

Form 3160-3
(March 2012)UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

FORM APPROVED
OMB No. 1004-0137
Expires October 31, 2014

1a. Type of work: <input checked="" type="checkbox"/> DRILL <input type="checkbox"/> REENTER		5. Lease Serial No. NMNM 94186
1b. Type of Well: <input checked="" type="checkbox"/> Oil Well <input type="checkbox"/> Gas Well <input type="checkbox"/> Other <input checked="" type="checkbox"/> Single Zone <input type="checkbox"/> Multiple Zone		6. If Indian, Allottee or Tribe Name
2. Name of Operator DEVON ENERGY PRODUCTION COMPANY LP (6137)		7. If Unit or CA Agreement, Name and No.
3a. Address 333 West Sheridan Avenue Oklahoma City OK		8. Lease Name and Well No. (30884) THISTLE UNIT 157H
3b. Phone No. (include area code) (405)552-6571		9. API Well No. 30-025-43728
4. Location of Well (Report location clearly and in accordance with any State requirements.)* At surface SWSW / 340 FSL / 1280 FWL / LAT 32.2548472 / LONG -103.5816627 At proposed prod. zone NWNW / 330 FNL / 1270 FWL / LAT 32.2820463 / LONG -103.581703		10. Field and Pool, or Exploratory TRIPLE X / BONE SPRING (59900)
14. Distance in miles and direction from nearest town or post office*		11. Sec., T. R. M. or Blk. and Survey or Area SEC 33 / T23S / R33E / NMP
15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any) 340 feet	16. No. of acres in lease 960	12. County or Parish LEA
17. Spacing Unit dedicated to this well 320	13. State NM	
18. Distance from proposed location* to nearest well, drilling, completed, 230 feet applied for, on this lease, ft.	19. Proposed Depth 10005 feet / 20016 feet	20. BLM/BIA Bond No. on file FED: CO1104
21. Elevations (Show whether DF, KDB, RT, GL, etc.) 3661 feet	22. Approximate date work will start* 09/05/2018	23. Estimated duration 45 days
24. Attachments		

HOBBS OCD

MAR 31 2017

RECEIVED

The following, completed in accordance with the requirements of Onshore Oil and Gas Order No.1, must be attached to this form:

- | | |
|--|---|
| 1. Well plat certified by a registered surveyor. | 4. Bond to cover the operations unless covered by an existing bond on file (see Item 20 above). |
| 2. A Drilling Plan. | 5. Operator certification |
| 3. A Surface Use Plan (if the location is on National Forest System Lands, the SUPO must be filed with the appropriate Forest Service Office). | 6. Such other site specific information and/or plans as may be required by the BLM. |

25. Signature (Electronic Submission)	Name (Printed/Typed) Rebecca Deal / Ph: (405)228-8429	Date 09/15/2016
Title Regulatory Compliance Professional		
Approved by (Signature) (Electronic Submission)	Name (Printed/Typed) Cody Layton / Ph: (575)234-5959	Date 03/20/2017
Title Supervisor Multiple Resources		
Office HOBBS		

Application approval 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.
Conditions of approval, if any, are attached.

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.

(Continued on page 2)

*(Instructions on page 2)

APPROVED WITH CONDITIONS

KZ
03/31/17

WILL REQUIRE NSL

P/



APD ID: 10400005764

Submission Date: 09/15/2016

Highlight
All Changes

Operator Name: DEVON ENERGY PRODUCTION COMPANY
LP

Federal/Indian APD: FED

Well Name: THISTLE UNIT

Well Number: 157H

Well Type: OIL WELL

Well Work Type: Drill

Application

Section 1 - General

APD ID: 10400005764

Tie to previous NOS?

Submission Date: 09/15/2016

BLM Office: HOBBS

User: Rebecca Deal

Title: Regulatory Compliance
Professional

Federal/Indian APD: FED

Is the first lease penetrated for production Federal or Indian? FED

Lease number: NMNM 94186

Lease Acres: 960

Surface access agreement in place?

Allotted?

Reservation:

Agreement in place? NO

Federal or Indian agreement:

Agreement number:

Agreement name:

Keep application confidential? YES

Permitting Agent? NO

APD Operator: DEVON ENERGY PRODUCTION COMPANY LP

Operator letter of designation:

Keep application confidential? YES

Operator Info

Operator Organization Name: DEVON ENERGY PRODUCTION COMPANY LP

Operator Address: 333 West Sheridan Avenue

Zip: 73102

Operator PO Box:

Operator City: Oklahoma City State: OK

Operator Phone: (405)552-6571

Operator Internet Address: aletha.dewbre@dvn.com

Section 2 - Well Information

Well in Master Development Plan? NO

Master Development Plan name:

Well in Master SUPO? NO

Master SUPO name:

Well in Master Drilling Plan? NO

Master Drilling Plan name:

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: THISTLE UNIT

Well Number: 157H

Well Name: THISTLE UNIT

Well Number: 157H

Well API Number:

Field/Pool or Exploratory? Field and Pool

Field Name: TRIPLE X

Pool Name: BONE SPRING

Is the proposed well in an area containing other mineral resources? NATURAL GAS,OIL

Describe other minerals:

Is the proposed well in a Helium production area? N

Use Existing Well Pad? YES

New surface disturbance? N

Type of Well Pad: MULTIPLE WELL

Multiple Well Pad Name:

Number: 152H, 153H, 157H,

Well Class: HORIZONTAL

THISTLE UNIT

Number of Legs:

Well Work Type: Drill

Well Type: OIL WELL

Describe Well Type:

Well sub-Type: INFILL

Describe sub-type:

Distance to town:

Distance to nearest well: 230 FT

Distance to lease line: 340 FT

Reservoir well spacing assigned acres Measurement: 320 Acres

Well plat: THISTLE UNIT 157H_C-102 Signed_09-15-2016.pdf

Well work start Date: 09/05/2018

Duration: 45 DAYS

Section 3 - Well Location Table

Survey Type: RECTANGULAR

Describe Survey Type:

