OIL CONSERVATION
ARTESIA DISTRICT

MAY 22 2017

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Form 3160-3
(March 2012)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

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

APPLICATION FOR PERMIT TO DRILL OR REENTER

1a. Type of work: ☑ DRILL ☐ REENTER	5. Lease Serial No. NMNM012121
1b. Type of Well: ☑ Oil Well ☐ Gas Well ☐ Other ☑ Single Zone ☐ Multiple Zone	6. If Indian, Allotee or Tribe Name
2. Name of Operator DEVON ENERGY PRODUCTION COMPANY LP	7. If Unit or CA Agreement, Name and No.
3a. Address 333 West Sheridan Avenue Oklahoma City OK 3b. Phone No. (include area code) (405)552-6571	8. Lease Name and Well No. COTTON DRAW UNIT 512H
4. Location of Well (Report location clearly and in accordance with any State requirements.*) At surface SWSE / 230 FSL / 1935 FEL / LAT 32.1810875 / LONG -103.7315034 At proposed prod. zone NWNE / 290 FNL / 2310 FEL / LAT 32.1948065 / LONG -103.7304382	9. API Well No. 30-015-44198
	10. Field and Pool, or Exploratory PADUCA / BONE SPRING
	11. Sec., T. R. M. or Blk. and Survey or Area SEC 25 / T24S / R31E / NMP
14. Distance in miles and direction from nearest town or post office*	12. County or Parish EDDY / 13. State NM
15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any) 230 feet	16. No. of acres in lease 1280 / 17. Spacing Unit dedicated to this well 160
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. 750 feet	19. Proposed Depth 10200 feet / 15345 feet / 20. BLM/BIA Bond No. on file FED: CO1104
21. Elevations (Show whether DF, KDB, RT, GL, etc.) 3512 feet	22. Approximate date work will start* 11/08/2017 / 23. Estimated duration 45 days

24. Attachments

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.
2. A Drilling Plan.
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).
4. Bond to cover the operations unless covered by an existing bond on file (see Item 20 above).
5. Operator certification
6. Such other site specific information and/or plans as may be required by the BLM.

25. Signature (Electronic Submission)	Name (Printed/Typed) Linda Good / Ph: (405)552-6558	Date 02/23/2017
Title Regulatory Compliance Professional		
Approved by (Signature) (Electronic Submission)	Name (Printed/Typed) Cody Layton / Ph: (575)234-5959	Date 05/15/2017
Title Supervisor Multiple Resources	Office CARLSBAD	

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

RWP 5-22-17

AFMSS

U.S. Department of the Interior
BUREAU OF LAND MANAGEMENT

for Certification Data Report
05/18/2017

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: Linda Good **Signed on:** 02/23/2017

Title: Regulatory Compliance Professional

Street Address: 333 West Sheridan Avenue

City: Oklahoma City **State:** OK **Zip:** 73102

Phone: (405)552-6558

Email address: Linda.Good@dvn.com

Field Representative

Representative Name: Ray Vaz

Street Address: 6488 Seven Rivers Hwy

City: Artesia **State:** NM **Zip:** 88210

Phone: (575)748-1871

Email address: ray.vaz@dvn.com

AFMSS

U.S. Department of the Interior
BUREAU OF LAND MANAGEMENT

Application Data Report
05/18/2017

APD ID: 10400011581 **Submission Date:** 02/23/2017

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: COTTON DRAW UNIT **Well Number:** 512H

Well Type: OIL WELL **Well Work Type:** Drill

Section 1 - General

APD ID: 10400011581 **Tie to previous NOS?** **Submission Date:** 02/23/2017

BLM Office: CARLSBAD **User:** Linda Good **Title:** Regulatory Compliance Professional

Federal/Indian APD: FED **Is the first lease penetrated for production Federal or Indian?** FED

Lease number: NMNM012121 **Lease Acres:** 1280

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 **Mater Development Plan name:**

Well in Master SUPO? NO **Master SUPO name:**

Well in Master Drilling Plan? NO **Master Drilling Plan name:**

Well Name: COTTON DRAW UNIT **Well Number:** 512H **Well API Number:**

Field/Pool or Exploratory? Field and Pool **Field Name:** PADUCA **Pool Name:** BONE SPRING

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: COTTON DRAW UNIT **Well Number:** 512H

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:** COTTON DRAW UNIT **Number:** 191H/193H/194H

Well Class: HORIZONTAL **Number of Legs:** 1

Well Work Type: Drill

Well Type: OIL WELL

Describe Well Type:

Well sub-Type: OTHER

Describe sub-type: DEVELOPMENT

Distance to town: **Distance to nearest well:** 750 FT **Distance to lease line:** 230 FT

Reservoir well spacing assigned acres Measurement: 160 Acres

Well plat: CDU 512H_C-102_signed_02-21-2017.pdf

Well work start Date: 11/08/2017 **Duration:** 45 DAYS

Section 3 - Well Location Table

Survey Type: RECTANGULAR

Describe Survey Type:

Datum: NAD83 **Vertical Datum:** NAVD88

Survey number: 5155

	STATE: NEW MEXICO	**Meridian:** NEW MEXICO PRINCIPAL	**County:** EDDY
	Latitude: 32.1810875	**Longitude:** -103.7315034	
SHL	**Elevation:** 3512	**MD:** 0	**TVD:** 0
Leg #: 1	**Lease Type:** FEDERAL	**Lease #:** NMNM012121	
	NS-Foot: 230	**NS Indicator:** FSL	
	EW-Foot: 1935	**EW Indicator:** FEL	
	Twsp: 24S	**Range:** 31E	**Section:** 25
	Aliquot: SWSE	**Lot:**	**Tract:**

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: COTTON DRAW UNIT **Well Number:** 512H

	STATE: NEW MEXICO	**Meridian:** NEW MEXICO PRINCIPAL	**County:** EDDY
	Latitude: 32.1810875	**Longitude:** -103.7315034	
KOP	**Elevation:** -6217	**MD:** 9763	**TVD:** 9729
Leg #: 1	**Lease Type:** FEDERAL	**Lease #:** NMNM012121	
	NS-Foot: 0	**NS Indicator:** FSL	
	EW-Foot: 2310	**EW Indicator:** FEL	
	Twsp: 24S	**Range:** 31E	**Section:** 25
	Aliquot: SWSE	**Lot:**	**Tract:**
	STATE: NEW MEXICO	**Meridian:** NEW MEXICO PRINCIPAL	**County:** EDDY
	Latitude: 32.1810875	**Longitude:** -103.7315034	
PPP	**Elevation:** -6695	**MD:** 10513	**TVD:** 10207
Leg #: 1	**Lease Type:** FEDERAL	**Lease #:** NMNM012121	
	NS-Foot: 330	**NS Indicator:** FSL	
	EW-Foot: 2310	**EW Indicator:** FEL	
	Twsp: 24S	**Range:** 31E	**Section:** 25
	Aliquot: SWSE	**Lot:**	**Tract:**
	STATE: NEW MEXICO	**Meridian:** NEW MEXICO PRINCIPAL	**County:** EDDY
	Latitude: 32.1948065	**Longitude:** -103.7304382	
EXIT	**Elevation:** -6688	**MD:** 15345	**TVD:** 10200
Leg #: 1	**Lease Type:** FEDERAL	**Lease #:** NMNM89055	
	NS-Foot: 290	**NS Indicator:** FNL	
	EW-Foot: 2310	**EW Indicator:** FEL	
	Twsp: 24S	**Range:** 31E	**Section:** 25
	Aliquot: NWNE	**Lot:**	**Tract:**
	STATE: NEW MEXICO	**Meridian:** NEW MEXICO PRINCIPAL	**County:** EDDY
	Latitude: 32.1948065	**Longitude:** -103.7304382	
BHL	**Elevation:** -6688	**MD:** 15345	**TVD:** 10200
Leg #: 1	**Lease Type:** FEDERAL	**Lease #:** NMNM89055	
	NS-Foot: 290	**NS Indicator:** FNL	
	EW-Foot: 2310	**EW Indicator:** FEL	

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

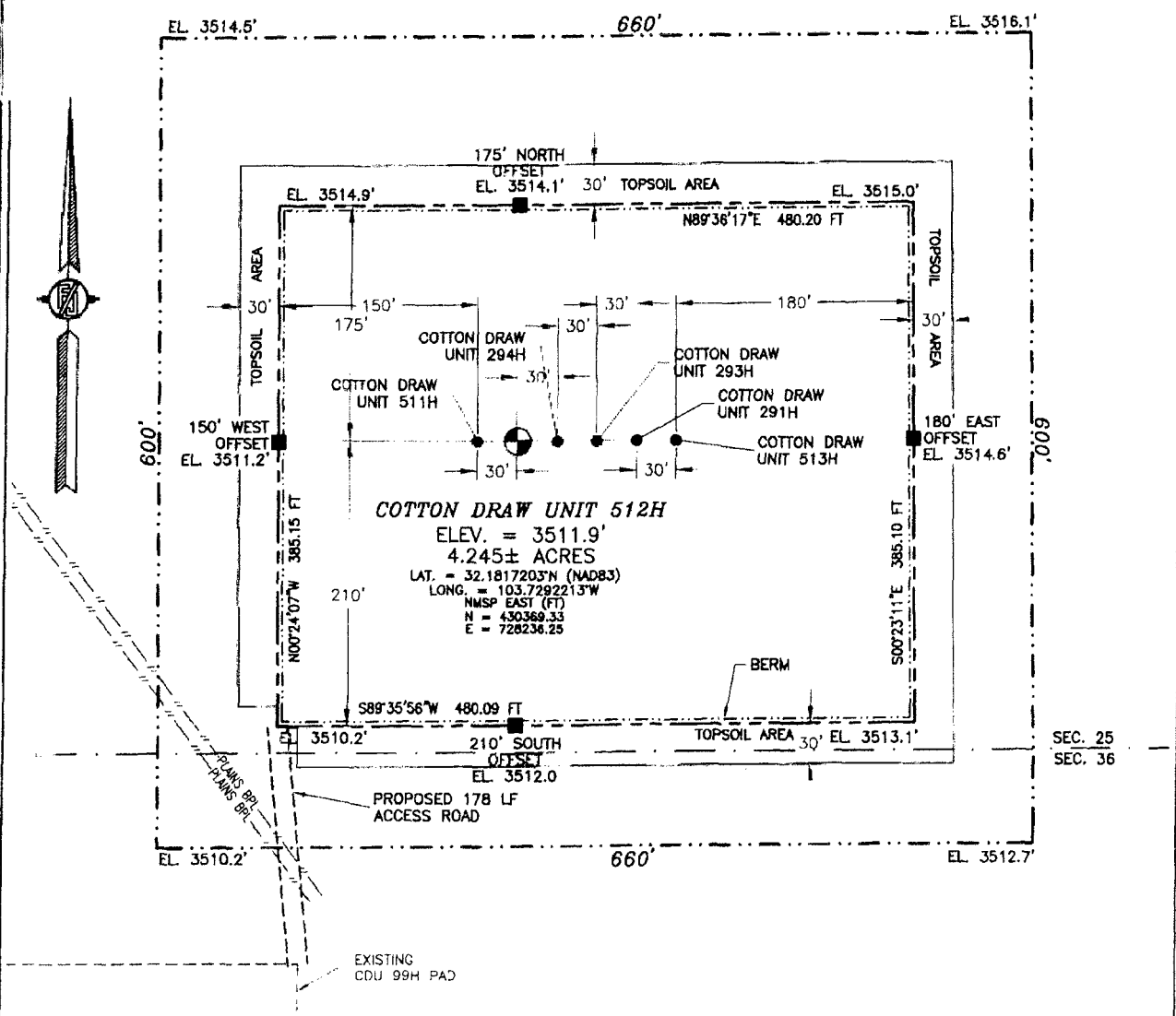
Well Name: COTTON DRAW UNIT **Well Number:** 512H

Twsp: 24S **Range:** 31E **Section:** 25

Aliquot: NWNE **Lot:** **Tract:**

SECTION 25, TOWNSHIP 24 SOUTH, RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
SITE MAP

NOTE: LATITUDE AND LONGITUDE COORDINATES ARE SHOWN USING THE NORTH AMERICAN DATUM OF 1983 (NAD83) LISTED NEW MEXICO STATE PLANE EAST COORDINATES ARE GRID (NAD83). BASIS OF BEARING AND DISTANCES USED ARE NEW MEXICO STATE PLANE EAST COORDINATES MODIFIED TO THE SURFACE. VERTICAL DATUM NAVD88.



012 60 120 240

SCALE 1" = 120'

DIRECTIONS TO LOCATION

FROM STATE HIGHWAY 128 AND CR 1 (ORLA ROAD) GO SOUTH ON CR 1 6.1 MILES, TURN RIGHT ON CALICHE ROAD (MONSANTO ROAD) AND GO WEST 2.1 MILES, TURN RIGHT AND GO NORTH 0.75 OF A MILE, TURN LEFT AND GO WEST 2.0 MILES, TURN RIGHT AND GO NORTH 1.8 MILES, TURN LEFT AND GO WEST 0.3 OF A MILE, TURN RIGHT AND GO NORTH 0.5 OF A MILE, TURN RIGHT AND GO EAST 0.7 OF A MILE, TURN LEFT AND GO NORTH 0.83 OF A MILE, TURN RIGHT AND GO NORTHEAST 0.15 OF A MILE TO EXISTING CDU 99H PAD. FROM NORTHEAST PAD CORNER FOLLOW ROAD SURVEY FLAGS NORTH 178' TO THE SOUTHWEST PAD CORNER FOR THIS LOCATION.

DEVON ENERGY PRODUCTION COMPANY, L.P.

COTTON DRAW UNIT 512H

LOCATED 230 FT. FROM THE SOUTH LINE AND 1935 FT. FROM THE EAST LINE OF SECTION 25, TOWNSHIP 24 SOUTH, RANGE 31 EAST, N.M.P.M. EDDY COUNTY, STATE OF NEW MEXICO

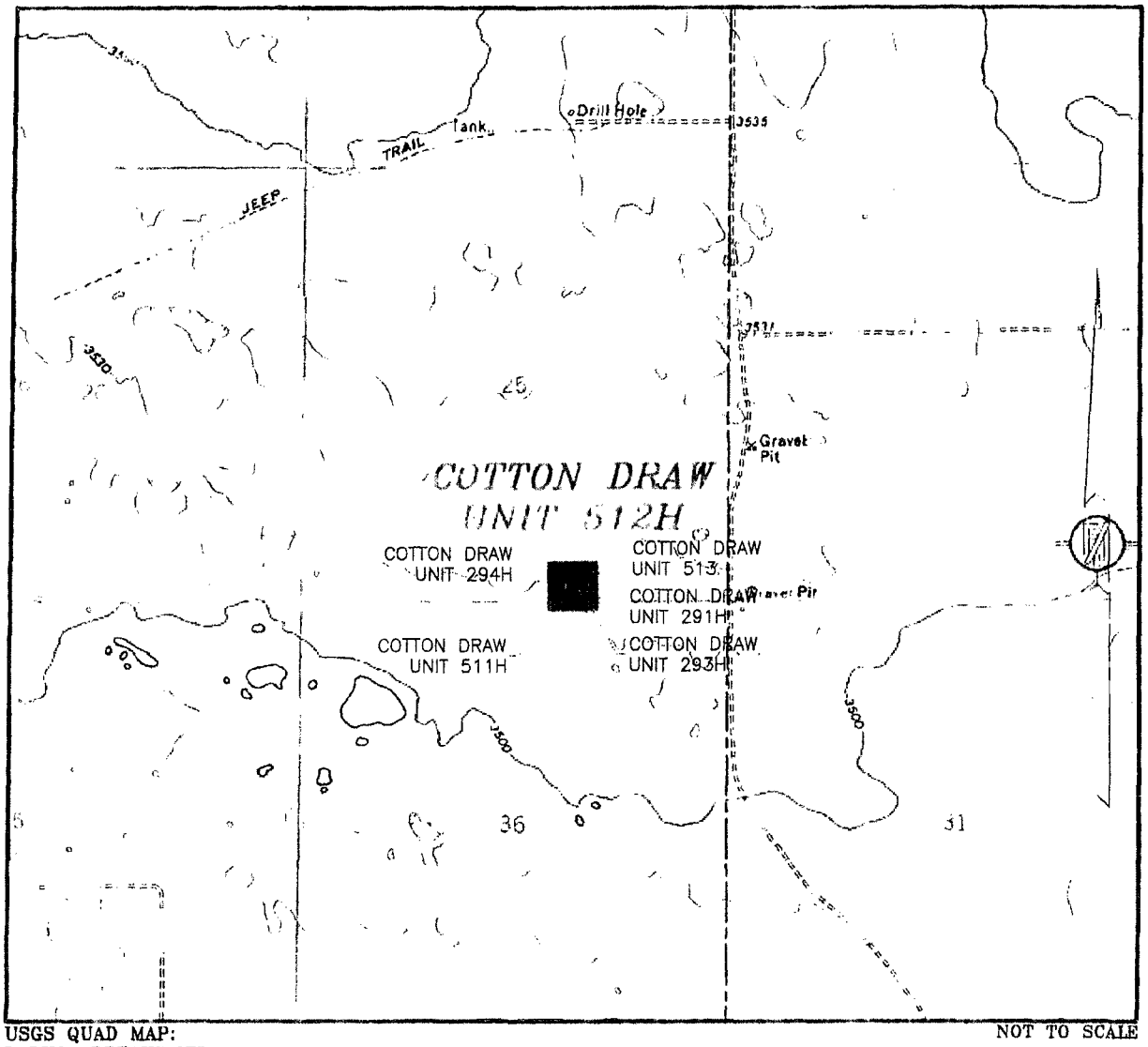
FEBRUARY 7, 2017

SURVEY NO. 5155

MADRON SURVEYING, INC. 301 SOUTH CANAL (575) 234-3341 *CARLSBAD, NEW MEXICO*

SECTION 25, TOWNSHIP 24 SOUTH, RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO

LOCATION VERIFICATION MAP



USGS QUAD MAP:
PADUCA BREAKS NW

NOT TO SCALE

DEVON ENERGY PRODUCTION COMPANY, L.P.
COTTON DRAW UNIT 512H
LOCATED 230 FT. FROM THE SOUTH LINE
AND 1935 FT. FROM THE EAST LINE OF
SECTION 25, TOWNSHIP 24 SOUTH,
RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO

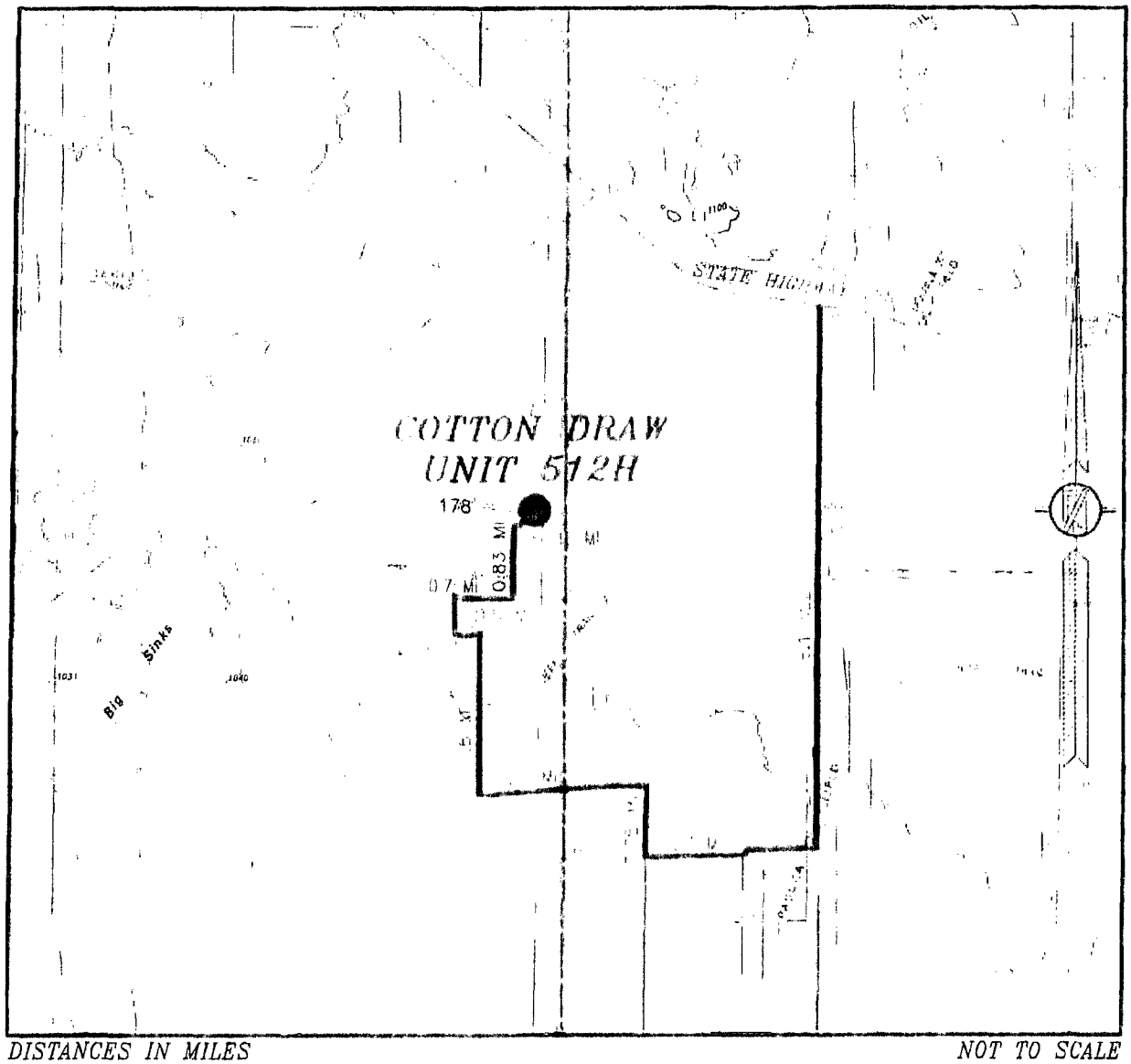
FEBRUARY 7, 2017

SURVEY NO. 5155

MADRON SURVEYING, INC. 301 SOUTH CANAL (575) 234-3341 CARLSBAD, NEW MEXICO

SECTION 25, TOWNSHIP 24 SOUTH, RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO

VICINITY MAP



DISTANCES IN MILES

NOT TO SCALE

DEVON ENERGY PRODUCTION COMPANY, L.P.
COTTON DRAW UNIT 512H
LOCATED 230 FT. FROM THE SOUTH LINE
AND 1935 FT. FROM THE EAST LINE OF
SECTION 25, TOWNSHIP 24 SOUTH,
RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO

FEBRUARY 7, 2017

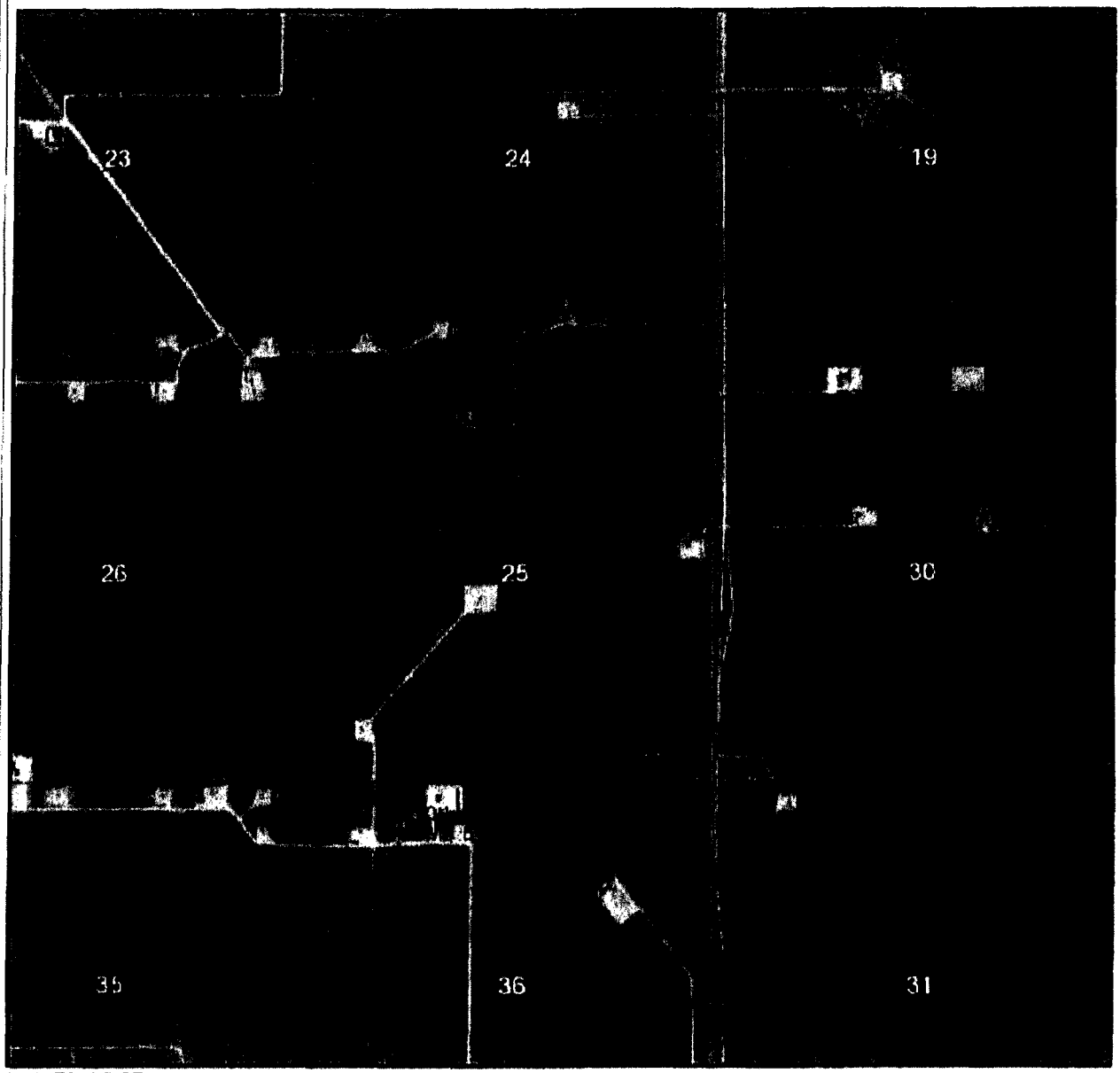
DIRECTIONS TO LOCATION
FROM STATE HIGHWAY 128 AND CR 1 (ORLA ROAD) GO SOUTH ON CR 1 6.1 MILES, TURN RIGHT ON CALICHE ROAD (MONSANTO ROAD) AND GO WEST 2.1 MILES, TURN RIGHT AND GO NORTH 0.75 OF A MILE, TURN LEFT AND GO WEST 2.0 MILES, TURN RIGHT AND GO NORTH 1.8 MILES, TURN LEFT AND GO WEST 0.3 OF A MILE, TURN RIGHT AND GO NORTH 0.5 OF A MILE, TURN RIGHT AND GO EAST 0.7 OF A MILE, TURN LEFT AND GO NORTH 0.83 OF A MILE, TURN RIGHT AND GO NORTHEAST 0.15 OF A MILE TO EXISTING CDU 99H PAD. FROM NORTHEAST PAD CORNER FOLLOW ROAD SURVEY FLAGS NORTH 178' TO THE SOUTHWEST PAD CORNER FOR THIS LOCATION.

SURVEY NO. 5155

MADRON SURVEYING, INC. 301 SOUTH CANAL (575) 234-3341 CARLSBAD, NEW MEXICO

SECTION 25, TOWNSHIP 24 SOUTH, RANGE 31 EAST, N.M.P.M
EDDY COUNTY, STATE OF NEW MEXICO

AERIAL PHOTO



NOT TO SCALE
AERIAL PHOTO:
GOOGLE EARTH
NOVEMBER 2015

DEVON ENERGY PRODUCTION COMPANY, L.P.

