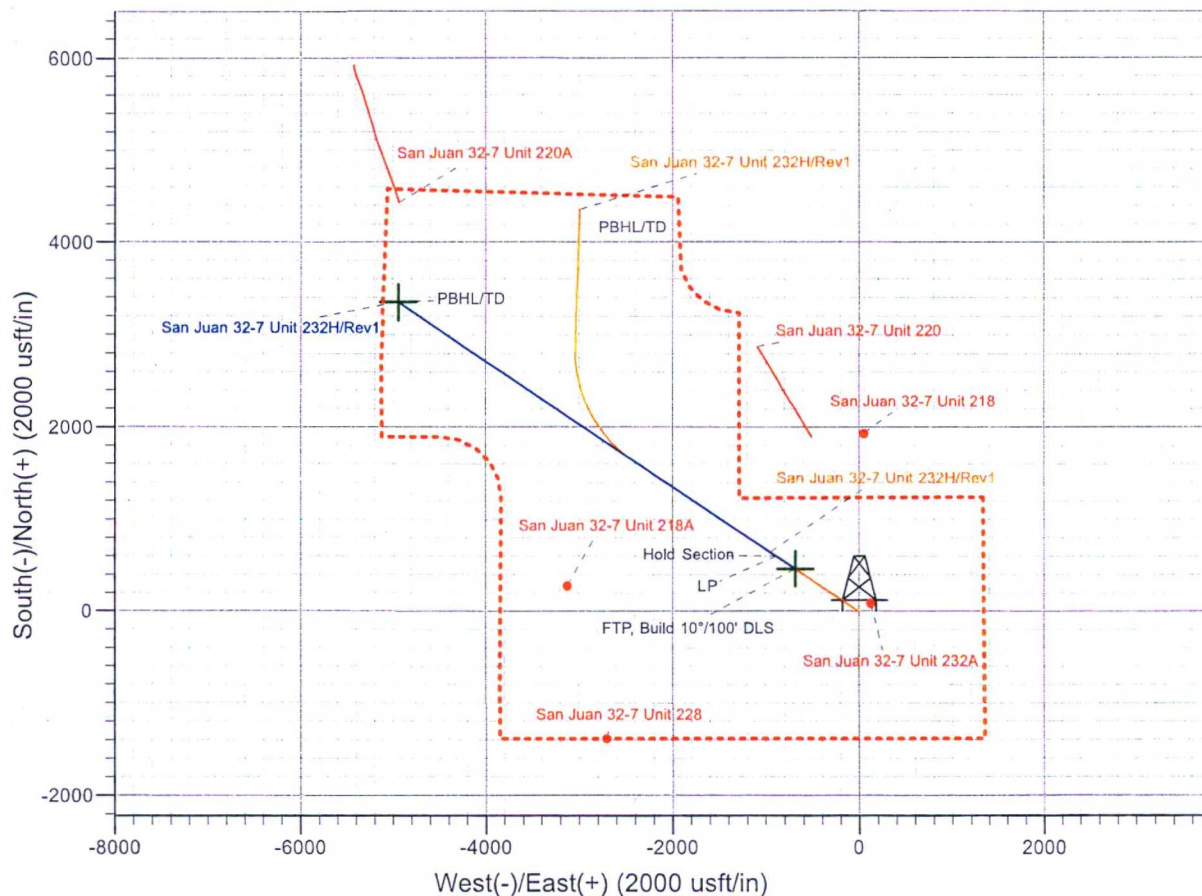
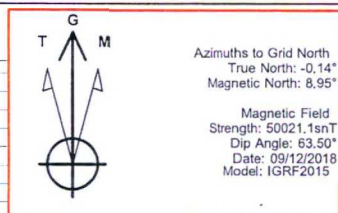
San Juan 32-7 Unit 232A, Original Hole, Original Hole V0



Company: Hilcorp Energy Company
 Field: San Juan Co., NM (NAD27)
 Location: Sec.08-T31N-R07W
 Well: San Juan 32-7 Unit 232H
 Borehole: Lat 1
 Plan: Rev1



WELL DETAILS: San Juan 32-7 Unit 232H									
		GL 6638.00		KB @ 6653.00usft					
+N/-S	+E/-W	Northing	Eastng	Latitude	Longitude				
0.00	0.00	2153445.07	568673.52	36.917845°N	107.598415°W				
SECTION DETAILS									
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSec
1	3610.13	65.00	304.16	3283.32	464.39	-684.35	0.00	0.00	827.04
2	3860.13	90.00	304.15	3337.00	600.34	-884.73	10.00	-0.01	1069.18
3	3862.47	90.02	304.15	3337.00	601.66	-886.66	1.00	0.00	1071.52
4	8760.35	90.02	304.15	3335.00	3351.49	-4939.77	0.00	0.00	5969.41
DESIGN TARGET DETAILS									
Name		TVD	+N/-S	+E/-W	Latitude	Longitude			
SJ 32-7 Unit 232H FTP		3283.32	464.39	-684.36	36.919125°N	107.600752°W			
SJ 32-7 Unit 232H Toe		3335.00	3351.49	-4939.77	36.927083°N	107.615287°W			
FORMATION TOP DETAILS					ANNOTATIONS				
TVDPath	MDPath	Formation			TVD	MD	Annotation		
3323.00	3733.21	top of target			3283.32	3610.13	FTP, Build 10°/100° DLS		
3333.00	3792.38	base of target			3337.00	3860.13	LP		
					3337.00	3862.47	Hold Section		
					3335.00	8760.35	PBHL/TD		



Vertical Section at 304.16° (750 usft/in)



Hilcorp Energy Company

San Juan Co., NM (NAD27)

Sec.08-T31N-R07W

San Juan 32-7 Unit 232H

Lat 1

Plan: Rev1

Standard Planning Report - Geographic

19 September, 2018





Koltek Energy Services
Planning Report - Geographic



Database: EDM 5000.1 Single User Db
Company: Hilcorp Energy Company
Project: San Juan Co., NM (NAD27)
Site: Sec.08-T31N-R07W
Well: San Juan 32-7 Unit 232H
Wellbore: Lat 1
Design: Rev1

Local Co-ordinate Reference: Well San Juan 32-7 Unit 232H
TVD Reference: KB @ 6653.00usft
MD Reference: KB @ 6653.00usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature

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.08-T31N-R07W		
Site Position:		Northing:	2,153,445.07 usft
From: Map		Easting:	568,673.52 usft
Position Uncertainty:	0.00 usft	Slot Radius:	13.200 in
		Latitude:	36.91785°N
		Longitude:	107.59842°W
		Grid Convergence:	0.14 °

Well	San Juan 32-7 Unit 232H		
Well Position	+N/-S	0.00 usft	Northing:
	+E/-W	0.00 usft	Easting:
Position Uncertainty	0.00 usft	Wellhead Elevation:	0.00 usft
		Latitude:	36.91785°N
		Longitude:	107.59842°W
		Ground Level:	6,638.00 usft

Wellbore	Lat 1		
Magnetics	Model Name	Sample Date	Declination
	IGRF2015	09/12/18	(°)
			9.09
			Dip Angle
			(°)
			63.50
			Field Strength
			(nT)
			50,021

Design	Rev1		
Audit Notes:			
Version:	Phase:	PROTOTYPE	Tie On Depth:
			3,610.13
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W
	(usft)	(usft)	(usft)
	0.00	0.00	0.00
			Direction
			(°)
			304.16

Plan Sections										
Measured	Inclination	Azimuth	Vertical	+N/-S	+E/-W	Dogleg	Build	Turn	TFO	Target
Depth	(°)	(°)	Depth	(usft)	(usft)	Rate	Rate	Rate	(°)	
(usft)			(usft)			(°/100ft)	(°/100ft)	(°/100ft)		
3,610.13	65.00	304.16	3,283.32	464.39	-684.35	0.00	0.00	0.00	0.00	
3,860.13	90.00	304.15	3,337.00	600.34	-884.73	10.00	10.00	0.00	-0.01	SJ 32-7 Unit 232H To
3,862.47	90.02	304.15	3,337.00	601.66	-886.66	1.00	1.00	0.00	0.00	
8,760.35	90.02	304.15	3,335.00	3,351.49	-4,939.77	0.00	0.00	0.00	0.00	SJ 32-7 Unit 232H To



Koltek Energy Services
Planning Report - Geographic



Database: EDM 5000.1 Single User Db
Company: Hilcorp Energy Company
Project: San Juan Co., NM (NAD27)
Site: Sec.08-T31N-R07W
Well: San Juan 32-7 Unit 232H
Wellbore: Lat 1
Design: Rev1

Local Co-ordinate Reference: Well San Juan 32-7 Unit 232H
TVD Reference: KB @ 6653.00usft
MD Reference: KB @ 6653.00usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
3,610.13	65.00	304.16	3,283.32	464.39	-684.35	2,153,909.46	567,989.17	36.91913°N	107.60075°W
FTP, Build 10"/100' DLS									
3,700.00	73.99	304.16	3,314.77	511.60	-753.93	2,153,956.67	567,919.59	36.91926°N	107.60099°W
3,800.00	83.99	304.16	3,333.85	566.65	-835.06	2,154,011.72	567,838.46	36.91941°N	107.60127°W
3,860.13	90.00	304.15	3,337.00	600.34	-884.73	2,154,045.41	567,788.80	36.91950°N	107.60144°W
LP									
3,862.47	90.02	304.15	3,337.00	601.66	-886.66	2,154,046.73	567,786.86	36.91950°N	107.60145°W
Hold Section									
3,900.00	90.02	304.15	3,336.98	622.73	-917.72	2,154,067.80	567,755.80	36.91956°N	107.60155°W
4,000.00	90.02	304.15	3,336.94	678.87	-1,000.47	2,154,123.94	567,673.05	36.91972°N	107.60183°W
4,100.00	90.02	304.15	3,336.90	735.01	-1,083.22	2,154,180.08	567,590.30	36.91987°N	107.60212°W
4,200.00	90.02	304.15	3,336.86	791.16	-1,165.98	2,154,236.23	567,507.55	36.92003°N	107.60240°W
4,300.00	90.02	304.15	3,336.82	847.30	-1,248.73	2,154,292.37	567,424.79	36.92018°N	107.60268°W
4,400.00	90.02	304.15	3,336.78	903.44	-1,331.48	2,154,348.51	567,342.04	36.92034°N	107.60296°W
4,500.00	90.02	304.15	3,336.74	959.59	-1,414.23	2,154,404.66	567,259.29	36.92049°N	107.60325°W
4,600.00	90.02	304.15	3,336.70	1,015.73	-1,496.98	2,154,460.80	567,176.54	36.92065°N	107.60353°W
4,700.00	90.02	304.15	3,336.66	1,071.87	-1,579.74	2,154,516.94	567,093.78	36.92080°N	107.60381°W
4,800.00	90.02	304.15	3,336.62	1,128.02	-1,662.49	2,154,573.09	567,011.03	36.92096°N	107.60410°W
4,900.00	90.02	304.15	3,336.58	1,184.16	-1,745.24	2,154,629.23	566,928.28	36.92111°N	107.60438°W
5,000.00	90.02	304.15	3,336.54	1,240.30	-1,827.99	2,154,685.37	566,845.53	36.92127°N	107.60466°W
5,100.00	90.02	304.15	3,336.49	1,296.45	-1,910.75	2,154,741.52	566,762.78	36.92142°N	107.60494°W
5,200.00	90.02	304.15	3,336.45	1,352.59	-1,993.50	2,154,797.66	566,680.02	36.92157°N	107.60523°W
5,300.00	90.02	304.15	3,336.41	1,408.73	-2,076.25	2,154,853.80	566,597.27	36.92173°N	107.60551°W
5,400.00	90.02	304.15	3,336.37	1,464.88	-2,159.00	2,154,909.95	566,514.52	36.92188°N	107.60579°W
5,500.00	90.02	304.15	3,336.33	1,521.02	-2,241.75	2,154,966.09	566,431.77	36.92204°N	107.60607°W
5,600.00	90.02	304.15	3,336.29	1,577.16	-2,324.51	2,155,022.23	566,349.01	36.92219°N	107.60636°W
5,700.00	90.02	304.15	3,336.25	1,633.31	-2,407.26	2,155,078.38	566,266.26	36.92235°N	107.60664°W
5,800.00	90.02	304.15	3,336.21	1,689.45	-2,490.01	2,155,134.52	566,183.51	36.92250°N	107.60692°W
5,900.00	90.02	304.15	3,336.17	1,745.59	-2,572.76	2,155,190.66	566,100.76	36.92266°N	107.60720°W
6,000.00	90.02	304.15	3,336.13	1,801.74	-2,655.52	2,155,246.81	566,018.01	36.92281°N	107.60749°W
6,100.00	90.02	304.15	3,336.09	1,857.88	-2,738.27	2,155,302.95	565,935.25	36.92297°N	107.60777°W
6,200.00	90.02	304.15	3,336.05	1,914.02	-2,821.02	2,155,359.09	565,852.50	36.92312°N	107.60805°W
6,300.00	90.02	304.15	3,336.00	1,970.17	-2,903.77	2,155,415.24	565,769.75	36.92328°N	107.60833°W
6,400.00	90.02	304.15	3,335.96	2,026.31	-2,986.52	2,155,471.38	565,687.00	36.92343°N	107.60862°W
6,500.00	90.02	304.15	3,335.92	2,082.45	-3,069.28	2,155,527.52	565,604.24	36.92359°N	107.60890°W
6,600.00	90.02	304.15	3,335.88	2,138.60	-3,152.03	2,155,583.67	565,521.49	36.92374°N	107.60918°W
6,700.00	90.02	304.15	3,335.84	2,194.74	-3,234.78	2,155,639.81	565,438.74	36.92390°N	107.60947°W
6,800.00	90.02	304.15	3,335.80	2,250.88	-3,317.53	2,155,695.95	565,355.99	36.92405°N	107.60975°W
6,900.00	90.02	304.15	3,335.76	2,307.03	-3,400.29	2,155,752.10	565,273.24	36.92421°N	107.61003°W
7,000.00	90.02	304.15	3,335.72	2,363.17	-3,483.04	2,155,808.24	565,190.48	36.92436°N	107.61031°W
7,100.00	90.02	304.15	3,335.68	2,419.31	-3,565.79	2,155,864.38	565,107.73	36.92451°N	107.61060°W
7,200.00	90.02	304.15	3,335.64	2,475.46	-3,648.54	2,155,920.53	565,024.98	36.92467°N	107.61088°W
7,300.00	90.02	304.15	3,335.60	2,531.60	-3,731.29	2,155,976.67	564,942.23	36.92482°N	107.61116°W
7,400.00	90.02	304.15	3,335.56	2,587.74	-3,814.05	2,156,032.81	564,859.47	36.92498°N	107.61144°W
7,500.00	90.02	304.15	3,335.51	2,643.89	-3,896.80	2,156,088.96	564,776.72	36.92513°N	107.61173°W
7,600.00	90.02	304.15	3,335.47	2,700.03	-3,979.55	2,156,145.10	564,693.97	36.92529°N	107.61201°W
7,700.00	90.02	304.15	3,335.43	2,756.17	-4,062.30	2,156,201.24	564,611.22	36.92544°N	107.61229°W
7,800.00	90.02	304.15	3,335.39	2,812.32	-4,145.06	2,156,257.39	564,528.47	36.92560°N	107.61257°W
7,900.00	90.02	304.15	3,335.35	2,868.46	-4,227.81	2,156,313.53	564,445.71	36.92575°N	107.61286°W
8,000.00	90.02	304.15	3,335.31	2,924.60	-4,310.56	2,156,369.67	564,362.96	36.92591°N	107.61314°W
8,100.00	90.02	304.15	3,335.27	2,980.75	-4,393.31	2,156,425.82	564,280.21	36.92606°N	107.61342°W
8,200.00	90.02	304.15	3,335.23	3,036.89	-4,476.06	2,156,481.96	564,197.46	36.92622°N	107.61371°W
8,300.00	90.02	304.15	3,335.19	3,093.03	-4,558.82	2,156,538.10	564,114.70	36.92637°N	107.61399°W
8,400.00	90.02	304.15	3,335.15	3,149.18	-4,641.57	2,156,594.25	564,031.95	36.92653°N	107.61427°W



Koltek Energy Services
Planning Report - Geographic



Database: EDM 5000.1 Single User Db
Company: Hilcorp Energy Company
Project: San Juan Co., NM (NAD27)
Site: Sec.08-T31N-R07W
Well: San Juan 32-7 Unit 232H
Wellbore: Lat 1
Design: Rev1

Local Co-ordinate Reference: Well San Juan 32-7 Unit 232H
TVD Reference: KB @ 6653.00usft
MD Reference: KB @ 6653.00usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
8,500.00	90.02	304.15	3,335.11	3,205.32	-4,724.32	2,156,650.39	563,949.20	36.92668°N	107.61455°W
8,600.00	90.02	304.15	3,335.07	3,261.46	-4,807.07	2,156,706.53	563,866.45	36.92684°N	107.61484°W
8,700.00	90.02	304.15	3,335.02	3,317.60	-4,889.83	2,156,762.68	563,783.70	36.92699°N	107.61512°W
8,760.35	90.02	304.15	3,335.00	3,351.49	-4,939.77	2,156,796.56	563,733.75	36.92708°N	107.61529°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 232H FTP - plan hits target center - Point	0.00	0.00	3,283.32	464.39	-684.36	2,153,909.46	567,989.16	36.91913°N	107.60075°W
SJ 32-7 Unit 232H Toe - plan hits target center - Point	0.00	0.00	3,335.00	3,351.49	-4,939.77	2,156,796.56	563,733.75	36.92708°N	107.61529°W

Formations

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
3,733.21	3,323.00	top of target		0.00	
3,792.38	3,333.00	base of target		0.00	

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
3,610.13	3,283.32	464.39	-684.35	FTP, Build 10°/100' DLS
3,860.13	3,337.00	600.34	-884.73	LP
3,862.47	3,337.00	601.66	-886.66	Hold Section
8,760.35	3,335.00	3,351.49	-4,939.77	PBHL/TD



Hilcorp Energy Company

San Juan Co., NM (NAD27)

Sec.08-T31N-R07W

San Juan 32-7 Unit 232H

Lat 1

Rev1

Anticollision Report

13 September, 2018





Koltek Energy Services

Anticollision Report



Company: Hilcorp Energy Company
Project: San Juan Co., NM (NAD27)
Reference Site: Sec.08-T31N-R07W
Site Error: 0.00 usft
Reference Well: San Juan 32-7 Unit 232H
Well Error: 0.00 usft
Reference Wellbore: Lat 1
Reference Design: Rev1

Local Co-ordinate Reference: Well San Juan 32-7 Unit 232H
TVD Reference: KB @ 6653.00usft
MD Reference: KB @ 6653.00usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at 2.00 sigma
Database: EDM 5000.1 Single User Db
Offset TVD Reference: Offset Datum

Reference	Rev1		
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 10,000.00 usft	Error Surface:	Elliptical Conic
Warning Levels Evaluated at:	2.00 Sigma	Casing Method:	Not applied

Survey Tool Program		Date	09/13/18		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
3,610.13	8,760.35	Rev1 (Lat 1)	MWD	MWD - Standard	

Summary						
Site Name	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
Sec.05-T31N-R07W						
San Juan 32-7 Unit 218 - Original Hole - Original Hole	3,838.99	3,330.73	1,627.29	1,554.24	22.276	CC
San Juan 32-7 Unit 218 - Original Hole - Original Hole	3,900.00	3,331.11	1,628.43	1,553.75	21.807	ES
San Juan 32-7 Unit 218 - Original Hole - Original Hole	4,800.00	3,330.74	1,889.87	1,791.34	19.180	SF
San Juan 32-7 Unit 220 - Original Hole - Original Hole	5,307.87	3,614.00	1,775.19	1,710.48	27.434	CC
San Juan 32-7 Unit 220 - Original Hole - Original Hole	5,400.00	3,614.00	1,777.57	1,710.43	26.473	ES
San Juan 32-7 Unit 220 - Original Hole - Original Hole	6,600.00	3,614.00	2,195.65	2,096.73	22.197	SF
Sec.07-T31N-R07W						
San Juan 32-7 Unit 218A - Original Hole - Original Hole	5,529.75	3,336.07	1,517.55	1,298.28	6.921	CC
San Juan 32-7 Unit 218A - Original Hole - Original Hole	5,600.00	3,336.04	1,519.17	1,298.04	6.870	ES
San Juan 32-7 Unit 218A - Original Hole - Original Hole	5,800.00	3,335.96	1,541.42	1,314.99	6.807	SF
San Juan 32-7 Unit 228 - Original Hole - Original Hole	4,254.29	3,266.54	2,661.55	2,486.88	15.238	CC
San Juan 32-7 Unit 228 - Original Hole - Original Hole	4,300.00	3,266.52	2,661.94	2,486.07	15.136	ES
San Juan 32-7 Unit 228 - Original Hole - Original Hole	5,300.00	3,266.11	2,859.60	2,657.23	14.130	SF
Sec.08-T31N-R07W						
San Juan 32-7 Unit 232A - Original Hole - Original Hole	3,610.13	3,272.45	887.19	844.14	20.609	CC, ES
San Juan 32-7 Unit 232A - Original Hole - Original Hole	3,860.13	3,326.14	1,126.79	1,039.29	12.878	SF
San Juan 32-7 Unit 232H - Lat 1 ST01 - Rev1	5,700.00	5,700.00	0.02	-15.61	0.001	Level 1, SF
San Juan 32-7 Unit 232H - Lat 1 ST01 - Rev1	5,701.68	5,701.68	0.02	-15.14	0.001	Level 1, CC
San Juan 32-7 Unit 232H - Lat 1 ST01 - Rev1	5,800.00	5,799.84	3.49	-55.15	0.059	Level 1, ES
San Juan 32-7 Unit 232H - Pilot Hole - Rev1	3,610.13	3,610.13	0.00	-6.97	0.000	Level 1, CC, ES, SF
Sec.31-T32N-R07W						
San Juan 32-7 Unit 220A - Original Hole - Original Hole	8,760.35	3,770.00	1,084.65	926.11	6.841	CC, ES, SF

Offset Design												
Sec.05-T31N-R07W - San Juan 32-7 Unit 218 - Original Hole - Original Hole												
Survey Program: 93-INC_ONLY<10												
Reference		Offset		Semi Major Axis			Distance					
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (")	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor
3,610.13	3,283.32	3,277.44	3,277.32	0.00	66.97	86.71	1,935.08	46.39	1,642.23	1,575.30	66.94	24.534
3,650.00	3,298.90	3,293.02	3,292.90	3.04	67.19	87.67	1,935.08	46.39	1,637.70	1,570.03	67.67	24.203
3,700.00	3,314.77	3,308.89	3,308.77	3.12	67.42	88.67	1,935.08	46.39	1,633.04	1,563.90	69.13	23.621
3,750.00	3,326.45	3,320.57	3,320.45	3.19	67.59	89.41	1,935.08	46.39	1,629.68	1,559.11	70.57	23.092

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



Koltek Energy Services
Anticollision Report



Company: Hilcorp Energy Company
Project: San Juan Co., NM (NAD27)
Reference Site: Sec.08-T31N-R07W
Site Error: 0.00 usft
Reference Well: San Juan 32-7 Unit 232H
Well Error: 0.00 usft
Reference Wellbore: Lat 1
Reference Design: Rev1

Local Co-ordinate Reference: Well San Juan 32-7 Unit 232H
TVD Reference: KB @ 6653.00usft
MD Reference: KB @ 6653.00usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at 2.00 sigma
Database: EDM 5000.1 Single User Db
Offset TVD Reference: Offset Datum