Datum: NAD83

Vertical Datum: NAVD88

Survey number: 4719

STATE: NEW MEXICO

Meridian: NEW MEXICO PRINCIPAL County: LEA

Latitude: 32.2548472

Longitude: -103.5816627

SHL

Elevation: 3661

MD: 0

TVD: 0

Leg #: 1

Lease Type: STATE

Lease #: STATE

NS-Foot: 340

NS Indicator: FSL

EW-Foot: 1280

EW Indicator: FWL

Twsp: 23S

Range: 33E

Section: 33

Aliquot: SWSW

Lot:

Tract:

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: THISTLE UNIT

Well Number: 157H

	STATE: NEW MEXICO	Meridian: NEW MEXICO PRINCIPAL	County: LEA
	Latitude: 32.2548472	Longitude: -103.5816627	
KOP	Elevation: -5919	MD: 9591	TVD: 9580
Leg #: 1	Lease Type: STATE	Lease #: STATE	
	NS-Foot: 340	NS Indicator: FSL	
	EW-Foot: 1280	EW Indicator: FWL	
	Twsp: 23S	Range: 33E	Section: 33
	Aliquot: SWSW	Lot:	Tract:
	STATE: NEW MEXICO	Meridian: NEW MEXICO PRINCIPAL	County: LEA
	Latitude: 32.2548472	Longitude: -103.5816627	
PPP	Elevation: -6397	MD: 10343	TVD: 10058
Leg #: 1	Lease Type: STATE	Lease #: STATE	
	NS-Foot: 563	NS Indicator: FSL	
	EW-Foot: 1280	EW Indicator: FWL	
	Twsp: 23S	Range: 33E	Section: 33
	Aliquot: SWSW	Lot:	Tract:
	STATE: NEW MEXICO	Meridian: NEW MEXICO PRINCIPAL	County: LEA
	Latitude: 32.2820463	Longitude: -103.581703	
EXIT	Elevation: -6344	MD: 20016	TVD: 10005
Leg #: 1	Lease Type: FEDERAL	Lease #: NMNM94186	
	NS-Foot: 330	NS Indicator: FNL	
	EW-Foot: 1270	EW Indicator: FWL	
	Twsp: 23S	Range: 33E	Section: 28
	Aliquot: NWNW	Lot:	Tract:
	STATE: NEW MEXICO	Meridian: NEW MEXICO PRINCIPAL	County: LEA
	Latitude: 32.2820463	Longitude: -103.581703	
BHL	Elevation: -6344	MD: 20016	TVD: 10005
Leg #: 1	Lease Type: FEDERAL	Lease #: NMNM94186	
	NS-Foot: 330	NS Indicator: FNL	
	EW-Foot: 1270	EW Indicator: FWL	

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: THISTLE UNIT

Well Number: 157H

Twsp: 23S

Range: 33E

Section: 28

Aliquot: NWNW

Lot:

Tract:

Drilling Plan

Section 1 - Geologic Formations

ID: Surface formation

Name: UNKNOWN

Lithology(ies):

OTHER - Surface

Elevation: 3661

True Vertical Depth: 0

Measured Depth: 0

Mineral Resource(s):

NONE

Is this a producing formation? N

ID: Formation 1

Name: RUSTLER

Lithology(ies):

ANHYDRITE

Elevation: 2327

True Vertical Depth: 1335

Measured Depth: 1335

Mineral Resource(s):

NONE

Is this a producing formation? N

ID: Formation 2

Name: TOP OF SALT

Lithology(ies):

SALT

Elevation: 1827

True Vertical Depth: 1835

Measured Depth: 1835

Mineral Resource(s):

NONE

Is this a producing formation? N

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: THISTLE UNIT

Well Number: 157H

ID: Formation 3

Name: BASE OF SALT

Lithology(ies):

SALT

Elevation: -1241

True Vertical Depth: 4903

Measured Depth: 4903

Mineral Resource(s):

NONE

Is this a producing formation? N

ID: Formation 4

Name: DELAWARE

Lithology(ies):

SANDSTONE

Elevation: -1483

True Vertical Depth: 5145

Measured Depth: 5145

Mineral Resource(s):

NATURAL GAS

OIL

Is this a producing formation? N

ID: Formation 5

Name: BRUSHY CANYON LOWER

Lithology(ies):

SANDSTONE

Elevation: -5198

True Vertical Depth: 8860

Measured Depth: 8860

Mineral Resource(s):

NATURAL GAS

OIL

Is this a producing formation? N

ID: Formation 6

Name: BONE SPRING LIME

Lithology(ies):

LIMESTONE

Elevation: -5426

True Vertical Depth: 9088

Measured Depth: 9088

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: THISTLE UNIT

Well Number: 157H

Mineral Resource(s):

NATURAL GAS

OIL

Is this a producing formation? N

ID: Formation 7

Name: BONE SPRING

Lithology(ies):

SILTSTONE

Elevation: -5613

True Vertical Depth: 9275

Measured Depth: 9275

Mineral Resource(s):

NATURAL GAS

OIL

Is this a producing formation? N

ID: Formation 8

Name: BONE SPRING

Lithology(ies):

SILTSTONE

Elevation: -5948

True Vertical Depth: 9609

Measured Depth: 9609

Mineral Resource(s):

NATURAL GAS

OIL

Is this a producing formation? N

ID: Formation 9

Name: BONE SPRING

Lithology(ies):

SILTSTONE

Elevation: -6324

True Vertical Depth: 9985

Measured Depth: 9985

Mineral Resource(s):

NATURAL GAS

OIL

Is this a producing formation? Y

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: THISTLE UNIT

Well Number: 157H

ID: Formation 10

Name: BONE SPRING 1ST

Lithology(ies):

SANDSTONE

Elevation: -6549

True Vertical Depth: 10210

Measured Depth: 10210

Mineral Resource(s):

NATURAL GAS

OIL

Is this a producing formation? N

Section 2 - Blowout Prevention

Pressure Rating (PSI): 3M

Rating Depth: 10058

Equipment: 3M rotating head, mud-gas separator, panic line, and flare will be rigged up prior to drilling out surface casing.