COTTON DRAW UNIT 512H

LOCATED 230 FT. FROM THE SOUTH LINE
AND 1935 FT. FROM THE EAST LINE OF
SECTION 25, TOWNSHIP 24 SOUTH,
RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO

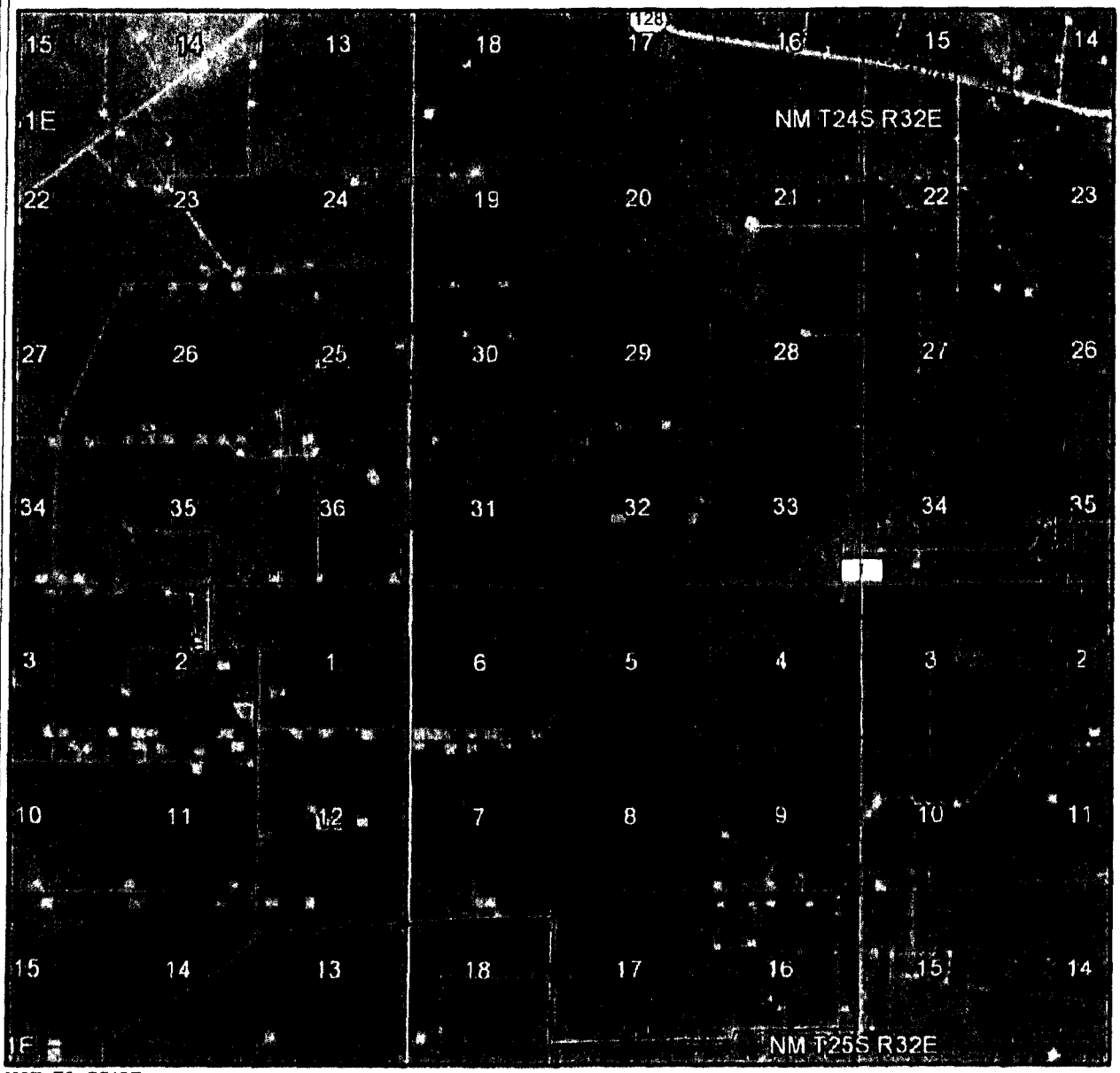
FEBRUARY 7, 2017

SURVEY NO. 5155

MADRON SURVEYING, INC. 301 SOUTH CANAL (575) 234-3341 CARLSBAD, NEW MEXICO

SECTION 25, TOWNSHIP 24 SOUTH, RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO

ACCESS AERIAL ROUTE MAP



NOT TO SCALE
AERIAL PHOTO:
GOOGLE EARTH
NOVEMBER 2015

DEVON ENERGY PRODUCTION COMPANY, L.P

COTTON DRAW UNIT 512H

LOCATED 230 FT. FROM THE SOUTH LINE
AND 1935 FT. FROM THE EAST LINE OF
SECTION 25, TOWNSHIP 24 SOUTH,
RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO

FEBRUARY 7, 2017

SURVEY NO. 5155

MADRON SURVEYING, INC. 301 SOUTH CANAL (575) 234-3341 CARLSBAD, NEW MEXICO

APD ID: 10400011581 **Submission Date:** 02/23/2017

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: COTTON DRAW UNIT **Well Number:** 512H

Well Type: OIL WELL **Well Work Type:** Drill

Section 1 - Geologic Formations

ID: Surface formation **Name:** UNKNOWN

Lithology(ies):

ALLUVIUM

Elevation: 3512 **True Vertical Depth:** 0 **Measured Depth:** 0

Mineral Resource(s):

NONE

Is this a producing formation? N

ID: Formation 1 **Name:** RUSTLER

Lithology(ies):

SALT

Elevation: 2837 **True Vertical Depth:** 675 **Measured Depth:** 675

Mineral Resource(s):

NONE

Is this a producing formation? N

ID: Formation 2 **Name:** BASE OF SALT

Lithology(ies):

SALT

Elevation: -738 **True Vertical Depth:** 4250 **Measured Depth:** 4250

Mineral Resource(s):

NONE

Is this a producing formation? N

ID: Formation 3 **Name:** DELAWARE

Lithology(ies):

SANDSTONE

Elevation: -788 **True Vertical Depth:** 4300 **Measured Depth:** 4300

Mineral Resource(s):

NATURAL GAS

OIL

Is this a producing formation? N

ID: Formation 4 **Name:** BONE SPRING

Lithology(ies):

SANDSTONE

Elevation: -4888 **True Vertical Depth:** 8400 **Measured Depth:** 8400

Mineral Resource(s):

NATURAL GAS

OIL

Is this a producing formation? Y

Section 2 - Blowout Prevention

Pressure Rating (PSI): 3M **Rating Depth:** 10200

Equipment: BOP/BOPE will be installed per Onshore Oil & Gas Order #2 requirements prior to drilling below 13-3/8" surface casing, a 13-5/8" BOP/BOPE system with a minimum rating of 3M will be installed on the wellhead system. BOP/BOPE will be tested by an independent service company per Onshore Oil & Gas Order #2 requirements and MASP (Maximum Anticipated Surface Pressure) calculations. If the system is upgraded, all the components installed will be functional and tested.
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:

CDU 512H_3M BOPE_Ck_02-23-2017.pdf

BOP Diagram Attachment:

CDU 512H_3M BOPE_Ck_02-23-2017.pdf

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: COTTON DRAW UNIT **Well Number:** 512H

Pressure Rating (PSI): 3M **Rating Depth:** 4300

Equipment: BOP/BOPE will be installed per Onshore Oil & Gas Order #2 requirements prior to drilling below 13-3/8" surface casing, a 13-5/8" BOP/BOPE system with a minimum rating of 3M will be installed on the wellhead system. BOP/BOPE will be tested by an independent service company per Onshore Oil & Gas Order #2 requirements and MASP (Maximum Anticipated Surface Pressure) calculations. If the system is upgraded, all the components installed will be functional and tested.

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:

CDU 512H_3M BOPE_Ck_02-23-2017.pdf

BOP Diagram Attachment:

CDU 512H_3M BOPE_Ck_02-23-2017.pdf

Section 3 - Casing

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: COTTON DRAW UNIT **Well Number:** 512H

String Type: PRODUCTION **Other String Type:**

Hole Size: 8.75

Top setting depth MD: 0 **Top setting depth TVD:** 0

Top setting depth MSL: -6695

Bottom setting depth MD: 15345 **Bottom setting depth TVD:** 10200

Bottom setting depth MSL: -16895

Calculated casing length MD: 15345

Casing Size: 5.5 **Other Size**

Grade: P-110 **Other Grade:**

Weight: 17

Joint Type: BUTT **Other Joint Type:**

Condition: NEW

Inspection Document:

Standard: API

Spec Document:

Tapered String?: N

Tapered String Spec:

Safety Factors

Collapse Design Safety Factor: 1.7 **Burst Design Safety Factor:** 2.11

Joint Tensile Design Safety Factor type: BUOYANT **Joint Tensile Design Safety Factor:** 2.51

Body Tensile Design Safety Factor type: BUOYANT **Body Tensile Design Safety Factor:** 2.51

Casing Design Assumptions and Worksheet(s):

CDU 512H_ProdCsg Ass_02-23-2017.pdf

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: COTTON DRAW UNIT **Well Number:** 512H

String Type: SURFACE **Other String Type:**

Hole Size: 17.5

Top setting depth MD: 0 **Top setting depth TVD:** 0

Top setting depth MSL: -6695

Bottom setting depth MD: 700 **Bottom setting depth TVD:** 700

Bottom setting depth MSL: -7395

Calculated casing length MD: 700

Casing Size: 13.375 **Other Size**

Grade: H-40 **Other Grade:**

Weight: 48

Joint Type: BUTT **Other Joint Type:**

Condition: NEW

Inspection Document:

Standard: API

Spec Document:

Tapered String?: N

Tapered String Spec:

Safety Factors

Collapse Design Safety Factor: 1.74 **Burst Design Safety Factor:** 2.45

Joint Tensile Design Safety Factor type: BUOYANT **Joint Tensile Design Safety Factor:** 4.13

Body Tensile Design Safety Factor type: BUOYANT **Body Tensile Design Safety Factor:** 4.13

Casing Design Assumptions and Worksheet(s):

CDU 512H_ProdCsg Ass_02-23-2017.pdf

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: COTTON DRAW UNIT **Well Number:** 512H

String Type: INTERMEDIATE **Other String Type:**

Hole Size: 12.25

Top setting depth MD: 0 **Top setting depth TVD:** 0

Top setting depth MSL: -6695

Bottom setting depth MD: 4300 **Bottom setting depth TVD:** 4300

Bottom setting depth MSL: -10995

Calculated casing length MD: 4300

Casing Size: 9.625 **Other Size**

Grade: J-55 **Other Grade:**

Weight: 40

Joint Type: BUTT **Other Joint Type:**

Condition: NEW

Inspection Document:

Standard: API

Spec Document:

Tapered String?: N

Tapered String Spec:

Safety Factors

Collapse Design Safety Factor: 1.19 **Burst Design Safety Factor:** 1.42

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):

CDU 512H_Int Csg Ass_02-23-2017.pdf

Section 4 - Cement

Casing String Type: SURFACE

Stage Tool Depth:

Lead

Top MD of Segment: 0 **Bottom MD Segment:** 700 **Cement Type:** CLASS C

Additives: 1% CaCl **Quantity (sks):** 560 **Yield (cu.ff./sk):** 1.34

Density: 14.8 **Volume (cu.ft.):** 750 **Percent Excess:** 50

Casing String Type: INTERMEDIATE

Stage Tool Depth:

Lead

Top MD of Segment: 0 **Bottom MD Segment:** 3000 **Cement Type:** CLASS C

Additives: Poz (Fly Ash): 6% BWOC Bentonite + 5% BWOW Sodium Chloride + 0.125 lbs/sks Poly-E-Flake **Quantity (sks):** 700 **Yield (cu.ff./sk):** 1.85

Density: 12.9 **Volume (cu.ft.):** 1295 **Percent Excess:** 30

Tail

Bottom MD Segment: 4300 **Cement Type:** CLASS C

Top MD of Segment: 3000 **Quantity (sks):** 320 **Yield (cu.ff./sk):** 1.33

Additives: 0.125 lbs/sks Poly-R-Flake **Volume (cu.ft.):** 425 **Percent Excess:** 30

Density: 14.8

Casing String Type: PRODUCTION

Stage Tool Depth:

Lead

Top MD of Segment: 4100 **Bottom MD Segment:** 10000 **Cement Type:** TUNED

Additives: TUNED LIGHT **Quantity (sks):** 560 **Yield (cu.ff./sk):** 3.27

Density: 9 **Volume (cu.ft.):** 1830 **Percent Excess:** 25

Tail

Top MD of Segment: 10000 **Bottom MD Segment:** 15345 **Cement Type:** CLASS C

Additives: 0.125 lbs/sks Poly-R-Flake **Quantity (sks):** 1130 **Yield (cu.ff./sk):** 1.2

Density: 14.5 **Volume (cu.ft.):** 1356 **Percent Excess:** 25

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: COTTON DRAW UNIT **Well Number:** 512H

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:** 700

Mud Type: OTHER FRESH WATER GEL

Min Weight (lbs./gal.): 8.6 **Max Weight (lbs./gal.):** 8.8

Density (lbs/cu.ft.): **Gel Strength (lbs/100 sq.ft.):**

PH: **Viscosity (CP):**

Filtration (cc): **Salinity (ppm):**

Additional Characteristics: SEE ATTACHED DRILLING PLAN FOR MORE DETAILS

Top Depth: 700 **Bottom Depth:** 4300

Mud Type: OTHER SATURATED BRING

Min Weight (lbs./gal.): 10 **Max Weight (lbs./gal.):** 10.2

Density (lbs/cu.ft.): **Gel Strength (lbs/100 sq.ft.):**

PH: **Viscosity (CP):**

Filtration (cc): **Salinity (ppm):**

Additional Characteristics: SEE ATTACHED DRILLING PLAN FOR MORE DETAILS.

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: COTTON DRAW UNIT **Well Number:** 512H

Top Depth: 4300 **Bottom Depth:** 15345

Mud Type: OTHER CUT BRINE

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):**

Filtration (cc): ***Salinity (ppm):***

Additional Characteristics: SEE ATTACHED DRILLING PLAN FOR MORE DETAILS.

Section 6 - Test, Logging, Coring

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

Will run GRMWD from KOP to TD. 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:

CBL,DS,GR,MWD,MUDLOG

Coring operation description for the well:

N/A

Section 7 - Pressure

Anticipated Bottom Hole Pressure: 4548 **Anticipated Surface Pressure:** 2302.46

Anticipated Bottom Hole Temperature(F): 185

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

Describe:

Contingency Plans geoharzards description:

Contingency Plans geohazards attachment:

Hydrogen Sulfide drilling operations plan required? YES

Hydrogen sulfide drilling operations plan:

CDU 512H_H2S Plans_02-21-2017.pdf

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: COTTON DRAW UNIT **Well Number:** 512H

Section 8 - Other Information

Proposed horizontal/directional/multi-lateral plan submission:

CDU 512H_Dir Plan_02-23-2017.pdf

Other proposed operations facets description:

Multi-Bowl Verbiage
Multi-Bowl Wellhead
Closed-Loop Design Plan
Drilling Plan

Other proposed operations facets attachment:

CDU 512H_MB Verb 3M_02-21-2017.pdf
CDU 512H_MB Wellhd_02-21-2017.pdf
CDU 512H_Clsd Loop_02-21-2017.pdf
CDU 512H_Drilling Plan_02-23-2017.pdf

Other Variance attachment:

CDU 512H_Co-flex_02-21-2017.pdf

Devon Energy, Cotton Draw Unit 512H

1. Geologic Formations

TVD of target	10,200'	Pilot hole depth	N/A
MD at TD:	15,345'	Deepest expected fresh water:	

Basin

Formation	Depth (TVD) from KB	Water/Mineral Bearing/ Target Zone?	Hazards*
Quaternary Fill	Surface	Water	
Rustler	675	Water	
Top of Salt	1500	Salt	
Lamar	4250	Barren	
Delaware Group	4300	Oil/Gas	
Bone Spring	8400	Target	

*H2S, water flows, loss of circulation, abnormal pressures, etc.

Devon Energy, Cotton Draw Unit 512H

2. Casing Program

Hole Size	Casing Interval		Csg. Size	Weight (lbs)	Grade	Conn.	SF Collapse	SF Burst	SF Tension
	From	To							
17.5"	0	700'	13.375"	48	H-40	STC	1.74	2.45	4.13
12.25"	0	4,300'	9.625"	40	J-55	LTC	1.19	1.42	3.98
8.75"	0	15,345'	5.5"	17	P-110	BTC	1.7	2.11	2.51
				BLM Minimum Safety Factor			1.125	1.00	1.6 Dry 1.8 Wet

All casing strings will be tested in accordance with Onshore Oil and Gas Order #2 III.B.1.h

Must have table for contingency casing

	Y or N
Is casing new? If used, attach certification as required in Onshore Order #1	Y
Does casing meet API specifications? If no, attach casing specification sheet.	Y
Is premium or uncommon casing planned? If yes attach casing specification sheet.	N
Does the above casing design meet or exceed BLM's minimum standards? If not provide justification (loading assumptions, casing design criteria).	Y
Will the intermediate pipe be kept at a minimum 1/3 fluid filled to avoid approaching the collapse pressure rating of the casing?	Y
Is well located within Capitan Reef?	N
If yes, does production casing cement tie back a minimum of 50' above the Reef?	
Is well within the designated 4 string boundary.	
Is well located in SOPA but not in R-111-P?	N
If yes, are the first 2 strings cemented to surface and 3rd string cement tied back 500' into previous casing?	
Is well located in R-111-P and SOPA?	N
If yes, are the first three strings cemented to surface?	
Is 2nd string set 100' to 600' below the base of salt?	
Is well located in high Cave/Karst?	N
If yes, are there two strings cemented to surface?	
(For 2 string wells) If yes, is there a contingency casing if lost circulation occurs?	
Is well located in critical Cave/Karst?	N
If yes, are there three strings cemented to surface?	

3. Cementing Program

Casing	# Sks	Wt. lb/ gal	H_2O gal/sk	Yld ft3/ sack	500# Comp. Strength (hours)	Slurry Description
13-3/8" Surface	560	14.8	6.34	1.34	6	Tail: Class C Cement + 1% Calcium Chloride
9-5/8" Inter.	700	12.9	9.81	1.85	14	Lead: (65:35) Class C Cement: Poz (Fly Ash): 6% BWOC Bentonite + 5% BWOW Sodium Chloride + 0.125 lbs/sack Poly-E-Flake
	320	14.8	6.32	1.33	6	Tail: Class C Cement + 0.125 lbs/sack Poly-E-Flake
5-1/2" Prod	560	9	13.5	3.27	21	Lead: Tuned Light® Cement
	1130	14.5	5.31	1.2	25	Tail: (50:50) Class H Cement: Poz (Fly Ash) + 0.5% bwoc HALAD-344 + 0.4% bwoc CFR-3 + 0.2% BWOC HR-601 + 2% bwoc Bentonite
5-1/2" Prod Two Stage	540	10.9	20.6	3.31	24	1st Stage Lead: (50:40:10) Class C: Silicalite: 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 lb/sk D-Air 5000
	1130	14.5	5.31	1.2	25	1st Stage Tail: (50:50) Class H Cement: Poz (Fly Ash) + 0.5% bwoc HALAD-344 + 0.4% bwoc CFR-3 + 0.2% BWOC HR-601 + 2% bwoc Bentonite
	DV Tool = 4350ft					
	20	10.9	20.6	3.31	24	2nd Stage Lead: (50:40:10) Class C: Silicalite: 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 lb/sk D-Air 5000
	30	14.8	6.32	1.33	6	2nd Stage Tail: Class C Cement + 0.125 lbs/sack Poly-E-Flake

DV tool depth(s) will be adjusted based on hole conditions and cement volumes will be adjusted proportionally. DV tool will be set a minimum of 50 feet below previous casing and a minimum of 200 feet above current shoe. Lab reports with the 500 psi compressive strength time for the cement will be onsite for review.

Casing String	TOC	% Excess
13-3/8" Surface	0'	50%
9-5/8" Intermediate	0'	30%
5-1/2" Production Casing	4100'	25%
5-1/2" Production Casing Two Stage Option	1St Stage = 4350' / 2nd Stage = 4100'	25%

4. Pressure Control Equipment

N	A variance is requested for the use of a diverter on the surface casing. See attached for schematic.

BOP installed and tested before drilling which hole?	Size?	Min. Required WP	Type	✓	Tested to:
12-1/4"	13-5/8"	3M	Annular	x	50% of working pressure
			Blind Ram		3M
			Pipe Ram		
			Double Ram	x	
			Other*		
8-3/4"	13-5/8"	3M	Annular	x	50% testing pressure
			Blind Ram		3M
			Pipe Ram		
			Double Ram	x	
			Other *		
			Annular		
			Blind Ram		
			Pipe Ram		
			Double Ram		
			Other *		

*Specify if additional ram is utilized.

BOP/BOPE will be tested by an independent service company to 250 psi low and the high pressure indicated above per Onshore Order 2 requirements. The System may be upgraded to a higher pressure but still tested to the working pressure listed in the table above. If the system is upgraded all the components installed will be functional and tested.

Pipe rams will be operationally checked each 24 hour period. Blind rams will be operationally checked on each trip out of the hole. These checks will be noted on the daily tour sheets. Other accessories to the BOP equipment will include a Kelly cock and floor safety valve (inside BOP) and choke lines and choke manifold. See attached schematics.

Y	Formation integrity test will be performed per Onshore Order #2. On Exploratory wells or on that portion of any well approved for a 5M BOPE system or greater, a pressure integrity test of each casing shoe shall be performed. Will be tested in accordance with Onshore Oil and Gas Order #2 III.B.1.i.

Y	A variance is requested for the use of a flexible choke line from the BOP to Choke Manifold. See attached for specs and hydrostatic test chart.	
	Y	Are anchors required by manufacturer?
Y	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. Devon proposes using 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. • Wellhead will be installed by wellhead representatives. • If the welding is performed by a third party, the wellhead representative will monitor the temperature to verify that it does not exceed the maximum temperature of the seal. • Wellhead representative will install the test plug for the initial BOP test. • Wellhead company will install a solid steel body pack-off to completely isolate the lower head after cementing intermediate casing. After installation of the pack-off, the pack-off and the lower flange will be tested to 3M, as shown on the attached schematic. Everything above the pack-off will not have been altered whatsoever from the initial nipple up. Therefore the BOP components will not be retested at that time. • If the cement does not circulate and one inch operations would have been possible with a standard wellhead, the well head will be cut and top out operations will be conducted. • Devon will pressure test all seals above and below the mandrel (but still above the casing) to full working pressure rating. • Devon will test the casing to 0.22 psi/ft or 1500 psi, whichever is greater, as per Onshore Order #2. After running the 13-3/8" surface casing, a 13-5/8" BOP/BOPE system with a minimum rating of 3M will be installed on the wellhead system and will undergo a 250 psi low pressure test followed by a 3,000 psi high pressure test. The 3,000 psi high and 250 psi low test will cover testing requirements a maximum of 30 days, as per Onshore Order #2. If the well is not complete within 30 days of this BOP test, another full BOP test will be conducted, as per Onshore Order #2. After running the 9-5/8' intermediate casing with a mandrel hanger, the 13-5/8" BOP/BOPE system with a minimum rating of 3M will already be installed on the wellhead. The pipe rams will be operated and checked each 24 hour period and each time the drill pipe is out of the hole. These tests will be logged in the daily driller's log. A 2" kill line and 3" choke line will be incorporated into the drilling spool below the ram BOP. In addition to the rams and annular preventer, additional BOP accessories include a kelly cock, floor safety valve, choke lines, and choke manifold rated at 3,000 psi WP.	

	Devon requests a variance to use a flexible line with flanged ends between the BOP and the choke manifold (choke line). The line will be kept as straight as possible with minimal turns

5. Mud Program

Depth		Type	Weight (ppg)	Viscosity	Water Loss
From	To				
0	700'	FW Gel	8.6-8.8	28-34	N/C
700'	4,300'	Saturated Brine	10.0-10.2	28-34	N/C
4,300'	15,345'	Cut Brine	8.5-9.3	28-34	N/C

Sufficient mud materials to maintain mud properties and meet minimum lost circulation and weight increase requirements will be kept on location at all times.

What will be used to monitor the loss or gain of fluid?	PVT/Pason/Visual Monitoring

6. Logging and Testing Procedures

Logging, Coring and Testing.	
x	Will run GR/CNL fromTD to surface (horizontal well – vertical portion of hole). Stated logs run will be in the Completion Report and submitted to the BLM.
	No Logs are planned based on well control or offset log information.
	Drill stem test? If yes, explain
	Coring? If yes, explain

Additional logs planned		Interval
	Resistivity	Int. shoe to KOP
	Density	Int. shoe to KOP
X	CBL	Production casing
X	Mud log	Intermediate shoe to TD
	PEX	

7. Drilling Conditions

Condition	Specify what type and where?
BH Pressure at deepest TVD	4,548 psi
Abnormal Temperature	No

Mitigation measure for abnormal conditions. Describe. Lost circulation material/sweeps/mud scavengers.

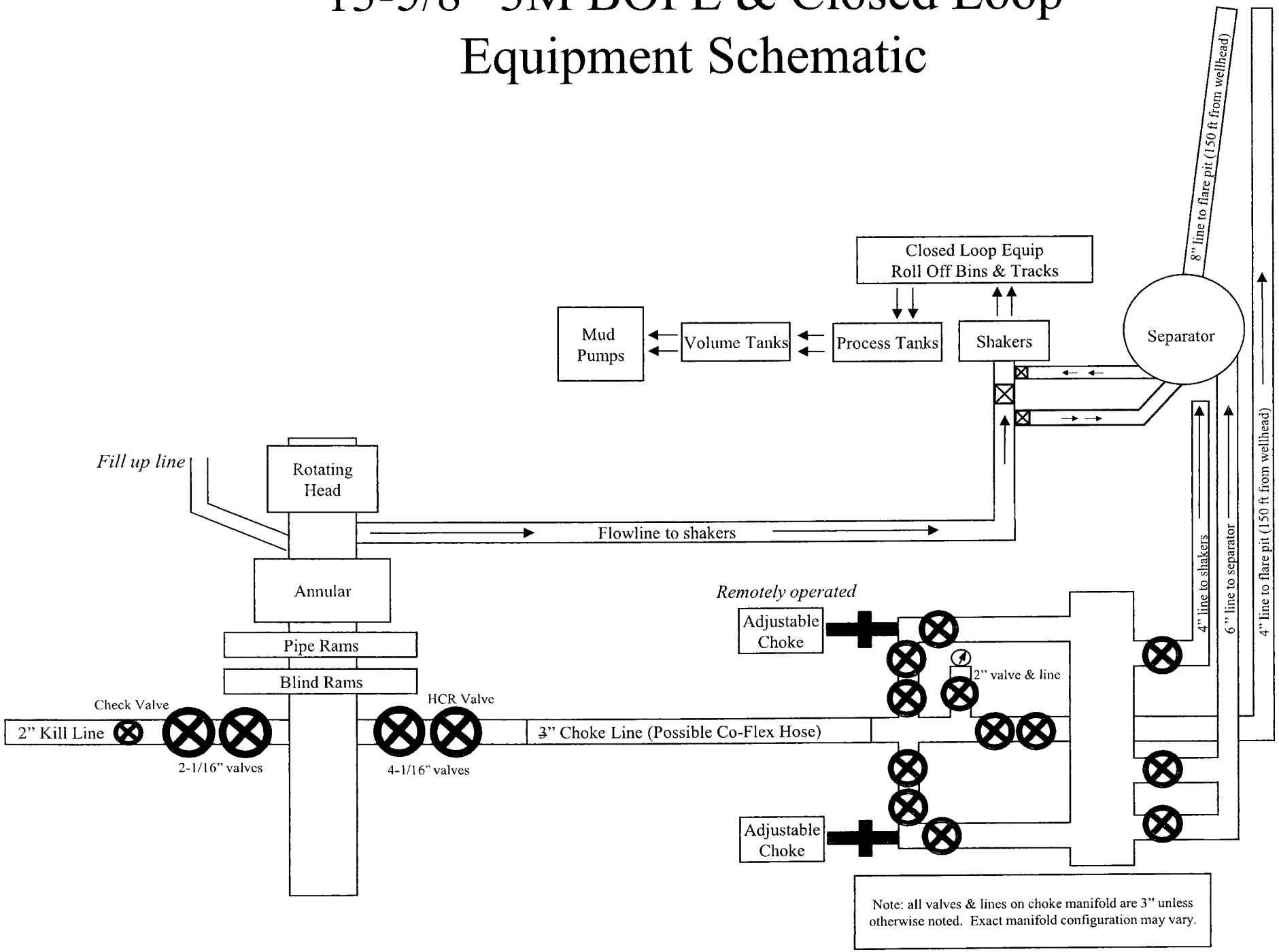
Hydrogen Sulfide (H2S) monitors will be installed prior to drilling out the surface shoe. If H2S is detected in concentrations greater than 100 ppm, the operator will comply with the provisions of Onshore Oil and Gas Order #6. If Hydrogen Sulfide is encountered, measured values and formations will be provided to the BLM.	
N	H2S is present
Y	H2S Plan attached

8. Other facets of operation

Is this a walking operation? Yes
Will be pre-setting casing? No

Attachments
_x_ Directional Plan
___ Other, describe

13-5/8" 3M BOPE & Closed Loop Equipment Schematic



Casing Assumptions and Load Cases

Intermediate

All casing design assumptions were ran in Stress Check to determine safety factor which meet or exceed both Devon Energy and BLM minimum requirements. All casing strings will be filled while running in hole in order to not exceed collapse rating of the pipe.