Offset Design Sec.05-T31N-R07W - San Juan 32-7 Unit 218 - Original Hole - Original Hole														Offset Site Error: 0.00 usft
Survey Program: 93-INC_ONLY<10														Offset Well Error: 0.00 usft
Reference		Offset		Semi Major Axis		Distance		Minimum		Separation		Warning		
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Separation (usft)	Factor		
3,800.00	3,333.85	3,327.97	3,327.85	4.29	67.70	89.86	1,935.08	46.39	1,627.75	1,555.76	71.99	22.611		
3,838.99	3,336.61	3,330.73	3,330.61	5.32	67.73	90.00	1,935.08	46.39	1,627.29	1,554.24	73.05	22.276 CC		
3,850.00	3,336.91	3,331.03	3,330.91	5.61	67.74	90.01	1,935.08	46.39	1,627.32	1,553.97	73.35	22.185		
3,860.13	3,337.00	3,331.12	3,331.00	5.88	67.74	90.00	1,935.08	46.39	1,627.42	1,553.80	73.62	22.105		
3,862.47	3,337.00	3,331.12	3,331.00	5.94	67.74	90.00	1,935.08	46.39	1,627.46	1,553.77	73.68	22.087		
3,900.00	3,336.98	3,331.11	3,330.98	6.94	67.74	90.00	1,935.08	46.39	1,628.43	1,553.75	74.68	21.807 ES		
4,000.00	3,336.94	3,331.07	3,330.94	9.58	67.74	90.00	1,935.08	46.39	1,635.23	1,557.91	77.32	21.148		
4,100.00	3,336.90	3,331.03	3,330.90	12.24	67.74	90.00	1,935.08	46.39	1,648.09	1,568.11	79.97	20.608		
4,200.00	3,336.86	3,330.98	3,330.86	14.89	67.74	89.99	1,935.08	46.39	1,666.85	1,584.23	82.63	20.174		
4,300.00	3,336.82	3,330.94	3,330.82	17.54	67.74	89.99	1,935.08	46.39	1,691.33	1,606.05	85.28	19.834		
4,400.00	3,336.78	3,330.90	3,330.78	20.19	67.74	89.99	1,935.08	46.39	1,721.28	1,633.35	87.93	19.576		
4,500.00	3,336.74	3,330.86	3,330.74	22.84	67.74	89.99	1,935.08	46.39	1,756.42	1,665.84	90.58	19.391		
4,600.00	3,336.70	3,330.82	3,330.70	25.50	67.74	89.99	1,935.08	46.39	1,796.44	1,703.21	93.23	19.269		
4,700.00	3,336.66	3,330.78	3,330.66	28.15	67.74	89.99	1,935.08	46.39	1,841.04	1,745.15	95.88	19.201		
4,800.00	3,336.62	3,330.74	3,330.62	30.80	67.74	89.99	1,935.08	46.39	1,889.87	1,791.34	98.54	19.180 SF		
4,900.00	3,336.58	3,330.70	3,330.58	33.45	67.73	89.98	1,935.08	46.39	1,942.63	1,841.45	101.19	19.198		
5,000.00	3,336.54	3,330.66	3,330.54	36.11	67.73	89.98	1,935.08	46.39	1,999.01	1,895.17	103.84	19.251		
5,100.00	3,336.49	3,330.62	3,330.49	38.76	67.73	89.98	1,935.08	46.39	2,058.70	1,952.20	106.49	19.332		
5,200.00	3,336.45	3,330.58	3,330.45	41.41	67.73	89.98	1,935.08	46.39	2,121.42	2,012.28	109.14	19.437		
5,300.00	3,336.41	3,330.54	3,330.41	44.06	67.73	89.98	1,935.08	46.39	2,186.92	2,075.13	111.80	19.562		
5,400.00	3,336.37	3,330.49	3,330.37	46.72	67.73	89.98	1,935.08	46.39	2,254.96	2,140.51	114.45	19.703		
5,500.00	3,336.33	3,330.45	3,330.33	49.37	67.73	89.98	1,935.08	46.39	2,325.31	2,208.21	117.10	19.857		
5,600.00	3,336.29	3,330.41	3,330.29	52.02	67.73	89.97	1,935.08	46.39	2,397.76	2,278.01	119.75	20.023		
5,700.00	3,336.25	3,330.37	3,330.25	54.67	67.73	89.97	1,935.08	46.39	2,472.14	2,349.73	122.40	20.196		
5,800.00	3,336.21	3,330.33	3,330.21	57.33	67.73	89.97	1,935.08	46.39	2,548.27	2,423.21	125.06	20.377		
5,900.00	3,336.17	3,330.29	3,330.17	59.98	67.73	89.97	1,935.08	46.39	2,626.00	2,498.29	127.71	20.562		
6,000.00	3,336.13	3,330.25	3,330.13	62.63	67.73	89.97	1,935.08	46.39	2,705.19	2,574.83	130.36	20.752		
6,100.00	3,336.09	3,330.21	3,330.09	65.29	67.73	89.97	1,935.08	46.39	2,785.73	2,652.71	133.01	20.943		
6,200.00	3,336.05	3,330.17	3,330.05	67.94	67.73	89.97	1,935.08	46.39	2,867.49	2,731.82	135.67	21.136		
6,300.00	3,336.00	3,330.13	3,330.00	70.59	67.73	89.96	1,935.08	46.39	2,950.37	2,812.05	138.32	21.330		
6,400.00	3,335.96	3,330.09	3,329.96	73.24	67.73	89.96	1,935.08	46.39	3,034.28	2,893.31	140.97	21.524		
6,500.00	3,335.92	3,330.05	3,329.92	75.90	67.73	89.96	1,935.08	46.39	3,119.15	2,975.53	143.62	21.718		
6,600.00	3,335.88	3,330.00	3,329.88	78.55	67.72	89.96	1,935.08	46.39	3,204.88	3,058.61	146.27	21.910		
6,700.00	3,335.84	3,329.96	3,329.84	81.20	67.72	89.96	1,935.08	46.39	3,291.43	3,142.50	148.93	22.101		
6,800.00	3,335.80	3,329.92	3,329.80	83.86	67.72	89.96	1,935.08	46.39	3,378.71	3,227.13	151.58	22.290		
6,900.00	3,335.76	3,329.88	3,329.76	86.51	67.72	89.96	1,935.08	46.39	3,466.68	3,312.45	154.23	22.477		
7,000.00	3,335.72	3,329.84	3,329.72	89.16	67.72	89.95	1,935.08	46.39	3,555.29	3,398.41	156.88	22.662		
7,100.00	3,335.68	3,329.80	3,329.68	91.81	67.72	89.95	1,935.08	46.39	3,644.49	3,484.95	159.54	22.844		
7,200.00	3,335.64	3,329.76	3,329.64	94.47	67.72	89.95	1,935.08	46.39	3,734.23	3,572.05	162.19	23.024		
7,300.00	3,335.60	3,329.72	3,329.60	97.12	67.72	89.95	1,935.08	46.39	3,824.49	3,659.65	164.84	23.201		
7,400.00	3,335.56	3,329.68	3,329.56	99.77	67.72	89.95	1,935.08	46.39	3,915.22	3,747.72	167.49	23.376		
7,500.00	3,335.51	3,329.64	3,329.51	102.43	67.72	89.95	1,935.08	46.39	4,006.39	3,836.24	170.14	23.547		
7,600.00	3,335.47	3,329.60	3,329.47	105.08	67.72	89.95	1,935.08	46.39	4,097.97	3,925.17	172.80	23.716		
7,700.00	3,335.43	3,329.56	3,329.43	107.73	67.72	89.94	1,935.08	46.39	4,189.93	4,014.48	175.45	23.881		
7,800.00	3,335.39	3,329.51	3,329.39	110.38	67.72	89.94	1,935.08	46.39	4,282.26	4,104.16	178.10	24.044		
7,900.00	3,335.35	3,329.47	3,329.35	113.04	67.72	89.94	1,935.08	46.39	4,374.92	4,194.17	180.75	24.204		
8,000.00	3,335.31	3,329.43	3,329.31	115.69	67.72	89.94	1,935.08	46.39	4,467.90	4,284.50	183.41	24.361		
8,100.00	3,335.27	3,329.39	3,329.27	118.34	67.72	89.94	1,935.08	46.39	4,561.18	4,375.12	186.06	24.515		
8,200.00	3,335.23	3,329.35	3,329.23	120.99	67.72	89.94	1,935.08	46.39	4,654.73	4,466.02	188.71	24.666		
8,300.00	3,335.19	3,329.31	3,329.19	123.65	67.71	89.94	1,935.08	46.39	4,748.55	4,557.19	191.36	24.814		
8,400.00	3,335.15	3,329.27	3,329.15	126.30	67.71	89.93	1,935.08	46.39	4,842.62	4,648.60	194.01	24.960		
8,500.00	3,335.11	3,329.23	3,329.11	128.95	67.71	89.93	1,935.08	46.39	4,936.92	4,740.25	196.67	25.103		

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



Koltek Energy Services
Anticollision Report



Company: Hilcorp Energy Company
Project: San Juan Co., NM (NAD27)
Reference Site: Sec.08-T31N-R07W
Site Error: 0.00 usft
Reference Well: San Juan 32-7 Unit 232H
Well Error: 0.00 usft
Reference Wellbore: Lat 1
Reference Design: Rev1

Local Co-ordinate Reference: Well San Juan 32-7 Unit 232H
TVD Reference: KB @ 6653.00usft
MD Reference: KB @ 6653.00usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: EDM 5000.1 Single User Db
Offset TVD Reference: Offset Datum

Offset Design Sec.05-T31N-R07W - San Juan 32-7 Unit 218 - Original Hole - Original Hole													Offset Site Error:	0.00 usft
Survey Program: 93-INC_ONLY<10													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N-S (usft)	+E-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
8,600.00	3,335.07	3,329.19	3,329.07	131.61	67.71	89.93	1,935.08	46.39	5,031.44	4,832.12	199.32	25.243		
8,700.00	3,335.02	3,329.15	3,329.02	134.26	67.71	89.93	1,935.08	46.39	5,126.16	4,924.19	201.97	25.381		
8,760.35	3,335.00	3,329.12	3,329.00	135.86	67.71	89.93	1,935.08	46.39	5,183.43	4,979.86	203.57	25.462		



Koltek Energy Services

Anticollision Report



Company: Hilcorp Energy Company
Project: San Juan Co., NM (NAD27)
Reference Site: Sec.08-T31N-R07W
Site Error: 0.00 usft
Reference Well: San Juan 32-7 Unit 232H
Well Error: 0.00 usft
Reference Wellbore: Lat 1
Reference Design: Rev1

Local Co-ordinate Reference: Well San Juan 32-7 Unit 232H
TVD Reference: KB @ 6653.00usft
MD Reference: KB @ 6653.00usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at 2.00 sigma
Database: EDM 5000.1 Single User Db
Offset TVD Reference: Offset Datum

Offset Design Sec.05-T31N-R07W - San Juan 32-7 Unit 220 - Original Hole - Original Hole														Offset Site Error:	0.00 usft
Survey Program: 463-MWD														Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning		
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)							
3,610.13	3,283.32	2,200.47	2,028.53	0.00	13.44	41.46	2,466.34	-847.11	2,430.05	2,422.02	8.04	302.404			
3,650.00	3,298.90	2,232.79	2,054.34	3.04	13.83	42.59	2,483.18	-856.83	2,419.91	2,411.02	8.88	272.360			
3,700.00	3,314.77	3,614.00	3,328.01	3.12	22.24	73.08	2,878.69	-1,088.41	2,392.68	2,371.65	21.03	113.762			
3,750.00	3,326.45	3,614.00	3,328.01	3.19	22.24	77.06	2,878.69	-1,088.41	2,360.86	2,338.02	22.84	103.360			
3,800.00	3,333.85	3,614.00	3,328.01	4.29	22.24	81.14	2,878.69	-1,088.41	2,328.92	2,304.37	24.55	94.866			
3,850.00	3,336.91	3,614.00	3,328.01	5.61	22.24	85.23	2,878.69	-1,088.41	2,297.10	2,270.99	26.10	88.001			
3,860.13	3,337.00	3,614.00	3,328.01	5.88	22.24	86.06	2,878.69	-1,088.41	2,290.69	2,264.29	26.40	86.785			
3,862.47	3,337.00	3,614.00	3,328.01	5.94	22.24	86.08	2,878.69	-1,088.41	2,289.21	2,262.75	26.46	86.525			
3,900.00	3,336.98	3,614.00	3,328.01	6.94	22.24	86.08	2,878.69	-1,088.41	2,265.70	2,238.25	27.45	82.544			
4,000.00	3,336.94	3,614.00	3,328.01	9.58	22.24	86.08	2,878.69	-1,088.41	2,204.95	2,174.86	30.09	73.274			
4,100.00	3,336.90	3,614.00	3,328.01	12.24	22.24	86.08	2,878.69	-1,088.41	2,147.15	2,114.41	32.74	65.588			
4,200.00	3,336.86	3,614.00	3,328.01	14.89	22.24	86.08	2,878.69	-1,088.41	2,092.53	2,057.14	35.38	59.140			
4,300.00	3,336.82	3,614.00	3,328.01	17.54	22.24	86.08	2,878.69	-1,088.41	2,041.35	2,003.32	38.03	53.678			
4,400.00	3,336.78	3,614.00	3,328.01	20.19	22.24	86.08	2,878.69	-1,088.41	1,993.87	1,953.19	40.68	49.019			
4,500.00	3,336.74	3,614.00	3,328.01	22.84	22.24	86.08	2,878.69	-1,088.41	1,950.37	1,907.05	43.32	45.020			
4,600.00	3,336.70	3,614.00	3,328.01	25.50	22.24	86.08	2,878.69	-1,088.41	1,911.12	1,865.15	45.97	41.573			
4,700.00	3,336.66	3,614.00	3,328.01	28.15	22.24	86.08	2,878.69	-1,088.41	1,876.38	1,827.76	48.62	38.595			
4,800.00	3,336.62	3,614.00	3,328.01	30.80	22.24	86.08	2,878.69	-1,088.41	1,846.41	1,795.14	51.26	36.018			
4,900.00	3,336.58	3,614.00	3,328.01	33.45	22.24	86.08	2,878.69	-1,088.41	1,821.44	1,767.53	53.91	33.786			
5,000.00	3,336.54	3,614.00	3,328.01	36.11	22.24	86.08	2,878.69	-1,088.41	1,801.69	1,745.13	56.56	31.855			
5,100.00	3,336.49	3,614.00	3,328.01	38.76	22.24	86.08	2,878.69	-1,088.41	1,787.32	1,728.11	59.21	30.188			
5,200.00	3,336.45	3,614.00	3,328.01	41.41	22.24	86.08	2,878.69	-1,088.41	1,778.46	1,716.61	61.85	28.753			
5,300.00	3,336.41	3,614.00	3,328.01	44.06	22.24	86.08	2,878.69	-1,088.41	1,775.20	1,710.70	64.50	27.523			
5,307.87	3,336.41	3,614.00	3,328.01	44.27	22.24	86.08	2,878.69	-1,088.41	1,775.19	1,710.48	64.71	27.434 CC			
5,400.00	3,336.37	3,614.00	3,328.01	46.72	22.24	86.08	2,878.69	-1,088.41	1,777.57	1,710.43	67.15	26.473 ES			
5,500.00	3,336.33	3,614.00	3,328.01	49.37	22.24	86.08	2,878.69	-1,088.41	1,785.55	1,715.76	69.79	25.583			
5,600.00	3,336.29	3,614.00	3,328.01	52.02	22.24	86.08	2,878.69	-1,088.41	1,799.06	1,726.62	72.44	24.835			
5,700.00	3,336.25	3,614.00	3,328.01	54.67	22.24	86.08	2,878.69	-1,088.41	1,817.98	1,742.89	75.09	24.211			
5,800.00	3,336.21	3,614.00	3,328.01	57.33	22.24	86.08	2,878.69	-1,088.41	1,842.14	1,764.40	77.74	23.697			
5,900.00	3,336.17	3,614.00	3,328.01	59.98	22.24	86.08	2,878.69	-1,088.41	1,871.34	1,790.95	80.38	23.280			
6,000.00	3,336.13	3,614.00	3,328.01	62.63	22.24	86.08	2,878.69	-1,088.41	1,905.34	1,822.31	83.03	22.947			
6,100.00	3,336.09	3,614.00	3,328.01	65.29	22.24	86.08	2,878.69	-1,088.41	1,943.90	1,858.22	85.68	22.688			
6,200.00	3,336.05	3,614.00	3,328.01	67.94	22.24	86.08	2,878.69	-1,088.41	1,986.75	1,898.42	88.33	22.493			
6,300.00	3,336.00	3,614.00	3,328.01	70.59	22.24	86.08	2,878.69	-1,088.41	2,033.62	1,942.64	90.97	22.354			
6,400.00	3,335.96	3,614.00	3,328.01	73.24	22.24	86.08	2,878.69	-1,088.41	2,084.23	1,990.61	93.62	22.263			
6,500.00	3,335.92	3,614.00	3,328.01	75.90	22.24	86.08	2,878.69	-1,088.41	2,138.33	2,042.06	96.27	22.212			
6,600.00	3,335.88	3,614.00	3,328.01	78.55	22.24	86.08	2,878.69	-1,088.41	2,195.65	2,096.73	98.92	22.197 SF			
6,700.00	3,335.84	3,614.00	3,328.01	81.20	22.24	86.08	2,878.69	-1,088.41	2,255.95	2,154.38	101.56	22.212			
6,800.00	3,335.80	3,614.00	3,328.01	83.86	22.24	86.08	2,878.69	-1,088.41	2,318.99	2,214.78	104.21	22.253			
6,900.00	3,335.76	3,614.00	3,328.01	86.51	22.24	86.08	2,878.69	-1,088.41	2,384.57	2,277.71	106.86	22.315			
7,000.00	3,335.72	3,614.00	3,328.01	89.16	22.24	86.08	2,878.69	-1,088.41	2,452.46	2,342.96	109.51	22.396			
7,100.00	3,335.68	3,614.00	3,328.01	91.81	22.24	86.08	2,878.69	-1,088.41	2,522.50	2,410.35	112.15	22.492			
7,200.00	3,335.64	3,614.00	3,328.01	94.47	22.24	86.08	2,878.69	-1,088.41	2,594.50	2,479.70	114.80	22.600			
7,300.00	3,335.60	3,614.00	3,328.01	97.12	22.24	86.08	2,878.69	-1,088.41	2,668.30	2,550.86	117.45	22.719			
7,400.00	3,335.56	3,614.00	3,328.01	99.77	22.24	86.08	2,878.69	-1,088.41	2,743.77	2,623.68	120.09	22.847			
7,500.00	3,335.51	3,614.00	3,328.01	102.43	22.24	86.08	2,878.69	-1,088.41	2,820.76	2,698.02	122.74	22.981			
7,600.00	3,335.47	3,614.00	3,328.01	105.08	22.24	86.08	2,878.69	-1,088.41	2,899.16	2,773.77	125.39	23.121			
7,700.00	3,335.43	3,614.00	3,328.01	107.73	22.24	86.08	2,878.69	-1,088.41	2,978.85	2,850.81	128.04	23.266			
7,800.00	3,335.39	3,614.00	3,328.01	110.38	22.24	86.08	2,878.69	-1,088.41	3,059.73	2,929.05	130.68	23.413			
7,900.00	3,335.35	3,614.00	3,328.01	113.04	22.24	86.08	2,878.69	-1,088.41	3,141.72	3,008.39	133.33	23.563			
8,000.00	3,335.31	3,614.00	3,328.01	115.69	22.24	86.08	2,878.69	-1,088.41	3,224.72	3,088.74	135.98	23.715			
8,100.00	3,335.27	3,614.00	3,328.01	118.34	22.24	86.08	2,878.69	-1,088.41	3,308.66	3,170.04	138.63	23.867			

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



Koltek Energy Services
Anticollision Report



Company: Hilcorp Energy Company
Project: San Juan Co., NM (NAD27)
Reference Site: Sec.08-T31N-R07W
Site Error: 0.00 usft
Reference Well: San Juan 32-7 Unit 232H
Well Error: 0.00 usft
Reference Wellbore: Lat 1
Reference Design: Rev1

Local Co-ordinate Reference: Well San Juan 32-7 Unit 232H
TVD Reference: KB @ 6653.00usft
MD Reference: KB @ 6653.00usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: EDM 5000.1 Single User Db
Offset TVD Reference: Offset Datum

Offset Design Sec.05-T31N-R07W - San Juan 32-7 Unit 220 - Original Hole - Original Hole													Offset Site Error:	0.00 usft
Survey Program: 463-MWD													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (")	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
8,200.00	3,335.23	3,614.00	3,328.01	120.99	22.24	86.08	2,878.69	-1,088.41	3,393.48	3,252.20	141.27	24.021		
8,300.00	3,335.19	3,614.00	3,328.01	123.65	22.24	86.08	2,878.69	-1,088.41	3,479.10	3,335.17	143.92	24.174		
8,400.00	3,335.15	3,614.00	3,328.01	126.30	22.24	86.08	2,878.69	-1,088.41	3,565.46	3,418.89	146.57	24.326		
8,500.00	3,335.11	3,614.00	3,328.01	128.95	22.24	86.08	2,878.69	-1,088.41	3,652.53	3,503.31	149.22	24.478		
8,600.00	3,335.07	3,614.00	3,328.01	131.61	22.24	86.08	2,878.69	-1,088.41	3,740.24	3,588.37	151.86	24.629		
8,700.00	3,335.02	3,614.00	3,328.01	134.26	22.24	86.08	2,878.69	-1,088.41	3,828.55	3,674.04	154.51	24.779		
8,760.35	3,335.00	3,614.00	3,328.01	135.86	22.24	86.08	2,878.69	-1,088.41	3,882.13	3,726.02	156.11	24.868		



Koltek Energy Services
Anticollision Report



Company: Hilcorp Energy Company
Project: San Juan Co., NM (NAD27)
Reference Site: Sec.08-T31N-R07W
Site Error: 0.00 usft
Reference Well: San Juan 32-7 Unit 232H
Well Error: 0.00 usft
Reference Wellbore: Lat 1
Reference Design: Rev1

Local Co-ordinate Reference: Well San Juan 32-7 Unit 232H
TVD Reference: KB @ 6653.00usft
MD Reference: KB @ 6653.00usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at 2.00 sigma
Database: EDM 5000.1 Single User Db
Offset TVD Reference: Offset Datum

Offset Design Sec.07-T31N-R07W - San Juan 32-7 Unit 218A - Original Hole - Original Hole													Offset Site Error: 0.00 usft
Survey Program: 220-INC_ONLY<10													Offset Well Error: 0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
3,610.13	3,283.32	3,283.06	3,282.32	0.00	167.67	-61.97	281.92	-3,118.38	2,440.85	2,288.49	152.36	16.020	
3,650.00	3,298.90	3,298.64	3,297.90	3.04	168.08	-66.11	281.92	-3,118.38	2,412.23	2,255.58	156.64	15.400	
3,700.00	3,314.77	3,314.52	3,313.77	3.12	168.50	-71.62	281.92	-3,118.38	2,375.57	2,212.87	162.70	14.601	
3,750.00	3,326.45	3,326.20	3,325.45	3.19	168.80	-77.38	281.92	-3,118.38	2,338.39	2,170.23	168.16	13.906	
3,800.00	3,333.85	3,333.60	3,332.85	4.29	169.00	-83.19	281.92	-3,118.38	2,301.00	2,128.70	172.31	13.354	
3,850.00	3,336.91	3,336.66	3,335.91	5.61	169.08	-88.88	281.92	-3,118.38	2,263.74	2,089.01	174.73	12.955	
3,860.13	3,337.00	3,336.75	3,336.00	5.88	169.08	-90.00	281.92	-3,118.38	2,256.23	2,081.23	175.01	12.892	
3,862.47	3,337.00	3,336.75	3,336.00	5.94	169.08	-90.03	281.92	-3,118.38	2,254.50	2,079.44	175.07	12.878	
3,900.00	3,336.98	3,336.73	3,335.98	6.94	169.08	-90.03	281.92	-3,118.38	2,226.89	2,050.83	176.06	12.648	
4,000.00	3,336.94	3,336.69	3,335.94	9.58	169.08	-90.02	281.92	-3,118.38	2,154.78	1,976.08	178.71	12.057	
4,100.00	3,336.90	3,336.65	3,335.90	12.24	169.08	-90.02	281.92	-3,118.38	2,084.98	1,903.62	181.36	11.496	
4,200.00	3,336.86	3,336.61	3,335.86	14.89	169.08	-90.02	281.92	-3,118.38	2,017.72	1,833.71	184.01	10.965	
4,300.00	3,336.82	3,336.57	3,335.82	17.54	169.08	-90.02	281.92	-3,118.38	1,953.27	1,766.60	186.66	10.464	
4,400.00	3,336.78	3,336.53	3,335.78	20.19	169.08	-90.02	281.92	-3,118.38	1,891.90	1,702.59	189.31	9.994	
4,500.00	3,336.74	3,336.49	3,335.74	22.84	169.07	-90.02	281.92	-3,118.38	1,833.94	1,641.98	191.96	9.554	
4,600.00	3,336.70	3,336.45	3,335.70	25.50	169.07	-90.01	281.92	-3,118.38	1,779.72	1,585.10	194.61	9.145	
4,700.00	3,336.66	3,336.41	3,335.66	28.15	169.07	-90.01	281.92	-3,118.38	1,729.58	1,532.31	197.27	8.768	
4,800.00	3,336.62	3,336.36	3,335.62	30.80	169.07	-90.01	281.92	-3,118.38	1,683.89	1,483.97	199.92	8.423	
4,900.00	3,336.58	3,336.32	3,335.58	33.45	169.07	-90.01	281.92	-3,118.38	1,643.03	1,440.46	202.57	8.111	
5,000.00	3,336.54	3,336.28	3,335.54	36.11	169.07	-90.01	281.92	-3,118.38	1,607.35	1,402.13	205.22	7.832	
5,100.00	3,336.49	3,336.24	3,335.49	38.76	169.07	-90.01	281.92	-3,118.38	1,577.23	1,369.35	207.87	7.587	
5,200.00	3,336.45	3,336.20	3,335.45	41.41	169.07	-90.01	281.92	-3,118.38	1,552.96	1,342.44	210.52	7.377	
5,300.00	3,336.41	3,336.16	3,335.41	44.06	169.07	-90.00	281.92	-3,118.38	1,534.84	1,321.67	213.18	7.200	
5,400.00	3,336.37	3,336.12	3,335.37	46.72	169.06	-90.00	281.92	-3,118.38	1,523.08	1,307.26	215.83	7.057	
5,500.00	3,336.33	3,336.08	3,335.33	49.37	169.06	-90.00	281.92	-3,118.38	1,517.84	1,299.36	218.48	6.947	
5,529.75	3,336.32	3,336.07	3,335.32	50.16	169.06	-90.00	281.92	-3,118.38	1,517.55	1,298.28	219.27	6.921 CC	
5,600.00	3,336.29	3,336.04	3,335.29	52.02	169.06	-90.00	281.92	-3,118.38	1,519.17	1,298.04	221.13	6.870 ES	
5,700.00	3,336.25	3,336.00	3,335.25	54.67	169.06	-90.00	281.92	-3,118.38	1,527.07	1,303.29	223.78	6.824	
5,800.00	3,336.21	3,335.96	3,335.21	57.33	169.06	-90.00	281.92	-3,118.38	1,541.42	1,314.99	226.43	6.807 SF	
5,900.00	3,336.17	3,335.92	3,335.17	59.98	169.06	-89.99	281.92	-3,118.38	1,562.06	1,332.97	229.09	6.819	
6,000.00	3,336.13	3,335.87	3,335.13	62.63	169.06	-89.99	281.92	-3,118.38	1,588.74	1,357.00	231.74	6.856	
6,100.00	3,336.09	3,335.83	3,335.09	65.29	169.06	-89.99	281.92	-3,118.38	1,621.15	1,386.76	234.39	6.916	
6,200.00	3,336.05	3,335.79	3,335.05	67.94	169.06	-89.99	281.92	-3,118.38	1,658.97	1,421.93	237.04	6.999	
6,300.00	3,336.00	3,335.75	3,335.00	70.59	169.06	-89.99	281.92	-3,118.38	1,701.83	1,462.14	239.69	7.100	
6,400.00	3,335.96	3,335.71	3,334.96	73.24	169.05	-89.99	281.92	-3,118.38	1,749.37	1,507.02	242.34	7.219	
6,500.00	3,335.92	3,335.67	3,334.92	75.90	169.05	-89.99	281.92	-3,118.38	1,801.20	1,556.21	245.00	7.352	
6,600.00	3,335.88	3,335.63	3,334.88	78.55	169.05	-89.98	281.92	-3,118.38	1,856.98	1,609.33	247.65	7.498	
6,700.00	3,335.84	3,335.59	3,334.84	81.20	169.05	-89.98	281.92	-3,118.38	1,916.36	1,666.06	250.30	7.656	
6,800.00	3,335.80	3,335.55	3,334.80	83.86	169.05	-89.98	281.92	-3,118.38	1,979.01	1,726.06	252.95	7.824	
6,900.00	3,335.76	3,335.51	3,334.76	86.51	169.05	-89.98	281.92	-3,118.38	2,044.63	1,789.03	255.60	7.999	
7,000.00	3,335.72	3,335.47	3,334.72	89.16	169.05	-89.98	281.92	-3,118.38	2,112.95	1,854.70	258.25	8.182	
7,100.00	3,335.68	3,335.43	3,334.68	91.81	169.05	-89.98	281.92	-3,118.38	2,183.72	1,922.81	260.91	8.370	
7,200.00	3,335.64	3,335.38	3,334.64	94.47	169.05	-89.97	281.92	-3,118.38	2,256.69	1,993.14	263.56	8.562	
7,300.00	3,335.60	3,335.34	3,334.60	97.12	169.04	-89.97	281.92	-3,118.38	2,331.68	2,065.47	266.21	8.759	
7,400.00	3,335.56	3,335.30	3,334.56	99.77	169.04	-89.97	281.92	-3,118.38	2,408.48	2,139.62	268.86	8.958	
7,500.00	3,335.51	3,335.26	3,334.51	102.43	169.04	-89.97	281.92	-3,118.38	2,486.93	2,215.42	271.51	9.159	
7,600.00	3,335.47	3,335.22	3,334.47	105.08	169.04	-89.97	281.92	-3,118.38	2,566.88	2,292.71	274.17	9.363	
7,700.00	3,335.43	3,335.18	3,334.43	107.73	169.04	-89.97	281.92	-3,118.38	2,648.19	2,371.37	276.82	9.567	
7,800.00	3,335.39	3,335.14	3,334.39	110.38	169.04	-89.96	281.92	-3,118.38	2,730.74	2,451.28	279.47	9.771	
7,900.00	3,335.35	3,335.10	3,334.35	113.04	169.04	-89.96	281.92	-3,118.38	2,814.43	2,532.31	282.12	9.976	
8,000.00	3,335.31	3,335.06	3,334.31	115.69	169.04	-89.96	281.92	-3,118.38	2,899.15	2,614.38	284.77	10.181	
8,100.00	3,335.27	3,335.02	3,334.27	118.34	169.04	-89.96	281.92	-3,118.38	2,984.81	2,697.39	287.42	10.385	

