

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

RECEIVED

APR 09 2019

FORM APPROVED
OMB No. 1004-0137
Expires: July 31, 2010

Farmington Field Office
Bureau of Land Management

5. Lease Serial No.

NMNM0004207

6. If Indian, Allottee or Tribe Name

SUNDRY NOTICES AND REPORTS ON WELLS
Do not use this form for proposals to drill or to re-enter an abandoned well. Use Form 3160-3 (APD) for such proposals.

SUBMIT IN TRIPLICATE - Other instructions on page 2.

1. Type of Well

☐ Oil Well

☒ Gas Well

☐ Other

2. Name of Operator

Hilcorp Energy Company

3a. Address

382 Road 3100, Aztec, NM 87410

3b. Phone No. (include area code)

505-599-3400

7. If Unit of CA/Agreement, Name and/or No.

8. Well Name and No.

Allison Unit 110H

9. API Well No.

30-045-35883

4. Location of Well (Footage, Sec., T., R., M., or Survey Description)

Surface Unit D (NW/NW) 867' FNL & 1094' FWL, Sec. 21, T32N, R06W
Bottomhole Unit C (NE/NW) 111' FNL & 1490' FWL, Sec. 17, T32N, R06W

11. Country or Parish, State

San Juan, New Mexico

12. CHECK THE APPROPRIATE BOX(ES) TO INDICATE NATURE OF NOTICE, REPORT OR OTHER DATA

TYPE OF SUBMISSION

TYPE OF ACTION

☒ Notice of Intent

☐ Subsequent Report

☐ Final Abandonment Notice

☐ Acidize

☐ Alter Casing

☐ Casing Repair

☐ Change Plans

☐ Convert to Injection

☐ Deepen

☐ Fracture Treat

☐ New Construction

☐ Plug and Abandon

☐ Plug Back

☐ Production (Start/Resume)

☐ Reclamation

☐ Recomplete

☐ Temporarily Abandon

☐ Water Disposal

☐ Water Shut-Off

☐ Well Integrity

☒ Other Revised

C102 & Drilling Plans

13. Describe Proposed or Completed Operation: Clearly state all pertinent details, including estimated starting date of any proposed work and approximate duration thereof.

If the proposal is to deepen directionally or recomple horizontally, give subsurface locations and measured and true vertical depths of all pertinent markers and zones. Attach the bond under which the work will be performed or provide the Bond No. on file with BLM/BIA. Required subsequent reports must be filed within 30 days following completion of the involved operations. If the operation results in a multiple completion or recomple in a new interval, a Form 3160-4 must be filed once Testing has been completed. Final Abandonment Notices must be filed only after all requirements, including reclamation, have been completed and the operator has determined that the site is ready for final inspection.)

Hilcorp Energy Company would like to change the drilling plans for the subject well. The well will be no longer have a pilot hole. The revised C102 and drilling plans are attached.

ADHERE TO PREVIOUS NMOC
CONDITIONS OF APPROVAL

NMOC

APR 22 2019

DISTRICT III

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

CONDITIONS OF APPROVAL
Adhere to previously issued stipulations.

14. I hereby certify that the foregoing is true and correct. Name (Printed/Typed)

Priscilla Shorty

Title Operations/Regulatory Technician - Sr.

Signature

Date 4/9/2019

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved by

Title

Petr. Eng

Date

4/17/19

Office

BLM

FARMINGTON

Conditions of approval, if any, are attached. Approval of this notice does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.

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

(Instruction on page 2)

NMOC

District I
1625 N. French Drive, Hobbs, NM 88240
Phone: (575) 393-6161 Fax: (575) 393-0720

District II
811 S. First Street, Artesia, NM 88210
Phone: (575) 748-1283 Fax: (575) 748-9720

District III
1000 Rio Brazos Road, Aztec, NM 87410
Phone: (505) 334-6178 Fax: (505) 334-6170

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

State of New Mexico
Energy, Minerals & Natural Resources Department

Form C-102
Revised August 1, 2011

Submit one copy to
Appropriate District Office

OIL CONSERVATION DIVISION

1220 South St. Francis Drive
Santa Fe, NM 87505

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

*API Number 30-045-35883		*Pool Code 71629	*Pool Name BASIN FRUITLAND COAL
*Property Code 318864	*Property Name ALLISON UNIT		*Well Number 110H
*GRID No. 372171	*Operator Name HILCORP ENERGY COMPANY		*Elevation 6152'

¹⁰ Surface Location

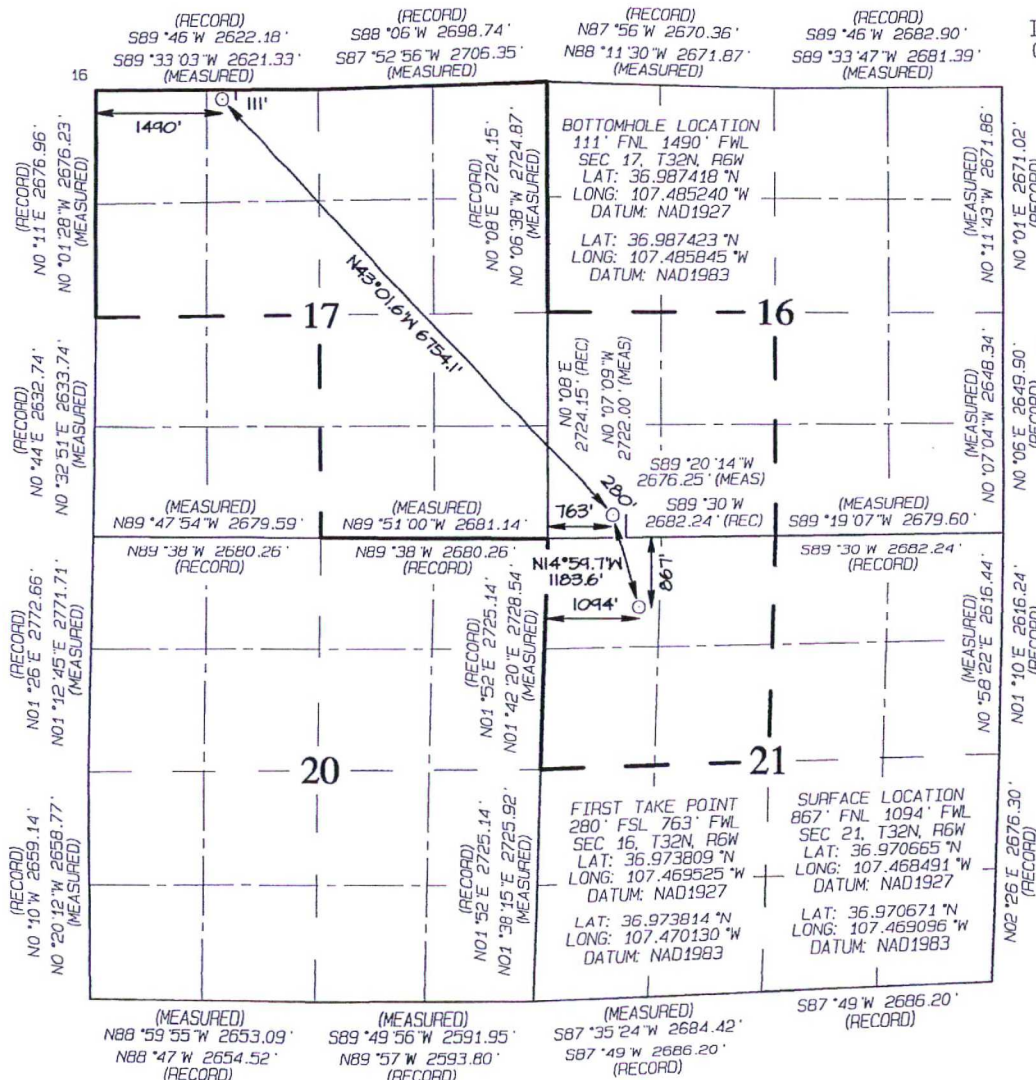
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
D	21	32N	6W		867	NORTH	1094	WEST	SAN JUAN

¹¹ Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
C	17	32N	6W		111	NORTH	1490	WEST	SAN JUAN

¹² Dedicated Acres 800.00	SW/4 - Section 16 N/2, SE/4 - Section 17 NW/4 - Section 21	¹³ Joint or Infill	¹⁴ Consolidation Code	¹⁵ Order No.
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NO ALLOWABLE WILL BE ASSIGNED
TO THIS COMPLETION UNTIL ALL
INTERESTS HAVE BEEN CONSOLIDATED
OR A NON-STANDARD UNIT HAS BEEN
APPROVED BY THE DIVISION



¹⁷ OPERATOR CERTIFICATION

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom-hole location or has a right to drill this well at this location pursuant to a contract with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.