Intermediate Casing Burst Design		
Load Case	**External Pressure**	**Internal Pressure**
Pressure Test	Formation Pore Pressure	Max mud weight of next hole-section plus Test psi
Drill Ahead	Formation Pore Pressure	Max mud weight of next hole section
Fracture @ Shoe	Formation Pore Pressure	Dry gas

Intermediate Casing Collapse Design		
Load Case	**External Pressure**	**Internal Pressure**
Full Evacuation	Water gradient in cement, mud above TOC	None
Cementing	Wet cement weight	Water (8.33ppg)

Intermediate Casing Tension Design	
Load Case	**Assumptions**
Overpull	100kips
Runing in hole	2 ft/s
Service Loads	N/A

Casing Assumptions and Load Cases

Production

All casing design assumptions were ran in Stress Check to determine safety factor which meet or exceed both Devon Energy and BLM minimum requirements. All casing strings will be filled while running in hole in order to not exceed collapse rating of the pipe.

Production Casing Burst Design		
Load Case	**External Pressure**	**Internal Pressure**
Pressure Test	Formation Pore Pressure	Fluid in hole (water or produced water) + test psi
Tubing Leak	Formation Pore Pressure	Packer @ KOP, leak below surface 8.6 ppg packer fluid
Stimulation	Formation Pore Pressure	Max frac pressure with heaviest frac fluid

Production Casing Collapse Design		
Load Case	**External Pressure**	**Internal Pressure**
Full Evacuation	Water gradient in cement, mud above TOC.	None
Cementing	Wet cement weight	Water (8.33ppg)

Production Casing Tension Design	
Load Case	**Assumptions**
Overpull	100kips
Runing in hole	2 ft/s
Service Loads	N/A

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

Hydrogen Sulfide (H_2S) Contingency Plan

For

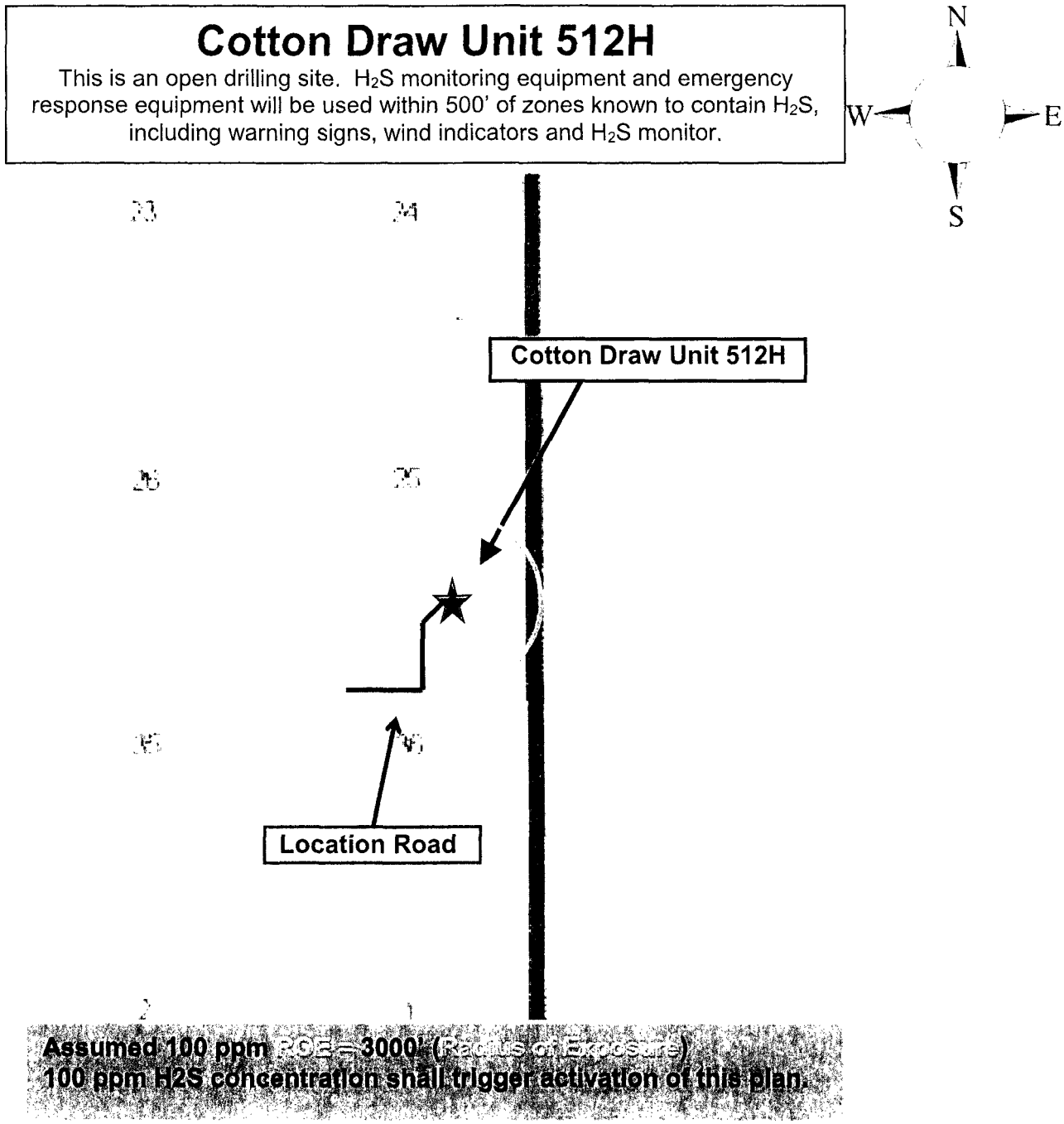
Cotton Draw Unit 512H

Sec-25 T-24S R-31E
230' FSL & 1935 FEL
LAT. = 32.1817203' N (NAD83)
LONG = 103.7292213 W

Eddy County NM

Cotton Draw Unit 512H

This is an open drilling site. H_2S monitoring equipment and emergency response equipment will be used within 500' of zones known to contain H_2S, including warning signs, wind indicators and H_2S monitor.



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 H_2S concentration shall trigger activation of this plan.

Emergency Procedures

In the event of a release of gas containing H_2S, 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 H_2S 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 H_2S, 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 (SO_2). 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 H_2S and SO_2

Common Name	Chemical Formula	Specific Gravity	Threshold Limit	Hazardous Limit	Lethal Concentration
Hydrogen Sulfide	H_2S	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 (H_2S) 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 (H_2S)
2. The proper use and maintenance of personal protective equipment and life support systems.
3. The proper use of H_2S 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 H_2S 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 H_2S Drilling Operations Plan and Public Protection Plan.

There will be an initial training session just prior to encountering a known or probable H_2S zone (within 3 days or 500 feet) and weekly H_2S and well control drills for all personnel in each crew. The initial training session shall include a review of the site specific H_2S Drilling Operations Plan and the Public Protection Plan.

II. HYDROGEN SULFIDE TRAINING

Note: All H_2S 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 H_2S.

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 one escape unit available in the top doghouse. As it may be difficult to communicate audibly while wearing these units, hand signals shall be utilized.

3. **H_2S detection and monitoring equipment:**

   Portable H_2S monitors positioned on location for best coverage and response. These units have warning lights which activate when H_2S levels reach 10 ppm and audible sirens which activate at 10 ppm. Sensor locations:

   - Bell nipple
   - Shale shaker
   - Trip tank
   - Suction pit
   - Rig floor
   - Cellar
   - Choke manifold
   - Living Quarters (usually the company man's trailer stairs.)

   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 H_2S circulated to surface. Proper mud weight, safe drilling practices and the use of H_2S scavengers will minimize hazards when penetrating H_2S bearing zones.

5. **Metallurgy:**

   A. All drill strings, casings, tubing, wellhead, blowout preventer, drilling spool, kill lines, choke manifold lines, and valves shall be H_2S trim.

   B. All elastomers used for packing and seals shall be H_2S 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 H_2S environment will use the closed chamber method of testing.

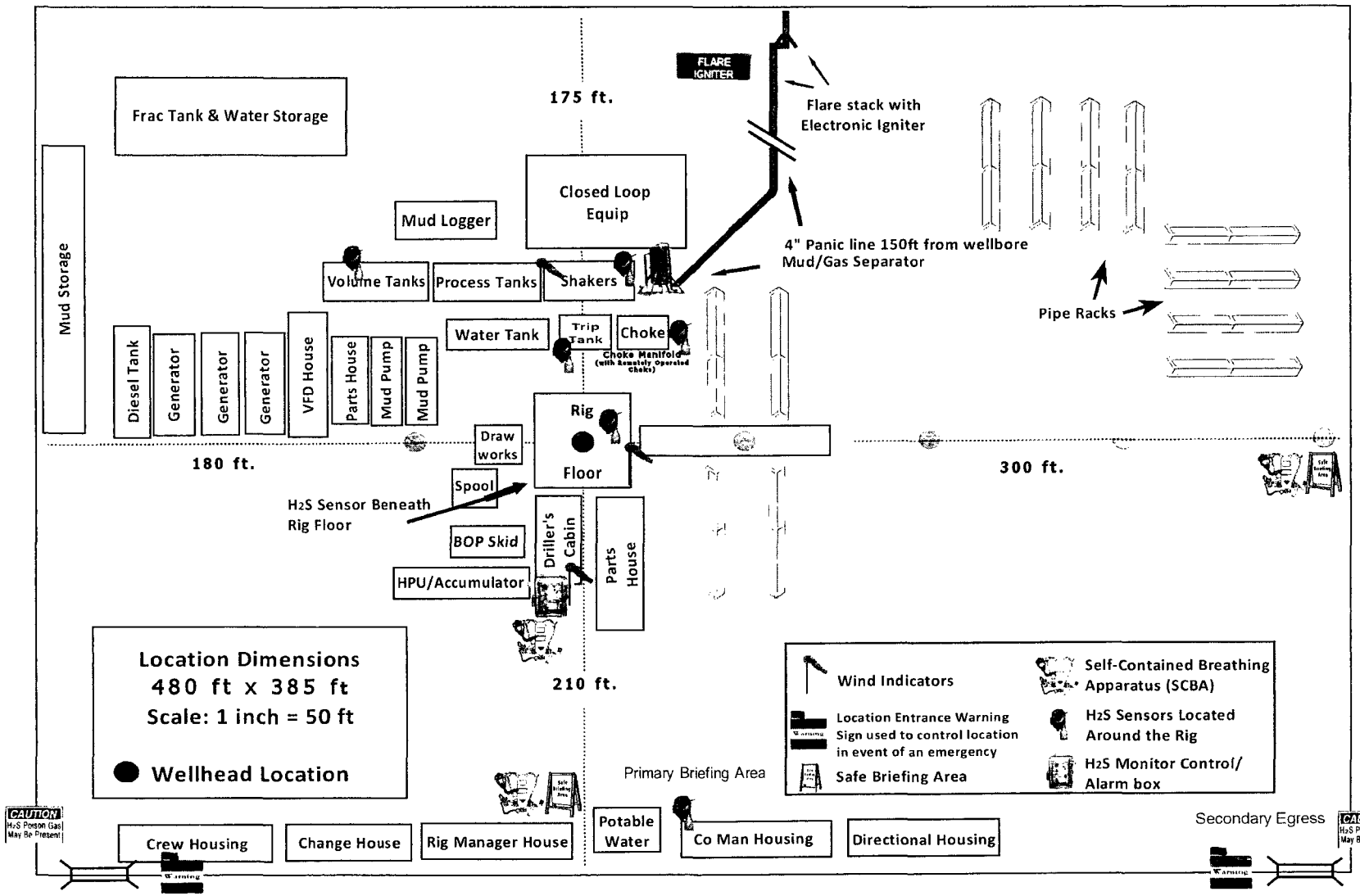
   B. There will be no drill stem testing.

Devon Energy Corp. Company Call List		
Drilling Supervisor – Basin – Mark Kramer		405-823-4796
Jerry Matthews – Day: 575-748-0161 Cell: 575-748-5234		
EHS Professional – Jason Robison		405-541-2841
Agency Call List		
Lea County (575)	**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
Eddy County (575)	**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
Give GPS position:	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

SHARP COMMUNICATIONS & CONSULTING, LLC

Devon Energy - Well Pad
Rig Location Layout
Safety Equipment Location



devon

Project: Eddy County, NM (NAD-83)
Site: Cotton Draw Unit
Well: 512H
Wellbore: OH
Design: Plan #1

T G M

Azimuths to Grid North
True North: -0.32°
Magnetic North: 6.59°

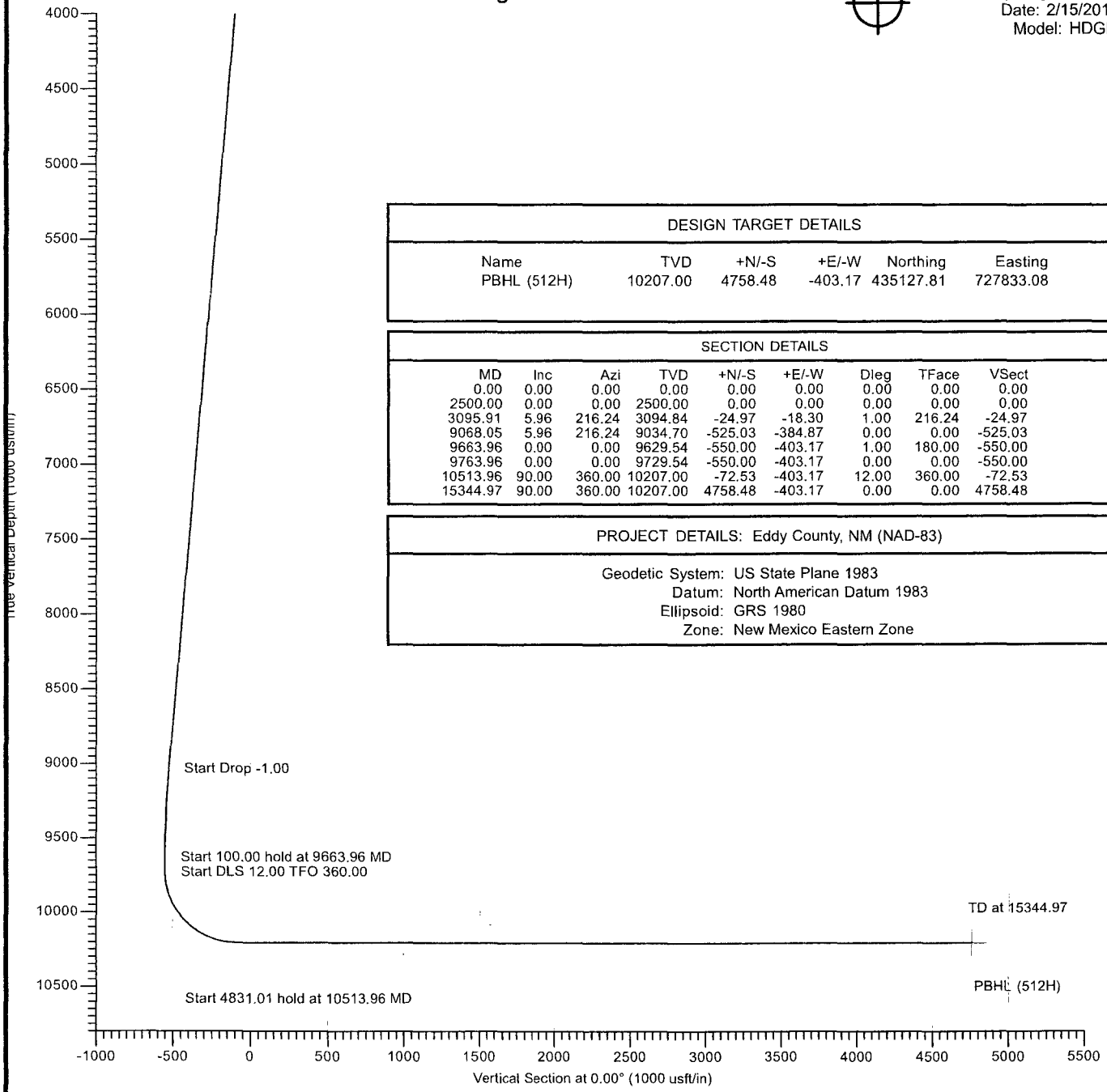
Magnetic Field
Strength: 48124.8snT
Dip Angle: 59.95°
Date: 2/15/2017
Model: HDGM

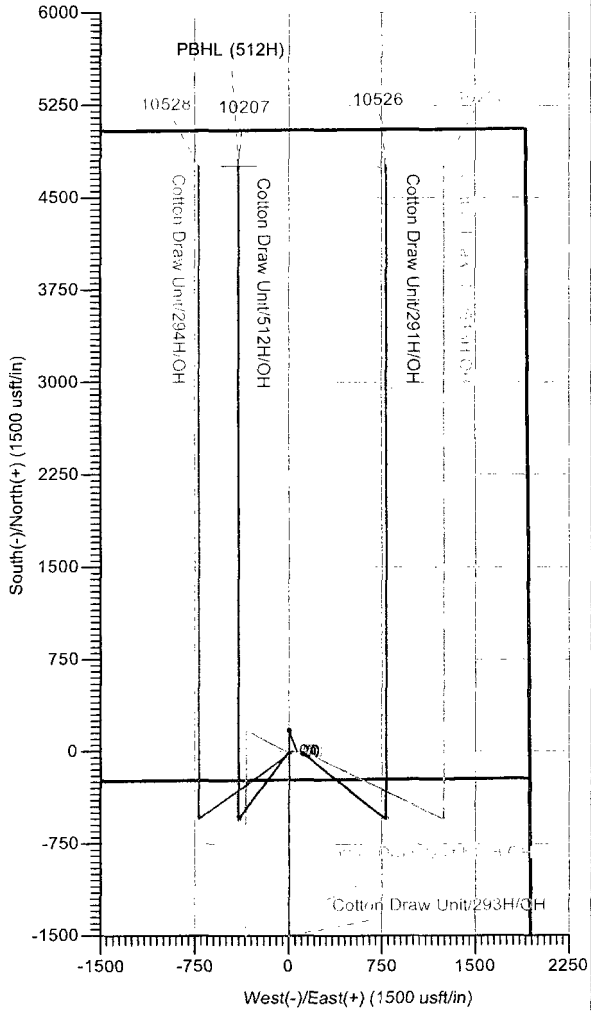
LEAM Drilling Services

DESIGN TARGET DETAILS					
Name	TVD	+N/-S	+E/-W	Northing	Easting
PBHL (512H)	10207.00	4758.48	-403.17	435127.81	727833.08

SECTION DETAILS								
MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2500.00	0.00	0.00	2500.00	0.00	0.00	0.00	0.00	0.00
3095.91	5.96	216.24	3094.84	-24.97	-18.30	1.00	216.24	-24.97
9068.05	5.96	216.24	9034.70	-525.03	-384.87	0.00	0.00	-525.03
9663.96	0.00	0.00	9629.54	-550.00	-403.17	1.00	180.00	-550.00
9763.96	0.00	0.00	9729.54	-550.00	-403.17	0.00	0.00	-550.00
10513.96	90.00	360.00	10207.00	-72.53	-403.17	12.00	360.00	-72.53
15344.97	90.00	360.00	10207.00	4758.48	-403.17	0.00	0.00	4758.48

PROJECT DETAILS: Eddy County, NM (NAD-83)	
Geodetic System:	US State Plane 1983
Datum:	North American Datum 1983
Ellipsoid:	GRS 1980
Zone:	New Mexico Eastern Zone





Devon Energy

Eddy County, NM (NAD-83)
Cotton Draw Unit
512H

OH

Plan: Plan #1

Standard Planning Report

20 February, 2017

Database:	EDM 5000.1 Multi User Db	**Local Co-ordinate Reference:**	Well 512H
Company:	Devon Energy	**TVD Reference:**	3511.9' GE + 23.5' KB @ 3535.40usft (Original Well Elev)
Project:	Eddy County, NM (NAD-83)	**MD Reference:**	3511.9' GE + 23.5' KB @ 3535.40usft (Original Well Elev)
Site:	Cotton Draw Unit	**North Reference:**	Grid
Well:	512H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1		

Project	Eddy County, NM (NAD-83)		
Map System:	US State Plane 1983	**System Datum:**	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site	Cotton Draw Unit				
Site Position:		**Northing:**	419,194.51 usft	**Latitude:**	32° 9' 3.901 N
From:	Map	**Easting:**	722,955.98 usft	**Longitude:**	103° 44' 47.345 W
Position Uncertainty:	0.00 usft	**Slot Radius:**	13-3/16 "	**Grid Convergence:**	0.31 °

Well	512H					
Well Position	**+N/-S**	11,174.82 usft	**Northing:**	430,369.33 usft	**Latitude:**	32° 10' 54.193 N
	+E/-W	5,280.27 usft	**Easting:**	728,236.25 usft	**Longitude:**	103° 43' 45.197 W
Position Uncertainty		0.00 usft	**Wellhead Elevation:**	3,535.40 usft	**Ground Level:**	3,511.90 usft

Wellbore OH

Magnetics	**Model Name**	**Sample Date**	**Declination (°)**	**Dip Angle (°)**	**Field Strength (nT)**
	HDGM	2/15/2017	6.92	59.95	48,125

Design Plan #1

Audit Notes:

Version:		**Phase:**	PLAN	**Tie On Depth:**	0.00
Vertical Section:	**Depth From (TVD) (usft)**	**+N/-S (usft)**	**+E/-W (usft)**	**Direction (°)**	
	0.00	0.00	0.00	0.00	

Plan Sections

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	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	
2,500.00	0.00	0.00	2,500.00	0.00	0.00	0.00	0.00	0.00	0.00	
3,095.91	5.96	216.24	3,094.84	-24.97	-18.30	1.00	1.00	0.00	216.24	
9,068.05	5.96	216.24	9,034.70	-525.03	-384.87	0.00	0.00	0.00	0.00	
9,663.96	0.00	0.00	9,629.54	-550.00	-403.17	1.00	-1.00	0.00	180.00	
9,763.96	0.00	0.00	9,729.54	-550.00	-403.17	0.00	0.00	0.00	0.00	
10,513.96	90.00	360.00	10,207.01	-72.53	-403.17	12.00	12.00	0.00	360.00	
15,344.98	90.00	360.00	10,207.00	4,758.48	-403.17	0.00	0.00	0.00	0.00	PBHL (512H)

Database:	EDM 5000.1 Multi User Db	**Local Co-ordinate Reference:**	Well 512H
Company:	Devon Energy	**TVD Reference:**	3511.9' GE + 23.5' KB @ 3535.40usft (Original Well Elev)
Project:	Eddy County, NM (NAD-83)	**MD Reference:**	3511.9' GE + 23.5' KB @ 3535.40usft (Original Well Elev)
Site:	Cotton Draw Unit	***North Reference:***	Grid
Well:	512H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	0.00	0.00
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	0.00	0.00
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00
1,100.00	0.00	0.00	1,100.00	0.00	0.00	0.00	0.00	0.00	0.00
1,200.00	0.00	0.00	1,200.00	0.00	0.00	0.00	0.00	0.00	0.00
1,300.00	0.00	0.00	1,300.00	0.00	0.00	0.00	0.00	0.00	0.00
1,400.00	0.00	0.00	1,400.00	0.00	0.00	0.00	0.00	0.00	0.00
1,500.00	0.00	0.00	1,500.00	0.00	0.00	0.00	0.00	0.00	0.00
1,600.00	0.00	0.00	1,600.00	0.00	0.00	0.00	0.00	0.00	0.00
1,700.00	0.00	0.00	1,700.00	0.00	0.00	0.00	0.00	0.00	0.00
1,800.00	0.00	0.00	1,800.00	0.00	0.00	0.00	0.00	0.00	0.00
1,900.00	0.00	0.00	1,900.00	0.00	0.00	0.00	0.00	0.00	0.00
2,000.00	0.00	0.00	2,000.00	0.00	0.00	0.00	0.00	0.00	0.00
2,100.00	0.00	0.00	2,100.00	0.00	0.00	0.00	0.00	0.00	0.00
2,200.00	0.00	0.00	2,200.00	0.00	0.00	0.00	0.00	0.00	0.00
2,300.00	0.00	0.00	2,300.00	0.00	0.00	0.00	0.00	0.00	0.00
2,400.00	0.00	0.00	2,400.00	0.00	0.00	0.00	0.00	0.00	0.00
2,500.00	0.00	0.00	2,500.00	0.00	0.00	0.00	0.00	0.00	0.00
2,600.00	1.00	216.24	2,599.99	-0.70	-0.52	-0.70	1.00	1.00	0.00
2,700.00	2.00	216.24	2,699.96	-2.81	-2.06	-2.81	1.00	1.00	0.00
2,800.00	3.00	216.24	2,799.86	-6.33	-4.64	-6.33	1.00	1.00	0.00
2,900.00	4.00	216.24	2,899.68	-11.26	-8.25	-11.26	1.00	1.00	0.00
3,000.00	5.00	216.24	2,999.37	-17.58	-12.89	-17.58	1.00	1.00	0.00
3,095.91	5.96	216.24	3,094.84	-24.97	-18.30	-24.97	1.00	1.00	0.00
3,100.00	5.96	216.24	3,098.90	-25.31	-18.56	-25.31	0.00	0.00	0.00
3,200.00	5.96	216.24	3,198.36	-33.69	-24.69	-33.69	0.00	0.00	0.00
3,300.00	5.96	216.24	3,297.82	-42.06	-30.83	-42.06	0.00	0.00	0.00
3,400.00	5.96	216.24	3,397.28	-50.43	-36.97	-50.43	0.00	0.00	0.00
3,500.00	5.96	216.24	3,496.74	-58.81	-43.11	-58.81	0.00	0.00	0.00
3,600.00	5.96	216.24	3,596.20	-67.18	-49.24	-67.18	0.00	0.00	0.00
3,700.00	5.96	216.24	3,695.66	-75.55	-55.38	-75.55	0.00	0.00	0.00
3,800.00	5.96	216.24	3,795.12	-83.93	-61.52	-83.93	0.00	0.00	0.00
3,900.00	5.96	216.24	3,894.58	-92.30	-67.66	-92.30	0.00	0.00	0.00
4,000.00	5.96	216.24	3,994.04	-100.67	-73.80	-100.67	0.00	0.00	0.00
4,100.00	5.96	216.24	4,093.50	-109.05	-79.93	-109.05	0.00	0.00	0.00
4,200.00	5.96	216.24	4,192.96	-117.42	-86.07	-117.42	0.00	0.00	0.00
4,300.00	5.96	216.24	4,292.42	-125.79	-92.21	-125.79	0.00	0.00	0.00
4,400.00	5.96	216.24	4,391.88	-134.16	-98.35	-134.16	0.00	0.00	0.00
4,500.00	5.96	216.24	4,491.34	-142.54	-104.49	-142.54	0.00	0.00	0.00
4,600.00	5.96	216.24	4,590.80	-150.91	-110.62	-150.91	0.00	0.00	0.00
4,700.00	5.96	216.24	4,690.26	-159.28	-116.76	-159.28	0.00	0.00	0.00
4,800.00	5.96	216.24	4,789.72	-167.66	-122.90	-167.66	0.00	0.00	0.00
4,900.00	5.96	216.24	4,889.18	-176.03	-129.04	-176.03	0.00	0.00	0.00
5,000.00	5.96	216.24	4,988.64	-184.40	-135.17	-184.40	0.00	0.00	0.00