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



Koltek Energy Services
Anticollision Report



Company: Hilcorp Energy Company
Project: San Juan Co., NM (NAD27)
Reference Site: Sec.08-T31N-R07W
Site Error: 0.00 usft
Reference Well: San Juan 32-7 Unit 232H
Well Error: 0.00 usft
Reference Wellbore: Lat 1
Reference Design: Rev1

Local Co-ordinate Reference: Well San Juan 32-7 Unit 232H
TVD Reference: KB @ 6653.00usft
MD Reference: KB @ 6653.00usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: EDM 5000.1 Single User Db
Offset TVD Reference: Offset Datum

Offset Design Sec.07-T31N-R07W - San Juan 32-7 Unit 218A - Original Hole - Original Hole													Offset Site Error:	0.00 usft
Survey Program: 220-INC_ONLY<10													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
8,200.00	3,335.23	3,334.98	3,334.23	120.99	169.03	-89.96	281.92	-3,118.38	3,071.35	2,781.27	290.08	10.588		
8,300.00	3,335.19	3,334.94	3,334.19	123.65	169.03	-89.96	281.92	-3,118.38	3,158.67	2,865.94	292.73	10.790		
8,400.00	3,335.15	3,334.89	3,334.15	126.30	169.03	-89.96	281.92	-3,118.38	3,246.73	2,951.35	295.38	10.992		
8,500.00	3,335.11	3,334.85	3,334.11	128.95	169.03	-89.95	281.92	-3,118.38	3,335.46	3,037.43	298.03	11.192		
8,600.00	3,335.07	3,334.81	3,334.07	131.61	169.03	-89.95	281.92	-3,118.38	3,424.82	3,124.13	300.68	11.390		
8,700.00	3,335.02	3,334.77	3,334.02	134.26	169.03	-89.95	281.92	-3,118.38	3,514.74	3,211.41	303.34	11.587		
8,760.35	3,335.00	3,334.75	3,334.00	135.86	169.03	-89.95	281.92	-3,118.38	3,569.28	3,264.34	304.94	11.705		



Koltek Energy Services
Anticollision Report



Company: Hilcorp Energy Company
Project: San Juan Co., NM (NAD27)
Reference Site: Sec.08-T31N-R07W
Site Error: 0.00 usft
Reference Well: San Juan 32-7 Unit 232H
Well Error: 0.00 usft
Reference Wellbore: Lat 1
Reference Design: Rev1

Local Co-ordinate Reference: Well San Juan 32-7 Unit 232H
TVD Reference: KB @ 6653.00usft
MD Reference: KB @ 6653.00usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: EDM 5000.1 Single User Db
Offset TVD Reference: Offset Datum

Offset Design Sec.07-T31N-R07W - San Juan 32-7 Unit 228 - Original Hole - Original Hole													Offset Site Error: 0.00 usft
Survey Program: 376-INC_ONLY<10													Offset Well Error: 0.00 usft
Reference		Offset		Semi Major Axis			Distance				Warning		
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N-S (usft)	+E-W (usft)	Between Centres (usft)	Between Ellipses (usft)		Minimum Separation (usft)	Separation Factor
3,610.13	3,283.32	3,213.01	3,212.32	0.00	155.53	-84.23	-1,380.85	-2,705.18	2,736.54	2,581.49	155.05	17.649	
3,650.00	3,298.90	3,228.59	3,227.90	3.04	156.33	-85.38	-1,380.85	-2,705.18	2,728.25	2,571.73	156.52	17.431	
3,700.00	3,314.77	3,244.47	3,243.77	3.12	157.15	-86.73	-1,380.85	-2,705.18	2,718.23	2,559.48	158.75	17.123	
3,750.00	3,326.45	3,256.15	3,255.45	3.19	157.75	-87.93	-1,380.85	-2,705.18	2,708.77	2,548.04	160.74	16.852	
3,800.00	3,333.85	3,263.55	3,262.85	4.29	158.14	-88.98	-1,380.85	-2,705.18	2,700.02	2,537.55	162.47	16.618	
3,850.00	3,336.91	3,266.61	3,265.91	5.61	158.29	-89.85	-1,380.85	-2,705.18	2,692.08	2,528.12	163.96	16.420	
3,860.13	3,337.00	3,266.70	3,266.00	5.88	158.30	-90.00	-1,380.85	-2,705.18	2,690.58	2,526.35	164.22	16.383	
3,862.47	3,337.00	3,266.70	3,266.00	5.94	158.30	-90.00	-1,380.85	-2,705.18	2,690.23	2,525.95	164.29	16.375	
3,900.00	3,336.98	3,266.69	3,265.98	6.94	158.30	-90.00	-1,380.85	-2,705.18	2,685.02	2,519.75	165.28	16.245	
4,000.00	3,336.94	3,266.64	3,265.94	9.58	158.30	-90.00	-1,380.85	-2,705.18	2,673.67	2,505.74	167.93	15.922	
4,100.00	3,336.90	3,266.60	3,265.90	12.24	158.29	-90.00	-1,380.85	-2,705.18	2,666.02	2,495.44	170.57	15.630	
4,200.00	3,336.86	3,266.56	3,265.86	14.89	158.29	-90.00	-1,380.85	-2,705.18	2,662.10	2,488.88	173.22	15.368	
4,254.29	3,336.84	3,266.54	3,265.84	16.33	158.29	-90.00	-1,380.85	-2,705.18	2,661.55	2,486.88	174.66	15.238	CC
4,300.00	3,336.82	3,266.52	3,265.82	17.54	158.29	-90.00	-1,380.85	-2,705.18	2,661.94	2,486.07	175.87	15.136	ES
4,400.00	3,336.78	3,266.48	3,265.78	20.19	158.29	-90.00	-1,380.85	-2,705.18	2,665.53	2,487.01	178.52	14.931	
4,500.00	3,336.74	3,266.44	3,265.74	22.84	158.28	-90.00	-1,380.85	-2,705.18	2,672.86	2,491.69	181.17	14.753	
4,600.00	3,336.70	3,266.40	3,265.70	25.50	158.28	-90.00	-1,380.85	-2,705.18	2,683.90	2,500.08	183.82	14.600	
4,700.00	3,336.66	3,266.36	3,265.66	28.15	158.28	-90.00	-1,380.85	-2,705.18	2,698.61	2,512.13	186.47	14.472	
4,800.00	3,336.62	3,266.32	3,265.62	30.80	158.28	-90.00	-1,380.85	-2,705.18	2,716.91	2,527.79	189.12	14.366	
4,900.00	3,336.58	3,266.28	3,265.58	33.45	158.28	-89.99	-1,380.85	-2,705.18	2,738.75	2,546.98	191.78	14.281	
5,000.00	3,336.54	3,266.24	3,265.54	36.11	158.27	-89.99	-1,380.85	-2,705.18	2,764.04	2,569.61	194.43	14.216	
5,100.00	3,336.49	3,266.20	3,265.49	38.76	158.27	-89.99	-1,380.85	-2,705.18	2,792.68	2,595.60	197.08	14.171	
5,200.00	3,336.45	3,266.15	3,265.45	41.41	158.27	-89.99	-1,380.85	-2,705.18	2,824.57	2,624.84	199.73	14.142	
5,300.00	3,336.41	3,266.11	3,265.41	44.06	158.27	-89.99	-1,380.85	-2,705.18	2,859.60	2,657.23	202.38	14.130	SF
5,400.00	3,336.37	3,266.07	3,265.37	46.72	158.27	-89.99	-1,380.85	-2,705.18	2,897.67	2,692.64	205.03	14.133	
5,500.00	3,336.33	3,266.03	3,265.33	49.37	158.26	-89.99	-1,380.85	-2,705.18	2,938.64	2,730.96	207.68	14.150	
5,600.00	3,336.29	3,265.99	3,265.29	52.02	158.26	-89.99	-1,380.85	-2,705.18	2,982.41	2,772.08	210.33	14.180	
5,700.00	3,336.25	3,265.95	3,265.25	54.67	158.26	-89.99	-1,380.85	-2,705.18	3,028.84	2,815.86	212.98	14.221	
5,800.00	3,336.21	3,265.91	3,265.21	57.33	158.26	-89.99	-1,380.85	-2,705.18	3,077.83	2,862.20	215.63	14.274	
5,900.00	3,336.17	3,265.87	3,265.17	59.98	158.25	-89.99	-1,380.85	-2,705.18	3,129.25	2,910.96	218.28	14.336	
6,000.00	3,336.13	3,265.83	3,265.13	62.63	158.25	-89.98	-1,380.85	-2,705.18	3,182.97	2,962.04	220.93	14.407	
6,100.00	3,336.09	3,265.79	3,265.09	65.29	158.25	-89.98	-1,380.85	-2,705.18	3,238.90	3,015.32	223.58	14.486	
6,200.00	3,336.05	3,265.75	3,265.05	67.94	158.25	-89.98	-1,380.85	-2,705.18	3,296.91	3,070.67	226.23	14.573	
6,300.00	3,336.00	3,265.70	3,265.00	70.59	158.25	-89.98	-1,380.85	-2,705.18	3,356.90	3,128.01	228.88	14.666	
6,400.00	3,335.96	3,265.66	3,264.96	73.24	158.24	-89.98	-1,380.85	-2,705.18	3,418.76	3,187.22	231.54	14.766	
6,500.00	3,335.92	3,265.62	3,264.92	75.90	158.24	-89.98	-1,380.85	-2,705.18	3,482.39	3,248.20	234.19	14.870	
6,600.00	3,335.88	3,265.58	3,264.88	78.55	158.24	-89.98	-1,380.85	-2,705.18	3,547.70	3,310.86	236.84	14.980	
6,700.00	3,335.84	3,265.54	3,264.84	81.20	158.24	-89.98	-1,380.85	-2,705.18	3,614.60	3,375.11	239.49	15.093	
6,800.00	3,335.80	3,265.50	3,264.80	83.86	158.24	-89.98	-1,380.85	-2,705.18	3,682.99	3,440.86	242.14	15.210	
6,900.00	3,335.76	3,265.46	3,264.76	86.51	158.23	-89.98	-1,380.85	-2,705.18	3,752.81	3,508.02	244.79	15.331	
7,000.00	3,335.72	3,265.42	3,264.72	89.16	158.23	-89.98	-1,380.85	-2,705.18	3,823.97	3,576.53	247.44	15.454	
7,100.00	3,335.68	3,265.38	3,264.68	91.81	158.23	-89.97	-1,380.85	-2,705.18	3,896.39	3,646.30	250.09	15.580	
7,200.00	3,335.64	3,265.34	3,264.64	94.47	158.23	-89.97	-1,380.85	-2,705.18	3,970.01	3,717.27	252.74	15.708	
7,300.00	3,335.60	3,265.30	3,264.60	97.12	158.23	-89.97	-1,380.85	-2,705.18	4,044.77	3,789.38	255.39	15.838	
7,400.00	3,335.56	3,265.26	3,264.56	99.77	158.22	-89.97	-1,380.85	-2,705.18	4,120.59	3,862.55	258.04	15.969	
7,500.00	3,335.51	3,265.21	3,264.51	102.43	158.22	-89.97	-1,380.85	-2,705.18	4,197.43	3,936.74	260.69	16.101	
7,600.00	3,335.47	3,265.17	3,264.47	105.08	158.22	-89.97	-1,380.85	-2,705.18	4,275.23	4,011.89	263.34	16.234	
7,700.00	3,335.43	3,265.13	3,264.43	107.73	158.22	-89.97	-1,380.85	-2,705.18	4,353.93	4,087.94	265.99	16.369	
7,800.00	3,335.39	3,265.09	3,264.39	110.38	158.21	-89.97	-1,380.85	-2,705.18	4,433.49	4,164.85	268.65	16.503	
7,900.00	3,335.35	3,265.05	3,264.35	113.04	158.21	-89.97	-1,380.85	-2,705.18	4,513.87	4,242.57	271.30	16.638	
8,000.00	3,335.31	3,265.01	3,264.31	115.69	158.21	-89.97	-1,380.85	-2,705.18	4,595.01	4,321.07	273.95	16.773	
8,100.00	3,335.27	3,264.97	3,264.27	118.34	158.21	-89.97	-1,380.85	-2,705.18	4,676.89	4,400.29	276.60	16.909	

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



Koltek Energy Services
Anticollision Report



Company: Hilcorp Energy Company
Project: San Juan Co., NM (NAD27)
Reference Site: Sec.08-T31N-R07W
Site Error: 0.00 usft
Reference Well: San Juan 32-7 Unit 232H
Well Error: 0.00 usft
Reference Wellbore: Lat 1
Reference Design: Rev1

Local Co-ordinate Reference: Well San Juan 32-7 Unit 232H
TVD Reference: KB @ 6653.00usft
MD Reference: KB @ 6653.00usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: EDM 5000.1 Single User Db
Offset TVD Reference: Offset Datum

Offset Design													Offset Site Error:	0.00 usft
Sec.07-T31N-R07W - San Juan 32-7 Unit 228 - Original Hole - Original Hole													Offset Well Error:	0.00 usft
Survey Program: 376-INC_ONLY<10														
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
8,200.00	3,335.23	3,264.93	3,264.23	120.99	158.21	-89.97	-1,380.85	-2,705.18	4,759.46	4,480.21	279.25	17.044		
8,300.00	3,335.19	3,264.89	3,264.19	123.65	158.20	-89.96	-1,380.85	-2,705.18	4,842.68	4,560.78	281.90	17.179		
8,400.00	3,335.15	3,264.85	3,264.15	126.30	158.20	-89.96	-1,380.85	-2,705.18	4,926.53	4,641.98	284.55	17.313		
8,500.00	3,335.11	3,264.81	3,264.11	128.95	158.20	-89.96	-1,380.85	-2,705.18	5,010.97	4,723.77	287.20	17.448		
8,600.00	3,335.07	3,264.77	3,264.07	131.61	158.20	-89.96	-1,380.85	-2,705.18	5,095.98	4,806.13	289.85	17.581		
8,700.00	3,335.02	3,264.72	3,264.02	134.26	158.20	-89.96	-1,380.85	-2,705.18	5,181.52	4,889.02	292.50	17.714		
8,760.35	3,335.00	3,264.70	3,264.00	135.86	158.19	-89.96	-1,380.85	-2,705.18	5,233.39	4,939.29	294.10	17.795		



Koltek Energy Services
Anticollision Report



Company: Hilcorp Energy Company
Project: San Juan Co., NM (NAD27)
Reference Site: Sec.08-T31N-R07W
Site Error: 0.00 usft
Reference Well: San Juan 32-7 Unit 232H
Well Error: 0.00 usft
Reference Wellbore: Lat 1
Reference Design: Rev1

Local Co-ordinate Reference: Well San Juan 32-7 Unit 232H
TVD Reference: KB @ 6653.00usft
MD Reference: KB @ 6653.00usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: EDM 5000.1 Single User Db
Offset TVD Reference: Offset Datum

Offset Design Sec.08-T31N-R07W - San Juan 32-7 Unit 232A - Original Hole - Original Hole														Offset Site Error:	0.00 usft
Survey Program: 126-INC_ONLY<10														Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (usft)	Separation Factor	Warning		
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)					
3,610.13	3,283.32	3,272.45	3,272.32	0.00	80.20	158.67	92.40	121.09	887.19	844.14	43.05	20.609	CC, ES		
3,621.08	3,287.85	3,276.98	3,276.85	0.84	80.32	158.07	92.40	121.09	897.02	854.34	42.69	21.013			
3,650.00	3,298.90	3,288.03	3,287.90	3.04	80.61	156.17	92.40	121.09	923.41	881.14	42.27	21.845			
3,700.00	3,314.77	3,303.90	3,303.77	3.12	81.03	151.38	92.40	121.09	970.25	925.73	44.53	21.789			
3,750.00	3,326.45	3,315.58	3,315.45	3.19	81.34	143.13	92.40	121.09	1,018.34	965.97	52.37	19.444			
3,800.00	3,333.85	3,322.98	3,322.85	4.29	81.54	127.50	92.40	121.09	1,067.30	998.86	68.43	15.596			
3,850.00	3,336.91	3,326.05	3,325.91	5.61	81.62	97.72	92.40	121.09	1,116.75	1,030.30	86.44	12.919			
3,860.13	3,337.00	3,326.14	3,326.00	5.88	81.62	90.00	92.40	121.09	1,126.79	1,039.29	87.50	12.878	SF		
3,862.47	3,337.00	3,326.14	3,326.00	5.94	81.62	89.82	92.40	121.09	1,129.11	1,041.55	87.56	12.895			
3,900.00	3,336.98	3,326.12	3,325.98	6.94	81.62	89.81	92.40	121.09	1,166.35	1,077.79	88.55	13.171			
4,000.00	3,336.94	3,326.08	3,325.94	9.58	81.62	89.80	92.40	121.09	1,265.64	1,174.44	91.20	13.877			
4,100.00	3,336.90	3,326.04	3,325.90	12.24	81.62	89.78	92.40	121.09	1,365.03	1,271.18	93.85	14.545			
4,200.00	3,336.86	3,326.00	3,325.86	14.89	81.62	89.76	92.40	121.09	1,464.51	1,368.01	96.50	15.176			
4,300.00	3,336.82	3,325.96	3,325.82	17.54	81.61	89.75	92.40	121.09	1,564.05	1,464.90	99.15	15.774			
4,400.00	3,336.78	3,325.92	3,325.78	20.19	81.61	89.73	92.40	121.09	1,663.65	1,561.85	101.80	16.342			
4,500.00	3,336.74	3,325.88	3,325.74	22.84	81.61	89.72	92.40	121.09	1,763.30	1,658.84	104.45	16.881			
4,600.00	3,336.70	3,325.83	3,325.70	25.50	81.61	89.70	92.40	121.09	1,862.98	1,755.87	107.11	17.394			
4,700.00	3,336.66	3,325.79	3,325.66	28.15	81.61	89.68	92.40	121.09	1,962.69	1,852.94	109.76	17.882			
4,800.00	3,336.62	3,325.75	3,325.62	30.80	81.61	89.67	92.40	121.09	2,062.44	1,950.03	112.41	18.348			
4,900.00	3,336.58	3,325.71	3,325.58	33.45	81.61	89.65	92.40	121.09	2,162.20	2,047.14	115.06	18.792			
5,000.00	3,336.54	3,325.67	3,325.54	36.11	81.61	89.63	92.40	121.09	2,261.99	2,144.28	117.71	19.216			
5,100.00	3,336.49	3,325.63	3,325.49	38.76	81.61	89.62	92.40	121.09	2,361.79	2,241.43	120.36	19.622			
5,200.00	3,336.45	3,325.59	3,325.45	41.41	81.61	89.60	92.40	121.09	2,461.61	2,338.60	123.01	20.011			
5,300.00	3,336.41	3,325.55	3,325.41	44.06	81.60	89.59	92.40	121.09	2,561.45	2,435.78	125.67	20.383			
5,400.00	3,336.37	3,325.51	3,325.37	46.72	81.60	89.57	92.40	121.09	2,661.30	2,532.98	128.32	20.740			
5,500.00	3,336.33	3,325.47	3,325.33	49.37	81.60	89.55	92.40	121.09	2,761.15	2,630.19	130.97	21.083			
5,600.00	3,336.29	3,325.43	3,325.29	52.02	81.60	89.54	92.40	121.09	2,861.02	2,727.40	133.62	21.412			
5,700.00	3,336.25	3,325.39	3,325.25	54.67	81.60	89.52	92.40	121.09	2,960.90	2,824.63	136.27	21.728			
5,800.00	3,336.21	3,325.34	3,325.21	57.33	81.60	89.50	92.40	121.09	3,060.78	2,921.86	138.92	22.032			
5,900.00	3,336.17	3,325.30	3,325.17	59.98	81.60	89.49	92.40	121.09	3,160.68	3,019.10	141.57	22.325			
6,000.00	3,336.13	3,325.26	3,325.13	62.63	81.60	89.47	92.40	121.09	3,260.57	3,116.35	144.22	22.608			
6,100.00	3,336.09	3,325.22	3,325.09	65.29	81.60	89.46	92.40	121.09	3,360.48	3,213.60	146.88	22.880			
6,200.00	3,336.05	3,325.18	3,325.05	67.94	81.59	89.44	92.40	121.09	3,460.39	3,310.86	149.53	23.142			
6,300.00	3,336.00	3,325.14	3,325.00	70.59	81.59	89.42	92.40	121.09	3,560.31	3,408.13	152.18	23.396			
6,400.00	3,335.96	3,325.10	3,324.96	73.24	81.59	89.41	92.40	121.09	3,660.23	3,505.40	154.83	23.640			
6,500.00	3,335.92	3,325.06	3,324.92	75.90	81.59	89.39	92.40	121.09	3,760.15	3,602.67	157.48	23.877			
6,600.00	3,335.88	3,325.02	3,324.88	78.55	81.59	89.37	92.40	121.09	3,860.08	3,699.95	160.13	24.106			
6,700.00	3,335.84	3,324.98	3,324.84	81.20	81.59	89.36	92.40	121.09	3,960.01	3,797.23	162.78	24.327			
6,800.00	3,335.80	3,324.94	3,324.80	83.86	81.59	89.34	92.40	121.09	4,059.94	3,894.51	165.43	24.541			
6,900.00	3,335.76	3,324.90	3,324.76	86.51	81.59	89.33	92.40	121.09	4,159.88	3,991.80	168.09	24.749			
7,000.00	3,335.72	3,324.85	3,324.72	89.16	81.59	89.31	92.40	121.09	4,259.82	4,089.09	170.74	24.950			
7,100.00	3,335.68	3,324.81	3,324.68	91.81	81.58	89.29	92.40	121.09	4,359.77	4,186.38	173.39	25.145			
7,200.00	3,335.64	3,324.77	3,324.64	94.47	81.58	89.28	92.40	121.09	4,459.71	4,283.68	176.04	25.334			
7,300.00	3,335.60	3,324.73	3,324.60	97.12	81.58	89.26	92.40	121.09	4,559.66	4,380.97	178.69	25.517			
7,400.00	3,335.56	3,324.69	3,324.56	99.77	81.58	89.25	92.40	121.09	4,659.61	4,478.27	181.34	25.695			
7,500.00	3,335.51	3,324.65	3,324.51	102.43	81.58	89.23	92.40	121.09	4,759.57	4,575.58	183.99	25.868			
7,600.00	3,335.47	3,324.61	3,324.47	105.08	81.58	89.21	92.40	121.09	4,859.52	4,672.88	186.64	26.036			
7,700.00	3,335.43	3,324.57	3,324.43	107.73	81.58	89.20	92.40	121.09	4,959.48	4,770.19	189.29	26.200			
7,800.00	3,335.39	3,324.53	3,324.39	110.38	81.58	89.18	92.40	121.09	5,059.44	4,867.49	191.94	26.359			
7,900.00	3,335.35	3,324.49	3,324.35	113.04	81.58	89.16	92.40	121.09	5,159.40	4,964.80	194.60	26.513			
8,000.00	3,335.31	3,324.45	3,324.31	115.69	81.57	89.15	92.40	121.09	5,259.36	5,062.11	197.25	26.664			
8,100.00	3,335.27	3,324.41	3,324.27	118.34	81.57	89.13	92.40	121.09	5,359.32	5,159.42	199.90	26.810			

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



Koltek Energy Services
Anticollision Report



Company: Hilcorp Energy Company
Project: San Juan Co., NM (NAD27)
Reference Site: Sec.08-T31N-R07W
Site Error: 0.00 usft
Reference Well: San Juan 32-7 Unit 232H
Well Error: 0.00 usft
Reference Wellbore: Lat 1
Reference Design: Rev1

Local Co-ordinate Reference: Well San Juan 32-7 Unit 232H
TVD Reference: KB @ 6653.00usft
MD Reference: KB @ 6653.00usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: EDM 5000.1 Single User Db
Offset TVD Reference: Offset Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 126-INC_ONLY<10													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (")	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
8,200.00	3,335.23	3,324.36	3,324.23	120.99	81.57	89.12	92.40	121.09	5,459.29	5,256.74	202.55	26.953		
8,300.00	3,335.19	3,324.32	3,324.19	123.65	81.57	89.10	92.40	121.09	5,559.25	5,354.05	205.20	27.092		
8,400.00	3,335.15	3,324.28	3,324.15	126.30	81.57	89.08	92.40	121.09	5,659.22	5,451.37	207.85	27.227		
8,500.00	3,335.11	3,324.24	3,324.11	128.95	81.57	89.07	92.40	121.09	5,759.19	5,548.68	210.50	27.359		
8,600.00	3,335.07	3,324.20	3,324.07	131.61	81.57	89.05	92.40	121.09	5,859.16	5,646.00	213.15	27.488		
8,700.00	3,335.02	3,324.16	3,324.02	134.26	81.57	89.03	92.40	121.09	5,959.13	5,743.32	215.81	27.613		
8,760.35	3,335.00	3,324.14	3,324.00	135.86	81.57	89.02	92.40	121.09	6,019.46	5,802.06	217.41	27.688		