Priscilla Shorty 4/9/19
Signature Date

Printed Name
pshorty@hilcorp.com
E-mail Address

¹⁸ SURVEYOR CERTIFICATION

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

Date Revised: APRIL 8, 2019
Date of Survey: AUGUST 4, 2018

Signature and Seal of Professional Surveyor



JASON C. EDWARDS
Certificate Number 15269



Hilcorp Energy Company

Allison 110H

Hilcorp Energy Company Technical Plan

1. Location

Allison 110H

SHL: 867' FNL, 1094' FWL, Sec 21, T32N, R6W

Lat-1 BHL: 111' FNL, 1490' FWL, Sec 17, T32N, R6W

GL: 6152'

2. Geological Markers

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

Formation	Depth (TVD)	Remarks
Ojo Alamo	2015'	Wet
Kirtland	2151'	Wet
Fruitland	2495'	Possible Gas/Water
Pictured Cliffs	2846'	Wet

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

Regional formation tops based on new drill tops (Allison unit 152H) ; NMOCD approved these tops post drill

3. Pressure Control Equipment

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

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



4. Casing & Cement Program

A) The proposed casing program is outlined below:

Proposed Casing				
Casing	Hole Size	Casing Size	Weight/Grade	Depth
Surface	12-1/4"	9-5/8"	32.3# H-40	0' - 500' (MD)
Intermediate	8-3/4"	7"	23# L-80	0' - 3,280' (MD)
Prod Liner (predrilled)	6-1/4"	4-1/2"	11.6# J-55/L-80	3,280' - 10,154.3' (MD)

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

First Take Point is:

Lat1 - 3,280' MD / 2,691' TVD.

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

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



B) The proposed cement program is shown below:

Cement Program						
Interval	Depth (MD)	Sacks	Slurry	Excess	Volume	Planned Cement Top
Surface	500'	265	Lead Cmt: Varicem Cement 2% Calcium Chloride, pellet 0.1250 lbm/sk Poly-E-Flake 1.18 ft ³ / sk - 5.24 gal/sk 15.8 ppg	100%	313 ft ³	Surface
Intermediate	3,280'	350	Lead Cmt: Varicem Cement 0.3% Super CBL 0.3 % FE-2 5 lbm/sk Kol-Seal 0.125 lbm/sk Poly-E-Flake 2.11 ft ³ / sk - 11.25 gal/sk 12.9 ppg	50%	740 ft ³	Surface
Production		N/A	N/A – Open hole with pre-drilled liner	N/A	N/A	N/A

Actual cement volumes will be determined and may be adjusted onsite based on well conditions. For the intermediate hole, a 2-stage cement job may be performed if hole conditions indicate during operations. Stage tool will be placed appropriately as conditions indicate.

C) The proposed centralizer program is shown below:

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

To allow adequate time for cement to achieve a minimum of 500 psi compressive strength, a



Hilcorp Energy Company

Allison 110H

minimum of 8 hours wait on cement time for each hole section will be observed. The wellhead will not be installed, casing will not be tested, and the prior casing shoe will not be drilled out until adequate wait on cement time is achieved.

5. Drilling Fluids

A) The proposed drilling fluid program is outlined below:

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

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

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

B) Closed loop equipment will be utilized for solids control. Cuttings from surface, intermediate, and production hole will be hauled to an approved disposal site.

6. Abnormal Pressures & Hazards

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

7. Intermediate Hole Section

- The intermediate hole section will be drilled to a depth of 15' TVD above the target coal seam, with inclination at 80 deg so the lateral can be landed immediately after drilling out the shoe.
- GR will be run in the BHA and will be used in conjunction with mud logger data to determine the exact TVD depth of the target coal seam.
- 7" casing will be run and cemented to surface.

8. Testing, Logging, Coring

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

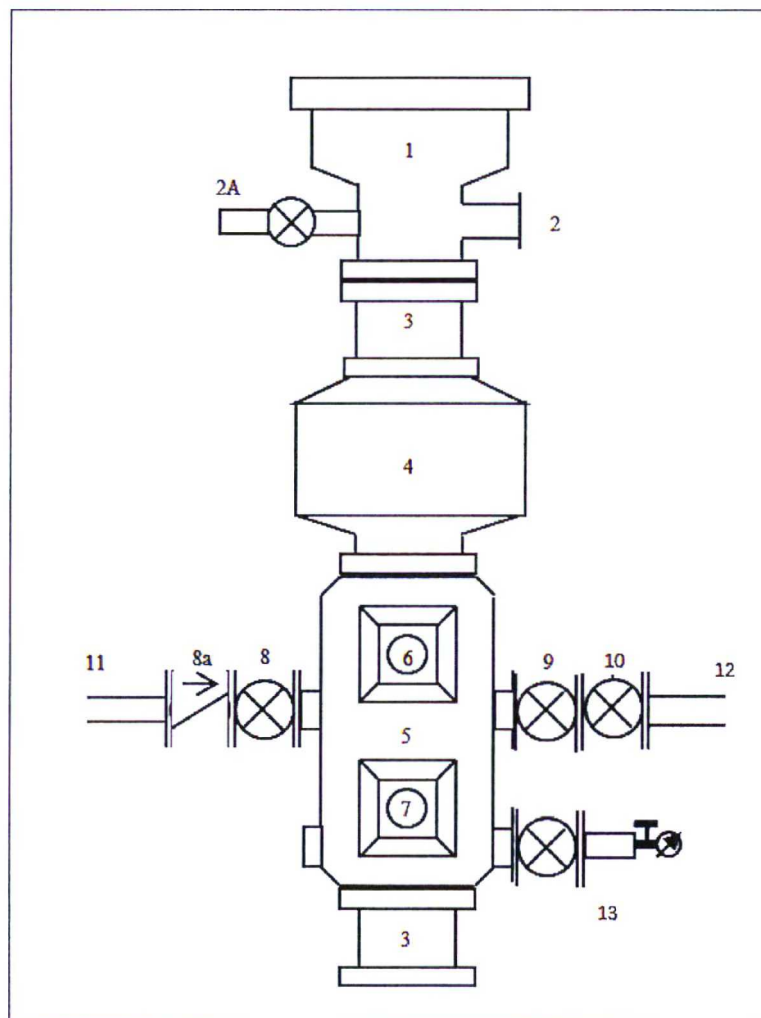
9. Directional Plan

The planned wellbore directional plan and plot is attached.

