Hilcorp Energy Company

Current Schematic

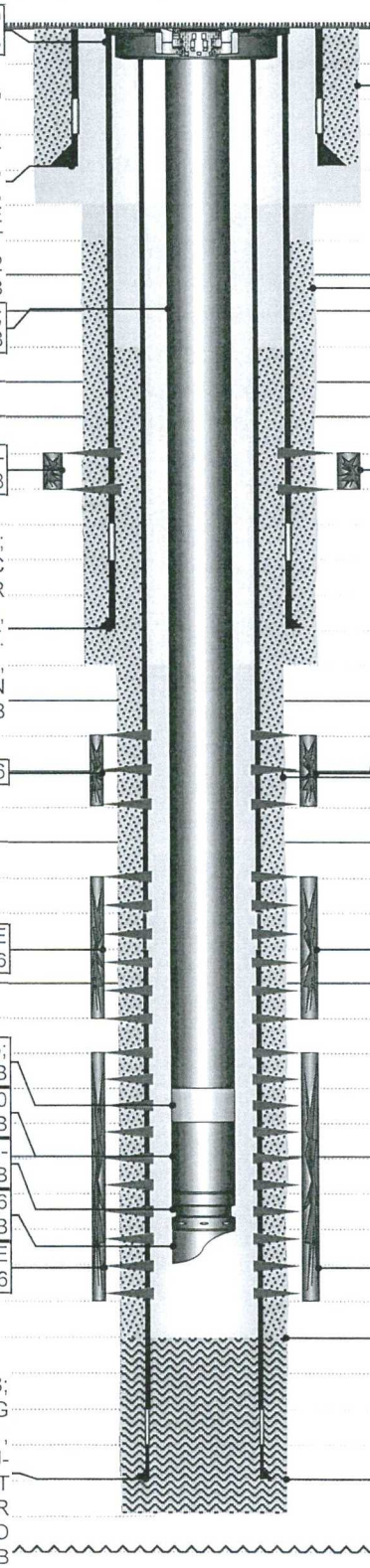
Well Name: SAN JUAN 29-5 UNIT #4C

API / UWI	Surface Legal Location	Field Name	License No.	State/Province	Well Configuration Type
3003929351	006-029N-005W-F	MV		NEW MEXICO	Vertical

Ground Elevation (ft)	Original KB/RT Elevation (ft)	KB-Ground Distance (ft)	KB-Casing Flange Distance (ft)	KB-Tubing Hanger Distance (ft)
6,661.00	6,674.00	13.00		

Vertical, Original Hole, 7/16/2018 1:21:09 PM

MD (ftKB)	TVD (ftKB)	Vertical schematic (actual)
13.1	13.1	Tubing Hanger; 7 1/16 in; 13.0 ftKB; 13.9 ftKB
14.1	14.1	1; Surface; 9 5/8 in; 9.00 in; 13.0 ftKB; PJSM WITH RIG CREW AND CASING CREW. PU AND RUN 5 JOINTS OF 9 5/8, 32.3, H-40, ST&C CASING. GUIDE SHOE AT 231', CENTRALIZERS AT 225, 147, 103, AND 60 FT. CASING WENT TO BOTTOM, CIRCULATED ON BOTTOM WHILE RIGGING UP CEMENT CREW. TEST CASING TO 1000 PSI ON 5/18/06.; 231.2 ftKB
186.7	186.7	
230.3	230.3	
231.3	231.3	
242.1	242.1	
1,560.0	1,559.8	
2,669.9	2,669.6	
2,911.1	2,910.7	Tubing; 2 3/8 in; 4.70 lb/ft; J-55; 13.9 ftKB; 5,787.1 ftKB
3,145.0	3,144.6	
3,194.9	3,194.4	Fruitland (final)
3,547.9	3,547.4	Pictured Cliffs (final)
3,623.0	3,622.5	PERF - PICTURED CLIFFS; 3,623.0-3,664.0; 6/18/2018
3,664.0	3,663.5	
3,905.8	3,905.3	
3,906.5	3,905.9	2; Intermediate; 7 in; 6.46 in; 13.0 ftKB; RAN 92 JOINTS OF 7", 20#, J-55, ST&C CASING. SHOE AT 3950, FLOAT COLLAR AT 3905CENTALIZERS AT 3940,3863, 3777,3691,3648, 3562, 231,100,AND 56FT. TURBOLIZERS AT 2957, 2913, 2827, 2783, 2740. TEST CASING TO 1800 PSI ON 5/23/06.; 3,950.8 ftKB
3,949.5	3,948.9	
3,950.8	3,950.2	
3,964.9	3,964.3	
4,363.8	4,363.2	
4,384.8	4,384.2	
4,634.8	4,634.2	PERF - LEWIS; 4,385.0-4,919.0; 6/14/2006
4,919.0	4,918.2	
5,195.9	5,195.1	Mesa Verde (final)
5,216.9	5,216.1	
5,387.1	5,386.3	
5,401.2	5,400.4	PERF - CLIFF HOUSE / MENEFEE UPPER; 5,217.0-5,604.0; 6/13/2006
5,526.9	5,526.1	Menefee (final)
5,604.0	5,603.2	
5,722.1	5,721.3	Tubing Pup Joint; 2 3/8 in; 4.70 lb/ft; J-55; 5,787.1 ftKB; 5,789.0 ftKB
5,787.1	5,786.2	
5,789.0	5,788.2	Tubing; 2 3/8 in; 4.70 lb/ft; J-55; 5,789.0 ftKB; 5,820.5 ftKB
5,805.1	5,804.3	Pump Seating Nipple; 2 3/8 in; 4.70 lb/ft; J-55; 5,820.5 ftKB; 5,821.6 ftKB
5,820.5	5,819.7	Mule Shoe; 2 3/8 in; 4.70 lb/ft; J-55; 5,821.6 ftKB; 5,822.5 ftKB
5,821.5	5,820.7	
5,822.5	5,821.6	PERF - POINT LOOKOUT / MENEFEE LOWER; 5,722.0-5,956.0; 6/11/2006
5,956.0	5,955.2	
6,178.1	6,177.2	
6,184.1	6,183.1	3; Production; 4 1/2 in; 4.05 in; 13.0 ftKB; PJSM WITH CASING CREW AND RIG CREW. PU AND RUN 145 JOINTS AND 1, 14 FT MARKER JOINT OF 4 1/2, 10.5, J-55, ST&C CASING. MAKER JOINT AT 5331FT. SHOE AT 6201, FLOAT COLLAR AT 6200. CASING RAN RIGHT TO BOTTOM.; 6,202.8 ftKB
6,199.5	6,198.6	
6,200.8	6,199.9	
6,202.8	6,201.8	
6,205.1	6,204.1	
6,661.1	6,660.1	



