



**Devon Energy Center
333 West Sheridan Avenue
Oklahoma City, Oklahoma 73102-5015**

Hydrogen Sulfide (H₂S) Contingency Plan

For

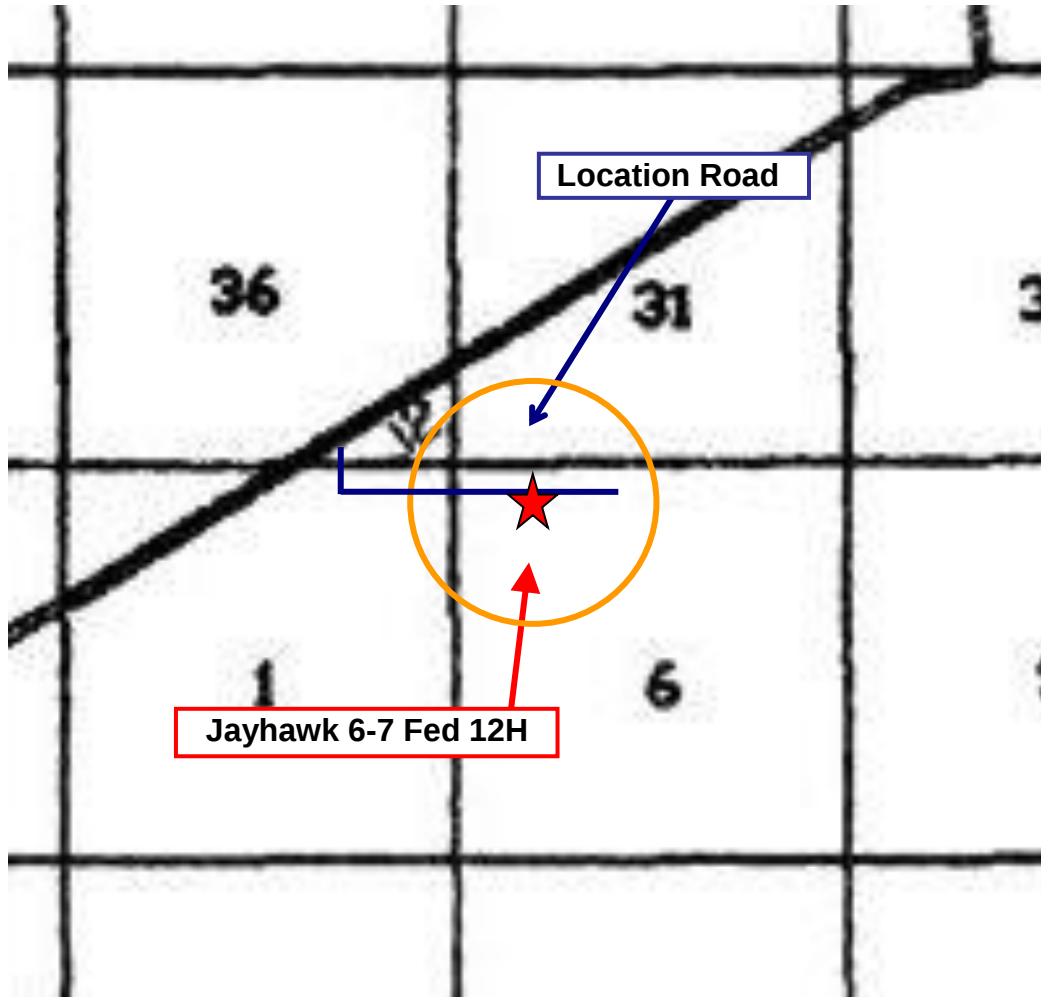
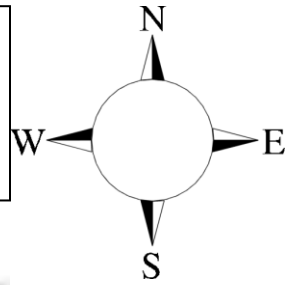
Jayhawk 6-7 Fed 12H

**Sec-6 T-26S R-34E
450' FNL & 930 FWL
LAT. = 32.0784955' N (NAD83)
LONG = 103.5145300' W**

Lea County NM

Jayhawk 6-7 Fed 12H

This is an open drilling site. H₂S monitoring equipment and emergency response equipment will be used within 500' of zones known to contain H₂S, including warning signs, wind indicators and H₂S monitor.



Assumed 100 ppm ROE = 3000' (Radius of Exposure)
100 ppm H₂S concentration shall trigger activation of this plan.

Escape

Crews shall escape upwind of escaping gas in the event of an emergency release of gas. Escape can be facilitated from the location entrance road. Crews should then block the entrance to the location from the lease road so as not to allow anyone traversing into a hazardous area. The blockade should be at a safe distance outside of the ROE. There are no homes or buildings in or near the ROE.

Assumed 100 ppm ROE = 3000'

100 ppm H₂S concentration shall trigger activation of this plan.

Emergency Procedures

In the event of a release of gas containing H₂S, the first responder(s) must

- Isolate the area and prevent entry by other persons into the 100 ppm ROE.
- Evacuate any public places encompassed by the 100 ppm ROE.
- Be equipped with H₂S monitors and air packs in order to control the release.
- Use the “buddy system” to ensure no injuries occur during the response
- Take precautions to avoid personal injury during this operation.
- Contact operator and/or local officials to aid in operation. See list of phone numbers attached.
- Have received training in the
 - Detection of H₂S, and
 - Measures for protection against the gas,
 - Equipment used for protection and emergency response.