Koltek Energy Services

Anticollision Report



Company: Hilcorp Energy Company
Project: San Juan Co., NM (NAD27)
Reference Site: Sec.08-T31N-R07W
Site Error: 0.00 usft
Reference Well: San Juan 32-7 Unit 232H
Well Error: 0.00 usft
Reference Wellbore: Lat 1
Reference Design: Rev1

Local Co-ordinate Reference: Well San Juan 32-7 Unit 232H
TVD Reference: KB @ 6653.00usft
MD Reference: KB @ 6653.00usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at 2.00 sigma
Database: EDM 5000.1 Single User Db
Offset TVD Reference: Offset Datum

Offset Design														Sec.08-T31N-R07W - San Juan 32-7 Unit 232H - Lat 1 ST01 - Rev1		Offset Site Error: 0.00 usft	
Survey Program: 5700-MWD														Offset Well Error: 0.00 usft			
Reference		Offset		Semi Major Axis			Distance							Warning			
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor					
3,610.13	3,283.32	5,700.00	3,336.26	0.00	0.00	-0.01	1,633.31	-2,407.26	2,082.69								
3,650.00	3,298.90	5,700.00	3,336.26	3.04	0.00	-0.01	1,633.31	-2,407.26	2,045.66	2,045.48	0.18	N/A					
3,700.00	3,314.77	5,700.00	3,336.26	3.12	0.00	-0.01	1,633.31	-2,407.26	1,998.04	1,997.44	0.60	3,312.217					
3,750.00	3,326.45	5,700.00	3,336.26	3.19	0.00	-0.01	1,633.31	-2,407.26	1,949.35	1,948.33	1.02	1,914.677					
3,800.00	3,333.85	5,700.00	3,336.26	4.29	0.00	-0.01	1,633.31	-2,407.26	1,899.89	1,898.46	1.43	1,330.086					
3,850.00	3,336.91	5,700.00	3,336.26	5.61	0.00	-0.01	1,633.31	-2,407.26	1,850.00	1,848.17	1.83	1,010.443					
3,860.13	3,337.00	5,700.00	3,336.26	5.88	0.00	-0.08	1,633.31	-2,407.26	1,839.87	1,837.96	1.91	963.152					
3,862.47	3,337.00	5,700.00	3,336.26	5.94	0.00	-175.86	1,633.31	-2,407.26	1,837.53	1,835.56	1.97	932.794					
3,900.00	3,336.98	5,700.00	3,336.26	6.94	0.00	-175.86	1,633.31	-2,407.26	1,800.00	1,797.78	2.22	812.228					
4,000.00	3,336.94	5,700.00	3,336.26	9.58	0.00	-175.86	1,633.31	-2,407.26	1,700.00	1,697.09	2.91	584.950					
4,100.00	3,336.90	5,700.00	3,336.26	12.24	0.00	-175.86	1,633.31	-2,407.26	1,600.00	1,596.38	3.62	441.587					
4,200.00	3,336.86	5,700.00	3,336.26	14.89	0.00	-175.86	1,633.31	-2,407.26	1,500.00	1,495.65	4.35	344.508					
4,300.00	3,336.82	5,700.00	3,336.26	17.54	0.00	-175.86	1,633.31	-2,407.26	1,400.00	1,394.91	5.09	274.911					
4,400.00	3,336.78	5,700.00	3,336.26	20.19	0.00	-175.86	1,633.31	-2,407.26	1,300.00	1,294.16	5.84	222.759					
4,500.00	3,336.74	5,700.00	3,336.26	22.84	0.00	-175.86	1,633.31	-2,407.26	1,200.00	1,193.42	6.58	182.303					
4,600.00	3,336.70	5,700.00	3,336.26	25.50	0.00	-175.86	1,633.31	-2,407.26	1,100.00	1,092.67	7.33	150.043					
4,700.00	3,336.66	5,700.00	3,336.26	28.15	0.00	-175.86	1,633.31	-2,407.26	1,000.00	991.92	8.08	123.738					
4,800.00	3,336.62	5,700.00	3,336.26	30.80	0.00	-175.86	1,633.31	-2,407.26	900.00	891.17	8.83	101.889					
4,900.00	3,336.58	5,700.00	3,336.26	33.45	0.00	-175.86	1,633.31	-2,407.26	800.00	790.41	9.59	83.459					
5,000.00	3,336.54	5,700.00	3,336.26	36.11	0.00	-175.86	1,633.31	-2,407.26	700.00	689.66	10.34	67.706					
5,100.00	3,336.49	5,700.00	3,336.26	38.76	0.00	-175.86	1,633.31	-2,407.26	600.00	588.91	11.09	54.090					
5,200.00	3,336.45	5,700.00	3,336.26	41.41	0.00	-175.86	1,633.31	-2,407.26	500.00	488.15	11.85	42.206					
5,300.00	3,336.41	5,700.00	3,336.26	44.06	0.00	-175.86	1,633.31	-2,407.26	400.00	387.40	12.60	31.743					
5,400.00	3,336.37	5,700.00	3,336.26	46.72	0.00	-175.86	1,633.31	-2,407.26	300.00	286.64	13.36	22.461					
5,500.00	3,336.33	5,700.00	3,336.26	49.37	0.00	-175.86	1,633.31	-2,407.26	200.00	185.89	14.11	14.173					
5,600.00	3,336.29	5,700.00	3,336.26	52.02	0.00	-175.86	1,633.31	-2,407.26	100.00	85.13	14.87	6.726					
5,700.00	3,336.25	5,700.00	3,336.26	54.67	0.00	-175.86	1,633.31	-2,407.26	0.02	-15.61	15.62	0.001 Level 1, SF					
5,701.68	3,336.25	5,701.68	3,336.26	54.72	0.07	-179.62	1,634.25	-2,408.65	0.02	-15.14	15.15	0.001 Level 1, CC					
5,800.00	3,336.21	5,799.84	3,336.22	57.33	4.44	90.25	1,692.19	-2,487.86	3.49	-55.15	58.63	0.059 Level 1, ES					
5,900.00	3,336.17	5,898.72	3,336.18	59.98	4.50	90.06	1,755.90	-2,563.45	13.89	-49.94	63.84	0.218 Level 1					
6,000.00	3,336.13	5,995.73	3,336.14	62.63	6.27	90.02	1,823.33	-2,633.17	31.08	-37.78	68.86	0.451 Level 1					
6,100.00	3,336.09	6,090.06	3,336.10	65.29	8.63	90.01	1,893.28	-2,696.44	54.80	-19.01	73.81	0.742 Level 1					
6,200.00	3,336.05	6,181.06	3,336.06	67.94	10.80	90.00	1,964.56	-2,752.98	84.76	6.20	78.56	1.079 Level 2					
6,300.00	3,336.00	6,268.20	3,336.02	70.59	12.82	90.00	2,036.05	-2,802.77	120.59	37.46	83.12	1.451 Level 3					
6,400.00	3,335.96	6,351.11	3,335.98	73.24	14.69	89.99	2,106.77	-2,846.04	161.89	74.38	87.51	1.850					
6,500.00	3,335.92	6,429.59	3,335.94	75.90	16.40	89.99	2,175.90	-2,883.16	208.26	116.54	91.72	2.271					
6,600.00	3,335.88	6,500.00	3,335.91	78.55	17.90	89.99	2,239.58	-2,913.19	259.31	163.60	95.71	2.709					
6,700.00	3,335.84	6,573.00	3,335.87	81.20	19.37	89.99	2,307.07	-2,940.99	314.53	214.89	99.64	3.157					
6,800.00	3,335.80	6,638.06	3,335.84	83.86	20.66	89.99	2,368.34	-2,962.84	373.64	270.26	103.38	3.614					
6,900.00	3,335.76	6,700.00	3,335.82	86.51	21.86	89.99	2,427.55	-2,981.03	436.23	329.20	107.03	4.076					
7,000.00	3,335.72	6,755.65	3,335.79	89.16	22.88	89.99	2,481.36	-2,995.19	501.97	391.47	110.49	4.543					
7,100.00	3,335.68	6,800.00	3,335.77	91.81	23.69	89.99	2,524.62	-3,004.96	570.63	456.84	113.79	5.015					
7,200.00	3,335.64	6,858.02	3,335.74	94.47	24.70	89.99	2,581.63	-3,015.71	641.67	524.47	117.21	5.475					
7,300.00	3,335.60	6,900.00	3,335.73	97.12	25.43	89.99	2,623.13	-3,022.05	715.12	594.71	120.41	5.939					
7,400.00	3,335.56	6,947.08	3,335.70	99.77	26.20	89.99	2,669.86	-3,027.71	790.61	667.00	123.61	6.396					
7,500.00	3,335.51	7,000.00	3,335.68	102.43	27.07	89.99	2,722.59	-3,032.24	868.14	741.26	126.88	6.842					
7,600.00	3,335.47	7,024.69	3,335.67	105.08	27.45	89.99	2,747.24	-3,033.68	947.05	817.27	129.78	7.297					
7,700.00	3,335.43	7,059.75	3,335.66	107.73	27.99	89.99	2,782.27	-3,035.00	1,027.64	894.85	132.79	7.739					
7,800.00	3,335.39	7,100.00	3,335.64	110.38	28.62	89.99	2,822.52	-3,035.45	1,109.65	973.79	135.85	8.168					
7,900.00	3,335.35	7,123.31	3,335.63	113.04	28.96	89.99	2,845.82	-3,035.20	1,192.82	1,054.10	138.72	8.599					
8,000.00	3,335.31	7,162.00	3,335.61	115.69	29.52	89.99	2,884.50	-3,034.10	1,277.09	1,135.38	141.72	9.012					
8,100.00	3,335.27	7,215.52	3,335.59	118.34	30.27	89.99	2,937.99	-3,032.42	1,361.57	1,216.75	144.82	9.402					

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



Koltek Energy Services
Anticollision Report



Company: Hilcorp Energy Company
Project: San Juan Co., NM (NAD27)
Reference Site: Sec.08-T31N-R07W
Site Error: 0.00 usft
Reference Well: San Juan 32-7 Unit 232H
Well Error: 0.00 usft
Reference Wellbore: Lat 1
Reference Design: Rev1

Local Co-ordinate Reference: Well San Juan 32-7 Unit 232H
TVD Reference: KB @ 6653.00usft
MD Reference: KB @ 6653.00usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: EDM 5000.1 Single User Db
Offset TVD Reference: Offset Datum

Offset Design Sec.08-T31N-R07W - San Juan 32-7 Unit 232H - Lat 1 ST01 - Rev1													Offset Site Error:	0.00 usft
Survey Program: 5700-MWD													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
8,200.00	3,335.23	7,269.04	3,335.57	120.99	31.00	89.99	2,991.49	-3,030.74	1,446.04	1,298.13	147.91	9.777		
8,300.00	3,335.19	7,322.56	3,335.55	123.65	31.75	89.99	3,044.98	-3,029.06	1,530.51	1,379.51	151.00	10.136		
8,400.00	3,335.15	7,376.07	3,335.52	126.30	32.51	89.99	3,098.47	-3,027.38	1,614.99	1,460.89	154.10	10.480		
8,500.00	3,335.11	7,429.59	3,335.50	128.95	33.28	89.99	3,151.96	-3,025.70	1,699.46	1,542.26	157.20	10.811		
8,600.00	3,335.07	7,483.11	3,335.48	131.61	34.06	89.99	3,205.45	-3,024.02	1,783.94	1,623.63	160.30	11.129		
8,700.00	3,335.02	7,536.63	3,335.46	134.26	34.86	89.99	3,258.94	-3,022.33	1,868.41	1,705.00	163.41	11.434		
8,760.35	3,335.00	7,568.93	3,335.44	135.86	35.34	89.99	3,291.22	-3,021.32	1,919.40	1,754.11	165.29	11.613		



Koltek Energy Services
Anticollision Report



Company: Hilcorp Energy Company
Project: San Juan Co., NM (NAD27)
Reference Site: Sec.08-T31N-R07W
Site Error: 0.00 usft
Reference Well: San Juan 32-7 Unit 232H
Well Error: 0.00 usft
Reference Wellbore: Lat 1
Reference Design: Rev1

Local Co-ordinate Reference: Well San Juan 32-7 Unit 232H
TVD Reference: KB @ 6653.00usft
MD Reference: KB @ 6653.00usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at 2.00 sigma
Database: EDM 5000.1 Single User Db
Offset TVD Reference: Offset Datum

Offset Design Sec.08-T31N-R07W - San Juan 32-7 Unit 232H - Pilot Hole - Rev1													Offset Site Error: 0.00 usft
Survey Program: 0-MWD													Offset Well Error: 0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
3,610.13	3,283.32	3,610.13	3,283.32	0.00	19.94	0.00	464.39	-684.35	0.00	-6.97	6.97	0.000	Level 1, CC, ES, SF
3,631.01	3,291.80	3,631.00	3,292.14	1.59	20.40	179.99	475.01	-700.01	0.38	-6.61	6.99	0.054	Level 1
3,650.00	3,298.90	3,649.97	3,300.16	3.04	20.81	179.99	484.66	-714.23	1.39	-5.67	7.05	0.197	Level 1
3,700.00	3,314.77	3,699.63	3,321.14	3.12	21.89	179.99	509.93	-751.47	7.03	-0.30	7.34	0.958	Level 1
3,750.00	3,326.45	3,748.61	3,341.85	3.19	22.96	179.99	534.86	-788.21	16.99	9.39	7.60	2.236	
3,800.00	3,333.85	3,796.54	3,362.10	4.29	24.02	179.99	559.25	-824.15	31.17	23.35	7.82	3.984	
3,850.00	3,336.91	3,843.05	3,381.76	5.61	25.05	179.99	582.92	-859.03	49.48	41.46	8.02	6.169	
3,860.13	3,337.00	3,852.27	3,385.65	5.88	25.25	179.99	587.61	-865.95	53.68	45.63	8.06	6.664	
3,862.47	3,337.00	3,854.39	3,386.55	5.94	25.30	179.99	588.69	-867.54	54.67	46.59	8.08	6.766	
3,900.00	3,336.98	3,888.40	3,400.92	6.94	26.05	179.99	606.00	-893.04	70.55	62.04	8.51	8.290	
4,000.00	3,336.94	3,966.67	3,434.00	9.58	27.80	179.99	645.83	-951.74	113.52	103.89	9.62	11.796	
4,100.00	3,336.90	3,966.67	3,434.00	12.24	27.80	179.99	645.83	-951.74	186.20	175.88	10.32	18.051	
4,200.00	3,336.86	3,966.67	3,434.00	14.89	27.80	179.99	645.83	-951.74	276.50	265.48	11.02	25.088	
4,300.00	3,336.82	3,966.67	3,434.00	17.54	27.80	179.99	645.83	-951.74	371.80	360.07	11.74	31.683	
4,400.00	3,336.78	3,966.67	3,434.00	20.19	27.80	179.99	645.83	-951.74	469.06	456.61	12.45	37.664	
4,500.00	3,336.74	3,966.67	3,434.00	22.84	27.80	179.99	645.83	-951.74	567.28	554.10	13.18	43.053	
4,600.00	3,336.70	3,966.67	3,434.00	25.50	27.80	179.99	645.83	-951.74	666.02	652.12	13.90	47.913	
4,700.00	3,336.66	3,966.67	3,434.00	28.15	27.80	179.99	645.83	-951.74	765.09	750.47	14.63	52.307	
4,800.00	3,336.62	3,966.67	3,434.00	30.80	27.80	179.99	645.83	-951.74	864.38	849.02	15.35	56.296	
4,900.00	3,336.58	3,966.67	3,434.00	33.45	27.80	179.99	645.83	-951.74	963.81	947.73	16.08	59.929	
5,000.00	3,336.54	3,966.67	3,434.00	36.11	27.80	179.99	645.83	-951.74	1,063.35	1,046.54	16.81	63.251	
5,100.00	3,336.49	3,966.67	3,434.00	38.76	27.80	179.99	645.83	-951.74	1,162.97	1,145.43	17.54	66.299	
5,200.00	3,336.45	3,966.67	3,434.00	41.41	27.80	179.99	645.83	-951.74	1,262.65	1,244.38	18.27	69.105	
5,300.00	3,336.41	3,966.67	3,434.00	44.06	27.80	179.99	645.83	-951.74	1,362.38	1,343.37	19.00	71.696	
5,400.00	3,336.37	3,966.67	3,434.00	46.72	27.80	179.99	645.83	-951.74	1,462.14	1,442.41	19.73	74.096	
5,500.00	3,336.33	3,966.67	3,434.00	49.37	27.80	179.99	645.83	-951.74	1,561.93	1,541.47	20.46	76.325	
5,600.00	3,336.29	3,966.67	3,434.00	52.02	27.80	179.99	645.83	-951.74	1,661.75	1,640.56	21.20	78.401	
5,700.00	3,336.25	3,966.67	3,434.00	54.67	27.80	179.99	645.83	-951.74	1,761.59	1,739.66	21.93	80.338	
5,800.00	3,336.21	3,966.67	3,434.00	57.33	27.80	179.99	645.83	-951.74	1,861.45	1,838.79	22.66	82.151	
5,900.00	3,336.17	3,966.67	3,434.00	59.98	27.80	179.99	645.83	-951.74	1,961.32	1,937.93	23.39	83.850	
6,000.00	3,336.13	3,966.67	3,434.00	62.63	27.80	179.99	645.83	-951.74	2,061.20	2,037.08	24.12	85.446	
6,100.00	3,336.09	3,966.67	3,434.00	65.29	27.80	179.99	645.83	-951.74	2,161.10	2,136.24	24.85	86.948	
6,200.00	3,336.05	3,966.67	3,434.00	67.94	27.80	179.99	645.83	-951.74	2,261.00	2,235.41	25.59	88.365	
6,300.00	3,336.00	3,966.67	3,434.00	70.59	27.80	179.99	645.83	-951.74	2,360.91	2,334.59	26.32	89.702	
6,400.00	3,335.96	3,966.67	3,434.00	73.24	27.80	179.99	645.83	-951.74	2,460.83	2,433.78	27.05	90.967	
6,500.00	3,335.92	3,966.67	3,434.00	75.90	27.80	179.99	645.83	-951.74	2,560.75	2,532.97	27.78	92.165	
6,600.00	3,335.88	3,966.67	3,434.00	78.55	27.80	179.99	645.83	-951.74	2,660.69	2,632.17	28.52	93.302	
6,700.00	3,335.84	3,966.67	3,434.00	81.20	27.80	179.99	645.83	-951.74	2,760.62	2,731.37	29.25	94.382	
6,800.00	3,335.80	3,966.67	3,434.00	83.86	27.80	179.99	645.83	-951.74	2,860.56	2,830.58	29.98	95.409	
6,900.00	3,335.76	3,966.67	3,434.00	86.51	27.80	179.99	645.83	-951.74	2,960.51	2,929.79	30.71	96.387	
7,000.00	3,335.72	3,966.67	3,434.00	89.16	27.80	179.99	645.83	-951.74	3,060.45	3,029.01	31.45	97.319	
7,100.00	3,335.68	3,966.67	3,434.00	91.81	27.80	179.99	645.83	-951.74	3,160.41	3,128.23	32.18	98.209	
7,200.00	3,335.64	3,966.67	3,434.00	94.47	27.80	179.99	645.83	-951.74	3,260.36	3,227.45	32.91	99.059	
7,300.00	3,335.60	3,966.67	3,434.00	97.12	27.80	179.99	645.83	-951.74	3,360.32	3,326.67	33.65	99.873	
7,400.00	3,335.56	3,966.67	3,434.00	99.77	27.80	179.99	645.83	-951.74	3,460.28	3,425.90	34.38	100.651	
7,500.00	3,335.51	3,966.67	3,434.00	102.43	27.80	179.99	645.83	-951.74	3,560.24	3,525.13	35.11	101.397	
7,600.00	3,335.47	3,966.67	3,434.00	105.08	27.80	179.99	645.83	-951.74	3,660.20	3,624.36	35.84	102.113	
7,700.00	3,335.43	3,966.67	3,434.00	107.73	27.80	179.99	645.83	-951.74	3,760.17	3,723.59	36.58	102.799	
7,800.00	3,335.39	3,966.67	3,434.00	110.38	27.80	179.99	645.83	-951.74	3,860.14	3,822.82	37.31	103.459	
7,900.00	3,335.35	3,966.67	3,434.00	113.04	27.80	179.99	645.83	-951.74	3,960.10	3,922.06	38.04	104.094	
8,000.00	3,335.31	3,966.67	3,434.00	115.69	27.80	179.99	645.83	-951.74	4,060.08	4,021.30	38.78	104.704	
8,100.00	3,335.27	3,966.67	3,434.00	118.34	27.80	179.99	645.83	-951.74	4,160.05	4,120.54	39.51	105.292	

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



Koltek Energy Services
Anticollision Report



Company: Hilcorp Energy Company
Project: San Juan Co., NM (NAD27)
Reference Site: Sec.08-T31N-R07W
Site Error: 0.00 usft
Reference Well: San Juan 32-7 Unit 232H
Well Error: 0.00 usft
Reference Wellbore: Lat 1
Reference Design: Rev1

Local Co-ordinate Reference: Well San Juan 32-7 Unit 232H
TVD Reference: KB @ 6653.00usft
MD Reference: KB @ 6653.00usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: EDM 5000.1 Single User Db
Offset TVD Reference: Offset Datum

Offset Design													Sec.08-T31N-R07W - San Juan 32-7 Unit 232H - Pilot Hole - Rev1		Offset Site Error:		0.00 usft	
Survey Program:													0-MWD		Offset Well Error:		0.00 usft	
Reference		Offset		Semi Major Axis			Distance							Warning				
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor						
8,200.00	3,335.23	3,966.67	3,434.00	120.99	27.80	179.99	645.83	-951.74	4,260.02	4,219.78	40.24	105.858						
8,300.00	3,335.19	3,966.67	3,434.00	123.65	27.80	179.99	645.83	-951.74	4,360.00	4,319.02	40.98	106.404						
8,400.00	3,335.15	3,966.67	3,434.00	126.30	27.80	179.99	645.83	-951.74	4,459.97	4,418.26	41.71	106.931						
8,500.00	3,335.11	3,966.67	3,434.00	128.95	27.80	179.99	645.83	-951.74	4,559.95	4,517.51	42.44	107.439						
8,600.00	3,335.07	3,966.67	3,434.00	131.61	27.80	179.99	645.83	-951.74	4,659.93	4,616.75	43.18	107.931						
8,700.00	3,335.02	3,966.67	3,434.00	134.26	27.80	179.99	645.83	-951.74	4,759.90	4,716.00	43.91	108.406						
8,760.35	3,335.00	3,966.67	3,434.00	135.86	27.80	179.99	645.83	-951.74	4,820.25	4,775.90	44.35	108.685						



Koltek Energy Services
Anticollision Report



Company: Hilcorp Energy Company
Project: San Juan Co., NM (NAD27)
Reference Site: Sec.08-T31N-R07W
Site Error: 0.00 usft
Reference Well: San Juan 32-7 Unit 232H
Well Error: 0.00 usft
Reference Wellbore: Lat 1
Reference Design: Rev1

Local Co-ordinate Reference: Well San Juan 32-7 Unit 232H
TVD Reference: KB @ 6653.00usft
MD Reference: KB @ 6653.00usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at 2.00 sigma
Database: EDM 5000.1 Single User Db
Offset TVD Reference: Offset Datum