Surface Casing Cement; 13.0-231.2; 5/18/2006; PJSF W/ CEMENTERS, CREW, RU CEMENTERS, TEST LINES, MIX AND PUMP 155SX (32.5 BBLS) CLASS G CEMENT + 3% CACL2 + 1/4#/SK FLOCELE MIXED AT 15.6 PPG WITH 5.20 GAL/SK WATER TO YIELD 1.18 FT3/SK. DROP PLUG AND DISPLACE WITH 15.0 BBLS WATER. SHUT DOWN. FINAL STATIC PRESSURE 65 PSI. CIRCULATED 7 BBLS CEMENT TO SURFACE. SLWELL.

CASING; 1,560.0-3,950.8; 5/22/2006; TEST LINES, PUMP 30 BBL GELLED WATER W/DYE, MIX AND PUMP 440 SX (204 BBLS) TYPE III ASHGROVE CEMENT, 30 LBS POZPER 64 LBS.CEMENT + 3% GEL + 5 #/SK PHENOSEAL MIXED AT 11.5 PPG WITH 14.62 GAL/SK WATER TO YIELD 2.60 FT3/SK FOLLOWED BY 230 SX (54.5 BBLS) 50/50 G/POX +2% GEL + 6#/SK PHENOSEAL MIXED AT 13.5 PPG WITH 5.52 GAL/SK WATER TO YIELD 1.33 FT3/SK. AVG RATE 3 BBL/MINUTE
CUT DISPLACEMENT RATE TO 2.5 BBLS/MINUTE. DUE TO PARTIAL LOSS OF RETURNS. REDUCE PUMP RATE TO 1 BBL/MINUTE. CONTINUE DISPLACEMENT. WELL BRIDGED OFF WITH 90 BBLS DISPLACEMENT. PRESSURE UP TO 2900PSI, UNABLE TO MOVE FLUID. ESTIMATED TOC IN PIPE 2223' FROM SURFACE, 1427' LEFT IN PIPE.
LOST CIRC @ 40 BBLS DISP. BRIDGED OFF @ 90 BBLS

Hydraulic Frac; 6/29/2018; BROKE DOWN WELL WITH WATER AND 500 GAL 15% HCL. FOAM FRAC'D PICTURED CLIFFS WITH 150,040 LBS 20/40 AND 29,512 GAL 20# LINEAR GEL AND 1.09 MILLION SCF N2. 70 QUALITY. AVG RATE = 46 BPM, AVG PSI = 2483. ISIP WAS 1430 PSI (FOAM FLUSH).

Hydraulic Frac-Other; 6/14/2006; Frac the Lewis zone: (4,385' to 4,919')

Test lines to 4,990 Psi. Set pop off at 3,990 Psi. (Had trouble testing due to leaking wellhead valves)
Opened well: 950 Psi.

Started with acid stage as follows:
Pumped 420 gals of 15% HCL acid @ 6.0 bpm @ 940 Psi. Follow with 2% Kcl water at 10 bpm @ 950 Psi. Well loaded at 39 bbls fluid pumped. Brokedown zone at 3,810 Psi. Increased rate to 20 bpm. Shutdown pumping. ISIP: 50 Psi. Pumped 85 Bbls.