Ignition of Gas Source

Should control of the well be considered lost and ignition considered, take care to protect against exposure to Sulfur Dioxide (SO₂). Intentional ignition must be coordinated with the NMOCD and local officials. Additionally the NM State Police may become involved. NM State Police shall be the Incident Command on scene of any major release. Take care to protect downwind whenever there is an ignition of the gas

Characteristics of H₂S and SO₂

Common Name	Chemical Formula	Specific Gravity	Threshold Limit	Hazardous Limit	Lethal Concentration
Hydrogen Sulfide	H ₂ S	1.189 Air = 1	10 ppm	100 ppm/hr	600 ppm
Sulfur Dioxide	SO ₂	2.21 Air = 1	2 ppm	N/A	1000 ppm

Contacting Authorities

Devon Energy Corp. personnel must liaison with local and state agencies to ensure a proper response to a major release. Additionally, the OCD must be notified of the release as soon as possible but no later than 4 hours. Agencies will ask for information such as type and volume of release, wind direction, location of release, etc. Be prepared with all information available. The following call list of essential and potential responders has been prepared for use during a release. Devon Energy Corp. Company response must be in coordination with the State of New Mexico’s ‘Hazardous Materials Emergency Response Plan’ (HMER)

Hydrogen Sulfide Drilling Operation Plan

I. HYDROGEN SULFIDE (H₂S) TRAINING

All personnel, whether regularly assigned, contracted, or employed on an unscheduled basis, will receive training from a qualified instructor in the following areas prior to commencing drilling operations on this well:

1. The hazards and characteristics of hydrogen sulfide (H₂S)
2. The proper use and maintenance of personal protective equipment and life support systems.
3. The proper use of H₂S detectors, alarms, warning systems, briefing areas, evacuation procedures, and prevailing winds.
4. The proper techniques for first aid and rescue procedures.

In addition, supervisory personnel will be trained in the following areas:

1. The effects of H₂S metal components. If high tensile tubulars are to be used, personnel will be trained in their special maintenance requirements.
2. Corrective action and shut-in procedures when drilling or reworking a well and blowout prevention and well control procedures.
3. The contents and requirements of the H₂S Drilling Operations Plan and Public Protection Plan.

There will be an initial training session just prior to encountering a known or probable H₂S zone (within 3 days or 500 feet) and weekly H₂S and well control drills for all personnel in each crew. The initial training session shall include a review of the site specific H₂S Drilling Operations Plan and the Public Protection Plan.

II. HYDROGEN SULFIDE TRAINING

Note: All H₂S safety equipment and systems will be installed, tested, and operational when drilling reaches a depth of 500 feet above, or three days prior to penetrating the first zone containing or reasonably expected to contain H₂S.

1. Well Control Equipment

- A. Flare line
- B. Choke manifold – Remotely Operated
- C. Blind rams and pipe rams to accommodate all pipe sizes with properly sized closing unit
- D. Auxiliary equipment may include if applicable: annular preventer and rotating head.
- E. Mud/Gas Separator

2. Protective equipment for essential personnel:

30-minute SCBA units located at briefing areas, as indicated on well site diagram, with escape units available in the top doghouse. As it may be difficult to communicate audibly while wearing these units, hand signals shall be utilized.

3. H₂S detection and monitoring equipment:

Portable H₂S monitors positioned on location for best coverage and response. These units have warning lights which activate when H₂S levels reach 10 ppm and audible sirens which activate at 15 ppm. Sensor locations:

- Bell nipple
- Possum Belly/Shale shaker
- Rig floor
- Choke manifold
- Cellar

Visual warning systems:

- A. Wind direction indicators as shown on well site diagram
- B. Caution/ Danger signs shall be posted on roads providing direct access to locations. Signs will be painted a high visibility yellow with black lettering of sufficient size to be reasonable distance from the immediate location. Bilingual signs will be used when appropriate.

4. Mud program:

The mud program has been designed to minimize the volume of H₂S circulated to surface. Proper mud weight, safe drilling practices and the use of H₂S scavengers will minimize hazards when penetrating H₂S bearing zones.

5. Metallurgy:

- A. All drill strings, casings, tubing, wellhead, blowout preventer, drilling spool, kill lines, choke manifold lines, and valves shall be H₂S trim.
- B. All elastomers used for packing and seals shall be H₂S trim.

6. Communication:

- A. Company personnel have/use cellular telephones in the field.
- B. Land line (telephone) communications at Office

