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

State of New Mexico
Energy Minerals and Natural Resources
Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-101
Revised July 18, 2013

☐ AMENDED REPORT

APPLICATION FOR PERMIT TO DRILL, RE-ENTER, DEEPEN, PLUGBACK, OR ADD A ZONE

¹ Operator Name and Address Hilcorp Energy Company 382 Road 3100 Aztec, NM 87410		² OGRID Number 372171
		³ API Number 30-039-24315
⁴ Property Code 318714	⁵ Property Name San Juan 29-7 Unit NP	⁶ Well No. 515

⁷ Surface Location

UL - Lot H	Section 36	Township 029N	Range 07W	Lot Idn	Feet from 1746	N/S Line North	Feet From 1058	E/W Line East	County Rio Arriba
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⁸ Proposed Bottom Hole Location

UL - Lot H	Section 36	Township 029N	Range 07W	Lot Idn	Feet from 1724	N/S Line North	Feet From 31	E/W Line East	County Rio Arriba
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⁹ Pool Information

Pool Name Blanco Mesaverde / Basin Mancos / Basin Dakota	Pool Code 72319, 97232, 71599
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Additional Well Information

¹¹ Work Type N	¹² Well Type G	¹³ Cable/Rotary R	¹⁴ Lease Type State	¹⁵ Ground Level Elevation 6529'
¹⁶ Multiple Y	¹⁷ Proposed Depth 8,286'	¹⁸ Formation 8,286'	¹⁹ Contractor	²⁰ Spud Date 2024/2025
Depth to Ground water		Distance from nearest fresh water well		Distance to nearest surface water

☒ We will be using a closed-loop system in lieu of lined pits

²¹ Proposed Casing and Cement Program

Type	Hole Size	Casing Size	Casing Weight/ft	Setting Depth	Sacks of Cement	Estimated TOC
	12 1/4"	9 5/8"	36# K-55	220'	Existing	
	8 3/4"	7"	20# K-55	3393'	100 sx	(3190'-3345')
	6 1/4"	4 1/2"	11.6# J-55	8286'	556 sx	3272'

Casing/Cement Program: Additional Comments

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²² Proposed Blowout Prevention Program

Type	Working Pressure	Test Pressure	Manufacturer
	3M	Low 250 psi/High 3000 psi	

²³ I hereby certify that the information given above is true and complete to the best of my knowledge and belief. I further certify that I have complied with 19.15.14.9 (A) NMAC ☐ and/or 19.15.14.9 (B) NMAC ☐ , if applicable. Signature:	OIL CONSERVATION DIVISION	
	Approved By:	
	Title:	
	Approved Date:	Expiration Date:
	Conditions of Approval Attached	
Printed name: Cherylene Weston		
Title: Operations Regulatory Tech Sr.		
E-mail Address: cweston@hilcorp.com		
Date: 6/24/2024	Phone: 713-289-2615	

Rio Arriba County, New Mexico

San Juan 29 7 Unit NP 515 ST 1

Hilcorp Energy Company

Technical Drilling Plan (Rev. 0)

Hilcorp Energy Company proposes to deepen and complete the referenced well targeting the Mesa Verde and Dakota formations.

Note: This technical drilling plan will be adjusted based upon actual conditions.

1. Location

Date:	June 14, 2024	Pool:	MVDK
Well Name:	San Juan 29-7 Unit NP #515	Ground Elevation (ft. MSL):	6543
API			
Surface Hole Location:	36.68463° N, -107.51631° W	Total Measured Depth (ft.)	8,286'
Bottom Hole Location:	36.68469° N, -107.51282° W	County, State:	Rio Arriba, NM

Note: All depths in the directional drilling plan are referenced from an estimated RKB datum of 15' above ground level.

2. Geological Markers

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

Formation	Depth (ft. TVD)	Remarks
Ojo Alamo	2,412	Water (fresh/useable)
Kirtland	2,609	None
Fruitland	2,945	Gas, Water
Pictured Cliffs	3,360	Gas
Chacra	4,328	None
Cliff House	5,106	Gas
Menefee	5,190	None
Pt. Lookout	5,523	Gas
El Vado	6,769	Gas
El Vado A	6,832	Gas
El Vado B	6,917	Gas
El Vado C	6,985	Gas
Greenhorn	7,505	Gas
Graneros	7,556	Gas
Dakota	7,610	Gas
Paguate	7,697	Gas
Cubero	7,721	Gas
Lower Cubero	7,754	Gas
Encinal	7,836	Water

3. Pressure Control Equipment

See attached BOP equipment and choke manifold schematics for a diagram of pressure control equipment.

- BOP equipment will be nipped up on top of the wellhead after surface casing is set and cemented.
- Pressure control configurations will be designed to meet the minimum 2M standards.
- All equipment will have a minimum of 3M pressure rating and will be rated for 8,000' (TVD).



Rio Arriba County, New Mexico

San Juan 29 7 Unit NP 515 ST 1

Hilcorp Energy Company

- A rotating head will be installed on top of the annular as seen in the attached diagram.
- BOP Testing: The BOPE will be tested to 250 psi (Low) for 5 minutes and 3,000 psi (High) for 10 minutes. Utilize a BOPE Testing Unit with a recording chart and appropriate test plug for testing. BOP equipment will be tested upon installation, every 30 days, and after any repairs are made to the BOP equipment. Annular preventors will be functionally tested at least once per week. Pipe and blind rams will be function tested each trip. The New Mexico Oil & Gas Conservation Division and the BLM will be notified 24 hours in advance of testing BOPE. All tests and inspections will be recorded and logged with time and results.

4. Casing & Cement Program

1. Proposed/Current Casing Program:

Proposed Casing Design						
Casing String	Hole Size	Casing Size	Weight/Grade	Top Depth (MD/TVD)	Shoe Depth (MD/TVD)	
Surface (existing)	12-1/4"	9-5/8"	36# K55 STC	0'	220' / 220'	
Intermediate (existing)	8-3/4"	7"	20# K55 LTC	0'	3,393' / 3,393'	
Production Casing	6-1/4"	4-1/2"	11.6# J55 (or equiv.) LTC	0'	8,286' / 8,100'	
Proposed Casing Design Safety Factors						
Casing String	Casing Description		Burst Design SF	Collapse Design SF	Joint Tensile Design SF	Connection Tensile Design SF
Surface (existing)	9-5/8" 36# K55 STC		30.8	22.5	64.2	48.2
Intermediate (existing)	7" 23# J55 LTC		1.9	1.4	4.7	3.5
Production	4-1/2" 11.6# J55 LTC		1.2	1.3	1.9	1.7

Notes:

- The 6-1/4" hole will be drilled to through the Encinal formation and TD will be called onsite by mud loggers.
- If the 6-1/4" hole is not drilled to the total planned measured depth, the production casing setting depth and length will be adjusted accordingly.
- Production casing will be run from surface to TD.
- The existing perms in the 7" (~3190' – 3345') will be squeezed off by a workover rig prior to MIRU.
- Casing Design Parameters – Designed for full evacuation. Mud Weights used for calculations: Surface = 9.0 ppg, Intermediate = 11.5 ppg, Production = 11.0 ppg. Burst: 1.15; Collapse: 1.125; Tensile: 1.6.
 - o Burst: (Casing Burst Rating) / (Maximum Burst Load (Max MW x TVD x .052))
 - o Collapse: (Full hydrostatic of MW in annulus) – (Hydrostatic of vacated casing, 0.1 psi/ft)
 - o Tensile: (Tensile rating) / (measured depth x casing weight)



Rio Arriba County, New Mexico

San Juan 29 7 Unit NP 515 ST 1

Hilcorp Energy Company

2. Proposed Centralizer Program:

Proposed Centralizer Program	
Interval	Centralizers & Placement
Production	1 centralizer 10' above the shoe with a lock collar. 1 centralizer every other joint on bottom 10 joints. 1 centralizer every 4 joints to inside 7" casing. (~25)

3. Proposed Cement Program:

Proposed Cement Design							
Interval	Depth (ft. MD)	Lead/Tail	Volume (ft ³)	Sacks	Slurry	Density	Planned TOC
Surface	522'				Existing		
Intermediate (perfs)	3190' – 3345'	Tail	138 ft ³	100	Type III Cement 1% CaCl, 0.50 pps celloflake, 0.2% FL-52 1.38ft ³ /sk – 6.64 gal/sk	14.6 ppg	3,190'
Production	8,235'	Tail	800 ft ³	556	50/50 POZ: Class G cement + 0.25 lb/sx D029 Cellophane Flakes + 3% D020 Bentonite + 1.0 lb/sx D024 Gilsonite Extender + 0.25% D167 Fluid Loss + 0.25% D065 Dispersant + 0.1% D800 Retarder + 0.1% D046 Antifoamer + 3.5 lb/sx Phenoseal 1.44ft ³ /sk – 6.47 gal/sk	13.0 ppg	3,272'

Notes:

- A 2-stage cement job may be required depending on losses. Placement will be determined based from well conditions and zones where losses were incurred.

Rio Arriba County, New Mexico

San Juan 29 7 Unit NP 515 ST 1

Hilcorp Energy Company

5. Drilling Fluids Program

1. Proposed Drilling Fluids Program:

Proposed Drilling Fluids Program					
Interval	Fluid Type	Density	Fluid Loss	Max Chlorides	Depth
		(ppg)	(mL/30 min)	(mg/L)	(ft. MD)
Production	LSND / Gel System	8.4 – 9.2	6-16	1,000	3,372' – 8,160'

Notes:

- The well will be drilled utilizing a closed-loop circulating system. Drill cuttings will be transported to an approved disposal site.
- Estimated total volume of drill cuttings for disposal: 178 bbls (1,000 ft³).

6. Estimated Pressures & Drilling Hazards

A. Estimated Pressures

- The Mesa Verde and/or Dakota formations will be completed and commingled if both formations are completed.
- No abnormal temperatures or hazards are anticipated.
- Anticipated pore pressures are as follows:
 - Fruitland Coal 1,253 psi
 - Pictured Cliffs 1,610 psi
 - Mesa Verde 2,371 psi
 - Dakota 1,715 psi

B. Water Flows

- No water flows are expected.

C. Lost Circulation

- Lost circulation is possible in the Fruitland Coal & Mesa Verde. Losses will be mitigated by adding LCM to the mud system.

D. Hydrogen Sulfide

- No hydrogen sulfide is expected to be encountered based on nearby well production.

7. Testing, Logging, Coring

A. Mud Logging

- Mud loggers will collect formation samples every 60' from the intermediate casing shoe to TD of the production hole.



Rio Arriba County, New Mexico

San Juan 29 7 Unit NP 515 ST 1

Hilcorp Energy Company

B. MWD

- Measurement while drilling tools will be utilized from the intermediate casing shoe to TD of the production hole to measure and record inclination.

C. LWD

- There are no planned LWD tools planned.

D. Open Hole Logging

- There are no planned open hole logs post drilling.

E. Coring

- There is no coring or formation testing planned.

8. Directional Drilling Plan

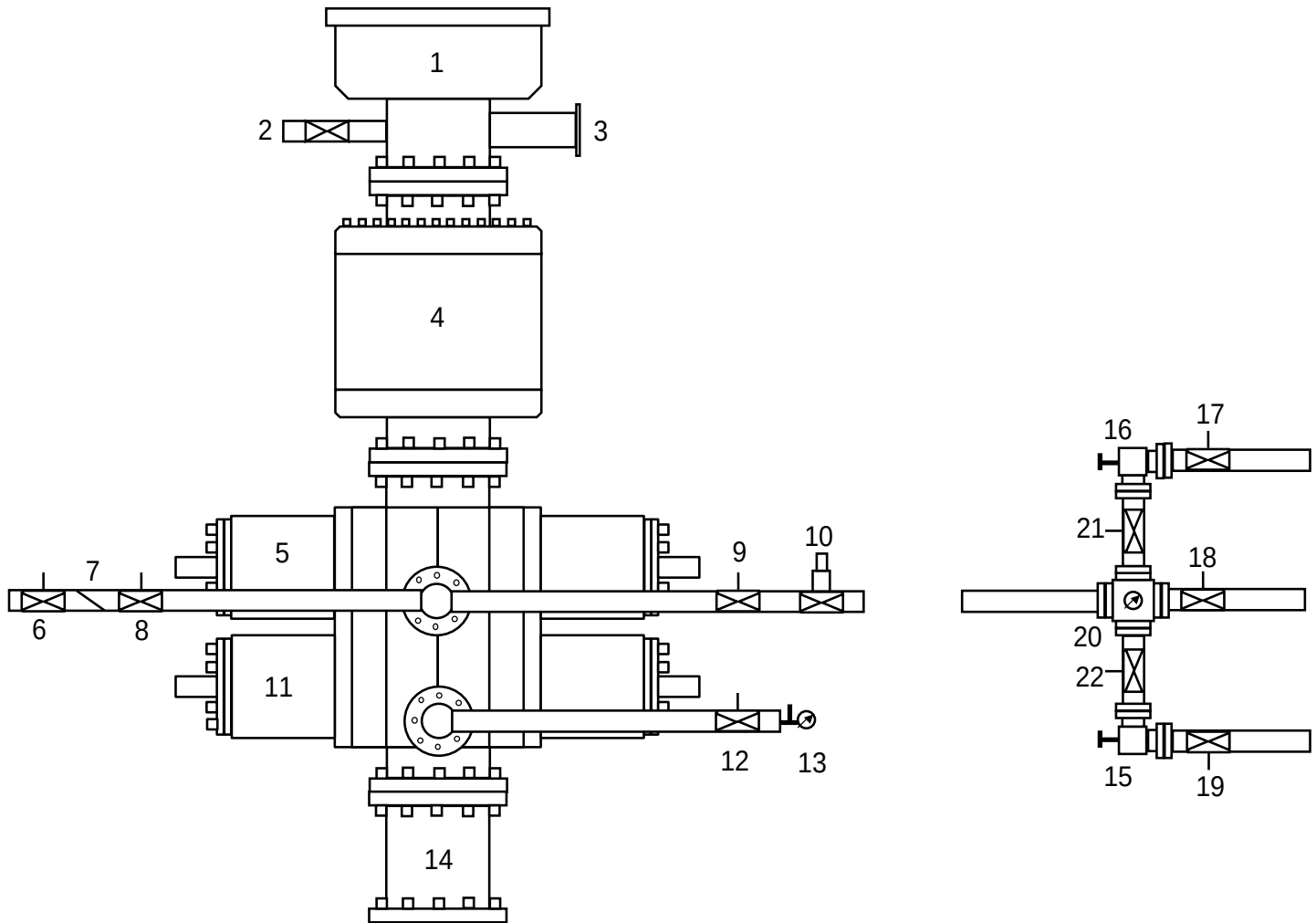
- Directional plans are plans attached.

9. Pre-Drill Preparation Procedure

1. RU slickline, clear tubing to verify that it free of equipment that could become mobile while pulling. Set a 3-slip stop, if necessary
2. MIRU workover rig and associated equipment; NU and test BOP per HEC, State, and Federal guidelines.
3. TOOH with 2-3/8" tubing
4. TIH with 2-3/8" tubing and spot an LCM plug from TD to 3165'. Load hole with water-based drilling mud and squeeze LCM pill into formation.
5. P/U a 6-1/4" drill bit & clean to original TD @ 3416' using drilling fluid. Circulate hole clean and monitor for losses. If losses are seen, multiple LCM pills or cement plugs may be required to squeeze off zone. If no losses, continue to next step.
6. If unable to squeeze off perfs, a whipstock will be set in the 7" and sidetracked following the attached directional plan to TD.
7. L/D tubing from well, Nipple down tubing head, Nipple up night cap, RDMO workover rig.

Appendix A

Pressure Control Equipment Configuration



1	Rotating Head	12	Manual Isolation Valve
2	Flow Line	13	Needle Valve & Pressure Gauge
3	Fill-Up Line	14	Spacer Spool (if needed)
4	3M Annular Preventer	15	Manual Choke
5	3M Pipe Rams	16	Manual Choke
6	Manual Isolation Valve	17	Manual Isolation Valve
7	Check Valve	18	Manual Isolation Valve
8	Manual Isolation Valve	19	Manual Isolation Valve
9	Manual Isolation Valve	20	Valve Block & Pressure Gauge
10	High Closing Ratio Valve	21	Manual Isolation Valve
11	3M Blind Rams	22	Manual Isolation Valve

State of New Mexico
Energy, Minerals and Natural Resources Department
Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Submit Electronically
Via E-permitting

NATURAL GAS MANAGEMENT PLAN

This Natural Gas Management Plan must be submitted with each Application for Permit to Drill (APD) for a new or recompleted well.

Section 1 – Plan Description Effective May 25, 2021

I. Operator: Hilcorp Energy Company **OGRID:** 372171 **Date:** 6/21/2024

II. Type: ☒ Original ☐ Amendment due to ☐ 19.15.27.9.D(6)(a) NMAC ☐ 19.15.27.9.D(6)(b) NMAC ☐ Other.

If Other, please describe: _____

III. Well(s): Provide the following information for each new or recompleted well or set of wells proposed to be drilled or proposed to be recompleted from a single well pad or connected to a central delivery point.

Well Name	API	ULSTR	Footages	Anticipated Oil BBL/D	Anticipated Gas MCF/D	Anticipated Produced Water BBL/D
SJ 29-7 Unit NP 515	3003924315	H-36-29N-07W	1746' FNL & 1058' FEL	2.42	930	1.5

IV. Central Delivery Point Name: Chaco-Blanco Processing Plant [See 19.15.27.9(D)(1) NMAC]

V. Anticipated Schedule: Provide the following information for each new or recompleted well or set of wells proposed to be drilled or proposed to be recompleted from a single well pad or connected to a central delivery point.

Well Name	API	Spud Date	TD Reached Date	Completion Commencement Date	Initial Flow Back Date	First Production Date
<u>SJ 29-7 Unit NP 515</u>	<u>3003924315</u>	<u>2024-2025</u>				<u>2024-2025</u>

VI. Separation Equipment: ☒ Attach a complete description of how Operator will size separation equipment to optimize gas capture.

VII. Operational Practices: ☒ Attach a complete description of the actions Operator will take to comply with the requirements of Subsection A through F of 19.15.27.8 NMAC.

VIII. Best Management Practices: ☒ Attach a complete description of Operator's best management practices to minimize venting during active and planned maintenance.

Section 2 – Enhanced Plan

EFFECTIVE APRIL 1, 2022

Beginning April 1, 2022, an operator that is not in compliance with its statewide natural gas capture requirement for the applicable reporting area must complete this section.

☒ Operator certifies that it is not required to complete this section because Operator is in compliance with its statewide natural gas capture requirement for the applicable reporting area.

IX. Anticipated Natural Gas Production:

Well	API	Anticipated Average Natural Gas Rate MCF/D	Anticipated Volume of Natural Gas for the First Year MCF

X. Natural Gas Gathering System (NGGS):

Operator	System	ULSTR of Tie-in	Anticipated Gathering Start Date	Available Maximum Daily Capacity of System Segment Tie-in

XI. Map. ☐ Attach an accurate and legible map depicting the location of the well(s), the anticipated pipeline route(s) connecting the production operations to the existing or planned interconnect of the natural gas gathering system(s), and the maximum daily capacity of the segment or portion of the natural gas gathering system(s) to which the well(s) will be connected.

XII. Line Capacity. The natural gas gathering system ☐ will ☐ will not have capacity to gather 100% of the anticipated natural gas production volume from the well prior to the date of first production.

XIII. Line Pressure. Operator ☐ does ☐ does not anticipate that its existing well(s) connected to the same segment, or portion, of the natural gas gathering system(s) described above will continue to meet anticipated increases in line pressure caused by the new well(s).

☐ Attach Operator's plan to manage production in response to the increased line pressure.

XIV. Confidentiality: ☐ Operator asserts confidentiality pursuant to Section 71-2-8 NMSA 1978 for the information provided in Section 2 as provided in Paragraph (2) of Subsection D of 19.15.27.9 NMAC, and attaches a full description of the specific information for which confidentiality is asserted and the basis for such assertion.

Section 3 - Certifications

Effective May 25, 2021

Operator certifies that, after reasonable inquiry and based on the available information at the time of submittal:

☒ Operator will be able to connect the well(s) to a natural gas gathering system in the general area with sufficient capacity to transport one hundred percent of the anticipated volume of natural gas produced from the well(s) commencing on the date of first production, taking into account the current and anticipated volumes of produced natural gas from other wells connected to the pipeline gathering system; or

☐ Operator will not be able to connect to a natural gas gathering system in the general area with sufficient capacity to transport one hundred percent of the anticipated volume of natural gas produced from the well(s) commencing on the date of first production, taking into account the current and anticipated volumes of produced natural gas from other wells connected to the pipeline gathering system.

If Operator checks this box, Operator will select one of the following:

Well Shut-In. ☐ Operator will shut-in and not produce the well until it submits the certification required by Paragraph (4) of Subsection D of 19.15.27.9 NMAC; or

Venting and Flaring Plan. ☐ Operator has attached a venting and flaring plan that evaluates and selects one or more of the potential alternative beneficial uses for the natural gas until a natural gas gathering system is available, including:

- (a) power generation on lease;
- (b) power generation for grid;
- (c) compression on lease;
- (d) liquids removal on lease;
- (e) reinjection for underground storage;
- (f) reinjection for temporary storage;
- (g) reinjection for enhanced oil recovery;
- (h) fuel cell production; and
- (i) other alternative beneficial uses approved by the division.

Section 4 - Notices

1. If, at any time after Operator submits this Natural Gas Management Plan and before the well is spud:

(a) Operator becomes aware that the natural gas gathering system it planned to connect the well(s) to has become unavailable or will not have capacity to transport one hundred percent of the production from the well(s), no later than 20 days after becoming aware of such information, Operator shall submit for OCD's approval a new or revised venting and flaring plan containing the information specified in Paragraph (5) of Subsection D of 19.15.27.9 NMAC; or

(b) Operator becomes aware that it has, cumulatively for the year, become out of compliance with its baseline natural gas capture rate or natural gas capture requirement, no later than 20 days after becoming aware of such information, Operator shall submit for OCD's approval a new or revised Natural Gas Management Plan for each well it plans to spud during the next 90 days containing the information specified in Paragraph (2) of Subsection D of 19.15.27.9 NMAC, and shall file an update for each Natural Gas Management Plan until Operator is back in compliance with its baseline natural gas capture rate or natural gas capture requirement.

2. OCD may deny or conditionally approve an APD if Operator does not make a certification, fails to submit an adequate venting and flaring plan which includes alternative beneficial uses for the anticipated volume of natural gas produced, or if OCD determines that Operator will not have adequate natural gas takeaway capacity at the time a well will be spud.

I certify that, after reasonable inquiry, the statements in and attached to this Natural Gas Management Plan are true and correct to the best of my knowledge and acknowledge that a false statement may be subject to civil and criminal penalties under the Oil and Gas Act.

Signature:
Printed Name: Cherylene Weston
Title: Operations Regulatory Tech-Sr.
E-mail Address: cweston@hilcorp.com
Date: 6/21/2024
Phone: 713-289-2615
OIL CONSERVATION DIVISION (Only applicable when submitted as a standalone form)
Approved By:
Title:
Approval Date:
Conditions of Approval:

Hilcorp Energy Natural Gas Management Plan Attachments

VI. Separation Equipment

The operator will select separation equipment for the maximum anticipated throughput and pressure to optimize gas capture. Separation equipment is sized according to manufacturer's design specifications. Separation vessels are built following the A.S.M.E. section VIII division 1 codes for pressure vessel design, fabrication, inspection, testing and certification. Anticipated well pressures and production rates are evaluated to select separation equipment according to the equipment's designed operating pressure and throughput.

After completion, the operator utilizes flowback equipment, including separators, to manage wellbore fluids and solids during the initial separation period. After the initial flowback period is complete the operator utilizes iterative facility separation equipment to ensure that optimal separation is achieved.

VII. Operational Practices 19.15.27.8 NMAC A through F

- A. The operator will maximize the recovery of natural gas and minimize the amount of gas vented or flared when technically and safely feasible as further described and detailed within the following subsections (B-F of 19.15.27.8). In all cases where natural gas venting and flaring requires regulatory reporting, reporting will be submitted accurately and within the required time frames.
- B. Venting and flaring during drilling operations:
 - a. New Drill HZ Gas Wells: The operator drills wells in the area by utilizing a balanced mud to safely drill the wellbore. This technique prevents gas from coming to surface during the drilling process. If there is an emergency or malfunction and natural gas does come to surface the natural gas will be captured and routed to sales if technically and safely feasible.
- C. Venting and flaring during completion or recompletion operations:
 - a. New Drill HZ Gas Wells: The operator's facilities are designed to handle the maximum throughput and pressures from the newly drilled and completed wellbores. The amount of gas vented and flared will be minimized when technically and safely feasible. During initial flowback and initial separation flowback the operator will utilize contracted flowback equipment, including separators, to manage wellbore fluids and solids. The initial flowback period will be minimized and flow will be sent to separation equipment as soon as possible to reduce the amount of gas that is vented to atmosphere. The natural gas will be utilized on site as needed for fuel gas and natural gas will be sold.
- D. Venting and flaring during production operations:
 - a. New Drill HZ Gas Wells: The operator's facilities are designed to handle the maximum throughput and pressures from producing wellbores. The amount of gas vented and flared will be minimized when technically and safely feasible.

Operations will effectively manage the following scenarios to minimize the quantity of natural gas that is vented or flared:

- (a) If there is an emergency or malfunction vented or flared natural gas will be reported, if required, and the emergency or malfunction will be resolved as soon as technically and safely feasible.
- (b) If the wellbore needs to be unloaded to atmosphere the operator will not vent the well after the well has achieved a stabilized rate and pressure. The operator will remain on site during unloading. Plunger lift systems will be optimized to reduce the amount of natural gas venting. Downhole maintenance, such as workovers, swabbing, etc. will only be conducted as needed and best management practices will be utilized to reduce venting of natural gas.
- (c) The operator will minimize the amount of time that natural gas is vented to atmosphere from gauging and sampling a storage tank or low pressure vessel. The formation is only anticipated to produce water and therefore tank emissions are anticipated to be negligible.
- (d) The operator will reduce the amount of time needed for loading out liquids from a storage tanks or other low-pressure vessels whenever feasible. Operations will always utilize the water transfer systems when available. Water loading emissions are anticipated to be negligible.
- (e) Equipment will be repaired and maintained routinely to minimize the venting or flaring of natural gas. Repairs and maintenance will be conducted in a manner that minimizes the amount of natural gas vented to atmosphere through the isolation of the equipment that is being repaired or maintained.
- (f) Electric controllers and pumps will be installed to replace pneumatic controllers whenever feasible. Pneumatic controllers and pumps will be inspected frequently to ensure that no excess gas is vented to atmosphere.
- (g) No dehydration or amine units are anticipated to be set on location.
- (h) Compressors, compressor engines, turbines, flanges, connectors, valves, storage tanks, and other low-pressure vessels and flanges will be routinely inspected to ensure that no excess venting occurs outside of normal operations.
- (i) Regulatory required testing, such as bradenhead and packer testing will be performed in a manner that minimizes the amount of natural gas vented to atmosphere.
- (j) If natural gas does not meet gathering pipeline specifications gas samples will be collected twice per week to determine when pipeline specification gas content has been achieved. During this time frame gas will be flared and not vented to atmosphere. Natural gas that meets pipeline specifications will be sold via pipeline and natural gas that can be utilized for fuel gas will be used during this time.
- (k) If pipeline, equipment, or facilities need purged of impurities gas losses will be minimized as much as technically and safely feasible.