Requesting Variance? YES

Variance request: A variance is requested for the use of a flexible choke line from the BOP stack to the choke manifold. See attached for specs for hydrostatic test chart.

Testing Procedure: A multibowl wellhead may be used. The BOP will be tested per Onshore Order #2 after installation on the surface casing which will cover testing requirements for a maximum of 30 days. If any seal subject to test pressure is broken the system must be tested.

Choke Diagram Attachment:

Thistle Unit 157H_3M BOPE Double Ram and CLS Schematic_09-15-2016.pdf

BOP Diagram Attachment:

Thistle Unit 157H_3M BOPE Double Ram and CLS Schematic_09-15-2016.pdf

Pressure Rating (PSI): 3M

Rating Depth: 5100

Equipment: 3M rotating head, mud-gas separator, panic line, and flare will be rigged up prior to drilling out surface casing.

Requesting Variance? YES

Variance request: A variance is requested for the use of a flexible choke line from the BOP stack to the choke manifold. See attached for specs for hydrostatic test chart.

Testing Procedure: A multibowl wellhead may be used. The BOP will be tested per Onshore Order #2 after installation on the surface casing which will cover testing requirements for a maximum of 30 days. If any seal subject to test pressure is broken the system must be tested.

Choke Diagram Attachment:

Thistle Unit 157H_3M BOPE Double Ram and CLS Schematic_09-15-2016.pdf

BOP Diagram Attachment:

Thistle Unit 157H_3M BOPE Double Ram and CLS Schematic_09-15-2016.pdf

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: THISTLE UNIT

Well Number: 157H

Section 3 - Casing

String Type: SURFACE

Other String Type:

Hole Size: 17.5

Top setting depth MD: 0

Top setting depth TVD: 0

Top setting depth MSL: -6344

Bottom setting depth MD: 1400

Bottom setting depth TVD: 1400

Bottom setting depth MSL: -7744

Calculated casing length MD: 1400

Casing Size: 13.375

Other Size

Grade: H-40

Other Grade:

Weight: 48

Joint Type: STC

Other Joint Type:

Condition: NEW

Inspection Document:

Standard: API

Spec Document:

Tapered String?: N

Tapered String Spec:

Safety Factors

Collapse Design Safety Factor: 1.18

Burst Design Safety Factor: 2.64

Joint Tensile Design Safety Factor type: BUOYANT

Joint Tensile Design Safety Factor: 8.05

Body Tensile Design Safety Factor type: BUOYANT

Body Tensile Design Safety Factor: 8.05

Casing Design Assumptions and Worksheet(s):

Thistle Unit 157H_Surface Casing Assumptions_09-15-2016.docx

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: THISTLE UNIT

Well Number: 157H

String Type: INTERMEDIATE

Other String Type:

Hole Size: 12.25

Top setting depth MD: 0

Top setting depth TVD: 0

Top setting depth MSL: -6344

Bottom setting depth MD: 5100

Bottom setting depth TVD: 5100

Bottom setting depth MSL: -11444

Calculated casing length MD: 5100

Casing Size: 9.625

Other Size

Grade: J-55

Other Grade:

Weight: 40

Joint Type: OTHER

Other Joint Type: BTC

Condition: NEW

Inspection Document:

Standard: API

Spec Document:

Tapered String?: N

Tapered String Spec:

Safety Factors

Collapse Design Safety Factor: 1.15

Burst Design Safety Factor: 1.77

Joint Tensile Design Safety Factor type: BUOYANT

Joint Tensile Design Safety Factor: 3.98

Body Tensile Design Safety Factor type: BUOYANT

Body Tensile Design Safety Factor: 3.98

Casing Design Assumptions and Worksheet(s):

Thistle Unit 157H_Intermediate Casing Assumptions_09-15-2016.docx

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: THISTLE UNIT

Well Number: 157H

String Type: INTERMEDIATE

Other String Type:

Hole Size: 12.25

Top setting depth MD: 4300

Top setting depth TVD: 4300

Top setting depth MSL: -10644

Bottom setting depth MD: 5100

Bottom setting depth TVD: 5100

Bottom setting depth MSL: -11444

Calculated casing length MD: 800

Casing Size: 9.625

Other Size

Grade: HCK-55

Other Grade:

Weight: 40

Joint Type: OTHER

Other Joint Type: BTC

Condition: NEW

Inspection Document:

Standard: API

Spec Document:

Tapered String?: N

Tapered String Spec:

Safety Factors

Collapse Design Safety Factor: 1.58

Burst Design Safety Factor: 1.47

Joint Tensile Design Safety Factor type: BUOYANT

Joint Tensile Design Safety Factor: 4.5

Body Tensile Design Safety Factor type: BUOYANT

Body Tensile Design Safety Factor: 4.5

Casing Design Assumptions and Worksheet(s):

Thistle Unit 157H_Intermediate Casing Assumptions_09-15-2016.docx

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: THISTLE UNIT

Well Number: 157H

String Type: PRODUCTION

Other String Type:

Hole Size: 8.75

Top setting depth MD: 0

Top setting depth TVD: 0

Top setting depth MSL: -6344

Bottom setting depth MD: 20016

Bottom setting depth TVD: 10005

Bottom setting depth MSL: -6344

Calculated casing length MD: 20016

Casing Size: 5.5

Other Size

Grade: P-110

Other Grade:

Weight: 17

Joint Type: OTHER

Other Joint Type: BTC

Condition: NEW

Inspection Document:

Standard: API

Spec Document:

Tapered String?: N

Tapered String Spec:

Safety Factors

Collapse Design Safety Factor: 1.56

Burst Design Safety Factor: 1.93

Joint Tensile Design Safety Factor type: BUOYANT

Joint Tensile Design Safety Factor: 2.09

Body Tensile Design Safety Factor type: BUOYANT

Body Tensile Design Safety Factor: 2.09

Casing Design Assumptions and Worksheet(s):

Thistle Unit 157H_Production Casing Assumptions_09-15-2016.docx

Section 4 - Cement

Casing String Type: INTERMEDIATE

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: THISTLE UNIT

Well Number: 157H

Stage Tool Depth:

Lead

Top MD of Segment: 0

Bottom MD Segment: 0

Cement Type: N/A

Additives: N/A

Quantity (sks): 0

Yield (cu.ff./sk): 0

Density: 0

Volume (cu.ft.): 0

Percent Excess: 0

Casing String Type: SURFACE

Stage Tool Depth: 300

Lead

Top MD of Segment: 0

Bottom MD Segment: 300

Cement Type: C

Additives: N/A

Quantity (sks): 185

Yield (cu.ff./sk): 1.72

Density: 13.5

Volume (cu.ft.): 312

Percent Excess: 50

Tail

Top MD of Segment: 300

Bottom MD Segment: 1400

Cement Type: C

Additives: N/A

Quantity (sks): 825

Yield (cu.ff./sk): 1.33

Density: 14.8

Volume (cu.ft.): 1106

Percent Excess: 50

Stage Tool Depth: 300

Lead

Top MD of Segment: 0

Bottom MD Segment: 300

Cement Type: C

Additives: N/A

Quantity (sks): 235

Yield (cu.ff./sk): 1.33

Density: 14.8

Volume (cu.ft.): 312

Percent Excess: 50

Stage Tool Depth:

Lead

Top MD of Segment: 0

Bottom MD Segment: 1400

Cement Type: C

Additives: 1% Calcium Chloride

Quantity (sks): 1090

Yield (cu.ff./sk): 1.34

Density: 14.8

Volume (cu.ft.): 1459

Percent Excess: 50

Casing String Type: INTERMEDIATE

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: THISTLE UNIT

Well Number: 157H

Stage Tool Depth:

Lead

Top MD of Segment: 0

Bottom MD Segment: 4100

Cement Type: C

Additives: Poz (Fly Ash): 6% BWOC
Bentonite + 5% BWOW Sodium
Chloride + 0.125 lbs/sks Poly-E-Flake

Quantity (sks): 905

Yield (cu.ff./sk): 1.85

Volume (cu.ft.): 1669

Percent Excess: 30

Density: 12.9

Fall

Bottom MD Segment: 5100

Cement Type: H

Top MD of Segment: 4100

Quantity (sks): 320

Yield (cu.ff./sk): 1.33

Additives: 0.125 lbs/sks Poly-R-Flake

Volume (cu.ft.): 426

Percent Excess: 30

Density: 14.8

Casing String Type: PRODUCTION

Stage Tool Depth: 5500

Lead

Top MD of Segment: 4800

Bottom MD Segment: 4900

Cement Type: C

Additives: Enhancer 923 + 10% BWOC
Bentonite + 0.05% BWOC SA-1015 +
0.3% BWOC HR-800 + 0.2% BWOC
FE-2 + 0.125 lb/sk Pol-E-Flake + 0.5

Quantity (sks): 20

Yield (cu.ff./sk): 3.31

Volume (cu.ft.): 66

Percent Excess: 25

16/sk D-Air 5000

Density: 10.9

Bottom MD Segment: 5000

Cement Type: H

Quantity (sks): 30

Yield (cu.ff./sk): 1.33

Top MD of Segment: 4900

Volume (cu.ft.): 39

Percent Excess: 25

Additives: 0.125 lbs/sack Poly-E-Flake

Density: 14.8

Stage Tool Depth: 5500

Lead

Top MD of Segment: 5000

Bottom MD Segment: 10000

Cement Type: C

Additives: Enhancer 923 + 10% BWOC
Bentonite + 0.05% BWOC SA-1015 +
0.3% BWOC HR-800 + 0.2% BWOC
FE-2 + 0.125 lb/sk Pol-E-Flake + 0.5

Quantity (sks): 420

Yield (cu.ff./sk): 3.31

Volume (cu.ft.): 1389

Percent Excess: 25

16/sk D-Air 5000

Density: 10.9

Bottom MD Segment: 20016

Cement Type: H

Quantity (sks): 2320

Yield (cu.ff./sk): 1.2

Top MD of Segment: 10000

Volume (cu.ft.): 2783

Percent Excess: 25

Additives: Poz (Fly Ash) + 0.5% bwoc
HALAD-344 + 0.4% bwoc CFR-3 +
0.2% BWOC HR-601 + 2% bwoc
Bentonite

Density: 14.5

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: THISTLE UNIT

Well Number: 157H

Percent Excess: 25

Stage Tool Depth:

Lead

Top MD of Segment: 4900

Bottom MD Segment: 10000

Cement Type: H

Additives: Poz (Fly Ash) + 0.3% BWOC Quantity (sks): 580

Yield (cu.ff./sk): 2.31

HR-601 + 10% bwoc Bentonite

Density: 11.9

Volume (cu.ft.): 1389

Percent Excess: 25

Tail

Top MD of Segment: 10000

Bottom MD Segment: 20016

Cement Type: H

Additives: Poz (Fly Ash) + 0.5% bwoc

Quantity (sks): 2320

Yield (cu.ff./sk): 1.2

HALAD-344 + 0.4% bwoc CFR-3 +

Volume (cu.ft.): 2783

Percent Excess: 25

0.2% BWOC HR-601 + 2% bwoc

Bentonite

Density: 14.5

Section 5 - Circulating Medium

Mud System Type: Closed

Will an air or gas system be Used? NO

Description of the equipment for the circulating system in accordance with Onshore Order #2:

Diagram of the equipment for the circulating system in accordance with Onshore Order #2:

Describe what will be on location to control well or mitigate other conditions: Sufficient mud materials to maintain mud properties and meet minimum lost circulation and weight increase requirements will be kept on location at all times.