7. Well testing:

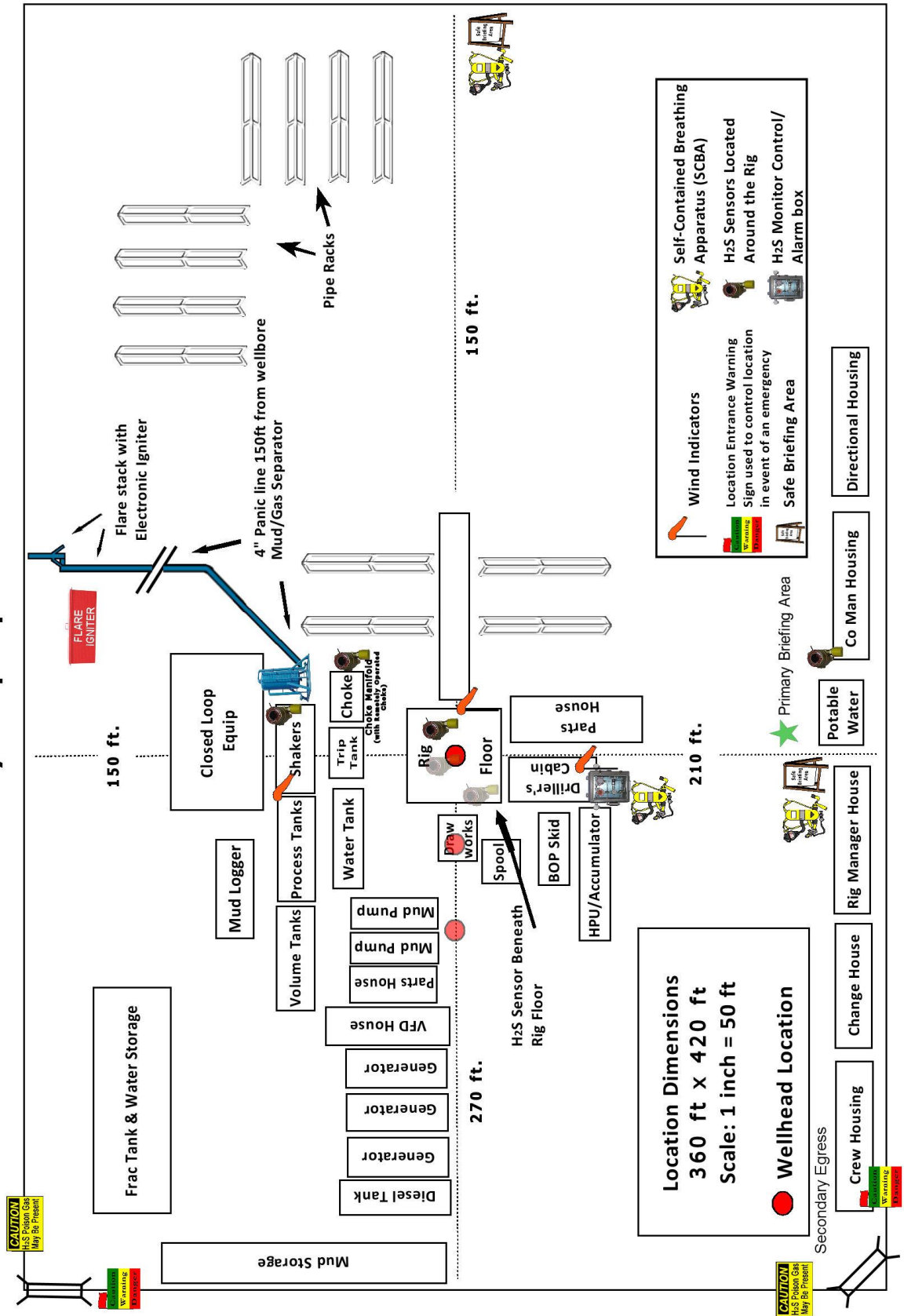
- A. Drill stem testing will be performed with a minimum number of personnel in the immediate vicinity, which are necessary to safety and adequately conduct the test. The drill stem testing will be conducted during daylight hours and formation fluids will not be flowed to the surface. All drill-stem-testing operations conducted in an H₂S environment will use the closed chamber method of testing.
- B. There will be no drill stem testing.

<u>Devon Energy Corp. Company Call List</u>		
Drilling Supervisor – Basin – Jonathan Fisher		405-228-8976
Randy Gladden –	Day 575-748-1805	Cell 575-513-9463
EHS Professional – Jason Robison		405-541-2841
<u>Agency Call List</u>		
<u>Lea County (575)</u>	Hobbs	
	Lea County Communication Authority	393-3981
	State Police	392-5588
	City Police	397-9265
	Sheriff's Office	393-2515
	Ambulance	911
	Fire Department	397-9308
	LEPC (Local Emergency Planning Committee)	393-2870
	NMOCD	393-6161
	US Bureau of Land Management	393-3612
<u>Eddy County (575)</u>	Carlsbad	
	State Police	885-3137
	City Police	885-2111
	Sheriff's Office	887-7551
	Ambulance	911
	Fire Department	885-3125
	LEPC (Local Emergency Planning Committee)	887-3798
	US Bureau of Land Management	887-6544
	NM Emergency Response Commission (Santa Fe)	(505) 476-9600
	24 HR	(505) 827-9126
	National Emergency Response Center	(800) 424-8802
	National Pollution Control Center: Direct	(703) 872-6000
	For Oil Spills	(800) 280-7118
	Emergency Services	
	Wild Well Control	(281) 784-4700
	Cudd Pressure Control	(915) 699-0139 (915) 563-3356
	Halliburton	(575) 746-2757
	B. J. Services	(575) 746-3569
<u>Give GPS position:</u>	Native Air – Emergency Helicopter – Hobbs	(575) 392-6429
	Flight For Life - Lubbock, TX	(806) 743-9911
	Aerocare - Lubbock, TX	(806) 747-8923
	Med Flight Air Amb - Albuquerque, NM	(575) 842-4433
	Lifeguard Air Med Svc. Albuquerque, NM	(800) 222-1222
	Poison Control (24/7)	(575) 272-3115
	Oil & Gas Pipeline 24 Hour Service	(800) 364-4366
	NOAA – Website - www.nhc.noaa.gov	

Prepared in conjunction with
Dave Small



Devon Energy - Well Pad Rig Location Layout Safety Equipment Location



WCDSC Permian NM

Lea County (NAD83 New Mexico East)

Sec 06-T26S-R34E

Jayhawk 6-7 FED 12H

Wellbore #1

Plan: Permit Plan 1

Standard Planning Report - Geographic

24 July, 2018

Planning Report - Geographic

Database:	EDM r5000.141_Prod US	Local Co-ordinate Reference:	Well Jayhawk 6-7 FED 12H
Company:	WCDSC Permian NM	TVD Reference:	RKB @ 3338.10ft (Original Well Elev)
Project:	Lea County (NAD83 New Mexico East)	MD Reference:	RKB @ 3338.10ft (Original Well Elev)
Site:	Sec 06-T26S-R34E	North Reference:	Grid
Well:	Jayhawk 6-7 FED 12H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Permit Plan 1		

Project	Lea County (NAD83 New Mexico East)		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site		Sec 06-T26S-R34E			
Site Position:		Northing:	393,700.60 usft	Latitude:	32.079736
From:	Map	Easting:	794,011.60 usft	Longitude:	-103.517530
Position Uncertainty:	5.00 ft	Slot Radius:	13-3/16 "	Grid Convergence:	0.43 °