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

BOPE Schematic – Aztec 777

1. Rotating Head
2. Flow line
- 2A. Fill up line and valve
3. Spacer Spools (as needed)
4. 11" 3M Annular Preventer
5. 11" 3M Double Ram Preventer
6. Blind Rams
7. Pipe Rams
8. 3M Gate Valve (2")
- 8a. Check valve
9. 3M Manual Gate Valve (3")
10. 3M Manual Gate Valve (3")
11. Kill Line Connection, 2" hard line
12. Choke Line (3" Co-Flex)
13. Secondary outlet with valve, bull plug, needle valve, and pressure gauge





Hilcorp Energy Company

Hilcorp Energy Company

San Juan County, NM (NAD27)

.T32N - R06W SEC 21

Allison Unit 110H

Original Hole

Plan: Rev 1

Standard Planning Report - Geographic

29 March, 2019

KOLTEK
ENERGY SERVICES



Hilcorp Energy Company

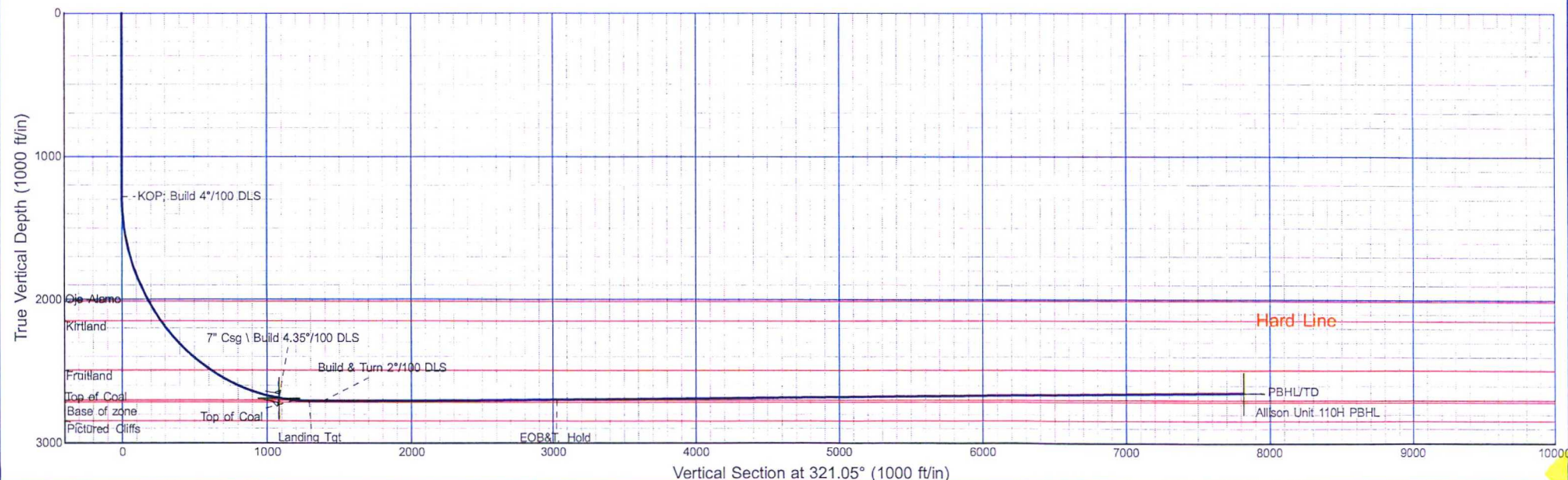
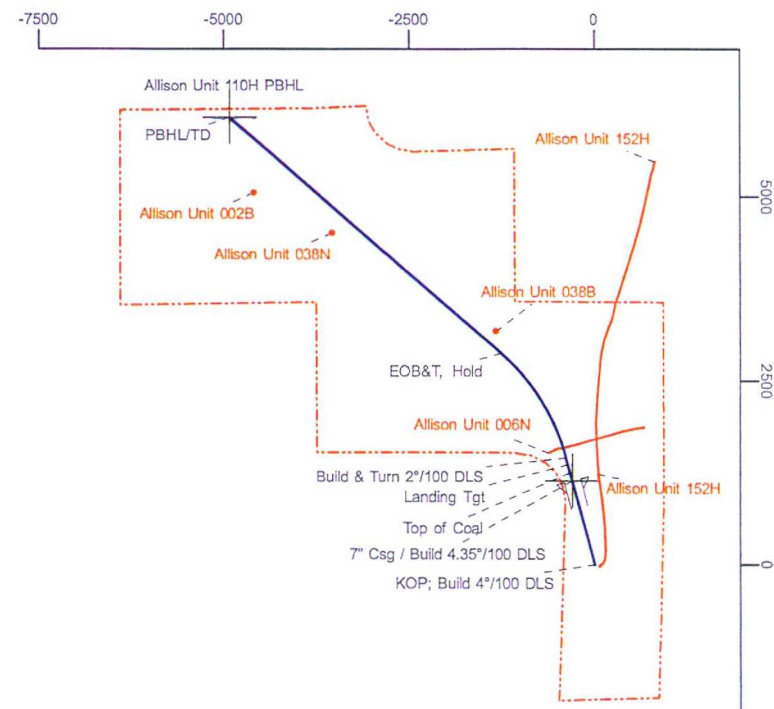
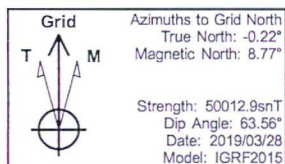
KOLTEK
ENERGY SERVICES

Well: Allison Unit 110H		Field: San Juan County, NM (NAD27)		Site: .T32N - R06W SEC 21		Rig: TBD	Plan: Rev 1	
Borehole: Original Hole	Plan Date: 03-29-2019	Datum: US State Plane 1927	KB: 6167ft	Latitude: 36.970665	Longitude: -107.468491	Model: IGRF2015	Date: 28-Mar-19	DEC: 8.99°
VSec: 321.05deg	Grid Conv: 0.22	Zone: New Mexico West 3003	GL: 6152.00ft	Northing: 2172794.07	Easting: 606580.63	DIP: 63.56°	FS: 50013	North Ref: Grid

Critical Points										
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSec	Annotation
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	1280.36	0.00	0.00	1280.36	0.00	0.00	0.00	0.00	0.00	KOP; Build 4°/100 DLS
3	3280.36	80.00	345.00	2691.00	1143.33	-306.35	4.00	345.00	1081.77	Build 4.35°/100 DLS
4	3395.41	85.01	345.00	2706.00	1253.47	-335.87	4.35	0.00	1185.98	Top of Coal
5	3510.35	90.00	345.00	2711.00	1364.36	-365.58	4.34	0.00	1290.90	Landing Tgt
6	3610.35	90.00	345.00	2711.00	1460.95	-391.46	0.00	0.00	1382.29	Build & Turn 2°/100 DLS
7	5293.41	90.59	311.34	2702.07	2870.44	-1266.33	2.00	-88.93	3028.43	EOB&T, Hold
8	10153.55	90.59	311.34	2652.00	6080.74	-4914.94	0.00	0.00	7818.70	PBHL/TD

Target Details							
Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
Allison Unit 110H ICP	2691.00	1143.33	-306.35	2173937.40	606274.29	36.973809	-107.469525
Allison Unit 110H PBHL	2652.00	6080.74	-4914.94	2178874.80	601665.70	36.987418	-107.485239

Casing Details				Formation Top Details		
TVD	MD	Name	Size	TVDPath	MDPath	Formation
2691.00	3280.36	7" Csg	7.000	2015.00	2051.75	Ojo Alamo
				2151.00	2216.16	Kirtland
				2495.00	2730.17	Fruitland
				2706.00	3395.41	Top of Coal





Koltek Energy Services
Planning Report - Geographic



Database: EDM 5000.1 Single User Db
Company: Hilcorp Energy Company
Project: San Juan County, NM (NAD27)
Site: .T32N - R06W SEC 21
Well: Allison Unit 110H
Wellbore: Original Hole
Design: Rev 1