Describe the mud monitoring system utilized: PVT/Pason/Visual Monitoring

Circulating Medium Table

Top Depth: 0

Bottom Depth: 1400

Mud Type: WATER-BASED MUD

Min Weight (lbs./gal.): 8.5

Max Weight (lbs./gal.): 9

Density (lbs/cu.ft.):

Gel Strength (lbs/100 sq.ft.):

PH:

Viscosity (CP): 2

Filtration (cc):

Salinity (ppm):

Additional Characteristics:

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: THISTLE UNIT

Well Number: 157H

Top Depth: 0

Bottom Depth: 5100

Mud Type: SALT SATURATED

Min Weight (lbs./gal.): 10

Max Weight (lbs./gal.): 11

Density (lbs/cu.ft.):

Gel Strength (lbs/100 sq.ft.):

PH:

Viscosity (CP): 2

Filtration (cc):

Salinity (ppm):

Additional Characteristics:

Top Depth: 5100

Bottom Depth: 20016

Mud Type: WATER-BASED MUD

Min Weight (lbs./gal.): 8.5

Max Weight (lbs./gal.): 9.3

Density (lbs/cu.ft.):

Gel Strength (lbs/100 sq.ft.):

PH:

Viscosity (CP): 12

Filtration (cc):

Salinity (ppm):

Additional Characteristics:

Section 6 - Test, Logging, Coring

List of production tests including testing procedures, equipment and safety measures:

Will run GR/CNL from TD to surface (horizontal well – vertical portion of hole). Stated logs run will be in the Completion Report and submitted to the BLM.

List of open and cased hole logs run in the well:

GR

Coring operation description for the well:

N/A

Section 7 - Pressure

Anticipated Bottom Hole Pressure: 4356

Anticipated Surface Pressure: 2143.23

Anticipated Bottom Hole Temperature(F): 160

Anticipated abnormal pressures, temperatures, or potential geologic hazards? NO

Describe:

Contingency Plans geohazards description:

Contingency Plans geohazards attachment:

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: THISTLE UNIT

Well Number: 157H

Hydrogen Sulfide drilling operations plan required? YES

Hydrogen sulfide drilling operations plan:

Thistle Unit 157H_H2S Plan_09-15-2016.pdf

Section 8 - Other Information

Proposed horizontal/directional/multi-lateral plan submission:

Thistle Unit 157H_Directional Plan_09-15-2016.pdf

Other proposed operations facets description:

Multi-Bowl Verbiage

Multi-Bowl Wellhead

Closed-Loop Design Plan

Anti-Collision Plan

Other proposed operations facets attachment:

Thistle Unit 157H_Closed Loop Design Plan_09-15-2016.pdf

Thistle Unit 157H_Multi-Bowl Verbiage_3M_09-15-2016.pdf

Thistle Unit 157H_Multi-Bowl Wellhead_09-15-2016.pdf

Thistle Unit 157H_AC Report_09-15-2016.pdf

Other Variance attachment:

Thistle Unit 157H_H_P Co-flex hose_09-15-2016.pdf

SUPO

Section 1 - Existing Roads

Will existing roads be used? YES

Existing Road Map:

Thistle Unit 157H_Access Route Map_09-15-2016.pdf

Existing Road Purpose: ACCESS,FLUID TRANSPORT

Row(s) Exist? NO

ROW ID(s)

ID:

Do the existing roads need to be improved? NO

Existing Road Improvement Description:

Existing Road Improvement Attachment:

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: THISTLE UNIT

Well Number: 157H

Section 2 - New or Reconstructed Access Roads

Will new roads be needed? YES

New Road Map:

THISTLE UNIT 157H_ROAD_RE_ROUTE_P_11-16-2016.PDF

New road type: RESOURCE

Length: 716.2 Feet

Width (ft.): 20

Max slope (%): 6

Max grade (%): 4

Army Corp of Engineers (ACOE) permit required? NO

ACOE Permit Number(s):

New road travel width: 20

New road access erosion control: The terrain is flat in this area. No major issue with erosion.

New road access plan or profile prepared? NO

New road access plan attachment:

Access road engineering design? NO

Access road engineering design attachment:

Access surfacing type: OTHER

Access topsoil source: ONSITE

Access surfacing type description: Caliche - Caliche will be coming from the Brininstool Caliche Pit in the NENE of Section 20 - T23S-R33E

Access onsite topsoil source depth: 6

Offsite topsoil source description:

Onsite topsoil removal process: NA

Access other construction information: NA

Access miscellaneous information:

Number of access turnouts:

Access turnout map:

Drainage Control

New road drainage crossing: OTHER

Drainage Control comments: NA

Road Drainage Control Structures (DCS) description: NA

Road Drainage Control Structures (DCS) attachment:

Access Additional Attachments

Additional Attachment(s):

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: THISTLE UNIT

Well Number: 157H

Additional Attachment(s):

Section 3 - Location of Existing Wells

Existing Wells Map? YES

Attach Well map:

Thistle Unit 157H_one mile map_09-15-2016.pdf

Existing Wells description:

Section 4 - Location of Existing and/or Proposed Production Facilities

Submit or defer a Proposed Production Facilities plan? SUBMIT

Estimated Production Facilities description: Thistle Unit 33 CTB 1

Production Facilities description: Thistle Unit 33 CTB 1. Battery Connect, Battery Connect Electric, Flowline Plat 400733XYZ attached stating three 4" flowlines & one 4" gaslift line buried in same ditch from well to CTB.