Well	Jayhawk 6-7 FED 12H					
Well Position	+N/-S	0.00 ft	Northing:	393,256.30 usft	Latitude:	32.078496
	+E/-W	0.00 ft	Easting:	794,944.09 usft	Longitude:	-103.514530
Position Uncertainty		0.50 ft	Wellhead Elevation:		Ground Level:	3,315.10 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	7/23/2018	6.80	59.92	47,745.59581220

Design	Permit Plan 1			
Audit Notes:				
Version:	Phase:	PROTOTYPE	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.00	0.00	0.00	178.60

Plan Survey Tool Program	Date	7/24/2018		
Depth From (ft)	Depth To (ft)	Survey (Wellbore)	Tool Name	Remarks
1	0.00	17,672.44 Permit Plan 1 (Wellbore #1)	MWD+HDGM OWSG MWD + HDGM	

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	
2,700.00	0.00	0.00	2,700.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,961.50	2.61	10.90	2,961.41	5.86	1.13	1.00	1.00	0.00	10.90	
11,691.91	2.61	10.90	11,682.73	396.98	76.47	0.00	0.00	0.00	0.00	
11,866.24	0.00	0.00	11,857.00	400.89	77.23	1.50	-1.50	0.00	180.00	VP - Jayhawk 12H
12,216.28	0.00	0.00	12,207.04	400.89	77.23	0.00	0.00	0.00	0.00	
13,116.28	90.00	179.57	12,780.00	-172.05	81.52	10.00	10.00	0.00	179.57	PBHL - Jayhawk 6-7
17,672.44	90.00	179.57	12,780.00	-4,728.08	115.66	0.00	0.00	0.00	0.00	PBHL - Jayhawk 6-7

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Well:	Jayhawk 6-7 FED 12H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Permit Plan 1		

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	393,256.30	794,944.09	32.078496	-103.514530
100.00	0.00	0.00	100.00	0.00	0.00	393,256.30	794,944.09	32.078496	-103.514530
200.00	0.00	0.00	200.00	0.00	0.00	393,256.30	794,944.09	32.078496	-103.514530
300.00	0.00	0.00	300.00	0.00	0.00	393,256.30	794,944.09	32.078496	-103.514530
400.00	0.00	0.00	400.00	0.00	0.00	393,256.30	794,944.09	32.078496	-103.514530
500.00	0.00	0.00	500.00	0.00	0.00	393,256.30	794,944.09	32.078496	-103.514530
600.00	0.00	0.00	600.00	0.00	0.00	393,256.30	794,944.09	32.078496	-103.514530
700.00	0.00	0.00	700.00	0.00	0.00	393,256.30	794,944.09	32.078496	-103.514530
800.00	0.00	0.00	800.00	0.00	0.00	393,256.30	794,944.09	32.078496	-103.514530
900.00	0.00	0.00	900.00	0.00	0.00	393,256.30	794,944.09	32.078496	-103.514530
1,000.00	0.00	0.00	1,000.00	0.00	0.00	393,256.30	794,944.09	32.078496	-103.514530
1,100.00	0.00	0.00	1,100.00	0.00	0.00	393,256.30	794,944.09	32.078496	-103.514530
1,200.00	0.00	0.00	1,200.00	0.00	0.00	393,256.30	794,944.09	32.078496	-103.514530
1,300.00	0.00	0.00	1,300.00	0.00	0.00	393,256.30	794,944.09	32.078496	-103.514530
1,400.00	0.00	0.00	1,400.00	0.00	0.00	393,256.30	794,944.09	32.078496	-103.514530
1,500.00	0.00	0.00	1,500.00	0.00	0.00	393,256.30	794,944.09	32.078496	-103.514530
1,600.00	0.00	0.00	1,600.00	0.00	0.00	393,256.30	794,944.09	32.078496	-103.514530
1,700.00	0.00	0.00	1,700.00	0.00	0.00	393,256.30	794,944.09	32.078496	-103.514530
1,800.00	0.00	0.00	1,800.00	0.00	0.00	393,256.30	794,944.09	32.078496	-103.514530
1,900.00	0.00	0.00	1,900.00	0.00	0.00	393,256.30	794,944.09	32.078496	-103.514530