Offset Design Sec.31-T32N-R07W - San Juan 32-7 Unit 220A - Original Hole - Original Hole													Offset Site Error: 0.00 usft
Survey Program: 242-MWD													Offset Well Error: 0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
3,610.13	3,283.32	3,770.00	3,285.13	0.00	29.33	19.83	4,429.79	-4,931.89	5,811.22	5,807.90	3.32	1,751.226	
3,650.00	3,298.90	3,770.00	3,285.13	3.04	29.33	22.91	4,429.79	-4,931.89	5,775.17	5,770.43	4.74	1,219.228	
3,700.00	3,314.77	3,770.00	3,285.13	3.12	29.33	28.46	4,429.79	-4,931.89	5,728.60	5,720.22	8.39	683.048	
3,750.00	3,326.45	3,770.00	3,285.13	3.19	29.33	37.28	4,429.79	-4,931.89	5,680.82	5,667.16	13.67	415.646	
3,800.00	3,333.85	3,770.00	3,285.13	4.29	29.33	52.12	4,429.79	-4,931.89	5,632.17	5,611.29	20.88	269.687	
3,850.00	3,336.91	3,770.00	3,285.13	5.61	29.33	76.45	4,429.79	-4,931.89	5,583.00	5,554.51	28.49	195.963	
3,860.13	3,337.00	3,770.00	3,285.13	5.88	29.33	82.45	4,429.79	-4,931.89	5,573.01	5,543.48	29.52	188.770	
3,862.47	3,337.00	3,770.00	3,285.13	5.94	29.33	82.59	4,429.79	-4,931.89	5,570.70	5,541.10	29.60	188.212	
3,900.00	3,336.98	3,770.00	3,285.13	6.94	29.33	82.59	4,429.79	-4,931.89	5,533.67	5,503.08	30.58	180.936	
4,000.00	3,336.94	3,770.00	3,285.13	9.58	29.33	82.59	4,429.79	-4,931.89	5,435.04	5,401.82	33.21	163.646	
4,100.00	3,336.90	3,770.00	3,285.13	12.24	29.33	82.59	4,429.79	-4,931.89	5,336.46	5,300.61	35.84	148.885	
4,200.00	3,336.86	3,770.00	3,285.13	14.89	29.33	82.59	4,429.79	-4,931.89	5,237.93	5,199.46	38.47	136.142	
4,300.00	3,336.82	3,770.00	3,285.13	17.54	29.33	82.59	4,429.79	-4,931.89	5,139.46	5,098.35	41.11	125.029	
4,400.00	3,336.78	3,770.00	3,285.13	20.19	29.33	82.59	4,429.79	-4,931.89	5,041.05	4,997.31	43.74	115.255	
4,500.00	3,336.74	3,770.00	3,285.13	22.84	29.33	82.59	4,429.79	-4,931.89	4,942.71	4,896.34	46.37	106.592	
4,600.00	3,336.70	3,770.00	3,285.13	25.50	29.33	82.59	4,429.79	-4,931.89	4,844.43	4,795.43	49.00	98.860	
4,700.00	3,336.66	3,770.00	3,285.13	28.15	29.33	82.59	4,429.79	-4,931.89	4,746.22	4,694.59	51.64	91.918	
4,800.00	3,336.62	3,770.00	3,285.13	30.80	29.33	82.59	4,429.79	-4,931.89	4,648.09	4,593.83	54.27	85.650	
4,900.00	3,336.58	3,770.00	3,285.13	33.45	29.33	82.59	4,429.79	-4,931.89	4,550.05	4,493.15	56.90	79.964	
5,000.00	3,336.54	3,770.00	3,285.13	36.11	29.33	82.59	4,429.79	-4,931.89	4,452.09	4,392.55	59.53	74.783	
5,100.00	3,336.49	3,770.00	3,285.13	38.76	29.33	82.59	4,429.79	-4,931.89	4,354.22	4,292.05	62.17	70.041	
5,200.00	3,336.45	3,770.00	3,285.13	41.41	29.33	82.59	4,429.79	-4,931.89	4,256.45	4,191.65	64.80	65.687	
5,300.00	3,336.41	3,770.00	3,285.13	44.06	29.33	82.59	4,429.79	-4,931.89	4,158.79	4,091.35	67.43	61.674	
5,400.00	3,336.37	3,770.00	3,285.13	46.72	29.33	82.59	4,429.79	-4,931.89	4,061.24	3,991.17	70.06	57.964	
5,500.00	3,336.33	3,770.00	3,285.13	49.37	29.33	82.59	4,429.79	-4,931.89	3,963.81	3,891.11	72.70	54.524	
5,600.00	3,336.29	3,770.00	3,285.13	52.02	29.33	82.59	4,429.79	-4,931.89	3,866.51	3,791.18	75.33	51.327	
5,700.00	3,336.25	3,770.00	3,285.13	54.67	29.33	82.59	4,429.79	-4,931.89	3,769.36	3,691.40	77.96	48.348	
5,800.00	3,336.21	3,770.00	3,285.13	57.33	29.33	82.59	4,429.79	-4,931.89	3,672.36	3,591.76	80.60	45.565	
5,900.00	3,336.17	3,770.00	3,285.13	59.98	29.33	82.59	4,429.79	-4,931.89	3,575.52	3,492.29	83.23	42.960	
6,000.00	3,336.13	3,770.00	3,285.13	62.63	29.33	82.59	4,429.79	-4,931.89	3,478.87	3,393.00	85.86	40.517	
6,100.00	3,336.09	3,770.00	3,285.13	65.29	29.33	82.59	4,429.79	-4,931.89	3,382.40	3,293.91	88.50	38.221	
6,200.00	3,336.05	3,770.00	3,285.13	67.94	29.33	82.59	4,429.79	-4,931.89	3,286.15	3,195.02	91.13	36.061	
6,300.00	3,336.00	3,770.00	3,285.13	70.59	29.33	82.59	4,429.79	-4,931.89	3,190.13	3,096.37	93.76	34.024	
6,400.00	3,335.96	3,770.00	3,285.13	73.24	29.33	82.59	4,429.79	-4,931.89	3,094.36	2,997.97	96.39	32.101	
6,500.00	3,335.92	3,770.00	3,285.13	75.90	29.33	82.59	4,429.79	-4,931.89	2,998.87	2,899.84	99.03	30.283	
6,600.00	3,335.88	3,770.00	3,285.13	78.55	29.33	82.59	4,429.79	-4,931.89	2,903.68	2,802.02	101.66	28.563	
6,700.00	3,335.84	3,770.00	3,285.13	81.20	29.33	82.59	4,429.79	-4,931.89	2,808.83	2,704.54	104.29	26.932	
6,800.00	3,335.80	3,770.00	3,285.13	83.86	29.33	82.59	4,429.79	-4,931.89	2,714.34	2,607.42	106.93	25.385	
6,900.00	3,335.76	3,770.00	3,285.13	86.51	29.33	82.59	4,429.79	-4,931.89	2,620.27	2,510.71	109.56	23.917	
7,000.00	3,335.72	3,770.00	3,285.13	89.16	29.33	82.59	4,429.79	-4,931.89	2,526.65	2,414.46	112.19	22.521	
7,100.00	3,335.68	3,770.00	3,285.13	91.81	29.33	82.59	4,429.79	-4,931.89	2,433.53	2,318.71	114.82	21.194	
7,200.00	3,335.64	3,770.00	3,285.13	94.47	29.33	82.59	4,429.79	-4,931.89	2,340.99	2,223.53	117.46	19.931	
7,300.00	3,335.60	3,770.00	3,285.13	97.12	29.33	82.59	4,429.79	-4,931.89	2,249.08	2,128.99	120.09	18.728	
7,400.00	3,335.56	3,770.00	3,285.13	99.77	29.33	82.59	4,429.79	-4,931.89	2,157.90	2,035.17	122.72	17.583	
7,500.00	3,335.51	3,770.00	3,285.13	102.43	29.33	82.59	4,429.79	-4,931.89	2,067.53	1,942.17	125.36	16.493	
7,600.00	3,335.47	3,770.00	3,285.13	105.08	29.33	82.59	4,429.79	-4,931.89	1,978.08	1,850.09	127.99	15.455	
7,700.00	3,335.43	3,770.00	3,285.13	107.73	29.33	82.59	4,429.79	-4,931.89	1,889.70	1,759.08	130.62	14.467	
7,800.00	3,335.39	3,770.00	3,285.13	110.38	29.33	82.59	4,429.79	-4,931.89	1,802.53	1,669.27	133.26	13.527	
7,900.00	3,335.35	3,770.00	3,285.13	113.04	29.33	82.59	4,429.79	-4,931.89	1,716.75	1,580.87	135.89	12.634	
8,000.00	3,335.31	3,770.00	3,285.13	115.69	29.33	82.59	4,429.79	-4,931.89	1,632.60	1,494.08	138.52	11.786	
8,100.00	3,335.27	3,770.00	3,285.13	118.34	29.33	82.59	4,429.79	-4,931.89	1,550.33	1,409.18	141.15	10.983	
8,200.00	3,335.23	3,770.00	3,285.13	120.99	29.33	82.59	4,429.79	-4,931.89	1,470.26	1,326.48	143.79	10.225	

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



Koltek Energy Services
Anticollision Report



Company: Hilcorp Energy Company
Project: San Juan Co., NM (NAD27)
Reference Site: Sec.08-T31N-R07W
Site Error: 0.00 usft
Reference Well: San Juan 32-7 Unit 232H
Well Error: 0.00 usft
Reference Wellbore: Lat 1
Reference Design: Rev1

Local Co-ordinate Reference: Well San Juan 32-7 Unit 232H
TVD Reference: KB @ 6653.00usft
MD Reference: KB @ 6653.00usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: EDM 5000.1 Single User Db
Offset TVD Reference: Offset Datum

Offset Design													Sec.31-T32N-R07W - San Juan 32-7 Unit 220A - Original Hole - Original Hole		Offset Site Error: 0.00 usft	
Survey Program: 242-MWD													Offset Well Error: 0.00 usft			
Reference		Offset		Semi Major Axis			Distance									
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning			
8,300.00	3,335.19	3,770.00	3,285.13	123.65	29.33	82.59	4,429.79	-4,931.89	1,392.77	1,246.35	146.42	9.512				
8,400.00	3,335.15	3,770.00	3,285.13	126.30	29.33	82.59	4,429.79	-4,931.89	1,318.32	1,169.27	149.05	8.845				
8,500.00	3,335.11	3,770.00	3,285.13	128.95	29.33	82.59	4,429.79	-4,931.89	1,247.44	1,095.76	151.69	8.224				
8,600.00	3,335.07	3,770.00	3,285.13	131.61	29.33	82.59	4,429.79	-4,931.89	1,180.79	1,026.47	154.32	7.652				
8,700.00	3,335.02	3,770.00	3,285.13	134.26	29.33	82.59	4,429.79	-4,931.89	1,119.11	962.15	156.95	7.130				
8,760.35	3,335.00	3,770.00	3,285.13	135.86	29.33	82.59	4,429.79	-4,931.89	1,084.65	926.11	158.54	6.841	CC, ES, SF			



Koltek Energy Services
Anticollision Report



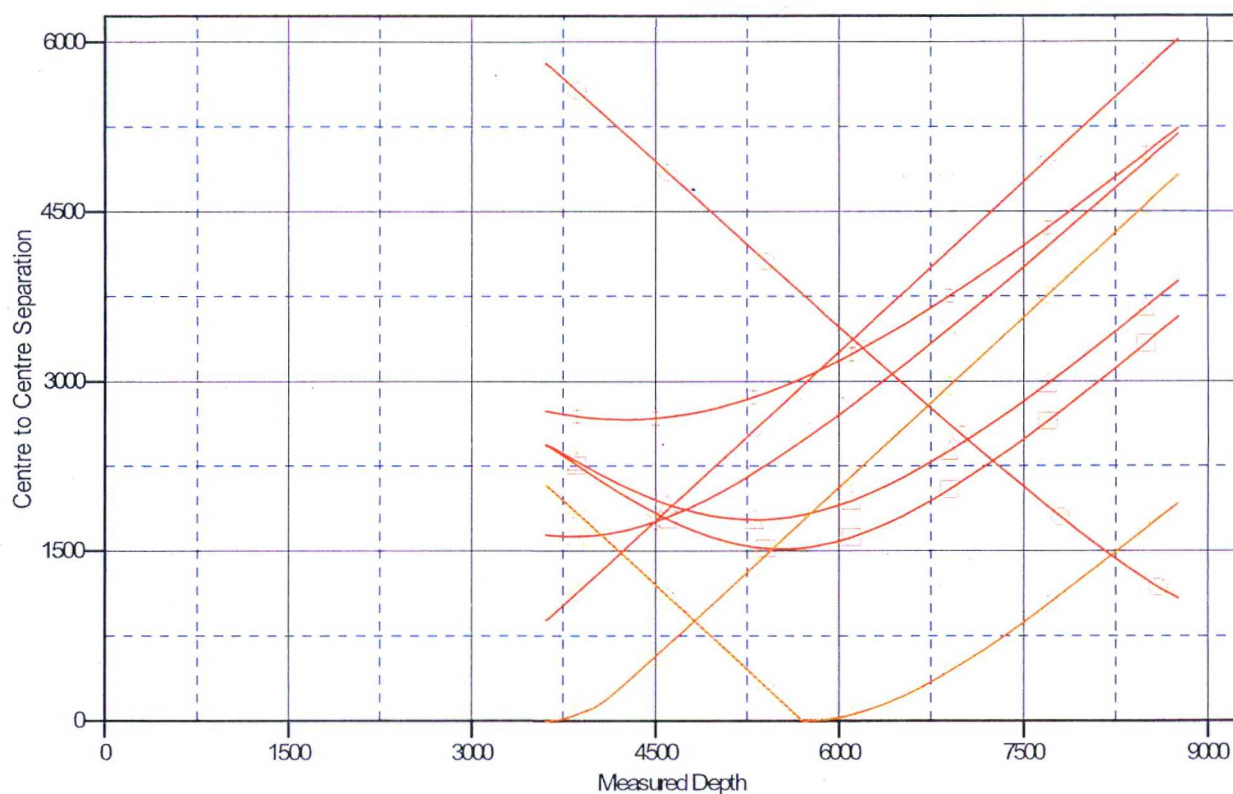
Company: Hilcorp Energy Company
Project: San Juan Co., NM (NAD27)
Reference Site: Sec.08-T31N-R07W
Site Error: 0.00 usft
Reference Well: San Juan 32-7 Unit 232H
Well Error: 0.00 usft
Reference Wellbore: Lat 1
Reference Design: Rev1

Local Co-ordinate Reference: Well San Juan 32-7 Unit 232H
TVD Reference: KB @ 6653.00usft
MD Reference: KB @ 6653.00usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at 2.00 sigma
Database: EDM 5000.1 Single User Db
Offset TVD Reference: Offset Datum

Reference Depths are relative to KB @ 6653.00usft
Offset Depths are relative to Offset Datum
Central Meridian is 107.83334°W

Coordinates are relative to: San Juan 32-7 Unit 232H
Coordinate System is US State Plane 1927 (Exact solution), New Mexico West 30
Grid Convergence at Surface is: 0.14°

Ladder Plot



LEGEND

ar 32-7 Unit232A, Original Hole, Original Hole V0	San Juan 32-7 Unit220, Original Hole, Original Hole V0	San Juan 32-7 Unit232H, Lat 1 ST01, Rev1
ar 32-7 Unit220A, Original Hole, Original Hole V0	San Juan 32-7 Unit218A, Original Hole, Original Hole V0	San Juan 32-7 Unit232H, Pilot Hole, Rev1
ar 32-7 Unit218, Original Hole, Original Hole V0	San Juan 32-7 Unit228, Original Hole, Original Hole V0	

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



Koltek Energy Services

Anticollision Report



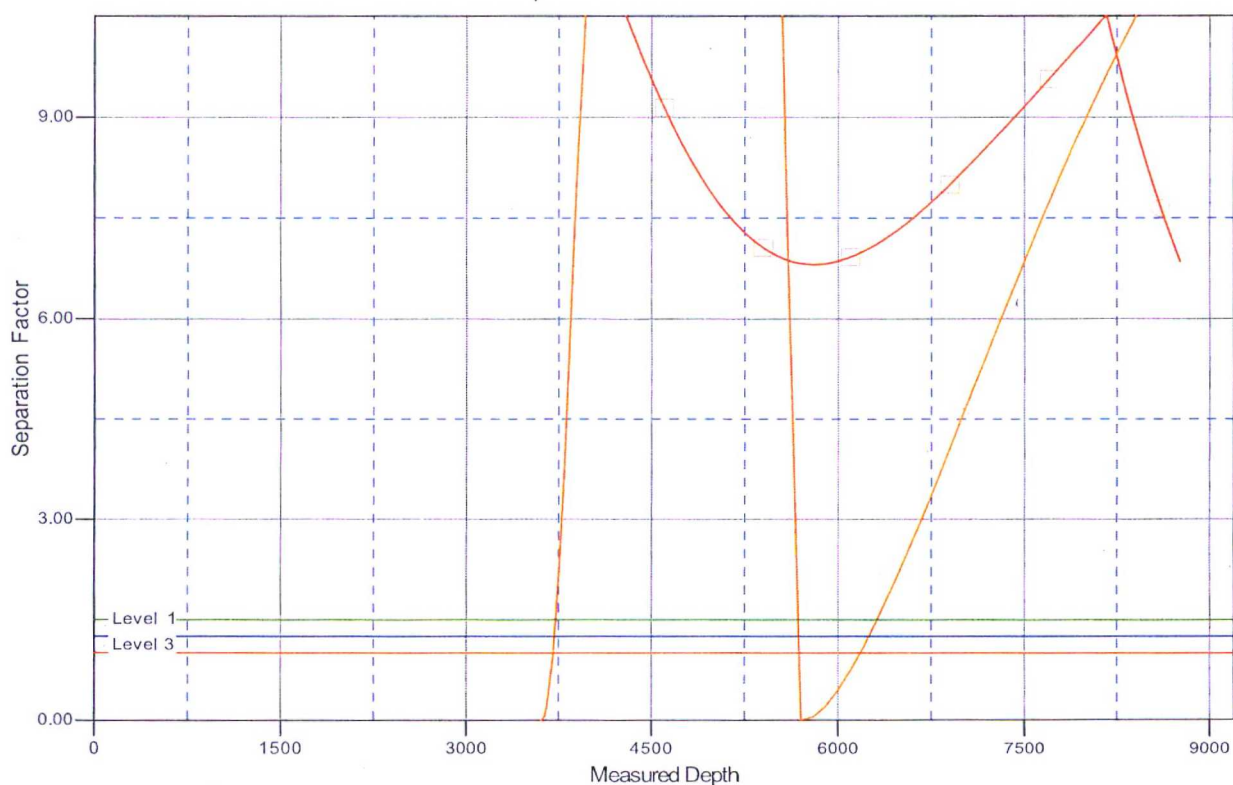
Company: Hilcorp Energy Company
Project: San Juan Co., NM (NAD27)
Reference Site: Sec.08-T31N-R07W
Site Error: 0.00 usft
Reference Well: San Juan 32-7 Unit 232H
Well Error: 0.00 usft
Reference Wellbore: Lat 1
Reference Design: Rev1

Local Co-ordinate Reference: Well San Juan 32-7 Unit 232H
TVD Reference: KB @ 6653.00usft
MD Reference: KB @ 6653.00usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at 2.00 sigma
Database: EDM 5000.1 Single User Db
Offset TVD Reference: Offset Datum

Reference Depths are relative to KB @ 6653.00usft
Offset Depths are relative to Offset Datum
Central Meridian is 107.83334°W

Coordinates are relative to: San Juan 32-7 Unit 232H
Coordinate System is US State Plane 1927 (Exact solution), New Mexico West 30
Grid Convergence at Surface is: 0.14°

Separation Factor Plot



LEGEND

San Juan 32-7 Unit 232A, Original Hole, Original Hole V0
San Juan 32-7 Unit 220A, Original Hole, Original Hole V0
San Juan 32-7 Unit 218, Original Hole, Original Hole V0
San Juan 32-7 Unit 220, Original Hole, Original Hole V0
San Juan 32-7 Unit 218A, Original Hole, Original Hole V0
San Juan 32-7 Unit 228, Original Hole, Original Hole V0
San Juan 32-7 Unit 232H, Lat 1 ST01, Rev1
San Juan 32-7 Unit 232H, Pilot Hole, Rev1

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



Company: Hilcorp Energy Company
 Field: San Juan Co., NM (NAD27)
 Location: Sec.08-T31N-R07W
 Well: San Juan 32-7 Unit 232H
 Borehole: Lat 1 ST01
 Plan: Rev1

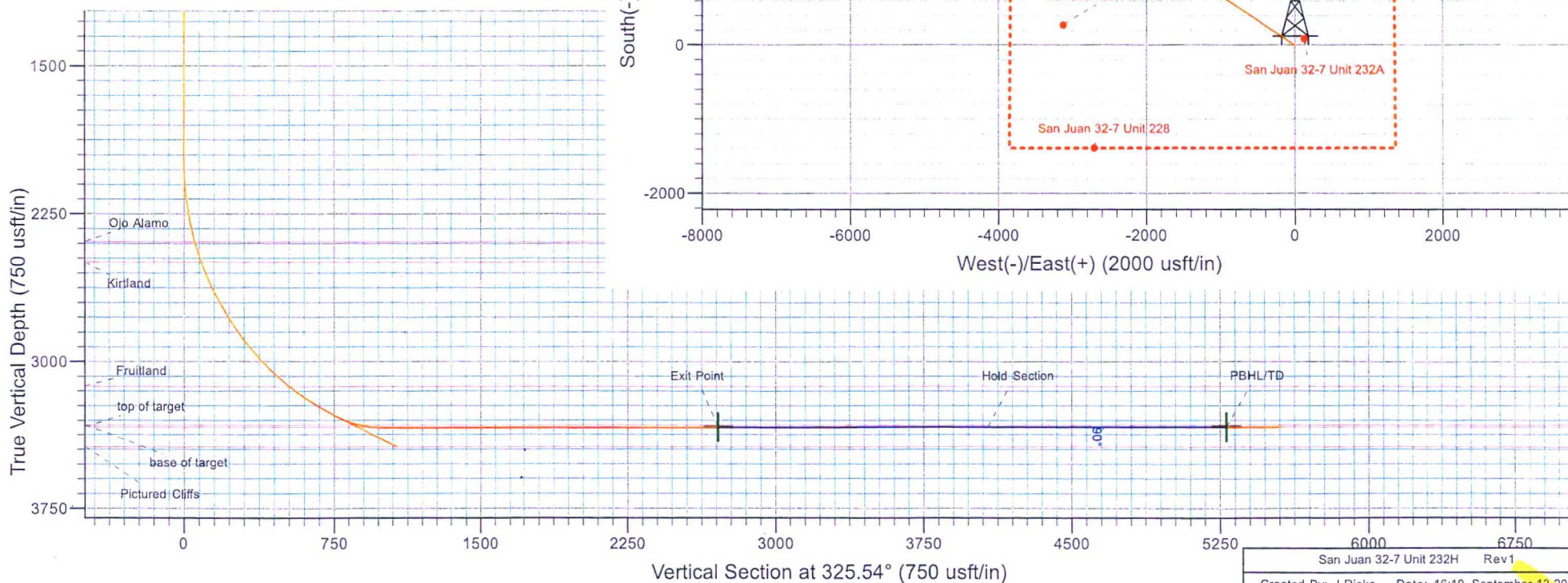
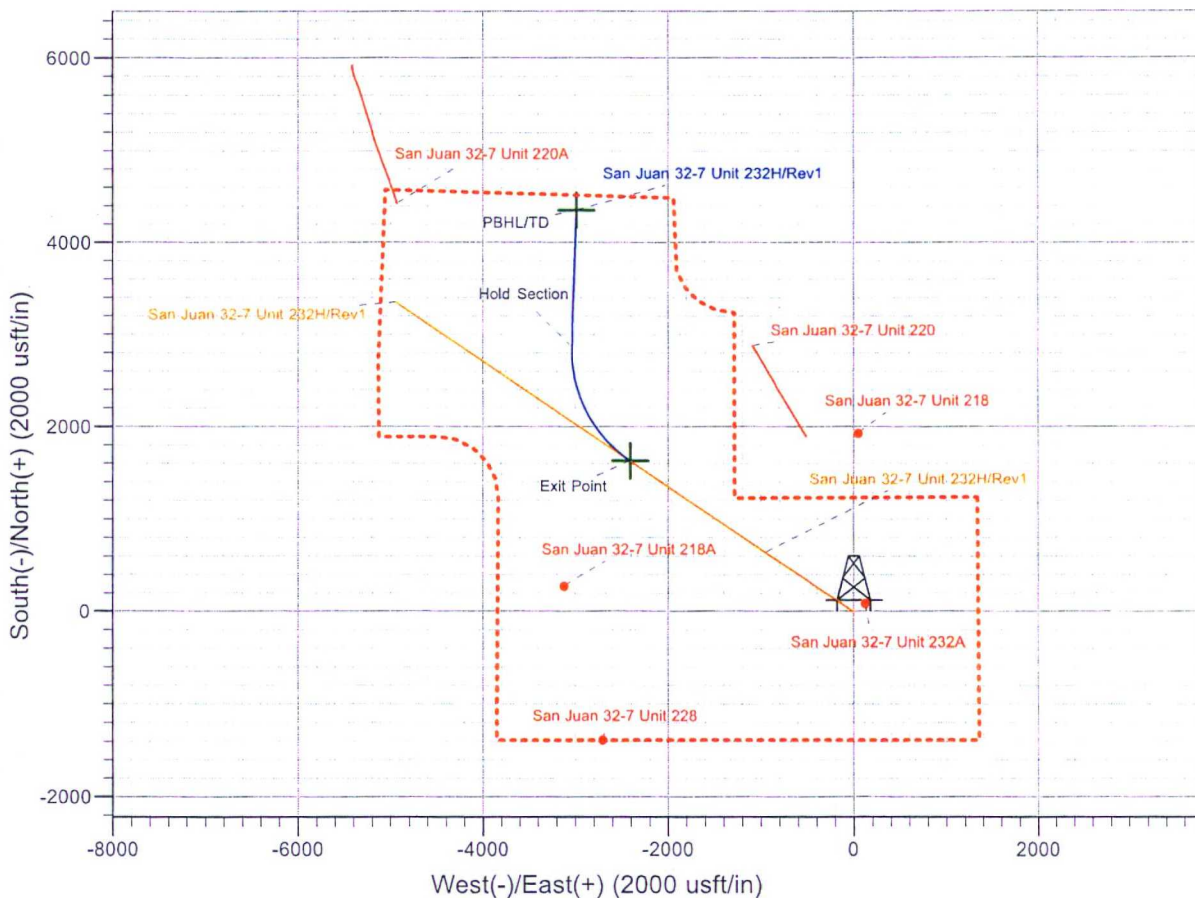
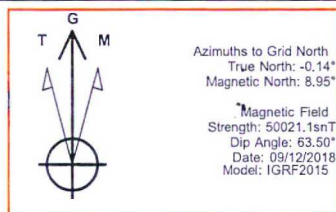


WELL DETAILS: San Juan 32-7 Unit 232H						
+N/-S	+E/-W	Northing	GL 6638.00 Easting	KB @ 6653.00usft	Latitude	Longitude
0.00	0.00	2153445.07	568673.52		36.91785°N	107.59841°W

SECTION DETAILS									
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect
1	5700.00	90.02	304.15	3336.26	1633.31	-2407.26	0.00	0.00	2708.73
2	7141.11	90.02	1.80	3335.62	2863.62	-3034.75	4.00	89.99	4078.22
3	8632.76	90.02	1.80	3335.00	4354.53	-2987.92	0.00	0.00	5281.06

DESIGN TARGET DETAILS						
Name	TVD	+N/-S	+E/-W	Latitude	Longitude	
SJ 32-7 Unit 232H Lat 1 ST01 Toe	3335.00	4354.53	-2987.92	36.92983°N	107.60860°W	
SJ 32-7 Unit 232H Lat 1 ST01 Exit Point	3336.26	1633.31	-2407.26	36.92235°N	107.60664°W	

ANNOTATIONS		
TVD	MD	Annotation
3336.26	5700.00	Exit Point
3335.62	7138.28	Hold Section
3335.00	8632.76	PBHL/TD





Hilcorp Energy Company

San Juan Co., NM (NAD27)

Sec.08-T31N-R07W

San Juan 32-7 Unit 232H

Lat 1 ST01

Plan: Rev1

Standard Planning Report - Geographic

13 September, 2018





Koltek Energy Services
Planning Report - Geographic



Database: EDM 5000.1 Single User Db
Company: Hilcorp Energy Company
Project: San Juan Co., NM (NAD27)
Site: Sec.08-T31N-R07W
Well: San Juan 32-7 Unit 232H
Wellbore: Lat 1 ST01
Design: Rev1

Local Co-ordinate Reference: Well San Juan 32-7 Unit 232H
TVD Reference: KB @ 6653.00usft
MD Reference: KB @ 6653.00usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature

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.08-T31N-R07W		
Site Position:		Northing:	2,153,445.07 usft
From:	Map	Easting:	568,673.52 usft
Position Uncertainty:	0.00 usft	Slot Radius:	13.200 in
		Latitude:	36.91785°N
		Longitude:	107.59842°W
		Grid Convergence:	0.14 °

Well	San Juan 32-7 Unit 232H		
Well Position	+N/-S	0.00 usft	Northing: 2,153,445.07 usft
	+E/-W	0.00 usft	Easting: 568,673.52 usft
Position Uncertainty	0.00 usft	Wellhead Elevation:	0.00 usft
		Latitude:	36.91785°N
		Longitude:	107.59842°W
		Ground Level:	6,638.00 usft

Wellbore	Lat 1 ST01		
Magnetics	Model Name	Sample Date	Declination (°)
	IGRF2015	09/12/18	9.09
			Dip Angle (°)
			63.50
			Field Strength (nT)
			50,021