E. Performance standards:

- a. The production facilities are designed to handle the maximum throughput and pressures from producing wellbores and will be designed to minimize waste. The amount of gas vented and flared will be minimized when technically and safely feasible.
 - b. All tanks that are routed to a control device that is installed after 5/25/2021 will have an automatic gauging system to minimize the amount of vented natural gas.
 - c. If a flare stack is installed or replaced after 5/25/2021 it will be equipped with an automatic ignitor or continuous pilot. The flare stack will be properly sized and designed to ensure proper combustion efficiency. The flare stack will be located 100 feet away from the nearest wellhead or storage tank.
 - d. AVO inspections will be conducted weekly for the year after completion and for all wells producing greater than 60,000 cubic feet of natural gas daily. The AVO inspection will include all components, including flare stacks, thief hatches, closed vent systems, pumps, compressors, pressure relief devices, valves, lines, flanges, connectors, and associated pipeline to identify any leaks and releases by comprehensive auditory, visual, and olfactory inspection. The AVO inspection records will be maintained for 5 years which will be available at the department's request. Identified leaks will be repaired as soon as feasible to minimize the amount of vented natural gas.
- F. Measurement or estimation of vented and flared natural gas.
- a. The volume of natural gas that is vented, flared or consumed for beneficial use will be measured when possible, or estimated, during drilling, completions, or production operations.
 - b. Equipment will be installed to measure the volume of natural gas flared for all APD's issued after 5/25/2021 on facilities that will have an average daily gas rate greater than 60,000 cubic feet of natural gas. Measurement equipment will conform to API MPMS Chapter 14.10 regulations. The measurement equipment will not have a manifold that allows the diversion of natural gas around the metering element except for the sole purpose of inspecting and servicing the measurement equipment. If metering is not practical then the volume of gas will be estimated.



Company: Hilcorp Energy Corp.
 Project: Rio Arriba, NM NAD27
 Site: San Juan 29-7 Unit NP 515 Pad
 Well: San Juan 29-7 Unit NP 515
 Wellbore: OH
 Design: Plan #1

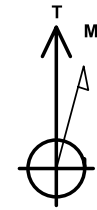


Scientific Drilling

Well Details: San Juan 29-7 Unit NP 515

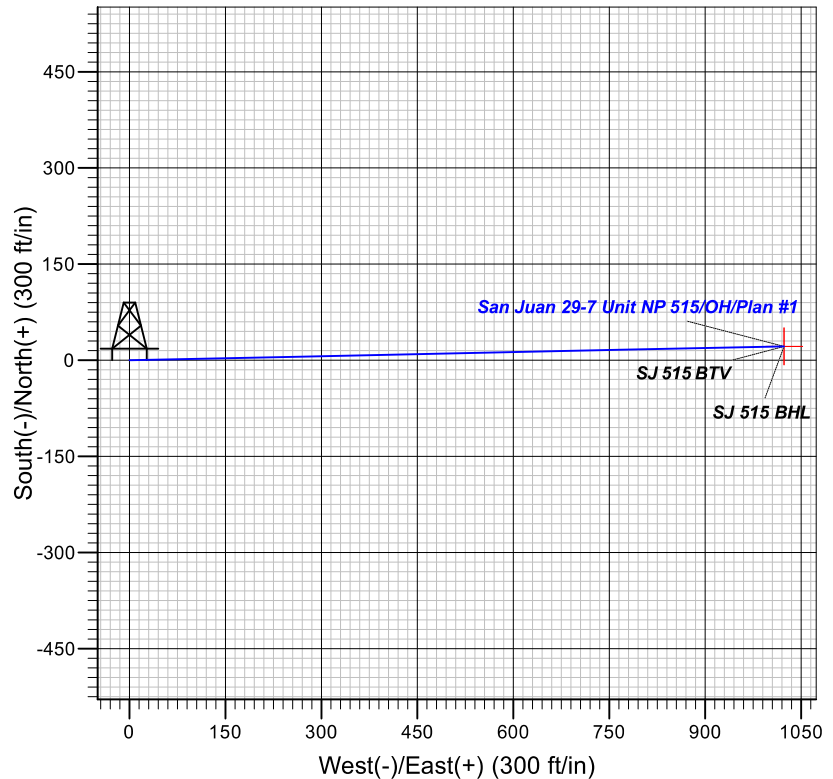
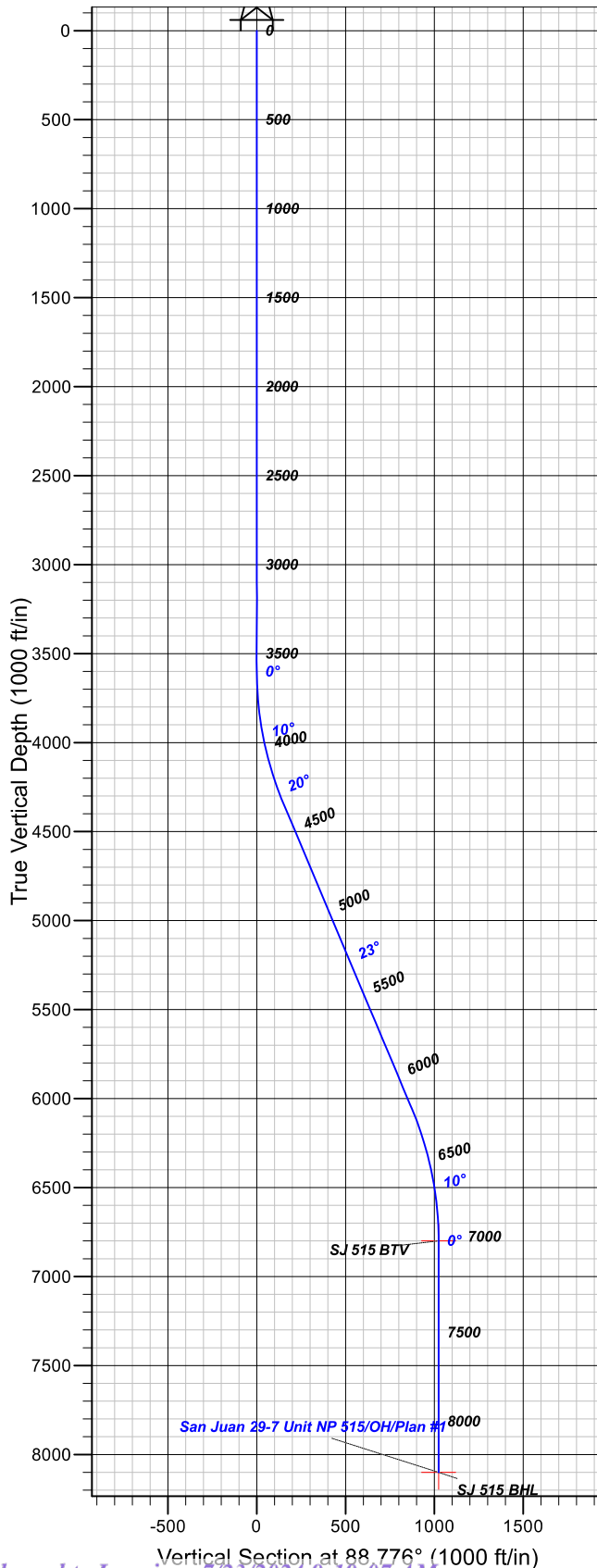
GL 6543' @ 6543.00ft

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.00	0.00	2068612.71	592956.69	36.6846300	-107.5163100	



Azimuths to True North
 Magnetic North: 8.62°

Magnetic Field
 Strength: 49488.1nT
 Dip Angle: 63.15°
 Date: 12/31/2021
 Model: HDGM2021_FILE



FORMATION TOP DETAILS

TVDPath	MDPath	Formation
1149.00	1149.00	NACIMIENTO
2412.00	2412.00	OJO_ALAMO_TOP
2609.00	2609.00	KIRTLAND
2945.00	2945.00	FRUITLAND *
3360.00	3360.00	PICTURED_CLIFFS
3452.00	3452.00	LEWIS
3972.00	3972.00	FRANITO_BENTONITE *
4328.00	4346.89	CHACRA
5106.00	5191.19	CLIFF_HOUSE
5190.00	5282.35	MENELEE
5523.00	5643.74	POINT_LOOKOUT
6221.00	6398.16	MANCOS_MKR
6769.00	6955.41	EL_VADO
6832.00	7018.41	EL_VADO_A
6917.00	7103.41	EL_VADO_B
6985.00	7171.41	EL_VADO_C
7210.00	7396.41	JUANA_LOPEZ
7505.00	7691.41	GREENHORN
7556.00	7742.41	GRANEROS
7610.00	7796.41	DAKOTA
7610.00	7796.41	TWO_WELLS
7697.00	7883.41	PAUGATE
7721.00	7907.41	CUBERO
7754.00	7940.41	CUBERO_LWR
7836.00	8022.41	ENCINAL_CANYON

Plan: Plan #1

10:04, April 30 2024
 Created By: Janie Collins

PROJECT DETAILS: Rio Arriba, NM NAD27

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

System Datum: Mean Sea Level

CASING DETAILS

No casing data is available

SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect
0.00	0.00	0.000	0.00	0.00	0.00	0.00	0.00	0.00
3600.00	0.00	0.000	3600.00	0.00	0.00	0.00	0.00	0.00
4362.05	22.86	88.776	4341.99	3.20	149.99	3.00	88.78	150.03
6224.36	22.86	88.776	6058.01	18.66	873.34	0.00	0.00	873.54
6986.41	0.00	0.000	6800.00	21.86	1023.34	3.00	180.00	1023.57
8286.41	0.00	0.000	8100.00	21.86	1023.34	0.00	0.00	1023.57

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
SJ 515 BTV	6800.00	21.86	1023.34	2068637.95	593979.95	36.6846900	-107.5128200
- plan hits target center							
SJ 515 BHL	8100.00	21.86	1023.34	2068637.95	593979.95	36.6846900	-107.5128200
- plan hits target center							



Hilcorp Energy Corp.

Rio Arriba, NM NAD27

San Juan 29-7 Unit NP 515 Pad

San Juan 29-7 Unit NP 515

OH

Plan: Plan #1

Standard Planning Report

30 April, 2024



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Scientific Drilling
Planning Report



Database:	Grand Junction	Local Co-ordinate Reference:	Well San Juan 29-7 Unit NP 515
Company:	Hilcorp Energy Corp.	TVD Reference:	GL 6543' @ 6543.00ft
Project:	Rio Arriba, NM NAD27	MD Reference:	GL 6543' @ 6543.00ft
Site:	San Juan 29-7 Unit NP 515 Pad	North Reference:	True
Well:	San Juan 29-7 Unit NP 515	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1		

Project	Rio Arriba, 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	San Juan 29-7 Unit NP 515 Pad		
Site Position:		Northing:	2,068,612.70 usft
From:	Lat/Long	Easting:	592,956.69 usft
Position Uncertainty:	0.00 ft	Slot Radius:	13.20 in
		Latitude:	36.6846300
		Longitude:	-107.5163100
		Grid Convergence:	0.19 °

Well	San Juan 29-7 Unit NP 515		
Well Position	+N/-S	0.00 ft	Northing:
	+E/-W	0.00 ft	Easting:
Position Uncertainty	0.00 ft	Wellhead Elevation:	Ground Level:

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM2021_FILE	12/31/2021	8.62	63.15	49,488.10000000

Design	Plan #1			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.00	0.00	0.00	88.776

Plan Sections										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.00	0.00	0.000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
3,600.00	0.00	0.000	3,600.00	0.00	0.00	0.00	0.00	0.00	0.00	
4,362.05	22.86	88.776	4,341.99	3.20	149.99	3.00	3.00	0.00	88.78	
6,224.36	22.86	88.776	6,058.01	18.66	873.34	0.00	0.00	0.00	0.00	
6,986.41	0.00	0.000	6,800.00	21.86	1,023.34	3.00	-3.00	0.00	180.00	SJ 515 BTV
8,286.41	0.00	0.000	8,100.00	21.86	1,023.34	0.00	0.00	0.00	0.00	SJ 515 BHL



Scientific Drilling Planning Report



Database:	Grand Junction	Local Co-ordinate Reference:	Well San Juan 29-7 Unit NP 515
Company:	Hilcorp Energy Corp.	TVD Reference:	GL 6543' @ 6543.00ft
Project:	Rio Arriba, NM NAD27	MD Reference:	GL 6543' @ 6543.00ft
Site:	San Juan 29-7 Unit NP 515 Pad	North Reference:	True
Well:	San Juan 29-7 Unit NP 515	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.00	0.00	0.000	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.00	0.000	100.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.000	200.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.000	300.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	0.00	0.000	400.00	0.00	0.00	0.00	0.00	0.00	0.00
500.00	0.00	0.000	500.00	0.00	0.00	0.00	0.00	0.00	0.00
600.00	0.00	0.000	600.00	0.00	0.00	0.00	0.00	0.00	0.00
700.00	0.00	0.000	700.00	0.00	0.00	0.00	0.00	0.00	0.00
800.00	0.00	0.000	800.00	0.00	0.00	0.00	0.00	0.00	0.00
900.00	0.00	0.000	900.00	0.00	0.00	0.00	0.00	0.00	0.00
1,000.00	0.00	0.000	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00
1,100.00	0.00	0.000	1,100.00	0.00	0.00	0.00	0.00	0.00	0.00
1,200.00	0.00	0.000	1,200.00	0.00	0.00	0.00	0.00	0.00	0.00
1,300.00	0.00	0.000	1,300.00	0.00	0.00	0.00	0.00	0.00	0.00
1,400.00	0.00	0.000	1,400.00	0.00	0.00	0.00	0.00	0.00	0.00
1,500.00	0.00	0.000	1,500.00	0.00	0.00	0.00	0.00	0.00	0.00
1,600.00	0.00	0.000	1,600.00	0.00	0.00	0.00	0.00	0.00	0.00
1,700.00	0.00	0.000	1,700.00	0.00	0.00	0.00	0.00	0.00	0.00
1,800.00	0.00	0.000	1,800.00	0.00	0.00	0.00	0.00	0.00	0.00
1,900.00	0.00	0.000	1,900.00	0.00	0.00	0.00	0.00	0.00	0.00
2,000.00	0.00	0.000	2,000.00	0.00	0.00	0.00	0.00	0.00	0.00
2,100.00	0.00	0.000	2,100.00	0.00	0.00	0.00	0.00	0.00	0.00
2,200.00	0.00	0.000	2,200.00	0.00	0.00	0.00	0.00	0.00	0.00
2,300.00	0.00	0.000	2,300.00	0.00	0.00	0.00	0.00	0.00	0.00
2,400.00	0.00	0.000	2,400.00	0.00	0.00	0.00	0.00	0.00	0.00
2,500.00	0.00	0.000	2,500.00	0.00	0.00	0.00	0.00	0.00	0.00
2,600.00	0.00	0.000	2,600.00	0.00	0.00	0.00	0.00	0.00	0.00
2,700.00	0.00	0.000	2,700.00	0.00	0.00	0.00	0.00	0.00	0.00
2,800.00	0.00	0.000	2,800.00	0.00	0.00	0.00	0.00	0.00	0.00
2,900.00	0.00	0.000	2,900.00	0.00	0.00	0.00	0.00	0.00	0.00
3,000.00	0.00	0.000	3,000.00	0.00	0.00	0.00	0.00	0.00	0.00
3,100.00	0.00	0.000	3,100.00	0.00	0.00	0.00	0.00	0.00	0.00
3,200.00	0.00	0.000	3,200.00	0.00	0.00	0.00	0.00	0.00	0.00
3,300.00	0.00	0.000	3,300.00	0.00	0.00	0.00	0.00	0.00	0.00
3,400.00	0.00	0.000	3,400.00	0.00	0.00	0.00	0.00	0.00	0.00
3,500.00	0.00	0.000	3,500.00	0.00	0.00	0.00	0.00	0.00	0.00
3,600.00	0.00	0.000	3,600.00	0.00	0.00	0.00	0.00	0.00	0.00
3,700.00	3.00	88.776	3,699.95	0.06	2.62	2.62	3.00	3.00	0.00
3,800.00	6.00	88.776	3,799.63	0.22	10.46	10.46	3.00	3.00	0.00
3,900.00	9.00	88.776	3,898.77	0.50	23.51	23.51	3.00	3.00	0.00
4,000.00	12.00	88.776	3,997.08	0.89	41.73	41.73	3.00	3.00	0.00
4,100.00	15.00	88.776	4,094.31	1.39	65.06	65.08	3.00	3.00	0.00
4,200.00	18.00	88.776	4,190.18	2.00	93.45	93.47	3.00	3.00	0.00
4,300.00	21.00	88.776	4,284.43	2.71	126.82	126.85	3.00	3.00	0.00
4,362.05	22.86	88.776	4,341.99	3.20	149.99	150.03	3.00	3.00	0.00
4,400.00	22.86	88.776	4,376.96	3.52	164.73	164.77	0.00	0.00	0.00
4,500.00	22.86	88.776	4,469.10	4.35	203.57	203.62	0.00	0.00	0.00
4,600.00	22.86	88.776	4,561.25	5.18	242.42	242.47	0.00	0.00	0.00
4,700.00	22.86	88.776	4,653.39	6.01	281.26	281.32	0.00	0.00	0.00
4,800.00	22.86	88.776	4,745.54	6.84	320.10	320.17	0.00	0.00	0.00
4,900.00	22.86	88.776	4,837.68	7.67	358.94	359.02	0.00	0.00	0.00
5,000.00	22.86	88.776	4,929.83	8.50	397.78	397.87	0.00	0.00	0.00
5,100.00	22.86	88.776	5,021.97	9.33	436.62	436.72	0.00	0.00	0.00
5,200.00	22.86	88.776	5,114.12	10.16	475.47	475.57	0.00	0.00	0.00



Scientific Drilling
Planning Report



Database:	Grand Junction	Local Co-ordinate Reference:	Well San Juan 29-7 Unit NP 515
Company:	Hilcorp Energy Corp.	TVD Reference:	GL 6543' @ 6543.00ft
Project:	Rio Arriba, NM NAD27	MD Reference:	GL 6543' @ 6543.00ft
Site:	San Juan 29-7 Unit NP 515 Pad	North Reference:	True
Well:	San Juan 29-7 Unit NP 515	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
5,300.00	22.86	88.776	5,206.26	10.99	514.31	514.43	0.00	0.00	0.00
5,400.00	22.86	88.776	5,298.40	11.82	553.15	553.28	0.00	0.00	0.00
5,500.00	22.86	88.776	5,390.55	12.65	591.99	592.13	0.00	0.00	0.00
5,600.00	22.86	88.776	5,482.69	13.48	630.83	630.98	0.00	0.00	0.00
5,700.00	22.86	88.776	5,574.84	14.31	669.67	669.83	0.00	0.00	0.00
5,800.00	22.86	88.776	5,666.98	15.14	708.52	708.68	0.00	0.00	0.00
5,900.00	22.86	88.776	5,759.13	15.97	747.36	747.53	0.00	0.00	0.00
6,000.00	22.86	88.776	5,851.27	16.80	786.20	786.38	0.00	0.00	0.00
6,100.00	22.86	88.776	5,943.42	17.62	825.04	825.23	0.00	0.00	0.00
6,200.00	22.86	88.776	6,035.56	18.45	863.88	864.08	0.00	0.00	0.00
6,224.36	22.86	88.776	6,058.01	18.66	873.34	873.54	0.00	0.00	0.00
6,300.00	20.59	88.776	6,128.27	19.25	901.34	901.54	3.00	-3.00	0.00
6,400.00	17.59	88.776	6,222.76	19.95	934.04	934.25	3.00	-3.00	0.00
6,500.00	14.59	88.776	6,318.83	20.55	961.75	961.96	3.00	-3.00	0.00
6,600.00	11.59	88.776	6,416.22	21.03	984.39	984.61	3.00	-3.00	0.00
6,700.00	8.59	88.776	6,514.66	21.40	1,001.91	1,002.14	3.00	-3.00	0.00
6,800.00	5.59	88.776	6,613.88	21.67	1,014.25	1,014.48	3.00	-3.00	0.00
6,900.00	2.59	88.776	6,713.62	21.82	1,021.38	1,021.62	3.00	-3.00	0.00
6,986.41	0.00	0.000	6,800.00	21.86	1,023.34	1,023.57	3.00	-3.00	0.00
7,000.00	0.00	0.000	6,813.59	21.86	1,023.34	1,023.57	0.00	0.00	0.00
7,100.00	0.00	0.000	6,913.59	21.86	1,023.34	1,023.57	0.00	0.00	0.00
7,200.00	0.00	0.000	7,013.59	21.86	1,023.34	1,023.57	0.00	0.00	0.00
7,300.00	0.00	0.000	7,113.59	21.86	1,023.34	1,023.57	0.00	0.00	0.00
7,400.00	0.00	0.000	7,213.59	21.86	1,023.34	1,023.57	0.00	0.00	0.00
7,500.00	0.00	0.000	7,313.59	21.86	1,023.34	1,023.57	0.00	0.00	0.00
7,600.00	0.00	0.000	7,413.59	21.86	1,023.34	1,023.57	0.00	0.00	0.00
7,700.00	0.00	0.000	7,513.59	21.86	1,023.34	1,023.57	0.00	0.00	0.00
7,800.00	0.00	0.000	7,613.59	21.86	1,023.34	1,023.57	0.00	0.00	0.00
7,900.00	0.00	0.000	7,713.59	21.86	1,023.34	1,023.57	0.00	0.00	0.00
8,000.00	0.00	0.000	7,813.59	21.86	1,023.34	1,023.57	0.00	0.00	0.00
8,100.00	0.00	0.000	7,913.59	21.86	1,023.34	1,023.57	0.00	0.00	0.00
8,200.00	0.00	0.000	8,013.59	21.86	1,023.34	1,023.57	0.00	0.00	0.00
8,286.41	0.00	0.000	8,100.00	21.86	1,023.34	1,023.57	0.00	0.00	0.00

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- hit/miss target									
- Shape									
SJ 515 BTV	0.00	0.000	6,800.00	21.86	1,023.34	2,068,637.95	593,979.95	36.6846900	-107.5128200
- plan hits target center									
- Point									
SJ 515 BHL	0.00	0.000	8,100.00	21.86	1,023.34	2,068,637.95	593,979.95	36.6846900	-107.5128200
- plan hits target center									
- Point									



Scientific Drilling

Planning Report



Database:	Grand Junction	Local Co-ordinate Reference:	Well San Juan 29-7 Unit NP 515
Company:	Hilcorp Energy Corp.	TVD Reference:	GL 6543' @ 6543.00ft
Project:	Rio Arriba, NM NAD27	MD Reference:	GL 6543' @ 6543.00ft
Site:	San Juan 29-7 Unit NP 515 Pad	North Reference:	True
Well:	San Juan 29-7 Unit NP 515	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1		

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
1,149.00	1,149.00	NACIMIENTO		0.00	0.000	
2,412.00	2,412.00	OJO_ALAMO_TOP		0.00	0.000	
2,609.00	2,609.00	KIRTLAND		0.00	0.000	
2,945.00	2,945.00	FRUITLAND *		0.00	0.000	
3,360.00	3,360.00	PICTURED_CLIFFS		0.00	0.000	
3,452.00	3,452.00	LEWIS		0.00	0.000	
3,974.39	3,972.00	HUERFANITO_BENTONITE *		0.00	0.000	
4,346.89	4,328.00	CHACRA		0.00	0.000	
5,191.19	5,106.00	CLIFF_HOUSE		0.00	0.000	
5,282.35	5,190.00	MENEFEE		0.00	0.000	
5,643.74	5,523.00	POINT_LOOKOUT		0.00	0.000	
6,398.16	6,221.00	MANCOS_MKR		0.00	0.000	
6,955.41	6,769.00	EL_VADO		0.00	0.000	
7,018.41	6,832.00	EL_VADO_A		0.00	0.000	
7,103.41	6,917.00	EL_VADO_B		0.00	0.000	
7,171.41	6,985.00	EL_VADO_C		0.00	0.000	
7,396.41	7,210.00	JUANA_LOPEZ		0.00	0.000	
7,691.41	7,505.00	GREENHORN		0.00	0.000	
7,742.41	7,556.00	GRANEROS		0.00	0.000	
7,796.41	7,610.00	DAKOTA		0.00	0.000	
7,796.41	7,610.00	TWO_WELLS		0.00	0.000	
7,883.41	7,697.00	PAUGATE		0.00	0.000	
7,907.41	7,721.00	CUBERO		0.00	0.000	
7,940.41	7,754.00	CUBERO_LWR		0.00	0.000	
8,022.41	7,836.00	ENCINAL_CANYON		0.00	0.000	



Hilcorp Energy Corp.

Rio Arriba, NM NAD27

San Juan 29-7 Unit NP 515 Pad

San Juan 29-7 Unit NP 515

OH

Plan #1

Anticollision Report

13 May, 2024



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Scientific Drilling

Anticollision Report



Company:	Hilcorp Energy Corp.	Local Co-ordinate Reference:	Well San Juan 29-7 Unit NP 515
Project:	Rio Arriba, NM NAD27	TVD Reference:	GL 6543' @ 6543.00ft
Reference Site:	San Juan 29-7 Unit NP 515 Pad	MD Reference:	GL 6543' @ 6543.00ft
Site Error:	0.00 ft	North Reference:	True
Reference Well:	San Juan 29-7 Unit NP 515	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	Grand Junction
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Reference	Plan #1		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	MD Interval 100.00ft	Error Model:	ISCWSA
Depth Range:	Unlimited	Scan Method:	Closest Approach 3D
Results Limited by:	Maximum ellipse separation of 1,000.00 ft	Error Surface:	Pedal Curve
Warning Levels Evaluated at:	2.00 Sigma	Casing Method:	Not applied

Survey Tool Program		Date	5/13/2024		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
0.00	8,286.41	Plan #1 (OH)	MWD+HDGM	OWSG MWD + HDGM	

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
San Juan 29-7 Unit NP 515 Pad						
San Juan 29-6 UN 051A - OH - OH	6,300.00	5,960.00	1,623.10	1,365.19	6.293	SF
San Juan 29-6 UN 051A - OH - OH	6,396.97	5,960.00	1,618.04	1,362.87	6.341	CC, ES
San Juan 29-6 UN 108M - OH - OH	8,010.00	8,054.59	1,325.93	974.51	3.773	CC
San Juan 29-6 UN 108M - OH - OH	8,100.00	8,092.00	1,326.97	973.93	3.759	ES, SF
San Juan 29-7 UN 055 - OH - OH	4,406.40	4,361.86	142.08	-48.28	0.746	Level 1, CC, ES, SF
San Juan 29-7 UN 055A - OH - OH	4,511.40	4,721.61	2,618.88	2,413.66	12.761	CC
San Juan 29-7 UN 055A - OH - OH	5,300.00	5,448.26	2,636.74	2,398.22	11.054	ES
San Juan 29-7 UN 055A - OH - OH	6,200.00	6,237.00	2,700.11	2,424.52	9.798	SF
San Juan 29-7 UN 105 - OH - OH	3,600.00	3,489.00	936.38	783.91	6.142	CC
San Juan 29-7 UN 105 - OH - OH	4,100.00	3,983.31	943.54	769.56	5.423	ES
San Juan 29-7 UN 105 - OH - OH	8,100.00	7,777.00	1,438.90	1,097.37	4.213	SF
San Juan 29-7 UN 105E - OH - OH	100.00	87.81	58.94	58.48	128.784	CC
San Juan 29-7 UN 105E - OH - OH	756.57	745.75	60.00	56.04	15.148	ES
San Juan 29-7 UN 105E - OH - OH	900.00	886.18	65.06	60.12	13.174	SF
San Juan 29-7 UN 106M - OH - OH	3,600.00	3,773.00	2,689.73	2,525.91	16.418	CC
San Juan 29-7 UN 106M - OH - OH	3,700.00	3,872.95	2,692.22	2,524.05	16.009	ES
San Juan 29-7 UN 106M - OH - OH	8,100.00	7,990.00	3,677.85	3,329.71	10.564	SF
San Juan 29-7 UN 139N - OH - OH	3,700.00	4,259.00	2,705.15	2,663.37	64.750	CC
San Juan 29-7 UN 139N - OH - OH	3,704.45	4,261.15	2,705.15	2,663.35	64.718	ES
San Juan 29-7 UN 139N - OH - OH	4,200.00	4,553.00	2,745.21	2,701.18	62.349	SF
San Juan 29-7 UN 180 - OH - OH	3,600.00	3,500.00	1,005.79	852.88	6.578	CC
San Juan 29-7 UN 180 - OH - OH	3,700.00	3,596.00	1,006.00	848.90	6.404	ES, SF
San Juan 29-7 UN 193 - OH - OH	2,957.52	3,208.00	2,658.40	2,550.37	24.609	CC
San Juan 29-7 UN 193 - OH - OH	3,600.00	3,850.78	2,660.02	2,530.18	20.486	ES
San Juan 29-7 UN 193 - OH - OH	3,700.00	3,870.00	2,661.04	2,530.32	20.357	SF