2,000.00	0.00	0.00	2,000.00	0.00	0.00	393,256.30	794,944.09	32.078496	-103.514530
2,100.00	0.00	0.00	2,100.00	0.00	0.00	393,256.30	794,944.09	32.078496	-103.514530
2,200.00	0.00	0.00	2,200.00	0.00	0.00	393,256.30	794,944.09	32.078496	-103.514530
2,300.00	0.00	0.00	2,300.00	0.00	0.00	393,256.30	794,944.09	32.078496	-103.514530
2,400.00	0.00	0.00	2,400.00	0.00	0.00	393,256.30	794,944.09	32.078496	-103.514530
2,500.00	0.00	0.00	2,500.00	0.00	0.00	393,256.30	794,944.09	32.078496	-103.514530
2,600.00	0.00	0.00	2,600.00	0.00	0.00	393,256.30	794,944.09	32.078496	-103.514530
2,700.00	0.00	0.00	2,700.00	0.00	0.00	393,256.30	794,944.09	32.078496	-103.514530
2,800.00	1.00	10.90	2,799.99	0.86	0.17	393,257.16	794,944.25	32.078498	-103.514530
2,900.00	2.00	10.90	2,899.96	3.43	0.66	393,259.73	794,944.75	32.078505	-103.514528
2,961.50	2.61	10.90	2,961.41	5.86	1.13	393,262.16	794,945.22	32.078512	-103.514526
3,000.00	2.61	10.90	2,999.87	7.58	1.46	393,263.88	794,945.55	32.078516	-103.514525
3,100.00	2.61	10.90	3,099.77	12.06	2.32	393,268.36	794,946.41	32.078529	-103.514522
3,200.00	2.61	10.90	3,199.66	16.54	3.19	393,272.84	794,947.27	32.078541	-103.514520
3,300.00	2.61	10.90	3,299.56	21.02	4.05	393,277.32	794,948.14	32.078553	-103.514517
3,400.00	2.61	10.90	3,399.45	25.50	4.91	393,281.80	794,949.00	32.078566	-103.514514
3,500.00	2.61	10.90	3,499.35	29.98	5.78	393,286.28	794,949.86	32.078578	-103.514511
3,600.00	2.61	10.90	3,599.24	34.46	6.64	393,290.76	794,950.73	32.078590	-103.514508
3,700.00	2.61	10.90	3,699.14	38.94	7.50	393,295.24	794,951.59	32.078603	-103.514505
3,800.00	2.61	10.90	3,799.04	43.42	8.37	393,299.72	794,952.45	32.078615	-103.514502
3,900.00	2.61	10.90	3,898.93	47.90	9.23	393,304.20	794,953.32	32.078627	-103.514499
4,000.00	2.61	10.90	3,998.83	52.38	10.09	393,308.68	794,954.18	32.078639	-103.514496
4,100.00	2.61	10.90	4,098.72	56.86	10.95	393,313.16	794,955.04	32.078652	-103.514493
4,200.00	2.61	10.90	4,198.62	61.34	11.82	393,317.64	794,955.91	32.078664	-103.514491
4,300.00	2.61	10.90	4,298.52	65.82	12.68	393,322.12	794,956.77	32.078676	-103.514488
4,400.00	2.61	10.90	4,398.41	70.30	13.54	393,326.60	794,957.63	32.078689	-103.514485
4,500.00	2.61	10.90	4,498.31	74.78	14.41	393,331.08	794,958.49	32.078701	-103.514482
4,600.00	2.61	10.90	4,598.20	79.26	15.27	393,335.56	794,959.36	32.078713	-103.514479
4,700.00	2.61	10.90	4,698.10	83.74	16.13	393,340.04	794,960.22	32.078725	-103.514476
4,800.00	2.61	10.90	4,797.99	88.22	17.00	393,344.52	794,961.08	32.078738	-103.514473
4,900.00	2.61	10.90	4,897.89	92.70	17.86	393,349.00	794,961.95	32.078750	-103.514470
5,000.00	2.61	10.90	4,997.79	97.18	18.72	393,353.48	794,962.81	32.078762	-103.514467
5,100.00	2.61	10.90	5,097.68	101.66	19.58	393,357.96	794,963.67	32.078775	-103.514464
5,200.00	2.61	10.90	5,197.58	106.14	20.45	393,362.44	794,964.54	32.078787	-103.514462
5,300.00	2.61	10.90	5,297.47	110.62	21.31	393,366.92	794,965.40	32.078799	-103.514459