Design	Rev1		
Audit Notes:			
Version:	Phase:	PROTOTYPE	Tie On Depth: 5,700.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)
	0.00	0.00	0.00
			Direction (°)
			325.54

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
5,700.00	90.02	304.15	3,336.26	1,633.31	-2,407.26	0.00	0.00	0.00	0.00	
7,141.11	90.02	1.80	3,335.62	2,863.62	-3,034.75	4.00	0.00	4.00	89.99	
8,632.76	90.02	1.80	3,335.00	4,354.53	-2,987.92	0.00	0.00	0.00	0.00	SJ 32-7 Unit 232H La



Koltek Energy Services
Planning Report - Geographic



Database: EDM 5000.1 Single User Db
Company: Hilcorp Energy Company
Project: San Juan Co., NM (NAD27)
Site: Sec.08-T31N-R07W
Well: San Juan 32-7 Unit 232H
Wellbore: Lat 1 ST01
Design: Rev1

Local Co-ordinate Reference: Well San Juan 32-7 Unit 232H
TVD Reference: KB @ 6653.00usft
MD Reference: KB @ 6653.00usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
5,700.00	90.02	304.15	3,336.26	1,633.31	-2,407.26	2,155,078.38	566,266.26	36.92235°N	107.60664°W
Exit Point									
5,800.00	90.02	308.15	3,336.22	1,692.29	-2,487.99	2,155,137.36	566,185.54	36.92251°N	107.60691°W
5,900.00	90.02	312.15	3,336.18	1,756.76	-2,564.40	2,155,201.83	566,109.12	36.92269°N	107.60718°W
6,000.00	90.03	316.15	3,336.14	1,826.41	-2,636.13	2,155,271.48	566,037.39	36.92288°N	107.60742°W
6,100.00	90.03	320.15	3,336.09	1,900.89	-2,702.83	2,155,345.96	565,970.69	36.92309°N	107.60765°W
6,200.00	90.03	324.15	3,336.05	1,979.84	-2,764.17	2,155,424.91	565,909.35	36.92330°N	107.60786°W
6,300.00	90.03	328.15	3,336.00	2,062.88	-2,819.85	2,155,507.95	565,853.67	36.92353°N	107.60805°W
6,400.00	90.03	332.15	3,335.96	2,149.60	-2,869.61	2,155,594.67	565,803.91	36.92377°N	107.60822°W
6,500.00	90.03	336.15	3,335.91	2,239.58	-2,913.19	2,155,684.65	565,760.33	36.92402°N	107.60837°W
6,600.00	90.03	340.16	3,335.86	2,332.38	-2,950.40	2,155,777.45	565,723.12	36.92427°N	107.60849°W
6,700.00	90.03	344.16	3,335.82	2,427.55	-2,981.03	2,155,872.62	565,692.49	36.92453°N	107.60860°W
6,800.00	90.03	348.16	3,335.77	2,524.62	-3,004.96	2,155,969.69	565,668.56	36.92480°N	107.60868°W
6,900.00	90.03	352.16	3,335.73	2,623.13	-3,022.05	2,156,068.20	565,651.47	36.92507°N	107.60873°W
7,000.00	90.02	356.16	3,335.68	2,722.59	-3,032.24	2,156,167.66	565,641.29	36.92534°N	107.60877°W
7,100.00	90.02	0.16	3,335.64	2,822.52	-3,035.45	2,156,267.59	565,638.07	36.92562°N	107.60878°W
7,138.28	90.02	1.69	3,335.62	2,860.79	-3,034.84	2,156,305.87	565,638.68	36.92572°N	107.60878°W
Hold Section									
7,141.11	90.02	1.80	3,335.62	2,863.62	-3,034.75	2,156,308.69	565,638.77	36.92573°N	107.60878°W
7,200.00	90.02	1.80	3,335.60	2,922.48	-3,032.90	2,156,367.55	565,640.62	36.92589°N	107.60877°W
7,300.00	90.02	1.80	3,335.56	3,022.43	-3,029.76	2,156,467.50	565,643.76	36.92617°N	107.60876°W
7,400.00	90.02	1.80	3,335.51	3,122.38	-3,026.62	2,156,567.45	565,646.90	36.92644°N	107.60875°W
7,500.00	90.02	1.80	3,335.47	3,222.33	-3,023.48	2,156,667.40	565,650.04	36.92672°N	107.60873°W
7,600.00	90.02	1.80	3,335.43	3,322.28	-3,020.34	2,156,767.35	565,653.18	36.92699°N	107.60872°W
7,700.00	90.02	1.80	3,335.39	3,422.23	-3,017.21	2,156,867.31	565,656.32	36.92727°N	107.60871°W
7,800.00	90.02	1.80	3,335.35	3,522.19	-3,014.07	2,156,967.26	565,659.46	36.92754°N	107.60870°W
7,900.00	90.02	1.80	3,335.31	3,622.14	-3,010.93	2,157,067.21	565,662.60	36.92782°N	107.60869°W
8,000.00	90.02	1.80	3,335.26	3,722.09	-3,007.79	2,157,167.16	565,665.74	36.92809°N	107.60868°W
8,100.00	90.02	1.80	3,335.22	3,822.04	-3,004.65	2,157,267.11	565,668.87	36.92836°N	107.60867°W
8,200.00	90.02	1.80	3,335.18	3,921.99	-3,001.51	2,157,367.06	565,672.01	36.92864°N	107.60865°W
8,300.00	90.02	1.80	3,335.14	4,021.94	-2,998.37	2,157,467.01	565,675.15	36.92891°N	107.60864°W
8,400.00	90.02	1.80	3,335.10	4,121.89	-2,995.23	2,157,566.96	565,678.29	36.92919°N	107.60863°W
8,500.00	90.02	1.80	3,335.06	4,221.84	-2,992.09	2,157,666.91	565,681.43	36.92946°N	107.60862°W
8,600.00	90.02	1.80	3,335.01	4,321.79	-2,988.95	2,157,766.86	565,684.57	36.92974°N	107.60861°W
8,632.76	90.02	1.80	3,335.00	4,354.53	-2,987.92	2,157,799.60	565,685.60	36.92983°N	107.60860°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 232H Lat 1 - plan hits target center - Point	0.00	0.00	3,335.00	4,354.53	-2,987.92	2,157,799.60	565,685.60	36.92983°N	107.60860°W
SJ 32-7 Unit 232H Lat 1 - plan hits target center - Point	0.00	0.00	3,336.26	1,633.31	-2,407.26	2,155,078.38	566,266.26	36.92235°N	107.60664°W



Koltek Energy Services
Planning Report - Geographic



Database: EDM 5000.1 Single User Db
Company: Hilcorp Energy Company
Project: San Juan Co., NM (NAD27)
Site: Sec.08-T31N-R07W
Well: San Juan 32-7 Unit 232H
Wellbore: Lat 1 ST01
Design: Rev1

Local Co-ordinate Reference: Well San Juan 32-7 Unit 232H
TVD Reference: KB @ 6653.00usft
MD Reference: KB @ 6653.00usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
5,700.00	3,336.26	1,633.31	-2,407.26	Exit Point
7,138.28	3,335.62	2,860.79	-3,034.84	Hold Section
8,632.76	3,335.00	4,354.53	-2,987.92	PBHL/TD



Hilcorp Energy Company

San Juan Co., NM (NAD27)

Sec.08-T31N-R07W

San Juan 32-7 Unit 232H

Lat 1 ST01

Rev1

Anticollision Report

13 September, 2018





Koltek Energy Services

Anticollision Report



Company: Hilcorp Energy Company
Project: San Juan Co., NM (NAD27)
Reference Site: Sec.08-T31N-R07W
Site Error: 0.00 usft
Reference Well: San Juan 32-7 Unit 232H
Well Error: 0.00 usft
Reference Wellbore: Lat 1 ST01
Reference Design: Rev1

Local Co-ordinate Reference: Well San Juan 32-7 Unit 232H
TVD Reference: KB @ 6653.00usft
MD Reference: KB @ 6653.00usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: EDM 5000.1 Single User Db
Offset TVD Reference: Offset Datum

Reference	Rev1
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria
Interpolation Method:	Stations
Depth Range:	Unlimited
Results Limited by:	Maximum center-center distance of 10,000.00 usft
Warning Levels Evaluated at:	2.00 Sigma
Error Model:	ISCWSA
Scan Method:	Closest Approach 3D
Error Surface:	Elliptical Conic
Casing Method:	Not applied

Survey Tool Program		Date	09/13/18		
From (usft)	To (usft)	Survey (Wellbore)		Tool Name	Description
5,700.00	8,632.76	Rev1 (Lat 1 ST01)		MWD	MWD - Standard

Summary						
Site Name	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
Sec.05-T31N-R07W						
San Juan 32-7 Unit 218 - Original Hole - Original Hole	5,700.00	3,330.39	2,472.14	2,404.41	36.500	CC, ES
San Juan 32-7 Unit 218 - Original Hole - Original Hole	8,500.00	3,329.18	3,802.84	3,686.52	32.694	SF
San Juan 32-7 Unit 220 - Original Hole - Original Hole	5,700.00	3,614.00	1,817.98	1,797.45	88.567	CC, ES
San Juan 32-7 Unit 220 - Original Hole - Original Hole	8,632.76	3,614.00	2,408.45	2,338.18	34.276	SF
Sec.07-T31N-R07W						
San Juan 32-7 Unit 218A - Original Hole - Original Hole	5,700.00	3,336.01	1,527.07	1,357.96	9.030	CC, ES, SF
San Juan 32-7 Unit 228 - Original Hole - Original Hole	5,700.00	3,265.96	3,028.84	2,870.54	19.133	CC, ES, SF
Sec.08-T31N-R07W						
San Juan 32-7 Unit 232A - Original Hole - Original Hole	5,700.00	3,325.40	2,960.90	2,879.30	36.287	CC, ES, SF
San Juan 32-7 Unit 232H - Lat 1 - Rev1	5,700.00	5,700.00	0.02	-15.61	0.001	Level 1, CC, SF
San Juan 32-7 Unit 232H - Lat 1 - Rev1	5,760.53	5,760.51	1.28	-55.74	0.022	Level 1, ES
San Juan 32-7 Unit 232H - Pilot Hole - Rev1	5,700.00	3,966.67	1,761.59	1,754.79	259.148	CC, ES
San Juan 32-7 Unit 232H - Pilot Hole - Rev1	6,300.00	3,966.67	2,346.80	2,308.03	60.522	SF
Sec.31-T32N-R07W						
San Juan 32-7 Unit 220A - Original Hole - Original Hole	8,632.76	3,770.00	1,948.94	1,870.28	24.778	CC, ES, SF

Offset Design													
Sec.05-T31N-R07W - San Juan 32-7 Unit 218 - Original Hole - Original Hole													
Survey Program: 93-INC_ONLY<10													
Reference		Offset		Semi Major Axis			Distance						
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
5,700.00	3,336.26	3,330.39	3,330.26	0.00	67.73	89.97	1,935.08	46.39	2,472.14	2,404.41	67.73	36,500	CC, ES
5,800.00	3,336.22	3,330.35	3,330.22	4.44	67.73	89.98	1,935.08	46.39	2,545.98	2,476.94	69.04	36.876	
5,900.00	3,336.18	3,330.30	3,330.18	4.51	67.73	89.98	1,935.08	46.39	2,616.87	2,545.24	71.63	36.533	
6,000.00	3,336.14	3,330.26	3,330.14	6.42	67.73	89.98	1,935.08	46.39	2,684.72	2,610.57	74.15	36.208	
6,100.00	3,336.09	3,330.22	3,330.09	8.87	67.73	89.98	1,935.08	46.39	2,749.43	2,672.86	76.57	35.907	
6,200.00	3,336.05	3,330.17	3,330.05	11.26	67.73	89.98	1,935.08	46.39	2,810.91	2,732.03	78.89	35.631	
6,300.00	3,336.00	3,330.12	3,330.00	13.56	67.73	89.98	1,935.08	46.39	2,869.09	2,788.00	81.09	35.383	
6,400.00	3,335.96	3,330.08	3,329.96	15.77	67.73	89.98	1,935.08	46.39	2,923.88	2,840.73	83.15	35.165	
6,500.00	3,335.91	3,330.03	3,329.91	17.90	67.72	89.98	1,935.08	46.39	2,975.20	2,890.14	85.06	34.977	
6,600.00	3,335.86	3,329.98	3,329.86	19.92	67.72	89.99	1,935.08	46.39	3,023.01	2,936.19	86.82	34.821	
6,700.00	3,335.82	3,329.94	3,329.82	21.86	67.72	89.99	1,935.08	46.39	3,067.21	2,978.81	88.41	34.695	

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



Koltek Energy Services
Anticollision Report



Company: Hilcorp Energy Company
Project: San Juan Co., NM (NAD27)
Reference Site: Sec.08-T31N-R07W
Site Error: 0.00 usft
Reference Well: San Juan 32-7 Unit 232H
Well Error: 0.00 usft
Reference Wellbore: Lat 1 ST01
Reference Design: Rev1

Local Co-ordinate Reference: Well San Juan 32-7 Unit 232H
TVD Reference: KB @ 6653.00usft
MD Reference: KB @ 6653.00usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: EDM 5000.1 Single User Db
Offset TVD Reference: Offset Datum

Offset Design Sec.05-T31N-R07W - San Juan 32-7 Unit 218 - Original Hole - Original Hole													Offset Site Error:	0.00 usft
Survey Program: 93-INC_ONLY<10													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance				Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
6,800.00	3,335.77	3,329.89	3,329.77	23.69	67.72	89.99	1,935.08	46.39	3,107.78	3,017.95	89.82	34.599		
6,900.00	3,335.73	3,329.85	3,329.73	25.43	67.72	89.99	1,935.08	46.39	3,144.64	3,053.58	91.06	34.533		
7,000.00	3,335.68	3,329.80	3,329.68	27.07	67.72	89.99	1,935.08	46.39	3,177.75	3,085.63	92.12	34.496		
7,100.00	3,335.64	3,329.76	3,329.64	28.62	67.72	89.99	1,935.08	46.39	3,207.07	3,114.07	93.00	34.484		
7,141.11	3,335.62	3,329.74	3,329.62	29.23	67.72	89.99	1,935.08	46.39	3,218.01	3,124.70	93.31	34.486		
7,200.00	3,335.60	3,329.72	3,329.60	30.06	67.72	89.99	1,935.08	46.39	3,233.73	3,139.46	94.26	34.305		
7,300.00	3,335.56	3,329.68	3,329.56	31.43	67.72	89.99	1,935.08	46.39	3,262.67	3,166.84	95.83	34.046		
7,400.00	3,335.51	3,329.64	3,329.51	32.85	67.72	89.99	1,935.08	46.39	3,294.40	3,196.97	97.43	33.812		
7,500.00	3,335.47	3,329.59	3,329.47	34.31	67.72	89.99	1,935.08	46.39	3,328.83	3,229.77	99.06	33.603		
7,600.00	3,335.43	3,329.55	3,329.43	35.81	67.72	89.99	1,935.08	46.39	3,365.88	3,265.16	100.72	33.418		
7,700.00	3,335.39	3,329.51	3,329.39	37.33	67.72	89.99	1,935.08	46.39	3,405.47	3,303.07	102.40	33.257		
7,800.00	3,335.35	3,329.47	3,329.35	38.89	67.72	89.99	1,935.08	46.39	3,447.50	3,343.41	104.09	33.119		
7,900.00	3,335.31	3,329.43	3,329.31	40.47	67.72	89.99	1,935.08	46.39	3,491.89	3,386.09	105.80	33.003		
8,000.00	3,335.26	3,329.39	3,329.26	42.08	67.72	89.99	1,935.08	46.39	3,538.55	3,431.02	107.53	32.907		
8,100.00	3,335.22	3,329.34	3,329.22	43.71	67.71	89.99	1,935.08	46.39	3,587.39	3,478.13	109.27	32.831		
8,200.00	3,335.18	3,329.30	3,329.18	45.36	67.71	89.99	1,935.08	46.39	3,638.33	3,527.31	111.02	32.773		
8,300.00	3,335.14	3,329.26	3,329.14	47.02	67.71	89.98	1,935.08	46.39	3,691.27	3,578.50	112.78	32.731		
8,400.00	3,335.10	3,329.22	3,329.10	48.70	67.71	89.98	1,935.08	46.39	3,746.14	3,631.59	114.54	32.705		
8,500.00	3,335.06	3,329.18	3,329.06	50.40	67.71	89.98	1,935.08	46.39	3,802.84	3,686.52	116.32	32.694 SF		
8,600.00	3,335.01	3,329.14	3,329.01	52.10	67.71	89.98	1,935.08	46.39	3,861.30	3,743.20	118.10	32.696		
8,632.76	3,335.00	3,329.12	3,329.00	52.66	67.71	89.98	1,935.08	46.39	3,880.82	3,762.13	118.68	32.699		

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



Koltek Energy Services
Anticollision Report



Company: Hilcorp Energy Company
Project: San Juan Co., NM (NAD27)
Reference Site: Sec.08-T31N-R07W
Site Error: 0.00 usft
Reference Well: San Juan 32-7 Unit 232H
Well Error: 0.00 usft
Reference Wellbore: Lat 1 ST01
Reference Design: Rev1

Local Co-ordinate Reference: Well San Juan 32-7 Unit 232H
TVD Reference: KB @ 6653.00usft
MD Reference: KB @ 6653.00usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at 2.00 sigma
Database: EDM 5000.1 Single User Db
Offset TVD Reference: Offset Datum

Offset Design Sec.05-T31N-R07W - San Juan 32-7 Unit 220 - Original Hole - Original Hole													Offset Site Error: 0.00 usft
Survey Program: 463-MWD													Offset Well Error: 0.00 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Minimum Separation (usft)	Separation Factor	Warning		
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)					
5,700.00	3,336.26	3,614.00	3,328.01	0.00	22.24	86.08	2,878.69	-1,088.41	1,817.98	1,797.45	20.53	88.567 CC, ES	
5,800.00	3,336.22	3,614.00	3,328.01	4.44	22.24	86.14	2,878.69	-1,088.41	1,838.76	1,816.44	22.32	82.381	
5,900.00	3,336.18	3,614.00	3,328.01	4.51	22.24	86.19	2,878.69	-1,088.41	1,857.94	1,832.63	25.31	73.404	
6,000.00	3,336.14	3,614.00	3,328.01	6.42	22.24	86.24	2,878.69	-1,088.41	1,875.48	1,847.33	28.15	66.632	
6,100.00	3,336.09	3,614.00	3,328.01	8.87	22.24	86.28	2,878.69	-1,088.41	1,891.33	1,860.52	30.81	61.390	
6,200.00	3,336.05	3,614.00	3,328.01	11.26	22.24	86.32	2,878.69	-1,088.41	1,905.45	1,872.18	33.28	57.260	
6,300.00	3,336.00	3,614.00	3,328.01	13.56	22.24	86.36	2,878.69	-1,088.41	1,917.83	1,882.30	35.54	53.967	
6,400.00	3,335.96	3,614.00	3,328.01	15.77	22.24	86.38	2,878.69	-1,088.41	1,928.44	1,890.86	37.57	51.323	
6,500.00	3,335.91	3,614.00	3,328.01	17.90	22.24	86.41	2,878.69	-1,088.41	1,937.25	1,897.87	39.38	49.199	
6,600.00	3,335.86	3,614.00	3,328.01	19.92	22.24	86.43	2,878.69	-1,088.41	1,944.24	1,903.30	40.93	47.499	
6,700.00	3,335.82	3,614.00	3,328.01	21.86	22.24	86.44	2,878.69	-1,088.41	1,949.40	1,907.16	42.24	46.155	
6,800.00	3,335.77	3,614.00	3,328.01	23.69	22.24	86.45	2,878.69	-1,088.41	1,952.72	1,909.44	43.28	45.115	
6,900.00	3,335.73	3,614.00	3,328.01	25.43	22.24	86.46	2,878.69	-1,088.41	1,954.19	1,910.12	44.07	44.341	
7,000.00	3,335.68	3,614.00	3,328.01	27.07	22.24	86.46	2,878.69	-1,088.41	1,953.81	1,909.21	44.60	43.804	
7,100.00	3,335.64	3,614.00	3,328.01	28.62	22.24	86.46	2,878.69	-1,088.41	1,951.59	1,906.70	44.88	43.481	
7,141.11	3,335.62	3,614.00	3,328.01	29.23	22.24	86.45	2,878.69	-1,088.41	1,950.14	1,905.21	44.93	43.406	
7,200.00	3,335.60	3,614.00	3,328.01	30.06	22.24	86.45	2,878.69	-1,088.41	1,948.72	1,902.84	45.88	42.476	
7,217.34	3,335.59	3,614.00	3,328.01	30.29	22.24	86.45	2,878.69	-1,088.41	1,948.64	1,902.49	46.15	42.224	
7,300.00	3,335.56	3,614.00	3,328.01	31.43	22.24	86.45	2,878.69	-1,088.41	1,950.40	1,902.95	47.44	41.110	
7,400.00	3,335.51	3,614.00	3,328.01	32.85	22.24	86.45	2,878.69	-1,088.41	1,957.19	1,908.14	49.04	39.907	
7,500.00	3,335.47	3,614.00	3,328.01	34.31	22.24	86.45	2,878.69	-1,088.41	1,969.04	1,918.37	50.67	38.858	
7,600.00	3,335.43	3,614.00	3,328.01	35.81	22.24	86.45	2,878.69	-1,088.41	1,985.86	1,933.54	52.33	37.952	
7,700.00	3,335.39	3,614.00	3,328.01	37.33	22.24	86.45	2,878.69	-1,088.41	2,007.53	1,953.53	54.00	37.175	
7,800.00	3,335.35	3,614.00	3,328.01	38.89	22.24	86.45	2,878.69	-1,088.41	2,033.89	1,978.20	55.70	36.518	
7,900.00	3,335.31	3,614.00	3,328.01	40.47	22.24	86.45	2,878.69	-1,088.41	2,064.76	2,007.36	57.41	35.968	
8,000.00	3,335.26	3,614.00	3,328.01	42.08	22.24	86.45	2,878.69	-1,088.41	2,099.95	2,040.82	59.13	35.515	
8,100.00	3,335.22	3,614.00	3,328.01	43.71	22.24	86.45	2,878.69	-1,088.41	2,139.23	2,078.37	60.86	35.147	
8,200.00	3,335.18	3,614.00	3,328.01	45.36	22.24	86.45	2,878.69	-1,088.41	2,182.39	2,119.78	62.61	34.856	
8,300.00	3,335.14	3,614.00	3,328.01	47.02	22.24	86.45	2,878.69	-1,088.41	2,229.21	2,164.84	64.37	34.633	
8,400.00	3,335.10	3,614.00	3,328.01	48.70	22.24	86.45	2,878.69	-1,088.41	2,279.45	2,213.32	66.13	34.468	
8,500.00	3,335.06	3,614.00	3,328.01	50.40	22.24	86.45	2,878.69	-1,088.41	2,332.90	2,265.00	67.90	34.356	
8,600.00	3,335.01	3,614.00	3,328.01	52.10	22.24	86.45	2,878.69	-1,088.41	2,389.35	2,319.66	69.68	34.289	
8,632.76	3,335.00	3,614.00	3,328.01	52.66	22.24	86.45	2,878.69	-1,088.41	2,408.45	2,338.18	70.27	34.276 SF	

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



Koltek Energy Services
Anticollision Report



Company: Hilcorp Energy Company
Project: San Juan Co., NM (NAD27)
Reference Site: Sec.08-T31N-R07W
Site Error: 0.00 usft
Reference Well: San Juan 32-7 Unit 232H
Well Error: 0.00 usft
Reference Wellbore: Lat 1 ST01
Reference Design: Rev1

Local Co-ordinate Reference: Well San Juan 32-7 Unit 232H
TVD Reference: KB @ 6653.00usft
MD Reference: KB @ 6653.00usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: EDM 5000.1 Single User Db
Offset TVD Reference: Offset Datum