Offset Design	San Juan 29-7 Unit NP 515 Pad - San Juan 29-6 UN 051A - OH - OH										Offset Site Error:	0.00 ft
Survey Program:	100-UNKNOWN										Offset Well Error:	0.00 ft
Reference		Offset		Semi Major Axis		Distance						
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor
0.00	0.00	146.00	146.00	0.00	5.84	66.57	950.24	2,193.21	2,390.22	2,384.38	5.84	409.284
100.00	100.00	246.00	246.00	0.36	9.84	66.57	950.24	2,193.21	2,390.22	2,380.02	10.20	234.370
200.00	200.00	346.00	346.00	0.72	13.84	66.57	950.24	2,193.21	2,390.22	2,375.66	14.56	164.198

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



Scientific Drilling Anticollision Report



Company:	Hilcorp Energy Corp.	Local Co-ordinate Reference:	Well San Juan 29-7 Unit NP 515
Project:	Rio Arriba, NM NAD27	TVD Reference:	GL 6543' @ 6543.00ft
Reference Site:	San Juan 29-7 Unit NP 515 Pad	MD Reference:	GL 6543' @ 6543.00ft
Site Error:	0.00 ft	North Reference:	True
Reference Well:	San Juan 29-7 Unit NP 515	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	Grand Junction
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.00 ft
Survey Program: 100-UNKNOWN													Offset Well Error:	0.00 ft
Reference		Offset		Semi Major Axis		Distance								Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
300.00	300.00	446.00	446.00	1.08	17.84	66.57	950.24	2,193.21	2,390.22	2,371.30	18.92	126.364		
400.00	400.00	546.00	546.00	1.43	21.84	66.57	950.24	2,193.21	2,390.22	2,366.95	23.27	102.700		
500.00	500.00	646.00	646.00	1.79	25.84	66.57	950.24	2,193.21	2,390.22	2,362.59	27.63	86.501		
600.00	600.00	746.00	746.00	2.15	29.84	66.57	950.24	2,193.21	2,390.22	2,358.23	31.99	74.716		
700.00	700.00	846.00	846.00	2.51	33.84	66.57	950.24	2,193.21	2,390.22	2,353.87	36.35	65.757		
800.00	800.00	946.00	946.00	2.87	37.84	66.57	950.24	2,193.21	2,390.22	2,349.51	40.71	58.717		
900.00	900.00	1,046.00	1,046.00	3.23	41.84	66.57	950.24	2,193.21	2,390.22	2,345.15	45.07	53.038		
1,000.00	1,000.00	1,146.00	1,146.00	3.58	45.84	66.57	950.24	2,193.21	2,390.22	2,340.79	49.42	48.361		
1,100.00	1,100.00	1,246.00	1,246.00	3.94	49.84	66.57	950.24	2,193.21	2,390.22	2,336.44	53.78	44.442		
1,200.00	1,200.00	1,346.00	1,346.00	4.30	53.84	66.57	950.24	2,193.21	2,390.22	2,332.08	58.14	41.110		
1,300.00	1,300.00	1,446.00	1,446.00	4.66	57.84	66.57	950.24	2,193.21	2,390.22	2,327.72	62.50	38.243		
1,400.00	1,400.00	1,546.00	1,546.00	5.02	61.84	66.57	950.24	2,193.21	2,390.22	2,323.36	66.86	35.750		
1,500.00	1,500.00	1,646.00	1,646.00	5.38	65.84	66.57	950.24	2,193.21	2,390.22	2,319.00	71.22	33.562		
1,600.00	1,600.00	1,746.00	1,746.00	5.74	69.84	66.57	950.24	2,193.21	2,390.22	2,314.64	75.58	31.627		
1,700.00	1,700.00	1,846.00	1,846.00	6.09	73.84	66.57	950.24	2,193.21	2,390.22	2,310.29	79.93	29.902		
1,800.00	1,800.00	1,946.00	1,946.00	6.45	77.84	66.57	950.24	2,193.21	2,390.22	2,305.93	84.29	28.356		
1,900.00	1,900.00	2,046.00	2,046.00	6.81	81.84	66.57	950.24	2,193.21	2,390.22	2,301.57	88.65	26.962		
2,000.00	2,000.00	2,146.00	2,146.00	7.17	85.84	66.57	950.24	2,193.21	2,390.22	2,297.21	93.01	25.699		
2,100.00	2,100.00	2,246.00	2,246.00	7.53	89.84	66.57	950.24	2,193.21	2,390.22	2,292.85	97.37	24.548		
2,200.00	2,200.00	2,346.00	2,346.00	7.89	93.84	66.57	950.24	2,193.21	2,390.22	2,288.49	101.73	23.497		
2,300.00	2,300.00	2,446.00	2,446.00	8.24	97.84	66.57	950.24	2,193.21	2,390.22	2,284.13	106.08	22.531		
2,400.00	2,400.00	2,546.00	2,546.00	8.60	101.84	66.57	950.24	2,193.21	2,390.22	2,279.78	110.44	21.642		
2,500.00	2,500.00	2,646.00	2,646.00	8.96	105.84	66.57	950.24	2,193.21	2,390.22	2,275.42	114.80	20.820		
2,600.00	2,600.00	2,746.00	2,746.00	9.32	109.84	66.57	950.24	2,193.21	2,390.22	2,271.06	119.16	20.059		
2,700.00	2,700.00	2,846.00	2,846.00	9.68	113.84	66.57	950.24	2,193.21	2,390.22	2,266.70	123.52	19.351		
2,800.00	2,800.00	2,946.00	2,946.00	10.04	117.84	66.57	950.24	2,193.21	2,390.22	2,262.34	127.88	18.692		
2,900.00	2,900.00	3,046.00	3,046.00	10.40	121.84	66.57	950.24	2,193.21	2,390.22	2,257.98	132.24	18.075		
3,000.00	3,000.00	3,146.00	3,146.00	10.75	125.84	66.57	950.24	2,193.21	2,390.22	2,253.63	136.59	17.499		
3,100.00	3,100.00	3,246.00	3,246.00	11.11	129.84	66.57	950.24	2,193.21	2,390.22	2,249.27	140.95	16.958		
3,200.00	3,200.00	3,346.00	3,346.00	11.47	133.84	66.57	950.24	2,193.21	2,390.22	2,244.91	145.31	16.449		
3,300.00	3,300.00	3,446.00	3,446.00	11.83	137.84	66.57	950.24	2,193.21	2,390.22	2,240.55	149.67	15.970		
3,400.00	3,400.00	3,546.00	3,546.00	12.19	141.84	66.57	950.24	2,193.21	2,390.22	2,236.19	154.03	15.518		
3,500.00	3,500.00	3,646.00	3,646.00	12.55	145.84	66.57	950.24	2,193.21	2,390.22	2,231.83	158.39	15.091		
3,600.00	3,600.00	3,746.00	3,746.00	12.90	149.84	66.57	950.24	2,193.21	2,390.22	2,227.47	162.74	14.687		
3,700.00	3,699.95	3,845.95	3,845.95	13.26	153.84	-22.25	950.24	2,193.21	2,387.80	2,220.70	167.09	14.290		
3,800.00	3,799.63	3,945.63	3,945.63	13.60	157.83	-22.41	950.24	2,193.21	2,380.54	2,209.11	171.42	13.887		
3,900.00	3,898.77	4,044.77	4,044.77	13.95	161.79	-22.67	950.24	2,193.21	2,368.47	2,192.74	175.73	13.478		
4,000.00	3,997.08	4,143.08	4,143.08	14.30	165.72	-23.04	950.24	2,193.21	2,351.63	2,171.63	180.00	13.065		
4,100.00	4,094.31	4,240.31	4,240.31	14.66	169.61	-23.52	950.24	2,193.21	2,330.10	2,145.87	184.23	12.648		
4,200.00	4,190.18	4,336.18	4,336.18	15.03	173.45	-24.13	950.24	2,193.21	2,303.95	2,115.54	188.40	12.229		
4,300.00	4,284.43	4,430.43	4,430.43	15.43	177.22	-24.88	950.24	2,193.21	2,273.28	2,080.77	192.51	11.809		
4,400.00	4,376.96	4,522.96	4,522.96	15.85	180.92	-25.57	950.24	2,193.21	2,238.53	2,041.98	196.55	11.389		
4,500.00	4,469.10	4,615.10	4,615.10	16.31	184.60	-26.00	950.24	2,193.21	2,203.04	2,002.46	200.58	10.983		
4,600.00	4,561.25	4,707.25	4,707.25	16.78	188.29	-26.45	950.24	2,193.21	2,167.66	1,963.04	204.62	10.593		
4,700.00	4,653.39	4,799.39	4,799.39	17.28	191.98	-26.90	950.24	2,193.21	2,132.41	1,923.73	208.67	10.219		
4,800.00	4,745.54	4,891.54	4,891.54	17.79	195.66	-27.38	950.24	2,193.21	2,097.28	1,884.54	212.74	9.859		
4,900.00	4,837.68	4,983.68	4,983.68	18.33	199.35	-27.86	950.24	2,193.21	2,062.28	1,845.48	216.81	9.512		
5,000.00	4,929.83	5,075.83	5,075.83	18.88	203.03	-28.37	950.24	2,193.21	2,027.43	1,806.54	220.89	9.179		
5,100.00	5,021.97	5,167.97	5,167.97	19.44	206.72	-28.89	950.24	2,193.21	1,992.72	1,767.74	224.98	8.857		
5,200.00	5,114.12	5,260.12	5,260.12	20.02	210.40	-29.43	950.24	2,193.21	1,958.17	1,729.09	229.08	8.548		
5,300.00	5,206.26	5,352.26	5,352.26	20.61	214.09	-29.99	950.24	2,193.21	1,923.78	1,690.59	233.19	8.250		
5,400.00	5,298.40	5,444.40	5,444.40	21.22	217.78	-30.56	950.24	2,193.21	1,889.56	1,652.26	237.31	7.963		

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



Scientific Drilling

Anticollision Report



Company:	Hilcorp Energy Corp.	Local Co-ordinate Reference:	Well San Juan 29-7 Unit NP 515
Project:	Rio Arriba, NM NAD27	TVD Reference:	GL 6543' @ 6543.00ft
Reference Site:	San Juan 29-7 Unit NP 515 Pad	MD Reference:	GL 6543' @ 6543.00ft
Site Error:	0.00 ft	North Reference:	True
Reference Well:	San Juan 29-7 Unit NP 515	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	Grand Junction
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													San Juan 29-7 Unit NP 515 Pad - San Juan 29-6 UN 051A - OH - OH		Offset Site Error:	0.00 ft
Survey Program: 100-UNKNOWN															Offset Well Error:	0.00 ft
Reference		Offset		Semi Major Axis			Distance							Warning		
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor				
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)					
5,500.00	5,390.55	5,536.55	5,536.55	21.83	221.46	-31.16	950.24	2,193.21	1,855.53	1,614.09	241.44	7.685				
5,600.00	5,482.69	5,628.69	5,628.69	22.45	225.15	-31.78	950.24	2,193.21	1,821.69	1,576.11	245.58	7.418				
5,700.00	5,574.84	5,720.84	5,720.84	23.09	228.83	-32.42	950.24	2,193.21	1,788.06	1,538.32	249.74	7.160				
5,800.00	5,666.98	5,812.98	5,812.98	23.73	232.52	-33.09	950.24	2,193.21	1,754.64	1,500.74	253.90	6.911				
5,900.00	5,759.13	5,905.13	5,905.13	24.38	236.21	-33.78	950.24	2,193.21	1,721.45	1,463.37	258.08	6.670				
6,000.00	5,851.27	5,960.00	5,960.00	25.03	238.40	-34.20	950.24	2,193.21	1,688.91	1,428.15	260.76	6.477				
6,100.00	5,943.42	5,960.00	5,960.00	25.69	238.40	-34.20	950.24	2,193.21	1,660.85	1,400.17	260.68	6.371				
6,200.00	6,035.56	5,960.00	5,960.00	26.36	238.40	-34.20	950.24	2,193.21	1,638.43	1,378.68	259.75	6.308				
6,300.00	6,128.27	5,960.00	5,960.00	27.01	238.40	-34.02	950.24	2,193.21	1,623.10	1,365.19	257.91	6.293 SF				
6,396.97	6,219.87	5,960.00	5,960.00	27.60	238.40	-33.93	950.24	2,193.21	1,618.04	1,362.87	255.17	6.341 CC, ES				
6,400.00	6,222.76	5,960.00	5,960.00	27.61	238.40	-33.93	950.24	2,193.21	1,618.04	1,362.97	255.07	6.344				
6,500.00	6,318.83	5,960.00	5,960.00	28.16	238.40	-34.02	950.24	2,193.21	1,623.49	1,372.23	251.25	6.462				
6,600.00	6,416.22	5,960.00	5,960.00	28.64	238.40	-34.29	950.24	2,193.21	1,639.32	1,392.75	246.57	6.649				
6,700.00	6,514.66	5,960.00	5,960.00	29.07	238.40	-34.75	950.24	2,193.21	1,665.20	1,424.03	241.16	6.905				
6,800.00	6,613.88	5,960.00	5,960.00	29.45	238.40	-35.40	950.24	2,193.21	1,700.60	1,465.36	235.24	7.229				
6,900.00	6,713.62	5,960.00	5,960.00	29.79	238.40	-36.27	950.24	2,193.21	1,744.84	1,515.82	229.02	7.619				
7,000.00	6,813.59	5,960.00	5,960.00	30.09	238.40	51.57	950.24	2,193.21	1,797.13	1,574.43	222.70	8.070				
7,100.00	6,913.59	5,960.00	5,960.00	30.38	238.40	51.57	950.24	2,193.21	1,854.61	1,638.25	216.36	8.572				
7,200.00	7,013.59	5,960.00	5,960.00	30.67	238.40	51.57	950.24	2,193.21	1,915.60	1,705.56	210.04	9.120				
7,300.00	7,113.59	5,960.00	5,960.00	30.96	238.40	51.57	950.24	2,193.21	1,979.76	1,775.95	203.80	9.714				
7,400.00	7,213.59	5,960.00	5,960.00	31.25	238.40	51.57	950.24	2,193.21	2,046.79	1,849.09	197.70	10.353				
7,500.00	7,313.59	5,960.00	5,960.00	31.55	238.40	51.57	950.24	2,193.21	2,116.43	1,924.65	191.77	11.036				
7,600.00	7,413.59	5,960.00	5,960.00	31.84	238.40	51.57	950.24	2,193.21	2,188.42	2,002.38	186.04	11.763				
7,700.00	7,513.59	5,960.00	5,960.00	32.14	238.40	51.57	950.24	2,193.21	2,262.54	2,082.02	180.53	12.533				
7,800.00	7,613.59	5,960.00	5,960.00	32.44	238.40	51.57	950.24	2,193.21	2,338.59	2,163.35	175.24	13.345				
7,900.00	7,713.59	5,960.00	5,960.00	32.74	238.40	51.57	950.24	2,193.21	2,416.39	2,246.21	170.18	14.199				
8,000.00	7,813.59	5,960.00	5,960.00	33.04	238.40	51.57	950.24	2,193.21	2,495.77	2,330.41	165.36	15.093				
8,100.00	7,913.59	5,960.00	5,960.00	33.34	238.40	51.57	950.24	2,193.21	2,576.58	2,415.82	160.76	16.027				
8,200.00	8,013.59	5,960.00	5,960.00	33.65	238.40	51.57	950.24	2,193.21	2,658.70	2,502.31	156.39	17.001				
8,286.41	8,100.00	5,960.00	5,960.00	33.91	238.40	51.57	950.24	2,193.21	2,730.62	2,577.84	152.78	17.872				

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



Scientific Drilling

Anticollision Report



Company:	Hilcorp Energy Corp.	Local Co-ordinate Reference:	Well San Juan 29-7 Unit NP 515
Project:	Rio Arriba, NM NAD27	TVD Reference:	GL 6543' @ 6543.00ft
Reference Site:	San Juan 29-7 Unit NP 515 Pad	MD Reference:	GL 6543' @ 6543.00ft
Site Error:	0.00 ft	North Reference:	True
Reference Well:	San Juan 29-7 Unit NP 515	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	Grand Junction
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.00 ft
Survey Program: 100-UNKNOWN													Offset Well Error:	0.00 ft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
0.00	0.00	231.00	231.00	0.00	9.24	104.40	-567.82	2,210.93	2,282.68	2,273.44	9.24	247.043		
100.00	100.00	331.00	331.00	0.36	13.24	104.40	-567.82	2,210.93	2,282.68	2,269.08	13.60	167.863		
200.00	200.00	431.00	431.00	0.72	17.24	104.40	-567.82	2,210.93	2,282.68	2,264.72	17.96	127.119		
300.00	300.00	531.00	531.00	1.08	21.24	104.40	-567.82	2,210.93	2,282.68	2,260.36	22.32	102.292		
400.00	400.00	631.00	631.00	1.43	25.24	104.40	-567.82	2,210.93	2,282.68	2,256.00	26.67	85.577		
500.00	500.00	731.00	731.00	1.79	29.24	104.40	-567.82	2,210.93	2,282.68	2,251.65	31.03	73.558		
600.00	600.00	831.00	831.00	2.15	33.24	104.40	-567.82	2,210.93	2,282.68	2,247.29	35.39	64.499		
700.00	700.00	931.00	931.00	2.51	37.24	104.40	-567.82	2,210.93	2,282.68	2,242.93	39.75	57.427		
800.00	800.00	1,031.00	1,031.00	2.87	41.24	104.40	-567.82	2,210.93	2,282.68	2,238.57	44.11	51.752		
900.00	900.00	1,131.00	1,131.00	3.23	45.24	104.40	-567.82	2,210.93	2,282.68	2,234.21	48.47	47.098		
1,000.00	1,000.00	1,231.00	1,231.00	3.58	49.24	104.40	-567.82	2,210.93	2,282.68	2,229.85	52.82	43.212		
1,100.00	1,100.00	1,331.00	1,331.00	3.94	53.24	104.40	-567.82	2,210.93	2,282.68	2,225.49	57.18	39.919		
1,200.00	1,200.00	1,431.00	1,431.00	4.30	57.24	104.40	-567.82	2,210.93	2,282.68	2,221.14	61.54	37.092		
1,300.00	1,300.00	1,531.00	1,531.00	4.66	61.24	104.40	-567.82	2,210.93	2,282.68	2,216.78	65.90	34.638		
1,400.00	1,400.00	1,631.00	1,631.00	5.02	65.24	104.40	-567.82	2,210.93	2,282.68	2,212.42	70.26	32.490		
1,500.00	1,500.00	1,731.00	1,731.00	5.38	69.24	104.40	-567.82	2,210.93	2,282.68	2,208.06	74.62	30.592		
1,600.00	1,600.00	1,831.00	1,831.00	5.74	73.24	104.40	-567.82	2,210.93	2,282.68	2,203.70	78.98	28.904		
1,700.00	1,700.00	1,931.00	1,931.00	6.09	77.24	104.40	-567.82	2,210.93	2,282.68	2,199.34	83.33	27.392		
1,800.00	1,800.00	2,031.00	2,031.00	6.45	81.24	104.40	-567.82	2,210.93	2,282.68	2,194.99	87.69	26.030		
1,900.00	1,900.00	2,131.00	2,131.00	6.81	85.24	104.40	-567.82	2,210.93	2,282.68	2,190.63	92.05	24.798		
2,000.00	2,000.00	2,231.00	2,231.00	7.17	89.24	104.40	-567.82	2,210.93	2,282.68	2,186.27	96.41	23.677		
2,100.00	2,100.00	2,331.00	2,331.00	7.53	93.24	104.40	-567.82	2,210.93	2,282.68	2,181.91	100.77	22.653		
2,200.00	2,200.00	2,431.00	2,431.00	7.89	97.24	104.40	-567.82	2,210.93	2,282.68	2,177.55	105.13	21.714		
2,300.00	2,300.00	2,531.00	2,531.00	8.24	101.24	104.40	-567.82	2,210.93	2,282.68	2,173.19	109.48	20.849		
2,400.00	2,400.00	2,631.00	2,631.00	8.60	105.24	104.40	-567.82	2,210.93	2,282.68	2,168.83	113.84	20.051		
2,500.00	2,500.00	2,731.00	2,731.00	8.96	109.24	104.40	-567.82	2,210.93	2,282.68	2,164.48	118.20	19.312		
2,600.00	2,600.00	2,831.00	2,831.00	9.32	113.24	104.40	-567.82	2,210.93	2,282.68	2,160.12	122.56	18.625		
2,700.00	2,700.00	2,931.00	2,931.00	9.68	117.24	104.40	-567.82	2,210.93	2,282.68	2,155.76	126.92	17.985		
2,800.00	2,800.00	3,031.00	3,031.00	10.04	121.24	104.40	-567.82	2,210.93	2,282.68	2,151.40	131.28	17.388		
2,900.00	2,900.00	3,131.00	3,131.00	10.40	125.24	104.40	-567.82	2,210.93	2,282.68	2,147.04	135.64	16.829		
3,000.00	3,000.00	3,231.00	3,231.00	10.75	129.24	104.40	-567.82	2,210.93	2,282.68	2,142.68	139.99	16.306		
3,100.00	3,100.00	3,331.00	3,331.00	11.11	133.24	104.40	-567.82	2,210.93	2,282.68	2,138.32	144.35	15.813		
3,200.00	3,200.00	3,431.00	3,431.00	11.47	137.24	104.40	-567.82	2,210.93	2,282.68	2,133.97	148.71	15.350		
3,300.00	3,300.00	3,531.00	3,531.00	11.83	141.24	104.40	-567.82	2,210.93	2,282.68	2,129.61	153.07	14.913		
3,400.00	3,400.00	3,631.00	3,631.00	12.19	145.24	104.40	-567.82	2,210.93	2,282.68	2,125.25	157.43	14.500		
3,500.00	3,500.00	3,731.00	3,731.00	12.55	149.24	104.40	-567.82	2,210.93	2,282.68	2,120.89	161.79	14.109		
3,600.00	3,600.00	3,831.00	3,831.00	12.90	153.24	104.40	-567.82	2,210.93	2,282.68	2,116.53	166.14	13.739		
3,700.00	3,699.95	3,930.95	3,930.95	13.26	157.24	15.67	-567.82	2,210.93	2,280.16	2,109.66	170.49	13.374		
3,800.00	3,799.63	4,030.63	4,030.63	13.60	161.23	15.78	-567.82	2,210.93	2,272.60	2,097.78	174.82	13.000		
3,900.00	3,898.77	4,129.77	4,129.77	13.95	165.19	15.97	-567.82	2,210.93	2,260.04	2,080.92	179.13	12.617		
4,000.00	3,997.08	4,228.08	4,228.08	14.30	169.12	16.25	-567.82	2,210.93	2,242.51	2,059.12	183.40	12.228		
4,100.00	4,094.31	4,325.31	4,325.31	14.66	173.01	16.62	-567.82	2,210.93	2,220.08	2,032.45	187.62	11.833		
4,200.00	4,190.18	4,421.18	4,421.18	15.03	176.85	17.08	-567.82	2,210.93	2,192.80	2,001.01	191.79	11.433		
4,300.00	4,284.43	4,515.43	4,515.43	15.43	180.62	17.64	-567.82	2,210.93	2,160.79	1,964.90	195.89	11.031		
4,400.00	4,376.96	4,607.96	4,607.96	15.85	184.32	18.17	-567.82	2,210.93	2,124.46	1,924.54	199.92	10.627		
4,500.00	4,469.10	4,700.10	4,700.10	16.31	188.00	18.50	-567.82	2,210.93	2,087.31	1,883.37	203.94	10.235		
4,600.00	4,561.25	4,792.25	4,792.25	16.78	191.69	18.84	-567.82	2,210.93	2,050.21	1,842.25	207.96	9.859		
4,700.00	4,653.39	4,884.39	4,884.39	17.28	195.38	19.19	-567.82	2,210.93	2,013.18	1,801.19	211.99	9.497		
4,800.00	4,745.54	4,976.54	4,976.54	17.79	199.06	19.56	-567.82	2,210.93	1,976.22	1,760.20	216.02	9.148		
4,900.00	4,837.68	5,068.68	5,068.68	18.33	202.75	19.94	-567.82	2,210.93	1,939.34	1,719.27	220.07	8.812		
5,000.00	4,929.83	5,160.83	5,160.83	18.88	206.43	20.34	-567.82	2,210.93	1,902.53	1,678.42	224.12	8.489		
5,100.00	5,021.97	5,252.97	5,252.97	19.44	210.12	20.75	-567.82	2,210.93	1,865.81	1,637.63	228.18	8.177		

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



Scientific Drilling Anticollision Report



Company:	Hilcorp Energy Corp.	Local Co-ordinate Reference:	Well San Juan 29-7 Unit NP 515
Project:	Rio Arriba, NM NAD27	TVD Reference:	GL 6543' @ 6543.00ft
Reference Site:	San Juan 29-7 Unit NP 515 Pad	MD Reference:	GL 6543' @ 6543.00ft
Site Error:	0.00 ft	North Reference:	True
Reference Well:	San Juan 29-7 Unit NP 515	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	Grand Junction
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													San Juan 29-7 Unit NP 515 Pad - San Juan 29-6 UN 108M - OH - OH		Offset Site Error: 0.00 ft	
Survey Program: 100-UNKNOWN													Offset Well Error: 0.00 ft			
Reference		Offset		Semi Major Axis			Distance							Warning		
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre	Between Centres	Between Ellipses	Minimum Separation	Separation Factor					
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)					
5,200.00	5,114.12	5,345.12	5,345.12	20.02	213.80	21.18	-567.82	2,210.93	1,829.18	1,596.93	232.24	7.876				
5,300.00	5,206.26	5,437.26	5,437.26	20.61	217.49	21.62	-567.82	2,210.93	1,792.63	1,556.32	236.31	7.586				
5,400.00	5,298.40	5,529.40	5,529.40	21.22	221.18	22.08	-567.82	2,210.93	1,756.19	1,515.80	240.39	7.306				
5,500.00	5,390.55	5,621.55	5,621.55	21.83	224.86	22.56	-567.82	2,210.93	1,719.85	1,475.38	244.48	7.035				
5,600.00	5,482.69	5,713.69	5,713.69	22.45	228.55	23.06	-567.82	2,210.93	1,683.63	1,435.06	248.57	6.773				
5,700.00	5,574.84	5,805.84	5,805.84	23.09	232.23	23.59	-567.82	2,210.93	1,647.52	1,394.85	252.67	6.520				
5,800.00	5,666.98	5,897.98	5,897.98	23.73	235.92	24.13	-567.82	2,210.93	1,611.54	1,354.76	256.78	6.276				
5,900.00	5,759.13	5,990.13	5,990.13	24.38	239.61	24.70	-567.82	2,210.93	1,575.70	1,314.80	260.90	6.039				
6,000.00	5,851.27	6,082.27	6,082.27	25.03	243.29	25.30	-567.82	2,210.93	1,540.01	1,274.98	265.03	5.811				
6,100.00	5,943.42	6,174.42	6,174.42	25.69	246.98	25.92	-567.82	2,210.93	1,504.47	1,235.30	269.17	5.589				
6,200.00	6,035.56	6,266.56	6,266.56	26.36	250.66	26.57	-567.82	2,210.93	1,469.10	1,195.78	273.32	5.375				
6,300.00	6,128.27	6,359.27	6,359.27	27.01	254.37	26.87	-567.82	2,210.93	1,435.16	1,157.67	277.49	5.172				
6,400.00	6,222.76	6,453.76	6,453.76	27.61	258.15	27.04	-567.82	2,210.93	1,405.68	1,123.95	281.73	4.989				
6,500.00	6,318.83	6,549.83	6,549.83	28.16	261.99	27.20	-567.82	2,210.93	1,380.81	1,094.79	286.02	4.828				
6,600.00	6,416.22	6,647.22	6,647.22	28.64	265.89	27.35	-567.82	2,210.93	1,360.57	1,070.23	290.34	4.686				
6,700.00	6,514.66	6,745.66	6,745.66	29.07	269.83	27.47	-567.82	2,210.93	1,344.96	1,050.28	294.68	4.564				
6,800.00	6,613.88	6,844.88	6,844.88	29.45	273.80	27.56	-567.82	2,210.93	1,333.99	1,034.96	299.03	4.461				
6,900.00	6,713.62	6,944.62	6,944.62	29.79	277.78	27.62	-567.82	2,210.93	1,327.66	1,024.29	303.38	4.376				
7,000.00	6,813.59	7,044.59	7,044.59	30.09	281.78	116.41	-567.82	2,210.93	1,325.93	1,018.23	307.71	4.309				
7,100.00	6,913.59	7,144.59	7,144.59	30.38	285.78	116.41	-567.82	2,210.93	1,325.93	1,013.90	312.03	4.249				
7,200.00	7,013.59	7,244.59	7,244.59	30.67	289.78	116.41	-567.82	2,210.93	1,325.93	1,009.57	316.36	4.191				
7,300.00	7,113.59	7,344.59	7,344.59	30.96	293.78	116.41	-567.82	2,210.93	1,325.93	1,005.25	320.68	4.135				
7,400.00	7,213.59	7,444.59	7,444.59	31.25	297.78	116.41	-567.82	2,210.93	1,325.93	1,000.92	325.01	4.080				
7,500.00	7,313.59	7,544.59	7,544.59	31.55	301.78	116.41	-567.82	2,210.93	1,325.93	996.59	329.34	4.026				
7,600.00	7,413.59	7,644.59	7,644.59	31.84	305.78	116.41	-567.82	2,210.93	1,325.93	992.26	333.67	3.974				
7,700.00	7,513.59	7,744.59	7,744.59	32.14	309.78	116.41	-567.82	2,210.93	1,325.93	987.93	338.00	3.923				
7,800.00	7,613.59	7,844.59	7,844.59	32.44	313.78	116.41	-567.82	2,210.93	1,325.93	983.60	342.33	3.873				
7,900.00	7,713.59	7,944.59	7,944.59	32.74	317.78	116.41	-567.82	2,210.93	1,325.93	979.27	346.66	3.825				
8,000.00	7,813.59	8,044.59	8,044.59	33.04	321.78	116.41	-567.82	2,210.93	1,325.93	974.94	350.99	3.778				
8,010.00	7,823.59	8,054.59	8,054.59	33.07	322.18	116.41	-567.82	2,210.93	1,325.93	974.51	351.42	3.773 CC				
8,100.00	7,913.59	8,092.00	8,092.00	33.34	323.68	116.41	-567.82	2,210.93	1,326.97	973.93	353.05	3.759 ES, SF				
8,200.00	8,013.59	8,092.00	8,092.00	33.65	323.68	116.41	-567.82	2,210.93	1,334.68	983.11	351.57	3.796				
8,286.41	8,100.00	8,092.00	8,092.00	33.91	323.68	116.41	-567.82	2,210.93	1,347.30	998.51	348.79	3.863				

