

30-025-41975

PECOS DISTRICT
CONDITIONS OF APPROVAL

OPERATOR'S NAME:	Devon Energy Production Company L.P.
LEASE NO.:	NMM-121489
WELL NAME & NO.:	Hognose Viper 23 Fed 1H
SURFACE HOLE FOOTAGE:	0200' FSL & 0850' FWL
BOTTOM HOLE FOOTAGE:	0330' FNL & 0660' FWL
LOCATION:	Section 23, T. 23 S., R 33 E., NMPM
COUNTY:	Lea County, New Mexico
API:	30-025-41975

The original COAs still stand with the following drilling modifications:

I. DRILLING

A. DRILLING OPERATIONS REQUIREMENTS

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- b. Setting and/or Cementing of all casing strings (minimum of 4 hours)
- c. BOPE tests (minimum of 4 hours)

☒ **Lea County**

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(575) 393-3612

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3. Floor controls are required for 3M or Greater systems. These controls will be on the rig floor, unobstructed, readily accessible to the driller and will be operational at all times during drilling and/or completion activities. Rig floor is defined as the area immediately around the rotary table; the area immediately above the substructure on which the draw works is located, this does not include the dog house or stairway area.

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FEB 18 2015

5D Anti-Collision Report

Secondary Well : Hognose Viper 23 Fed 2H (p) (TVD Relative to Drill Floor (Primary) ; All Azimuth Relative to GRID NORTH)									
Pri MD (US ft)	TVD (US ft)	Sec MD (US ft)	T.Face to Sec (°)	S.Major (US ft)	S.Minor (US ft)	CC (US ft)	CS (US ft)	SF	Risk
14650.00	11101.26	14808.28	87.12	70.76	33.04	1212.94	1070.15	8.49	
14700.00	11100.68	14858.03	87.10	71.61	33.35	1217.95	1073.46	8.43	
14750.00	11100.10	14907.77	87.08	72.46	33.67	1222.96	1076.75	8.36	
14800.00	11099.52	14957.52	87.07	73.32	33.98	1227.97	1080.05	8.30	
14850.00	11098.93	15007.27	87.05	74.17	34.30	1232.99	1083.34	8.24	
14900.00	11098.35	15057.01	87.04	75.03	34.62	1238.00	1086.64	8.18	
14950.00	11097.77	15106.76	87.02	75.89	34.93	1243.01	1089.93	8.12	
15000.00	11097.19	15156.51	87.01	76.75	35.25	1248.02	1093.21	8.06	
15050.00	11096.61	15206.26	86.99	77.60	35.57	1253.04	1096.50	8.00	
15100.00	11096.02	15256.00	86.98	78.47	35.90	1258.05	1099.79	7.95	
15150.00	11095.44	15305.75	86.96	79.33	36.22	1263.06	1103.07	7.89	
15200.00	11094.86	15355.50	86.95	80.19	36.54	1268.08	1106.35	7.84	
15250.00	11094.28	15405.24	86.94	81.05	36.86	1273.09	1109.63	7.79	
15300.00	11093.70	15454.99	86.92	81.92	37.19	1278.10	1112.91	7.74	
15350.00	11093.12	15504.74	86.91	82.78	37.51	1283.12	1116.18	7.69	
15400.00	11092.53	15554.48	86.89	83.65	37.83	1288.13	1119.46	7.64	
15450.00	11091.95	15604.23	86.88	84.51	38.16	1293.14	1122.73	7.59	
15500.00	11091.37	15653.98	86.87	85.38	38.49	1298.16	1126.00	7.54	
15550.00	11090.79	15703.73	86.85	86.24	38.81	1303.17	1129.27	7.49	
15600.00	11090.21	15753.47	86.84	87.11	39.14	1308.19	1132.54	7.45	
15650.00	11089.63	15803.22	86.82	87.98	39.47	1313.20	1135.81	7.40	
15700.00	11089.04	15852.97	86.81	88.85	39.80	1318.21	1139.08	7.36	
15715.04	11088.87	15867.93	86.81	89.11	39.90	1319.72	1140.06	7.35	