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Project:	Eddy County, NM (NAD-83)	**MD Reference:**	3511.9' GE + 23.5' KB @ 3535.40usft (Original Well Elev)
Site:	Cotton Draw Unit	**North Reference:**	Grid
Well:	512H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
5,100.00	5.96	216.24	5,088.10	-192.78	-141.31	-192.78	0.00	0.00	0.00
5,200.00	5.96	216.24	5,187.56	-201.15	-147.45	-201.15	0.00	0.00	0.00
5,300.00	5.96	216.24	5,287.02	-209.52	-153.59	-209.52	0.00	0.00	0.00
5,400.00	5.96	216.24	5,386.48	-217.90	-159.73	-217.90	0.00	0.00	0.00
5,500.00	5.96	216.24	5,485.94	-226.27	-165.86	-226.27	0.00	0.00	0.00
5,600.00	5.96	216.24	5,585.39	-234.64	-172.00	-234.64	0.00	0.00	0.00
5,700.00	5.96	216.24	5,684.85	-243.02	-178.14	-243.02	0.00	0.00	0.00
5,800.00	5.96	216.24	5,784.31	-251.39	-184.28	-251.39	0.00	0.00	0.00
5,900.00	5.96	216.24	5,883.77	-259.76	-190.42	-259.76	0.00	0.00	0.00
6,000.00	5.96	216.24	5,983.23	-268.14	-196.55	-268.14	0.00	0.00	0.00
6,100.00	5.96	216.24	6,082.69	-276.51	-202.69	-276.51	0.00	0.00	0.00
6,200.00	5.96	216.24	6,182.15	-284.88	-208.83	-284.88	0.00	0.00	0.00
6,300.00	5.96	216.24	6,281.61	-293.26	-214.97	-293.26	0.00	0.00	0.00
6,400.00	5.96	216.24	6,381.07	-301.63	-221.10	-301.63	0.00	0.00	0.00
6,500.00	5.96	216.24	6,480.53	-310.00	-227.24	-310.00	0.00	0.00	0.00
6,600.00	5.96	216.24	6,579.99	-318.37	-233.38	-318.37	0.00	0.00	0.00
6,700.00	5.96	216.24	6,679.45	-326.75	-239.52	-326.75	0.00	0.00	0.00
6,800.00	5.96	216.24	6,778.91	-335.12	-245.66	-335.12	0.00	0.00	0.00
6,900.00	5.96	216.24	6,878.37	-343.49	-251.79	-343.49	0.00	0.00	0.00
7,000.00	5.96	216.24	6,977.83	-351.87	-257.93	-351.87	0.00	0.00	0.00
7,100.00	5.96	216.24	7,077.29	-360.24	-264.07	-360.24	0.00	0.00	0.00
7,200.00	5.96	216.24	7,176.75	-368.61	-270.21	-368.61	0.00	0.00	0.00
7,300.00	5.96	216.24	7,276.21	-376.99	-276.35	-376.99	0.00	0.00	0.00
7,400.00	5.96	216.24	7,375.67	-385.36	-282.48	-385.36	0.00	0.00	0.00
7,500.00	5.96	216.24	7,475.13	-393.73	-288.62	-393.73	0.00	0.00	0.00
7,600.00	5.96	216.24	7,574.59	-402.11	-294.76	-402.11	0.00	0.00	0.00
7,700.00	5.96	216.24	7,674.05	-410.48	-300.90	-410.48	0.00	0.00	0.00
7,800.00	5.96	216.24	7,773.51	-418.85	-307.03	-418.85	0.00	0.00	0.00
7,900.00	5.96	216.24	7,872.97	-427.23	-313.17	-427.23	0.00	0.00	0.00
8,000.00	5.96	216.24	7,972.43	-435.60	-319.31	-435.60	0.00	0.00	0.00
8,100.00	5.96	216.24	8,071.89	-443.97	-325.45	-443.97	0.00	0.00	0.00
8,200.00	5.96	216.24	8,171.35	-452.35	-331.59	-452.35	0.00	0.00	0.00
8,300.00	5.96	216.24	8,270.80	-460.72	-337.72	-460.72	0.00	0.00	0.00
8,400.00	5.96	216.24	8,370.26	-469.09	-343.86	-469.09	0.00	0.00	0.00
8,500.00	5.96	216.24	8,469.72	-477.47	-350.00	-477.47	0.00	0.00	0.00
8,600.00	5.96	216.24	8,569.18	-485.84	-356.14	-485.84	0.00	0.00	0.00
8,700.00	5.96	216.24	8,668.64	-494.21	-362.28	-494.21	0.00	0.00	0.00
8,800.00	5.96	216.24	8,768.10	-502.58	-368.41	-502.58	0.00	0.00	0.00
8,900.00	5.96	216.24	8,867.56	-510.96	-374.55	-510.96	0.00	0.00	0.00
9,000.00	5.96	216.24	8,967.02	-519.33	-380.69	-519.33	0.00	0.00	0.00
9,068.05	5.96	216.24	9,034.70	-525.03	-384.87	-525.03	0.00	0.00	0.00
9,100.00	5.64	216.24	9,066.49	-527.63	-386.77	-527.63	1.00	-1.00	0.00
9,200.00	4.64	216.24	9,166.09	-534.86	-392.07	-534.86	1.00	-1.00	0.00
9,300.00	3.64	216.24	9,265.83	-540.68	-396.34	-540.68	1.00	-1.00	0.00
9,400.00	2.64	216.24	9,365.67	-545.10	-399.58	-545.10	1.00	-1.00	0.00
9,500.00	1.64	216.24	9,465.60	-548.11	-401.78	-548.11	1.00	-1.00	0.00
9,600.00	0.64	216.24	9,565.58	-549.71	-402.96	-549.71	1.00	-1.00	0.00
9,663.96	0.00	0.00	9,629.54	-550.00	-403.17	-550.00	1.00	-1.00	0.00
9,700.00	0.00	0.00	9,665.58	-550.00	-403.17	-550.00	0.00	0.00	0.00
9,763.96	0.00	0.00	9,729.54	-550.00	-403.17	-550.00	0.00	0.00	0.00
9,775.00	1.32	360.00	9,740.58	-549.87	-403.17	-549.87	12.00	12.00	0.00
9,800.00	4.32	360.00	9,765.55	-548.64	-403.17	-548.64	12.00	12.00	0.00

Database:	EDM 5000.1 Multi User Db	**Local Co-ordinate Reference:**	Well 512H
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Project:	Eddy County, NM (NAD-83)	**MD Reference:**	3511.9' GE + 23.5' KB @ 3535.40usft (Original Well Elev)
Site:	Cotton Draw Unit	**North Reference:**	Grid
Well:	512H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
9,825.00	7.32	360.00	9,790.41	-546.10	-403.17	-546.10	12.00	12.00	0.00
9,850.00	10.32	360.00	9,815.12	-542.27	-403.17	-542.27	12.00	12.00	0.00
9,875.00	13.32	360.00	9,839.58	-537.15	-403.17	-537.15	12.00	12.00	0.00
9,900.00	16.32	360.00	9,863.75	-530.75	-403.17	-530.75	12.00	12.00	0.00
9,925.00	19.32	360.00	9,887.54	-523.10	-403.17	-523.10	12.00	12.00	0.00
9,950.00	22.32	360.00	9,910.91	-514.21	-403.17	-514.21	12.00	12.00	0.00
9,975.00	25.32	360.00	9,933.78	-504.11	-403.17	-504.11	12.00	12.00	0.00
10,000.00	28.32	360.00	9,956.08	-492.83	-403.17	-492.83	12.00	12.00	0.00
10,025.00	31.32	360.00	9,977.77	-480.40	-403.17	-480.40	12.00	12.00	0.00
10,050.00	34.32	360.00	9,998.78	-466.85	-403.17	-466.85	12.00	12.00	0.00
10,075.00	37.32	360.00	10,019.04	-452.22	-403.17	-452.22	12.00	12.00	0.00
10,100.00	40.32	360.00	10,038.52	-436.55	-403.17	-436.55	12.00	12.00	0.00
10,125.00	43.32	360.00	10,057.15	-419.88	-403.17	-419.88	12.00	12.00	0.00
10,150.00	46.32	360.00	10,074.87	-402.26	-403.17	-402.26	12.00	12.00	0.00
10,175.00	49.32	360.00	10,091.66	-383.73	-403.17	-383.73	12.00	12.00	0.00
10,200.00	52.32	360.00	10,107.45	-364.35	-403.17	-364.35	12.00	12.00	0.00
10,225.00	55.32	360.00	10,122.20	-344.18	-403.17	-344.18	12.00	12.00	0.00
10,250.00	58.32	360.00	10,135.88	-323.25	-403.17	-323.25	12.00	12.00	0.00
10,275.00	61.32	360.00	10,148.45	-301.64	-403.17	-301.64	12.00	12.00	0.00
10,300.00	64.32	360.00	10,159.86	-279.41	-403.17	-279.41	12.00	12.00	0.00
10,325.00	67.32	360.00	10,170.10	-256.60	-403.17	-256.60	12.00	12.00	0.00
10,350.00	70.32	360.00	10,179.13	-233.29	-403.17	-233.29	12.00	12.00	0.00
10,375.00	73.32	360.00	10,186.93	-209.54	-403.17	-209.54	12.00	12.00	0.00
10,400.00	76.32	360.00	10,193.47	-185.42	-403.17	-185.42	12.00	12.00	0.00
10,425.00	79.32	360.00	10,198.74	-160.98	-403.17	-160.98	12.00	12.00	0.00
10,450.00	82.32	360.00	10,202.73	-136.30	-403.17	-136.30	12.00	12.00	0.00
10,475.00	85.32	360.00	10,205.42	-111.45	-403.17	-111.45	12.00	12.00	0.00
10,500.00	88.32	360.00	10,206.80	-86.49	-403.17	-86.49	12.00	12.00	0.00
10,513.96	90.00	360.00	10,207.01	-72.53	-403.17	-72.53	12.00	12.00	0.00
10,600.00	90.00	360.00	10,207.00	13.51	-403.17	13.51	0.00	0.00	0.00
10,700.00	90.00	360.00	10,207.00	113.51	-403.17	113.51	0.00	0.00	0.00
10,800.00	90.00	360.00	10,207.00	213.51	-403.17	213.51	0.00	0.00	0.00
10,900.00	90.00	360.00	10,207.00	313.51	-403.17	313.51	0.00	0.00	0.00
11,000.00	90.00	360.00	10,207.00	413.51	-403.17	413.51	0.00	0.00	0.00
11,100.00	90.00	360.00	10,207.00	513.51	-403.17	513.51	0.00	0.00	0.00
11,200.00	90.00	360.00	10,207.00	613.51	-403.17	613.51	0.00	0.00	0.00
11,300.00	90.00	360.00	10,207.00	713.51	-403.17	713.51	0.00	0.00	0.00
11,400.00	90.00	360.00	10,207.00	813.51	-403.17	813.51	0.00	0.00	0.00
11,500.00	90.00	360.00	10,207.00	913.51	-403.17	913.51	0.00	0.00	0.00
11,600.00	90.00	360.00	10,207.00	1,013.51	-403.17	1,013.51	0.00	0.00	0.00
11,700.00	90.00	360.00	10,207.00	1,113.51	-403.17	1,113.51	0.00	0.00	0.00
11,800.00	90.00	360.00	10,207.00	1,213.51	-403.17	1,213.51	0.00	0.00	0.00
11,900.00	90.00	360.00	10,207.00	1,313.51	-403.17	1,313.51	0.00	0.00	0.00
12,000.00	90.00	360.00	10,207.00	1,413.51	-403.17	1,413.51	0.00	0.00	0.00
12,100.00	90.00	360.00	10,207.00	1,513.51	-403.17	1,513.51	0.00	0.00	0.00
12,200.00	90.00	360.00	10,207.00	1,613.51	-403.17	1,613.51	0.00	0.00	0.00
12,300.00	90.00	360.00	10,207.00	1,713.51	-403.17	1,713.51	0.00	0.00	0.00
12,400.00	90.00	360.00	10,207.00	1,813.51	-403.17	1,813.51	0.00	0.00	0.00
12,500.00	90.00	360.00	10,207.00	1,913.51	-403.17	1,913.51	0.00	0.00	0.00
12,600.00	90.00	360.00	10,207.00	2,013.51	-403.17	2,013.51	0.00	0.00	0.00
12,700.00	90.00	360.00	10,207.00	2,113.51	-403.17	2,113.51	0.00	0.00	0.00
12,800.00	90.00	360.00	10,207.00	2,213.51	-403.17	2,213.51	0.00	0.00	0.00

Database:	EDM 5000.1 Multi User Db	**Local Co-ordinate Reference:**	Well 512H
Company:	Devon Energy	**TVD Reference:**	3511.9' GE + 23.5' KB @ 3535.40usft (Original Well Elev)
Project:	Eddy County, NM (NAD-83)	**MD Reference:**	3511.9' GE + 23.5' KB @ 3535.40usft (Original Well Elev)
Site:	Cotton Draw Unit	**North Reference:**	Grid
Well:	512H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
12,900.00	90.00	360.00	10,207.00	2,313.51	-403.17	2,313.51	0.00	0.00	0.00
13,000.00	90.00	360.00	10,207.00	2,413.51	-403.17	2,413.51	0.00	0.00	0.00
13,100.00	90.00	360.00	10,207.00	2,513.51	-403.17	2,513.51	0.00	0.00	0.00
13,200.00	90.00	360.00	10,207.00	2,613.51	-403.17	2,613.51	0.00	0.00	0.00
13,300.00	90.00	360.00	10,207.00	2,713.51	-403.17	2,713.51	0.00	0.00	0.00
13,400.00	90.00	360.00	10,207.00	2,813.51	-403.17	2,813.51	0.00	0.00	0.00
13,500.00	90.00	360.00	10,207.00	2,913.51	-403.17	2,913.51	0.00	0.00	0.00
13,600.00	90.00	360.00	10,207.00	3,013.51	-403.17	3,013.51	0.00	0.00	0.00
13,700.00	90.00	360.00	10,207.00	3,113.51	-403.17	3,113.51	0.00	0.00	0.00
13,800.00	90.00	360.00	10,207.00	3,213.51	-403.17	3,213.51	0.00	0.00	0.00
13,900.00	90.00	360.00	10,207.00	3,313.51	-403.17	3,313.51	0.00	0.00	0.00
14,000.00	90.00	360.00	10,207.00	3,413.51	-403.17	3,413.51	0.00	0.00	0.00
14,100.00	90.00	360.00	10,207.00	3,513.51	-403.17	3,513.51	0.00	0.00	0.00
14,200.00	90.00	360.00	10,207.00	3,613.51	-403.17	3,613.51	0.00	0.00	0.00
14,300.00	90.00	360.00	10,207.00	3,713.51	-403.17	3,713.51	0.00	0.00	0.00
14,400.00	90.00	360.00	10,207.00	3,813.51	-403.17	3,813.51	0.00	0.00	0.00
14,500.00	90.00	360.00	10,207.00	3,913.51	-403.17	3,913.51	0.00	0.00	0.00
14,600.00	90.00	360.00	10,207.00	4,013.51	-403.17	4,013.51	0.00	0.00	0.00
14,700.00	90.00	360.00	10,207.00	4,113.51	-403.17	4,113.51	0.00	0.00	0.00
14,800.00	90.00	360.00	10,207.00	4,213.51	-403.17	4,213.51	0.00	0.00	0.00
14,900.00	90.00	360.00	10,207.00	4,313.51	-403.17	4,313.51	0.00	0.00	0.00
15,000.00	90.00	360.00	10,207.00	4,413.51	-403.17	4,413.51	0.00	0.00	0.00
15,100.00	90.00	360.00	10,207.00	4,513.51	-403.17	4,513.51	0.00	0.00	0.00
15,200.00	90.00	360.00	10,207.00	4,613.51	-403.17	4,613.51	0.00	0.00	0.00
15,300.00	90.00	360.00	10,207.00	4,713.51	-403.17	4,713.51	0.00	0.00	0.00
15,344.98	90.00	360.00	10,207.00	4,758.48	-403.17	4,758.48	0.00	0.00	0.00
PBHL (512H)									

Design Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
PBHL (512H) - plan hits target center - Point	0.00	0.00	10,207.00	4,758.48	-403.17	435,127.81	727,833.08	32° 11' 41.303 N	103° 43' 49.577 W

Devon Energy

Eddy County, NM (NAD-83)
Cotton Draw Unit
512H

OH
Plan #1

Anticollision Report

20 February, 2017

LEAM Drilling Systems LLC

Anticollision Report

Company:	Devon Energy	**Local Co-ordinate Reference:**	Well 512H
Project:	Eddy County, NM (NAD-83)	**TVD Reference:**	3511.9' GE + 23.5' KB @ 3535.40usft (Original Well Elev)
Reference Site:	Cotton Draw Unit	**MD Reference:**	3511.9' GE + 23.5' KB @ 3535.40usft (Original Well Elev)
Site Error:	0.00 usft	**North Reference:**	Grid
Reference Well:	512H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000.1 Multi User Db
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Reference	Plan #1		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	Stations	**Error Model:**	ISCWSA
Depth Range:	Unlimited	**Scan Method:**	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 9,999.98 usft	**Error Surface:**	Elliptical Conic
Warning Levels Evaluated at:	2.00 **Sigma**	**Casing Method:**	Not applied

Survey Tool Program **Date** 2/20/2017

From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
0.00	15,344.98	Plan #1 (OH)	LEAM MWD+HDGM	MWD+HDGM

Summary

Site Name Offset Well - Wellbore - Design	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
Cotton Draw Unit						
291H - OH - Plan #1	2,416.02	2,417.92	89.88	79.29	8.489	CC
291H - OH - Plan #1	2,500.00	2,501.88	89.88	78.92	8.198	ES
291H - OH - Plan #1	15,345.97	15,687.79	1,226.94	1,064.80	7.567	SF
293H - OH - Plan #1	2,500.81	2,501.51	59.95	48.99	5.467	CC
293H - OH - Plan #1	2,600.00	2,601.01	60.21	48.82	5.289	ES
293H - OH - Plan #1	2,700.00	2,701.18	61.22	49.44	5.196	SF
294H - OH - Plan #1	2,500.00	2,500.20	29.88	18.92	2.726	CC, ES
294H - OH - Plan #1	4,800.00	4,806.32	47.36	26.30	2.249	SF
511H - OH - Plan #1	2,500.00	2,499.90	29.99	19.03	2.736	CC
511H - OH - Plan #1	10,397.97	10,372.36	61.08	16.09	1.358	Level 3, ES, SF
513H - OH - Plan #1	2,415.99	2,417.99	119.97	109.38	11.331	CC
513H - OH - Plan #1	2,500.00	2,501.96	119.97	109.01	10.942	ES
513H - OH - Plan #1	15,345.97	15,433.18	1,649.61	1,483.01	9.902	SF

Offset Design Cotton Draw Unit - 291H - OH - Plan #1 — **Offset Site Error:** 0.00 usft

Survey Program: 0-LEAM MWD+HDGM — **Offset Well Error:** 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	1.90	1.90	0.00	0.00	89.59	0.65	89.88	89.88				
100.00	100.00	101.90	101.90	0.09	0.09	89.59	0.65	89.88	89.88	89.71	0.18	510.067	
200.00	200.00	201.90	201.90	0.31	0.32	89.59	0.65	89.88	89.88	89.26	0.63	143.640	
300.00	300.00	301.90	301.90	0.54	0.54	89.59	0.65	89.88	89.88	88.81	1.08	83.590	
400.00	400.00	401.90	401.90	0.76	0.76	89.59	0.65	89.88	89.88	88.36	1.52	58.946	
500.00	500.00	501.90	501.90	0.99	0.99	89.59	0.65	89.88	89.88	87.91	1.97	45.525	
600.00	600.00	601.90	601.90	1.21	1.21	89.59	0.65	89.88	89.88	87.46	2.42	37.082	
700.00	700.00	701.90	701.90	1.43	1.44	89.59	0.65	89.88	89.88	87.01	2.87	31.281	
800.00	800.00	801.90	801.90	1.66	1.66	89.59	0.65	89.88	89.88	86.56	3.32	27.049	
900.00	900.00	901.90	901.90	1.88	1.89	89.59	0.65	89.88	89.88	86.11	3.77	23.826	
1,000.00	1,000.00	1,001.90	1,001.90	2.11	2.11	89.59	0.65	89.88	89.88	85.66	4.22	21.289	
1,100.00	1,100.00	1,101.90	1,101.90	2.33	2.34	89.59	0.65	89.88	89.88	85.21	4.67	19.240	
1,200.00	1,200.00	1,201.90	1,201.90	2.56	2.56	89.59	0.65	89.88	89.88	84.76	5.12	17.551	

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

LEAM Drilling Systems LLC

Anticollision Report

Company:	Devon Energy	**Local Co-ordinate Reference:**	Well 512H
Project:	Eddy County, NM (NAD-83)	**TVD Reference:**	3511.9' GE + 23.5' KB @ 3535.40usft (Original Well Elev)
Reference Site:	Cotton Draw Unit	**MD Reference:**	3511.9' GE + 23.5' KB @ 3535.40usft (Original Well Elev)
Site Error:	0.00 usft	**North Reference:**	Grid
Reference Well:	512H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000.1 Multi User Db
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Offset Design Cotton Draw Unit - 291H - OH - Plan #1 — *Offset Site Error:* 0.00 usft

Survey Program: 0-LEAM MWD+HDGM — **Offset Well Error:** 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
1,300.00	1,300.00	1,301.90	1,301.90	2.78	2.79	89.59	0.65	89.88	89.88	84.31	5.57	16.135	
1,400.00	1,400.00	1,401.90	1,401.90	3.01	3.01	89.59	0.65	89.88	89.88	83.86	6.02	14.930	
1,500.00	1,500.00	1,501.90	1,501.90	3.23	3.24	89.59	0.65	89.88	89.88	83.41	6.47	13.893	
1,600.00	1,600.00	1,601.90	1,601.90	3.46	3.46	89.59	0.65	89.88	89.88	82.96	6.92	12.990	
1,700.00	1,700.00	1,701.90	1,701.90	3.68	3.69	89.59	0.65	89.88	89.88	82.51	7.37	12.198	
1,800.00	1,800.00	1,801.90	1,801.90	3.91	3.91	89.59	0.65	89.88	89.88	82.06	7.82	11.496	
1,900.00	1,900.00	1,901.90	1,901.90	4.13	4.14	89.59	0.65	89.88	89.88	81.61	8.27	10.871	
2,000.00	2,000.00	2,001.90	2,001.90	4.36	4.36	89.59	0.65	89.88	89.88	81.17	8.72	10.311	
2,100.00	2,100.00	2,101.90	2,101.90	4.58	4.59	89.59	0.65	89.88	89.88	80.72	9.17	9.805	
2,200.00	2,200.00	2,201.90	2,201.90	4.81	4.81	89.59	0.65	89.88	89.88	80.27	9.62	9.347	
2,300.00	2,300.00	2,301.90	2,301.90	5.03	5.04	89.59	0.65	89.88	89.88	79.82	10.07	8.929	
2,400.00	2,400.00	2,401.90	2,401.90	5.26	5.26	89.59	0.65	89.88	89.88	79.37	10.52	8.548	
2,416.02	2,416.02	2,417.92	2,417.92	5.29	5.30	89.59	0.65	89.88	89.88	79.29	10.59	8.489	CC
2,500.00	2,500.00	2,501.88	2,501.88	5.48	5.48	89.59	0.65	89.88	89.88	78.92	10.96	8.198	ES
2,600.00	2,599.99	2,600.66	2,600.65	5.68	5.68	-126.73	0.10	90.57	91.10	79.74	11.36	8.019	
2,700.00	2,699.96	2,699.35	2,699.31	5.85	5.86	-126.97	-1.51	92.59	94.70	82.99	11.71	8.088	
2,800.00	2,799.86	2,797.87	2,797.74	6.03	6.04	-127.34	-4.17	95.94	100.69	88.62	12.06	8.347	
2,900.00	2,899.68	2,896.14	2,895.82	6.22	6.23	-127.79	-7.87	100.59	109.05	96.63	12.42	8.779	
3,000.00	2,999.37	2,994.06	2,993.45	6.41	6.42	-128.27	-12.60	106.54	119.79	107.01	12.78	9.370	
3,095.91	3,094.84	3,087.60	3,086.57	6.59	6.61	-128.72	-18.09	113.44	132.32	119.18	13.14	10.070	
3,100.00	3,098.90	3,091.57	3,090.52	6.60	6.62	-128.75	-18.34	113.76	132.90	119.74	13.16	10.102	
3,200.00	3,198.36	3,188.68	3,187.02	6.80	6.82	-129.03	-25.08	122.24	147.78	134.25	13.53	10.922	
3,300.00	3,297.82	3,286.12	3,283.67	7.01	7.03	-128.89	-32.80	131.94	163.83	149.91	13.92	11.771	
3,400.00	3,397.28	3,384.78	3,381.49	7.22	7.25	-128.70	-40.83	142.05	180.14	165.82	14.33	12.573	
3,500.00	3,496.74	3,483.44	3,479.30	7.44	7.48	-128.54	-48.86	152.15	196.46	181.72	14.74	13.324	
3,600.00	3,596.20	3,582.10	3,577.11	7.66	7.72	-128.41	-56.89	162.25	212.78	197.61	15.17	14.026	
3,700.00	3,695.66	3,680.76	3,674.92	7.89	7.95	-128.30	-64.93	172.35	229.10	213.50	15.60	14.684	
3,800.00	3,795.12	3,779.42	3,772.73	8.12	8.20	-128.20	-72.96	182.45	245.42	229.38	16.04	15.300	
3,900.00	3,894.58	3,878.08	3,870.54	8.35	8.45	-128.11	-80.99	192.55	261.74	245.26	16.49	15.877	
4,000.00	3,994.04	3,976.73	3,968.35	8.59	8.70	-128.04	-89.02	202.65	278.06	261.13	16.94	16.419	
4,100.00	4,093.50	4,075.39	4,066.16	8.83	8.95	-127.97	-97.05	212.75	294.39	276.99	17.39	16.928	
4,200.00	4,192.96	4,174.05	4,163.97	9.07	9.21	-127.91	-105.08	222.85	310.71	292.86	17.85	17.406	
4,300.00	4,292.42	4,272.71	4,261.78	9.31	9.47	-127.85	-113.12	232.95	327.03	308.72	18.31	17.857	
4,400.00	4,391.88	4,371.37	4,359.59	9.56	9.74	-127.80	-121.15	243.05	343.35	324.57	18.78	18.281	
4,500.00	4,491.34	4,470.03	4,457.40	9.80	10.01	-127.76	-129.18	253.15	359.68	340.42	19.25	18.680	
4,600.00	4,590.80	4,568.68	4,555.21	10.06	10.27	-127.72	-137.21	263.25	376.00	356.27	19.73	19.058	
4,700.00	4,690.26	4,667.34	4,653.03	10.31	10.55	-127.68	-145.24	273.35	392.32	372.12	20.21	19.414	
4,800.00	4,789.72	4,766.00	4,750.84	10.56	10.82	-127.65	-153.28	283.45	408.65	387.96	20.69	19.751	
4,900.00	4,889.18	4,864.66	4,848.65	10.82	11.09	-127.61	-161.31	293.55	424.97	403.80	21.17	20.071	
5,000.00	4,988.64	4,963.32	4,946.46	11.07	11.37	-127.58	-169.34	303.66	441.30	419.64	21.66	20.373	
5,100.00	5,088.10	5,061.98	5,044.27	11.33	11.65	-127.56	-177.37	313.76	457.62	435.47	22.15	20.660	
5,200.00	5,187.56	5,160.63	5,142.08	11.59	11.93	-127.53	-185.40	323.86	473.94	451.30	22.64	20.932	
5,300.00	5,287.02	5,259.29	5,239.89	11.85	12.21	-127.51	-193.43	333.96	490.27	467.13	23.14	21.191	
5,400.00	5,386.48	5,357.95	5,337.70	12.11	12.50	-127.48	-201.47	344.06	506.59	482.96	23.63	21.438	
5,500.00	5,485.94	5,456.61	5,435.51	12.37	12.78	-127.46	-209.50	354.16	522.92	498.79	24.13	21.672	
5,600.00	5,585.39	5,555.27	5,533.32	12.64	13.06	-127.44	-217.53	364.26	539.24	514.61	24.63	21.896	
5,700.00	5,684.85	5,653.93	5,631.13	12.90	13.35	-127.43	-225.56	374.36	555.57	530.44	25.13	22.109	
5,800.00	5,784.31	5,752.58	5,728.94	13.17	13.64	-127.41	-233.59	384.46	571.89	546.26	25.63	22.312	
5,900.00	5,883.77	5,851.24	5,826.75	13.43	13.93	-127.39	-241.63	394.56	588.22	562.08	26.14	22.506	
6,000.00	5,983.23	5,949.90	5,924.56	13.70	14.22	-127.38	-249.66	404.66	604.54	577.90	26.64	22.692	
6,100.00	6,082.69	6,048.56	6,022.38	13.97	14.51	-127.36	-257.69	414.76	620.87	593.72	27.15	22.870	