Offset Design Sec.07-T31N-R07W - San Juan 32-7 Unit 218A - Original Hole - Original Hole													Offset Site Error:	0.00 usft
Survey Program: 220-INC_ONLY<10													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
5,700.00	3,336.26	3,336.01	3,335.26	0.00	169.06	-90.00	281.92	-3,118.38	1,527.07	1,357.96	169.11	9.030	CC, ES, SF	
5,800.00	3,336.22	3,335.97	3,335.22	4.44	169.06	-89.99	281.92	-3,118.38	1,544.84	1,374.43	170.42	9.065		
5,900.00	3,336.18	3,335.93	3,335.18	4.51	169.06	-89.99	281.92	-3,118.38	1,575.45	1,402.45	173.00	9.106		
6,000.00	3,336.14	3,335.89	3,335.14	6.42	169.06	-89.99	281.92	-3,118.38	1,618.03	1,442.51	175.52	9.219		
6,100.00	3,336.09	3,335.84	3,335.09	8.87	169.06	-89.98	281.92	-3,118.38	1,671.45	1,493.51	177.94	9.393		
6,200.00	3,336.05	3,335.80	3,335.05	11.26	169.06	-89.98	281.92	-3,118.38	1,734.47	1,554.22	180.25	9.623		
6,300.00	3,336.00	3,335.75	3,335.00	13.56	169.06	-89.97	281.92	-3,118.38	1,805.80	1,623.36	182.44	9.898		
6,400.00	3,335.96	3,335.70	3,334.96	15.77	169.05	-89.96	281.92	-3,118.38	1,884.17	1,699.67	184.50	10.212		
6,500.00	3,335.91	3,335.66	3,334.91	17.90	169.05	-89.95	281.92	-3,118.38	1,968.38	1,781.97	186.41	10.559		
6,600.00	3,335.86	3,335.61	3,334.86	19.92	169.05	-89.94	281.92	-3,118.38	2,057.33	1,869.16	188.16	10.934		
6,700.00	3,335.82	3,335.56	3,334.82	21.86	169.05	-89.93	281.92	-3,118.38	2,150.02	1,960.27	189.75	11.331		
6,800.00	3,335.77	3,335.52	3,334.77	23.69	169.05	-89.90	281.92	-3,118.38	2,245.57	2,054.41	191.16	11.747		
6,900.00	3,335.73	3,335.47	3,334.73	25.43	169.05	-89.86	281.92	-3,118.38	2,343.19	2,150.79	192.40	12.179		
7,000.00	3,335.68	3,335.43	3,334.68	27.07	169.05	-89.76	281.92	-3,118.38	2,442.19	2,248.74	193.45	12.624		
7,100.00	3,335.64	3,335.39	3,334.64	28.62	169.05	-89.19	281.92	-3,118.38	2,541.95	2,347.62	194.33	13.081		
7,141.11	3,335.62	3,335.37	3,334.62	29.23	169.04	-66.90	281.92	-3,118.38	2,583.05	2,403.11	179.94	14.355		
7,200.00	3,335.60	3,335.34	3,334.60	30.06	169.04	-66.43	281.92	-3,118.38	2,641.94	2,461.72	180.23	14.659		
7,300.00	3,335.56	3,335.30	3,334.56	31.43	169.04	-65.64	281.92	-3,118.38	2,741.94	2,561.31	180.63	15.180		
7,400.00	3,335.51	3,335.26	3,334.51	32.85	169.04	-64.86	281.92	-3,118.38	2,841.94	2,660.91	181.04	15.698		
7,500.00	3,335.47	3,335.22	3,334.47	34.31	169.04	-64.09	281.92	-3,118.38	2,941.94	2,760.51	181.43	16.215		
7,600.00	3,335.43	3,335.18	3,334.43	35.81	169.04	-63.33	281.92	-3,118.38	3,041.94	2,860.12	181.82	16.730		
7,700.00	3,335.39	3,335.14	3,334.39	37.33	169.04	-62.58	281.92	-3,118.38	3,141.94	2,959.74	182.20	17.245		
7,800.00	3,335.35	3,335.09	3,334.35	38.89	169.04	-61.84	281.92	-3,118.38	3,241.94	3,059.38	182.56	17.758		
7,900.00	3,335.31	3,335.05	3,334.31	40.47	169.04	-61.11	281.92	-3,118.38	3,341.94	3,159.03	182.91	18.271		
8,000.00	3,335.26	3,335.01	3,334.26	42.08	169.04	-60.39	281.92	-3,118.38	3,441.94	3,258.70	183.24	18.784		
8,100.00	3,335.22	3,334.97	3,334.22	43.71	169.03	-59.68	281.92	-3,118.38	3,541.94	3,358.39	183.56	19.296		
8,200.00	3,335.18	3,334.93	3,334.18	45.36	169.03	-58.98	281.92	-3,118.38	3,641.94	3,458.09	183.85	19.809		
8,300.00	3,335.14	3,334.89	3,334.14	47.02	169.03	-58.29	281.92	-3,118.38	3,741.94	3,557.81	184.14	20.322		
8,400.00	3,335.10	3,334.84	3,334.10	48.70	169.03	-57.61	281.92	-3,118.38	3,841.94	3,657.54	184.40	20.835		
8,500.00	3,335.06	3,334.80	3,334.06	50.40	169.03	-56.94	281.92	-3,118.38	3,941.94	3,757.29	184.65	21.348		
8,600.00	3,335.01	3,334.76	3,334.01	52.10	169.03	-56.28	281.92	-3,118.38	4,041.94	3,857.06	184.88	21.862		
8,632.76	3,335.00	3,334.75	3,334.00	52.66	169.03	-56.07	281.92	-3,118.38	4,074.70	3,889.74	184.96	22.031		

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



Koltek Energy Services
Anticollision Report



Company: Hilcorp Energy Company
Project: San Juan Co., NM (NAD27)
Reference Site: Sec.08-T31N-R07W
Site Error: 0.00 usft
Reference Well: San Juan 32-7 Unit 232H
Well Error: 0.00 usft
Reference Wellbore: Lat 1 ST01
Reference Design: Rev1

Local Co-ordinate Reference: Well San Juan 32-7 Unit 232H
TVD Reference: KB @ 6653.00usft
MD Reference: KB @ 6653.00usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at 2.00 sigma
Database: EDM 5000.1 Single User Db
Offset TVD Reference: Offset Datum

Offset Design Sec.07-T31N-R07W - San Juan 32-7 Unit 228 - Original Hole - Original Hole													Offset Site Error: 0.00 usft
Survey Program: 376-JNC_ONLY<10													Offset Well Error: 0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
5,700.00	3,336.26	3,265.96	3,265.26	0.00	158.26	-89.99	-1,380.85	-2,705.18	3,028.84	2,870.54	158.31	19.133	CC, ES, SF
5,800.00	3,336.22	3,265.92	3,265.22	4.44	158.26	-89.98	-1,380.85	-2,705.18	3,080.81	2,921.19	159.61	19.302	
5,900.00	3,336.18	3,265.88	3,265.18	4.51	158.26	-89.98	-1,380.85	-2,705.18	3,140.77	2,978.57	162.20	19.364	
6,000.00	3,336.14	3,265.84	3,265.14	6.42	158.25	-89.97	-1,380.85	-2,705.18	3,208.00	3,043.29	164.71	19.477	
6,100.00	3,336.09	3,265.79	3,265.09	8.87	158.25	-89.97	-1,380.85	-2,705.18	3,281.74	3,114.61	167.13	19.636	
6,200.00	3,336.05	3,265.75	3,265.05	11.26	158.25	-89.96	-1,380.85	-2,705.18	3,361.21	3,191.76	169.44	19.837	
6,300.00	3,336.00	3,265.70	3,265.00	13.56	158.25	-89.95	-1,380.85	-2,705.18	3,445.64	3,274.00	171.64	20.075	
6,400.00	3,335.96	3,265.66	3,264.96	15.77	158.24	-89.94	-1,380.85	-2,705.18	3,534.27	3,360.58	173.69	20.348	
6,500.00	3,335.91	3,265.61	3,264.91	17.90	158.24	-89.93	-1,380.85	-2,705.18	3,626.40	3,450.80	175.60	20.651	
6,600.00	3,335.86	3,265.56	3,264.86	19.92	158.24	-89.91	-1,380.85	-2,705.18	3,721.32	3,543.96	177.35	20.983	
6,700.00	3,335.82	3,265.52	3,264.82	21.86	158.24	-89.87	-1,380.85	-2,705.18	3,818.37	3,639.44	178.94	21.339	
6,800.00	3,335.77	3,265.47	3,264.77	23.69	158.23	-89.80	-1,380.85	-2,705.18	3,916.96	3,736.61	180.35	21.719	
6,900.00	3,335.73	3,265.43	3,264.73	25.43	158.23	-89.56	-1,380.85	-2,705.18	4,016.50	3,834.91	181.58	22.119	
7,000.00	3,335.68	3,265.38	3,264.68	27.07	158.23	88.00	-1,380.85	-2,705.18	4,116.45	3,933.89	182.57	22.548	
7,100.00	3,335.64	3,265.34	3,264.64	28.62	158.23	89.70	-1,380.85	-2,705.18	4,216.32	4,032.81	183.51	22.976	
7,141.11	3,335.62	3,265.32	3,264.62	29.23	158.23	89.78	-1,380.85	-2,705.18	4,257.24	4,073.42	183.82	23.159	
7,200.00	3,335.60	3,265.30	3,264.60	30.06	158.23	89.78	-1,380.85	-2,705.18	4,315.79	4,131.02	184.78	23.357	
7,300.00	3,335.56	3,265.26	3,264.56	31.43	158.22	89.77	-1,380.85	-2,705.18	4,415.23	4,228.89	186.34	23.694	
7,400.00	3,335.51	3,265.21	3,264.51	32.85	158.22	89.77	-1,380.85	-2,705.18	4,514.69	4,326.75	187.94	24.022	
7,500.00	3,335.47	3,265.17	3,264.47	34.31	158.22	89.76	-1,380.85	-2,705.18	4,614.17	4,424.60	189.57	24.340	
7,600.00	3,335.43	3,265.13	3,264.43	35.81	158.22	89.76	-1,380.85	-2,705.18	4,713.68	4,522.46	191.22	24.650	
7,700.00	3,335.39	3,265.09	3,264.39	37.33	158.21	89.75	-1,380.85	-2,705.18	4,813.21	4,620.31	192.90	24.952	
7,800.00	3,335.35	3,265.05	3,264.35	38.89	158.21	89.75	-1,380.85	-2,705.18	4,912.75	4,718.16	194.59	25.246	
7,900.00	3,335.31	3,265.01	3,264.31	40.47	158.21	89.74	-1,380.85	-2,705.18	5,012.32	4,816.01	196.30	25.533	
8,000.00	3,335.26	3,264.96	3,264.26	42.08	158.21	89.74	-1,380.85	-2,705.18	5,111.90	4,913.87	198.03	25.814	
8,100.00	3,335.22	3,264.92	3,264.22	43.71	158.21	89.73	-1,380.85	-2,705.18	5,211.50	5,011.73	199.77	26.088	
8,200.00	3,335.18	3,264.88	3,264.18	45.36	158.20	89.73	-1,380.85	-2,705.18	5,311.11	5,109.60	201.51	26.356	
8,300.00	3,335.14	3,264.84	3,264.14	47.02	158.20	89.72	-1,380.85	-2,705.18	5,410.74	5,207.47	203.27	26.619	
8,400.00	3,335.10	3,264.80	3,264.10	48.70	158.20	89.72	-1,380.85	-2,705.18	5,510.38	5,305.34	205.03	26.875	
8,500.00	3,335.06	3,264.76	3,264.06	50.40	158.20	89.71	-1,380.85	-2,705.18	5,610.03	5,403.22	206.81	27.127	
8,600.00	3,335.01	3,264.71	3,264.01	52.10	158.20	89.71	-1,380.85	-2,705.18	5,709.70	5,501.11	208.59	27.373	
8,632.76	3,335.00	3,264.70	3,264.00	52.66	158.19	89.70	-1,380.85	-2,705.18	5,742.34	5,533.17	209.17	27.453	

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



Koltek Energy Services
Anticollision Report



Company: Hilcorp Energy Company
Project: San Juan Co., NM (NAD27)
Reference Site: Sec.08-T31N-R07W
Site Error: 0.00 usft
Reference Well: San Juan 32-7 Unit 232H
Well Error: 0.00 usft
Reference Wellbore: Lat 1 ST01
Reference Design: Rev1

Local Co-ordinate Reference: Well San Juan 32-7 Unit 232H
TVD Reference: KB @ 6653.00usft
MD Reference: KB @ 6653.00usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: EDM 5000.1 Single User Db
Offset TVD Reference: Offset Datum

Offset Design Sec.08-T31N-R07W - San Juan 32-7 Unit 232A - Original Hole - Original Hole												Offset Site Error:	0.00 usft
Survey Program: 126-INC_ONLY<10												Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Minimum Separation (usft)	Separation Factor	Warning		
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)					
5,700.00	3,336.26	3,325.40	3,325.26	0.00	81.60	89.53	92.40	121.09	2,960.90	2,879.30	81.60	36.287	CC, ES, SF
5,800.00	3,336.22	3,325.36	3,325.22	4.44	81.60	89.80	92.40	121.09	3,060.54	2,977.63	82.91	36.913	
5,900.00	3,336.18	3,325.32	3,325.18	4.51	81.60	89.87	92.40	121.09	3,159.42	3,073.92	85.50	36.952	
6,000.00	3,336.14	3,325.27	3,325.14	6.42	81.60	89.90	92.40	121.09	3,257.15	3,169.14	88.01	37.007	
6,100.00	3,336.09	3,325.23	3,325.09	8.87	81.60	89.92	92.40	121.09	3,353.38	3,262.94	90.44	37.079	
6,200.00	3,336.05	3,325.18	3,325.05	11.26	81.59	89.93	92.40	121.09	3,447.77	3,355.02	92.76	37.170	
6,300.00	3,336.00	3,325.14	3,325.00	13.56	81.59	89.94	92.40	121.09	3,540.04	3,445.09	94.95	37.282	
6,400.00	3,335.96	3,325.09	3,324.96	15.77	81.59	89.95	92.40	121.09	3,629.92	3,532.91	97.01	37.417	
6,500.00	3,335.91	3,325.04	3,324.91	17.90	81.59	89.96	92.40	121.09	3,717.15	3,618.23	98.93	37.575	
6,600.00	3,335.86	3,325.00	3,324.86	19.92	81.59	89.96	92.40	121.09	3,801.51	3,700.83	100.68	37.758	
6,700.00	3,335.82	3,324.95	3,324.82	21.86	81.59	89.97	92.40	121.09	3,882.79	3,780.52	102.27	37.966	
6,800.00	3,335.77	3,324.91	3,324.77	23.69	81.59	89.97	92.40	121.09	3,960.79	3,857.10	103.69	38.200	
6,900.00	3,335.73	3,324.86	3,324.73	25.43	81.59	89.97	92.40	121.09	4,035.33	3,930.41	104.92	38.459	
7,000.00	3,335.68	3,324.82	3,324.68	27.07	81.58	89.98	92.40	121.09	4,106.25	4,000.27	105.98	38.744	
7,100.00	3,335.64	3,324.77	3,324.64	28.62	81.58	89.98	92.40	121.09	4,173.40	4,066.54	106.86	39.053	
7,141.11	3,335.62	3,324.76	3,324.62	29.23	81.58	89.98	92.40	121.09	4,199.88	4,092.70	107.18	39.187	
7,200.00	3,335.60	3,324.73	3,324.60	30.06	81.58	89.98	92.40	121.09	4,237.57	4,129.44	108.13	39.190	
7,300.00	3,335.56	3,324.69	3,324.56	31.43	81.58	89.98	92.40	121.09	4,302.67	4,192.97	109.69	39.224	
7,400.00	3,335.51	3,324.65	3,324.51	32.85	81.58	89.98	92.40	121.09	4,369.08	4,257.79	111.29	39.257	
7,500.00	3,335.47	3,324.61	3,324.47	34.31	81.58	89.98	92.40	121.09	4,436.76	4,323.83	112.93	39.289	
7,600.00	3,335.43	3,324.57	3,324.43	35.81	81.58	89.98	92.40	121.09	4,505.63	4,391.05	114.58	39.323	
7,700.00	3,335.39	3,324.52	3,324.39	37.33	81.58	89.98	92.40	121.09	4,575.66	4,459.40	116.26	39.358	
7,800.00	3,335.35	3,324.48	3,324.35	38.89	81.58	89.98	92.40	121.09	4,646.78	4,528.83	117.95	39.395	
7,900.00	3,335.31	3,324.44	3,324.31	40.47	81.57	89.97	92.40	121.09	4,718.95	4,599.29	119.66	39.435	
8,000.00	3,335.26	3,324.40	3,324.26	42.08	81.57	89.97	92.40	121.09	4,792.12	4,670.73	121.39	39.477	
8,100.00	3,335.22	3,324.36	3,324.22	43.71	81.57	89.97	92.40	121.09	4,866.25	4,743.12	123.13	39.522	
8,200.00	3,335.18	3,324.32	3,324.18	45.36	81.57	89.97	92.40	121.09	4,941.29	4,816.41	124.87	39.570	
8,300.00	3,335.14	3,324.27	3,324.14	47.02	81.57	89.97	92.40	121.09	5,017.19	4,890.56	126.63	39.620	
8,400.00	3,335.10	3,324.23	3,324.10	48.70	81.57	89.97	92.40	121.09	5,093.93	4,965.54	128.40	39.673	
8,500.00	3,335.06	3,324.19	3,324.06	50.40	81.57	89.97	92.40	121.09	5,171.47	5,041.30	130.17	39.728	
8,600.00	3,335.01	3,324.15	3,324.01	52.10	81.57	89.97	92.40	121.09	5,249.76	5,117.81	131.95	39.785	
8,632.76	3,335.00	3,324.14	3,324.00	52.66	81.57	89.97	92.40	121.09	5,275.57	5,143.03	132.54	39.805	

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



Koltek Energy Services
Anticollision Report



Company: Hilcorp Energy Company
Project: San Juan Co., NM (NAD27)
Reference Site: Sec.08-T31N-R07W
Site Error: 0.00 usft
Reference Well: San Juan 32-7 Unit 232H
Well Error: 0.00 usft
Reference Wellbore: Lat 1 ST01
Reference Design: Rev1

Local Co-ordinate Reference: Well San Juan 32-7 Unit 232H
TVD Reference: KB @ 6653.00usft
MD Reference: KB @ 6653.00usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at 2.00 sigma
Database: EDM 5000.1 Single User Db
Offset TVD Reference: Offset Datum

Offset Design Sec.08-T31N-R07W - San Juan 32-7 Unit 232H - Lat 1 - Rev1													Offset Site Error: 0.00 usft
Survey Program: 3610-MWD													Offset Well Error: 0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N-S (usft)	Offset Wellbore Centre +E-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
5,700.00	3,336.26	5,700.00	3,336.25	0.00	54.67	4.14	1,633.31	-2,407.26	0.02	-15.61	15.62	0.001 Level 1, CC, SF	
5,760.53	3,336.24	5,760.51	3,336.23	2.69	56.28	-89.32	1,667.28	-2,457.33	1.28	-55.74	57.01	0.022 Level 1, ES	
5,800.00	3,336.22	5,799.92	3,336.21	4.44	57.33	-89.75	1,689.40	-2,489.94	3.49	-55.01	58.50	0.060 Level 1	
5,900.00	3,336.18	5,899.35	3,336.17	4.51	59.96	-89.94	1,745.23	-2,572.23	13.94	-49.35	63.28	0.220 Level 1	
6,000.00	3,336.14	5,997.81	3,336.13	6.42	62.57	-89.98	1,800.51	-2,653.70	31.30	-36.33	67.63	0.463 Level 1	
6,100.00	3,336.09	6,094.82	3,336.09	8.87	65.15	-89.99	1,854.97	-2,733.98	55.49	-15.99	71.48	0.776 Level 1	
6,200.00	3,336.05	6,189.91	3,336.05	11.26	67.67	-89.99	1,908.36	-2,812.67	86.38	11.61	74.77	1.155 Level 2	
6,300.00	3,336.00	6,282.61	3,336.01	13.56	70.13	-89.99	1,960.40	-2,889.38	123.84	46.38	77.45	1.599	
6,400.00	3,335.96	6,372.47	3,335.98	15.77	72.51	-89.99	2,010.85	-2,963.74	167.66	88.18	79.48	2.109	
6,500.00	3,335.91	6,459.05	3,335.94	17.90	74.81	-89.99	2,059.46	-3,035.39	217.65	136.83	80.83	2.693	
6,600.00	3,335.86	6,541.94	3,335.91	19.92	77.01	-89.99	2,106.00	-3,103.98	273.56	192.11	81.45	3.358	
6,700.00	3,335.82	6,620.73	3,335.87	21.86	79.10	-89.99	2,150.23	-3,169.18	335.12	253.76	81.35	4.119	
6,800.00	3,335.77	6,695.02	3,335.84	23.69	81.07	-89.99	2,191.95	-3,230.66	402.02	321.51	80.51	4.993	
6,900.00	3,335.73	6,764.48	3,335.82	25.43	82.91	-89.99	2,230.94	-3,288.14	473.93	395.00	78.93	6.004	
7,000.00	3,335.68	6,828.74	3,335.79	27.07	84.62	-89.99	2,267.02	-3,341.32	550.52	473.89	76.63	7.184	
7,100.00	3,335.64	6,887.51	3,335.76	28.62	86.18	-89.98	2,300.01	-3,389.95	631.41	557.77	73.64	8.574	
7,141.11	3,335.62	6,910.00	3,335.76	29.23	86.77	-89.98	2,312.64	-3,408.56	665.81	593.60	72.21	9.220	
7,200.00	3,335.60	6,941.52	3,335.74	30.06	87.61	-89.98	2,330.34	-3,434.64	715.56	641.95	73.61	9.720	
7,300.00	3,335.56	6,995.04	3,335.72	31.43	89.03	-89.98	2,360.38	-3,478.93	800.04	724.10	75.94	10.535	
7,400.00	3,335.51	7,048.56	3,335.70	32.85	90.45	-89.98	2,390.43	-3,523.22	884.51	806.21	78.30	11.296	
7,500.00	3,335.47	7,102.07	3,335.68	34.31	91.87	-89.99	2,420.48	-3,567.51	968.99	888.29	80.69	12.008	
7,600.00	3,335.43	7,155.59	3,335.66	35.81	93.29	-89.99	2,450.52	-3,611.79	1,053.46	970.35	83.11	12.676	
7,700.00	3,335.39	7,209.11	3,335.63	37.33	94.71	-89.99	2,480.57	-3,656.08	1,137.93	1,052.39	85.55	13.302	
7,800.00	3,335.35	7,262.63	3,335.61	38.89	96.13	-89.99	2,510.62	-3,700.37	1,222.41	1,134.41	88.00	13.891	
7,900.00	3,335.31	7,316.14	3,335.59	40.47	97.55	-89.99	2,540.66	-3,744.65	1,306.88	1,216.41	90.47	14.445	
8,000.00	3,335.26	7,369.66	3,335.57	42.08	98.97	-89.99	2,570.71	-3,788.94	1,391.36	1,298.40	92.96	14.968	
8,100.00	3,335.22	7,423.18	3,335.55	43.71	100.39	-89.99	2,600.75	-3,833.23	1,475.83	1,380.37	95.46	15.461	
8,200.00	3,335.18	7,476.69	3,335.52	45.36	101.81	-89.99	2,630.80	-3,877.51	1,560.31	1,462.34	97.96	15.927	
8,300.00	3,335.14	7,530.21	3,335.50	47.02	103.23	-89.99	2,660.85	-3,921.80	1,644.78	1,544.30	100.48	16.369	
8,400.00	3,335.10	7,583.73	3,335.48	48.70	104.65	-89.99	2,690.89	-3,966.09	1,729.25	1,626.24	103.01	16.787	
8,500.00	3,335.06	7,637.25	3,335.46	50.40	106.07	-89.99	2,720.94	-4,010.37	1,813.73	1,708.18	105.54	17.185	
8,600.00	3,335.01	7,690.76	3,335.44	52.10	107.49	-89.99	2,750.99	-4,054.66	1,898.20	1,790.12	108.08	17.562	
8,632.76	3,335.00	7,708.29	3,335.43	52.66	107.95	-89.99	2,760.83	-4,069.17	1,925.87	1,816.95	108.92	17.682	

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



Koltek Energy Services
Anticollision Report



Company: Hilcorp Energy Company
Project: San Juan Co., NM (NAD27)
Reference Site: Sec.08-T31N-R07W
Site Error: 0.00 usft
Reference Well: San Juan 32-7 Unit 232H
Well Error: 0.00 usft
Reference Wellbore: Lat 1 ST01
Reference Design: Rev1

Local Co-ordinate Reference: Well San Juan 32-7 Unit 232H
TVD Reference: KB @ 6653.00usft
MD Reference: KB @ 6653.00usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: EDM 5000.1 Single User Db
Offset TVD Reference: Offset Datum

Offset Design Sec.08-T31N-R07W - San Juan 32-7 Unit 232H - Pilot Hole - Rev1													Offset Site Error: 0.00 usft
Survey Program: 0-MWD													Offset Well Error: 0.00 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (usft)	Separation Factor	Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)			
5,700.00	3,336.26	3,966.67	3,434.00	0.00	27.80	179.99	645.83	-951.74	1,761.59	1,754.79	6.80	259.148	CC, ES
5,735.74	3,336.25	3,966.67	3,434.00	1.59	27.80	155.44	645.83	-951.74	1,797.27	1,784.00	13.27	135.449	
5,800.00	3,336.22	3,966.67	3,434.00	4.44	27.80	127.55	645.83	-951.74	1,861.37	1,837.94	23.43	79.451	
5,900.00	3,336.18	3,966.67	3,434.00	4.51	27.80	110.55	645.83	-951.74	1,960.72	1,931.12	29.60	66.244	
6,000.00	3,336.14	3,966.67	3,434.00	6.42	27.80	103.73	645.83	-951.74	2,059.25	2,026.46	32.79	62.802	
6,100.00	3,336.09	3,966.67	3,434.00	8.87	27.80	100.17	645.83	-951.74	2,156.64	2,121.47	35.17	61.324	
6,200.00	3,336.05	3,966.67	3,434.00	11.26	27.80	98.02	645.83	-951.74	2,252.57	2,215.44	37.13	60.669	
6,300.00	3,336.00	3,966.67	3,434.00	13.56	27.80	96.59	645.83	-951.74	2,346.80	2,308.03	38.78	60.522	SF
6,400.00	3,335.96	3,966.67	3,434.00	15.77	27.80	95.58	645.83	-951.74	2,439.09	2,398.95	40.14	60.762	
6,500.00	3,335.91	3,966.67	3,434.00	17.90	27.80	94.82	645.83	-951.74	2,529.22	2,487.98	41.24	61.333	
6,600.00	3,335.86	3,966.67	3,434.00	19.92	27.80	94.25	645.83	-951.74	2,617.00	2,574.93	42.07	62.209	
6,700.00	3,335.82	3,966.67	3,434.00	21.86	27.80	93.79	645.83	-951.74	2,702.26	2,659.62	42.64	63.378	
6,800.00	3,335.77	3,966.67	3,434.00	23.69	27.80	93.43	645.83	-951.74	2,784.82	2,741.87	42.95	64.839	
6,900.00	3,335.73	3,966.67	3,434.00	25.43	27.80	93.13	645.83	-951.74	2,864.54	2,821.52	43.01	66.595	
7,000.00	3,335.68	3,966.67	3,434.00	27.07	27.80	92.88	645.83	-951.74	2,941.27	2,898.43	42.84	68.654	
7,100.00	3,335.64	3,966.67	3,434.00	28.62	27.80	92.67	645.83	-951.74	3,014.88	2,972.43	42.45	71.024	
7,141.11	3,335.62	3,966.67	3,434.00	29.23	27.80	92.59	645.83	-951.74	3,044.21	3,001.98	42.23	72.089	
7,200.00	3,335.60	3,966.67	3,434.00	30.06	27.80	92.59	645.83	-951.74	3,086.11	3,042.93	43.18	71.471	
7,300.00	3,335.56	3,966.67	3,434.00	31.43	27.80	92.59	645.83	-951.74	3,158.50	3,113.75	44.75	70.587	
7,400.00	3,335.51	3,966.67	3,434.00	32.85	27.80	92.59	645.83	-951.74	3,232.36	3,186.01	46.35	69.743	
7,500.00	3,335.47	3,966.67	3,434.00	34.31	27.80	92.59	645.83	-951.74	3,307.60	3,259.62	47.98	68.942	
7,600.00	3,335.43	3,966.67	3,434.00	35.81	27.80	92.59	645.83	-951.74	3,384.12	3,334.49	49.63	68.185	
7,700.00	3,335.39	3,966.67	3,434.00	37.33	27.80	92.59	645.83	-951.74	3,461.83	3,410.53	51.31	67.472	
7,800.00	3,335.35	3,966.67	3,434.00	38.89	27.80	92.59	645.83	-951.74	3,540.67	3,487.67	53.00	66.801	
7,900.00	3,335.31	3,966.67	3,434.00	40.47	27.80	92.59	645.83	-951.74	3,620.55	3,565.84	54.71	66.172	
8,000.00	3,335.26	3,966.67	3,434.00	42.08	27.80	92.59	645.83	-951.74	3,701.41	3,644.97	56.44	65.583	
8,100.00	3,335.22	3,966.67	3,434.00	43.71	27.80	92.59	645.83	-951.74	3,783.18	3,725.01	58.18	65.030	
8,200.00	3,335.18	3,966.67	3,434.00	45.36	27.80	92.59	645.83	-951.74	3,865.81	3,805.89	59.92	64.513	
8,300.00	3,335.14	3,966.67	3,434.00	47.02	27.80	92.59	645.83	-951.74	3,949.25	3,887.57	61.68	64.027	
8,400.00	3,335.10	3,966.67	3,434.00	48.70	27.80	92.59	645.83	-951.74	4,033.44	3,969.99	63.45	63.572	
8,500.00	3,335.06	3,966.67	3,434.00	50.40	27.80	92.59	645.83	-951.74	4,118.33	4,053.11	65.22	63.146	
8,600.00	3,335.01	3,966.67	3,434.00	52.10	27.80	92.59	645.83	-951.74	4,203.89	4,136.89	67.00	62.745	
8,632.76	3,335.00	3,966.67	3,434.00	52.66	27.80	92.59	645.83	-951.74	4,232.05	4,164.47	67.58	62.620	