Local Co-ordinate Reference: Well Allison Unit 110H
TVD Reference: KB 15 ft @ 6167.00ft (TBD)
MD Reference: KB 15 ft @ 6167.00ft (TBD)
North Reference: Grid
Survey Calculation Method: Minimum Curvature

Project San Juan County, 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 .T32N - R06W SEC 21

Site Position: Northing: 2,172,794.07 usft Latitude: 36.970665
From: Lat/Long Easting: 606,580.64 usft Longitude: -107.468491
Position Uncertainty: 0.00 ft Slot Radius: 13.200 in Grid Convergence: 0.22 °

Well Allison Unit 110H

Well Position +N/-S 0.00 ft Northing: 2,172,794.07 usft Latitude: 36.970665
+E/-W 0.00 ft Easting: 606,580.64 usft Longitude: -107.468491
Position Uncertainty 0.00 ft Wellhead Elevation: 0.00 ft Ground Level: 6,152.00 ft

Wellbore Original Hole

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	2019/03/28	8.99	63.56	50,013

Design Rev 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	321.05

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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,280.36	0.00	0.00	1,280.36	0.00	0.00	0.00	0.00	0.00	0.00	
3,280.36	80.00	345.00	2,691.00	1,143.33	-306.35	4.00	4.00	0.00	345.00	
3,395.41	85.01	345.00	2,706.00	1,253.47	-335.87	4.35	4.35	0.00	0.00	
3,510.35	90.00	345.00	2,711.00	1,364.36	-365.58	4.34	4.34	0.00	0.00	
3,610.35	90.00	345.00	2,711.00	1,460.95	-391.46	0.00	0.00	0.00	0.00	
5,293.41	90.59	311.34	2,702.07	2,870.44	-1,266.33	2.00	0.04	-2.00	-88.93	
10,153.55	90.59	311.34	2,652.00	6,080.74	-4,914.94	0.00	0.00	0.00	0.00	Allison Unit 110H PBH



Koltek Energy Services
Planning Report - Geographic



Database: EDM 5000.1 Single User Db
Company: Hilcorp Energy Company
Project: San Juan County, NM (NAD27)
Site: T32N - R06W SEC 21
Well: Allison Unit 110H
Wellbore: Original Hole
Design: Rev 1

Local Co-ordinate Reference: Well Allison Unit 110H
TVD Reference: KB 15 ft @ 6167.00ft (TBD)
MD Reference: KB 15 ft @ 6167.00ft (TBD)
North Reference: Grid
Survey Calculation Method: Minimum Curvature

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
0.00	0.00	0.00	0.00	0.00	0.00	2,172,794.07	606,580.64	36.970665	-107.468491
100.00	0.00	0.00	100.00	0.00	0.00	2,172,794.07	606,580.64	36.970665	-107.468491
200.00	0.00	0.00	200.00	0.00	0.00	2,172,794.07	606,580.64	36.970665	-107.468491
300.00	0.00	0.00	300.00	0.00	0.00	2,172,794.07	606,580.64	36.970665	-107.468491
400.00	0.00	0.00	400.00	0.00	0.00	2,172,794.07	606,580.64	36.970665	-107.468491
500.00	0.00	0.00	500.00	0.00	0.00	2,172,794.07	606,580.64	36.970665	-107.468491
600.00	0.00	0.00	600.00	0.00	0.00	2,172,794.07	606,580.64	36.970665	-107.468491
700.00	0.00	0.00	700.00	0.00	0.00	2,172,794.07	606,580.64	36.970665	-107.468491
800.00	0.00	0.00	800.00	0.00	0.00	2,172,794.07	606,580.64	36.970665	-107.468491
900.00	0.00	0.00	900.00	0.00	0.00	2,172,794.07	606,580.64	36.970665	-107.468491
1,000.00	0.00	0.00	1,000.00	0.00	0.00	2,172,794.07	606,580.64	36.970665	-107.468491
1,100.00	0.00	0.00	1,100.00	0.00	0.00	2,172,794.07	606,580.64	36.970665	-107.468491
1,200.00	0.00	0.00	1,200.00	0.00	0.00	2,172,794.07	606,580.64	36.970665	-107.468491
1,280.36	0.00	0.00	1,280.36	0.00	0.00	2,172,794.07	606,580.64	36.970665	-107.468491
KOP; Build 4"/100 DLS									
1,300.00	0.79	345.00	1,300.00	0.13	-0.03	2,172,794.20	606,580.60	36.970665	-107.468491
1,400.00	4.79	345.00	1,399.86	4.82	-1.29	2,172,798.89	606,579.35	36.970678	-107.468496
1,500.00	8.79	345.00	1,499.14	16.23	-4.35	2,172,810.30	606,576.29	36.970710	-107.468506
1,600.00	12.79	345.00	1,597.35	34.31	-9.19	2,172,828.37	606,571.45	36.970759	-107.468522
1,700.00	16.79	345.00	1,694.02	58.95	-15.80	2,172,853.02	606,564.84	36.970827	-107.468545
1,800.00	20.79	345.00	1,788.68	90.05	-24.13	2,172,884.12	606,556.51	36.970913	-107.468573
1,900.00	24.79	345.00	1,880.85	127.45	-34.15	2,172,921.52	606,546.49	36.971016	-107.468607
2,000.00	28.79	345.00	1,970.11	170.97	-45.81	2,172,965.04	606,534.83	36.971135	-107.468646
2,051.75	30.86	345.00	2,015.00	195.83	-52.47	2,172,989.90	606,528.17	36.971204	-107.468668
Ojo Alamo									
2,100.00	32.79	345.00	2,056.00	220.40	-59.06	2,173,014.47	606,521.58	36.971271	-107.468691
2,200.00	36.79	345.00	2,138.11	275.50	-73.82	2,173,069.56	606,506.82	36.971423	-107.468740
2,216.16	37.43	345.00	2,151.00	284.92	-76.34	2,173,078.98	606,504.30	36.971448	-107.468749
Kirtland									
2,300.00	40.79	345.00	2,216.04	335.99	-90.03	2,173,130.06	606,490.61	36.971589	-107.468795
2,400.00	44.79	345.00	2,289.42	401.59	-107.61	2,173,195.66	606,473.03	36.971769	-107.468854
2,500.00	48.79	345.00	2,357.88	471.97	-126.46	2,173,266.04	606,454.17	36.971963	-107.468918
2,600.00	52.79	345.00	2,421.09	546.79	-146.51	2,173,340.86	606,434.13	36.972169	-107.468986
2,700.00	56.79	345.00	2,478.74	625.69	-167.65	2,173,419.76	606,412.98	36.972385	-107.469057
2,730.17	57.99	345.00	2,495.00	650.24	-174.23	2,173,444.31	606,406.41	36.972453	-107.469079
Fruitland									
2,800.00	60.79	345.00	2,530.55	708.29	-189.78	2,173,502.35	606,390.85	36.972613	-107.469132
2,900.00	64.79	345.00	2,576.28	794.17	-212.80	2,173,588.23	606,367.84	36.972849	-107.469209
3,000.00	68.79	345.00	2,615.69	882.92	-236.58	2,173,676.99	606,344.06	36.973093	-107.469290
3,100.00	72.79	345.00	2,648.59	974.12	-261.01	2,173,768.18	606,319.63	36.973343	-107.469372
3,200.00	76.79	345.00	2,674.83	1,067.30	-285.98	2,173,861.37	606,294.66	36.973600	-107.469456
3,280.36	80.00	345.00	2,691.00	1,143.33	-306.35	2,173,937.39	606,274.28	36.973809	-107.469525
Build 4.35"/100 DLS - 7" Csg - Allison Unit 110H ICP									
3,300.00	80.86	345.00	2,694.26	1,162.03	-311.37	2,173,956.10	606,269.27	36.973860	-107.469542
3,395.41	85.01	345.00	2,706.00	1,253.47	-335.87	2,174,047.54	606,244.77	36.974112	-107.469625
Top of Coal									
3,400.00	85.21	345.00	2,706.39	1,257.89	-337.05	2,174,051.96	606,243.59	36.974124	-107.469629
3,500.00	89.55	345.00	2,710.96	1,354.36	-362.90	2,174,148.42	606,217.74	36.974389	-107.469716
3,510.18	89.99	345.00	2,711.00	1,364.19	-365.53	2,174,158.26	606,215.10	36.974416	-107.469725
Landing Tgt									
3,510.35	90.00	345.00	2,711.00	1,364.36	-365.58	2,174,158.43	606,215.06	36.974416	-107.469725
3,600.00	90.00	345.00	2,711.00	1,450.95	-388.78	2,174,245.02	606,191.86	36.974655	-107.469803
3,610.18	90.00	345.00	2,711.00	1,460.78	-391.42	2,174,254.85	606,189.22	36.974682	-107.469812
Build & Turn 2"/100 DLS									