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

LEAM Drilling Systems LLC

Anticollision Report

Company:	Devon Energy	**Local Co-ordinate Reference:**	Well 512H
Project:	Eddy County, NM (NAD-83)	**TVD Reference:**	3511.9' GE + 23.5' KB @ 3535.40usft (Original Well Elev)
Reference Site:	Cotton Draw Unit	**MD Reference:**	3511.9' GE + 23.5' KB @ 3535.40usft (Original Well Elev)
Site Error:	0.00 usft	**North Reference:**	Grid
Reference Well:	512H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000.1 Multi User Db
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Offset Design Cotton Draw Unit - 291H - OH - Plan #1 — **Offset Site Error:** 0.00 usft

Survey Program: 0-LEAM MWD+HDGM — **Offset Well Error:** 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
6,200.00	6,182.15	6,147.22	6,120.19	14.23	14.80	-127.35	-265.72	424.86	637.19	609.53	27.66	23.040	
6,300.00	6,281.61	6,245.88	6,218.00	14.50	15.09	-127.33	-273.75	434.96	653.52	625.35	28.17	23.203	
6,400.00	6,381.07	6,344.53	6,315.81	14.77	15.38	-127.32	-281.78	445.06	669.84	641.16	28.68	23.359	
6,500.00	6,480.53	6,443.19	6,413.62	15.04	15.67	-127.31	-289.82	455.17	686.17	656.98	29.19	23.509	
6,600.00	6,579.99	6,541.85	6,511.43	15.31	15.97	-127.30	-297.85	465.27	702.49	672.79	29.70	23.653	
6,700.00	6,679.45	6,640.51	6,609.24	15.58	16.26	-127.29	-305.88	475.37	718.82	688.60	30.21	23.792	
6,800.00	6,778.91	6,739.17	6,707.05	15.85	16.55	-127.28	-313.91	485.47	735.14	704.41	30.73	23.925	
6,900.00	6,878.37	6,837.83	6,804.86	16.13	16.85	-127.27	-321.94	495.57	751.47	720.22	31.24	24.053	
7,000.00	6,977.83	6,936.48	6,902.67	16.40	17.14	-127.26	-329.98	505.67	767.79	736.03	31.76	24.176	
7,100.00	7,077.29	7,035.14	7,000.48	16.67	17.44	-127.25	-338.01	515.77	784.12	751.84	32.28	24.295	
7,200.00	7,176.75	7,133.80	7,098.29	16.94	17.74	-127.24	-346.04	525.87	800.44	767.65	32.79	24.409	
7,300.00	7,276.21	7,232.46	7,196.10	17.22	18.03	-127.23	-354.07	535.97	816.77	783.45	33.31	24.519	
7,400.00	7,375.67	7,331.12	7,293.92	17.49	18.33	-127.22	-362.10	546.07	833.09	799.26	33.83	24.626	
7,500.00	7,475.13	7,429.78	7,391.73	17.76	18.63	-127.21	-370.13	556.17	849.42	815.07	34.35	24.728	
7,600.00	7,574.59	7,528.44	7,489.54	18.04	18.93	-127.21	-378.17	566.27	865.74	830.87	34.87	24.827	
7,700.00	7,674.05	7,627.09	7,587.35	18.31	19.22	-127.20	-386.20	576.37	882.07	846.68	35.39	24.923	
7,800.00	7,773.51	7,725.75	7,685.16	18.59	19.52	-127.19	-394.23	586.47	898.39	862.48	35.91	25.016	
7,900.00	7,872.97	7,824.41	7,782.97	18.86	19.82	-127.18	-402.26	596.57	914.72	878.28	36.43	25.105	
8,000.00	7,972.43	7,923.07	7,880.78	19.14	20.12	-127.18	-410.29	606.67	931.04	894.08	36.96	25.192	
8,100.00	8,071.89	8,021.73	7,978.59	19.41	20.42	-127.17	-418.33	616.78	947.37	909.89	37.48	25.276	
8,200.00	8,171.35	8,120.39	8,076.40	19.69	20.72	-127.17	-426.36	626.88	963.69	925.69	38.00	25.357	
8,300.00	8,270.80	8,219.04	8,174.21	19.97	21.02	-127.16	-434.39	636.98	980.02	941.49	38.53	25.436	
8,400.00	8,370.26	8,317.70	8,272.02	20.24	21.32	-127.15	-442.42	647.08	996.34	957.29	39.05	25.512	
8,500.00	8,469.72	8,416.36	8,369.83	20.52	21.62	-127.15	-450.45	657.18	1,012.67	973.09	39.58	25.586	
8,600.00	8,569.18	8,515.02	8,467.64	20.80	21.92	-127.14	-458.48	667.28	1,028.99	988.89	40.10	25.658	
8,700.00	8,668.64	8,613.68	8,565.46	21.07	22.22	-127.14	-466.52	677.38	1,045.32	1,004.69	40.63	25.728	
8,800.00	8,768.10	8,712.34	8,663.27	21.35	22.52	-127.13	-474.55	687.48	1,061.64	1,020.49	41.16	25.795	
8,900.00	8,867.56	8,810.99	8,761.08	21.63	22.83	-127.13	-482.58	697.58	1,077.97	1,036.29	41.68	25.861	
9,000.00	8,967.02	8,909.65	8,858.89	21.91	23.13	-127.12	-490.61	707.68	1,094.30	1,052.08	42.21	25.925	
9,068.05	9,034.70	8,976.79	8,925.45	22.09	23.33	-127.12	-496.08	714.55	1,105.40	1,062.83	42.57	25.967	
9,100.00	9,066.49	9,008.32	8,956.71	22.17	23.43	-127.16	-498.64	717.78	1,110.57	1,067.84	42.73	25.991	
9,200.00	9,166.09	9,107.11	9,054.64	22.38	23.73	-127.22	-506.69	727.90	1,126.04	1,082.84	43.20	26.065	
9,300.00	9,265.83	9,206.02	9,152.71	22.59	24.03	-127.20	-514.74	738.02	1,140.47	1,096.81	43.66	26.119	
9,400.00	9,365.67	9,314.30	9,260.10	22.78	24.34	-127.10	-523.36	748.87	1,153.67	1,109.52	44.15	26.133	
9,500.00	9,465.60	9,432.09	9,377.16	22.97	24.60	-126.95	-531.45	759.04	1,164.45	1,119.84	44.61	26.102	
9,600.00	9,565.58	9,550.40	9,495.00	23.14	24.85	-126.78	-538.06	767.35	1,172.61	1,127.56	45.05	26.027	
9,663.96	9,629.54	9,626.30	9,570.69	23.26	25.01	89.59	-541.50	771.68	1,176.45	1,131.12	45.33	25.951	
9,700.00	9,665.58	9,669.13	9,613.44	23.32	25.09	89.67	-543.17	773.78	1,178.21	1,132.72	45.49	25.902	
9,763.96	9,729.54	9,745.22	9,689.43	23.43	25.23	89.79	-545.64	776.89	1,180.82	1,135.07	45.75	25.810	
9,775.00	9,740.58	9,758.36	9,702.55	23.45	25.26	89.77	-546.01	777.35	1,181.20	1,135.40	45.80	25.793	
9,800.00	9,765.55	9,788.06	9,732.23	23.49	25.31	89.78	-546.76	778.29	1,181.99	1,136.10	45.89	25.758	
9,825.00	9,790.41	9,817.64	9,761.79	23.52	25.36	89.87	-547.41	779.12	1,182.68	1,136.71	45.97	25.725	
9,850.00	9,815.12	9,847.01	9,791.15	23.55	25.41	90.05	-547.97	779.81	1,183.28	1,137.23	46.05	25.697	
9,875.00	9,839.58	9,876.12	9,820.25	23.57	25.46	90.29	-548.43	780.39	1,183.80	1,137.69	46.11	25.671	
9,900.00	9,863.75	9,904.91	9,849.03	23.59	25.51	90.61	-548.79	780.85	1,184.27	1,138.10	46.17	25.649	
9,925.00	9,887.54	9,933.29	9,877.40	23.59	25.56	90.99	-549.06	781.18	1,184.70	1,138.48	46.22	25.631	
9,950.00	9,910.91	9,961.20	9,905.32	23.60	25.61	91.43	-549.24	781.41	1,185.12	1,138.86	46.26	25.618	
9,975.00	9,933.78	9,988.59	9,932.70	23.60	25.65	91.91	-549.33	781.53	1,185.56	1,139.27	46.29	25.609	
10,000.00	9,956.08	10,013.87	9,957.98	23.59	25.70	92.40	-549.35	781.55	1,186.07	1,139.75	46.32	25.607	
10,025.00	9,977.77	10,035.55	9,979.67	23.58	25.73	92.85	-549.35	781.55	1,186.72	1,140.40	46.33	25.615	

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

LEAM Drilling Systems LLC

Anticollision Report

Company:	Devon Energy	**Local Co-ordinate Reference:**	Well 512H
Project:	Eddy County, NM (NAD-83)	**TVD Reference:**	3511.9' GE + 23.5' KB @ 3535.40usft (Original Well Elev)
Reference Site:	Cotton Draw Unit	**MD Reference:**	3511.9' GE + 23.5' KB @ 3535.40usft (Original Well Elev)
Site Error:	0.00 usft	**North Reference:**	Grid
Reference Well:	512H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000.1 Multi User Db
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Offset Design Cotton Draw Unit - 291H - OH - Plan #1 — **Offset Site Error:** 0.00 usft

Survey Program: 0-LEAM MWD+HDGM — **Offset Well Error:** 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
10,050.00	9,998.78	10,056.56	10,000.68	23.56	25.77	93.29	-549.35	781.55	1,187.59	1,141.26	46.33	25.632	
10,075.00	10,019.04	10,076.83	10,020.94	23.55	25.80	93.73	-549.35	781.55	1,188.69	1,142.36	46.33	25.657	
10,100.00	10,038.52	10,096.30	10,040.42	23.52	25.84	94.15	-549.35	781.55	1,190.08	1,143.76	46.32	25.692	
10,125.00	10,057.15	10,118.09	10,062.21	23.50	25.87	94.64	-549.21	781.55	1,191.76	1,145.45	46.31	25.734	
10,150.00	10,074.87	10,144.26	10,088.34	23.47	25.91	95.25	-547.85	781.55	1,193.69	1,147.39	46.30	25.784	
10,175.00	10,091.66	10,171.88	10,115.79	23.44	25.94	95.87	-544.87	781.55	1,195.84	1,149.56	46.27	25.842	
10,200.00	10,107.45	10,201.17	10,144.66	23.40	25.97	96.51	-539.98	781.55	1,198.19	1,151.94	46.24	25.911	
10,225.00	10,122.20	10,232.41	10,175.07	23.37	26.00	97.18	-532.82	781.55	1,200.73	1,154.53	46.20	25.990	
10,250.00	10,135.88	10,265.93	10,207.09	23.33	26.01	97.87	-522.96	781.55	1,203.43	1,157.29	46.14	26.080	
10,275.00	10,148.45	10,302.09	10,240.78	23.29	26.02	98.60	-509.82	781.55	1,206.26	1,160.19	46.07	26.181	
10,300.00	10,159.86	10,341.34	10,276.09	23.26	26.01	99.37	-492.72	781.55	1,209.19	1,163.20	45.98	26.295	
10,325.00	10,170.10	10,384.15	10,312.87	23.22	25.99	100.17	-470.83	781.55	1,212.15	1,166.27	45.88	26.423	
10,350.00	10,179.13	10,431.04	10,350.72	23.18	25.95	101.01	-443.19	781.55	1,215.08	1,169.33	45.74	26.562	
10,375.00	10,186.93	10,482.51	10,388.93	23.14	25.90	101.86	-408.73	781.55	1,217.90	1,172.31	45.59	26.712	
10,400.00	10,193.47	10,538.99	10,426.31	23.10	25.82	102.71	-366.45	781.55	1,220.52	1,175.09	45.43	26.866	
10,425.00	10,198.74	10,600.66	10,461.12	23.07	25.72	103.51	-315.60	781.55	1,222.83	1,177.57	45.27	27.014	
10,450.00	10,202.73	10,667.36	10,491.06	23.03	25.61	104.20	-256.05	781.55	1,224.72	1,179.59	45.13	27.139	
10,475.00	10,205.42	10,738.39	10,513.49	23.00	25.47	104.73	-188.72	781.55	1,226.08	1,181.04	45.04	27.222	
10,500.00	10,206.80	10,812.45	10,525.98	22.97	25.33	105.03	-115.80	781.55	1,226.82	1,181.79	45.03	27.242	
10,513.96	10,207.01	10,854.47	10,528.00	22.95	25.26	105.07	-73.84	781.55	1,226.94	1,181.87	45.07	27.222	
10,600.00	10,207.00	10,941.82	10,528.00	22.88	25.12	105.07	13.51	781.55	1,226.94	1,181.65	45.29	27.089	
10,700.00	10,207.00	11,041.82	10,528.00	22.97	25.00	105.07	113.51	781.55	1,226.94	1,181.20	45.74	26.825	
10,800.00	10,207.00	11,141.82	10,528.00	23.31	25.02	105.07	213.51	781.55	1,226.94	1,180.54	46.40	26.444	
10,900.00	10,207.00	11,241.82	10,528.00	23.80	25.30	105.07	313.51	781.55	1,226.94	1,179.68	47.26	25.961	
11,000.00	10,207.00	11,341.82	10,528.00	24.41	25.82	105.07	413.51	781.55	1,226.94	1,178.62	48.32	25.392	
11,100.00	10,207.00	11,441.82	10,528.00	25.10	26.47	105.07	513.51	781.55	1,226.94	1,177.38	49.56	24.757	
11,200.00	10,207.00	11,541.82	10,528.00	25.87	27.22	105.07	613.51	781.55	1,226.94	1,175.97	50.97	24.072	
11,300.00	10,207.00	11,641.82	10,528.00	26.71	28.03	105.07	713.51	781.55	1,226.94	1,174.41	52.53	23.356	
11,400.00	10,207.00	11,741.82	10,528.00	27.63	28.91	105.07	813.51	781.55	1,226.94	1,172.70	54.24	22.621	
11,500.00	10,207.00	11,841.82	10,528.00	28.60	29.85	105.07	913.51	781.55	1,226.94	1,170.87	56.07	21.881	
11,600.00	10,207.00	11,941.82	10,528.00	29.64	30.85	105.07	1,013.51	781.55	1,226.94	1,168.92	58.02	21.145	
11,700.00	10,207.00	12,041.82	10,528.00	30.72	31.89	105.07	1,113.51	781.55	1,226.94	1,166.86	60.08	20.422	
11,800.00	10,207.00	12,141.82	10,528.00	31.85	32.98	105.07	1,213.51	781.55	1,226.94	1,164.71	62.23	19.716	
11,900.00	10,207.00	12,241.82	10,528.00	33.02	34.12	105.07	1,313.51	781.55	1,226.94	1,162.47	64.47	19.032	
12,000.00	10,207.00	12,341.82	10,528.00	34.22	35.29	105.07	1,413.51	781.55	1,226.94	1,160.16	66.78	18.373	
12,100.00	10,207.00	12,441.82	10,528.00	35.46	36.49	105.07	1,513.51	781.55	1,226.94	1,157.78	69.16	17.740	
12,200.00	10,207.00	12,541.82	10,528.00	36.74	37.73	105.07	1,613.51	781.55	1,226.94	1,155.34	71.61	17.134	
12,300.00	10,207.00	12,641.82	10,528.00	38.03	38.99	105.07	1,713.51	781.55	1,226.94	1,152.83	74.11	16.556	
12,400.00	10,207.00	12,741.82	10,528.00	39.36	40.28	105.07	1,813.51	781.55	1,226.94	1,150.28	76.66	16.005	
12,500.00	10,207.00	12,841.82	10,528.00	40.70	41.59	105.07	1,913.51	781.55	1,226.94	1,147.69	79.25	15.481	
12,600.00	10,207.00	12,941.82	10,528.00	42.07	42.93	105.07	2,013.51	781.55	1,226.94	1,145.05	81.89	14.982	
12,700.00	10,207.00	13,041.82	10,528.00	43.45	44.29	105.07	2,113.51	781.55	1,226.94	1,142.37	84.57	14.508	
12,800.00	10,207.00	13,141.82	10,528.00	44.86	45.66	105.07	2,213.51	781.55	1,226.94	1,139.67	87.28	14.058	
12,900.00	10,207.00	13,241.82	10,528.00	46.27	47.05	105.07	2,313.51	781.55	1,226.94	1,136.93	90.02	13.630	
13,000.00	10,207.00	13,341.82	10,528.00	47.70	48.45	105.07	2,413.51	781.55	1,226.94	1,134.16	92.78	13.223	
13,100.00	10,207.00	13,441.82	10,528.00	49.15	49.87	105.07	2,513.51	781.55	1,226.94	1,131.36	95.58	12.837	
13,200.00	10,207.00	13,541.82	10,528.00	50.60	51.30	105.07	2,613.51	781.55	1,226.94	1,128.55	98.40	12.469	
13,300.00	10,207.00	13,641.82	10,528.00	52.06	52.74	105.07	2,713.51	781.55	1,226.94	1,125.71	101.24	12.120	
13,400.00	10,207.00	13,741.82	10,528.00	53.54	54.20	105.07	2,813.51	781.55	1,226.94	1,122.85	104.09	11.787	
13,500.00	10,207.00	13,841.82	10,528.00	55.02	55.66	105.07	2,913.51	781.55	1,226.94	1,119.97	106.97	11.470	
13,600.00	10,207.00	13,941.82	10,528.00	56.52	57.13	105.07	3,013.51	781.55	1,226.94	1,117.08	109.87	11.168	

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

LEAM Drilling Systems LLC

Anticollision Report

Company:	Devon Energy	**Local Co-ordinate Reference:**	Well 512H
Project:	Eddy County, NM (NAD-83)	**TVD Reference:**	3511.9' GE + 23.5' KB @ 3535.40usft (Original Well Elev)
Reference Site:	Cotton Draw Unit	**MD Reference:**	3511.9' GE + 23.5' KB @ 3535.40usft (Original Well Elev)
Site Error:	0.00 usft	**North Reference:**	Grid
Reference Well:	512H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000.1 Multi User Db
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Offset Design Cotton Draw Unit - 291H - OH - Plan #1 — **Offset Site Error:** 0.00 usft

Survey Program: 0-LEAM MWD+HDGM — **Offset Well Error:** 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
13,700.00	10,207.00	14,041.82	10,528.00	58.02	58.61	105.07	3,113.51	781.55	1,226.94	1,114.17	112.78	10.879	
13,800.00	10,207.00	14,141.82	10,528.00	59.52	60.10	105.07	3,213.51	781.55	1,226.94	1,111.24	115.70	10.605	
13,900.00	10,207.00	14,241.82	10,528.00	61.04	61.60	105.07	3,313.51	781.55	1,226.94	1,108.30	118.64	10.342	
14,000.00	10,207.00	14,341.82	10,528.00	62.56	63.10	105.07	3,413.51	781.55	1,226.94	1,105.36	121.59	10.091	
14,100.00	10,207.00	14,441.82	10,528.00	64.08	64.61	105.07	3,513.51	781.55	1,226.94	1,102.39	124.55	9.851	
14,200.00	10,207.00	14,541.82	10,528.00	65.61	66.12	105.07	3,613.51	781.55	1,226.94	1,099.42	127.52	9.622	
14,300.00	10,207.00	14,641.82	10,528.00	67.15	67.64	105.07	3,713.51	781.55	1,226.94	1,096.44	130.50	9.402	
14,400.00	10,207.00	14,741.82	10,528.00	68.69	69.17	105.07	3,813.51	781.55	1,226.94	1,093.45	133.49	9.191	
14,500.00	10,207.00	14,841.82	10,528.00	70.23	70.70	105.07	3,913.51	781.55	1,226.94	1,090.45	136.49	8.989	
14,600.00	10,207.00	14,941.82	10,528.00	71.78	72.23	105.07	4,013.51	781.55	1,226.94	1,087.44	139.50	8.795	
14,700.00	10,207.00	15,041.82	10,528.00	73.33	73.77	105.07	4,113.51	781.55	1,226.94	1,084.43	142.51	8.609	
14,800.00	10,207.00	15,141.82	10,528.00	74.89	75.32	105.07	4,213.51	781.55	1,226.94	1,081.41	145.53	8.431	
14,900.00	10,207.00	15,241.82	10,528.00	76.45	76.86	105.07	4,313.51	781.55	1,226.94	1,078.38	148.56	8.259	
15,000.00	10,207.00	15,341.82	10,528.00	78.01	78.42	105.07	4,413.51	781.55	1,226.94	1,075.34	151.60	8.093	
15,100.00	10,207.00	15,441.82	10,528.00	79.58	79.97	105.07	4,513.51	781.55	1,226.94	1,072.30	154.64	7.934	
15,200.00	10,207.00	15,541.82	10,528.00	81.14	81.53	105.07	4,613.51	781.55	1,226.94	1,069.26	157.69	7.781	
15,300.00	10,207.00	15,641.82	10,528.00	82.72	83.09	105.07	4,713.51	781.55	1,226.94	1,066.20	160.74	7.633	
15,344.98	10,207.00	15,686.79	10,528.00	83.42	83.79	105.07	4,758.48	781.55	1,226.94	1,064.83	162.11	7.569	
15,345.97	10,207.00	15,687.79	10,528.00	83.44	83.80	105.07	4,759.48	781.55	1,226.94	1,064.80	162.14	7.567 SF	

LEAM Drilling Systems LLC

Anticollision Report

Company:	Devon Energy	**Local Co-ordinate Reference:**	Well 512H
Project:	Eddy County, NM (NAD-83)	**TVD Reference:**	3511.9' GE + 23.5' KB @ 3535.40usft (Original Well Elev)
Reference Site:	Cotton Draw Unit	**MD Reference:**	3511.9' GE + 23.5' KB @ 3535.40usft (Original Well Elev)
Site Error:	0.00 usft	**North Reference:**	Grid
Reference Well:	512H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	*0.00 usft*	***Output errors are at***	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000.1 Multi User Db
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Offset Design Cotton Draw Unit - 293H - OH - Plan #1 — **Offset Site Error:** 0.00 usft