Production Facilities map:

Thistle Unit 157H_THISTLE_UNIT_33_CTB_1_BAT_ELECTRIC_P_11-16-2016.PDF

Thistle Unit 157H_Thistle Unit 33 CTB 1 FL_11-16-2016.pdf

Thistle Unit 157H_THISTLE_UNIT_33_CTB_1_P_R1_11-16-2016.pdf

Thistle Unit 157H_THISTLE_UNIT_33_CTB_1_BATCON_P_R1_11-16-2016.pdf

Section 5 - Location and Types of Water Supply

Water Source Table

Water source use type: STIMULATION

Water source type: RECYCLED

Describe type:

Source latitude:

Source longitude:

Source datum:

Water source permit type: OTHER

Source land ownership: STATE

Water source transport method: PIPELINE,TRUCKING

Source transportation land ownership: STATE

Water source volume (barrels): 270000

Source volume (acre-feet): 34.801136

Source volume (gal): 11340000

Water source and transportation map:

Thistle Unit 157H_Water Transfer Map_11-16-2016.pdf

Water source comments: The attached Water Transfer Map is a proposal only and the final route and documentation will be provided by a Devon contractor prior to installation. When available Devon will always follow existing disturbance. Reason for showing two routes: 10" or 12" layflat hose. Preference is for 12", based on availability. The treated water is the preferred line.

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: THISTLE UNIT

Well Number: 157H

If we can't get enough volume we would supplement with fresh water.

New water well? NO

New Water Well Info

Well latitude:

Well Longitude:

Well datum:

Well target aquifer:

Est. depth to top of aquifer(ft):

Est thickness of aquifer:

Aquifer comments:

Aquifer documentation:

Well depth (ft):

Well casing type:

Well casing outside diameter (in.):

Well casing inside diameter (in.):

New water well casing?

Used casing source:

Drilling method:

Drill material:

Grout material:

Grout depth:

Casing length (ft.):

Casing top depth (ft.):

Well Production type:

Completion Method:

Water well additional information:

State appropriation permit:

Additional information attachment:

Section 6 - Construction Materials

Construction Materials description: Dirt fill and caliche will be used to construct well pad. Caliche will be coming from the Brininstool Caliche Pit in the NENE of Section 20 - T23S-R33E. Caliche Map attached.

Construction Materials source location attachment:

Thistle Unit 157H_Caliche map_12-14-2016.pdf

Section 7 - Methods for Handling Waste

Waste type: COMPLETIONS/STIMULATION

Waste content description: Flow back water during completion operations.

Amount of waste: 3000 barrels

Waste disposal frequency : One Time Only

Safe containment description: N/A

Safe containmant attachment:

Waste disposal type: HAUL TO COMMERCIAL FACILITY

Disposal location ownership: COMMERCIAL

Disposal type description:

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: THISTLE UNIT

Well Number: 157H

Disposal location description: Various disposal locations in Lea and Eddy counties.

Waste type: FLOWBACK

Waste content description: Average produced BWPD over the flowback period (first 30 days of production).

Amount of waste: 2000 barrels

Waste disposal frequency : Daily

Safe containment description: N/A

Safe containmant attachment:

Waste disposal type: RECYCLE

Disposal location ownership: STATE

Disposal type description:

Disposal location description: All produced water will be recycled at our Thistle water reuse facility. Any excess water that cannot be recycled will be sent to one of our 3 SWD's (Caballo 9 St 1, Rio Blanco 33 Fed 2, Rio Blanco 4 Fed Com 3) or to OWL (third-party; state tie-in).

Waste type: PRODUCED WATER

Waste content description: Average produced BWPD over the first year of production.

Amount of waste: 500 barrels

Waste disposal frequency : Daily

Safe containment description: N/A

Safe containmant attachment:

Waste disposal type: RECYCLE

Disposal location ownership: STATE

Disposal type description:

Disposal location description: All produced water will be recycled at our Thistle water reuse facility. Any excess water that cannot be recycled will be sent to one of our 3 SWD's (Caballo 9 St 1, Rio Blanco 33 Fed 2, Rio Blanco 4 Fed Com 3) or to OWL (third-party; state tie-in).

Waste type: DRILLING

Waste content description: Water Based Cuttings

Amount of waste: 1650 barrels

Waste disposal frequency : Daily

Safe containment description: N/A

Safe containmant attachment:

Waste disposal type: HAUL TO COMMERCIAL FACILITY

Disposal location ownership: COMMERCIAL

Disposal type description:

Disposal location description: All cuttings will disposed of at R360, Sundance, or equivalent.

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: THISTLE UNIT

Well Number: 157H

Reserve Pit

Reserve Pit being used? NO

Temporary disposal of produced water into reserve pit?

Reserve pit length (ft.)

Reserve pit width (ft.)

Reserve pit depth (ft.)

Reserve pit volume (cu. yd.)

Is at least 50% of the reserve pit in cut?

Reserve pit liner

Reserve pit liner specifications and installation description

Cuttings Area

Cuttings Area being used? NO

Are you storing cuttings on location? NO

Description of cuttings location

Cuttings area length (ft.)

Cuttings area width (ft.)

Cuttings area depth (ft.)

Cuttings area volume (cu. yd.)

Is at least 50% of the cuttings area in cut?