**Weatherford®****Weatherford Drilling Services**

GeoDec4 v2.1.0.0

Report Date: February 03, 2015
Job Number: _____
Customer: Devon Energy
Well Name: Hognose Viper 23 Fed 1H
API Number: _____
Rig Name: _____
Location: Lea Co, NM Nad83 NME
Block: _____
Engineer: RWJ

NAD83 / New Mexico East (ftUS)	NAD83 (1986)
Projected Coordinate System	Geodetic Coordinate System
Datum: North American Datum 1983 (1986)	Datum: North American Datum 1983 (1986)
Ellipsoid: GRS 1980	Ellipsoid: GRS 1980
EPSG: 2257	EPSG: 4269
North: 467745.91 US Survey Foot	Latitude: 32.283471 Degree
East: 783748.35 US Survey Foot	Longitude: -103.54892 Degree
Convergence: 0.42°	
Declination: 7.27°	
Total Correction: 6.85°	
Datum Transformation: none	

Geodetic Location WGS84

MSL Elevation = 0 m
Latitude = 32° 17' 00.50" N
Longitude = 103° 32' 56.11" W

Magnetic Declination = 7.27 deg	[True North Offset]
Local Gravity = .9988 g	Checksum = 6581
Local Field Strength = 48224 nT	Magnetic Vector X = 23819 nT
Magnetic Dip = 60.14 deg	Magnetic Vector Y = 3038 nT
Magnetic Model = bggm2014.dat	Magnetic Vector Z = 41821 nT
Run Date = June 15, 2015	Magnetic Vector H = 24012 nT

Signed: _____ Date: _____

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4. The record of the drilling rate along with the GR/N well log run from TD to surface (horizontal well – vertical portion of hole) shall be submitted to the BLM office as well as all other logs run on the borehole 30 days from completion. If available, a digital copy of the logs is to be submitted in addition to the paper copies. The Rustler top and top and bottom of Salt are to be recorded on the Completion Report.

B. CASING

Changes to the approved APD casing program need prior approval if the items substituted are of lesser grade or different casing size or are Non-API. The Operator can exchange the components of the proposal with that of superior strength (i.e. changing from J-55 to N-80, or from 36# to 40#). Changes to the approved cement program need prior approval if the altered cement plan has less volume or strength or if the changes are substantial (i.e. Multistage tool, ECP, etc.). The initial wellhead installed on the well will remain on the well with spools used as needed.

Centralizers required on surface casing per Onshore Order 2.III.B.1.f.

Wait on cement (WOC) for Water Basin:

After cementing but before commencing any tests, the casing string shall stand cemented under pressure until both of the following conditions have been met: 1) cement reaches a minimum compressive strength of 500 psi at the shoe, 2) until cement has been in place at least 8 hours. WOC time will be recorded in the driller's log. See individual casing strings for details regarding lead cement slurry requirements.

No pea gravel permitted for remedial or fall back remedial without prior authorization from the BLM engineer.

Possibility of water flows in the top of Salado and Castile.

Possibility of lost circulation in the Red Beds, Rustler, and Delaware.

1. The 13-3/8 inch surface casing shall be set at approximately **1440 feet (in a competent bed below the Magenta Dolomite, which is a Member of the Rustler, and if salt is encountered, set casing at least 25 feet above the salt)** and cemented to the surface. **Fresh water mud to be used to setting depth.**
 - a. If cement does not circulate to the surface, the appropriate BLM office shall be notified and a temperature survey utilizing an electronic type temperature survey with surface log readout will be used or a cement bond log shall be run to verify the top of the cement. Temperature survey will be run a minimum of six hours after pumping cement and ideally between 8-10 hours after completing the cement job.

- b. Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry.
 - c. Wait on cement (WOC) time for a remedial job will be a minimum of 4 hours after bringing cement to surface or 500 pounds compressive strength, whichever is greater.
 - d. If cement falls back, remedial cementing will be done prior to drilling out that string.
2. The minimum required fill of cement behind the **9-5/8** inch intermediate casing is:
- ☒ Cement to surface. If cement does not circulate see B.1.a, c-d above.

Centralizers required on horizontal leg, must be type for horizontal service and a minimum of one every other joint.