Survey Program: 0-LEAM MWD+HDGM — **Offset Well Error:** 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	0.70	0.70	0.00	0.00	89.67	0.35	59.95	59.95				
100.00	100.00	100.70	100.70	0.09	0.09	89.67	0.35	59.95	59.95	59.78	0.17	345.500	
200.00	200.00	200.70	200.70	0.31	0.31	89.67	0.35	59.95	59.95	59.33	0.62	96.222	
300.00	300.00	300.70	300.70	0.54	0.54	89.67	0.35	59.95	59.95	58.88	1.07	55.894	
400.00	400.00	400.70	400.70	0.76	0.76	89.67	0.35	59.95	59.95	58.43	1.52	39.387	
500.00	500.00	500.70	500.70	0.99	0.99	89.67	0.35	59.95	59.95	57.98	1.97	30.407	
600.00	600.00	600.70	600.70	1.21	1.21	89.67	0.35	59.95	59.95	57.53	2.42	24.761	
700.00	700.00	700.70	700.70	1.43	1.44	89.67	0.35	59.95	59.95	57.08	2.87	20.884	
800.00	800.00	800.70	800.70	1.66	1.66	89.67	0.35	59.95	59.95	56.63	3.32	18.056	
900.00	900.00	900.70	900.70	1.88	1.89	89.67	0.35	59.95	59.95	56.18	3.77	15.903	
1,000.00	1,000.00	1,000.70	1,000.70	2.11	2.11	89.67	0.35	59.95	59.95	55.73	4.22	14.209	
1,100.00	1,100.00	1,100.70	1,100.70	2.33	2.34	89.67	0.35	59.95	59.95	55.28	4.67	12.841	
1,200.00	1,200.00	1,200.70	1,200.70	2.56	2.56	89.67	0.35	59.95	59.95	54.83	5.12	11.713	
1,300.00	1,300.00	1,300.70	1,300.70	2.78	2.78	89.67	0.35	59.95	59.95	54.38	5.57	10.767	
1,400.00	1,400.00	1,400.70	1,400.70	3.01	3.01	89.67	0.35	59.95	59.95	53.93	6.02	9.963	
1,500.00	1,500.00	1,500.70	1,500.70	3.23	3.23	89.67	0.35	59.95	59.95	53.48	6.47	9.270	
1,600.00	1,600.00	1,600.70	1,600.70	3.46	3.46	89.67	0.35	59.95	59.95	53.03	6.92	8.668	
1,700.00	1,700.00	1,700.70	1,700.70	3.68	3.68	89.67	0.35	59.95	59.95	52.58	7.37	8.139	
1,800.00	1,800.00	1,800.70	1,800.70	3.91	3.91	89.67	0.35	59.95	59.95	52.14	7.82	7.671	
1,900.00	1,900.00	1,900.70	1,900.70	4.13	4.13	89.67	0.35	59.95	59.95	51.69	8.27	7.254	
2,000.00	2,000.00	2,000.70	2,000.70	4.36	4.36	89.67	0.35	59.95	59.95	51.24	8.71	6.879	
2,100.00	2,100.00	2,100.70	2,100.70	4.58	4.58	89.67	0.35	59.95	59.95	50.79	9.16	6.542	
2,200.00	2,200.00	2,200.70	2,200.70	4.81	4.81	89.67	0.35	59.95	59.95	50.34	9.61	6.236	
2,300.00	2,300.00	2,300.70	2,300.70	5.03	5.03	89.67	0.35	59.95	59.95	49.89	10.06	5.957	
2,400.00	2,400.00	2,400.70	2,400.70	5.26	5.26	89.67	0.35	59.95	59.95	49.44	10.51	5.703	
2,500.00	2,500.00	2,500.70	2,500.70	5.48	5.48	89.67	0.35	59.95	59.95	48.99	10.96	5.469	
2,500.81	2,500.81	2,501.51	2,501.51	5.48	5.48	-126.58	0.35	59.95	59.95	48.99	10.97	5.467	CC
2,600.00	2,599.99	2,601.01	2,601.01	5.68	5.71	-128.05	1.19	59.66	60.21	48.82	11.38	5.289	ES
2,700.00	2,699.96	2,701.18	2,701.14	5.85	5.93	-132.34	3.69	58.81	61.22	49.44	11.78	5.196	SF
2,800.00	2,799.86	2,801.05	2,800.91	6.03	6.15	-139.08	7.83	57.39	63.63	51.45	12.18	5.223	
2,900.00	2,899.68	2,900.50	2,900.17	6.22	6.38	-147.49	13.59	55.42	68.35	55.76	12.59	5.430	
3,000.00	2,999.37	2,999.63	2,999.07	6.41	6.60	-155.85	20.12	53.19	76.09	63.09	12.99	5.855	
3,095.91	3,094.84	3,094.51	3,093.71	6.59	6.82	-162.64	26.38	51.05	86.31	72.92	13.39	6.446	
3,100.00	3,098.90	3,098.55	3,097.74	6.60	6.83	-162.90	26.65	50.96	86.80	73.40	13.41	6.474	
3,200.00	3,198.36	3,197.35	3,196.31	6.80	7.05	-168.47	33.16	48.73	99.33	85.51	13.82	7.187	
3,300.00	3,297.82	3,296.16	3,294.87	7.01	7.28	-172.77	39.68	46.50	112.58	98.34	14.24	7.906	
3,400.00	3,397.28	3,394.96	3,393.43	7.22	7.50	-176.15	46.19	44.27	126.32	111.66	14.66	8.617	
3,500.00	3,496.74	3,493.77	3,492.00	7.44	7.73	-178.87	52.70	42.04	140.41	125.33	15.08	9.309	
3,600.00	3,596.20	3,592.57	3,590.56	7.66	7.96	178.91	59.22	39.81	154.75	139.24	15.51	9.978	
3,700.00	3,695.66	3,691.37	3,689.13	7.89	8.19	177.07	65.73	37.59	169.28	153.35	15.94	10.621	
3,800.00	3,795.12	3,790.18	3,787.69	8.12	8.43	175.52	72.25	35.36	183.96	167.59	16.37	11.238	
3,900.00	3,894.58	3,888.98	3,886.25	8.35	8.66	174.21	78.76	33.13	198.75	181.95	16.80	11.828	
4,000.00	3,994.04	3,987.79	3,984.82	8.59	8.89	173.07	85.28	30.90	213.63	196.39	17.24	12.392	
4,100.00	4,093.50	4,086.59	4,083.38	8.83	9.12	172.08	91.79	28.67	228.58	210.90	17.68	12.931	
4,200.00	4,192.96	4,185.40	4,181.95	9.07	9.36	171.21	98.30	26.44	243.58	225.47	18.12	13.445	
4,300.00	4,292.42	4,284.20	4,280.51	9.31	9.59	170.45	104.82	24.22	258.64	240.08	18.56	13.937	
4,400.00	4,391.88	4,383.00	4,379.07	9.56	9.83	169.76	111.33	21.99	273.74	254.74	19.00	14.407	
4,500.00	4,491.34	4,481.81	4,477.64	9.80	10.06	169.15	117.85	19.76	288.87	269.42	19.45	14.855	
4,600.00	4,590.80	4,580.61	4,576.20	10.06	10.30	168.60	124.36	17.53	304.03	284.14	19.89	15.284	
4,700.00	4,690.26	4,679.42	4,674.77	10.31	10.54	168.10	130.88	15.30	319.21	298.87	20.34	15.695	
4,800.00	4,789.72	4,778.22	4,773.33	10.56	10.78	167.65	137.39	13.07	334.42	313.63	20.79	16.088	

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

LEAM Drilling Systems LLC

Anticollision Report

Company:	Devon Energy	**Local Co-ordinate Reference:**	Well 512H
Project:	Eddy County, NM (NAD-83)	**TVD Reference:**	3511.9' GE + 23.5' KB @ 3535.40usft (Original Well Elev)
Reference Site:	Cotton Draw Unit	**MD Reference:**	3511.9' GE + 23.5' KB @ 3535.40usft (Original Well Elev)
Site Error:	0.00 usft	**North Reference:**	Grid
Reference Well:	512H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000.1 Multi User Db
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Offset Design Cotton Draw Unit - 293H - OH - Plan #1 — **Offset Site Error:** 0.00 usft

Survey Program: 0-LEAM MWD+HDGM — **Offset Well Error:** 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
4,900.00	4,889.18	4,877.03	4,871.89	10.82	11.01	167.24	143.90	10.85	349.64	328.40	21.24	16.464	
5,000.00	4,988.64	4,975.83	4,970.46	11.07	11.25	166.86	150.42	8.62	364.88	343.19	21.69	16.824	
5,100.00	5,088.10	5,074.63	5,069.02	11.33	11.49	166.51	156.93	6.39	380.14	358.00	22.14	17.170	
5,200.00	5,187.56	5,174.49	5,168.64	11.59	11.72	166.19	163.48	4.15	395.38	372.79	22.59	17.501	
5,300.00	5,287.02	5,278.97	5,272.95	11.85	11.92	166.00	169.12	2.22	409.71	386.70	23.02	17.799	
5,400.00	5,386.48	5,383.86	5,377.75	12.11	12.11	165.99	172.97	0.90	422.69	399.26	23.43	18.037	
5,500.00	5,485.94	5,489.09	5,482.96	12.37	12.29	166.16	175.01	0.21	434.30	410.45	23.85	18.212	
5,600.00	5,585.39	5,592.22	5,586.09	12.64	12.48	166.46	175.35	0.09	444.65	420.39	24.26	18.330	
5,700.00	5,684.85	5,691.68	5,685.55	12.90	12.70	166.76	175.35	0.09	454.75	430.05	24.70	18.411	
5,800.00	5,784.31	5,791.14	5,785.01	13.17	12.91	167.06	175.35	0.09	464.86	439.72	25.14	18.489	
5,900.00	5,883.77	5,890.60	5,884.47	13.43	13.13	167.34	175.35	0.09	474.99	449.40	25.59	18.564	
6,000.00	5,983.23	5,990.06	5,983.93	13.70	13.35	167.60	175.35	0.09	485.13	459.10	26.03	18.636	
6,100.00	6,082.69	6,089.52	6,083.39	13.97	13.56	167.86	175.35	0.09	495.27	468.80	26.48	18.706	
6,200.00	6,182.15	6,188.98	6,182.85	14.23	13.78	168.11	175.35	0.09	505.43	478.51	26.92	18.774	
6,300.00	6,281.61	6,288.44	6,282.31	14.50	14.00	168.35	175.35	0.09	515.60	488.23	27.37	18.839	
6,400.00	6,381.07	6,387.90	6,381.77	14.77	14.22	168.58	175.35	0.09	525.77	497.96	27.81	18.903	
6,500.00	6,480.53	6,487.36	6,481.23	15.04	14.44	168.80	175.35	0.09	535.95	507.69	28.26	18.965	
6,600.00	6,579.99	6,586.82	6,580.69	15.31	14.66	169.01	175.35	0.09	546.14	517.44	28.71	19.024	
6,700.00	6,679.45	6,686.28	6,680.15	15.58	14.87	169.21	175.35	0.09	556.34	527.19	29.16	19.082	
6,800.00	6,778.91	6,785.74	6,779.61	15.85	15.09	169.41	175.35	0.09	566.54	536.94	29.60	19.138	
6,900.00	6,878.37	6,885.20	6,879.07	16.13	15.31	169.60	175.35	0.09	576.75	546.70	30.05	19.193	
7,000.00	6,977.83	6,984.66	6,978.53	16.40	15.53	169.78	175.35	0.09	586.97	556.47	30.50	19.246	
7,100.00	7,077.29	7,084.12	7,077.99	16.67	15.75	169.96	175.35	0.09	597.19	566.24	30.95	19.297	
7,200.00	7,176.75	7,183.58	7,177.45	16.94	15.97	170.13	175.35	0.09	607.42	576.02	31.40	19.347	
7,300.00	7,276.21	7,283.04	7,276.91	17.22	16.19	170.29	175.35	0.09	617.65	585.81	31.85	19.395	
7,400.00	7,375.67	7,382.50	7,376.37	17.49	16.41	170.45	175.35	0.09	627.89	595.59	32.30	19.442	
7,500.00	7,475.13	7,481.96	7,475.83	17.76	16.63	170.61	175.35	0.09	638.13	605.39	32.74	19.488	
7,600.00	7,574.59	7,581.42	7,575.29	18.04	16.85	170.76	175.35	0.09	648.38	615.18	33.19	19.532	
7,700.00	7,674.05	7,680.87	7,674.75	18.31	17.07	170.90	175.35	0.09	658.63	624.98	33.65	19.576	
7,800.00	7,773.51	7,780.33	7,774.21	18.59	17.29	171.04	175.35	0.09	668.88	634.79	34.10	19.618	
7,900.00	7,872.97	7,879.79	7,873.67	18.86	17.51	171.18	175.35	0.09	679.14	644.59	34.55	19.659	
8,000.00	7,972.43	7,979.25	7,973.13	19.14	17.73	171.31	175.35	0.09	689.40	654.41	35.00	19.699	
8,100.00	8,071.89	8,078.71	8,072.59	19.41	17.95	171.44	175.35	0.09	699.67	664.22	35.45	19.738	
8,200.00	8,171.35	8,178.17	8,172.05	19.69	18.17	171.56	175.35	0.09	709.94	674.04	35.90	19.775	
8,300.00	8,270.80	8,277.63	8,271.50	19.97	18.39	171.69	175.35	0.09	720.21	683.86	36.35	19.812	
8,400.00	8,370.26	8,377.09	8,370.96	20.24	18.61	171.80	175.35	0.09	730.49	693.68	36.80	19.848	
8,500.00	8,469.72	8,476.55	8,470.42	20.52	18.83	171.92	175.35	0.09	740.76	703.51	37.26	19.883	
8,600.00	8,569.18	8,576.01	8,569.88	20.80	19.05	172.03	175.35	0.09	751.04	713.34	37.71	19.918	
8,700.00	8,668.64	8,675.47	8,669.34	21.07	19.27	172.14	175.35	0.09	761.33	723.17	38.16	19.951	
8,800.00	8,768.10	8,774.93	8,768.80	21.35	19.49	172.24	175.35	0.09	771.62	733.00	38.61	19.984	
8,900.00	8,867.56	8,874.39	8,868.26	21.63	19.71	172.35	175.35	0.09	781.90	742.84	39.07	20.015	
9,000.00	8,967.02	8,973.85	8,967.72	21.91	19.93	172.45	175.35	0.09	792.20	752.68	39.52	20.046	
9,068.05	9,034.70	9,041.53	9,035.40	22.09	20.08	172.51	175.35	0.09	799.20	759.37	39.83	20.067	
9,100.00	9,066.49	9,073.32	9,067.19	22.17	20.15	172.55	175.35	0.09	802.40	762.44	39.97	20.077	
9,200.00	9,166.09	9,172.92	9,166.79	22.38	20.38	172.64	175.35	0.09	811.29	770.90	40.39	20.087	
9,300.00	9,265.83	9,272.65	9,266.53	22.59	20.60	172.71	175.35	0.09	818.45	777.64	40.81	20.056	
9,400.00	9,365.67	9,372.50	9,366.37	22.78	20.82	172.77	175.35	0.09	823.88	782.65	41.23	19.984	
9,500.00	9,465.60	9,472.43	9,466.30	22.97	21.04	172.81	175.35	0.09	827.58	785.94	41.64	19.874	
9,600.00	9,565.58	9,572.41	9,566.28	23.14	21.26	172.83	175.35	0.09	829.56	787.50	42.06	19.725	
9,663.96	9,629.54	9,636.37	9,630.24	23.26	21.41	29.07	175.35	0.09	829.91	787.59	42.32	19.608	

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

LEAM Drilling Systems LLC

Anticollision Report

Company:	Devon Energy	**Local Co-ordinate Reference:**	Well 512H
Project:	Eddy County, NM (NAD-83)	**TVD Reference:**	3511.9' GE + 23.5' KB @ 3535.40usft (Original Well Elev)
Reference Site:	Cotton Draw Unit	**MD Reference:**	3511.9' GE + 23.5' KB @ 3535.40usft (Original Well Elev)
Site Error:	0.00 usft	**North Reference:**	Grid
Reference Well:	512H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000.1 Multi User Db
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Offset Design Cotton Draw Unit - 293H - OH - Plan #1 — **Offset Site Error:** 0.00 usft

Survey Program: *0-LEAM MWD+HDGM* — *Offset Well Error:* *0.00 usft*

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
9,700.00	9,665.58	9,672.41	9,666.28	23.32	21.49	29.07	175.35	0.09	829.91	787.43	42.48	19.538	
9,763.96	9,729.54	9,736.37	9,730.24	23.43	21.63	29.07	175.35	0.09	829.91	787.17	42.74	19.416	
9,775.00	9,740.58	9,747.41	9,741.28	23.45	21.65	29.08	175.35	0.09	829.80	787.01	42.79	19.393	
9,800.00	9,765.55	9,772.37	9,766.25	23.49	21.71	29.19	175.35	0.09	828.72	785.83	42.89	19.322	
9,825.00	9,790.41	9,797.24	9,791.11	23.52	21.76	29.40	175.35	0.09	826.51	783.52	42.99	19.225	
9,850.00	9,815.12	11,046.82	10,528.00	23.55	24.69	107.56	-542.27	0.09	818.43	785.21	33.22	24.636	
9,875.00	9,839.58	11,041.70	10,528.00	23.57	24.66	111.46	-537.15	0.09	797.23	763.68	33.56	23.758	
9,900.00	9,863.75	11,035.30	10,528.00	23.59	24.62	114.82	-530.75	0.09	776.48	742.59	33.90	22.908	
9,925.00	9,887.54	11,027.65	10,528.00	23.59	24.57	117.70	-523.10	0.09	756.25	722.01	34.24	22.086	
9,950.00	9,910.91	11,018.77	10,528.00	23.60	24.52	120.14	-514.21	0.09	736.59	702.00	34.59	21.295	
9,975.00	9,933.78	11,008.67	10,528.00	23.60	24.46	122.19	-504.11	0.09	717.56	682.62	34.94	20.537	
10,000.00	9,956.08	10,997.39	10,528.00	23.59	24.40	123.90	-492.83	0.09	699.22	663.93	35.29	19.812	
10,025.00	9,977.77	10,984.96	10,528.00	23.58	24.33	125.32	-480.40	0.09	681.62	645.97	35.65	19.120	
10,050.00	9,998.78	10,971.40	10,528.00	23.56	24.27	126.47	-466.85	0.09	664.80	628.80	36.01	18.464	
10,075.00	10,019.04	10,956.77	10,528.00	23.55	24.19	127.39	-452.22	0.09	648.81	612.45	36.36	17.846	
10,100.00	10,038.52	10,941.10	10,528.00	23.52	24.11	128.11	-436.55	0.09	633.67	596.97	36.70	17.266	
10,125.00	10,057.15	10,924.43	10,528.00	23.50	24.03	128.66	-419.88	0.09	619.41	582.38	37.03	16.726	
10,150.00	10,074.87	10,906.81	10,528.01	23.47	23.94	129.06	-402.26	0.09	606.06	568.71	37.36	16.224	
10,175.00	10,091.66	10,888.29	10,528.01	23.44	23.86	129.33	-383.73	0.09	593.64	555.97	37.67	15.759	
10,200.00	10,107.45	10,868.91	10,528.01	23.40	23.78	129.49	-364.35	0.09	582.15	544.18	37.97	15.330	
10,225.00	10,122.20	10,848.73	10,528.01	23.37	23.70	129.56	-344.18	0.09	571.60	533.34	38.26	14.940	
10,250.00	10,135.88	10,827.81	10,528.01	23.33	23.62	129.56	-323.25	0.09	561.99	523.47	38.52	14.588	
10,275.00	10,148.45	10,804.39	10,528.00	23.29	23.52	129.42	-299.83	0.09	553.31	514.56	38.75	14.277	
10,300.00	10,159.86	10,709.48	10,518.15	23.26	23.22	125.75	-205.60	0.09	544.00	504.96	39.04	13.936	
10,325.00	10,170.10	10,633.92	10,497.09	23.22	23.04	122.15	-133.11	0.09	533.23	493.44	39.79	13.401	
10,350.00	10,179.13	10,573.11	10,472.01	23.18	22.93	118.92	-77.76	0.09	521.71	481.05	40.65	12.833	
10,375.00	10,186.93	10,523.08	10,446.23	23.14	22.89	116.11	-34.91	0.09	509.90	468.42	41.48	12.294	
10,400.00	10,193.47	10,480.89	10,421.11	23.10	22.86	113.69	-1.03	0.09	498.11	455.91	42.20	11.803	
10,425.00	10,198.74	10,444.45	10,397.08	23.07	22.83	111.58	26.34	0.09	486.59	443.76	42.83	11.362	
10,450.00	10,202.73	10,412.32	10,374.20	23.03	22.80	109.72	48.91	0.09	475.48	432.13	43.35	10.967	
10,475.00	10,205.42	10,383.45	10,352.40	23.00	22.77	108.02	67.82	0.09	464.93	421.13	43.80	10.616	
10,500.00	10,206.80	10,357.11	10,331.54	22.97	22.74	106.44	83.90	0.09	455.02	410.86	44.16	10.304	
10,513.96	10,207.01	10,343.29	10,320.25	22.95	22.72	105.59	91.87	0.09	449.80	405.46	44.34	10.145	
10,600.00	10,207.00	10,277.26	10,263.37	22.88	22.65	97.86	125.29	0.09	422.15	377.08	45.08	9.365	
10,700.00	10,207.00	10,229.28	10,219.42	22.97	22.59	91.66	144.49	0.09	404.62	359.11	45.51	8.892	
10,735.24	10,207.00	10,216.82	10,207.70	23.07	22.58	90.00	148.74	0.09	403.26	357.66	45.60	8.843	
10,800.00	10,207.00	10,197.93	10,189.75	23.31	22.55	87.45	154.60	0.09	407.93	362.24	45.69	8.928	
10,900.00	10,207.00	10,175.00	10,167.66	23.80	22.52	84.33	160.76	0.09	433.07	387.36	45.71	9.473	
11,000.00	10,207.00	10,159.89	10,152.96	24.41	22.50	82.27	164.24	0.09	477.23	431.56	45.68	10.448	
11,100.00	10,207.00	10,150.00	10,143.28	25.10	22.49	80.92	166.26	0.09	536.05	490.43	45.62	11.751	
11,200.00	10,207.00	10,137.83	10,131.31	25.87	22.47	79.27	168.47	0.09	605.40	559.88	45.52	13.299	
11,300.00	10,207.00	10,125.00	10,118.64	26.71	22.45	77.55	170.47	0.09	682.23	636.80	45.43	15.018	
11,400.00	10,207.00	10,125.00	10,118.64	27.63	22.45	77.55	170.47	0.09	764.23	718.82	45.41	16.830	
11,500.00	10,207.00	10,125.00	10,118.64	28.60	22.45	77.55	170.47	0.09	850.09	804.71	45.38	18.731	
11,600.00	10,207.00	10,113.44	10,107.18	29.64	22.44	76.00	171.98	0.09	938.56	893.23	45.33	20.705	
11,700.00	10,207.00	10,109.46	10,103.23	30.72	22.43	75.47	172.43	0.09	1,029.15	983.84	45.31	22.714	
11,800.00	10,207.00	10,100.00	10,093.81	31.85	22.42	74.23	173.39	0.09	1,121.36	1,076.07	45.28	24.763	
11,900.00	10,207.00	10,100.00	10,093.81	33.02	22.42	74.23	173.39	0.09	1,214.69	1,169.40	45.28	26.825	
12,000.00	10,207.00	10,100.00	10,093.81	34.22	22.42	74.23	173.39	0.09	1,309.00	1,263.72	45.28	28.907	
12,100.00	10,207.00	10,100.00	10,093.81	35.46	22.42	74.23	173.39	0.09	1,404.11	1,358.82	45.29	31.004	
12,200.00	10,207.00	10,100.00	10,093.81	36.74	22.42	74.23	173.39	0.09	1,499.85	1,454.55	45.30	33.112	

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

LEAM Drilling Systems LLC

Anticollision Report

Company:	Devon Energy	**Local Co-ordinate Reference:**	Well 512H
Project:	Eddy County, NM (NAD-83)	**TVD Reference:**	3511.9' GE + 23.5' KB @ 3535.40usft (Original Well Elev)
Reference Site:	Cotton Draw Unit	**MD Reference:**	3511.9' GE + 23.5' KB @ 3535.40usft (Original Well Elev)
Site Error:	0.00 usft	**North Reference:**	Grid
Reference Well:	512H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000.1 Multi User Db
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Offset Design Cotton Draw Unit - 293H - OH - Plan #1 — **Offset Site Error:** 0.00 usft

Survey Program: *0-LEAM MWD+HDGM* — **Offset Well Error:** *0.00 usft*

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
12,300.00	10,207.00	10,100.00	10,093.81	38.03	22.42	74.23	173.39	0.09	1,596.11	1,550.80	45.31	35.229	
12,400.00	10,207.00	10,100.00	10,093.81	39.36	22.42	74.23	173.39	0.09	1,692.80	1,647.48	45.32	37.352	
12,500.00	10,207.00	10,100.00	10,093.81	40.70	22.42	74.23	173.39	0.09	1,789.86	1,744.53	45.34	39.479	
12,600.00	10,207.00	10,089.02	10,082.87	42.07	22.40	72.80	174.25	0.09	1,887.07	1,841.72	45.35	41.607	
12,700.00	10,207.00	10,087.69	10,081.54	43.45	22.40	72.63	174.34	0.09	1,984.66	1,939.29	45.38	43.737	
12,800.00	10,207.00	10,086.46	10,080.31	44.86	22.39	72.47	174.42	0.09	2,082.48	2,037.07	45.40	45.867	
12,900.00	10,207.00	10,085.32	10,079.18	46.27	22.39	72.32	174.49	0.09	2,180.49	2,135.06	45.43	47.996	
13,000.00	10,207.00	10,075.00	10,068.87	47.70	22.38	71.00	175.00	0.09	2,278.77	2,233.31	45.46	50.126	
13,100.00	10,207.00	10,075.00	10,068.87	49.15	22.38	71.00	175.00	0.09	2,377.08	2,331.59	45.49	52.251	
13,200.00	10,207.00	10,075.00	10,068.87	50.60	22.38	71.00	175.00	0.09	2,475.52	2,429.99	45.53	54.373	
13,300.00	10,207.00	10,075.00	10,068.87	52.06	22.38	71.00	175.00	0.09	2,574.08	2,528.52	45.57	56.492	
13,400.00	10,207.00	10,075.00	10,068.87	53.54	22.38	71.00	175.00	0.09	2,672.75	2,627.15	45.60	58.608	
13,500.00	10,207.00	10,075.00	10,068.87	55.02	22.38	71.00	175.00	0.09	2,771.52	2,725.87	45.64	60.720	
13,600.00	10,207.00	10,075.00	10,068.87	56.52	22.38	71.00	175.00	0.09	2,870.37	2,824.68	45.69	62.827	
13,700.00	10,207.00	10,075.00	10,068.87	58.02	22.38	71.00	175.00	0.09	2,969.30	2,923.56	45.73	64.929	
13,800.00	10,207.00	10,075.00	10,068.87	59.52	22.38	71.00	175.00	0.09	3,068.29	3,022.52	45.78	67.026	
13,900.00	10,207.00	10,075.00	10,068.87	61.04	22.38	71.00	175.00	0.09	3,167.35	3,121.53	45.83	69.118	
14,000.00	10,207.00	10,075.00	10,068.87	62.56	22.38	71.00	175.00	0.09	3,266.47	3,220.59	45.87	71.204	
14,100.00	10,207.00	10,075.00	10,068.87	64.08	22.38	71.00	175.00	0.09	3,365.64	3,319.71	45.93	73.284	
14,200.00	10,207.00	10,075.00	10,068.87	65.61	22.38	71.00	175.00	0.09	3,464.86	3,418.88	45.98	75.357	
14,300.00	10,207.00	10,075.00	10,068.87	67.15	22.38	71.00	175.00	0.09	3,564.12	3,518.08	46.03	77.424	
14,400.00	10,207.00	10,075.00	10,068.87	68.69	22.38	71.00	175.00	0.09	3,663.42	3,617.33	46.09	79.484	
14,500.00	10,207.00	10,075.00	10,068.87	70.23	22.38	71.00	175.00	0.09	3,762.76	3,716.61	46.15	81.537	
14,600.00	10,207.00	10,075.00	10,068.87	71.78	22.38	71.00	175.00	0.09	3,862.13	3,815.92	46.21	83.583	
14,700.00	10,207.00	10,075.00	10,068.87	73.33	22.38	71.00	175.00	0.09	3,961.53	3,915.26	46.27	85.621	
14,800.00	10,207.00	10,075.00	10,068.87	74.89	22.38	71.00	175.00	0.09	4,060.96	4,014.63	46.33	87.652	
14,900.00	10,207.00	10,075.00	10,068.87	76.45	22.38	71.00	175.00	0.09	4,160.42	4,114.03	46.39	89.675	
15,000.00	10,207.00	10,075.00	10,068.87	78.01	22.38	71.00	175.00	0.09	4,259.91	4,213.45	46.46	91.690	
15,100.00	10,207.00	10,075.00	10,068.87	79.58	22.38	71.00	175.00	0.09	4,359.42	4,312.89	46.53	93.697	
15,200.00	10,207.00	10,075.00	10,068.87	81.14	22.38	71.00	175.00	0.09	4,458.95	4,412.36	46.60	95.695	
15,300.00	10,207.00	10,075.00	10,068.87	82.72	22.38	71.00	175.00	0.09	4,558.50	4,511.84	46.67	97.686	
15,344.98	10,207.00	10,075.00	10,068.87	83.42	22.38	71.00	175.00	0.09	4,603.28	4,556.58	46.70	98.578	
15,345.97	10,207.00	10,075.00	10,068.87	83.44	22.38	71.00	175.00	0.09	4,604.27	4,553.77	50.50	91.177	

LEAM Drilling Systems LLC

Anticollision Report

Company:	Devon Energy	**Local Co-ordinate Reference:**	Well 512H
Project:	Eddy County, NM (NAD-83)	**TVD Reference:**	3511.9' GE + 23.5' KB @ 3535.40usft (Original Well Elev)
Reference Site:	Cotton Draw Unit	**MD Reference:**	3511.9' GE + 23.5' KB @ 3535.40usft (Original Well Elev)
Site Error:	0.00 usft	**North Reference:**	Grid
Reference Well:	512H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000.1 Multi User Db
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Offset Design Cotton Draw Unit - 294H - OH - Plan #1 — **Offset Site Error:** 0.00 usft