Planning Report - Geographic

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Site:	Sec 06-T26S-R34E	North Reference:	Grid
Well:	Jayhawk 6-7 FED 12H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Permit Plan 1		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
5,400.00	2.61	10.90	5,397.37	115.10	22.17	393,371.40	794,966.26	32.078812	-103.514456
5,500.00	2.61	10.90	5,497.27	119.58	23.04	393,375.88	794,967.12	32.078824	-103.514453
5,600.00	2.61	10.90	5,597.16	124.06	23.90	393,380.36	794,967.99	32.078836	-103.514450
5,700.00	2.61	10.90	5,697.06	128.54	24.76	393,384.84	794,968.85	32.078848	-103.514447
5,800.00	2.61	10.90	5,796.95	133.02	25.63	393,389.32	794,969.71	32.078861	-103.514444
5,900.00	2.61	10.90	5,896.85	137.50	26.49	393,393.80	794,970.58	32.078873	-103.514441
6,000.00	2.61	10.90	5,996.75	141.98	27.35	393,398.28	794,971.44	32.078885	-103.514438
6,100.00	2.61	10.90	6,096.64	146.46	28.21	393,402.76	794,972.30	32.078898	-103.514436
6,200.00	2.61	10.90	6,196.54	150.94	29.08	393,407.24	794,973.17	32.078910	-103.514433
6,300.00	2.61	10.90	6,296.43	155.42	29.94	393,411.72	794,974.03	32.078922	-103.514430
6,400.00	2.61	10.90	6,396.33	159.90	30.80	393,416.20	794,974.89	32.078934	-103.514427
6,500.00	2.61	10.90	6,496.22	164.38	31.67	393,420.68	794,975.75	32.078947	-103.514424
6,600.00	2.61	10.90	6,596.12	168.86	32.53	393,425.16	794,976.62	32.078959	-103.514421
6,700.00	2.61	10.90	6,696.02	173.35	33.39	393,429.64	794,977.48	32.078971	-103.514418
6,800.00	2.61	10.90	6,795.91	177.83	34.26	393,434.12	794,978.34	32.078984	-103.514415
6,900.00	2.61	10.90	6,895.81	182.31	35.12	393,438.60	794,979.21	32.078996	-103.514412
7,000.00	2.61	10.90	6,995.70	186.79	35.98	393,443.08	794,980.07	32.079008	-103.514409
7,100.00	2.61	10.90	7,095.60	191.27	36.85	393,447.56	794,980.93	32.079021	-103.514407
7,200.00	2.61	10.90	7,195.50	195.75	37.71	393,452.04	794,981.80	32.079033	-103.514404
7,300.00	2.61	10.90	7,295.39	200.23	38.57	393,456.52	794,982.66	32.079045	-103.514401
7,400.00	2.61	10.90	7,395.29	204.71	39.43	393,461.00	794,983.52	32.079057	-103.514398
7,500.00	2.61	10.90	7,495.18	209.19	40.30	393,465.48	794,984.39	32.079070	-103.514395
7,600.00	2.61	10.90	7,595.08	213.67	41.16	393,469.96	794,985.25	32.079082	-103.514392
7,700.00	2.61	10.90	7,694.98	218.15	42.02	393,474.44	794,986.11	32.079094	-103.514389
7,800.00	2.61	10.90	7,794.87	222.63	42.89	393,478.92	794,986.97	32.079107	-103.514386
7,900.00	2.61	10.90	7,894.77	227.11	43.75	393,483.40	794,987.84	32.079119	-103.514383
8,000.00	2.61	10.90	7,994.66	231.59	44.61	393,487.88	794,988.70	32.079131	-103.514381
8,100.00	2.61	10.90	8,094.56	236.07	45.48	393,492.36	794,989.56	32.079144	-103.514378
8,200.00	2.61	10.90	8,194.45	240.55	46.34	393,496.84	794,990.43	32.079156	-103.514375
8,300.00	2.61	10.90	8,294.35	245.03	47.20	393,501.32	794,991.29	32.079168	-103.514372
8,400.00	2.61	10.90	8,394.25	249.51	48.06	393,505.80	794,992.15	32.079180	-103.514369
8,500.00	2.61	10.90	8,494.14	253.99	48.93	393,510.28	794,993.02	32.079193	-103.514366
8,600.00	2.61	10.90	8,594.04	258.47	49.79	393,514.76	794,993.88	32.079205	-103.514363
8,700.00	2.61	10.90	8,693.93	262.95	50.65	393,519.24	794,994.74	32.079217	-103.514360
8,800.00	2.61	10.90	8,793.83	267.43	51.52	393,523.72	794,995.60	32.079230	-103.514357
8,900.00	2.61	10.90	8,893.73	271.91	52.38	393,528.20	794,996.47	32.079242	-103.514354
9,000.00	2.61	10.90	8,993.62	276.39	53.24	393,532.68	794,997.33	32.079254	-103.514352
9,100.00	2.61	10.90	9,093.52	280.87	54.11	393,537.16	794,998.19	32.079266	-103.514349
9,200.00	2.61	10.90	9,193.41	285.35	54.97	393,541.64	794,999.06	32.079279	-103.514346
9,300.00	2.61	10.90	9,293.31	289.83	55.83	393,546.12	794,999.92	32.079291	-103.514343
9,400.00	2.61	10.90	9,393.20	294.31	56.70	393,550.60	795,000.78	32.079303	-103.514340
9,500.00	2.61	10.90	9,493.10	298.79	57.56	393,555.08	795,001.65	32.079316	-103.514337
9,600.00	2.61	10.90	9,593.00	303.27	58.42	393,559.56	795,002.51	32.079328	-103.514334
9,700.00	2.61	10.90	9,692.89	307.75	59.28	393,564.04	795,003.37	32.079340	-103.514331
9,800.00	2.61	10.90	9,792.79	312.23	60.15	393,568.52	795,004.23	32.079353	-103.514328
9,900.00	2.61	10.90	9,892.68	316.71	61.01	393,573.00	795,005.10	32.079365	-103.514325
10,000.00	2.61	10.90	9,992.58	321.19	61.87	393,577.48	795,005.96	32.079377	-103.514323
10,100.00	2.61	10.90	10,092.48	325.67	62.74	393,581.96	795,006.82	32.079389	-103.514320
10,200.00	2.61	10.90	10,192.37	330.15	63.60	393,586.44	795,007.69	32.079402	-103.514317
10,300.00	2.61	10.90	10,292.27	334.63	64.46	393,590.92	795,008.55	32.079414	-103.514314
10,400.00	2.61	10.90	10,392.16	339.11	65.33	393,595.40	795,009.41	32.079426	-103.514311
10,500.00	2.61	10.90	10,492.06	343.59	66.19	393,599.88	795,010.28	32.079439	-103.514308
10,600.00	2.61	10.90	10,591.96	348.07	67.05	393,604.36	795,011.14	32.079451	-103.514305
10,700.00	2.61	10.90	10,691.85	352.55	67.91	393,608.84	795,012.00	32.079463	-103.514302
10,800.00	2.61	10.90	10,791.75	357.03	68.78	393,613.32	795,012.87	32.079476	-103.514299