Koltek Energy Services
Planning Report - Geographic



Database: EDM 5000.1 Single User Db
Company: Hilcorp Energy Company
Project: San Juan County, NM (NAD27)
Site: T32N - R06W SEC 21
Well: Allison Unit 110H
Wellbore: Original Hole
Design: Rev 1

Local Co-ordinate Reference: Well Allison Unit 110H
TVD Reference: KB 15 ft @ 6167.00ft (TBD)
MD Reference: KB 15 ft @ 6167.00ft (TBD)
North Reference: Grid
Survey Calculation Method: Minimum Curvature

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
3,610.35	90.00	345.00	2,711.00	1,460.95	-391.46	2,174,255.02	606,189.18	36.974682	-107.469812
3,700.00	90.03	343.21	2,710.97	1,547.17	-416.01	2,174,341.23	606,164.63	36.974919	-107.469895
3,800.00	90.07	341.21	2,710.88	1,642.38	-446.57	2,174,436.44	606,134.07	36.975181	-107.469998
3,900.00	90.11	339.21	2,710.73	1,736.47	-480.43	2,174,530.53	606,100.21	36.975440	-107.470113
4,000.00	90.14	337.21	2,710.51	1,829.32	-517.55	2,174,623.38	606,063.09	36.975695	-107.470239
4,100.00	90.18	335.21	2,710.22	1,920.81	-557.89	2,174,714.88	606,022.75	36.975947	-107.470376
4,200.00	90.22	333.21	2,709.88	2,010.85	-601.39	2,174,804.91	605,979.24	36.976195	-107.470524
4,300.00	90.25	331.21	2,709.46	2,099.31	-648.02	2,174,893.37	605,932.62	36.976438	-107.470682
4,400.00	90.29	329.21	2,708.99	2,186.09	-697.70	2,174,980.15	605,882.94	36.976677	-107.470851
4,500.00	90.33	327.21	2,708.45	2,271.08	-750.37	2,175,065.14	605,830.27	36.976911	-107.471030
4,600.00	90.36	325.21	2,707.85	2,354.18	-805.98	2,175,148.24	605,774.65	36.977140	-107.471220
4,700.00	90.40	323.21	2,707.19	2,435.29	-864.46	2,175,229.36	605,716.18	36.977363	-107.471419
4,800.00	90.43	321.21	2,706.47	2,514.31	-925.73	2,175,308.38	605,654.91	36.977581	-107.471627
4,900.00	90.46	319.21	2,705.70	2,591.15	-989.72	2,175,385.21	605,590.92	36.977793	-107.471846
5,000.00	90.50	317.21	2,704.86	2,665.70	-1,056.36	2,175,459.76	605,524.28	36.977998	-107.472073
5,100.00	90.53	315.21	2,703.96	2,737.89	-1,125.55	2,175,531.95	605,455.09	36.978197	-107.472309
5,200.00	90.56	313.21	2,703.01	2,807.61	-1,197.22	2,175,601.67	605,383.42	36.978389	-107.472553
5,293.17	90.59	311.35	2,702.07	2,870.28	-1,266.15	2,175,664.35	605,314.49	36.978562	-107.472788
EOB&T, Hold									
5,293.41	90.59	311.34	2,702.07	2,870.44	-1,266.33	2,175,664.50	605,314.31	36.978563	-107.472789
5,300.00	90.59	311.34	2,702.00	2,874.80	-1,271.28	2,175,668.86	605,309.37	36.978575	-107.472806
5,400.00	90.59	311.34	2,700.97	2,940.85	-1,346.35	2,175,734.91	605,234.29	36.978757	-107.473062
5,500.00	90.59	311.34	2,699.94	3,006.90	-1,421.42	2,175,800.96	605,159.22	36.978939	-107.473318
5,600.00	90.59	311.34	2,698.91	3,072.96	-1,496.49	2,175,867.02	605,084.15	36.979121	-107.473574
5,700.00	90.59	311.34	2,697.88	3,139.01	-1,571.56	2,175,933.07	605,009.08	36.979304	-107.473830
5,800.00	90.59	311.34	2,696.85	3,205.06	-1,646.64	2,175,999.13	604,934.00	36.979486	-107.474086
5,900.00	90.59	311.34	2,695.82	3,271.12	-1,721.71	2,176,065.18	604,858.93	36.979668	-107.474343
6,000.00	90.59	311.34	2,694.79	3,337.17	-1,796.78	2,176,131.23	604,783.86	36.979850	-107.474599
6,100.00	90.59	311.34	2,693.76	3,403.23	-1,871.85	2,176,197.29	604,708.79	36.980032	-107.474855
6,200.00	90.59	311.34	2,692.73	3,469.28	-1,946.93	2,176,263.34	604,633.72	36.980215	-107.475111
6,300.00	90.59	311.34	2,691.70	3,535.33	-2,022.00	2,176,329.39	604,558.64	36.980397	-107.475367
6,400.00	90.59	311.34	2,690.67	3,601.39	-2,097.07	2,176,395.45	604,483.57	36.980579	-107.475623
6,500.00	90.59	311.34	2,689.64	3,667.44	-2,172.14	2,176,461.50	604,408.50	36.980761	-107.475880
6,600.00	90.59	311.34	2,688.61	3,733.49	-2,247.22	2,176,527.55	604,333.43	36.980943	-107.476136
6,700.00	90.59	311.34	2,687.58	3,799.55	-2,322.29	2,176,593.61	604,258.36	36.981126	-107.476392
6,800.00	90.59	311.34	2,686.55	3,865.60	-2,397.36	2,176,659.66	604,183.28	36.981308	-107.476648
6,900.00	90.59	311.34	2,685.52	3,931.65	-2,472.43	2,176,725.71	604,108.21	36.981490	-107.476904
7,000.00	90.59	311.34	2,684.49	3,997.71	-2,547.50	2,176,791.77	604,033.14	36.981672	-107.477160
7,100.00	90.59	311.34	2,683.46	4,063.76	-2,622.58	2,176,857.82	603,958.07	36.981854	-107.477417
7,200.00	90.59	311.34	2,682.43	4,129.82	-2,697.65	2,176,923.88	603,882.99	36.982037	-107.477673
7,300.00	90.59	311.34	2,681.40	4,195.87	-2,772.72	2,176,989.93	603,807.92	36.982219	-107.477929
7,400.00	90.59	311.34	2,680.37	4,261.92	-2,847.79	2,177,055.98	603,732.85	36.982401	-107.478185
7,500.00	90.59	311.34	2,679.34	4,327.98	-2,922.87	2,177,122.04	603,657.78	36.982583	-107.478441
7,600.00	90.59	311.34	2,678.31	4,394.03	-2,997.94	2,177,188.09	603,582.71	36.982765	-107.478697
7,700.00	90.59	311.34	2,677.28	4,460.08	-3,073.01	2,177,254.14	603,507.63	36.982948	-107.478954
7,800.00	90.59	311.34	2,676.25	4,526.14	-3,148.08	2,177,320.20	603,432.56	36.983130	-107.479210
7,900.00	90.59	311.34	2,675.22	4,592.19	-3,223.15	2,177,386.25	603,357.49	36.983312	-107.479466
8,000.00	90.59	311.34	2,674.19	4,658.25	-3,298.23	2,177,452.30	603,282.42	36.983494	-107.479722
8,100.00	90.59	311.34	2,673.16	4,724.30	-3,373.30	2,177,518.36	603,207.35	36.983676	-107.479978
8,200.00	90.59	311.34	2,672.13	4,790.35	-3,448.37	2,177,584.41	603,132.27	36.983859	-107.480235
8,300.00	90.59	311.34	2,671.10	4,856.41	-3,523.44	2,177,650.46	603,057.20	36.984041	-107.480491
8,400.00	90.59	311.34	2,670.07	4,922.46	-3,598.52	2,177,716.52	602,982.13	36.984223	-107.480747
8,500.00	90.59	311.34	2,669.04	4,988.51	-3,673.59	2,177,782.57	602,907.06	36.984405	-107.481003
8,600.00	90.59	311.34	2,668.01	5,054.57	-3,748.66	2,177,848.63	602,831.98	36.984587	-107.481259