Survey Program: 0-LEAM MWD+HDGM — **Offset Well Error:** 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	0.20	0.20	0.00	0.00	89.54	0.24	29.88	29.88				
100.00	100.00	100.20	100.20	0.09	0.09	89.54	0.24	29.88	29.88	29.71	0.17	173.328	
200.00	200.00	200.20	200.20	0.31	0.31	89.54	0.24	29.88	29.88	29.26	0.62	48.046	
300.00	300.00	300.20	300.20	0.54	0.54	89.54	0.24	29.88	29.88	28.81	1.07	27.888	
400.00	400.00	400.20	400.20	0.76	0.76	89.54	0.24	29.88	29.88	28.36	1.52	19.646	
500.00	500.00	500.20	500.20	0.99	0.99	89.54	0.24	29.88	29.88	27.91	1.97	15.164	
600.00	600.00	600.20	600.20	1.21	1.21	89.54	0.24	29.88	29.88	27.46	2.42	12.347	
700.00	700.00	700.20	700.20	1.43	1.44	89.54	0.24	29.88	29.88	27.01	2.87	10.413	
800.00	800.00	800.20	800.20	1.66	1.66	89.54	0.24	29.88	29.88	26.56	3.32	9.003	
900.00	900.00	900.20	900.20	1.88	1.88	89.54	0.24	29.88	29.88	26.11	3.77	7.929	
1,000.00	1,000.00	1,000.20	1,000.20	2.11	2.11	89.54	0.24	29.88	29.88	25.66	4.22	7.084	
1,100.00	1,100.00	1,100.20	1,100.20	2.33	2.33	89.54	0.24	29.88	29.88	25.21	4.67	6.402	
1,200.00	1,200.00	1,200.20	1,200.20	2.56	2.56	89.54	0.24	29.88	29.88	24.76	5.12	5.839	
1,300.00	1,300.00	1,300.20	1,300.20	2.78	2.78	89.54	0.24	29.88	29.88	24.31	5.57	5.368	
1,400.00	1,400.00	1,400.20	1,400.20	3.01	3.01	89.54	0.24	29.88	29.88	23.86	6.02	4.967	
1,500.00	1,500.00	1,500.20	1,500.20	3.23	3.23	89.54	0.24	29.88	29.88	23.42	6.47	4.621	
1,600.00	1,600.00	1,600.20	1,600.20	3.46	3.46	89.54	0.24	29.88	29.88	22.97	6.92	4.321	
1,700.00	1,700.00	1,700.20	1,700.20	3.68	3.68	89.54	0.24	29.88	29.88	22.52	7.36	4.057	
1,800.00	1,800.00	1,800.20	1,800.20	3.91	3.91	89.54	0.24	29.88	29.88	22.07	7.81	3.824	
1,900.00	1,900.00	1,900.20	1,900.20	4.13	4.13	89.54	0.24	29.88	29.88	21.62	8.26	3.616	
2,000.00	2,000.00	2,000.20	2,000.20	4.36	4.36	89.54	0.24	29.88	29.88	21.17	8.71	3.429	
2,100.00	2,100.00	2,100.20	2,100.20	4.58	4.58	89.54	0.24	29.88	29.88	20.72	9.16	3.261	
2,200.00	2,200.00	2,200.20	2,200.20	4.81	4.81	89.54	0.24	29.88	29.88	20.27	9.61	3.109	
2,300.00	2,300.00	2,300.20	2,300.20	5.03	5.03	89.54	0.24	29.88	29.88	19.82	10.06	2.970	
2,400.00	2,400.00	2,400.20	2,400.20	5.26	5.26	89.54	0.24	29.88	29.88	19.37	10.51	2.843	
2,500.00	2,500.00	2,500.20	2,500.20	5.48	5.48	89.54	0.24	29.88	29.88	18.92	10.96	2.726	CC, ES
2,600.00	2,599.99	2,600.19	2,600.19	5.68	5.71	-128.02	0.24	29.88	30.41	19.03	11.38	2.671	
2,700.00	2,699.96	2,700.16	2,700.16	5.85	5.93	-131.69	0.24	29.88	32.09	20.31	11.78	2.723	
2,800.00	2,799.86	2,800.06	2,800.06	6.03	6.15	-136.98	0.24	29.88	35.14	22.96	12.19	2.884	
2,900.00	2,899.68	2,899.88	2,899.88	6.22	6.38	-142.95	0.24	29.88	39.83	27.24	12.59	3.163	
3,000.00	2,999.37	2,999.57	2,999.57	6.41	6.60	-148.77	0.24	29.88	46.34	33.34	13.00	3.564	
3,095.91	3,094.84	3,095.93	3,095.92	6.59	6.80	-153.65	-0.24	29.23	53.60	40.22	13.37	4.008	
3,100.00	3,098.90	3,100.04	3,100.03	6.60	6.81	-153.84	-0.28	29.18	53.91	40.52	13.39	4.026	
3,200.00	3,198.36	3,200.73	3,200.69	6.80	6.99	-157.82	-1.84	27.05	60.79	47.04	13.76	4.419	
3,300.00	3,297.82	3,301.64	3,301.50	7.01	7.18	-160.94	-4.46	23.48	66.15	52.02	14.13	4.683	
3,400.00	3,397.28	3,402.72	3,402.39	7.22	7.37	-163.61	-8.14	18.48	69.91	55.42	14.50	4.823	
3,500.00	3,496.74	3,503.91	3,503.26	7.44	7.56	-166.09	-12.88	12.04	72.04	57.18	14.87	4.846	
3,600.00	3,596.20	3,605.13	3,604.01	7.66	7.76	-168.56	-18.67	4.16	72.54	57.30	15.24	4.760	
3,700.00	3,695.66	3,706.34	3,704.55	7.89	7.97	-171.19	-25.52	-5.15	71.43	55.81	15.61	4.574	
3,800.00	3,795.12	3,807.45	3,804.78	8.12	8.19	-174.20	-33.41	-15.88	68.73	52.74	15.99	4.298	
3,900.00	3,894.58	3,907.98	3,904.21	8.35	8.41	-177.79	-42.21	-27.85	64.67	48.29	16.39	3.947	
4,000.00	3,994.04	4,007.80	4,002.88	8.59	8.65	178.09	-51.13	-39.99	60.59	43.78	16.81	3.604	
4,100.00	4,093.50	4,107.61	4,101.55	8.83	8.88	173.40	-60.06	-52.13	56.87	39.62	17.25	3.297	
4,200.00	4,192.96	4,207.43	4,200.22	9.07	9.13	168.10	-68.98	-64.26	53.59	35.87	17.71	3.025	
4,300.00	4,292.42	4,307.24	4,298.90	9.31	9.38	162.17	-77.91	-76.40	50.81	32.61	18.20	2.792	
4,400.00	4,391.88	4,407.06	4,397.57	9.56	9.64	155.63	-86.83	-88.54	48.65	29.93	18.72	2.599	
4,500.00	4,491.34	4,506.87	4,496.24	9.80	9.90	148.59	-95.76	-100.67	47.17	27.90	19.27	2.448	
4,600.00	4,590.80	4,606.69	4,594.91	10.06	10.16	141.21	-104.68	-112.81	46.44	26.60	19.85	2.340	
4,641.85	4,632.42	4,648.46	4,636.20	10.16	10.27	138.08	-108.42	-117.89	46.37	26.28	20.10	2.307	
4,700.00	4,690.26	4,706.50	4,693.58	10.31	10.43	133.73	-113.61	-124.95	46.51	26.06	20.45	2.274	
4,800.00	4,789.72	4,806.32	4,792.25	10.56	10.70	126.39	-122.53	-137.09	47.36	26.30	21.06	2.249	SF

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

LEAM Drilling Systems LLC

Anticollision Report

Company:	Devon Energy	**Local Co-ordinate Reference:**	Well 512H
Project:	Eddy County, NM (NAD-83)	**TVD Reference:**	3511.9' GE + 23.5' KB @ 3535.40usft (Original Well Elev)
Reference Site:	Cotton Draw Unit	**MD Reference:**	3511.9' GE + 23.5' KB @ 3535.40usft (Original Well Elev)
Site Error:	0.00 usft	**North Reference:**	Grid
Reference Well:	512H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	*0.00 usft*	***Output errors are at***	*2.00 sigma*
Reference Wellbore	OH	**Database:**	EDM 5000.1 Multi User Db
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Offset Design Cotton Draw Unit - 294H - OH - Plan #1 — **Offset Site Error:** 0.00 usft

Survey Program: 0-LEAM MWD+HDGM — **Offset Well Error:** 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
4,900.00	4,889.18	4,906.14	4,890.93	10.82	10.98	119.42	-131.46	-149.22	48.96	27.29	21.66	2.260	
5,000.00	4,988.64	5,005.95	4,989.60	11.07	11.26	112.98	-140.38	-161.36	51.23	28.97	22.26	2.302	
5,100.00	5,088.10	5,105.77	5,088.27	11.33	11.54	107.15	-149.31	-173.50	54.09	31.26	22.83	2.369	
5,200.00	5,187.56	5,205.58	5,186.94	11.59	11.83	101.95	-158.23	-185.64	57.45	34.07	23.39	2.457	
5,300.00	5,287.02	5,305.40	5,285.61	11.85	12.12	97.36	-167.16	-197.77	61.24	37.31	23.93	2.559	
5,400.00	5,386.48	5,405.21	5,384.28	12.11	12.41	93.32	-176.08	-209.91	65.37	40.91	24.45	2.673	
5,500.00	5,485.94	5,505.03	5,482.96	12.37	12.70	89.78	-185.01	-222.05	69.78	44.81	24.97	2.795	
5,600.00	5,585.39	5,604.84	5,581.63	12.64	13.00	86.67	-193.93	-234.19	74.43	48.95	25.48	2.921	
5,700.00	5,684.85	5,704.66	5,680.30	12.90	13.30	83.93	-202.86	-246.32	79.27	53.29	25.99	3.050	
5,800.00	5,784.31	5,804.47	5,778.97	13.17	13.60	81.51	-211.78	-258.46	84.28	57.79	26.49	3.181	
5,900.00	5,883.77	5,904.29	5,877.64	13.43	13.90	79.37	-220.71	-270.60	89.41	62.42	26.99	3.312	
6,000.00	5,983.23	6,004.10	5,976.32	13.70	14.20	77.46	-229.63	-282.73	94.66	67.16	27.50	3.443	
6,100.00	6,082.69	6,103.92	6,074.99	13.97	14.51	75.75	-238.55	-294.87	100.00	72.00	28.00	3.572	
6,200.00	6,182.15	6,203.73	6,173.66	14.23	14.81	74.22	-247.48	-307.01	105.42	76.92	28.50	3.699	
6,300.00	6,281.61	6,303.55	6,272.33	14.50	15.12	72.83	-256.40	-319.15	110.91	81.91	29.00	3.824	
6,400.00	6,381.07	6,403.36	6,371.00	14.77	15.43	71.58	-265.33	-331.28	116.46	86.95	29.51	3.947	
6,500.00	6,480.53	6,503.18	6,469.67	15.04	15.74	70.45	-274.25	-343.42	122.06	92.05	30.01	4.067	
6,600.00	6,579.99	6,602.99	6,568.35	15.31	16.05	69.41	-283.18	-355.56	127.70	97.18	30.51	4.185	
6,700.00	6,679.45	6,702.81	6,667.02	15.58	16.36	68.46	-292.10	-367.70	133.38	102.36	31.02	4.300	
6,800.00	6,778.91	6,802.62	6,765.69	15.85	16.67	67.59	-301.03	-379.83	139.09	107.56	31.53	4.411	
6,900.00	6,878.37	6,902.44	6,864.36	16.13	16.99	66.79	-309.95	-391.97	144.83	112.79	32.04	4.521	
7,000.00	6,977.83	7,002.26	6,963.03	16.40	17.30	66.04	-318.88	-404.11	150.60	118.05	32.55	4.627	
7,100.00	7,077.29	7,102.07	7,061.70	16.67	17.62	65.36	-327.80	-416.25	156.39	123.34	33.06	4.731	
7,200.00	7,176.75	7,201.89	7,160.38	16.94	17.93	64.72	-336.73	-428.38	162.21	128.64	33.57	4.832	
7,300.00	7,276.21	7,301.70	7,259.05	17.22	18.25	64.13	-345.65	-440.52	168.04	133.95	34.08	4.930	
7,400.00	7,375.67	7,401.52	7,357.72	17.49	18.57	63.57	-354.58	-452.66	173.89	139.29	34.60	5.026	
7,500.00	7,475.13	7,501.33	7,456.39	17.76	18.88	63.06	-363.50	-464.80	179.75	144.64	35.11	5.119	
7,600.00	7,574.59	7,601.15	7,555.06	18.04	19.20	62.57	-372.43	-476.93	185.63	150.00	35.63	5.210	
7,700.00	7,674.05	7,700.96	7,653.73	18.31	19.52	62.12	-381.35	-489.07	191.52	155.37	36.14	5.299	
7,800.00	7,773.51	7,800.78	7,752.41	18.59	19.84	61.69	-390.28	-501.21	197.42	160.76	36.66	5.385	
7,900.00	7,872.97	7,900.59	7,851.08	18.86	20.16	61.29	-399.20	-513.34	203.33	166.15	37.18	5.469	
8,000.00	7,972.43	8,000.41	7,949.75	19.14	20.49	60.91	-408.13	-525.48	209.25	171.55	37.70	5.551	
8,100.00	8,071.89	8,100.22	8,048.42	19.41	20.81	60.55	-417.05	-537.62	215.18	176.96	38.22	5.630	
8,200.00	8,171.35	8,200.04	8,147.09	19.69	21.13	60.21	-425.97	-549.76	221.11	182.38	38.74	5.708	
8,300.00	8,270.80	8,299.85	8,245.77	19.97	21.45	59.88	-434.90	-561.89	227.06	187.80	39.26	5.784	
8,400.00	8,370.26	8,399.67	8,344.44	20.24	21.78	59.58	-443.82	-574.03	233.01	193.23	39.78	5.857	
8,500.00	8,469.72	8,499.48	8,443.11	20.52	22.10	59.29	-452.75	-586.17	238.97	198.67	40.30	5.929	
8,600.00	8,569.18	8,599.30	8,541.78	20.80	22.42	59.01	-461.67	-598.31	244.93	204.11	40.83	5.999	
8,700.00	8,668.64	8,699.11	8,640.45	21.07	22.75	58.75	-470.60	-610.44	250.90	209.55	41.35	6.068	
8,800.00	8,768.10	8,798.93	8,739.12	21.35	23.07	58.50	-479.52	-622.58	256.87	215.00	41.87	6.135	
8,900.00	8,867.56	8,898.74	8,837.80	21.63	23.40	58.26	-488.45	-634.72	262.85	220.46	42.40	6.200	
9,000.00	8,967.02	8,998.56	8,936.47	21.91	23.72	58.03	-497.37	-646.86	268.84	225.91	42.92	6.263	
9,068.05	9,034.70	9,066.48	9,003.61	22.09	23.95	57.88	-503.45	-655.11	272.91	229.63	43.28	6.306	
9,100.00	9,066.49	9,098.37	9,035.14	22.17	24.05	57.81	-506.30	-658.99	274.87	231.43	43.44	6.328	
9,200.00	9,166.09	9,200.01	9,135.65	22.38	24.36	57.43	-515.26	-671.17	281.46	237.58	43.88	6.414	
9,300.00	9,265.83	9,303.74	9,238.45	22.59	24.61	56.97	-523.44	-682.31	287.82	243.53	44.28	6.500	
9,400.00	9,365.67	9,407.61	9,341.62	22.78	24.85	56.45	-530.54	-691.96	293.75	249.09	44.66	6.578	
9,500.00	9,465.60	9,511.61	9,445.13	22.97	25.08	55.90	-536.53	-700.11	299.26	254.25	45.01	6.649	
9,600.00	9,565.58	9,615.74	9,548.93	23.14	25.30	55.29	-541.41	-706.75	304.37	259.03	45.34	6.714	
9,663.96	9,629.54	9,682.41	9,615.46	23.26	25.43	-88.87	-543.95	-710.20	307.42	261.88	45.54	6.751	

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

LEAM Drilling Systems LLC

Anticollision Report

Company:	Devon Energy	**Local Co-ordinate Reference:**	Well 512H
Project:	Eddy County, NM (NAD-83)	**TVD Reference:**	3511.9' GE + 23.5' KB @ 3535.40usft (Original Well Elev)
Reference Site:	Cotton Draw Unit	**MD Reference:**	3511.9' GE + 23.5' KB @ 3535.40usft (Original Well Elev)
Site Error:	0.00 usft	**North Reference:**	Grid
Reference Well:	512H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000.1 Multi User Db
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Offset Design Cotton Draw Unit - 294H - OH - Plan #1 — **Offset Site Error:** 0.00 usft

Survey Program: 0-LEAM MWD+HDGM — **Offset Well Error:** 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
9,700.00	9,665.58	9,720.00	9,653.00	23.32	25.50	-89.11	-545.18	-711.87	309.00	263.35	45.65	6.768	
9,763.96	9,729.54	9,786.78	9,719.70	23.43	25.63	-89.45	-547.00	-714.35	311.36	265.50	45.85	6.790	
9,775.00	9,740.58	9,798.31	9,731.22	23.45	25.65	-89.48	-547.27	-714.72	311.70	265.82	45.89	6.793	
9,800.00	9,765.55	9,824.37	9,757.27	23.49	25.69	-89.73	-547.83	-715.47	312.42	266.48	45.94	6.801	
9,825.00	9,790.41	9,850.33	9,783.21	23.52	25.74	-90.23	-548.31	-716.13	313.06	267.10	45.96	6.812	
9,850.00	9,815.12	9,876.10	9,808.98	23.55	25.78	-90.95	-548.72	-716.69	313.65	267.71	45.94	6.827	
9,875.00	9,839.58	9,901.65	9,834.52	23.57	25.83	-91.89	-549.06	-717.15	314.25	268.35	45.90	6.846	
9,900.00	9,863.75	9,926.90	9,859.76	23.59	25.87	-93.03	-549.33	-717.52	314.93	269.09	45.83	6.871	
9,925.00	9,887.54	9,951.79	9,884.65	23.59	25.91	-94.35	-549.54	-717.79	315.75	270.01	45.74	6.904	
9,950.00	9,910.91	9,976.26	9,909.12	23.60	25.95	-95.81	-549.67	-717.98	316.81	271.19	45.61	6.945	
9,975.00	9,933.78	10,000.26	9,933.12	23.60	25.99	-97.40	-549.74	-718.08	318.20	272.73	45.47	6.998	
10,000.00	9,956.08	10,023.42	9,956.28	23.59	26.03	-99.04	-549.76	-718.10	320.03	274.72	45.31	7.062	
10,025.00	9,977.77	10,045.11	9,977.97	23.58	26.06	-100.65	-549.76	-718.10	322.48	277.33	45.15	7.142	
10,050.00	9,998.78	10,066.11	9,998.98	23.56	26.10	-102.27	-549.76	-718.10	325.66	280.68	44.98	7.240	
10,075.00	10,019.04	10,086.38	10,019.24	23.55	26.13	-103.84	-549.76	-718.10	329.69	284.88	44.81	7.357	
10,100.00	10,038.52	10,105.86	10,038.72	23.52	26.16	-105.33	-549.76	-718.10	334.66	290.01	44.65	7.495	
10,125.00	10,057.15	10,127.03	10,059.89	23.50	26.20	-106.98	-549.67	-718.10	340.64	296.14	44.50	7.655	
10,150.00	10,074.87	10,153.12	10,085.94	23.47	26.24	-109.06	-548.45	-718.10	347.38	303.04	44.33	7.836	
10,175.00	10,091.66	10,180.66	10,113.33	23.44	26.27	-111.14	-545.61	-718.10	354.75	310.59	44.16	8.034	
10,200.00	10,107.45	10,209.88	10,142.17	23.40	26.30	-113.24	-540.89	-718.10	362.68	318.71	43.96	8.249	
10,225.00	10,122.20	10,241.06	10,172.55	23.37	26.32	-115.35	-533.91	-718.10	371.07	327.34	43.73	8.486	
10,250.00	10,135.88	10,274.53	10,204.59	23.33	26.34	-117.48	-524.23	-718.10	379.82	336.39	43.43	8.745	
10,275.00	10,148.45	10,310.67	10,238.32	23.29	26.34	-119.65	-511.28	-718.10	388.81	345.76	43.04	9.033	
10,300.00	10,159.86	10,349.93	10,273.74	23.26	26.34	-121.84	-494.38	-718.10	397.89	355.35	42.54	9.353	
10,325.00	10,170.10	10,392.81	10,310.69	23.22	26.32	-124.05	-472.66	-718.10	406.91	365.01	41.90	9.711	
10,350.00	10,179.13	10,439.83	10,348.80	23.18	26.28	-126.25	-445.14	-718.10	415.67	374.57	41.10	10.113	
10,375.00	10,186.93	10,491.53	10,387.34	23.14	26.22	-128.39	-410.73	-718.10	423.96	383.81	40.15	10.559	
10,400.00	10,193.47	10,548.34	10,425.14	23.10	26.14	-130.41	-368.35	-718.10	431.54	392.46	39.07	11.044	
10,425.00	10,198.74	10,610.49	10,460.39	23.07	26.04	-132.23	-317.23	-718.10	438.12	400.17	37.95	11.545	
10,450.00	10,202.73	10,677.81	10,490.75	23.03	25.91	-133.74	-257.20	-718.10	443.44	406.51	36.93	12.009	
10,475.00	10,205.42	10,749.59	10,513.48	23.00	25.77	-134.84	-189.18	-718.10	447.21	411.01	36.21	12.352	
10,500.00	10,206.80	10,824.47	10,526.05	22.97	25.64	-135.44	-115.44	-718.10	449.24	413.25	35.99	12.483	
10,513.96	10,207.01	10,866.95	10,528.00	22.95	25.57	-135.53	-73.03	-718.10	449.55	413.42	36.13	12.442	
10,600.00	10,207.00	10,953.48	10,528.00	22.88	25.45	-135.53	13.51	-718.10	449.55	413.29	36.26	12.398	
10,700.00	10,207.00	11,053.48	10,528.00	22.97	25.39	-135.53	113.51	-718.10	449.55	412.99	36.55	12.298	
10,800.00	10,207.00	11,153.48	10,528.00	23.31	25.43	-135.53	213.51	-718.10	449.55	412.53	37.02	12.144	
10,900.00	10,207.00	11,253.48	10,528.00	23.80	25.66	-135.53	313.51	-718.10	449.55	411.90	37.65	11.942	
11,000.00	10,207.00	11,353.48	10,528.00	24.41	26.07	-135.53	413.51	-718.10	449.55	411.12	38.43	11.699	
11,100.00	10,207.00	11,453.48	10,528.00	25.10	26.64	-135.53	513.51	-718.10	449.55	410.19	39.36	11.423	
11,200.00	10,207.00	11,553.48	10,528.00	25.87	27.33	-135.53	613.51	-718.10	449.55	409.13	40.42	11.122	
11,300.00	10,207.00	11,653.48	10,528.00	26.71	28.10	-135.53	713.51	-718.10	449.55	407.94	41.61	10.804	
11,400.00	10,207.00	11,753.48	10,528.00	27.63	28.95	-135.53	813.51	-718.10	449.55	406.63	42.91	10.476	
11,500.00	10,207.00	11,853.48	10,528.00	28.60	29.86	-135.53	913.51	-718.10	449.55	405.22	44.32	10.142	
11,600.00	10,207.00	11,953.48	10,528.00	29.64	30.84	-135.53	1,013.51	-718.10	449.55	403.72	45.83	9.809	
11,700.00	10,207.00	12,053.48	10,528.00	30.72	31.86	-135.53	1,113.51	-718.10	449.55	402.13	47.42	9.480	
11,800.00	10,207.00	12,153.48	10,528.00	31.85	32.94	-135.53	1,213.51	-718.10	449.55	400.46	49.09	9.158	
11,900.00	10,207.00	12,253.48	10,528.00	33.02	34.06	-135.53	1,313.51	-718.10	449.55	398.72	50.83	8.844	
12,000.00	10,207.00	12,353.48	10,528.00	34.22	35.21	-135.53	1,413.51	-718.10	449.55	396.92	52.63	8.541	
12,100.00	10,207.00	12,453.48	10,528.00	35.46	36.40	-135.53	1,513.51	-718.10	449.55	395.06	54.49	8.250	
12,200.00	10,207.00	12,553.48	10,528.00	36.74	37.63	-135.53	1,613.51	-718.10	449.55	393.14	56.40	7.970	
12,300.00	10,207.00	12,653.48	10,528.00	38.03	38.88	-135.53	1,713.51	-718.10	449.55	391.19	58.36	7.703	

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

LEAM Drilling Systems LLC

Anticollision Report

Company:	Devon Energy	**Local Co-ordinate Reference:**	Well 512H
Project:	Eddy County, NM (NAD-83)	**TVD Reference:**	3511.9' GE + 23.5' KB @ 3535.40usft (Original Well Elev)
Reference Site:	Cotton Draw Unit	**MD Reference:**	3511.9' GE + 23.5' KB @ 3535.40usft (Original Well Elev)
Site Error:	0.00 usft	**North Reference:**	Grid
Reference Well:	512H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000.1 Multi User Db
Reference Design:	*Plan #1*	***Offset TVD Reference:***	*Offset Datum*

Offset Design Cotton Draw Unit - 294H - OH - Plan #1 — **Offset Site Error:** 0.00 usft

Survey Program: 0-LEAM MWD+HDGM — **Offset Well Error:** 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
12,400.00	10,207.00	12,753.48	10,528.00	39.36	40.16	-135.53	1,813.51	-718.10	449.55	389.19	60.36	7.448	
12,500.00	10,207.00	12,853.48	10,528.00	40.70	41.47	-135.53	1,913.51	-718.10	449.55	387.15	62.40	7.205	
12,600.00	10,207.00	12,953.48	10,528.00	42.07	42.80	-135.53	2,013.51	-718.10	449.55	385.08	64.47	6.973	
12,700.00	10,207.00	13,053.48	10,528.00	43.45	44.14	-135.53	2,113.51	-718.10	449.55	382.98	66.57	6.753	
12,800.00	10,207.00	13,153.48	10,528.00	44.86	45.51	-135.53	2,213.51	-718.10	449.55	380.85	68.70	6.543	
12,900.00	10,207.00	13,253.48	10,528.00	46.27	46.89	-135.53	2,313.51	-718.10	449.55	378.69	70.86	6.344	
13,000.00	10,207.00	13,353.48	10,528.00	47.70	48.29	-135.53	2,413.51	-718.10	449.55	376.51	73.04	6.155	
13,100.00	10,207.00	13,453.48	10,528.00	49.15	49.70	-135.53	2,513.51	-718.10	449.55	374.31	75.24	5.975	
13,200.00	10,207.00	13,553.48	10,528.00	50.60	51.13	-135.53	2,613.51	-718.10	449.55	372.09	77.46	5.804	
13,300.00	10,207.00	13,653.48	10,528.00	52.06	52.56	-135.53	2,713.51	-718.10	449.55	369.85	79.70	5.641	
13,400.00	10,207.00	13,753.48	10,528.00	53.54	54.01	-135.53	2,813.51	-718.10	449.55	367.60	81.95	5.485	
13,500.00	10,207.00	13,853.48	10,528.00	55.02	55.47	-135.53	2,913.51	-718.10	449.55	365.33	84.22	5.338	
13,600.00	10,207.00	13,953.48	10,528.00	56.52	56.94	-135.53	3,013.51	-718.10	449.55	363.04	86.51	5.197	
13,700.00	10,207.00	14,053.48	10,528.00	58.02	58.42	-135.53	3,113.51	-718.10	449.55	360.75	88.80	5.062	
13,800.00	10,207.00	14,153.48	10,528.00	59.52	59.90	-135.53	3,213.51	-718.10	449.55	358.44	91.11	4.934	
13,900.00	10,207.00	14,253.48	10,528.00	61.04	61.39	-135.53	3,313.51	-718.10	449.55	356.12	93.43	4.812	
14,000.00	10,207.00	14,353.48	10,528.00	62.56	62.89	-135.53	3,413.51	-718.10	449.55	353.79	95.76	4.695	
14,100.00	10,207.00	14,453.48	10,528.00	64.08	64.40	-135.53	3,513.51	-718.10	449.55	351.45	98.10	4.583	
14,200.00	10,207.00	14,553.48	10,528.00	65.61	65.91	-135.53	3,613.51	-718.10	449.55	349.10	100.45	4.475	
14,300.00	10,207.00	14,653.48	10,528.00	67.15	67.43	-135.53	3,713.51	-718.10	449.55	346.75	102.80	4.373	
14,400.00	10,207.00	14,753.48	10,528.00	68.69	68.95	-135.53	3,813.51	-718.10	449.55	344.38	105.17	4.275	
14,500.00	10,207.00	14,853.48	10,528.00	70.23	70.48	-135.53	3,913.51	-718.10	449.55	342.01	107.54	4.180	
14,600.00	10,207.00	14,953.48	10,528.00	71.78	72.01	-135.53	4,013.51	-718.10	449.55	339.63	109.91	4.090	
14,700.00	10,207.00	15,053.48	10,528.00	73.33	73.55	-135.53	4,113.51	-718.10	449.55	337.25	112.30	4.003	
14,800.00	10,207.00	15,153.48	10,528.00	74.89	75.09	-135.53	4,213.51	-718.10	449.55	334.86	114.69	3.920	
14,900.00	10,207.00	15,253.48	10,528.00	76.45	76.64	-135.53	4,313.51	-718.10	449.55	332.47	117.08	3.840	
15,000.00	10,207.00	15,353.48	10,528.00	78.01	78.18	-135.53	4,413.51	-718.10	449.55	330.07	119.48	3.762	
15,100.00	10,207.00	15,453.48	10,528.00	79.58	79.74	-135.53	4,513.51	-718.10	449.55	327.66	121.89	3.688	
15,200.00	10,207.00	15,553.48	10,528.00	81.14	81.29	-135.53	4,613.51	-718.10	449.55	325.25	124.30	3.617	
15,300.00	10,207.00	15,653.48	10,528.00	82.72	82.67	-135.53	4,713.51	-718.10	449.55	323.02	126.53	3.553	
15,343.08	10,207.00	15,696.56	10,528.00	83.39	83.21	-135.53	4,756.59	-718.10	449.55	322.12	127.43	3.528	
15,344.98	10,207.00	15,696.80	10,528.00	83.42	83.21	-135.53	4,756.82	-718.10	449.55	322.07	127.48	3.526	
15,345.97	10,207.00	15,696.80	10,528.00	83.44	83.21	-135.53	4,756.82	-718.10	449.56	322.04	127.51	3.526	