WCuttings area liner

Cuttings area liner specifications and installation description

Section 8 - Ancillary Facilities

Are you requesting any Ancillary Facilities?: NO

Ancillary Facilities attachment:

Comments:

Section 9 - Well Site Layout

Well Site Layout Diagram:

Thistle Unit 157H_3 Well Pad Rig Location Layout_11-16-2016.pdf

Comments:

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: THISTLE UNIT

Well Number: 157H

Section 10 - Plans for Surface Reclamation

Type of disturbance: NEW

Recontouring attachment:

Thistle Unit 157H_Interim Reclamation_09-15-2016.pdf

Drainage/Erosion control construction: N/A

Drainage/Erosion control reclamation: N/A

Wellpad long term disturbance (acres): 1.64

Wellpad short term disturbance (acres): 3.779

Access road long term disturbance (acres): 0.014

Access road short term disturbance (acres): 0.014

Pipeline long term disturbance (acres): 2.122865

Pipeline short term disturbance (acres): 2.122865

Other long term disturbance (acres): 0

Other short term disturbance (acres): 0

Total long term disturbance: 3.776865

Total short term disturbance: 5.915865

Reconstruction method: Operator will use Best Management Practices "BMP" to mechanically recontour to obtain the desired outcome.

Topsoil redistribution: Topsoils shall be replaced to their original relative positions and contoured so as to achieve erosion control, long-term stability and preservation of surface water flow patterns.

Soil treatment: Topsoils shall be replaced to their original relative positions and contoured so as to achieve erosion control, long-term stability and preservation of surface water flow patterns.

Existing Vegetation at the well pad: Shinnery, yucca, grasses and mesquite.

Existing Vegetation at the well pad attachment:

Existing Vegetation Community at the road: Shinnery, yucca, grasses and mesquite.

Existing Vegetation Community at the road attachment:

Existing Vegetation Community at the pipeline: Shinnery, yucca, grasses and mesquite.

Existing Vegetation Community at the pipeline attachment:

Existing Vegetation Community at other disturbances: Shinnery, yucca, grasses and mesquite.

Existing Vegetation Community at other disturbances attachment:

Non native seed used? NO

Non native seed description:

Seedling transplant description:

Will seedlings be transplanted for this project? NO

Seedling transplant description attachment:

Will seed be harvested for use in site reclamation? NO

Seed harvest description:

Seed harvest description attachment:

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: THISTLE UNIT

Well Number: 157H

Seed Management

Seed Table

Seed type:

Seed source:

Seed name:

Source name:

Source address:

Source phone:

Seed cultivar:

Seed use location:

PLS pounds per acre:

Proposed seeding season:

Seed Summary

Total pounds/Acre:

Seed Type

Pounds/Acre

Seed reclamation attachment:

Operator Contact/Responsible Official Contact Info

First Name: JAMES

Last Name: CRITTENDEN

Phone: (575)748-1854

Email: JAMES.CRITTENDEN@DVN.COM

Seedbed prep:

Seed BMP:

Seed method:

Existing invasive species? NO

Existing invasive species treatment description:

Existing invasive species treatment attachment:

Weed treatment plan description: Maintain weeds on an as need basis.

Weed treatment plan attachment:

Monitoring plan description: Monitor as needed.

Monitoring plan attachment:

Success standards: N/A

Pit closure description: N/A

Pit closure attachment:

Section 11 - Surface Ownership

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: THISTLE UNIT

Well Number: 157H

Disturbance type: PIPELINE

Describe:

Surface Owner: STATE GOVERNMENT

Other surface owner description:

BIA Local Office:

BOR Local Office:

COE Local Office:

DOD Local Office:

NPS Local Office:

State Local Office: HOBBS FIELD OFFICE OCD

Military Local Office:

USFWS Local Office:

Other Local Office:

USFS Region:

USFS Forest/Grassland:

USFS Ranger District:

Disturbance type: NEW ACCESS ROAD

Describe:

Surface Owner: STATE GOVERNMENT

Other surface owner description:

BIA Local Office:

BOR Local Office:

COE Local Office:

DOD Local Office:

NPS Local Office:

State Local Office: HOBBS FIELD OFFICE OCD

Military Local Office:

USFWS Local Office:

Other Local Office:

USFS Region:

USFS Forest/Grassland:

USFS Ranger District:

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: THISTLE UNIT

Well Number: 157H

Disturbance type: EXISTING ACCESS ROAD

Describe:

Surface Owner: STATE GOVERNMENT

Other surface owner description:

BIA Local Office:

BOR Local Office:

COE Local Office:

DOD Local Office:

NPS Local Office:

State Local Office: HOBBS FIELD OFFICE OCD

Military Local Office:

USFWS Local Office:

Other Local Office:

USFS Region:

USFS Forest/Grassland:

USFS Ranger District:

Disturbance type: WELL PAD

Describe:

Surface Owner: STATE GOVERNMENT

Other surface owner description:

BIA Local Office:

BOR Local Office:

COE Local Office:

DOD Local Office:

NPS Local Office:

State Local Office: HOBBS FIELD OFFICE OCD

Military Local Office:

USFWS Local Office:

Other Local Office:

USFS Region:

USFS Forest/Grassland:

USFS Ranger District:

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: THISTLE UNIT

Well Number: 157H

Section 12 - Other Information

Right of Way needed? NO

Use APD as ROW?

ROW Type(s):

ROW Applications

SUPO Additional Information: Thistle Unit 33 CTB 1. Battery Connect, Battery Connect Electric, Flowline Plat 400733XYZ attached stating three 4" flowlines & one 4" gaslift line buried in same ditch from well to CTB. Caliche Map attached. Water Map Info - Reason for showing two routes: 10" or 12" layflat hose. Preference is for 12", based on availability. The treated water is the preferred line. If we can't get enough volume we would supplement with fresh water. Addl info on face of map.