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



Scientific Drilling Anticollision Report



Company:	Hilcorp Energy Corp.	Local Co-ordinate Reference:	Well San Juan 29-7 Unit NP 515
Project:	Rio Arriba, NM NAD27	TVD Reference:	GL 6543' @ 6543.00ft
Reference Site:	San Juan 29-7 Unit NP 515 Pad	MD Reference:	GL 6543' @ 6543.00ft
Site Error:	0.00 ft	North Reference:	True
Reference Well:	San Juan 29-7 Unit NP 515	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	Grand Junction
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design												San Juan 29-7 Unit NP 515 Pad - San Juan 29-7 UN 055 - OH - OH		Offset Site Error: 0.00 ft	
Survey Program: 100-UNKNOWN												Offset Well Error: 0.00 ft			
Reference		Offset		Semi Major Axis			Distance								
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre	Between Centres	Between Ellipses	Minimum Separation	Separation Factor	Warning			
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)				
0.00	0.00	0.00	0.00	0.00	0.00	48.43	145.62	164.20	220.47						
100.00	100.00	79.00	79.00	0.36	3.16	48.43	145.62	164.20	219.47	215.95	3.52	62.376			
200.00	200.00	179.00	179.00	0.72	7.16	48.43	145.62	164.20	219.47	211.59	7.88	27.862			
300.00	300.00	279.00	279.00	1.08	11.16	48.43	145.62	164.20	219.47	207.23	12.24	17.937			
400.00	400.00	379.00	379.00	1.43	15.16	48.43	145.62	164.20	219.47	202.88	16.59	13.226			
500.00	500.00	479.00	479.00	1.79	19.16	48.43	145.62	164.20	219.47	198.52	20.95	10.475			
600.00	600.00	579.00	579.00	2.15	23.16	48.43	145.62	164.20	219.47	194.16	25.31	8.671			
700.00	700.00	679.00	679.00	2.51	27.16	48.43	145.62	164.20	219.47	189.80	29.67	7.397			
800.00	800.00	779.00	779.00	2.87	31.16	48.43	145.62	164.20	219.47	185.44	34.03	6.450			
900.00	900.00	879.00	879.00	3.23	35.16	48.43	145.62	164.20	219.47	181.08	38.39	5.717			
1,000.00	1,000.00	979.00	979.00	3.58	39.16	48.43	145.62	164.20	219.47	176.73	42.74	5.134			
1,100.00	1,100.00	1,079.00	1,079.00	3.94	43.16	48.43	145.62	164.20	219.47	172.37	47.10	4.659			
1,200.00	1,200.00	1,179.00	1,179.00	4.30	47.16	48.43	145.62	164.20	219.47	168.01	51.46	4.265			
1,300.00	1,300.00	1,279.00	1,279.00	4.66	51.16	48.43	145.62	164.20	219.47	163.65	55.82	3.932			
1,400.00	1,400.00	1,379.00	1,379.00	5.02	55.16	48.43	145.62	164.20	219.47	159.29	60.18	3.647			
1,500.00	1,500.00	1,479.00	1,479.00	5.38	59.16	48.43	145.62	164.20	219.47	154.93	64.54	3.401			
1,600.00	1,600.00	1,579.00	1,579.00	5.74	63.16	48.43	145.62	164.20	219.47	150.57	68.90	3.186			
1,700.00	1,700.00	1,679.00	1,679.00	6.09	67.16	48.43	145.62	164.20	219.47	146.22	73.25	2.996			
1,800.00	1,800.00	1,779.00	1,779.00	6.45	71.16	48.43	145.62	164.20	219.47	141.86	77.61	2.828			
1,900.00	1,900.00	1,879.00	1,879.00	6.81	75.16	48.43	145.62	164.20	219.47	137.50	81.97	2.677			
2,000.00	2,000.00	1,979.00	1,979.00	7.17	79.16	48.43	145.62	164.20	219.47	133.14	86.33	2.542			
2,100.00	2,100.00	2,079.00	2,079.00	7.53	83.16	48.43	145.62	164.20	219.47	128.78	90.69	2.420			
2,200.00	2,200.00	2,179.00	2,179.00	7.89	87.16	48.43	145.62	164.20	219.47	124.42	95.05	2.309			
2,300.00	2,300.00	2,279.00	2,279.00	8.24	91.16	48.43	145.62	164.20	219.47	120.07	99.40	2.208			
2,400.00	2,400.00	2,379.00	2,379.00	8.60	95.16	48.43	145.62	164.20	219.47	115.71	103.76	2.115			
2,500.00	2,500.00	2,479.00	2,479.00	8.96	99.16	48.43	145.62	164.20	219.47	111.35	108.12	2.030			
2,600.00	2,600.00	2,579.00	2,579.00	9.32	103.16	48.43	145.62	164.20	219.47	106.99	112.48	1.951			
2,700.00	2,700.00	2,679.00	2,679.00	9.68	107.16	48.43	145.62	164.20	219.47	102.63	116.84	1.878			
2,800.00	2,800.00	2,779.00	2,779.00	10.04	111.16	48.43	145.62	164.20	219.47	98.27	121.20	1.811			
2,900.00	2,900.00	2,879.00	2,879.00	10.40	115.16	48.43	145.62	164.20	219.47	93.91	125.56	1.748			
3,000.00	3,000.00	2,979.00	2,979.00	10.75	119.16	48.43	145.62	164.20	219.47	89.56	129.91	1.689			
3,100.00	3,100.00	3,079.00	3,079.00	11.11	123.16	48.43	145.62	164.20	219.47	85.20	134.27	1.635			
3,200.00	3,200.00	3,179.00	3,179.00	11.47	127.16	48.43	145.62	164.20	219.47	80.84	138.63	1.583			
3,300.00	3,300.00	3,279.00	3,279.00	11.83	131.16	48.43	145.62	164.20	219.47	76.48	142.99	1.535			
3,400.00	3,400.00	3,379.00	3,379.00	12.19	135.16	48.43	145.62	164.20	219.47	72.12	147.35	1.489 Level 3			
3,500.00	3,500.00	3,479.00	3,479.00	12.55	139.16	48.43	145.62	164.20	219.47	67.76	151.71	1.447 Level 3			
3,600.00	3,600.00	3,579.00	3,579.00	12.90	143.16	48.43	145.62	164.20	219.47	63.41	156.06	1.406 Level 3			
3,700.00	3,699.95	3,678.95	3,678.95	13.26	147.16	-40.83	145.62	164.20	217.48	57.07	160.41	1.356 Level 3			
3,800.00	3,799.63	3,778.63	3,778.63	13.60	151.15	-42.33	145.62	164.20	211.60	46.86	164.74	1.284 Level 3			
3,900.00	3,898.77	3,877.77	3,877.77	13.95	155.11	-45.02	145.62	164.20	202.12	33.07	169.05	1.196 Level 2			
4,000.00	3,997.08	3,976.08	3,976.08	14.30	159.04	-49.16	145.62	164.20	189.60	16.26	173.33	1.094 Level 2			
4,100.00	4,094.31	4,073.31	4,073.31	14.66	162.93	-55.21	145.62	164.20	175.02	-2.56	177.58	0.986 Level 1			
4,200.00	4,190.18	4,169.18	4,169.18	15.03	166.77	-63.71	145.62	164.20	160.10	-21.68	181.78	0.881 Level 1			
4,300.00	4,284.43	4,263.43	4,263.43	15.43	170.54	-75.12	145.62	164.20	147.72	-38.24	185.96	0.794 Level 1			
4,400.00	4,376.96	4,355.96	4,355.96	15.85	174.24	-89.07	145.62	164.20	142.10	-47.99	190.09	0.748 Level 1			
4,406.40	4,382.86	4,361.86	4,361.86	15.88	174.47	-89.99	145.62	164.20	142.08	-48.28	190.36	0.746 Level 1, CC, ES, SF			
4,500.00	4,469.10	4,448.10	4,448.10	16.31	177.92	-103.26	145.62	164.20	146.65	-47.55	194.20	0.755 Level 1			
4,600.00	4,561.25	4,540.25	4,540.25	16.78	181.61	-116.00	145.62	164.20	160.75	-37.51	198.26	0.811 Level 1			
4,700.00	4,653.39	4,632.39	4,632.39	17.28	185.30	-126.49	145.62	164.20	182.19	-20.09	202.28	0.901 Level 1			
4,800.00	4,745.54	4,724.54	4,724.54	17.79	188.98	-134.76	145.62	164.20	208.72	2.45	206.27	1.012 Level 2			
4,900.00	4,837.68	4,816.68	4,816.68	18.33	192.67	-141.20	145.62	164.20	238.65	28.38	210.27	1.135 Level 2			
5,000.00	4,929.83	4,908.83	4,908.83	18.88	196.35	-146.23	145.62	164.20	270.85	56.59	214.26	1.264 Level 3			

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



Scientific Drilling

Anticollision Report



Company:	Hilcorp Energy Corp.	Local Co-ordinate Reference:	Well San Juan 29-7 Unit NP 515
Project:	Rio Arriba, NM NAD27	TVD Reference:	GL 6543' @ 6543.00ft
Reference Site:	San Juan 29-7 Unit NP 515 Pad	MD Reference:	GL 6543' @ 6543.00ft
Site Error:	0.00 ft	North Reference:	True
Reference Well:	San Juan 29-7 Unit NP 515	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	Grand Junction
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.00 ft
Survey Program: 100-UNKNOWN													Offset Well Error:	0.00 ft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
5,100.00	5,021.97	5,000.97	5,000.97	19.44	200.04	-150.22	145.62	164.20	304.61	86.35	218.26	1.396 Level 3		
5,200.00	5,114.12	5,093.12	5,093.12	20.02	203.72	-153.43	145.62	164.20	339.46	117.19	222.27	1.527		
5,300.00	5,206.26	5,185.26	5,185.26	20.61	207.41	-156.05	145.62	164.20	375.10	148.81	226.28	1.658		
5,400.00	5,298.40	5,277.40	5,277.40	21.22	211.10	-158.23	145.62	164.20	411.32	181.01	230.30	1.786		
5,500.00	5,390.55	5,369.55	5,369.55	21.83	214.78	-160.05	145.62	164.20	447.98	213.65	234.33	1.912		
5,600.00	5,482.69	5,461.69	5,461.69	22.45	218.47	-161.61	145.62	164.20	484.98	246.62	238.36	2.035		
5,700.00	5,574.84	5,553.84	5,553.84	23.09	222.15	-162.94	145.62	164.20	522.25	279.86	242.39	2.155		
5,800.00	5,666.98	5,645.98	5,645.98	23.73	225.84	-164.10	145.62	164.20	559.74	313.31	246.43	2.271		
5,900.00	5,759.13	5,732.00	5,732.00	24.38	229.28	-165.06	145.62	164.20	597.43	347.24	250.19	2.388		
6,000.00	5,851.27	5,732.00	5,732.00	25.03	229.28	-165.06	145.62	164.20	642.76	395.43	247.33	2.599		
6,100.00	5,943.42	5,732.00	5,732.00	25.69	229.28	-165.06	145.62	164.20	699.54	458.58	240.95	2.903		
6,200.00	6,035.56	5,732.00	5,732.00	26.36	229.28	-165.06	145.62	164.20	765.22	532.33	232.89	3.286		
6,300.00	6,128.27	5,732.00	5,732.00	27.01	229.28	-165.65	145.62	164.20	836.76	612.56	224.20	3.732		
6,400.00	6,222.76	5,732.00	5,732.00	27.61	229.28	-166.44	145.62	164.20	910.55	695.43	215.12	4.233		
6,500.00	6,318.83	5,732.00	5,732.00	28.16	229.28	-167.22	145.62	164.20	985.84	779.92	205.92	4.788		
6,600.00	6,416.22	5,732.00	5,732.00	28.64	229.28	-167.98	145.62	164.20	1,062.11	865.39	196.72	5.399		
6,700.00	6,514.66	5,732.00	5,732.00	29.07	229.28	-168.71	145.62	164.20	1,138.99	951.38	187.61	6.071		
6,800.00	6,613.88	5,732.00	5,732.00	29.45	229.28	-169.40	145.62	164.20	1,216.17	1,037.55	178.61	6.809		
6,900.00	6,713.62	5,732.00	5,732.00	29.79	229.28	-170.05	145.62	164.20	1,293.40	1,123.64	169.75	7.619		
7,000.00	6,813.59	5,732.00	5,732.00	30.09	229.28	-81.80	145.62	164.20	1,370.50	1,209.48	161.03	8.511		
7,100.00	6,913.59	5,732.00	5,732.00	30.38	229.28	-81.80	145.62	164.20	1,449.27	1,296.48	152.79	9.485		
7,200.00	7,013.59	5,732.00	5,732.00	30.67	229.28	-81.80	145.62	164.20	1,530.53	1,385.29	145.23	10.538		
7,300.00	7,113.59	5,732.00	5,732.00	30.96	229.28	-81.80	145.62	164.20	1,613.89	1,475.58	138.30	11.669		
7,400.00	7,213.59	5,732.00	5,732.00	31.25	229.28	-81.80	145.62	164.20	1,699.04	1,567.07	131.97	12.875		
7,500.00	7,313.59	5,732.00	5,732.00	31.55	229.28	-81.80	145.62	164.20	1,785.74	1,659.56	126.18	14.153		
7,600.00	7,413.59	5,732.00	5,732.00	31.84	229.28	-81.80	145.62	164.20	1,873.76	1,752.88	120.88	15.501		
7,700.00	7,513.59	5,732.00	5,732.00	32.14	229.28	-81.80	145.62	164.20	1,962.93	1,846.90	116.03	16.917		
7,800.00	7,613.59	5,732.00	5,732.00	32.44	229.28	-81.80	145.62	164.20	2,053.10	1,941.51	111.59	18.399		
7,900.00	7,713.59	5,732.00	5,732.00	32.74	229.28	-81.80	145.62	164.20	2,144.14	2,036.63	107.51	19.943		
8,000.00	7,813.59	5,732.00	5,732.00	33.04	229.28	-81.80	145.62	164.20	2,235.95	2,132.17	103.77	21.547		
8,100.00	7,913.59	5,732.00	5,732.00	33.34	229.28	-81.80	145.62	164.20	2,328.43	2,228.10	100.33	23.208		
8,200.00	8,013.59	5,732.00	5,732.00	33.65	229.28	-81.80	145.62	164.20	2,421.50	2,324.35	97.15	24.924		
8,286.41	8,100.00	5,732.00	5,732.00	33.91	229.28	-81.80	145.62	164.20	2,502.37	2,407.76	94.61	26.449		

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



Scientific Drilling Anticollision Report



Company:	Hilcorp Energy Corp.	Local Co-ordinate Reference:	Well San Juan 29-7 Unit NP 515
Project:	Rio Arriba, NM NAD27	TVD Reference:	GL 6543' @ 6543.00ft
Reference Site:	San Juan 29-7 Unit NP 515 Pad	MD Reference:	GL 6543' @ 6543.00ft
Site Error:	0.00 ft	North Reference:	True
Reference Well:	San Juan 29-7 Unit NP 515	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	Grand Junction
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.00 ft
Survey Program: 100-UNKNOWN													Offset Well Error:	0.00 ft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
0.00	0.00	242.00	242.00	0.00	9.68	174.23	-2,613.84	263.92	2,627.13	2,617.45	9.68	271.398		
100.00	100.00	342.00	342.00	0.36	13.68	174.23	-2,613.84	263.92	2,627.13	2,613.09	14.04	187.138		
200.00	200.00	442.00	442.00	0.72	17.68	174.23	-2,613.84	263.92	2,627.13	2,608.73	18.40	142.803		
300.00	300.00	542.00	542.00	1.08	21.68	174.23	-2,613.84	263.92	2,627.13	2,604.38	22.76	115.451		
400.00	400.00	642.00	642.00	1.43	25.68	174.23	-2,613.84	263.92	2,627.13	2,600.02	27.11	96.892		
500.00	500.00	742.00	742.00	1.79	29.68	174.23	-2,613.84	263.92	2,627.13	2,595.66	31.47	83.474		
600.00	600.00	842.00	842.00	2.15	33.68	174.23	-2,613.84	263.92	2,627.13	2,591.30	35.83	73.320		
700.00	700.00	942.00	942.00	2.51	37.68	174.23	-2,613.84	263.92	2,627.13	2,586.94	40.19	65.369		
800.00	800.00	1,042.00	1,042.00	2.87	41.68	174.23	-2,613.84	263.92	2,627.13	2,582.58	44.55	58.973		
900.00	900.00	1,142.00	1,142.00	3.23	45.68	174.23	-2,613.84	263.92	2,627.13	2,578.22	48.91	53.718		
1,000.00	1,000.00	1,242.00	1,242.00	3.58	49.68	174.23	-2,613.84	263.92	2,627.13	2,573.87	53.26	49.322		
1,100.00	1,100.00	1,342.00	1,342.00	3.94	53.68	174.23	-2,613.84	263.92	2,627.13	2,569.51	57.62	45.592		
1,200.00	1,200.00	1,442.00	1,442.00	4.30	57.68	174.23	-2,613.84	263.92	2,627.13	2,565.15	61.98	42.386		
1,300.00	1,300.00	1,542.00	1,542.00	4.66	61.68	174.23	-2,613.84	263.92	2,627.13	2,560.79	66.34	39.601		
1,400.00	1,400.00	1,642.00	1,642.00	5.02	65.68	174.23	-2,613.84	263.92	2,627.13	2,556.43	70.70	37.160		
1,500.00	1,500.00	1,742.00	1,742.00	5.38	69.68	174.23	-2,613.84	263.92	2,627.13	2,552.07	75.06	35.002		
1,600.00	1,600.00	1,842.00	1,842.00	5.74	73.68	174.23	-2,613.84	263.92	2,627.13	2,547.72	79.42	33.081		
1,700.00	1,700.00	1,942.00	1,942.00	6.09	77.68	174.23	-2,613.84	263.92	2,627.13	2,543.36	83.77	31.360		
1,800.00	1,800.00	2,042.00	2,042.00	6.45	81.68	174.23	-2,613.84	263.92	2,627.13	2,539.00	88.13	29.809		
1,900.00	1,900.00	2,142.00	2,142.00	6.81	85.68	174.23	-2,613.84	263.92	2,627.13	2,534.64	92.49	28.404		
2,000.00	2,000.00	2,242.00	2,242.00	7.17	89.68	174.23	-2,613.84	263.92	2,627.13	2,530.28	96.85	27.126		
2,100.00	2,100.00	2,342.00	2,342.00	7.53	93.68	174.23	-2,613.84	263.92	2,627.13	2,525.92	101.21	25.958		
2,200.00	2,200.00	2,442.00	2,442.00	7.89	97.68	174.23	-2,613.84	263.92	2,627.13	2,521.56	105.57	24.886		
2,300.00	2,300.00	2,542.00	2,542.00	8.24	101.68	174.23	-2,613.84	263.92	2,627.13	2,517.21	109.92	23.899		
2,400.00	2,400.00	2,642.00	2,642.00	8.60	105.68	174.23	-2,613.84	263.92	2,627.13	2,512.85	114.28	22.988		
2,500.00	2,500.00	2,742.00	2,742.00	8.96	109.68	174.23	-2,613.84	263.92	2,627.13	2,508.49	118.64	22.143		
2,600.00	2,600.00	2,842.00	2,842.00	9.32	113.68	174.23	-2,613.84	263.92	2,627.13	2,504.13	123.00	21.359		
2,700.00	2,700.00	2,942.00	2,942.00	9.68	117.68	174.23	-2,613.84	263.92	2,627.13	2,499.77	127.36	20.628		
2,800.00	2,800.00	3,042.00	3,042.00	10.04	121.68	174.23	-2,613.84	263.92	2,627.13	2,495.41	131.72	19.945		
2,900.00	2,900.00	3,142.00	3,142.00	10.40	125.68	174.23	-2,613.84	263.92	2,627.13	2,491.06	136.08	19.306		
3,000.00	3,000.00	3,242.00	3,242.00	10.75	129.68	174.23	-2,613.84	263.92	2,627.13	2,486.70	140.43	18.707		
3,100.00	3,100.00	3,342.00	3,342.00	11.11	133.68	174.23	-2,613.84	263.92	2,627.13	2,482.34	144.79	18.144		
3,200.00	3,200.00	3,442.00	3,442.00	11.47	137.68	174.23	-2,613.84	263.92	2,627.13	2,477.98	149.15	17.614		
3,300.00	3,300.00	3,542.00	3,542.00	11.83	141.68	174.23	-2,613.84	263.92	2,627.13	2,473.62	153.51	17.114		
3,400.00	3,400.00	3,642.00	3,642.00	12.19	145.68	174.23	-2,613.84	263.92	2,627.13	2,469.26	157.87	16.641		
3,500.00	3,500.00	3,742.00	3,742.00	12.55	149.68	174.23	-2,613.84	263.92	2,627.13	2,464.90	162.23	16.194		
3,600.00	3,600.00	3,842.00	3,842.00	12.90	153.68	174.23	-2,613.84	263.92	2,627.13	2,460.55	166.58	15.771		
3,700.00	3,699.95	3,941.95	3,941.95	13.26	157.68	85.52	-2,613.84	263.92	2,626.93	2,455.99	170.93	15.368		
3,800.00	3,799.63	4,041.63	4,041.63	13.60	161.67	85.71	-2,613.84	263.92	2,626.32	2,451.06	175.26	14.985		
3,900.00	3,898.77	4,140.77	4,140.77	13.95	165.63	86.02	-2,613.84	263.92	2,625.37	2,445.80	179.58	14.620		
4,000.00	3,997.08	4,239.08	4,239.08	14.30	169.56	86.45	-2,613.84	263.92	2,624.16	2,440.30	183.86	14.273		
4,100.00	4,094.31	4,336.31	4,336.31	14.66	173.45	86.98	-2,613.84	263.92	2,622.78	2,434.67	188.11	13.943		
4,200.00	4,190.18	4,432.18	4,432.18	15.03	177.29	87.62	-2,613.84	263.92	2,621.39	2,429.07	192.32	13.630		
4,300.00	4,284.43	4,526.43	4,526.43	15.43	181.06	88.34	-2,613.84	263.92	2,620.14	2,423.65	196.48	13.335		
4,400.00	4,376.96	4,618.96	4,618.96	15.85	184.76	89.13	-2,613.84	263.92	2,619.24	2,418.63	200.61	13.056		
4,500.00	4,469.10	4,711.10	4,711.10	16.31	188.44	89.91	-2,613.84	263.92	2,618.88	2,414.14	204.75	12.791		
4,511.40	4,479.61	4,721.61	4,721.61	16.36	188.86	90.00	-2,613.84	263.92	2,618.88	2,413.66	205.22	12.761 CC		
4,600.00	4,561.25	4,803.25	4,803.25	16.78	192.13	90.69	-2,613.84	263.92	2,619.11	2,410.20	208.91	12.537		
4,700.00	4,653.39	4,895.39	4,895.39	17.28	195.82	91.48	-2,613.84	263.92	2,619.91	2,406.81	213.09	12.295		
4,800.00	4,745.54	4,987.54	4,987.54	17.79	199.50	92.26	-2,613.84	263.92	2,621.28	2,403.99	217.29	12.063		
4,900.00	4,837.68	5,079.68	5,079.68	18.33	203.19	93.04	-2,613.84	263.92	2,623.23	2,401.72	221.51	11.842		
5,000.00	4,929.83	5,171.83	5,171.83	18.88	206.87	93.82	-2,613.84	263.92	2,625.75	2,400.01	225.75	11.631		