Frac the Lewis zone with 75 Q 20# Linear gel at 50 to 45 BPM with 191,220 Lbs. of 20/40 Brady sand. Ran Surfactant (F-103) at 1 gal/ 1000 gallons. Foamer (F-104) at 3.0 gal/ 1000 gallons. J-218 at 2# to 5#/1000 gallons. J-475 at 3#/1000 gallons.
Total N2 for job: 1,330,600 Scf. Ran 66 Bbl foamed flush.

Average rate: 50 Bpm. Average pressure: 2,870 Psi. Max pressure: 3,050 Psi. Breakdown pressure: 3,810 Psi.
Max sand concentration: 3.2 PSA. ISIP: 1,600 Psi. 5-minute: 1,540 Psi. Frac gradient .52 Psi/ft.
Fluid to recover (breakdown, acid and frac: 870 Bbls).

Attempted to increase rate to 55 BPM, had to slow down to 45 BPM due to N2 pump issues.
Production Casing Cement; 3,145.0-8,202.8; 5/25/2006; PJSM WITH CEMENT CREW AND RIG CREW. MIX AND PUMP 260 SX (67.0 BBLS) OF 50/50 G/POZ (47#/SK TYPE G CMT, 34 #/SK POZ) WITH 2% GEL + 0.2% CFR-3 + 0.6% HALAD-9 + 0.1% HR-5 + 3.5 #/SK PHENOSEAL MIXED AT 13.1 PPG WITH 6.55 GAL SK WATER TO YIELD 1.45 FT3/SK. DISPLACED WITH 98.5 BBLS OF 2% KCL WATER. FCP 320 PSI, BUMPED PLUG W/ 1500 PSI. FLOATS HELD.

Hydraulic Frac-Other; 6/13/2006; Frac the Cliffhouse & Upper Menefee zones: (5,217' to 5,604')

Started loading the well at 15 bpm @ 50 Psi. Loaded at 25 bbls pumped. Brokedown the zone at 2,180 Psi. Increased rate to 20 bpm @ 1,500 Psi. Shutdown pumping, well went on a vacuum. ISIP: 0 Psi.
Pumped 55 Bbls.

Start acid stage as follows: Pump 420 gals of 15% HCL acid @ 10 bpm @ 90 Psi.
Started into the frac portion of the job as follows:

Frac the Cliffhouse & Upper Menefee zones with 60 Q Slickfoam at 50 to 55 BPM with 100,210 Lbs. of 20/40 Brady sand. Ran Friction reducer (B-145) at 1.00 gal/ 1000 gallons. Surfactant (F-103) at 1 gal/ 1000 gallons. Foamer (F-104) at 3.0 gal/ 1000 gallons.
Total N2 for job: 1,272,100 Scf. Pumped 82.0 Bbl fluid flush.

Average rate: 55 Bpm. Average pressure: 2,550 Psi. Max pressure: 2,900 Psi.
Max sand concentration: 1.6 PSA. ISIP: 220 Psi. 5 minute: 190 Psi. Frac gradient .55 Psi/ft.
Fluid to recover (breakdown, acid and frac: 1,244 Bbls).

Hydraulic Frac-Other; 6/13/2006; Frac the Lower Menefee & Point Lookout zones: (5,722' to 5,956')

Test lines to 5,050 Psi. Set pop off at 3,990 Psi.

Start loading well at 15 bpm @ 30 Psi. Well loaded at 15 bbls pumped. Brokedown the zone at 1,450 Psi. Increased rate to 20 bpm @ 450 Psi. Shutdown pumping, well went on a vacuum. ISIP: 0 Psi.
Pumped 60 bbls.

Start acid stage as follows: Pump 420 gals of 15% HCL acid @ 15 bpm @ 100 Psi.

Started into the frac portion of the job as follows:

Frac the L/Menefee & Point Lookout zones with 80 Q Slickfoam at 50 to 55 BPM with 100,360 Lbs. of 20/40 Brady sand. Ran Friction reducer (B-145) at 1.00 gal/ 1000 gallons. Surfactant (F-103) at 1 gal/ 1000 gallons. Foamer (F-104) at 3.0 gal/ 1000 gallons.
Total N2 for job: 1,205,600 Scf. Pumped 90.0 Bbl fluid flush.

Average rate: 55 Bpm. Average pressure: 2,230 Psi. Max pressure: 2,390 Psi.
Max sand concentration: 1.6 PSA. ISIP: 20 Psi. 5 minute: Vacuum 0 Psi. Frac gradient .44 Psi/ft.
Fluid to recover (breakdown, acid and frac: 1,256 Bbls).

Cement Plug; 6,178.0-6,202.8; 5/25/2006

Cement; 6,202.8-6,205.0; 5/25/2006