Use a previously conducted onsite? YES

Previous Onsite information: Previously conducted on-site 6/14/16 for Thistle Unit 152H 157H, 153H

Other SUPO Attachment

Thistle Unit 157H_THISTLE_UNIT_33_CTB_1_BAT_ELECTRIC_P_11-16-2016.PDF

Thistle Unit 157H_Thistle Unit 33 CTB 1 FL_11-16-2016.pdf

Thistle Unit 157H_THISTLE_UNIT_33_CTB_1_BATCON_P_R1_11-16-2016.pdf

Thistle Unit 157H_THISTLE_UNIT_33_CTB_1_P_R1_11-16-2016.pdf

Thistle Unit 157H_Caliche map_12-14-2016.pdf

Thistle Unit 157H_Water Transfer Map_12-14-2016.pdf

PWD

Section 1 - General

Would you like to address long-term produced water disposal? NO

Section 2 - Lined Pits

Would you like to utilize Lined Pit PWD options? NO

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: THISTLE UNIT

Well Number: 157H

Produced Water Disposal (PWD) Location:

PWD surface owner:

PWD disturbance (acres):

Lined pit PWD on or off channel:

Lined pit PWD discharge volume (bbl/day):

Lined pit specifications:

Pit liner description:

Pit liner manufacturers information:

Precipitated solids disposal:

Describe precipitated solids disposal:

Precipitated solids disposal permit:

Lined pit precipitated solids disposal schedule:

Lined pit precipitated solids disposal schedule attachment:

Lined pit reclamation description:

Lined pit reclamation attachment:

Leak detection system description:

Leak detection system attachment:

Lined pit Monitor description:

Lined pit Monitor attachment:

Lined pit: do you have a reclamation bond for the pit?

Is the reclamation bond a rider under the BLM bond?

Lined pit bond number:

Lined pit bond amount:

Additional bond information attachment:

Section 3 - Unlined Pits

Would you like to utilize Unlined Pit PWD options? NO

Produced Water Disposal (PWD) Location:

PWD surface owner:

PWD disturbance (acres):

Unlined pit PWD on or off channel:

Unlined pit PWD discharge volume (bbl/day):

Unlined pit specifications:

Precipitated solids disposal:

Describe precipitated solids disposal:

Precipitated solids disposal permit:

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: THISTLE UNIT

Well Number: 157H

Unlined pit precipitated solids disposal schedule:

Unlined pit precipitated solids disposal schedule attachment:

Unlined pit reclamation description:

Unlined pit reclamation attachment:

Unlined pit Monitor description:

Unlined pit Monitor attachment:

Do you propose to put the produced water to beneficial use?

Beneficial use user confirmation:

Estimated depth of the shallowest aquifer (feet):

Does the produced water have an annual average Total Dissolved Solids (TDS) concentration equal to or less than that of the existing water to be protected?

TDS lab results:

Geologic and hydrologic evidence:

State authorization:

Unlined Produced Water Pit Estimated percolation:

Unlined pit: do you have a reclamation bond for the pit?

Is the reclamation bond a rider under the BLM bond?

Unlined pit bond number:

Unlined pit bond amount:

Additional bond information attachment:

Section 4 - Injection

Would you like to utilize Injection PWD options? NO

Produced Water Disposal (PWD) Location:

PWD surface owner:

PWD disturbance (acres):

Injection PWD discharge volume (bbl/day):

Injection well mineral owner:

Injection well type:

Injection well number:

Injection well name:

Assigned injection well API number?

Injection well API number:

Injection well new surface disturbance (acres):

Minerals protection information:

Mineral protection attachment:

Underground Injection Control (UIC) Permit?

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: THISTLE UNIT

Well Number: 157H

UIC Permit attachment:

Section 5 - Surface Discharge

Would you like to utilize Surface Discharge PWD options? NO

Produced Water Disposal (PWD) Location:

PWD surface owner:

PWD disturbance (acres):

Surface discharge PWD discharge volume (bbl/day):

Surface Discharge NPDES Permit?

Surface Discharge NPDES Permit attachment:

Surface Discharge site facilities information:

Surface discharge site facilities map:

Section 6 - Other

Would you like to utilize Other PWD options? NO

Produced Water Disposal (PWD) Location:

PWD surface owner:

PWD disturbance (acres):

Other PWD discharge volume (bbl/day):

Other PWD type description:

Other PWD type attachment:

Have other regulatory requirements been met?

Other regulatory requirements attachment:

Bond Info

Bond Information

Federal/Indian APD: FED

BLM Bond number: CO1104

BIA Bond number:

Do you have a reclamation bond? NO

Is the reclamation bond a rider under the BLM bond?

Is the reclamation bond BLM or Forest Service?

BLM reclamation bond number:

Forest Service reclamation bond number:

Forest Service reclamation bond attachment:

Reclamation bond number:

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: THISTLE UNIT

Well Number: 157H

Reclamation bond amount:

Reclamation bond rider amount:

Additional reclamation bond information attachment:

Operator Certification

Operator Certification

I hereby certify that I, or someone under my direct supervision, have inspected the drill site and access route proposed herein; that I am familiar with the conditions which currently exist; that I have full knowledge of state and Federal laws applicable to this operation; that the statements made in this APD package are, to the best of my knowledge, true and correct; and that the work associated with the operations proposed herein will be performed in conformity with this APD package and the terms and conditions under which it is approved. I also certify that I, or the company I represent, am responsible for the operations conducted under this application. These statements are subject to the provisions of 18 U.S.C. 1001 for the filing of false statements.

NAME: Rebecca Deal

Signed on: 09/15/2016

Title: Regulatory Compliance Professional

Street Address: 333 West Sheridan Avenue

City: Oklahoma City

State: OK

Zip: 73102

Phone: (405)228-8429

Email address: Rebecca.Deal@dvn.com

Field Representative

Representative Name: JAMES CRITTENDEN

Street Address: 6488 SEVEN RIVERS HWY

City: ARTESIA

State: NM

Zip: 88210

Phone: (575)748-1854

Email address: JAMES.CRITTENDEN@DVN.COM

Payment Info

Payment

APD Fee Payment Method: PAY.GOV

pay.gov Tracking ID: 25TTDN1T