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



Scientific Drilling

Anticollision Report



Company:	Hilcorp Energy Corp.	Local Co-ordinate Reference:	Well San Juan 29-7 Unit NP 515
Project:	Rio Arriba, NM NAD27	TVD Reference:	GL 6543' @ 6543.00ft
Reference Site:	San Juan 29-7 Unit NP 515 Pad	MD Reference:	GL 6543' @ 6543.00ft
Site Error:	0.00 ft	North Reference:	True
Reference Well:	San Juan 29-7 Unit NP 515	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	Grand Junction
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													San Juan 29-7 Unit NP 515 Pad - San Juan 29-7 UN 055A - OH - OH		Offset Site Error:		0.00 ft
Survey Program: 100-UNKNOWN															Offset Well Error:		0.00 ft
Reference		Offset		Semi Major Axis			Distance										
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor	Warning				
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)						
5,100.00	5,021.97	5,263.97	5,263.97	19.44	210.56	94.60	-2,613.84	263.92	2,628.85	2,398.85	230.00	11.430					
5,200.00	5,114.12	5,356.12	5,356.12	20.02	214.24	95.38	-2,613.84	263.92	2,632.51	2,398.26	234.26	11.238					
5,300.00	5,206.26	5,448.26	5,448.26	20.61	217.93	96.15	-2,613.84	263.92	2,636.74	2,398.22	238.53	11.054 ES					
5,400.00	5,298.40	5,540.40	5,540.40	21.22	221.62	96.93	-2,613.84	263.92	2,641.54	2,398.73	242.81	10.879					
5,500.00	5,390.55	5,632.55	5,632.55	21.83	225.30	97.70	-2,613.84	263.92	2,646.90	2,399.80	247.09	10.712					
5,600.00	5,482.69	5,724.69	5,724.69	22.45	228.99	98.46	-2,613.84	263.92	2,652.81	2,401.42	251.39	10.553					
5,700.00	5,574.84	5,816.84	5,816.84	23.09	232.67	99.23	-2,613.84	263.92	2,659.28	2,403.59	255.69	10.400					
5,800.00	5,666.98	5,908.98	5,908.98	23.73	236.36	99.99	-2,613.84	263.92	2,666.30	2,406.31	260.00	10.255					
5,900.00	5,759.13	6,001.13	6,001.13	24.38	240.05	100.75	-2,613.84	263.92	2,673.87	2,409.57	264.31	10.117					
6,000.00	5,851.27	6,093.27	6,093.27	25.03	243.73	101.50	-2,613.84	263.92	2,681.98	2,413.36	268.62	9.984					
6,100.00	5,943.42	6,185.42	6,185.42	25.69	247.42	102.25	-2,613.84	263.92	2,690.63	2,417.69	272.93	9.858					
6,200.00	6,035.56	6,237.00	6,237.00	26.36	249.48	102.67	-2,613.84	263.92	2,700.11	2,424.52	275.59	9.798 SF					
6,300.00	6,128.27	6,237.00	6,237.00	27.01	249.48	102.95	-2,613.84	263.92	2,712.43	2,436.55	275.88	9.832					
6,400.00	6,222.76	6,237.00	6,237.00	27.61	249.48	103.39	-2,613.84	263.92	2,727.23	2,451.44	275.79	9.889					
6,500.00	6,318.83	6,237.00	6,237.00	28.16	249.48	103.90	-2,613.84	263.92	2,744.41	2,469.11	275.31	9.968					
6,600.00	6,416.22	6,237.00	6,237.00	28.64	249.48	104.48	-2,613.84	263.92	2,763.88	2,489.44	274.45	10.071					
6,700.00	6,514.66	6,237.00	6,237.00	29.07	249.48	105.12	-2,613.84	263.92	2,785.53	2,512.32	273.21	10.196					
6,800.00	6,613.88	6,237.00	6,237.00	29.45	249.48	105.82	-2,613.84	263.92	2,809.25	2,537.64	271.62	10.343					
6,900.00	6,713.62	6,237.00	6,237.00	29.79	249.48	106.59	-2,613.84	263.92	2,834.94	2,565.25	269.69	10.512					
7,000.00	6,813.59	6,237.00	6,237.00	30.09	249.48	-163.93	-2,613.84	263.92	2,862.47	2,595.02	267.45	10.703					
7,100.00	6,913.59	6,237.00	6,237.00	30.38	249.48	-163.93	-2,613.84	263.92	2,892.65	2,627.69	264.96	10.917					
7,200.00	7,013.59	6,237.00	6,237.00	30.67	249.48	-163.93	-2,613.84	263.92	2,925.95	2,663.70	262.25	11.157					
7,300.00	7,113.59	6,237.00	6,237.00	30.96	249.48	-163.93	-2,613.84	263.92	2,962.24	2,702.89	259.35	11.422					
7,400.00	7,213.59	6,237.00	6,237.00	31.25	249.48	-163.93	-2,613.84	263.92	3,001.43	2,745.15	256.28	11.712					
7,500.00	7,313.59	6,237.00	6,237.00	31.55	249.48	-163.93	-2,613.84	263.92	3,043.40	2,790.33	253.07	12.026					
7,600.00	7,413.59	6,237.00	6,237.00	31.84	249.48	-163.93	-2,613.84	263.92	3,088.05	2,838.30	249.74	12.365					
7,700.00	7,513.59	6,237.00	6,237.00	32.14	249.48	-163.93	-2,613.84	263.92	3,135.24	2,888.92	246.32	12.728					
7,800.00	7,613.59	6,237.00	6,237.00	32.44	249.48	-163.93	-2,613.84	263.92	3,184.88	2,942.05	242.83	13.116					
7,900.00	7,713.59	6,237.00	6,237.00	32.74	249.48	-163.93	-2,613.84	263.92	3,236.85	2,997.57	239.28	13.527					
8,000.00	7,813.59	6,237.00	6,237.00	33.04	249.48	-163.93	-2,613.84	263.92	3,291.03	3,055.33	235.70	13.963					
8,100.00	7,913.59	6,237.00	6,237.00	33.34	249.48	-163.93	-2,613.84	263.92	3,347.33	3,115.23	232.10	14.422					
8,200.00	8,013.59	6,237.00	6,237.00	33.65	249.48	-163.93	-2,613.84	263.92	3,405.63	3,177.13	228.50	14.904					
8,286.41	8,100.00	6,237.00	6,237.00	33.91	249.48	-163.93	-2,613.84	263.92	3,457.55	3,232.16	225.40	15.340					

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



Scientific Drilling Anticollision Report



Company:	Hilcorp Energy Corp.	Local Co-ordinate Reference:	Well San Juan 29-7 Unit NP 515
Project:	Rio Arriba, NM NAD27	TVD Reference:	GL 6543' @ 6543.00ft
Reference Site:	San Juan 29-7 Unit NP 515 Pad	MD Reference:	GL 6543' @ 6543.00ft
Site Error:	0.00 ft	North Reference:	True
Reference Well:	San Juan 29-7 Unit NP 515	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	Grand Junction
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.00 ft
Survey Program: 100-UNKNOWN													Offset Well Error:	0.00 ft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
0.00	0.00	0.00	0.00	0.00	0.00	-5.57	931.96	-90.90	942.93					
100.00	100.00	0.00	0.00	0.36	0.00	-5.57	931.96	-90.90	936.44	936.08	0.36	2,603.667		
137.45	137.45	26.45	26.45	0.49	1.06	-5.57	931.96	-90.90	936.38	934.83	1.55	603.722		
200.00	200.00	89.00	89.00	0.72	3.56	-5.57	931.96	-90.90	936.38	932.10	4.28	218.935		
300.00	300.00	189.00	189.00	1.08	7.56	-5.57	931.96	-90.90	936.38	927.74	8.64	108.435		
400.00	400.00	289.00	289.00	1.43	11.56	-5.57	931.96	-90.90	936.38	923.38	12.99	72.063		
500.00	500.00	389.00	389.00	1.79	15.56	-5.57	931.96	-90.90	936.38	919.03	17.35	53.963		
600.00	600.00	489.00	489.00	2.15	19.56	-5.57	931.96	-90.90	936.38	914.67	21.71	43.130		
700.00	700.00	589.00	589.00	2.51	23.56	-5.57	931.96	-90.90	936.38	910.31	26.07	35.919		
800.00	800.00	689.00	689.00	2.87	27.56	-5.57	931.96	-90.90	936.38	905.95	30.43	30.774		
900.00	900.00	789.00	789.00	3.23	31.56	-5.57	931.96	-90.90	936.38	901.59	34.79	26.918		
1,000.00	1,000.00	889.00	889.00	3.58	35.56	-5.57	931.96	-90.90	936.38	897.23	39.14	23.921		
1,100.00	1,100.00	989.00	989.00	3.94	39.56	-5.57	931.96	-90.90	936.38	892.87	43.50	21.524		
1,200.00	1,200.00	1,089.00	1,089.00	4.30	43.56	-5.57	931.96	-90.90	936.38	888.52	47.86	19.564		
1,300.00	1,300.00	1,189.00	1,189.00	4.66	47.56	-5.57	931.96	-90.90	936.38	884.16	52.22	17.931		
1,400.00	1,400.00	1,289.00	1,289.00	5.02	51.56	-5.57	931.96	-90.90	936.38	879.80	56.58	16.550		
1,500.00	1,500.00	1,389.00	1,389.00	5.38	55.56	-5.57	931.96	-90.90	936.38	875.44	60.94	15.366		
1,600.00	1,600.00	1,489.00	1,489.00	5.74	59.56	-5.57	931.96	-90.90	936.38	871.08	65.30	14.341		
1,700.00	1,700.00	1,589.00	1,589.00	6.09	63.56	-5.57	931.96	-90.90	936.38	866.72	69.65	13.443		
1,800.00	1,800.00	1,689.00	1,689.00	6.45	67.56	-5.57	931.96	-90.90	936.38	862.37	74.01	12.652		
1,900.00	1,900.00	1,789.00	1,789.00	6.81	71.56	-5.57	931.96	-90.90	936.38	858.01	78.37	11.948		
2,000.00	2,000.00	1,889.00	1,889.00	7.17	75.56	-5.57	931.96	-90.90	936.38	853.65	82.73	11.319		
2,100.00	2,100.00	1,989.00	1,989.00	7.53	79.56	-5.57	931.96	-90.90	936.38	849.29	87.09	10.752		
2,200.00	2,200.00	2,089.00	2,089.00	7.89	83.56	-5.57	931.96	-90.90	936.38	844.93	91.45	10.240		
2,300.00	2,300.00	2,189.00	2,189.00	8.24	87.56	-5.57	931.96	-90.90	936.38	840.57	95.80	9.774		
2,400.00	2,400.00	2,289.00	2,289.00	8.60	91.56	-5.57	931.96	-90.90	936.38	836.21	100.16	9.349		
2,500.00	2,500.00	2,389.00	2,389.00	8.96	95.56	-5.57	931.96	-90.90	936.38	831.86	104.52	8.959		
2,600.00	2,600.00	2,489.00	2,489.00	9.32	99.56	-5.57	931.96	-90.90	936.38	827.50	108.88	8.600		
2,700.00	2,700.00	2,589.00	2,589.00	9.68	103.56	-5.57	931.96	-90.90	936.38	823.14	113.24	8.269		
2,800.00	2,800.00	2,689.00	2,689.00	10.04	107.56	-5.57	931.96	-90.90	936.38	818.78	117.60	7.963		
2,900.00	2,900.00	2,789.00	2,789.00	10.40	111.56	-5.57	931.96	-90.90	936.38	814.42	121.96	7.678		
3,000.00	3,000.00	2,889.00	2,889.00	10.75	115.56	-5.57	931.96	-90.90	936.38	810.06	126.31	7.413		
3,100.00	3,100.00	2,989.00	2,989.00	11.11	119.56	-5.57	931.96	-90.90	936.38	805.71	130.67	7.166		
3,200.00	3,200.00	3,089.00	3,089.00	11.47	123.56	-5.57	931.96	-90.90	936.38	801.35	135.03	6.935		
3,300.00	3,300.00	3,189.00	3,189.00	11.83	127.56	-5.57	931.96	-90.90	936.38	796.99	139.39	6.718		
3,400.00	3,400.00	3,289.00	3,289.00	12.19	131.56	-5.57	931.96	-90.90	936.38	792.63	143.75	6.514		
3,500.00	3,500.00	3,389.00	3,389.00	12.55	135.56	-5.57	931.96	-90.90	936.38	788.27	148.11	6.322		
3,600.00	3,600.00	3,489.00	3,489.00	12.90	139.56	-5.57	931.96	-90.90	936.38	783.91	152.46	6.142 CC		
3,700.00	3,699.95	3,588.95	3,588.95	13.26	143.56	-94.50	931.96	-90.90	936.58	779.77	156.81	5.973		
3,800.00	3,799.63	3,688.63	3,688.63	13.60	147.55	-94.96	931.96	-90.90	937.23	776.08	161.14	5.816		
3,900.00	3,898.77	3,787.77	3,787.77	13.95	151.51	-95.71	931.96	-90.90	938.45	773.00	165.46	5.672		
4,000.00	3,997.08	3,886.08	3,886.08	14.30	155.44	-96.73	931.96	-90.90	940.46	770.72	169.74	5.541		
4,100.00	4,094.31	3,983.31	3,983.31	14.66	159.33	-98.01	931.96	-90.90	943.54	769.56	173.99	5.423 ES		
4,200.00	4,190.18	4,079.18	4,079.18	15.03	163.17	-99.51	931.96	-90.90	948.06	769.86	178.20	5.320		
4,300.00	4,284.43	4,173.43	4,173.43	15.43	166.94	-101.19	931.96	-90.90	954.41	772.06	182.36	5.234		
4,400.00	4,376.96	4,265.96	4,265.96	15.85	170.64	-103.10	931.96	-90.90	962.98	776.51	186.47	5.164		
4,500.00	4,469.10	4,358.10	4,358.10	16.31	174.32	-105.16	931.96	-90.90	973.22	782.63	190.59	5.106		
4,600.00	4,461.25	4,450.25	4,450.25	16.78	178.01	-107.19	931.96	-90.90	984.89	790.17	194.73	5.058		
4,700.00	4,653.39	4,542.39	4,542.39	17.28	181.70	-109.17	931.96	-90.90	997.94	799.06	198.87	5.018		
4,800.00	4,745.54	4,634.54	4,634.54	17.79	185.38	-111.11	931.96	-90.90	1,012.30	809.28	203.03	4.986		
4,900.00	4,837.68	4,726.68	4,726.68	18.33	189.07	-112.99	931.96	-90.90	1,027.94	820.75	207.19	4.961		
5,000.00	4,929.83	4,818.83	4,818.83	18.88	192.75	-114.83	931.96	-90.90	1,044.79	833.44	211.35	4.943		

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



Scientific Drilling

Anticollision Report



Company:	Hilcorp Energy Corp.	Local Co-ordinate Reference:	Well San Juan 29-7 Unit NP 515
Project:	Rio Arriba, NM NAD27	TVD Reference:	GL 6543' @ 6543.00ft
Reference Site:	San Juan 29-7 Unit NP 515 Pad	MD Reference:	GL 6543' @ 6543.00ft
Site Error:	0.00 ft	North Reference:	True
Reference Well:	San Juan 29-7 Unit NP 515	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	Grand Junction
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.00 ft
Survey Program: 100-UNKNOWN													Offset Well Error:	0.00 ft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
5,100.00	5,021.97	4,910.97	4,910.97	19.44	196.44	-116.61	931.96	-90.90	1,062.79	847.27	215.52	4.931		
5,200.00	5,114.12	5,003.12	5,003.12	20.02	200.12	-118.34	931.96	-90.90	1,081.89	862.21	219.68	4.925		
5,300.00	5,206.26	5,095.26	5,095.26	20.61	203.81	-120.02	931.96	-90.90	1,102.02	878.18	223.84	4.923		
5,400.00	5,298.40	5,187.40	5,187.40	21.22	207.50	-121.64	931.96	-90.90	1,123.14	895.14	228.00	4.926		
5,500.00	5,390.55	5,279.55	5,279.55	21.83	211.18	-123.20	931.96	-90.90	1,145.19	913.04	232.16	4.933		
5,600.00	5,482.69	5,371.69	5,371.69	22.45	214.87	-124.71	931.96	-90.90	1,168.12	931.81	236.31	4.943		
5,700.00	5,574.84	5,463.84	5,463.84	23.09	218.55	-126.17	931.96	-90.90	1,191.87	951.41	240.45	4.957		
5,800.00	5,666.98	5,555.98	5,555.98	23.73	222.24	-127.58	931.96	-90.90	1,216.40	971.80	244.60	4.973		
5,900.00	5,759.13	5,648.13	5,648.13	24.38	225.93	-128.93	931.96	-90.90	1,241.65	992.92	248.73	4.992		
6,000.00	5,851.27	5,740.27	5,740.27	25.03	229.61	-130.23	931.96	-90.90	1,267.60	1,014.74	252.87	5.013		
6,100.00	5,943.42	5,832.42	5,832.42	25.69	233.30	-131.49	931.96	-90.90	1,294.20	1,037.20	256.99	5.036		
6,200.00	6,035.56	5,924.56	5,924.56	26.36	236.98	-132.70	931.96	-90.90	1,321.40	1,060.28	261.12	5.061		
6,300.00	6,128.27	6,017.27	6,017.27	27.01	240.69	-134.28	931.96	-90.90	1,348.17	1,082.91	265.25	5.083		
6,400.00	6,222.76	6,111.76	6,111.76	27.61	244.47	-135.74	931.96	-90.90	1,371.94	1,102.51	269.44	5.092		
6,500.00	6,318.83	6,207.83	6,207.83	28.16	248.31	-136.95	931.96	-90.90	1,392.38	1,118.72	273.66	5.088		
6,600.00	6,416.22	6,305.22	6,305.22	28.64	252.21	-137.92	931.96	-90.90	1,409.26	1,131.34	277.92	5.071		
6,700.00	6,514.66	6,403.66	6,403.66	29.07	256.15	-138.65	931.96	-90.90	1,422.44	1,140.22	282.21	5.040		
6,800.00	6,613.88	6,502.88	6,502.88	29.45	260.12	-139.16	931.96	-90.90	1,431.77	1,145.26	286.52	4.997		
6,900.00	6,713.62	6,602.62	6,602.62	29.79	264.10	-139.46	931.96	-90.90	1,437.19	1,146.36	290.83	4.942		
7,000.00	6,813.59	6,702.59	6,702.59	30.09	268.10	-50.76	931.96	-90.90	1,438.68	1,143.53	295.14	4.875		
7,100.00	6,913.59	6,802.59	6,802.59	30.38	272.10	-50.76	931.96	-90.90	1,438.68	1,139.22	299.46	4.804		
7,200.00	7,013.59	6,902.59	6,902.59	30.67	276.10	-50.76	931.96	-90.90	1,438.68	1,134.90	303.77	4.736		
7,300.00	7,113.59	7,002.59	7,002.59	30.96	280.10	-50.76	931.96	-90.90	1,438.68	1,130.59	308.09	4.670		
7,400.00	7,213.59	7,102.59	7,102.59	31.25	284.10	-50.76	931.96	-90.90	1,438.68	1,126.27	312.40	4.605		
7,500.00	7,313.59	7,202.59	7,202.59	31.55	288.10	-50.76	931.96	-90.90	1,438.68	1,121.95	316.72	4.542		
7,600.00	7,413.59	7,302.59	7,302.59	31.84	292.10	-50.76	931.96	-90.90	1,438.68	1,117.63	321.04	4.481		
7,700.00	7,513.59	7,402.59	7,402.59	32.14	296.10	-50.76	931.96	-90.90	1,438.68	1,113.31	325.36	4.422		
7,800.00	7,613.59	7,502.59	7,502.59	32.44	300.10	-50.76	931.96	-90.90	1,438.68	1,108.99	329.68	4.364		
7,900.00	7,713.59	7,602.59	7,602.59	32.74	304.10	-50.76	931.96	-90.90	1,438.68	1,104.67	334.00	4.307		
8,000.00	7,813.59	7,702.59	7,702.59	33.04	308.10	-50.76	931.96	-90.90	1,438.68	1,100.35	338.33	4.252		
8,005.20	7,818.79	7,707.79	7,707.79	33.06	308.31	-50.76	931.96	-90.90	1,438.68	1,100.12	338.55	4.250		
8,100.00	7,913.59	7,777.00	7,777.00	33.34	311.08	-50.76	931.96	-90.90	1,438.90	1,097.37	341.54	4.213 SF		
8,200.00	8,013.59	7,777.00	7,777.00	33.65	311.08	-50.76	931.96	-90.90	1,444.15	1,103.65	340.50	4.241		
8,286.41	8,100.00	7,777.00	7,777.00	33.91	311.08	-50.76	931.96	-90.90	1,454.21	1,115.87	338.34	4.298		

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



Scientific Drilling

Anticollision Report



Company:	Hilcorp Energy Corp.	Local Co-ordinate Reference:	Well San Juan 29-7 Unit NP 515
Project:	Rio Arriba, NM NAD27	TVD Reference:	GL 6543' @ 6543.00ft
Reference Site:	San Juan 29-7 Unit NP 515 Pad	MD Reference:	GL 6543' @ 6543.00ft
Site Error:	0.00 ft	North Reference:	True
Reference Well:	San Juan 29-7 Unit NP 515	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	Grand Junction
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.00 ft
Survey Program: 390-MWD SDI													Offset Well Error:	0.00 ft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
0.00	0.00	0.00	0.00	0.00	0.00	29.91	50.97	29.32	60.01					
100.00	100.00	87.81	87.81	0.36	0.10	29.97	51.06	29.44	58.94	58.48	0.46	128.784 CC		
200.00	200.00	187.60	187.60	0.72	0.21	30.15	51.39	29.85	59.43	58.50	0.93	64.003		
300.00	300.00	287.38	287.38	1.08	0.32	30.46	51.96	30.56	60.28	58.89	1.40	43.076		
400.00	400.00	387.16	387.14	1.43	0.44	30.89	52.77	31.57	61.50	59.63	1.87	32.881		
500.00	500.00	487.97	487.94	1.79	0.63	30.23	54.00	31.46	62.49	60.07	2.42	25.796		
600.00	600.00	588.83	588.68	2.15	0.84	25.96	55.37	26.96	61.59	58.60	2.99	20.582		
700.00	700.00	689.41	688.76	2.51	1.08	16.73	57.90	17.40	60.46	56.86	3.60	16.806		
756.57	756.57	745.75	744.57	2.71	1.24	9.39	59.19	9.78	60.00	56.04	3.96	15.148 ES		
800.00	800.00	788.53	786.79	2.87	1.37	2.81	60.32	2.96	60.41	56.16	4.25	14.212		
900.00	900.00	886.18	882.45	3.23	1.72	-14.70	62.70	-16.45	65.06	60.12	4.94	13.174 SF		
1,000.00	1,000.00	981.19	974.13	3.58	2.16	-32.42	64.84	-41.18	78.05	72.46	5.59	13.959		
1,100.00	1,100.00	1,075.31	1,063.53	3.94	2.68	-47.09	65.58	-70.55	99.38	93.20	6.19	16.064		
1,200.00	1,200.00	1,167.78	1,150.21	4.30	3.25	-57.79	64.73	-102.76	127.19	120.46	6.73	18.887		
1,300.00	1,300.00	1,266.63	1,243.11	4.66	3.80	-65.38	62.51	-136.43	156.64	149.30	7.33	21.360		
1,400.00	1,400.00	1,366.57	1,337.74	5.02	4.36	-71.01	57.90	-168.21	184.86	176.91	7.95	23.258		
1,500.00	1,500.00	1,463.98	1,430.65	5.38	4.90	-75.12	52.32	-196.95	211.70	203.15	8.55	24.771		
1,600.00	1,600.00	1,557.46	1,519.71	5.74	5.43	-78.31	46.52	-224.75	239.46	230.33	9.13	26.238		
1,700.00	1,700.00	1,656.81	1,614.43	6.09	5.99	-80.91	40.67	-254.18	267.72	257.97	9.76	27.440		
1,800.00	1,800.00	1,751.44	1,705.01	6.45	6.51	-82.78	35.63	-281.10	295.25	284.90	10.35	28.527		
1,900.00	1,900.00	1,841.95	1,791.34	6.81	7.03	-84.12	31.73	-307.97	324.33	313.41	10.92	29.699		
2,000.00	2,000.00	1,930.72	1,875.51	7.17	7.57	-85.16	28.44	-335.99	355.46	343.97	11.49	30.950		
2,100.00	2,100.00	2,020.00	1,960.01	7.53	8.12	-85.91	26.06	-364.71	387.40	375.34	12.06	32.126		
2,200.00	2,200.00	2,106.01	2,040.94	7.89	8.70	-86.37	24.98	-393.79	421.10	408.49	12.61	33.386		
2,300.00	2,300.00	2,191.99	2,121.14	8.24	9.30	-86.57	25.44	-424.76	457.07	443.89	13.18	34.690		
2,400.00	2,400.00	2,276.05	2,199.13	8.60	9.90	-86.73	26.06	-456.14	494.38	480.66	13.72	36.024		
2,500.00	2,500.00	2,357.84	2,274.38	8.96	10.53	-86.79	27.35	-488.16	533.56	519.30	14.26	37.415		
2,600.00	2,600.00	2,448.56	2,357.40	9.32	11.25	-86.83	29.07	-524.68	573.86	558.96	14.90	38.525		
2,700.00	2,700.00	2,547.59	2,448.33	9.68	11.98	-86.97	29.88	-563.91	613.46	597.85	15.60	39.314		
2,800.00	2,800.00	2,630.14	2,524.06	10.04	12.61	-87.17	29.45	-596.73	653.16	637.00	16.16	40.428		
2,900.00	2,900.00	2,724.46	2,610.20	10.40	13.36	-87.51	27.64	-635.13	693.78	676.95	16.83	41.216		
3,000.00	3,000.00	2,832.50	2,709.69	10.75	14.16	-88.04	23.15	-676.98	732.32	714.70	17.62	41.563		
3,100.00	3,100.00	2,919.91	2,790.20	11.11	14.82	-88.45	19.24	-710.82	770.92	752.70	18.22	42.308		
3,200.00	3,200.00	3,011.51	2,874.56	11.47	15.51	-88.76	16.09	-746.36	809.67	790.80	18.86	42.920		
3,300.00	3,300.00	3,123.65	2,978.35	11.83	16.32	-89.14	11.85	-788.60	847.30	827.62	19.67	43.070		
3,400.00	3,400.00	3,227.36	3,075.17	12.19	17.02	-89.45	7.98	-825.56	882.88	862.48	20.39	43.293		
3,500.00	3,500.00	3,345.79	3,186.12	12.55	17.81	-89.80	2.98	-866.67	917.75	896.53	21.21	43.261		
3,600.00	3,600.00	3,443.78	3,278.40	12.90	18.45	-90.01	-0.20	-899.46	951.25	929.37	21.88	43.478		
3,700.00	3,699.95	3,543.09	3,372.59	13.26	19.06	-178.90	-2.31	-930.87	985.33	962.79	22.54	43.722		
3,800.00	3,799.63	3,599.00	3,425.20	13.60	19.43	-178.96	-3.72	-949.72	1,026.31	1,003.42	22.90	44.827		
3,900.00	3,898.77	3,692.60	3,512.75	13.95	20.08	-179.07	-5.75	-982.76	1,073.55	1,050.02	23.54	45.613		
4,000.00	3,997.08	3,805.46	3,618.88	14.30	20.81	-179.27	-9.54	-1,020.97	1,124.07	1,099.77	24.30	46.251		
4,100.00	4,094.31	3,997.70	3,802.62	14.66	21.89	-179.79	-19.15	-1,076.46	1,175.46	1,150.00	25.46	46.171		
4,200.00	4,190.18	4,120.70	3,922.74	15.03	22.41	-179.95	-22.65	-1,102.61	1,223.28	1,197.15	26.14	46.805		
4,300.00	4,284.43	4,211.58	4,011.65	15.43	22.78	-179.96	-23.12	-1,121.40	1,275.43	1,248.76	26.67	47.816		
4,400.00	4,376.96	4,284.67	4,083.18	15.85	23.09	-179.95	-23.29	-1,136.43	1,331.60	1,304.46	27.14	49.064		
4,500.00	4,469.10	4,439.41	4,234.72	16.31	23.71	-179.99	-24.76	-1,167.53	1,389.33	1,361.43	27.89	49.811		
4,600.00	4,461.25	4,536.38	4,330.47	16.78	24.02	179.85	-28.38	-1,182.47	1,441.97	1,413.55	28.42	50.744		
4,700.00	4,653.39	4,685.00	4,477.95	17.28	24.42	179.75	-31.37	-1,200.02	1,490.73	1,461.68	29.05	51.314		
4,800.00	4,745.54	4,685.00	4,477.95	17.79	24.42	179.75	-31.37	-1,200.02	1,541.93	1,512.60	29.32	52.589		
4,900.00	4,837.68	4,685.00	4,477.95	18.33	24.42	179.75	-31.37	-1,200.02	1,597.74	1,568.24	29.51	54.151		
5,000.00	4,929.83	4,685.00	4,477.95	18.88	24.42	179.75	-31.37	-1,200.02	1,657.72	1,628.10	29.62	55.966		