Database: EDM 5000.1 Single User Db
Company: Hilcorp Energy Company
Project: San Juan County, NM (NAD27)
Site: T32N - R06W SEC 21
Well: Allison Unit 110H
Wellbore: Original Hole
Design: Rev 1

Local Co-ordinate Reference: Well Allison Unit 110H
TVD Reference: KB 15 ft @ 6167.00ft (TBD)
MD Reference: KB 15 ft @ 6167.00ft (TBD)
North Reference: Grid
Survey Calculation Method: Minimum Curvature

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
8,700.00	90.59	311.34	2,666.98	5,120.62	-3,823.73	2,177,914.68	602,756.91	36.984770	-107.481516
8,800.00	90.59	311.34	2,665.95	5,186.68	-3,898.81	2,177,980.73	602,681.84	36.984952	-107.481772
8,900.00	90.59	311.34	2,664.91	5,252.73	-3,973.88	2,178,046.79	602,606.77	36.985134	-107.482028
9,000.00	90.59	311.34	2,663.88	5,318.78	-4,048.95	2,178,112.84	602,531.70	36.985316	-107.482284
9,100.00	90.59	311.34	2,662.85	5,384.84	-4,124.02	2,178,178.89	602,456.62	36.985498	-107.482540
9,200.00	90.59	311.34	2,661.82	5,450.89	-4,199.09	2,178,244.95	602,381.55	36.985681	-107.482796
9,300.00	90.59	311.34	2,660.79	5,516.94	-4,274.17	2,178,311.00	602,306.48	36.985863	-107.483053
9,400.00	90.59	311.34	2,659.76	5,583.00	-4,349.24	2,178,377.05	602,231.41	36.986045	-107.483309
9,500.00	90.59	311.34	2,658.73	5,649.05	-4,424.31	2,178,443.11	602,156.34	36.986227	-107.483565
9,600.00	90.59	311.34	2,657.70	5,715.10	-4,499.38	2,178,509.16	602,081.26	36.986409	-107.483821
9,700.00	90.59	311.34	2,656.67	5,781.16	-4,574.46	2,178,575.21	602,006.19	36.986592	-107.484077
9,800.00	90.59	311.34	2,655.64	5,847.21	-4,649.53	2,178,641.27	601,931.12	36.986774	-107.484334
9,900.00	90.59	311.34	2,654.61	5,913.27	-4,724.60	2,178,707.32	601,856.05	36.986956	-107.484590
10,000.00	90.59	311.34	2,653.58	5,979.32	-4,799.67	2,178,773.38	601,780.97	36.987138	-107.484846
10,100.00	90.59	311.34	2,652.55	6,045.37	-4,874.75	2,178,839.43	601,705.90	36.987320	-107.485102
10,153.52	90.59	311.34	2,652.00	6,080.72	-4,914.92	2,178,874.78	601,665.73	36.987418	-107.485239
PBHL/TD									
10,153.55	90.59	311.34	2,652.00	6,080.74	-4,914.94	2,178,874.80	601,665.70	36.987418	-107.485240
Allison Unit 110H PBHL									

Design Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
Allison Unit 110H PBHL - plan hits target center - Point	0.00	0.00	2,652.00	6,080.74	-4,914.94	2,178,874.80	601,665.70	36.987418	-107.485240
Allison Unit 110H ICP - plan misses target center by 0.01ft at 3280.36ft MD (2691.00 TVD, 1143.33 N, -306.35 E) - Point	0.00	0.00	2,691.00	1,143.33	-306.35	2,173,937.40	606,274.29	36.973809	-107.469525

Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)
3,280.36	2,691.00	7" Csg	7.000	8.750

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
2,051.75	2,015.00	Ojo Alamo			
2,216.16	2,151.00	Kirtland			
2,730.17	2,495.00	Fruitland			
3,395.41	2,706.00	Top of Coal		0.00	



Koltek Energy Services
Planning Report - Geographic



Database: EDM 5000.1 Single User Db
Company: Hilcorp Energy Company
Project: San Juan County, NM (NAD27)
Site: .T32N - R06W SEC 21
Well: Allison Unit 110H
Wellbore: Original Hole
Design: Rev 1

Local Co-ordinate Reference: Well Allison Unit 110H
TVD Reference: KB 15 ft @ 6167.00ft (TBD)
MD Reference: KB 15 ft @ 6167.00ft (TBD)
North Reference: Grid
Survey Calculation Method: Minimum Curvature

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
1,280.36	1,280.36	0.00	0.00	KOP; Build 4°/100 DLS
3,280.36	2,691.00	1,143.33	-306.35	Build 4.35°/100 DLS
3,395.41	2,706.00	1,253.47	-335.87	Top of Coal
3,510.18	2,711.00	1,364.19	-365.53	Landing Tgt
3,610.18	2,711.00	1,460.78	-391.42	Build & Turn 2°/100 DLS
5,293.17	2,702.07	2,870.28	-1,266.15	EOB&T, Hold
10,153.52	2,652.00	6,080.72	-4,914.92	PBHL/TD



Hilcorp Energy Company

Hilcorp Energy Company

San Juan County, NM (NAD27)

.T32N - R06W SEC 21

Allison Unit 110H

Original Hole

Rev 1

Anticollision Summary Report

28 March, 2019

KOLTEK
ENERGY SERVICES



Koltek Energy Services

Anticollision Summary Report



Company:	Hilcorp Energy Company	Local Co-ordinate Reference:	Well Allison Unit 110H
Project:	San Juan County, NM (NAD27)	TVD Reference:	KB 15 ft @ 6167.00ft (TBD)
Reference Site:	.T32N - R06W SEC 21	MD Reference:	KB 15 ft @ 6167.00ft (TBD)
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Allison Unit 110H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Original Hole	Database:	EDM 5000.1 Single User Db
Reference Design:	Rev 1	Offset TVD Reference:	Reference Datum

Reference	Rev 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 center-center distance of 1,219.62 ft	Error Surface:	Combined Covariances
Warning Levels Evaluated at:	2.00 Sigma	Casing Method:	Added to Error Values

Survey Tool Program		Date	2019/03/28		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
0.00	10,153.52	Rev 1 (Original Hole)	MWD	MWD - Standard	