Planning Report - Geographic

Database:	EDM r5000.141_Prod US	Local Co-ordinate Reference:	Well Jayhawk 6-7 FED 12H
Company:	WCDSO Permian NM	TVD Reference:	RKB @ 3338.10ft (Original Well Elev)
Project:	Lea County (NAD83 New Mexico East)	MD Reference:	RKB @ 3338.10ft (Original Well Elev)
Site:	Sec 06-T26S-R34E	North Reference:	Grid
Well:	Jayhawk 6-7 FED 12H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Permit Plan 1		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
10,900.00	2.61	10.90	10,891.64	361.51	69.64	393,617.80	795,013.73	32.079488	-103.514297
11,000.00	2.61	10.90	10,991.54	365.99	70.50	393,622.28	795,014.59	32.079500	-103.514294
11,100.00	2.61	10.90	11,091.43	370.47	71.37	393,626.76	795,015.45	32.079512	-103.514291
11,200.00	2.61	10.90	11,191.33	374.95	72.23	393,631.24	795,016.32	32.079525	-103.514288
11,300.00	2.61	10.90	11,291.23	379.43	73.09	393,635.72	795,017.18	32.079537	-103.514285
11,400.00	2.61	10.90	11,391.12	383.91	73.96	393,640.20	795,018.04	32.079549	-103.514282
11,500.00	2.61	10.90	11,491.02	388.39	74.82	393,644.69	795,018.91	32.079562	-103.514279
11,600.00	2.61	10.90	11,590.91	392.87	75.68	393,649.17	795,019.77	32.079574	-103.514276
11,691.91	2.61	10.90	11,682.73	396.98	76.47	393,653.28	795,020.56	32.079585	-103.514274
11,700.00	2.49	10.90	11,690.81	397.34	76.54	393,653.64	795,020.63	32.079586	-103.514273
11,800.00	0.99	10.90	11,790.76	400.33	77.12	393,656.62	795,021.21	32.079594	-103.514271
11,866.24	0.00	0.00	11,857.00	400.89	77.23	393,657.19	795,021.31	32.079596	-103.514271
11,900.00	0.00	0.00	11,890.76	400.89	77.23	393,657.19	795,021.31	32.079596	-103.514271
12,000.00	0.00	0.00	11,990.76	400.89	77.23	393,657.19	795,021.31	32.079596	-103.514271
12,100.00	0.00	0.00	12,090.76	400.89	77.23	393,657.19	795,021.31	32.079596	-103.514271
12,200.00	0.00	0.00	12,190.76	400.89	77.23	393,657.19	795,021.31	32.079596	-103.514271
12,216.28	0.00	0.00	12,207.04	400.89	77.23	393,657.19	795,021.31	32.079596	-103.514271
12,300.00	8.37	179.57	12,290.46	394.79	77.27	393,651.08	795,021.36	32.079579	-103.514271
12,400.00	18.37	179.57	12,387.63	371.69	77.45	393,627.99	795,021.53	32.079516	-103.514271
12,459.60	24.33	179.57	12,443.11	350.00	77.61	393,606.30	795,021.70	32.079456	-103.514271
First Take Point @ 12460' MD, 100' FNL, 1007' FWL									
12,500.00	28.37	179.57	12,479.30	332.07	77.74	393,588.37	795,021.83	32.079407	-103.514271
12,600.00	38.37	179.57	12,562.71	277.14	78.15	393,533.43	795,022.24	32.079256	-103.514271
12,700.00	48.37	179.57	12,635.31	208.55	78.67	393,464.85	795,022.76	32.079067	-103.514271
12,800.00	58.37	179.57	12,694.90	128.40	79.27	393,384.70	795,023.36	32.078847	-103.514271
12,900.00	68.37	179.57	12,739.66	39.13	79.94	393,295.42	795,024.03	32.078601	-103.514271
13,000.00	78.37	179.57	12,768.24	-56.57	80.65	393,199.73	795,024.74	32.078338	-103.514271
13,100.00	88.37	179.57	12,779.77	-155.77	81.40	393,100.53	795,025.49	32.078066	-103.514271
13,116.28	90.00	179.57	12,780.00	-172.05	81.52	393,084.25	795,025.61	32.078021	-103.514271
Land Point @ 13116' MD, 622' FNL, 1012' FWL									
13,200.00	90.00	179.57	12,780.00	-255.77	82.15	393,000.53	795,026.24	32.077791	-103.514271
13,300.00	90.00	179.57	12,780.00	-355.76	82.90	392,900.54	795,026.98	32.077516	-103.514271
13,400.00	90.00	179.57	12,780.00	-455.76	83.65	392,800.54	795,027.73	32.077241	-103.514271
13,500.00	90.00	179.57	12,780.00	-555.76	84.40	392,700.54	795,028.48	32.076966	-103.514271
13,600.00	90.00	179.57	12,780.00	-655.75	85.14	392,600.55	795,029.23	32.076691	-103.514271
13,700.00	90.00	179.57	12,780.00	-755.75	85.89	392,500.55	795,029.98	32.076416	-103.514271
13,800.00	90.00	179.57	12,780.00	-855.75	86.64	392,400.55	795,030.73	32.076142	-103.514271
13,900.00	90.00	179.57	12,780.00	-955.75	87.39	392,300.55	795,031.48	32.075867	-103.514272
14,000.00	90.00	179.57	12,780.00	-1,055.74	88.14	392,200.56	795,032.23	32.075592	-103.514272
14,100.00	90.00	179.57	12,780.00	-1,155.74	88.89	392,100.56	795,032.98	32.075317	-103.514272
14,200.00	90.00	179.57	12,780.00	-1,255.74	89.64	392,000.56	795,033.73	32.075042	-103.514272
14,300.00	90.00	179.57	12,780.00	-1,355.73	90.39	391,900.57	795,034.48	32.074767	-103.514272
14,400.00	90.00	179.57	12,780.00	-1,455.73	91.14	391,800.57	795,035.23	32.074492	-103.514272
14,500.00	90.00	179.57	12,780.00	-1,555.73	91.89	391,700.57	795,035.98	32.074217	-103.514272
14,600.00	90.00	179.57	12,780.00	-1,655.73	92.64	391,600.58	795,036.72	32.073943	-103.514272
14,700.00	90.00	179.57	12,780.00	-1,755.72	93.39	391,500.58	795,037.47	32.073668	-103.514272
14,800.00	90.00	179.57	12,780.00	-1,855.72	94.14	391,400.58	795,038.22	32.073393	-103.514272
14,900.00	90.00	179.57	12,780.00	-1,955.72	94.88	391,300.58	795,038.97	32.073118	-103.514272
15,000.00	90.00	179.57	12,780.00	-2,055.72	95.63	391,200.59	795,039.72	32.072843	-103.514272
15,100.00	90.00	179.57	12,780.00	-2,155.71	96.38	391,100.59	795,040.47	32.072568	-103.514272
15,200.00	90.00	179.57	12,780.00	-2,255.71	97.13	391,000.59	795,041.22	32.072293	-103.514272
15,300.00	90.00	179.57	12,780.00	-2,355.71	97.88	390,900.60	795,041.97	32.072018	-103.514272
15,400.00	90.00	179.57	12,780.00	-2,455.70	98.63	390,800.60	795,042.72	32.071744	-103.514272
15,500.00	90.00	179.57	12,780.00	-2,555.70	99.38	390,700.60	795,043.47	32.071469	-103.514272