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



Scientific Drilling

Anticollision Report



Company:	Hilcorp Energy Corp.	Local Co-ordinate Reference:	Well San Juan 29-7 Unit NP 515
Project:	Rio Arriba, NM NAD27	TVD Reference:	GL 6543' @ 6543.00ft
Reference Site:	San Juan 29-7 Unit NP 515 Pad	MD Reference:	GL 6543' @ 6543.00ft
Site Error:	0.00 ft	North Reference:	True
Reference Well:	San Juan 29-7 Unit NP 515	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	Grand Junction
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.00 ft
Survey Program: 390-MWD SDI													Offset Well Error:	0.00 ft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
5,100.00	5,021.97	4,685.00	4,477.95	19.44	24.42	179.75	-31.37	-1,200.02	1,721.42	1,691.74	29.68	58.000		
5,200.00	5,114.12	4,685.00	4,477.95	20.02	24.42	179.75	-31.37	-1,200.02	1,788.45	1,758.75	29.70	60.227		
5,300.00	5,206.26	4,685.00	4,477.95	20.61	24.42	179.75	-31.37	-1,200.02	1,858.44	1,828.76	29.68	62.620		
5,400.00	5,298.40	4,685.00	4,477.95	21.22	24.42	179.75	-31.37	-1,200.02	1,931.08	1,901.44	29.64	65.160		
5,500.00	5,390.55	4,685.00	4,477.95	21.83	24.42	179.75	-31.37	-1,200.02	2,006.07	1,976.49	29.58	67.825		
5,600.00	5,482.69	4,685.00	4,477.95	22.45	24.42	179.75	-31.37	-1,200.02	2,083.16	2,053.65	29.51	70.600		
5,700.00	5,574.84	4,685.00	4,477.95	23.09	24.42	179.75	-31.37	-1,200.02	2,162.13	2,132.70	29.43	73.468		
5,800.00	5,666.98	4,685.00	4,477.95	23.73	24.42	179.75	-31.37	-1,200.02	2,242.78	2,213.43	29.35	76.415		
5,900.00	5,759.13	4,685.00	4,477.95	24.38	24.42	179.75	-31.37	-1,200.02	2,324.93	2,295.66	29.27	79.430		
6,000.00	5,851.27	4,685.00	4,477.95	25.03	24.42	179.75	-31.37	-1,200.02	2,408.44	2,379.24	29.19	82.500		
6,100.00	5,943.42	4,685.00	4,477.95	25.69	24.42	179.75	-31.37	-1,200.02	2,493.16	2,464.04	29.12	85.616		
6,200.00	6,035.56	4,685.00	4,477.95	26.36	24.42	179.75	-31.37	-1,200.02	2,578.97	2,549.92	29.05	88.769		
6,300.00	6,128.27	4,685.00	4,477.95	27.01	24.42	179.76	-31.37	-1,200.02	2,665.02	2,636.04	28.98	91.946		
6,400.00	6,222.76	4,685.00	4,477.95	27.61	24.42	179.78	-31.37	-1,200.02	2,749.44	2,720.54	28.91	95.119		
6,500.00	6,318.83	4,685.00	4,477.95	28.16	24.42	179.80	-31.37	-1,200.02	2,832.08	2,803.27	28.82	98.281		
6,600.00	6,416.22	4,685.00	4,477.95	28.64	24.42	179.81	-31.37	-1,200.02	2,912.88	2,884.17	28.72	101.435		
6,700.00	6,514.66	4,685.00	4,477.95	29.07	24.42	179.82	-31.37	-1,200.02	2,991.77	2,963.16	28.61	104.582		
6,800.00	6,613.88	4,685.00	4,477.95	29.45	24.42	179.84	-31.37	-1,200.02	3,068.69	3,040.21	28.49	107.726		
6,900.00	6,713.62	4,685.00	4,477.95	29.79	24.42	179.85	-31.37	-1,200.02	3,143.59	3,115.23	28.35	110.870		
7,000.00	6,813.59	4,685.00	4,477.95	30.09	24.42	-91.37	-31.37	-1,200.02	3,216.43	3,188.22	28.21	114.022		
7,100.00	6,913.59	4,685.00	4,477.95	30.38	24.42	-91.37	-31.37	-1,200.02	3,289.40	3,261.32	28.08	117.150		
7,200.00	7,013.59	4,685.00	4,477.95	30.67	24.42	-91.37	-31.37	-1,200.02	3,363.76	3,335.80	27.96	120.308		
7,300.00	7,113.59	4,685.00	4,477.95	30.96	24.42	-91.37	-31.37	-1,200.02	3,439.42	3,411.57	27.85	123.489		
7,400.00	7,213.59	4,685.00	4,477.95	31.25	24.42	-91.37	-31.37	-1,200.02	3,516.30	3,488.54	27.76	126.683		
7,500.00	7,313.59	4,685.00	4,477.95	31.55	24.42	-91.37	-31.37	-1,200.02	3,594.31	3,566.64	27.67	129.883		
7,600.00	7,413.59	4,685.00	4,477.95	31.84	24.42	-91.37	-31.37	-1,200.02	3,673.39	3,645.79	27.60	133.081		
7,700.00	7,513.59	4,685.00	4,477.95	32.14	24.42	-91.37	-31.37	-1,200.02	3,753.47	3,725.92	27.54	136.270		
7,800.00	7,613.59	4,685.00	4,477.95	32.44	24.42	-91.37	-31.37	-1,200.02	3,834.48	3,806.98	27.50	139.443		
7,900.00	7,713.59	4,685.00	4,477.95	32.74	24.42	-91.37	-31.37	-1,200.02	3,916.37	3,888.91	27.47	142.594		
8,000.00	7,813.59	4,685.00	4,477.95	33.04	24.42	-91.37	-31.37	-1,200.02	3,999.09	3,971.64	27.44	145.718		
8,100.00	7,913.59	4,685.00	4,477.95	33.34	24.42	-91.37	-31.37	-1,200.02	4,082.58	4,055.14	27.44	148.809		
8,200.00	8,013.59	4,685.00	4,477.95	33.65	24.42	-91.37	-31.37	-1,200.02	4,166.79	4,139.35	27.44	151.862		
8,286.41	8,100.00	4,685.00	4,477.95	33.91	24.42	-91.37	-31.37	-1,200.02	4,240.12	4,212.67	27.45	154.467		

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



Scientific Drilling Anticollision Report



Company:	Hilcorp Energy Corp.	Local Co-ordinate Reference:	Well San Juan 29-7 Unit NP 515
Project:	Rio Arriba, NM NAD27	TVD Reference:	GL 6543' @ 6543.00ft
Reference Site:	San Juan 29-7 Unit NP 515 Pad	MD Reference:	GL 6543' @ 6543.00ft
Site Error:	0.00 ft	North Reference:	True
Reference Well:	San Juan 29-7 Unit NP 515	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	Grand Junction
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.00 ft
Survey Program: 100-UNKNOWN													Offset Well Error:	0.00 ft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
0.00	0.00	173.00	173.00	0.00	6.92	-73.16	779.17	-2,574.40	2,689.73	2,682.81	6.92	388.690		
100.00	100.00	273.00	273.00	0.36	10.92	-73.16	779.17	-2,574.40	2,689.73	2,678.45	11.28	238.484		
200.00	200.00	373.00	373.00	0.72	14.92	-73.16	779.17	-2,574.40	2,689.73	2,674.09	15.64	172.011		
300.00	300.00	473.00	473.00	1.08	18.92	-73.16	779.17	-2,574.40	2,689.73	2,669.74	20.00	134.517		
400.00	400.00	573.00	573.00	1.43	22.92	-73.16	779.17	-2,574.40	2,689.73	2,665.38	24.35	110.444		
500.00	500.00	673.00	673.00	1.79	26.92	-73.16	779.17	-2,574.40	2,689.73	2,661.02	28.71	93.679		
600.00	600.00	773.00	773.00	2.15	30.92	-73.16	779.17	-2,574.40	2,689.73	2,656.66	33.07	81.332		
700.00	700.00	873.00	873.00	2.51	34.92	-73.16	779.17	-2,574.40	2,689.73	2,652.30	37.43	71.862		
800.00	800.00	973.00	973.00	2.87	38.92	-73.16	779.17	-2,574.40	2,689.73	2,647.94	41.79	64.366		
900.00	900.00	1,073.00	1,073.00	3.23	42.92	-73.16	779.17	-2,574.40	2,689.73	2,643.59	46.15	58.287		
1,000.00	1,000.00	1,173.00	1,173.00	3.58	46.92	-73.16	779.17	-2,574.40	2,689.73	2,639.23	50.50	53.257		
1,100.00	1,100.00	1,273.00	1,273.00	3.94	50.92	-73.16	779.17	-2,574.40	2,689.73	2,634.87	54.86	49.026		
1,200.00	1,200.00	1,373.00	1,373.00	4.30	54.92	-73.16	779.17	-2,574.40	2,689.73	2,630.51	59.22	45.418		
1,300.00	1,300.00	1,473.00	1,473.00	4.66	58.92	-73.16	779.17	-2,574.40	2,689.73	2,626.15	63.58	42.305		
1,400.00	1,400.00	1,573.00	1,573.00	5.02	62.92	-73.16	779.17	-2,574.40	2,689.73	2,621.79	67.94	39.591		
1,500.00	1,500.00	1,673.00	1,673.00	5.38	66.92	-73.16	779.17	-2,574.40	2,689.73	2,617.43	72.30	37.204		
1,600.00	1,600.00	1,773.00	1,773.00	5.74	70.92	-73.16	779.17	-2,574.40	2,689.73	2,613.08	76.66	35.089		
1,700.00	1,700.00	1,873.00	1,873.00	6.09	74.92	-73.16	779.17	-2,574.40	2,689.73	2,608.72	81.01	33.201		
1,800.00	1,800.00	1,973.00	1,973.00	6.45	78.92	-73.16	779.17	-2,574.40	2,689.73	2,604.36	85.37	31.506		
1,900.00	1,900.00	2,073.00	2,073.00	6.81	82.92	-73.16	779.17	-2,574.40	2,689.73	2,600.00	89.73	29.976		
2,000.00	2,000.00	2,173.00	2,173.00	7.17	86.92	-73.16	779.17	-2,574.40	2,689.73	2,595.64	94.09	28.587		
2,100.00	2,100.00	2,273.00	2,273.00	7.53	90.92	-73.16	779.17	-2,574.40	2,689.73	2,591.28	98.45	27.321		
2,200.00	2,200.00	2,373.00	2,373.00	7.89	94.92	-73.16	779.17	-2,574.40	2,689.73	2,586.93	102.81	26.163		
2,300.00	2,300.00	2,473.00	2,473.00	8.24	98.92	-73.16	779.17	-2,574.40	2,689.73	2,582.57	107.16	25.099		
2,400.00	2,400.00	2,573.00	2,573.00	8.60	102.92	-73.16	779.17	-2,574.40	2,689.73	2,578.21	111.52	24.118		
2,500.00	2,500.00	2,673.00	2,673.00	8.96	106.92	-73.16	779.17	-2,574.40	2,689.73	2,573.85	115.88	23.211		
2,600.00	2,600.00	2,773.00	2,773.00	9.32	110.92	-73.16	779.17	-2,574.40	2,689.73	2,569.49	120.24	22.370		
2,700.00	2,700.00	2,873.00	2,873.00	9.68	114.92	-73.16	779.17	-2,574.40	2,689.73	2,565.13	124.60	21.587		
2,800.00	2,800.00	2,973.00	2,973.00	10.04	118.92	-73.16	779.17	-2,574.40	2,689.73	2,560.77	128.96	20.858		
2,900.00	2,900.00	3,073.00	3,073.00	10.40	122.92	-73.16	779.17	-2,574.40	2,689.73	2,556.42	133.32	20.176		
3,000.00	3,000.00	3,173.00	3,173.00	10.75	126.92	-73.16	779.17	-2,574.40	2,689.73	2,552.06	137.67	19.537		
3,100.00	3,100.00	3,273.00	3,273.00	11.11	130.92	-73.16	779.17	-2,574.40	2,689.73	2,547.70	142.03	18.937		
3,200.00	3,200.00	3,373.00	3,373.00	11.47	134.92	-73.16	779.17	-2,574.40	2,689.73	2,543.34	146.39	18.374		
3,300.00	3,300.00	3,473.00	3,473.00	11.83	138.92	-73.16	779.17	-2,574.40	2,689.73	2,538.98	150.75	17.842		
3,400.00	3,400.00	3,573.00	3,573.00	12.19	142.92	-73.16	779.17	-2,574.40	2,689.73	2,534.62	155.11	17.341		
3,500.00	3,500.00	3,673.00	3,673.00	12.55	146.92	-73.16	779.17	-2,574.40	2,689.73	2,530.27	159.47	16.867		
3,600.00	3,600.00	3,773.00	3,773.00	12.90	150.92	-73.16	779.17	-2,574.40	2,689.73	2,525.91	163.82	16.418 CC		
3,700.00	3,699.95	3,872.95	3,872.95	13.26	154.92	-161.93	779.17	-2,574.40	2,692.22	2,524.05	168.17	16.009 ES		
3,800.00	3,799.63	3,972.63	3,972.63	13.60	158.91	-161.91	779.17	-2,574.40	2,699.68	2,527.18	172.50	15.650		
3,900.00	3,898.77	4,071.77	4,071.77	13.95	162.87	-161.88	779.17	-2,574.40	2,712.10	2,535.29	176.81	15.339		
4,000.00	3,997.08	4,170.08	4,170.08	14.30	166.80	-161.84	779.17	-2,574.40	2,729.44	2,548.36	181.08	15.073		
4,100.00	4,094.31	4,267.31	4,267.31	14.66	170.69	-161.78	779.17	-2,574.40	2,751.68	2,566.37	185.30	14.850		
4,200.00	4,190.18	4,363.18	4,363.18	15.03	174.53	-161.69	779.17	-2,574.40	2,778.75	2,589.28	189.47	14.666		
4,300.00	4,284.43	4,457.43	4,457.43	15.43	178.30	-161.59	779.17	-2,574.40	2,810.61	2,617.04	193.57	14.520		
4,400.00	4,376.96	4,549.96	4,549.96	15.85	182.00	-161.61	779.17	-2,574.40	2,846.84	2,649.24	197.60	14.407		
4,500.00	4,469.10	4,642.10	4,642.10	16.31	185.68	-161.85	779.17	-2,574.40	2,884.01	2,682.39	201.61	14.305		
4,600.00	4,561.25	4,734.25	4,734.25	16.78	189.37	-162.08	779.17	-2,574.40	2,921.22	2,715.59	205.63	14.206		
4,700.00	4,653.39	4,826.39	4,826.39	17.28	193.06	-162.31	779.17	-2,574.40	2,958.47	2,748.82	209.66	14.111		
4,800.00	4,745.54	4,918.54	4,918.54	17.79	196.74	-162.54	779.17	-2,574.40	2,995.77	2,782.08	213.69	14.019		
4,900.00	4,837.68	5,010.68	5,010.68	18.33	200.43	-162.76	779.17	-2,574.40	3,033.10	2,815.38	217.72	13.931		
5,000.00	4,929.83	5,102.83	5,102.83	18.88	204.11	-162.97	779.17	-2,574.40	3,070.48	2,848.72	221.76	13.846		
5,100.00	5,021.97	5,194.97	5,194.97	19.44	207.80	-163.18	779.17	-2,574.40	3,107.88	2,882.08	225.80	13.764		

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



Scientific Drilling Anticollision Report



Company:	Hilcorp Energy Corp.	Local Co-ordinate Reference:	Well San Juan 29-7 Unit NP 515
Project:	Rio Arriba, NM NAD27	TVD Reference:	GL 6543' @ 6543.00ft
Reference Site:	San Juan 29-7 Unit NP 515 Pad	MD Reference:	GL 6543' @ 6543.00ft
Site Error:	0.00 ft	North Reference:	True
Reference Well:	San Juan 29-7 Unit NP 515	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	Grand Junction
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.00 ft
Survey Program: 100-UNKNOWN													Offset Well Error:	0.00 ft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
5,200.00	5,114.12	5,287.12	5,287.12	20.02	211.48	-163.38	779.17	-2,574.40	3,145.33	2,915.48	229.85	13.684		
5,300.00	5,206.26	5,379.26	5,379.26	20.61	215.17	-163.58	779.17	-2,574.40	3,182.80	2,948.91	233.90	13.608		
5,400.00	5,298.40	5,471.40	5,471.40	21.22	218.86	-163.78	779.17	-2,574.40	3,220.31	2,982.37	237.95	13.534		
5,500.00	5,390.55	5,563.55	5,563.55	21.83	222.54	-163.97	779.17	-2,574.40	3,257.85	3,015.85	242.00	13.462		
5,600.00	5,482.69	5,655.69	5,655.69	22.45	226.23	-164.15	779.17	-2,574.40	3,295.42	3,049.37	246.06	13.393		
5,700.00	5,574.84	5,747.84	5,747.84	23.09	229.91	-164.33	779.17	-2,574.40	3,333.03	3,082.91	250.12	13.326		
5,800.00	5,666.98	5,839.98	5,839.98	23.73	233.60	-164.51	779.17	-2,574.40	3,370.65	3,116.47	254.18	13.261		
5,900.00	5,759.13	5,932.13	5,932.13	24.38	237.29	-164.68	779.17	-2,574.40	3,408.31	3,150.07	258.24	13.198		
6,000.00	5,851.27	6,024.27	6,024.27	25.03	240.97	-164.85	779.17	-2,574.40	3,445.99	3,183.68	262.31	13.137		
6,100.00	5,943.42	6,116.42	6,116.42	25.69	244.66	-165.02	779.17	-2,574.40	3,483.70	3,217.32	266.38	13.078		
6,200.00	6,035.56	6,208.56	6,208.56	26.36	248.34	-165.18	779.17	-2,574.40	3,521.43	3,250.99	270.45	13.021		
6,300.00	6,128.27	6,301.27	6,301.27	27.01	252.05	-165.56	779.17	-2,574.40	3,557.84	3,283.30	274.54	12.959		
6,400.00	6,222.76	6,395.76	6,395.76	27.61	255.83	-165.93	779.17	-2,574.40	3,589.65	3,310.95	278.70	12.880		
6,500.00	6,318.83	6,491.83	6,491.83	28.16	259.67	-166.24	779.17	-2,574.40	3,616.61	3,333.69	282.92	12.783		
6,600.00	6,416.22	6,589.22	6,589.22	28.64	263.57	-166.48	779.17	-2,574.40	3,638.65	3,351.46	287.19	12.670		
6,700.00	6,514.66	6,687.66	6,687.66	29.07	267.51	-166.67	779.17	-2,574.40	3,655.71	3,364.21	291.49	12.541		
6,800.00	6,613.88	6,786.88	6,786.88	29.45	271.48	-166.80	779.17	-2,574.40	3,667.73	3,371.91	295.82	12.399		
6,900.00	6,713.62	6,886.62	6,886.62	29.79	275.46	-166.87	779.17	-2,574.40	3,674.68	3,374.52	300.16	12.243		
7,000.00	6,813.59	6,986.59	6,986.59	30.09	279.46	-78.11	779.17	-2,574.40	3,676.58	3,372.09	304.49	12.074		
7,100.00	6,913.59	7,086.59	7,086.59	30.38	283.46	-78.11	779.17	-2,574.40	3,676.58	3,367.76	308.83	11.905		
7,200.00	7,013.59	7,186.59	7,186.59	30.67	287.46	-78.11	779.17	-2,574.40	3,676.58	3,363.42	313.16	11.740		
7,300.00	7,113.59	7,286.59	7,286.59	30.96	291.46	-78.11	779.17	-2,574.40	3,676.58	3,359.09	317.50	11.580		
7,400.00	7,213.59	7,386.59	7,386.59	31.25	295.46	-78.11	779.17	-2,574.40	3,676.58	3,354.75	321.83	11.424		
7,500.00	7,313.59	7,486.59	7,486.59	31.55	299.46	-78.11	779.17	-2,574.40	3,676.58	3,350.41	326.17	11.272		
7,600.00	7,413.59	7,586.59	7,586.59	31.84	303.46	-78.11	779.17	-2,574.40	3,676.58	3,346.08	330.51	11.124		
7,700.00	7,513.59	7,686.59	7,686.59	32.14	307.46	-78.11	779.17	-2,574.40	3,676.58	3,341.74	334.84	10.980		
7,800.00	7,613.59	7,786.59	7,786.59	32.44	311.46	-78.11	779.17	-2,574.40	3,676.58	3,337.40	339.18	10.840		
7,900.00	7,713.59	7,886.59	7,886.59	32.74	315.46	-78.11	779.17	-2,574.40	3,676.58	3,333.06	343.52	10.703		
8,000.00	7,813.59	7,986.59	7,986.59	33.04	319.46	-78.11	779.17	-2,574.40	3,676.58	3,328.72	347.86	10.569		
8,100.00	7,913.59	8,086.59	8,086.59	33.34	323.46	-78.11	779.17	-2,574.40	3,677.85	3,324.37	352.19	10.437		
8,200.00	8,013.59	8,186.59	8,186.59	33.65	327.46	-78.11	779.17	-2,574.40	3,681.83	3,320.00	356.51	10.309		
8,286.41	8,100.00	7,990.00	7,990.00	33.91	329.60	-78.11	779.17	-2,574.40	3,687.46	3,339.72	347.74	10.604		

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



Scientific Drilling Anticollision Report



Company:	Hilcorp Energy Corp.	Local Co-ordinate Reference:	Well San Juan 29-7 Unit NP 515
Project:	Rio Arriba, NM NAD27	TVD Reference:	GL 6543' @ 6543.00ft
Reference Site:	San Juan 29-7 Unit NP 515 Pad	MD Reference:	GL 6543' @ 6543.00ft
Site Error:	0.00 ft	North Reference:	True
Reference Well:	San Juan 29-7 Unit NP 515	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	Grand Junction
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.00 ft
Survey Program: 244-MWD SDI													Offset Well Error:	0.00 ft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
0.00	0.00	211.25	211.25	0.00	0.22	-3.32	3,235.99	-187.73	3,241.45	3,241.23	0.22	N/A		
100.00	100.00	333.07	333.06	0.36	0.44	-3.33	3,235.41	-188.28	3,241.06	3,240.25	0.80	4,033.548		
200.00	200.00	1,178.68	1,151.57	0.72	4.20	-6.12	3,125.78	-334.93	3,232.26	3,227.45	4.81	671.357		
300.00	300.00	1,294.18	1,255.42	1.08	5.13	-6.92	3,095.90	-375.69	3,208.80	3,202.78	6.02	533.426		
400.00	400.00	1,408.84	1,358.13	1.43	6.03	-7.74	3,065.80	-416.80	3,185.53	3,178.31	7.23	440.856		
500.00	500.00	1,474.56	1,417.04	1.79	6.53	-8.22	3,048.47	-440.23	3,162.45	3,154.38	8.07	391.925		
600.00	600.00	1,589.60	1,519.99	2.15	7.45	-9.06	3,017.76	-481.35	3,139.58	3,130.24	9.34	336.171		
700.00	700.00	1,707.54	1,625.28	2.51	8.45	-9.95	2,985.45	-523.54	3,116.58	3,105.90	10.68	291.855		
800.00	800.00	1,821.43	1,726.66	2.87	9.41	-10.82	2,953.24	-564.25	3,093.23	3,081.23	12.00	257.832		
900.00	900.00	1,891.04	1,788.54	3.23	10.00	-11.36	2,933.33	-589.14	3,070.11	3,057.15	12.97	236.780		
1,000.00	1,000.00	1,970.39	1,859.10	3.58	10.67	-11.98	2,911.22	-617.93	3,048.19	3,034.16	14.03	217.275		
1,100.00	1,100.00	2,074.49	1,951.20	3.94	11.59	-12.83	2,881.78	-656.50	3,026.50	3,011.15	15.35	197.160		
1,200.00	1,200.00	2,180.63	2,044.85	4.30	12.52	-13.72	2,851.33	-696.10	3,005.08	2,988.39	16.69	180.074		
1,300.00	1,300.00	2,269.75	2,123.33	4.66	13.29	-14.48	2,825.33	-729.37	2,983.79	2,965.91	17.89	166.829		
1,400.00	1,400.00	2,344.59	2,189.51	5.02	13.90	-15.11	2,803.80	-756.90	2,963.40	2,944.46	18.93	156.515		
1,500.00	1,500.00	2,429.76	2,265.22	5.38	14.60	-15.82	2,779.65	-787.52	2,943.83	2,923.76	20.06	146.719		
1,600.00	1,600.00	2,508.14	2,335.20	5.74	15.24	-16.47	2,757.81	-815.28	2,925.17	2,904.02	21.15	138.335		
1,700.00	1,700.00	2,608.38	2,424.68	6.09	16.09	-17.31	2,729.78	-850.69	2,907.00	2,884.56	22.44	129.544		
1,800.00	1,800.00	2,694.18	2,501.21	6.45	16.82	-18.04	2,705.54	-880.98	2,889.17	2,865.56	23.62	122.342		
1,900.00	1,900.00	2,762.46	2,562.50	6.81	17.36	-18.61	2,686.84	-904.55	2,872.49	2,847.88	24.62	116.686		
2,000.00	2,000.00	2,837.62	2,630.46	7.17	17.94	-19.22	2,666.87	-929.71	2,856.90	2,831.24	25.66	111.357		
2,100.00	2,100.00	2,916.54	2,702.03	7.53	18.56	-19.86	2,646.39	-955.90	2,842.31	2,815.58	26.73	106.333		
2,200.00	2,200.00	3,024.39	2,799.17	7.89	19.44	-20.77	2,617.54	-992.80	2,827.81	2,799.73	28.08	100.699		
2,300.00	2,300.00	3,095.07	2,862.90	8.24	20.00	-21.37	2,598.95	-1,017.08	2,814.37	2,785.26	29.11	96.669		
2,400.00	2,400.00	3,174.37	2,934.56	8.60	20.63	-22.05	2,578.51	-1,044.19	2,801.96	2,771.74	30.21	92.738		
2,500.00	2,500.00	3,270.54	3,021.48	8.96	21.39	-22.87	2,553.56	-1,076.89	2,789.93	2,758.47	31.46	88.694		
2,600.00	2,600.00	3,332.64	3,078.08	9.32	21.87	-23.38	2,538.21	-1,097.36	2,779.22	2,746.82	32.40	85.789		
2,700.00	2,700.00	3,422.69	3,160.98	9.68	22.52	-24.09	2,517.18	-1,125.50	2,769.67	2,736.15	33.51	82.643		
2,800.00	2,800.00	3,497.00	3,230.06	10.04	23.03	-24.64	2,500.35	-1,147.12	2,760.54	2,726.06	34.48	80.065		
2,900.00	2,900.00	3,560.00	3,288.99	10.40	23.44	-25.10	2,486.99	-1,164.94	2,752.80	2,717.47	35.34	77.901		
3,000.00	3,000.00	3,677.14	3,399.51	10.75	24.17	-25.89	2,463.58	-1,195.89	2,745.75	2,709.25	36.51	75.207		
3,100.00	3,100.00	3,801.55	3,518.38	11.11	24.86	-26.64	2,439.58	-1,223.61	2,737.97	2,700.35	37.62	72.783		
3,200.00	3,200.00	3,918.21	3,630.75	11.47	25.45	-27.26	2,417.57	-1,245.89	2,729.50	2,690.89	38.61	70.700		
3,300.00	3,300.00	3,984.17	3,694.50	11.83	25.76	-27.60	2,405.64	-1,257.89	2,721.62	2,682.28	39.34	69.184		
3,400.00	3,400.00	4,043.97	3,752.80	12.19	26.01	-27.88	2,396.38	-1,267.48	2,715.23	2,675.23	40.00	67.877		
3,500.00	3,500.00	4,107.60	3,815.35	12.55	26.24	-28.11	2,388.42	-1,275.92	2,710.32	2,669.69	40.63	66.710		
3,600.00	3,600.00	4,177.37	3,884.42	12.90	26.45	-28.31	2,381.69	-1,283.12	2,706.65	2,665.43	41.22	65.667		
3,700.00	3,699.95	4,259.00	3,965.61	13.26	26.64	-117.34	2,375.90	-1,289.24	2,705.15	2,663.37	41.78	64.750 CC		
3,704.45	3,704.40	4,261.15	3,967.75	13.27	26.64	-117.35	2,375.77	-1,289.37	2,705.15	2,663.35	41.80	64.718 ES		
3,800.00	3,799.63	4,353.32	4,059.64	13.60	26.81	-117.60	2,370.69	-1,294.34	2,706.51	2,664.20	42.31	63.962		
3,900.00	3,898.77	4,442.37	4,148.58	13.95	26.94	-117.79	2,367.01	-1,297.13	2,710.52	2,667.71	42.81	63.312		
4,000.00	3,997.08	4,522.67	4,228.82	14.30	27.04	-117.94	2,364.62	-1,298.96	2,717.65	2,674.37	43.28	62.786		
4,100.00	4,094.31	4,553.00	4,259.13	14.66	27.08	-117.79	2,363.82	-1,299.67	2,728.51	2,684.82	43.69	62.448		
4,200.00	4,190.18	4,553.00	4,259.13	15.03	27.08	-117.34	2,363.82	-1,299.67	2,745.21	2,701.18	44.03	62.349 SF		
4,300.00	4,284.43	4,553.00	4,259.13	15.43	27.08	-116.72	2,363.82	-1,299.67	2,767.76	2,723.42	44.34	62.427		
4,400.00	4,376.96	4,553.00	4,259.13	15.85	27.08	-116.25	2,363.82	-1,299.67	2,795.80	2,751.18	44.62	62.660		
4,500.00	4,469.10	4,553.00	4,259.13	16.31	27.08	-116.25	2,363.82	-1,299.67	2,827.53	2,782.66	44.87	63.015		
4,600.00	4,561.25	4,553.00	4,259.13	16.78	27.08	-116.25	2,363.82	-1,299.67	2,862.40	2,817.30	45.09	63.476		
4,700.00	4,653.39	4,553.00	4,259.13	17.28	27.08	-116.25	2,363.82	-1,299.67	2,900.30	2,855.01	45.29	64.041		
4,800.00	4,745.54	4,553.00	4,259.13	17.79	27.08	-116.25	2,363.82	-1,299.67	2,941.11	2,895.66	45.45	64.705		
4,900.00	4,837.68	4,553.00	4,259.13	18.33	27.08	-116.25	2,363.82	-1,299.67	2,984.72	2,939.13	45.59	65.464		
5,000.00	4,929.83	4,553.00	4,259.13	18.88	27.08	-116.25	2,363.82	-1,299.67	3,031.00	2,985.30	45.71	66.314		