3. The minimum required fill of cement behind the **7 X 5-1/2** inch production casing is:
- ☒ Cement should tie-back at least 200 feet into previous casing string. Operator shall provide method of verification. **Excess calculates to 5% - Additional cement may be required.**
4. If hardband drill pipe is rotated inside casing, returns will be monitored for metal. If metal is found in samples, drill pipe will be pulled and rubber protectors which have a larger diameter than the tool joints of the drill pipe will be installed prior to continuing drilling operations.

C. PRESSURE CONTROL

1. All blowout preventer (BOP) and related equipment (BOPE) shall comply with well control requirements as described in Onshore Oil and Gas Order No. 2 and API RP 53 Sec. 17.
2. Variance approved to use flex line from BOP to choke manifold. Check condition of flexible line from BOP to choke manifold, replace if exterior is damaged or if line fails test. Line to be as straight as possible with no hard bends and is to be anchored according to Manufacturer's requirements. The flexible hose can be exchanged with a hose of equal size and equal or greater pressure rating. **Anchor requirements, specification sheet and hydrostatic pressure test certification matching the hose in service, to be onsite for review. These documents shall be posted in the company man's trailer and on the rig floor.** If the BLM inspector questions the straightness of the hose, a BLM engineer will be contacted and will review in the field or via picture supplied by inspector to determine if changes are required (operator shall expect delays if this occurs).

3. Operator has proposed a multi-bowl wellhead assembly. This assembly will only be tested when installed on the surface casing. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be 3000 (3M) psi.
 - a. Wellhead shall be installed by manufacturer's representatives, submit documentation with subsequent sundry.
 - b. If the welding is performed by a third party, the manufacturer's representative shall monitor the temperature to verify that it does not exceed the maximum temperature of the seal.
 - c. Manufacturer representative shall install the test plug for the initial BOP test.
 - d. Operator shall perform the intermediate casing integrity test to 70% of the casing burst. This will test the multi-bowl seals.
 - e. If the cement does not circulate and one inch operations would have been possible with a standard wellhead, the well head shall be cut off, cementing operations performed and another wellhead installed.
4. The appropriate BLM office shall be notified a minimum of 4 hours in advance for a representative to witness the tests.
 - a. In a water basin, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been done. The casing cut-off and BOP installation can be initiated four hours after installing the slips, which will be approximately six hours after bumping the plug. For those casing strings not using slips, the minimum wait time before cut-off is eight hours after bumping the plug. BOP/BOPE testing can begin after cut-off or once cement reaches 500 psi compressive strength (including lead when specified), whichever is greater. However, if the float does not hold, cut-off cannot be initiated until cement reaches 500 psi compressive strength (including lead when specified).
 - b. The tests shall be done by an independent service company utilizing a test plug **not a cup or J-packer**.
 - c. The test shall be run on a 5000 psi chart for a 2-3M BOP/BOP, on a 10000 psi chart for a 5M BOP/BOPE and on a 15000 psi chart for a 10M BOP/BOPE. If a linear chart is used, it shall be a one hour chart. A circular chart shall have a maximum 2 hour clock. If a twelve hour or twenty-four hour chart is used, tester shall make a notation that it is run with a two hour clock.
 - d. The results of the test shall be reported to the appropriate BLM office.
 - e. All tests are required to be recorded on a calibrated test chart. **A copy of the BOP/BOPE test chart and a copy of independent service company test will be submitted to the appropriate BLM office.**

- f. The BOP/BOPE test shall include a low pressure test from 250 to 300 psi. The test will be held for a minimum of 10 minutes if test is done with a test plug and 30 minutes without a test plug. This test shall be performed prior to the test at full stack pressure.

D. DRILL STEM TEST

If drill stem tests are performed, Onshore Order 2.III.D shall be followed.

E. WASTE MATERIAL AND FLUIDS

All waste (i.e. drilling fluids, trash, salts, chemicals, sewage, gray water, etc.) created as a result of drilling operations and completion operations shall be safely contained and disposed of properly at a waste disposal facility. No waste material or fluid shall be disposed of on the well location or surrounding area.

Porto-johns and trash containers will be on-location during fracturing operations or any other crew-intensive operations.

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