Planning Report - Geographic

Database:	EDM r5000.141_Prod US	Local Co-ordinate Reference:	Well Jayhawk 6-7 FED 12H
Company:	WCDSC Permian NM	TVD Reference:	RKB @ 3338.10ft (Original Well Elev)
Project:	Lea County (NAD83 New Mexico East)	MD Reference:	RKB @ 3338.10ft (Original Well Elev)
Site:	Sec 06-T26S-R34E	North Reference:	Grid
Well:	Jayhawk 6-7 FED 12H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Permit Plan 1		

Planned Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude	
15,600.00	90.00	179.57	12,780.00	-2,655.70	100.13	390,600.61	795,044.22	32.071194	-103.514272	
15,700.00	90.00	179.57	12,780.00	-2,755.70	100.88	390,500.61	795,044.97	32.070919	-103.514272	
15,800.00	90.00	179.57	12,780.00	-2,855.69	101.63	390,400.61	795,045.72	32.070644	-103.514272	
15,900.00	90.00	179.57	12,780.00	-2,955.69	102.38	390,300.61	795,046.46	32.070369	-103.514272	
16,000.00	90.00	179.57	12,780.00	-3,055.69	103.13	390,200.62	795,047.21	32.070094	-103.514272	
16,100.00	90.00	179.57	12,780.00	-3,155.68	103.88	390,100.62	795,047.96	32.069819	-103.514272	
16,200.00	90.00	179.57	12,780.00	-3,255.68	104.63	390,000.62	795,048.71	32.069545	-103.514272	
16,300.00	90.00	179.57	12,780.00	-3,355.68	105.37	389,900.63	795,049.46	32.069270	-103.514272	
16,400.00	90.00	179.57	12,780.00	-3,455.68	106.12	389,800.63	795,050.21	32.068995	-103.514272	
16,500.00	90.00	179.57	12,780.00	-3,555.67	106.87	389,700.63	795,050.96	32.068720	-103.514272	
16,600.00	90.00	179.57	12,780.00	-3,655.67	107.62	389,600.64	795,051.71	32.068445	-103.514272	
16,700.00	90.00	179.57	12,780.00	-3,755.67	108.37	389,500.64	795,052.46	32.068170	-103.514272	
16,800.00	90.00	179.57	12,780.00	-3,855.66	109.12	389,400.64	795,053.21	32.067895	-103.514272	
16,900.00	90.00	179.57	12,780.00	-3,955.66	109.87	389,300.64	795,053.96	32.067620	-103.514272	
17,000.00	90.00	179.57	12,780.00	-4,055.66	110.62	389,200.65	795,054.71	32.067346	-103.514272	
17,100.00	90.00	179.57	12,780.00	-4,155.66	111.37	389,100.65	795,055.46	32.067071	-103.514273	
17,200.00	90.00	179.57	12,780.00	-4,255.65	112.12	389,000.65	795,056.21	32.066796	-103.514273	
17,300.00	90.00	179.57	12,780.00	-4,355.65	112.87	388,900.66	795,056.95	32.066521	-103.514273	
17,400.00	90.00	179.57	12,780.00	-4,455.65	113.62	388,800.66	795,057.70	32.066246	-103.514273	
17,500.00	90.00	179.57	12,780.00	-4,555.65	114.37	388,700.66	795,058.45	32.065971	-103.514273	
17,600.00	90.00	179.57	12,780.00	-4,655.64	115.11	388,600.67	795,059.20	32.065696	-103.514273	
17,672.42	90.00	179.57	12,780.00	-4,728.06	115.66	388,528.25	795,059.74	32.065497	-103.514273	
Last Take Point @ 17672' MD, 100' FSL, 1010' FWL										
17,672.44	90.00	179.57	12,780.00	-4,728.08	115.66	388,528.23	795,059.74	32.065497	-103.514273	
PBHL; 100' FSL, 1010' FWL										

Design Targets										
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude	
PBHL - Jayhawk 6-7 Ft	0.00	0.00	0.00	-4,728.08	115.66	388,528.23	795,059.74	32.065497	-103.514273	
- hit/miss target										
- Shape										
- plan misses target center by 4729.49ft at 0.00ft MD (0.00 TVD, 0.00 N, 0.00 E)										
- Point										
VP - Jayhawk 12H	0.00	0.00	11,857.00	400.89	77.23	393,657.19	795,021.31	32.079596	-103.514271	
- plan hits target center										
- Point										

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment	
		+N/-S (ft)	+E/-W (ft)		
12,459.60	12,443.11	350.00	77.61	First Take Point @ 12460' MD, 100' FNL, 1007' FWL	
13,116.28	12,780.00	-172.05	81.52	Land Point @ 13116' MD, 622' FNL, 1012' FWL	
17,672.42	12,780.00	-4,728.06	115.66	Last Take Point @ 17672' MD, 100' FSL, 1010' FWL	
17,672.44	12,780.00	-4,728.08	115.66	PBHL; 100' FSL, 1010' FWL	

WCDSC Permian NM

WELL DETAILS: Jayhawk 6-7 FED 12H

RKB @ 3338.10ft (Original Well Elev)
3315.10

Northing	Easting	Latitude	Longitude
393256.30	794944.09	32.078496	-103.514530



devon

SECTION DETAILS Permit Plan 1

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	VSect	Annotation
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2700.00	0.00	0.00	2700.00	0.00	0.00	0.00	0.00	
2961.50	2.61	10.90	2961.41	5.86	1.13	1.00	-5.83	
11691.91	2.61	10.90	11682.73	396.98	76.47	0.00	-395.00	
11866.24	0.00	0.00	11857.00	400.89	77.23	1.50	-398.88	
12216.28	0.00	0.00	12207.04	400.89	77.23	0.00	-398.88	
13116.28	90.00	179.57	12780.00	-172.05	81.52	10.00	173.99	Land Point @ 13116' MD, 622' FNL, 1012' FWL
17672.44	90.00	179.57	12780.00	-4728.08	115.66	0.00	4729.49	Last Take Point @ 17672' MD, 100' FSL, 1010' FWL