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



Scientific Drilling

Anticollision Report



Company:	Hilcorp Energy Corp.	Local Co-ordinate Reference:	Well San Juan 29-7 Unit NP 515
Project:	Rio Arriba, NM NAD27	TVD Reference:	GL 6543' @ 6543.00ft
Reference Site:	San Juan 29-7 Unit NP 515 Pad	MD Reference:	GL 6543' @ 6543.00ft
Site Error:	0.00 ft	North Reference:	True
Reference Well:	San Juan 29-7 Unit NP 515	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	Grand Junction
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.00 ft
Survey Program: 244-MWD SDI													Offset Well Error:	0.00 ft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
5,100.00	5,021.97	4,553.00	4,259.13	19.44	27.08	-116.25	2,363.82	-1,299.67	3,079.84	3,034.04	45.80	67.249		
5,200.00	5,114.12	4,553.00	4,259.13	20.02	27.08	-116.25	2,363.82	-1,299.67	3,131.10	3,085.24	45.87	68.266		
5,300.00	5,206.26	4,553.00	4,259.13	20.61	27.08	-116.25	2,363.82	-1,299.67	3,184.69	3,138.77	45.91	69.361		
5,400.00	5,298.40	4,553.00	4,259.13	21.22	27.08	-116.25	2,363.82	-1,299.67	3,240.47	3,194.52	45.95	70.529		
5,500.00	5,390.55	4,553.00	4,259.13	21.83	27.08	-116.25	2,363.82	-1,299.67	3,298.34	3,252.38	45.96	71.766		
5,600.00	5,482.69	4,553.00	4,259.13	22.45	27.08	-116.25	2,363.82	-1,299.67	3,358.20	3,312.24	45.96	73.068		
5,700.00	5,574.84	4,553.00	4,259.13	23.09	27.08	-116.25	2,363.82	-1,299.67	3,419.93	3,373.98	45.95	74.431		
5,800.00	5,666.98	4,553.00	4,259.13	23.73	27.08	-116.25	2,363.82	-1,299.67	3,483.43	3,437.51	45.92	75.851		
5,900.00	5,759.13	4,553.00	4,259.13	24.38	27.08	-116.25	2,363.82	-1,299.67	3,548.62	3,502.73	45.89	77.324		
6,000.00	5,851.27	4,553.00	4,259.13	25.03	27.08	-116.25	2,363.82	-1,299.67	3,615.40	3,569.55	45.85	78.848		
6,100.00	5,943.42	4,553.00	4,259.13	25.69	27.08	-116.25	2,363.82	-1,299.67	3,683.69	3,637.88	45.81	80.419		
6,200.00	6,035.56	4,553.00	4,259.13	26.36	27.08	-116.25	2,363.82	-1,299.67	3,753.39	3,707.64	45.76	82.032		
6,300.00	6,128.27	4,553.00	4,259.13	27.01	27.08	-118.26	2,363.82	-1,299.67	3,823.97	3,778.28	45.69	83.700		
6,400.00	6,222.76	4,553.00	4,259.13	27.61	27.08	-120.83	2,363.82	-1,299.67	3,894.15	3,848.58	45.57	85.450		
6,500.00	6,318.83	4,553.00	4,259.13	28.16	27.08	-123.29	2,363.82	-1,299.67	3,963.73	3,918.32	45.42	87.277		
6,600.00	6,416.22	4,553.00	4,259.13	28.64	27.08	-125.64	2,363.82	-1,299.67	4,032.55	3,987.33	45.22	89.176		
6,700.00	6,514.66	4,553.00	4,259.13	29.07	27.08	-127.86	2,363.82	-1,299.67	4,100.46	4,055.47	44.99	91.142		
6,800.00	6,613.88	4,553.00	4,259.13	29.45	27.08	-129.96	2,363.82	-1,299.67	4,167.33	4,122.60	44.73	93.169		
6,900.00	6,713.62	4,553.00	4,259.13	29.79	27.08	-131.94	2,363.82	-1,299.67	4,233.03	4,188.59	44.44	95.252		
7,000.00	6,813.59	4,553.00	4,259.13	30.09	27.08	-44.77	2,363.82	-1,299.67	4,297.46	4,253.33	44.13	97.379		
7,100.00	6,913.59	4,553.00	4,259.13	30.38	27.08	-44.77	2,363.82	-1,299.67	4,362.23	4,318.40	43.83	99.533		
7,200.00	7,013.59	4,553.00	4,259.13	30.67	27.08	-44.77	2,363.82	-1,299.67	4,428.31	4,384.78	43.53	101.733		
7,300.00	7,113.59	4,553.00	4,259.13	30.96	27.08	-44.77	2,363.82	-1,299.67	4,495.65	4,452.41	43.24	103.975		
7,400.00	7,213.59	4,553.00	4,259.13	31.25	27.08	-44.77	2,363.82	-1,299.67	4,564.18	4,521.22	42.95	106.256		
7,500.00	7,313.59	4,553.00	4,259.13	31.55	27.08	-44.77	2,363.82	-1,299.67	4,633.86	4,591.18	42.68	108.572		
7,600.00	7,413.59	4,553.00	4,259.13	31.84	27.08	-44.77	2,363.82	-1,299.67	4,704.63	4,662.21	42.41	110.919		
7,700.00	7,513.59	4,553.00	4,259.13	32.14	27.08	-44.77	2,363.82	-1,299.67	4,776.44	4,734.28	42.16	113.295		
7,800.00	7,613.59	4,553.00	4,259.13	32.44	27.08	-44.77	2,363.82	-1,299.67	4,849.26	4,807.34	41.91	115.696		
7,900.00	7,713.59	4,553.00	4,259.13	32.74	27.08	-44.77	2,363.82	-1,299.67	4,923.03	4,881.35	41.68	118.119		
8,000.00	7,813.59	4,553.00	4,259.13	33.04	27.08	-44.77	2,363.82	-1,299.67	4,997.71	4,956.25	41.45	120.560		
8,100.00	7,913.59	4,553.00	4,259.13	33.34	27.08	-44.77	2,363.82	-1,299.67	5,073.26	5,032.02	41.24	123.017		
8,200.00	8,013.59	4,553.00	4,259.13	33.65	27.08	-44.77	2,363.82	-1,299.67	5,149.65	5,108.61	41.04	125.485		
8,286.41	8,100.00	4,553.00	4,259.13	33.91	27.08	-44.77	2,363.82	-1,299.67	5,216.30	5,175.43	40.87	127.624		

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



Scientific Drilling Anticollision Report



Company:	Hilcorp Energy Corp.	Local Co-ordinate Reference:	Well San Juan 29-7 Unit NP 515
Project:	Rio Arriba, NM NAD27	TVD Reference:	GL 6543' @ 6543.00ft
Reference Site:	San Juan 29-7 Unit NP 515 Pad	MD Reference:	GL 6543' @ 6543.00ft
Site Error:	0.00 ft	North Reference:	True
Reference Well:	San Juan 29-7 Unit NP 515	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	Grand Junction
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.00 ft
Survey Program: 100-UNKNOWN													Offset Well Error:	0.00 ft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
0.00	0.00	0.00	0.00	0.00	0.00	-5.52	1,001.12	-96.76	1,010.75					
100.00	100.00	0.00	0.00	0.36	0.00	-5.52	1,001.12	-96.76	1,005.79	1,005.43	0.36	2,804.207		
200.00	200.00	100.00	100.00	0.72	4.00	-5.52	1,001.12	-96.76	1,005.79	1,001.07	4.72	213.229		
300.00	300.00	200.00	200.00	1.08	8.00	-5.52	1,001.12	-96.76	1,005.79	996.71	9.08	110.826		
400.00	400.00	300.00	300.00	1.43	12.00	-5.52	1,001.12	-96.76	1,005.79	992.36	13.43	74.870		
500.00	500.00	400.00	400.00	1.79	16.00	-5.52	1,001.12	-96.76	1,005.79	988.00	17.79	56.529		
600.00	600.00	500.00	500.00	2.15	20.00	-5.52	1,001.12	-96.76	1,005.79	983.64	22.15	45.406		
700.00	700.00	600.00	600.00	2.51	24.00	-5.52	1,001.12	-96.76	1,005.79	979.28	26.51	37.941		
800.00	800.00	700.00	700.00	2.87	28.00	-5.52	1,001.12	-96.76	1,005.79	974.92	30.87	32.584		
900.00	900.00	800.00	800.00	3.23	32.00	-5.52	1,001.12	-96.76	1,005.79	970.56	35.23	28.552		
1,000.00	1,000.00	900.00	900.00	3.58	36.00	-5.52	1,001.12	-96.76	1,005.79	966.20	39.58	25.409		
1,100.00	1,100.00	1,000.00	1,000.00	3.94	40.00	-5.52	1,001.12	-96.76	1,005.79	961.85	43.94	22.888		
1,200.00	1,200.00	1,100.00	1,100.00	4.30	44.00	-5.52	1,001.12	-96.76	1,005.79	957.49	48.30	20.823		
1,300.00	1,300.00	1,200.00	1,200.00	4.66	48.00	-5.52	1,001.12	-96.76	1,005.79	953.13	52.66	19.100		
1,400.00	1,400.00	1,300.00	1,300.00	5.02	52.00	-5.52	1,001.12	-96.76	1,005.79	948.77	57.02	17.640		
1,500.00	1,500.00	1,400.00	1,400.00	5.38	56.00	-5.52	1,001.12	-96.76	1,005.79	944.41	61.38	16.387		
1,600.00	1,600.00	1,500.00	1,500.00	5.74	60.00	-5.52	1,001.12	-96.76	1,005.79	940.05	65.74	15.301		
1,700.00	1,700.00	1,600.00	1,600.00	6.09	64.00	-5.52	1,001.12	-96.76	1,005.79	935.70	70.09	14.349		
1,800.00	1,800.00	1,700.00	1,700.00	6.45	68.00	-5.52	1,001.12	-96.76	1,005.79	931.34	74.45	13.509		
1,900.00	1,900.00	1,800.00	1,800.00	6.81	72.00	-5.52	1,001.12	-96.76	1,005.79	926.98	78.81	12.762		
2,000.00	2,000.00	1,900.00	1,900.00	7.17	76.00	-5.52	1,001.12	-96.76	1,005.79	922.62	83.17	12.093		
2,100.00	2,100.00	2,000.00	2,000.00	7.53	80.00	-5.52	1,001.12	-96.76	1,005.79	918.26	87.53	11.491		
2,200.00	2,200.00	2,100.00	2,100.00	7.89	84.00	-5.52	1,001.12	-96.76	1,005.79	913.90	91.89	10.946		
2,300.00	2,300.00	2,200.00	2,200.00	8.24	88.00	-5.52	1,001.12	-96.76	1,005.79	909.54	96.24	10.450		
2,400.00	2,400.00	2,300.00	2,300.00	8.60	92.00	-5.52	1,001.12	-96.76	1,005.79	905.19	100.60	9.998		
2,500.00	2,500.00	2,400.00	2,400.00	8.96	96.00	-5.52	1,001.12	-96.76	1,005.79	900.83	104.96	9.582		
2,600.00	2,600.00	2,500.00	2,500.00	9.32	100.00	-5.52	1,001.12	-96.76	1,005.79	896.47	109.32	9.200		
2,700.00	2,700.00	2,600.00	2,600.00	9.68	104.00	-5.52	1,001.12	-96.76	1,005.79	892.11	113.68	8.848		
2,800.00	2,800.00	2,700.00	2,700.00	10.04	108.00	-5.52	1,001.12	-96.76	1,005.79	887.75	118.04	8.521		
2,900.00	2,900.00	2,800.00	2,800.00	10.40	112.00	-5.52	1,001.12	-96.76	1,005.79	883.39	122.40	8.218		
3,000.00	3,000.00	2,900.00	2,900.00	10.75	116.00	-5.52	1,001.12	-96.76	1,005.79	879.04	126.75	7.935		
3,100.00	3,100.00	3,000.00	3,000.00	11.11	120.00	-5.52	1,001.12	-96.76	1,005.79	874.68	131.11	7.671		
3,200.00	3,200.00	3,100.00	3,100.00	11.47	124.00	-5.52	1,001.12	-96.76	1,005.79	870.32	135.47	7.424		
3,300.00	3,300.00	3,200.00	3,200.00	11.83	128.00	-5.52	1,001.12	-96.76	1,005.79	865.96	139.83	7.193		
3,400.00	3,400.00	3,300.00	3,300.00	12.19	132.00	-5.52	1,001.12	-96.76	1,005.79	861.60	144.19	6.976		
3,500.00	3,500.00	3,400.00	3,400.00	12.55	136.00	-5.52	1,001.12	-96.76	1,005.79	857.24	148.55	6.771		
3,600.00	3,600.00	3,500.00	3,500.00	12.90	140.00	-5.52	1,001.12	-96.76	1,005.79	852.88	152.90	6.578 CC		
3,604.45	3,604.45	3,504.45	3,504.45	12.92	140.18	-94.30	1,001.12	-96.76	1,005.79	852.69	153.10	6.570		
3,700.00	3,699.95	3,596.00	3,596.00	13.26	143.84	-94.43	1,001.12	-96.76	1,006.00	848.90	157.09	6.404 ES, SF		
3,800.00	3,799.63	3,596.00	3,596.00	13.60	143.84	-94.25	1,001.12	-96.76	1,011.95	855.33	156.62	6.461		
3,900.00	3,898.77	3,596.00	3,596.00	13.95	143.84	-93.76	1,001.12	-96.76	1,028.02	873.29	154.73	6.644		
4,000.00	3,997.08	3,596.00	3,596.00	14.30	143.84	-92.96	1,001.12	-96.76	1,053.70	902.07	151.64	6.949		
4,100.00	4,094.31	3,596.00	3,596.00	14.66	143.84	-91.86	1,001.12	-96.76	1,088.26	940.60	147.66	7.370		
4,200.00	4,190.18	3,596.00	3,596.00	15.03	143.84	-90.45	1,001.12	-96.76	1,130.77	987.65	143.13	7.900		
4,300.00	4,284.43	3,596.00	3,596.00	15.43	143.84	-88.74	1,001.12	-96.76	1,180.29	1,041.92	138.37	8.530		
4,400.00	4,376.96	3,596.00	3,596.00	15.85	143.84	-87.53	1,001.12	-96.76	1,235.84	1,102.20	133.64	9.247		
4,500.00	4,469.10	3,596.00	3,596.00	16.31	143.84	-87.53	1,001.12	-96.76	1,296.71	1,167.69	129.01	10.051		
4,600.00	4,561.25	3,596.00	3,596.00	16.78	143.84	-87.53	1,001.12	-96.76	1,362.20	1,237.64	124.56	10.936		
4,700.00	4,653.39	3,596.00	3,596.00	17.28	143.84	-87.53	1,001.12	-96.76	1,431.70	1,311.35	120.35	11.896		
4,800.00	4,745.54	3,596.00	3,596.00	17.79	143.84	-87.53	1,001.12	-96.76	1,504.63	1,388.21	116.42	12.925		
4,900.00	4,837.68	3,596.00	3,596.00	18.33	143.84	-87.53	1,001.12	-96.76	1,580.52	1,467.75	112.78	14.015		
5,000.00	4,929.83	3,596.00	3,596.00	18.88	143.84	-87.53	1,001.12	-96.76	1,658.98	1,549.55	109.43	15.160		

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



Scientific Drilling

Anticollision Report



Company:	Hilcorp Energy Corp.	Local Co-ordinate Reference:	Well San Juan 29-7 Unit NP 515
Project:	Rio Arriba, NM NAD27	TVD Reference:	GL 6543' @ 6543.00ft
Reference Site:	San Juan 29-7 Unit NP 515 Pad	MD Reference:	GL 6543' @ 6543.00ft
Site Error:	0.00 ft	North Reference:	True
Reference Well:	San Juan 29-7 Unit NP 515	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	Grand Junction
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.00 ft
Survey Program: 100-UNKNOWN													Offset Well Error:	0.00 ft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
5,100.00	5,021.97	3,596.00	3,596.00	19.44	143.84	-87.53	1,001.12	-96.76	1,739.64	1,633.28	106.37	16.355		
5,200.00	5,114.12	3,596.00	3,596.00	20.02	143.84	-87.53	1,001.12	-96.76	1,822.23	1,718.65	103.58	17.593		
5,300.00	5,206.26	3,596.00	3,596.00	20.61	143.84	-87.53	1,001.12	-96.76	1,906.48	1,805.44	101.04	18.869		
5,400.00	5,298.40	3,596.00	3,596.00	21.22	143.84	-87.53	1,001.12	-96.76	1,992.19	1,893.46	98.73	20.178		
5,500.00	5,390.55	3,596.00	3,596.00	21.83	143.84	-87.53	1,001.12	-96.76	2,079.17	1,982.53	96.64	21.515		
5,600.00	5,482.69	3,596.00	3,596.00	22.45	143.84	-87.53	1,001.12	-96.76	2,167.28	2,072.54	94.74	22.875		
5,700.00	5,574.84	3,596.00	3,596.00	23.09	143.84	-87.53	1,001.12	-96.76	2,256.38	2,163.36	93.03	24.256		
5,800.00	5,666.98	3,596.00	3,596.00	23.73	143.84	-87.53	1,001.12	-96.76	2,346.36	2,254.89	91.47	25.652		
5,900.00	5,759.13	3,596.00	3,596.00	24.38	143.84	-87.53	1,001.12	-96.76	2,437.12	2,347.07	90.06	27.062		
6,000.00	5,851.27	3,596.00	3,596.00	25.03	143.84	-87.53	1,001.12	-96.76	2,528.58	2,439.80	88.78	28.482		
6,100.00	5,943.42	3,596.00	3,596.00	25.69	143.84	-87.53	1,001.12	-96.76	2,620.66	2,533.04	87.62	29.910		
6,200.00	6,035.56	3,596.00	3,596.00	26.36	143.84	-87.53	1,001.12	-96.76	2,713.30	2,626.74	86.57	31.343		
6,300.00	6,128.27	3,596.00	3,596.00	27.01	143.84	-93.37	1,001.12	-96.76	2,806.46	2,720.90	85.56	32.801		
6,400.00	6,222.76	3,596.00	3,596.00	27.61	143.84	-101.21	1,001.12	-96.76	2,899.96	2,815.49	84.46	34.335		
6,500.00	6,318.83	3,596.00	3,596.00	28.16	143.84	-108.88	1,001.12	-96.76	2,993.53	2,910.26	83.27	35.951		
6,600.00	6,416.22	3,596.00	3,596.00	28.64	143.84	-116.12	1,001.12	-96.76	3,086.92	3,004.93	81.98	37.653		
6,700.00	6,514.66	3,596.00	3,596.00	29.07	143.84	-122.72	1,001.12	-96.76	3,179.90	3,099.28	80.62	39.443		
6,800.00	6,613.88	3,596.00	3,596.00	29.45	143.84	-128.59	1,001.12	-96.76	3,272.27	3,193.08	79.18	41.326		
6,900.00	6,713.62	3,596.00	3,596.00	29.79	143.84	-133.73	1,001.12	-96.76	3,363.82	3,286.14	77.68	43.305		
7,000.00	6,813.59	3,596.00	3,596.00	30.09	143.84	-48.84	1,001.12	-96.76	3,454.41	3,378.29	76.12	45.384		
7,100.00	6,913.59	3,596.00	3,596.00	30.38	143.84	-48.84	1,001.12	-96.76	3,544.92	3,470.32	74.59	47.522		
7,200.00	7,013.59	3,596.00	3,596.00	30.67	143.84	-48.84	1,001.12	-96.76	3,635.93	3,562.77	73.16	49.700		
7,300.00	7,113.59	3,596.00	3,596.00	30.96	143.84	-48.84	1,001.12	-96.76	3,727.40	3,655.60	71.80	51.916		
7,400.00	7,213.59	3,596.00	3,596.00	31.25	143.84	-48.84	1,001.12	-96.76	3,819.29	3,748.78	70.51	54.166		
7,500.00	7,313.59	3,596.00	3,596.00	31.55	143.84	-48.84	1,001.12	-96.76	3,911.59	3,842.29	69.29	56.448		
7,600.00	7,413.59	3,596.00	3,596.00	31.84	143.84	-48.84	1,001.12	-96.76	4,004.25	3,936.11	68.14	58.761		
7,700.00	7,513.59	3,596.00	3,596.00	32.14	143.84	-48.84	1,001.12	-96.76	4,097.26	4,030.20	67.06	61.102		
7,800.00	7,613.59	3,596.00	3,596.00	32.44	143.84	-48.84	1,001.12	-96.76	4,190.59	4,124.56	66.03	63.467		
7,900.00	7,713.59	3,596.00	3,596.00	32.74	143.84	-48.84	1,001.12	-96.76	4,284.22	4,219.17	65.05	65.856		
8,000.00	7,813.59	3,596.00	3,596.00	33.04	143.84	-48.84	1,001.12	-96.76	4,378.14	4,314.01	64.13	68.266		
8,100.00	7,913.59	3,596.00	3,596.00	33.34	143.84	-48.84	1,001.12	-96.76	4,472.32	4,409.05	63.26	70.693		
8,200.00	8,013.59	3,596.00	3,596.00	33.65	143.84	-48.84	1,001.12	-96.76	4,566.74	4,504.30	62.44	73.137		
8,286.41	8,100.00	3,596.00	3,596.00	33.91	143.84	-48.84	1,001.12	-96.76	4,648.53	4,586.76	61.77	75.260		

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



Scientific Drilling Anticollision Report



Company:	Hilcorp Energy Corp.	Local Co-ordinate Reference:	Well San Juan 29-7 Unit NP 515
Project:	Rio Arriba, NM NAD27	TVD Reference:	GL 6543' @ 6543.00ft
Reference Site:	San Juan 29-7 Unit NP 515 Pad	MD Reference:	GL 6543' @ 6543.00ft
Site Error:	0.00 ft	North Reference:	True
Reference Well:	San Juan 29-7 Unit NP 515	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	Grand Junction
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.00 ft
Survey Program: 135-INCLINOMETER													Offset Well Error:	0.00 ft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
0.00	0.00	250.00	250.00	0.00	7.59	174.24	-2,646.60	266.85	2,660.02	2,652.43	7.59	350.360		
100.00	100.00	340.20	340.19	0.36	10.33	174.24	-2,646.31	266.85	2,659.75	2,649.06	10.69	248.812		
200.00	200.00	447.11	447.07	0.72	13.58	174.24	-2,646.36	266.85	2,659.78	2,645.49	14.30	186.062		
300.00	300.00	545.49	545.43	1.08	16.57	174.24	-2,646.47	266.85	2,659.89	2,642.25	17.64	150.777		
376.10	376.10	626.11	626.04	1.35	19.01	174.24	-2,646.40	266.85	2,659.82	2,639.46	20.36	130.626		
400.00	400.00	642.14	642.07	1.43	19.50	174.24	-2,646.42	266.85	2,659.86	2,638.92	20.93	127.055		
500.00	500.00	750.08	750.00	1.79	22.78	174.24	-2,646.60	266.85	2,660.02	2,635.45	24.57	108.257		
562.34	562.34	812.36	812.27	2.02	24.67	174.24	-2,646.00	266.85	2,659.42	2,632.73	26.69	99.655		
600.00	600.00	844.66	844.57	2.15	25.65	174.24	-2,646.03	266.85	2,659.46	2,631.66	27.80	95.658		
700.00	700.00	930.43	930.34	2.51	28.26	174.24	-2,646.44	266.85	2,659.93	2,629.17	30.76	86.461		
800.00	800.00	1,050.13	1,050.00	2.87	31.89	174.24	-2,646.60	266.85	2,660.02	2,625.27	34.76	76.528		
847.42	847.42	1,097.12	1,096.99	3.04	33.32	174.24	-2,645.98	266.85	2,659.40	2,623.05	36.36	73.150		
900.00	900.00	1,142.42	1,142.29	3.23	34.69	174.24	-2,646.05	266.85	2,659.48	2,621.56	37.92	70.134		
1,000.00	1,000.00	1,250.16	1,250.00	3.58	37.97	174.24	-2,646.60	266.85	2,660.02	2,618.47	41.55	64.019		
1,100.00	1,100.00	1,350.16	1,350.00	3.94	41.00	174.24	-2,646.60	266.85	2,660.02	2,615.08	44.95	59.183		
1,134.15	1,134.15	1,383.50	1,383.34	4.07	42.01	174.24	-2,646.15	266.85	2,659.57	2,613.49	46.08	57.716		
1,200.00	1,200.00	1,442.06	1,441.89	4.30	43.79	174.24	-2,646.25	266.85	2,659.68	2,611.59	48.09	55.301		
1,300.00	1,300.00	1,550.19	1,550.00	4.66	47.08	174.24	-2,646.60	266.85	2,660.02	2,608.29	51.74	51.414		
1,400.00	1,400.00	1,650.19	1,650.00	5.02	50.11	174.24	-2,646.60	266.85	2,660.02	2,604.89	55.13	48.248		
1,500.00	1,500.00	1,750.19	1,750.00	5.38	53.15	174.24	-2,646.60	266.85	2,660.02	2,601.50	58.53	45.449		
1,540.41	1,540.41	1,788.52	1,788.32	5.52	54.31	174.24	-2,645.52	266.85	2,658.95	2,599.11	59.84	44.437		
1,600.00	1,600.00	1,843.08	1,842.88	5.74	55.97	174.24	-2,645.62	266.85	2,659.05	2,597.34	61.71	43.092		
1,700.00	1,700.00	1,934.65	1,934.43	6.09	58.75	174.24	-2,646.01	266.85	2,659.48	2,594.63	64.85	41.013		
1,800.00	1,800.00	2,050.29	2,050.00	6.45	62.26	174.24	-2,646.60	266.85	2,660.02	2,591.31	68.72	38.710		
1,900.00	1,900.00	2,150.29	2,150.00	6.81	65.30	174.24	-2,646.60	266.85	2,660.02	2,587.91	72.11	36.887		
2,000.00	2,000.00	2,250.29	2,250.00	7.17	68.34	174.24	-2,646.60	266.85	2,660.02	2,584.52	75.51	35.229		
2,039.27	2,039.27	2,285.53	2,285.22	7.31	69.41	174.24	-2,645.34	266.85	2,658.77	2,582.05	76.72	34.656		
2,100.00	2,100.00	2,339.67	2,339.36	7.53	71.05	174.24	-2,645.49	266.85	2,658.94	2,580.36	78.58	33.837		
2,200.00	2,200.00	2,428.83	2,428.51	7.89	73.76	174.24	-2,646.03	266.85	2,659.54	2,577.90	81.64	32.575		
2,300.00	2,300.00	2,550.38	2,550.00	8.24	77.45	174.24	-2,646.60	266.85	2,660.02	2,574.33	85.70	31.040		
2,400.00	2,400.00	2,650.38	2,650.00	8.60	80.49	174.24	-2,646.60	266.85	2,660.02	2,570.93	89.09	29.857		
2,473.11	2,473.11	2,723.48	2,723.09	8.87	82.71	174.24	-2,645.58	266.85	2,659.01	2,567.43	91.57	29.037		
2,500.00	2,500.00	2,747.97	2,747.58	8.96	83.45	174.24	-2,645.59	266.85	2,659.02	2,566.60	92.41	28.773		
2,600.00	2,600.00	2,839.02	2,838.63	9.32	86.22	174.24	-2,645.83	266.85	2,659.28	2,563.74	95.54	27.835		
2,700.00	2,700.00	2,930.08	2,929.68	9.68	88.98	174.24	-2,646.38	266.85	2,659.87	2,561.22	98.66	26.961		
2,800.00	2,800.00	3,050.49	3,050.00	10.04	92.64	174.24	-2,646.60	266.85	2,660.02	2,557.35	102.68	25.907		
2,900.00	2,900.00	3,150.49	3,150.00	10.40	95.68	174.24	-2,646.60	266.85	2,660.02	2,553.95	106.07	25.078		
2,957.52	2,957.52	3,208.00	3,207.48	10.60	97.42	174.24	-2,644.97	266.85	2,658.40	2,550.37	108.02	24.609 CC		
3,000.00	3,000.00	3,245.32	3,244.81	10.75	98.56	174.24	-2,645.01	266.85	2,658.44	2,549.13	109.31	24.320		
3,100.00	3,100.00	3,333.19	3,332.66	11.11	101.22	174.24	-2,645.38	266.85	2,658.86	2,546.53	112.33	23.669		
3,200.00	3,200.00	3,421.07	3,420.53	11.47	103.89	174.24	-2,646.16	266.85	2,659.74	2,544.39	115.36	23.057		
3,300.00	3,300.00	3,550.67	3,550.00	11.83	107.83	174.24	-2,646.60	266.85	2,660.02	2,540.37	119.66	22.230		
3,400.00	3,400.00	3,650.73	3,650.00	12.19	110.87	174.24	-2,646.60	266.85	2,660.02	2,536.97	123.05	21.617		
3,491.40	3,491.40	3,741.39	3,740.66	12.52	113.62	174.24	-2,646.01	266.85	2,659.44	2,533.30	126.14	21.084		
3,500.00	3,500.00	3,747.62	3,746.88	12.55	113.81	174.24	-2,646.02	266.85	2,659.44	2,533.09	126.36	21.047		
3,600.00	3,600.00	3,850.78	3,850.00	12.90	116.94	174.24	-2,646.60	266.85	2,660.02	2,530.18	129.85	20.486 ES		
3,700.00	3,699.95	3,870.00	3,869.21	13.26	117.53	85.44	-2,646.60	266.85	2,661.04	2,530.32	130.72	20.357 SF		
3,800.00	3,799.63	3,870.00	3,869.21	13.60	117.53	85.31	-2,646.60	266.85	2,665.33	2,534.50	130.83	20.373		
3,900.00	3,898.77	3,870.00	3,869.21	13.95	117.53	85.08	-2,646.60	266.85	2,672.93	2,542.17	130.76	20.441		
4,000.00	3,997.08	3,870.00	3,869.21	14.30	117.53	84.76	-2,646.60	266.85	2,683.79	2,553.25	130.53	20.560		
4,100.00	4,094.31	3,870.00	3,869.21	14.66	117.53	84.33	-2,646.60	266.85	2,697.84	2,567.68	130.16	20.728		
4,200.00	4,190.18	3,870.00	3,869.21	15.03	117.53	83.81	-2,646.60	266.85	2,714.99	2,585.34	129.65	20.941		