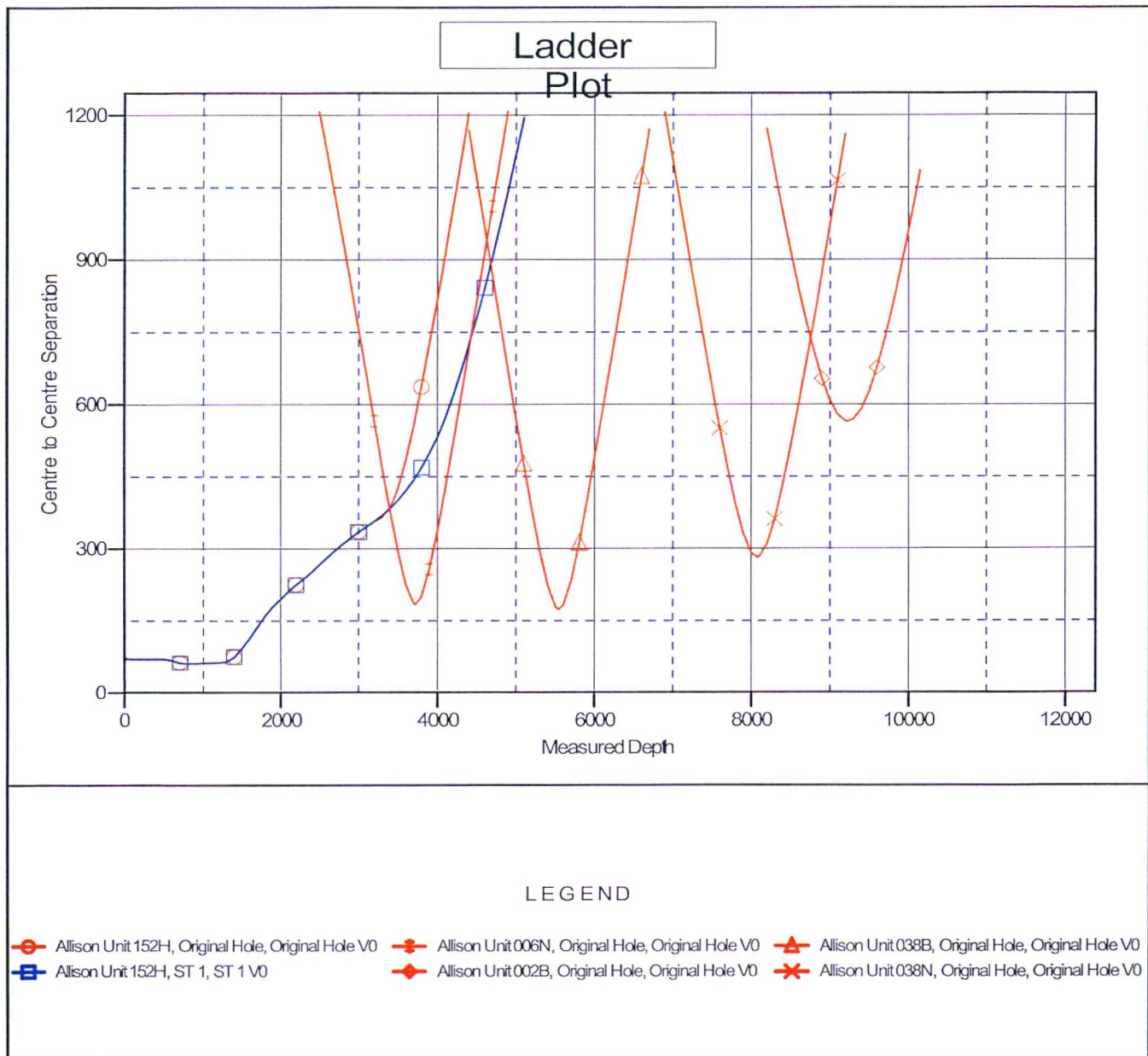
Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
.T32N - R06W SEC 21						
Allison Unit 152H - Original Hole - Original Hole	794.60	782.89	61.55	58.88	23.099	CC
Allison Unit 152H - Original Hole - Original Hole	800.00	788.23	61.55	58.87	22.964	ES
Allison Unit 152H - Original Hole - Original Hole	3,300.00	3,354.66	366.46	337.80	12.784	SF
Allison Unit 152H - ST 1 - ST 1	794.60	782.89	61.55	58.88	23.099	CC
Allison Unit 152H - ST 1 - ST 1	800.00	788.23	61.55	58.87	22.964	ES
Allison Unit 152H - ST 1 - ST 1	3,700.00	3,705.42	443.16	407.67	12.486	SF
T32N - R06W SEC 16						
Allison Unit 006N - Original Hole - Original Hole	3,725.48	2,968.08	184.17	153.01	5.910	CC, ES, SF
T32N - R06W SEC 17						
Allison Unit 002B - Original Hole - Original Hole	9,200.00	3,012.28	565.47	397.02	3.357	Warning, SF
Allison Unit 002B - Original Hole - Original Hole	9,227.77	3,012.15	564.79	396.68	3.360	Warning, CC, ES
Allison Unit 038B - Original Hole - Original Hole	5,541.20	2,698.57	173.09	95.12	2.220	Level 3, CC, ES
Allison Unit 038B - Original Hole - Original Hole	5,600.00	2,697.97	182.80	99.40	2.192	Level 3, SF
Allison Unit 038N - Original Hole - Original Hole	8,073.57	2,968.81	281.69	137.14	1.949	Level 3, CC, ES, SF

Company: Hilcorp Energy Company
Project: San Juan County, NM (NAD27)
Reference Site: .T32N - R06W SEC 21
Site Error: 0.00 ft
Reference Well: Allison Unit 110H
Well Error: 0.00 ft
Reference Wellbore: Original Hole
Reference Design: Rev 1

Local Co-ordinate Reference: Well Allison Unit 110H
TVD Reference: KB 15 ft @ 6167.00ft (TBD)
MD Reference: KB 15 ft @ 6167.00ft (TBD)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: EDM 5000.1 Single User Db
Offset TVD Reference: Reference Datum

Reference Depths are relative to KB 15 ft @ 6167.00ft (TBD)
Offset Depths are relative to Offset Datum
Central Meridian is -107.833334

Coordinates are relative to: Allison Unit 110H
Coordinate System is US State Plane 1927 (Exact solution), New Mexico West 30
Grid Convergence at Surface is: 0.22°