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



Koltek Energy Services
Anticollision Report



Company: Hilcorp Energy Company
Project: San Juan Co., NM (NAD27)
Reference Site: Sec.08-T31N-R07W
Site Error: 0.00 usft
Reference Well: San Juan 32-7 Unit 232H
Well Error: 0.00 usft
Reference Wellbore: Lat 1 ST01
Reference Design: Rev1

Local Co-ordinate Reference: Well San Juan 32-7 Unit 232H
TVD Reference: KB @ 6653.00usft
MD Reference: KB @ 6653.00usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at 2.00 sigma
Database: EDM 5000.1 Single User Db
Offset TVD Reference: Offset Datum

Offset Design Sec.31-T32N-R07W - San Juan 32-7 Unit 220A - Original Hole - Original Hole													Offset Site Error:	0.00 usft
Survey Program: 242-MWD													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
5,700.00	3,336.26	3,770.00	3,285.13	0.00	29.33	82.59	4,429.79	-4,931.89	3,769.36	3,745.66	23.70	159.055		
5,800.00	3,336.22	3,770.00	3,285.13	4.44	29.33	79.72	4,429.79	-4,931.89	3,671.59	3,645.84	25.75	142.584		
5,900.00	3,336.18	3,770.00	3,285.13	4.51	29.33	73.47	4,429.79	-4,931.89	3,572.68	3,544.29	28.39	125.826		
6,000.00	3,336.14	3,770.00	3,285.13	6.42	29.33	51.73	4,429.79	-4,931.89	3,473.05	3,447.01	26.03	133.404		
6,100.00	3,336.09	3,770.00	3,285.13	8.87	29.33	-38.05	4,429.79	-4,931.89	3,373.13	3,348.63	24.49	137.710		
6,200.00	3,336.05	3,770.00	3,285.13	11.26	29.33	-70.15	4,429.79	-4,931.89	3,273.41	3,236.03	37.38	87.579		
6,300.00	3,336.00	3,770.00	3,285.13	13.56	29.33	-77.95	4,429.79	-4,931.89	3,174.41	3,133.20	41.21	77.026		
6,400.00	3,335.96	3,770.00	3,285.13	15.77	29.33	-81.27	4,429.79	-4,931.89	3,076.72	3,032.76	43.96	69.997		
6,500.00	3,335.91	3,770.00	3,285.13	17.90	29.33	-83.09	4,429.79	-4,931.89	2,980.95	2,934.71	46.24	64.466		
6,600.00	3,335.86	3,770.00	3,285.13	19.92	29.33	-84.22	4,429.79	-4,931.89	2,887.79	2,839.61	48.18	59.935		
6,700.00	3,335.82	3,770.00	3,285.13	21.86	29.33	-84.99	4,429.79	-4,931.89	2,797.98	2,748.17	49.81	56.177		
6,800.00	3,335.77	3,770.00	3,285.13	23.69	29.33	-85.54	4,429.79	-4,931.89	2,712.30	2,661.18	51.12	53.057		
6,900.00	3,335.73	3,770.00	3,285.13	25.43	29.33	-85.94	4,429.79	-4,931.89	2,631.61	2,579.48	52.13	50.483		
7,000.00	3,335.68	3,770.00	3,285.13	27.07	29.33	-86.25	4,429.79	-4,931.89	2,556.77	2,503.94	52.83	48.395		
7,100.00	3,335.64	3,770.00	3,285.13	28.62	29.33	-86.48	4,429.79	-4,931.89	2,488.70	2,435.46	53.24	46.748		
7,141.11	3,335.62	3,770.00	3,285.13	29.23	29.33	-86.56	4,429.79	-4,931.89	2,462.90	2,409.58	53.32	46.193		
7,200.00	3,335.60	3,770.00	3,285.13	30.06	29.33	-86.56	4,429.79	-4,931.89	2,427.33	2,373.06	54.27	44.728		
7,300.00	3,335.56	3,770.00	3,285.13	31.43	29.33	-86.56	4,429.79	-4,931.89	2,369.08	2,313.25	55.83	42.431		
7,400.00	3,335.51	3,770.00	3,285.13	32.85	29.33	-86.56	4,429.79	-4,931.89	2,313.69	2,256.25	57.43	40.285		
7,500.00	3,335.47	3,770.00	3,285.13	34.31	29.33	-86.56	4,429.79	-4,931.89	2,261.36	2,202.30	59.06	38.288		
7,600.00	3,335.43	3,770.00	3,285.13	35.81	29.33	-86.56	4,429.79	-4,931.89	2,212.32	2,151.60	60.72	36.437		
7,700.00	3,335.39	3,770.00	3,285.13	37.33	29.33	-86.56	4,429.79	-4,931.89	2,166.78	2,104.39	62.39	34.729		
7,800.00	3,335.35	3,770.00	3,285.13	38.89	29.33	-86.56	4,429.79	-4,931.89	2,124.98	2,060.90	64.09	33.159		
7,900.00	3,335.31	3,770.00	3,285.13	40.47	29.33	-86.56	4,429.79	-4,931.89	2,087.14	2,021.35	65.80	31.722		
8,000.00	3,335.26	3,770.00	3,285.13	42.08	29.33	-86.56	4,429.79	-4,931.89	2,053.47	1,985.96	67.52	30.413		
8,100.00	3,335.22	3,770.00	3,285.13	43.71	29.33	-86.56	4,429.79	-4,931.89	2,024.19	1,954.94	69.25	29.228		
8,200.00	3,335.18	3,770.00	3,285.13	45.36	29.33	-86.56	4,429.79	-4,931.89	1,999.49	1,928.49	71.00	28.161		
8,300.00	3,335.14	3,770.00	3,285.13	47.02	29.33	-86.56	4,429.79	-4,931.89	1,979.54	1,906.78	72.76	27.207		
8,400.00	3,335.10	3,770.00	3,285.13	48.70	29.33	-86.56	4,429.79	-4,931.89	1,964.48	1,889.95	74.52	26.361		
8,500.00	3,335.06	3,770.00	3,285.13	50.40	29.33	-86.56	4,429.79	-4,931.89	1,954.42	1,878.13	76.29	25.617		
8,600.00	3,335.01	3,770.00	3,285.13	52.10	29.33	-86.56	4,429.79	-4,931.89	1,949.45	1,871.38	78.07	24.970		
8,632.76	3,335.00	3,770.00	3,285.13	52.66	29.33	-86.56	4,429.79	-4,931.89	1,948.94	1,870.28	78.66	24.778 CC, ES, SF		



Koltek Energy Services
Anticollision Report



Company: Hilcorp Energy Company
Project: San Juan Co., NM (NAD27)
Reference Site: Sec.08-T31N-R07W
Site Error: 0.00 usft
Reference Well: San Juan 32-7 Unit 232H
Well Error: 0.00 usft
Reference Wellbore: Lat 1 ST01
Reference Design: Rev1

Local Co-ordinate Reference: Well San Juan 32-7 Unit 232H
TVD Reference: KB @ 6653.00usft
MD Reference: KB @ 6653.00usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at 2.00 sigma
Database: EDM 5000.1 Single User Db
Offset TVD Reference: Offset Datum

Reference Depths are relative to KB @ 6653.00usft

Offset Depths are relative to Offset Datum

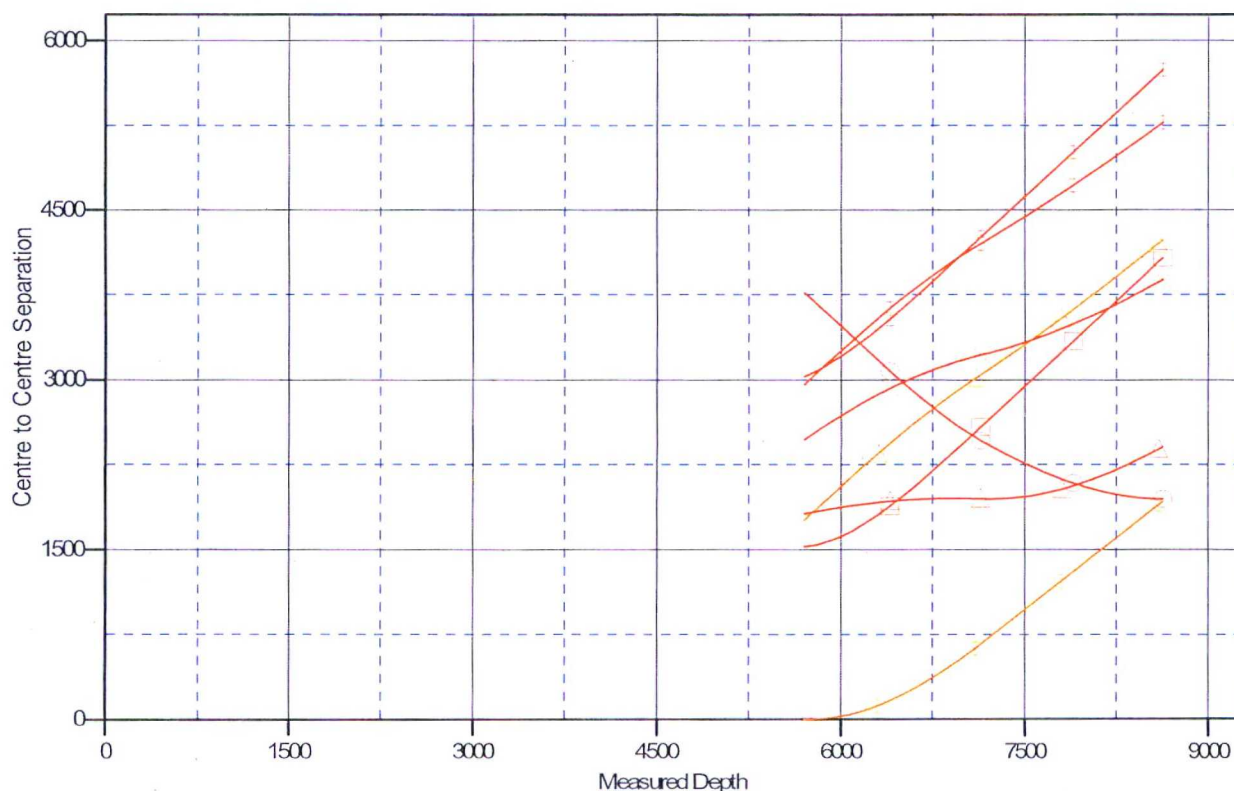
Central Meridian is 107.83334°W

Coordinates are relative to: San Juan 32-7 Unit 232H

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

Grid Convergence at Surface is: 0.14°

Ladder Plot



LEGEND

San Juan 32-7 Unit 232H, Lat 1, Rev1 V0	San Juan 32-7 Unit 228, Original Hole, Original Hole V0	San Juan 32-7 Unit 220A, Original Hole, Original Hole V0
San Juan 32-7 Unit 232H, Pilot Hole, Rev1 V0	San Juan 32-7 Unit 218, Original Hole, Original Hole V0	San Juan 32-7 Unit 232A, Original Hole, Original Hole V0
San Juan 32-7 Unit 218A, Original Hole, Original Hole V0	San Juan 32-7 Unit 220, Original Hole, Original Hole V0	

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



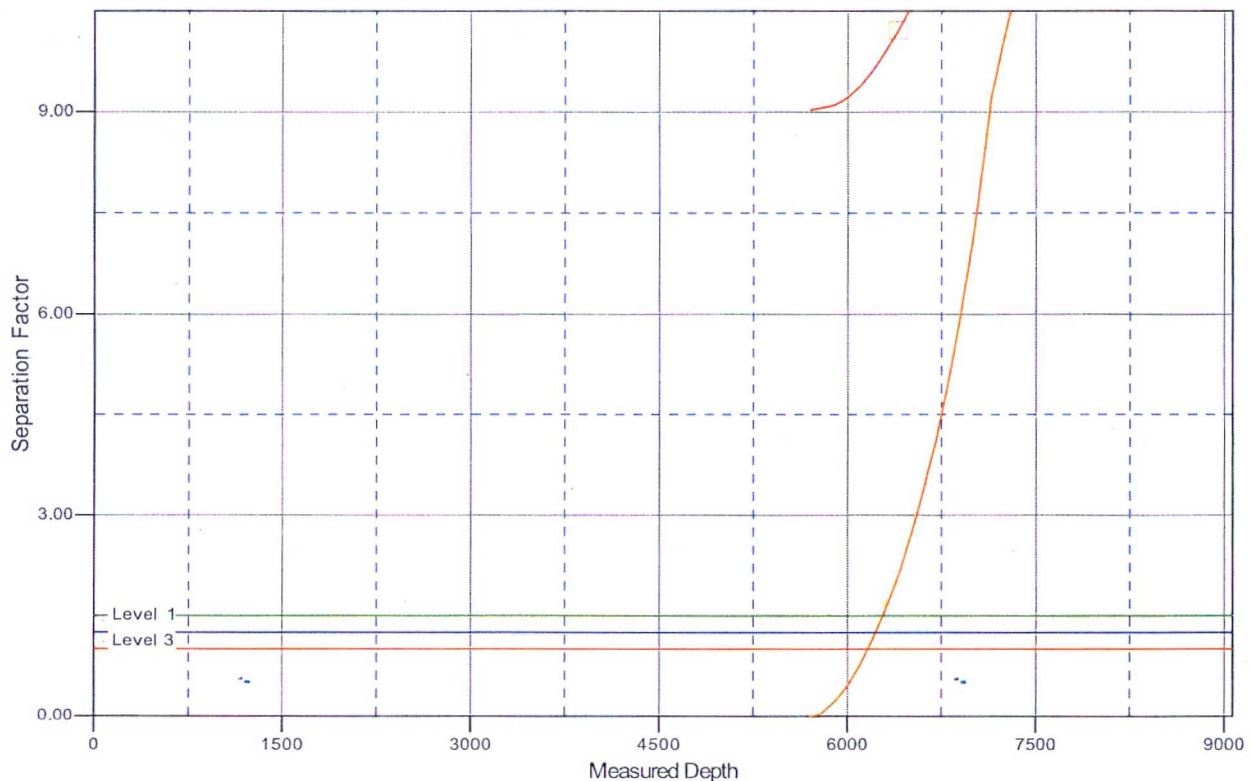
Company: Hilcorp Energy Company
Project: San Juan Co., NM (NAD27)
Reference Site: Sec.08-T31N-R07W
Site Error: 0.00 usft
Reference Well: San Juan 32-7 Unit 232H
Well Error: 0.00 usft
Reference Wellbore: Lat 1 ST01
Reference Design: Rev1

Local Co-ordinate Reference: Well San Juan 32-7 Unit 232H
TVD Reference: KB @ 6653.00usft
MD Reference: KB @ 6653.00usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at 2.00 sigma
Database: EDM 5000.1 Single User Db
Offset TVD Reference: Offset Datum

Reference Depths are relative to KB @ 6653.00usft
Offset Depths are relative to Offset Datum
Central Meridian is 107.83334°W

Coordinates are relative to: San Juan 32-7 Unit 232H
Coordinate System is US State Plane 1927 (Exact solution), New Mexico West 30
Grid Convergence at Surface is: 0.14°

Separation Factor Plot



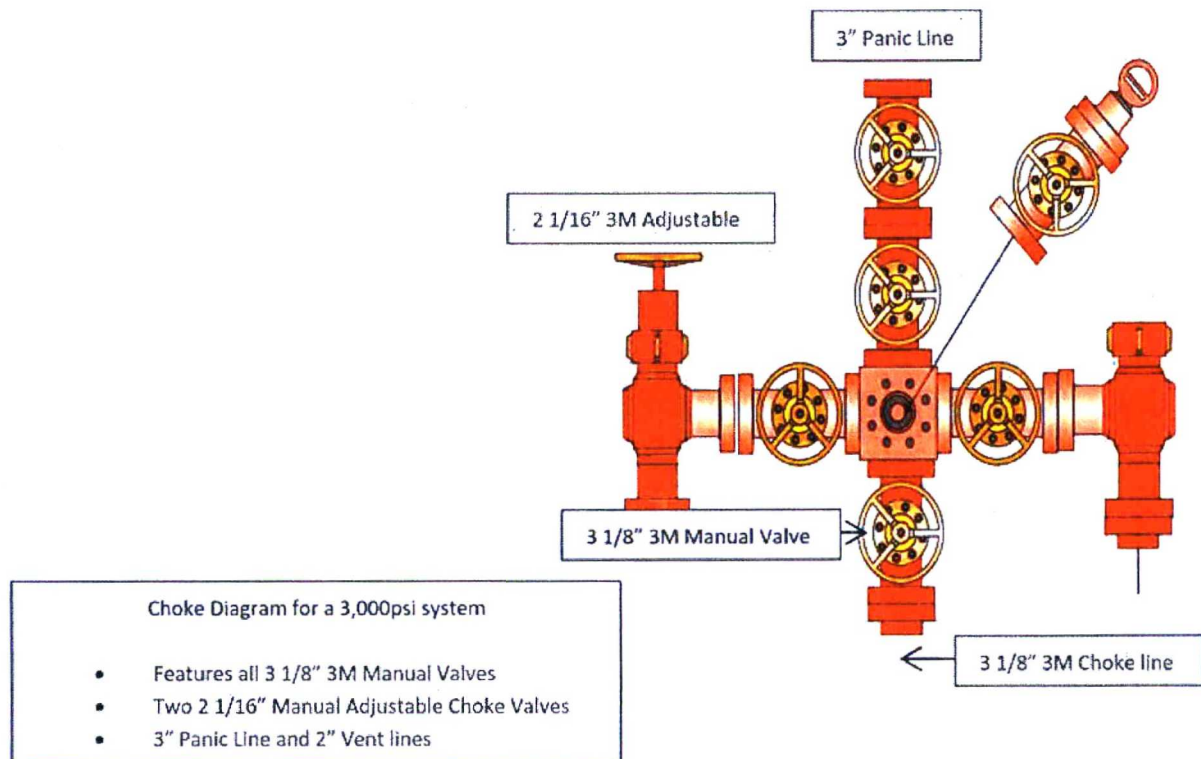
LEGEND

San Juan 32-7 Unit 232H, Lat1, Rev1 V0	San Juan 32-7 Unit 228, Original Hole, Original Hole V0	San Juan 32-7 Unit 220A, Original Hole, Original Hole V0
San Juan 32-7 Unit 232H, Pilot Hole, Rev1 V0	San Juan 32-7 Unit 218, Original Hole, Original Hole V0	San Juan 32-7 Unit 232A, Original Hole, Original Hole V0
San Juan 32-7 Unit 218A, Original Hole, Original Hole V0	San Juan 32-7 Unit 220, Original Hole, Original Hole V0	



Hilcorp Energy Company

San Juan 32-7 Unit 232H
Choke Manifold Schematic – Aztec 777

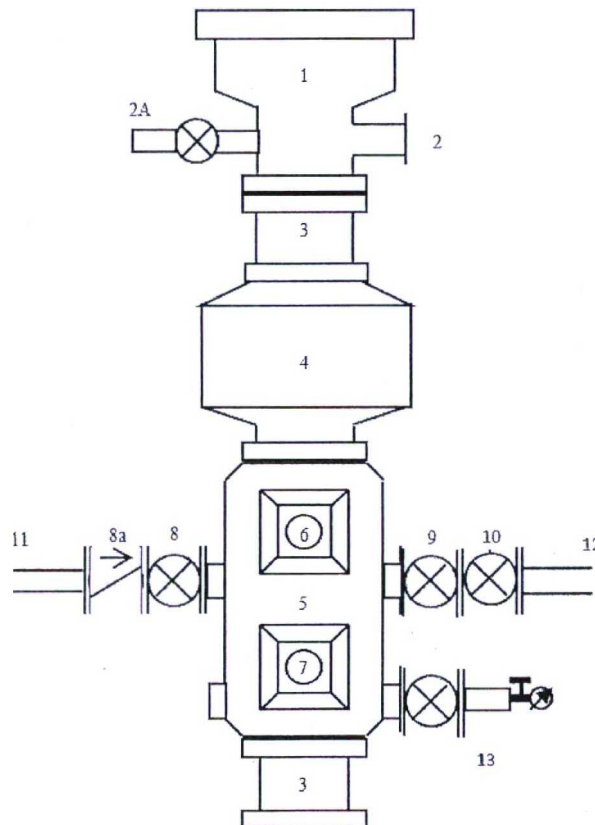




Hilcorp Energy Company

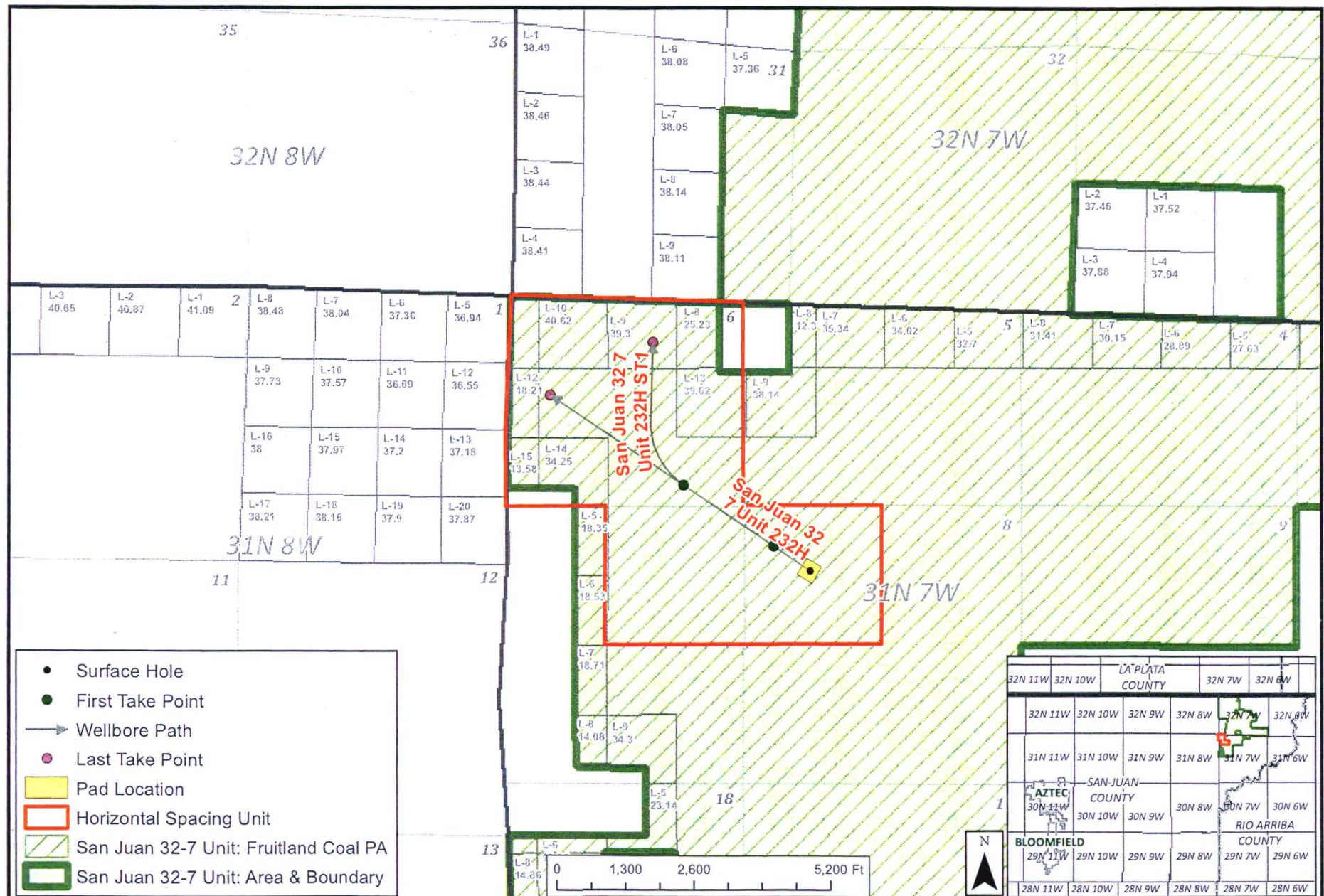
San Juan 32-7 Unit 232H
BOPE Schematic – Aztec 777

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



Fruitland Coal Non-Standard HSU Reference Map

San Juan 32-7 Unit 232H (LAT 1 & ST)



Scale 1:30,000

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

in Ignacio, CO to Hilcorp Energy Company San Juan 32-7 Unit #232H

1251' FNL & 1270' FWL, Section 8, T31N, R7W, N.M.P.M., San Juan County, NM

Latitude: 36.917850°N Longitude: 107.599026°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 Left (South-easterly) remaining on County Road #4010 for 0.6 miles to fork in roadway;

Go Left (Southerly) which is straight remaining on County Road #4010 for 0.3 miles to fork in roadway;

Go Right (South-westerly) remaining on County Road #4010 for 1.8 miles to T-intersection;

Go Left (Southerly) exiting County Road #4010 onto County Road #4000 for 1.2 miles to fork in roadway;

Go Right (Westerly) exiting County Road #4000 onto existing roadway for 1.0 mile to fork in roadway;

Go Left (Southerly) on existing roadway for 1.7 miles to fork in roadway;

Go Right (Westerly) on existing roadway for 0.5 miles to fork in roadway;

Go Left (Southerly) which is straight for 0.3 miles to existing Hilcorp San Juan 32-7 #232A location, with the Hilcorp San Juan 32-7 Unit #232H staked offset #232A wellhead.