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



Scientific Drilling

Anticollision Report



Company:	Hilcorp Energy Corp.	Local Co-ordinate Reference:	Well San Juan 29-7 Unit NP 515
Project:	Rio Arriba, NM NAD27	TVD Reference:	GL 6543' @ 6543.00ft
Reference Site:	San Juan 29-7 Unit NP 515 Pad	MD Reference:	GL 6543' @ 6543.00ft
Site Error:	0.00 ft	North Reference:	True
Reference Well:	San Juan 29-7 Unit NP 515	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	Grand Junction
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.00 ft
Survey Program: 135-INCLINOMETER													Offset Well Error:	0.00 ft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
4,300.00	4,284.43	3,870.00	3,869.21	15.43	117.53	83.20	-2,646.60	266.85	2,735.14	2,606.11	129.04	21.197		
4,400.00	4,376.96	3,870.00	3,869.21	15.85	117.53	82.77	-2,646.60	266.85	2,758.22	2,629.88	128.34	21.491		
4,500.00	4,469.10	3,870.00	3,869.21	16.31	117.53	82.77	-2,646.60	266.85	2,784.58	2,657.01	127.57	21.829		
4,600.00	4,561.25	3,870.00	3,869.21	16.78	117.53	82.77	-2,646.60	266.85	2,814.25	2,687.54	126.70	22.211		
4,700.00	4,653.39	3,870.00	3,869.21	17.28	117.53	82.77	-2,646.60	266.85	2,847.12	2,721.35	125.77	22.638		
4,800.00	4,745.54	3,870.00	3,869.21	17.79	117.53	82.77	-2,646.60	266.85	2,883.09	2,758.32	124.77	23.108		
4,900.00	4,837.68	3,870.00	3,869.21	18.33	117.53	82.77	-2,646.60	266.85	2,922.04	2,798.33	123.71	23.620		
5,000.00	4,929.83	3,870.00	3,869.21	18.88	117.53	82.77	-2,646.60	266.85	2,963.85	2,841.25	122.60	24.175		
5,100.00	5,021.97	3,870.00	3,869.21	19.44	117.53	82.77	-2,646.60	266.85	3,008.41	2,886.96	121.46	24.769		
5,200.00	5,114.12	3,870.00	3,869.21	20.02	117.53	82.77	-2,646.60	266.85	3,055.59	2,935.31	120.28	25.404		
5,300.00	5,206.26	3,870.00	3,869.21	20.61	117.53	82.77	-2,646.60	266.85	3,105.28	2,986.20	119.08	26.077		
5,400.00	5,298.40	3,870.00	3,869.21	21.22	117.53	82.77	-2,646.60	266.85	3,157.35	3,039.49	117.87	26.788		
5,500.00	5,390.55	3,870.00	3,869.21	21.83	117.53	82.77	-2,646.60	266.85	3,211.69	3,095.05	116.64	27.534		
5,600.00	5,482.69	3,870.00	3,869.21	22.45	117.53	82.77	-2,646.60	266.85	3,268.19	3,152.78	115.42	28.316		
5,700.00	5,574.84	3,870.00	3,869.21	23.09	117.53	82.77	-2,646.60	266.85	3,326.74	3,212.54	114.20	29.132		
5,800.00	5,666.98	3,870.00	3,869.21	23.73	117.53	82.77	-2,646.60	266.85	3,387.23	3,274.25	112.98	29.980		
5,900.00	5,759.13	3,870.00	3,869.21	24.38	117.53	82.77	-2,646.60	266.85	3,449.55	3,337.77	111.78	30.860		
6,000.00	5,851.27	3,870.00	3,869.21	25.03	117.53	82.77	-2,646.60	266.85	3,513.62	3,403.02	110.60	31.769		
6,100.00	5,943.42	3,870.00	3,869.21	25.69	117.53	82.77	-2,646.60	266.85	3,579.34	3,469.90	109.43	32.708		
6,200.00	6,035.56	3,870.00	3,869.21	26.36	117.53	82.77	-2,646.60	266.85	3,646.61	3,538.31	108.29	33.673		
6,300.00	6,128.27	3,870.00	3,869.21	27.01	117.53	84.93	-2,646.60	266.85	3,715.48	3,608.33	107.15	34.675		
6,400.00	6,222.76	3,870.00	3,869.21	27.61	117.53	87.91	-2,646.60	266.85	3,786.05	3,680.10	105.95	35.735		
6,500.00	6,318.83	3,870.00	3,869.21	28.16	117.53	91.02	-2,646.60	266.85	3,858.05	3,753.36	104.69	36.852		
6,600.00	6,416.22	3,870.00	3,869.21	28.64	117.53	94.24	-2,646.60	266.85	3,931.21	3,827.83	103.38	38.026		
6,700.00	6,514.66	3,870.00	3,869.21	29.07	117.53	97.53	-2,646.60	266.85	4,005.27	3,903.24	102.03	39.254		
6,800.00	6,613.88	3,870.00	3,869.21	29.45	117.53	100.86	-2,646.60	266.85	4,079.99	3,979.34	100.65	40.535		
6,900.00	6,713.62	3,870.00	3,869.21	29.79	117.53	104.19	-2,646.60	266.85	4,155.14	4,055.88	99.25	41.864		
7,000.00	6,813.59	3,870.00	3,869.21	30.09	117.53	-164.17	-2,646.60	266.85	4,230.49	4,132.65	97.84	43.239		
7,100.00	6,913.59	3,870.00	3,869.21	30.38	117.53	-164.17	-2,646.60	266.85	4,306.50	4,210.05	96.45	44.650		
7,200.00	7,013.59	3,870.00	3,869.21	30.67	117.53	-164.17	-2,646.60	266.85	4,383.47	4,288.37	95.10	46.094		
7,300.00	7,113.59	3,870.00	3,869.21	30.96	117.53	-164.17	-2,646.60	266.85	4,461.35	4,367.57	93.79	47.570		
7,400.00	7,213.59	3,870.00	3,869.21	31.25	117.53	-164.17	-2,646.60	266.85	4,540.10	4,447.59	92.51	49.076		
7,500.00	7,313.59	3,870.00	3,869.21	31.55	117.53	-164.17	-2,646.60	266.85	4,619.68	4,528.40	91.28	50.613		
7,600.00	7,413.59	3,870.00	3,869.21	31.84	117.53	-164.17	-2,646.60	266.85	4,700.03	4,609.95	90.08	52.178		
7,700.00	7,513.59	3,870.00	3,869.21	32.14	117.53	-164.17	-2,646.60	266.85	4,781.13	4,692.21	88.92	53.770		
7,800.00	7,613.59	3,870.00	3,869.21	32.44	117.53	-164.17	-2,646.60	266.85	4,862.93	4,775.13	87.79	55.390		
7,900.00	7,713.59	3,870.00	3,869.21	32.74	117.53	-164.17	-2,646.60	266.85	4,945.39	4,858.68	86.71	57.034		
8,000.00	7,813.59	3,870.00	3,869.21	33.04	117.53	-164.17	-2,646.60	266.85	5,028.50	4,942.84	85.66	58.703		
8,100.00	7,913.59	3,870.00	3,869.21	33.34	117.53	-164.17	-2,646.60	266.85	5,112.21	5,027.56	84.65	60.394		
8,200.00	8,013.59	3,870.00	3,869.21	33.65	117.53	-164.17	-2,646.60	266.85	5,196.49	5,112.82	83.67	62.108		
8,286.41	8,100.00	3,870.00	3,869.21	33.91	117.53	-164.17	-2,646.60	266.85	5,269.77	5,186.92	82.85	63.605		

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



Scientific Drilling Anticollision Report

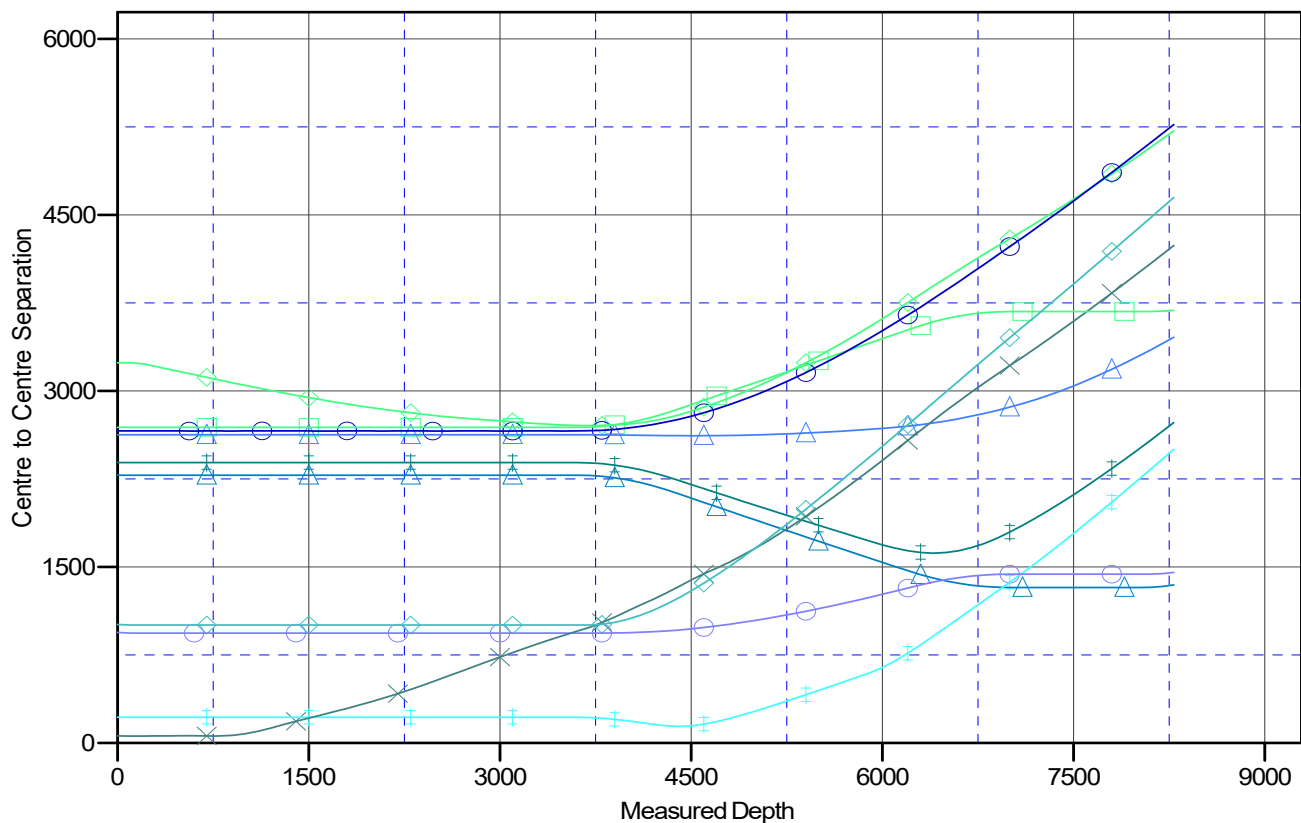


Company:	Hilcorp Energy Corp.	Local Co-ordinate Reference:	Well San Juan 29-7 Unit NP 515
Project:	Rio Arriba, NM NAD27	TVD Reference:	GL 6543' @ 6543.00ft
Reference Site:	San Juan 29-7 Unit NP 515 Pad	MD Reference:	GL 6543' @ 6543.00ft
Site Error:	0.00 ft	North Reference:	True
Reference Well:	San Juan 29-7 Unit NP 515	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	Grand Junction
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Reference Depths are relative to GL 6543' @ 6543.00ft
Offset Depths are relative to Offset Datum
Central Meridian is -107.8333334

Coordinates are relative to: San Juan 29-7 Unit NP 515
Coordinate System is US State Plane 1927 (Exact solution), New Mexico West 30
Grid Convergence at Surface is: 0.19°

Ladder Plot



LEGEND

- ◆ San Juan 29-6 UN 051A, OH, OH V0
 ○ San Juan 29-7 UN 105, OH, OH V0
 ◆ San Juan 29-7 UN 180, OH, OH V0
- ▲ San Juan 29-6 UN 108M, OH, OH V0
 ✕ San Juan 29-7 UN 105E, OH, OH V0
 ○ San Juan 29-7 UN 193, OH, OH V0
- ◆ San Juan 29-7 UN 055, OH, OH V0
 ■ San Juan 29-7 UN 106M, OH, OH V0
- ▲ San Juan 29-7 UN 055A, OH, OH V0
 ◆ San Juan 29-7 UN 139N, OH, OH V0

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



Scientific Drilling Anticollision Report

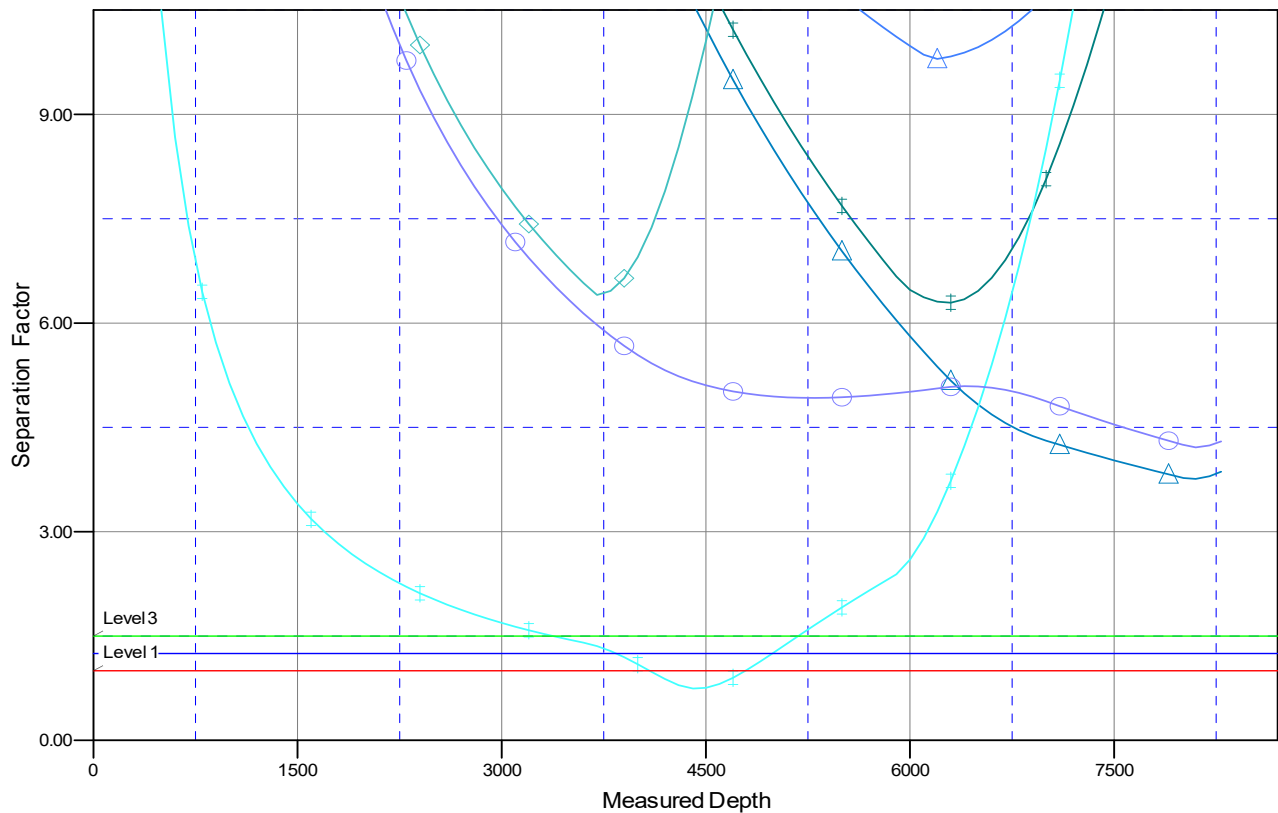


Company:	Hilcorp Energy Corp.	Local Co-ordinate Reference:	Well San Juan 29-7 Unit NP 515
Project:	Rio Arriba, NM NAD27	TVD Reference:	GL 6543' @ 6543.00ft
Reference Site:	San Juan 29-7 Unit NP 515 Pad	MD Reference:	GL 6543' @ 6543.00ft
Site Error:	0.00 ft	North Reference:	True
Reference Well:	San Juan 29-7 Unit NP 515	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	Grand Junction
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Reference Depths are relative to GL 6543' @ 6543.00ft
Offset Depths are relative to Offset Datum
Central Meridian is -107.833334

Coordinates are relative to: San Juan 29-7 Unit NP 515
Coordinate System is US State Plane 1927 (Exact solution), New Mexico West 30
Grid Convergence at Surface is: 0.19°

Separation Factor Plot



LEGEND

- San Juan 29-6 UN 051A, OH, OH V0
- San Juan 29-6 UN 108M, OH, OH V0
- San Juan 29-7 UN 055, OH, OH V0
- San Juan 29-7 UN 055A, OH, OH V0
- San Juan 29-7 UN 105, OH, OH V0
- San Juan 29-7 UN 105E, OH, OH V0
- San Juan 29-7 UN 106M, OH, OH V0
- San Juan 29-7 UN 139N, OH, OH V0
- San Juan 29-7 UN 180, OH, OH V0
- San Juan 29-7 UN 193, OH, OH V0

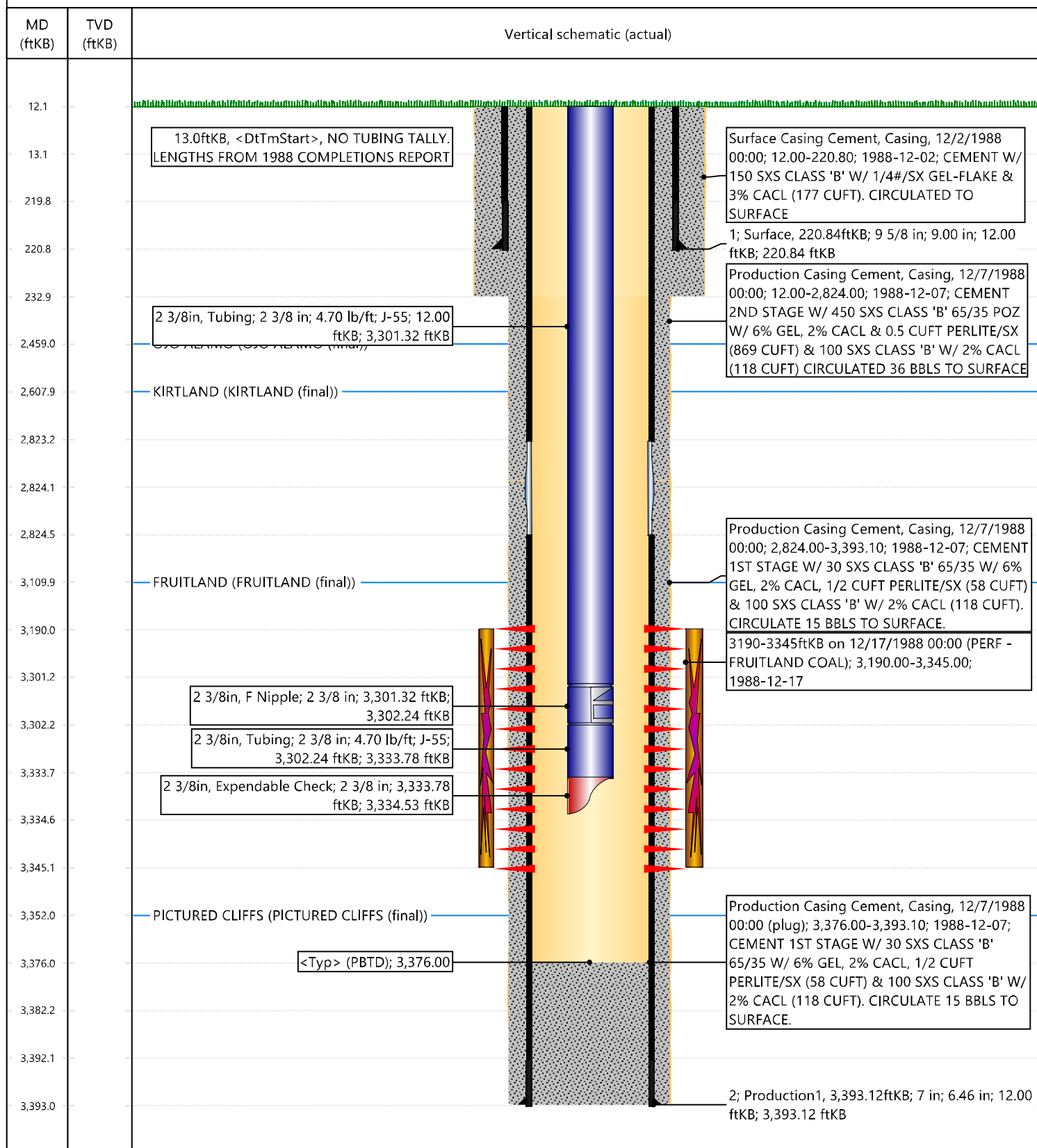


Current Schematic - Version 3

Well Name: SAN JUAN 29-7 UNIT NP #515

API / UWI 3003924315	Surface Legal Location 036-029N-007W-H	Field Name BASIN (FRUITLAND COAL)	Route 1003	State/Province NEW MEXICO	Well Configuration Type VERTICAL
Ground Elevation (ft) 6,531.00	Original KB/RT Elevation (ft) 6,543.00	Tubing Hanger Elevation (ft)	RKB to GL (ft) 12.00	KB-Casing Flange Distance (ft)	KB-Tubing Hanger Distance (ft)

Original Hole [VERTICAL]



San Juan 29-7 Unit NP 515 - Proposed Wellbore Diagram

sand/casing	MD	TVD	PP						Hole size	MW
									12.25	water
									Existing	
	9.625	220	220						8.75	
OJO_ALAMO_TOP		2412	2412							
KIRTLAND		2609	2609	8.8						
FRUITLAND *		2945	2945	8.8					Existing	
	7	3393							6.125	8.4
Pictured Cliffs		3561	3360							
Chacra		4502	4328							
Upper Cliff House		5226	5106							
Mefee		5336	5190							
Pt Lookout		5731	5523							
El Vado		6955	6769							
Juana Lopez		7396	7210							
Greenhorn		7691	7505						TOC = 3457	
Graneros		7718	7556						564 sxs at 13.0 ppg	1.44 ft^3/sx
Dakota		7742	7742							
Cubero		7907	7721							
Cubero L		7923	7754							
Encinal		8022	7836							9.2
	4.5	8286	8100							
All depth are from KB										

OD	\$/ft	Depth	Cxn	Wt	Grade	ID	Drift	Capacity	Displacement	
									Closed	Open
9.625	na	220	STC	36	H40	8.921	8.765	0.077311	0.089995	0.01268349
7	na	3416	LTC	23	J55	6.366	6.241	0.039369	0.047601	0.00823202
4.5		8286	LTC	11.6	J55	4	3.875	0.015543	0.019672	0.00412862

OD	Burst	SF	Collapse	SF	Tension			
					Body	SF	jt	SF
9.625	2550	1.6	1720	18.3	410	3.8	294	2.7
7	4350	1.4	3270	1.9	366	2.0	313	1.7
4.5	5350	2.4	4960	1.3	184	1.3	180	1.3

District I
1625 N. French Dr., Hobbs, NM 88240
Phone:(575) 393-6161 Fax:(575) 393-0720
District II
811 S. First St., Artesia, NM 88210
Phone:(575) 748-1283 Fax:(575) 748-9720
District III
1000 Rio Brazos Rd., Aztec, NM 87410
Phone:(505) 334-6178 Fax:(505) 334-6170
District IV
1220 S. St Francis Dr., Santa Fe, NM 87505
Phone:(505) 476-3470 Fax:(505) 476-3462

State of New Mexico
Energy, Minerals and Natural Resources
Oil Conservation Division
1220 S. St Francis Dr.
Santa Fe, NM 87505

CONDITIONS

Action 357085

CONDITIONS

Operator: HILCORP ENERGY COMPANY 1111 Travis Street Houston, TX 77002	OGRID: 372171
	Action Number: 357085
	Action Type: [C-101] Drilling Non-Federal/Indian (APD)

CONDITIONS

Created By	Condition	Condition Date
ward.rikala	Notify OCD 24 hours prior to casing & cement	7/23/2024
ward.rikala	Will require a File As Drilled C-102 and a Directional Survey with the C-104	7/23/2024
ward.rikala	If cement does not circulate on any string, a CBL is required for that string of casing	7/23/2024
ward.rikala	TOC for tie back must be 100' above top Fruitland perforation.	7/23/2024
ward.rikala	If Mancos and Dakota are to be commingled, a DHC approval must be obtained before zones are commingled.	7/23/2024