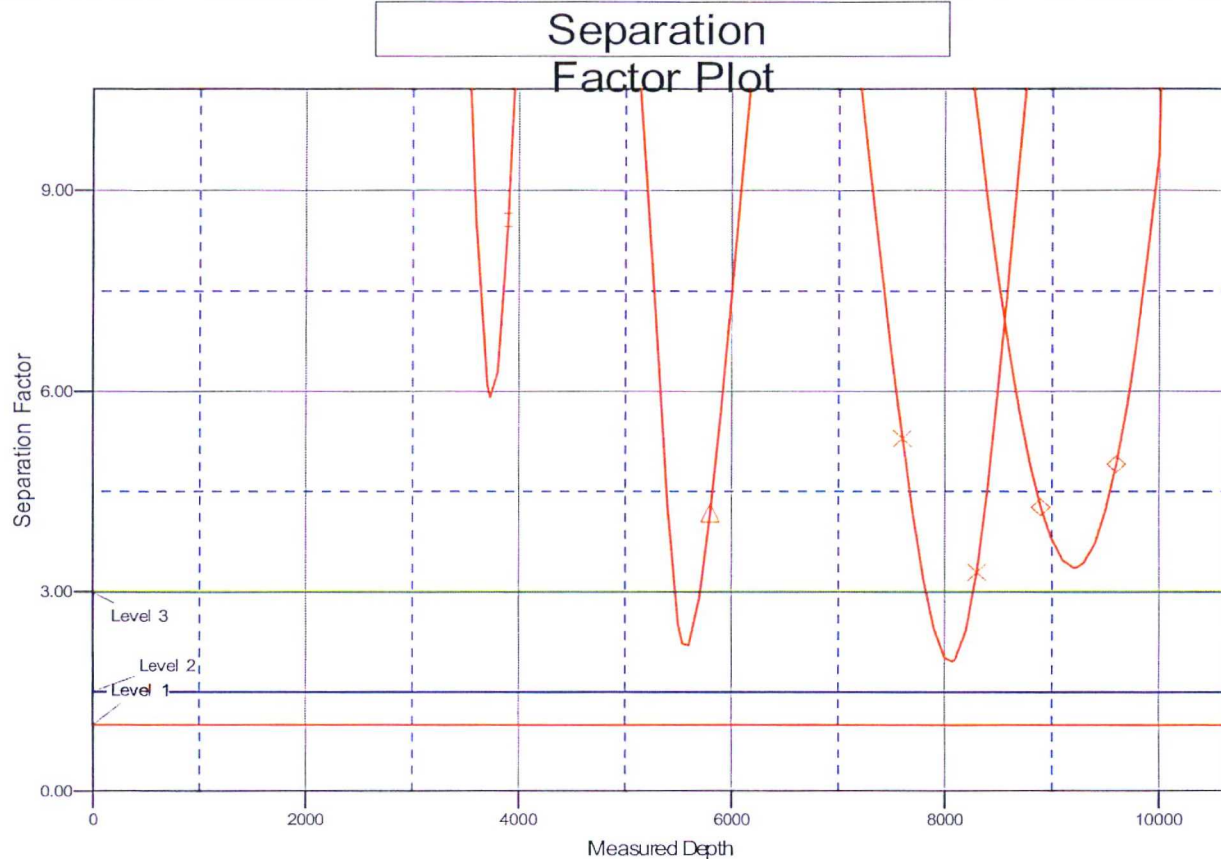


Company: Hilcorp Energy Company
Project: San Juan County, NM (NAD27)
Reference Site: .T32N - R06W SEC 21
Site Error: 0.00 ft
Reference Well: Allison Unit 110H
Well Error: 0.00 ft
Reference Wellbore: Original Hole
Reference Design: Rev 1

Local Co-ordinate Reference: Well Allison Unit 110H
TVD Reference: KB 15 ft @ 6167.00ft (TBD)
MD Reference: KB 15 ft @ 6167.00ft (TBD)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at 2.00 sigma
Database: EDM 5000.1 Single User Db
Offset TVD Reference: Reference Datum

Reference Depths are relative to KB 15 ft @ 6167.00ft (TBD)
Offset Depths are relative to Offset Datum
Central Meridian is -107.833334

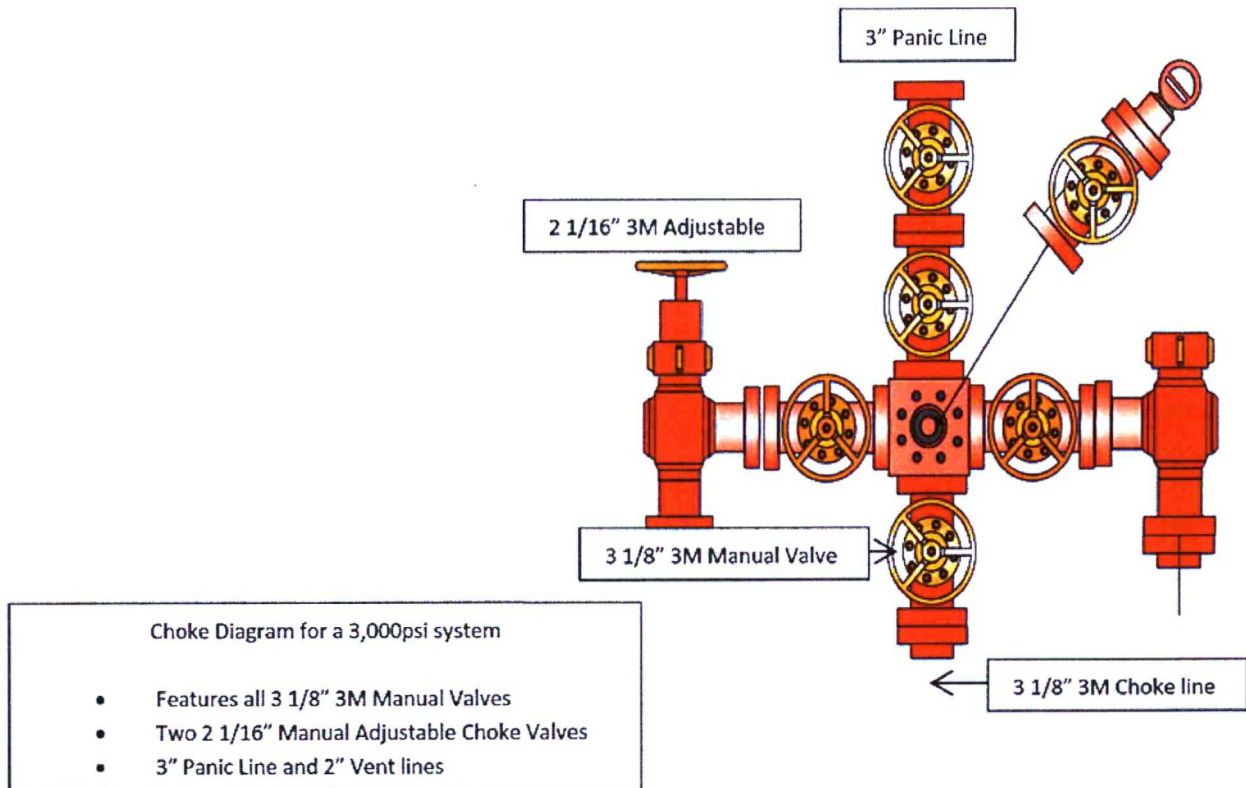
Coordinates are relative to: Allison Unit 110H
Coordinate System is US State Plane 1927 (Exact solution), New Mexico West 30
Grid Convergence at Surface is: 0.22°



LEGEND

○ Allison Unit 152H, Original Hole, Original Hole V0	◇ Allison Unit 006N, Original Hole, Original Hole V0	△ Allison Unit 038B, Original Hole, Original Hole V0
□ Allison Unit 152H, ST 1, ST 1 V0	◇ Allison Unit 002B, Original Hole, Original Hole V0	× Allison Unit 038N, Original Hole, Original Hole V0

Choke Manifold Schematic – Aztec 777



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

in Ignacio, CO to Hilcorp Energy Company Allison Unit #110H

867' FNL & 1094' FWL, Section 21, T32N, R6W, N.M.P.M., San Juan County, NM

Latitude: 36.970671°N Longitude: 107.469096°W Datum: NAD1983

From the intersection of State Hwy 172 & State Hwy 151 in Ignacio, CO, travel Easterly on State Hwy 151 for 11.9 miles to County Road #330;

Go Right (Southerly) on County Road #330 for 2.0 miles, crossing borderline at fork in roadway onto County Road #4025;

Go Left (South-easterly) on County Road #4025 for 0.5 miles to fork in roadway;

Go Left (Easterly) exiting County Road #4025 onto County Road #4029 for 1.1 miles to fork in roadway;

Go Right (Southerly) which is straight onto existing roadway for 0.3 miles to fork in roadway;

Go Left (Easterly) on existing roadway for 0.5 miles to fork in roadway;

Go Right (Southerly) on existing roadway for 0.2 miles to fork in roadway;

Go Right (South-westerly) for 1.4 miles to fork in roadway;

Go Right (Westerly) for 480' to existing Hilcorp Allison Unit #152H location, with the Hilcorp Allison Unit #110H staked offset #152H wellhead;