LEAM Drilling Systems LLC

Anticollision Report

Company:	Devon Energy	**Local Co-ordinate Reference:**	Well 512H
Project:	Eddy County, NM (NAD-83)	**TVD Reference:**	3511.9' GE + 23.5' KB @ 3535.40usft (Original Well Elev)
Reference Site:	Cotton Draw Unit	**MD Reference:**	3511.9' GE + 23.5' KB @ 3535.40usft (Original Well Elev)
Site Error:	0.00 usft	**North Reference:**	Grid
Reference Well:	512H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000.1 Multi User Db
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Offset Design Cotton Draw Unit - 511H - OH - Plan #1 — **Offset Site Error:** 0.00 usft

Survey Program: 0-LEAM MWD+HDGM — **Offset Well Error:** 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	0.00	0.00	0.00	0.00	-90.34	-0.18	-29.99	29.99				
100.00	100.00	99.90	99.90	0.09	0.09	-90.34	-0.18	-29.99	29.99	29.82	0.17	174.505	
200.00	200.00	199.90	199.90	0.31	0.31	-90.34	-0.18	-29.99	29.99	29.37	0.62	48.274	
300.00	300.00	299.90	299.90	0.54	0.54	-90.34	-0.18	-29.99	29.99	28.92	1.07	28.008	
400.00	400.00	399.90	399.90	0.76	0.76	-90.34	-0.18	-29.99	29.99	28.47	1.52	19.726	
500.00	500.00	499.90	499.90	0.99	0.98	-90.34	-0.18	-29.99	29.99	28.02	1.97	15.225	
600.00	600.00	599.90	599.90	1.21	1.21	-90.34	-0.18	-29.99	29.99	27.57	2.42	12.396	
700.00	700.00	699.90	699.90	1.43	1.43	-90.34	-0.18	-29.99	29.99	27.12	2.87	10.454	
800.00	800.00	799.90	799.90	1.66	1.66	-90.34	-0.18	-29.99	29.99	26.67	3.32	9.038	
900.00	900.00	899.90	899.90	1.88	1.88	-90.34	-0.18	-29.99	29.99	26.22	3.77	7.959	
1,000.00	1,000.00	999.90	999.90	2.11	2.11	-90.34	-0.18	-29.99	29.99	25.77	4.22	7.111	
1,100.00	1,100.00	1,099.90	1,099.90	2.33	2.33	-90.34	-0.18	-29.99	29.99	25.32	4.67	6.426	
1,200.00	1,200.00	1,199.90	1,199.90	2.56	2.56	-90.34	-0.18	-29.99	29.99	24.87	5.12	5.861	
1,300.00	1,300.00	1,299.90	1,299.90	2.78	2.78	-90.34	-0.18	-29.99	29.99	24.42	5.57	5.388	
1,400.00	1,400.00	1,399.90	1,399.90	3.01	3.01	-90.34	-0.18	-29.99	29.99	23.97	6.02	4.985	
1,500.00	1,500.00	1,499.90	1,499.90	3.23	3.23	-90.34	-0.18	-29.99	29.99	23.53	6.47	4.639	
1,600.00	1,600.00	1,599.90	1,599.90	3.46	3.46	-90.34	-0.18	-29.99	29.99	23.08	6.91	4.337	
1,700.00	1,700.00	1,699.90	1,699.90	3.68	3.68	-90.34	-0.18	-29.99	29.99	22.63	7.36	4.072	
1,800.00	1,800.00	1,799.90	1,799.90	3.91	3.91	-90.34	-0.18	-29.99	29.99	22.18	7.81	3.838	
1,900.00	1,900.00	1,899.90	1,899.90	4.13	4.13	-90.34	-0.18	-29.99	29.99	21.73	8.26	3.629	
2,000.00	2,000.00	1,999.90	1,999.90	4.36	4.36	-90.34	-0.18	-29.99	29.99	21.28	8.71	3.442	
2,100.00	2,100.00	2,099.90	2,099.90	4.58	4.58	-90.34	-0.18	-29.99	29.99	20.83	9.16	3.273	
2,200.00	2,200.00	2,199.90	2,199.90	4.81	4.81	-90.34	-0.18	-29.99	29.99	20.38	9.61	3.120	
2,300.00	2,300.00	2,299.90	2,299.90	5.03	5.03	-90.34	-0.18	-29.99	29.99	19.93	10.06	2.981	
2,400.00	2,400.00	2,399.90	2,399.90	5.26	5.26	-90.34	-0.18	-29.99	29.99	19.48	10.51	2.853	
2,500.00	2,500.00	2,499.90	2,499.90	5.48	5.48	-90.34	-0.18	-29.99	29.99	19.03	10.96	2.736 CC	
2,600.00	2,599.99	2,599.43	2,599.43	5.68	5.70	55.54	0.24	-30.74	30.25	18.87	11.37	2.659	
2,700.00	2,699.96	2,698.89	2,698.85	5.85	5.91	61.67	1.51	-33.00	31.25	19.50	11.75	2.659	
2,800.00	2,799.86	2,798.19	2,798.05	6.03	6.12	70.85	3.61	-36.76	33.66	21.53	12.13	2.774	
2,900.00	2,899.68	2,897.89	2,897.62	6.22	6.34	81.36	6.17	-41.31	37.42	24.89	12.53	2.987	
3,000.00	2,999.37	2,997.49	2,997.09	6.41	6.55	92.07	8.71	-45.85	42.22	29.29	12.93	3.265	
3,095.91	3,094.84	3,092.89	3,092.35	6.59	6.76	101.96	11.16	-50.21	48.25	34.92	13.33	3.620	
3,100.00	3,098.90	3,096.96	3,096.41	6.60	6.77	102.37	11.26	-50.39	48.55	35.20	13.35	3.637	
3,200.00	3,198.36	3,196.35	3,195.67	6.80	6.99	110.91	13.80	-54.93	56.36	42.59	13.77	4.093	
3,300.00	3,297.82	3,295.73	3,294.92	7.01	7.21	117.29	16.35	-59.46	65.11	50.91	14.19	4.587	
3,400.00	3,397.28	3,395.12	3,394.17	7.22	7.43	122.11	18.89	-64.00	74.47	59.84	14.62	5.092	
3,500.00	3,496.74	3,494.51	3,493.42	7.44	7.65	125.84	21.43	-68.53	84.23	69.18	15.05	5.595	
3,600.00	3,596.20	3,593.90	3,592.68	7.66	7.88	128.79	23.98	-73.07	94.28	78.79	15.49	6.087	
3,700.00	3,695.66	3,693.29	3,691.93	7.89	8.10	131.16	26.52	-77.61	104.53	88.60	15.92	6.564	
3,800.00	3,795.12	3,792.68	3,791.18	8.12	8.32	133.11	29.06	-82.14	114.92	98.56	16.36	7.023	
3,900.00	3,894.58	3,892.07	3,890.44	8.35	8.55	134.74	31.61	-86.68	125.42	108.62	16.80	7.464	
4,000.00	3,994.04	3,991.46	3,989.69	8.59	8.78	136.11	34.15	-91.21	136.01	118.76	17.25	7.887	
4,100.00	4,093.50	4,090.85	4,088.94	8.83	9.00	137.29	36.69	-95.75	146.66	128.97	17.69	8.291	
4,200.00	4,192.96	4,190.24	4,188.20	9.07	9.23	138.30	39.23	-100.28	157.37	139.23	18.14	8.677	
4,300.00	4,292.42	4,289.63	4,287.45	9.31	9.46	139.19	41.78	-104.82	168.11	149.53	18.58	9.046	
4,400.00	4,391.88	4,389.02	4,386.70	9.56	9.69	139.97	44.32	-109.36	178.90	159.86	19.03	9.399	
4,500.00	4,491.34	4,488.41	4,485.96	9.80	9.91	140.66	46.86	-113.89	189.71	170.22	19.49	9.736	
4,600.00	4,590.80	4,587.79	4,585.21	10.06	10.14	141.27	49.41	-118.43	200.55	180.61	19.94	10.058	
4,700.00	4,690.26	4,687.18	4,684.46	10.31	10.37	141.83	51.95	-122.96	211.40	191.01	20.39	10.366	
4,800.00	4,789.72	4,786.57	4,783.72	10.56	10.60	142.32	54.49	-127.50	222.28	201.43	20.85	10.662	
4,900.00	4,889.18	4,885.96	4,882.97	10.82	10.83	142.78	57.04	-132.03	233.17	211.86	21.31	10.944	

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

LEAM Drilling Systems LLC

Anticollision Report

Company:	Devon Energy	**Local Co-ordinate Reference:**	Well 512H
Project:	Eddy County, NM (NAD-83)	**TVD Reference:**	3511.9' GE + 23.5' KB @ 3535.40usft (Original Well Elev)
Reference Site:	Cotton Draw Unit	**MD Reference:**	3511.9' GE + 23.5' KB @ 3535.40usft (Original Well Elev)
Site Error:	0.00 usft	**North Reference:**	Grid
Reference Well:	512H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	*0.00 usft*	***Output errors are at***	*2.00 sigma*
Reference Wellbore	OH	**Database:**	EDM 5000.1 Multi User Db
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Offset Design Cotton Draw Unit - 511H - OH - Plan #1 — **Offset Site Error:** 0.00 usft

Survey Program: 0-LEAM MWD+HDGM — **Offset Well Error:** 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
5,000.00	4,988.64	4,985.35	4,982.22	11.07	11.06	143.19	59.58	-136.57	244.07	222.31	21.76	11.215	
5,100.00	5,088.10	5,084.74	5,081.47	11.33	11.29	143.57	62.12	-141.10	254.98	232.76	22.22	11.474	
5,200.00	5,187.56	5,184.13	5,180.73	11.59	11.53	143.91	64.67	-145.64	265.91	243.23	22.68	11.723	
5,300.00	5,287.02	5,283.52	5,279.98	11.85	11.76	144.23	67.21	-150.18	276.84	253.70	23.14	11.962	
5,400.00	5,386.48	5,382.91	5,379.23	12.11	11.99	144.52	69.75	-154.71	287.78	264.18	23.60	12.192	
5,500.00	5,485.94	5,482.30	5,478.49	12.37	12.22	144.80	72.30	-159.25	298.73	274.66	24.07	12.413	
5,600.00	5,585.39	5,581.69	5,577.74	12.64	12.45	145.05	74.84	-163.78	309.68	285.15	24.53	12.625	
5,700.00	5,684.85	5,681.08	5,676.99	12.90	12.69	145.29	77.38	-168.32	320.64	295.65	24.99	12.829	
5,800.00	5,784.31	5,780.47	5,776.25	13.17	12.92	145.51	79.93	-172.85	331.61	306.15	25.46	13.025	
5,900.00	5,883.77	5,879.85	5,875.50	13.43	13.15	145.71	82.47	-177.39	342.58	316.65	25.92	13.214	
6,000.00	5,983.23	5,979.24	5,974.75	13.70	13.38	145.91	85.01	-181.93	353.55	327.16	26.39	13.397	
6,100.00	6,082.69	6,078.63	6,074.01	13.97	13.62	146.09	87.56	-186.46	364.53	337.67	26.86	13.573	
6,200.00	6,182.15	6,178.02	6,173.26	14.23	13.85	146.26	90.10	-191.00	375.51	348.18	27.32	13.742	
6,300.00	6,281.61	6,277.41	6,272.51	14.50	14.08	146.42	92.64	-195.53	386.49	358.70	27.79	13.906	
6,400.00	6,381.07	6,376.80	6,371.77	14.77	14.32	146.57	95.19	-200.07	397.48	369.22	28.26	14.065	
6,500.00	6,480.53	6,476.19	6,471.02	15.04	14.55	146.72	97.73	-204.60	408.47	379.74	28.73	14.217	
6,600.00	6,579.99	6,575.58	6,570.27	15.31	14.78	146.85	100.27	-209.14	419.46	390.26	29.20	14.365	
6,700.00	6,679.45	6,674.97	6,669.52	15.58	15.02	146.98	102.82	-213.68	430.45	400.78	29.67	14.508	
6,800.00	6,778.91	6,774.36	6,768.78	15.85	15.25	147.11	105.36	-218.21	441.45	411.31	30.14	14.647	
6,900.00	6,878.37	6,873.75	6,868.03	16.13	15.49	147.22	107.90	-222.75	452.45	421.84	30.61	14.781	
7,000.00	6,977.83	6,973.14	6,967.28	16.40	15.72	147.34	110.45	-227.28	463.45	432.36	31.08	14.911	
7,100.00	7,077.29	7,072.53	7,066.54	16.67	15.95	147.44	112.99	-231.82	474.45	442.89	31.55	15.037	
7,200.00	7,176.75	7,171.92	7,165.79	16.94	16.19	147.55	115.53	-236.35	485.45	453.43	32.02	15.159	
7,300.00	7,276.21	7,271.30	7,265.04	17.22	16.42	147.64	118.08	-240.89	496.45	463.96	32.50	15.277	
7,400.00	7,375.67	7,370.69	7,364.30	17.49	16.66	147.74	120.62	-245.43	507.46	474.49	32.97	15.392	
7,500.00	7,475.13	7,470.08	7,463.55	17.76	16.89	147.82	123.16	-249.96	518.47	485.02	33.44	15.503	
7,600.00	7,574.59	7,569.47	7,562.80	18.04	17.13	147.91	125.71	-254.50	529.47	495.56	33.92	15.612	
7,700.00	7,674.05	7,668.86	7,662.06	18.31	17.36	147.99	128.25	-259.03	540.48	506.09	34.39	15.717	
7,800.00	7,773.51	7,768.25	7,761.31	18.59	17.60	148.07	130.79	-263.57	551.49	516.63	34.86	15.819	
7,900.00	7,872.97	7,867.64	7,860.56	18.86	17.83	148.15	133.34	-268.10	562.50	527.17	35.34	15.918	
8,000.00	7,972.43	7,967.03	7,959.82	19.14	18.07	148.22	135.88	-272.64	573.52	537.71	35.81	16.015	
8,100.00	8,071.89	8,066.42	8,059.07	19.41	18.30	148.29	138.42	-277.18	584.53	548.24	36.29	16.109	
8,200.00	8,171.35	8,165.81	8,158.32	19.69	18.54	148.36	140.96	-281.71	595.54	558.78	36.76	16.201	
8,300.00	8,270.80	8,265.20	8,257.57	19.97	18.77	148.42	143.51	-286.25	606.56	569.32	37.24	16.290	
8,400.00	8,370.26	8,364.59	8,356.83	20.24	19.01	148.48	146.05	-290.78	617.57	579.86	37.71	16.377	
8,500.00	8,469.72	8,463.98	8,456.08	20.52	19.24	148.54	148.59	-295.32	628.59	590.40	38.19	16.461	
8,600.00	8,569.18	8,563.36	8,555.33	20.80	19.48	148.60	151.14	-299.85	639.61	600.94	38.66	16.544	
8,700.00	8,668.64	8,662.75	8,654.59	21.07	19.71	148.66	153.68	-304.39	650.62	611.49	39.14	16.624	
8,800.00	8,768.10	8,762.14	8,753.84	21.35	19.95	148.71	156.22	-308.93	661.64	622.03	39.61	16.702	
8,900.00	8,867.56	8,861.53	8,853.09	21.63	20.19	148.77	158.77	-313.46	672.66	632.57	40.09	16.779	
9,000.00	8,967.02	8,960.92	8,952.35	21.91	20.42	148.82	161.31	-318.00	683.68	643.11	40.57	16.853	
9,068.05	9,034.70	9,028.55	9,019.89	22.09	20.58	148.85	163.04	-321.08	691.18	650.29	40.89	16.903	
9,100.00	9,066.49	9,060.32	9,051.61	22.17	20.66	148.88	163.85	-322.53	694.62	653.58	41.04	16.926	
9,200.00	9,166.09	9,159.84	9,150.99	22.38	20.89	148.92	166.40	-327.08	704.42	662.95	41.48	16.983	
9,300.00	9,265.83	9,259.48	9,250.50	22.59	21.13	148.88	168.95	-331.62	712.74	670.82	41.92	17.004	
9,400.00	9,365.67	9,360.34	9,351.22	22.78	21.36	148.76	171.51	-336.19	719.55	677.20	42.35	16.991	
9,500.00	9,465.60	9,465.67	9,456.47	22.97	21.56	148.64	173.54	-339.81	724.36	681.61	42.75	16.944	
9,600.00	9,565.58	10,735.84	10,207.00	23.14	24.45	-131.31	-549.71	-342.09	644.40	618.91	25.50	25.275	
9,663.96	9,629.54	10,736.13	10,207.00	23.26	24.45	90.00	-550.00	-342.09	580.79	555.04	25.74	22.560	
9,700.00	9,665.58	10,736.13	10,207.00	23.32	24.45	90.00	-550.00	-342.09	544.96	519.06	25.89	21.045	

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

LEAM Drilling Systems LLC

Anticollision Report

Company:	Devon Energy	**Local Co-ordinate Reference:**	Well 512H
Project:	Eddy County, NM (NAD-83)	**TVD Reference:**	3511.9' GE + 23.5' KB @ 3535.40usft (Original Well Elev)
Reference Site:	Cotton Draw Unit	**MD Reference:**	3511.9' GE + 23.5' KB @ 3535.40usft (Original Well Elev)
Site Error:	0.00 usft	**North Reference:**	Grid
Reference Well:	512H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000.1 Multi User Db
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Offset Design Cotton Draw Unit - 511H - OH - Plan #1 — **Offset Site Error:** 0.00 usft

Survey Program: 0-LEAM MWD+HDGM — **Offset Well Error:** 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
9,763.96	9,729.54	10,736.13	10,207.00	23.43	24.45	90.00	-550.00	-342.09	481.45	455.26	26.19	18.382	
9,775.00	9,740.58	10,736.00	10,207.00	23.45	24.45	100.02	-549.87	-342.09	470.51	444.26	26.25	17.925	
9,800.00	9,765.55	10,734.77	10,207.00	23.49	24.44	118.60	-548.64	-342.09	445.76	419.38	26.38	16.898	
9,825.00	9,790.41	10,732.23	10,207.00	23.52	24.42	131.02	-546.10	-342.09	421.14	394.63	26.52	15.883	
9,850.00	9,815.12	10,728.39	10,207.00	23.55	24.40	139.00	-542.27	-342.09	396.72	370.06	26.66	14.881	
9,875.00	9,839.58	10,723.27	10,207.00	23.57	24.37	144.20	-537.15	-342.09	372.56	345.75	26.81	13.894	
9,900.00	9,863.75	10,716.88	10,207.00	23.59	24.33	147.67	-530.75	-342.09	348.75	321.77	26.98	12.925	
9,925.00	9,887.54	10,709.22	10,207.00	23.59	24.28	149.99	-523.10	-342.09	325.35	298.18	27.17	11.975	
9,950.00	9,910.91	10,700.34	10,207.00	23.60	24.23	151.50	-514.21	-342.09	302.43	275.05	27.38	11.047	
9,975.00	9,933.78	10,690.24	10,207.00	23.60	24.17	152.42	-504.11	-342.09	280.07	252.45	27.62	10.141	
10,000.00	9,956.08	10,678.96	10,207.00	23.59	24.11	152.85	-492.83	-342.09	258.35	230.45	27.90	9.261	
10,025.00	9,977.77	10,666.53	10,207.00	23.58	24.04	152.87	-480.40	-342.09	237.33	209.11	28.22	8.409	
10,050.00	9,998.78	10,652.98	10,207.00	23.56	23.97	152.53	-466.85	-342.09	217.10	188.49	28.61	7.588	
10,075.00	10,019.04	10,638.35	10,207.00	23.55	23.89	151.82	-452.22	-342.09	197.73	168.66	29.07	6.801	
10,100.00	10,038.52	10,622.67	10,207.00	23.52	23.81	150.76	-436.55	-342.09	179.31	149.68	29.63	6.051	
10,125.00	10,057.15	10,606.00	10,207.00	23.50	23.72	149.31	-419.88	-342.09	161.92	131.61	30.31	5.341	
10,150.00	10,074.87	10,588.38	10,207.00	23.47	23.64	147.44	-402.26	-342.09	145.66	114.51	31.15	4.676	
10,175.00	10,091.66	10,569.86	10,207.00	23.44	23.56	145.10	-383.73	-342.09	130.61	98.45	32.16	4.061	
10,200.00	10,107.45	10,550.48	10,207.00	23.40	23.47	142.25	-364.35	-342.09	116.89	83.51	33.37	3.502	
10,225.00	10,122.20	10,530.30	10,207.01	23.37	23.39	138.82	-344.18	-342.09	104.59	69.79	34.80	3.006	
10,250.00	10,135.88	10,509.38	10,207.01	23.33	23.30	134.78	-323.25	-342.09	93.83	57.41	36.42	2.577	
10,275.00	10,148.45	10,487.63	10,207.00	23.29	23.22	130.08	-301.50	-342.09	84.68	46.51	38.17	2.218	
10,300.00	10,159.86	10,463.00	10,206.31	23.26	23.14	123.78	-276.89	-342.09	76.84	36.81	40.02	1.920	
10,325.00	10,170.10	10,439.04	10,204.42	23.22	23.06	116.44	-253.00	-342.09	70.20	28.24	41.96	1.673	
10,350.00	10,179.13	10,415.68	10,201.42	23.18	22.99	108.06	-229.84	-342.09	65.15	21.46	43.69	1.491	Level 3
10,375.00	10,186.93	10,392.87	10,197.41	23.14	22.93	98.86	-207.39	-342.09	62.03	17.23	44.79	1.385	Level 3
10,397.97	10,192.99	10,372.36	10,192.89	23.11	22.88	90.00	-187.39	-342.09	61.08	16.09	44.99	1.358	Level 3, ES, SF
10,400.00	10,193.47	10,370.57	10,192.45	23.10	22.88	89.21	-185.65	-342.09	61.09	16.12	44.97	1.358	Level 3
10,425.00	10,198.74	10,348.74	10,186.62	23.07	22.83	79.66	-164.61	-342.09	62.36	18.17	44.19	1.411	Level 3
10,450.00	10,202.73	10,327.34	10,179.97	23.03	22.79	70.70	-144.27	-342.09	65.63	22.85	42.78	1.534	
10,475.00	10,205.42	10,306.33	10,172.57	23.00	22.76	62.67	-124.61	-342.09	70.54	29.38	41.17	1.714	
10,500.00	10,206.80	10,285.68	10,164.46	22.97	22.73	55.70	-105.63	-342.09	76.69	36.98	39.70	1.931	
10,513.96	10,207.01	10,275.00	10,159.94	22.95	22.71	52.45	-95.95	-342.09	80.52	41.41	39.11	2.059	
10,600.00	10,207.00	10,209.47	10,127.62	22.88	22.63	37.61	-39.00	-342.09	113.02	76.33	36.69	3.080	
10,700.00	10,207.00	10,146.43	10,089.45	22.97	22.57	27.47	11.11	-342.09	167.37	130.31	37.06	4.516	
10,800.00	10,207.00	10,095.14	10,053.73	23.31	22.52	21.74	47.89	-342.09	233.71	195.28	38.43	6.081	
10,900.00	10,207.00	10,050.00	10,019.19	23.80	22.48	18.02	76.93	-342.09	308.12	268.52	39.59	7.782	
11,000.00	10,207.00	10,025.00	9,998.93	24.41	22.45	16.37	91.56	-342.09	388.11	347.02	41.09	9.446	
11,100.00	10,207.00	9,991.46	9,970.60	25.10	22.42	14.49	109.50	-342.09	472.01	430.25	41.75	11.305	
11,200.00	10,207.00	9,968.12	9,950.17	25.87	22.39	13.38	120.79	-342.09	558.94	516.51	42.43	13.173	
11,300.00	10,207.00	9,950.00	9,933.95	26.71	22.37	12.61	128.85	-342.09	648.12	605.12	42.99	15.075	
11,400.00	10,207.00	9,925.00	9,911.08	27.63	22.34	11.67	138.96	-342.09	739.09	695.79	43.30	17.068	
11,500.00	10,207.00	9,925.00	9,911.08	28.60	22.34	11.67	138.96	-342.09	831.36	787.55	43.81	18.976	
11,600.00	10,207.00	9,900.00	9,887.72	29.64	22.31	10.83	147.86	-342.09	924.64	880.67	43.97	21.028	
11,700.00	10,207.00	9,900.00	9,887.72	30.72	22.31	10.83	147.86	-342.09	1,018.87	974.58	44.29	23.006	
11,800.00	10,207.00	9,884.41	9,872.93	31.85	22.29	10.36	152.78	-342.09	1,113.74	1,069.29	44.44	25.061	
11,900.00	10,207.00	9,875.00	9,863.93	33.02	22.28	10.10	155.52	-342.09	1,209.26	1,164.65	44.61	27.110	
12,000.00	10,207.00	9,875.00	9,863.93	34.22	22.28	10.10	155.52	-342.09	1,305.33	1,260.55	44.78	29.149	
12,100.00	10,207.00	9,861.49	9,850.92	35.46	22.26	9.74	159.13	-342.09	1,401.70	1,356.82	44.88	31.231	
12,200.00	10,207.00	9,850.00	9,839.77	36.74	22.24	9.45	161.92	-342.09	1,498.54	1,453.56	44.98	33.315	
12,300.00	10,207.00	9,850.00	9,839.77	38.03	22.24	9.45	161.92	-342.09	1,595.60	1,550.50	45.10	35.380	

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

LEAM Drilling Systems LLC

Anticollision Report

Company:	Devon Energy	**Local Co-ordinate Reference:**	Well 512H
Project:	Eddy County, NM (NAD-83)	**TVD Reference:**	3511.9' GE + 23.5' KB @ 3535.40usft (Original Well Elev)
Reference Site:	Cotton Draw Unit	**MD Reference:**	3511.9' GE + 23.5' KB @ 3535.40usft (Original Well Elev)
Site Error:	0.00 usft	**North Reference:**	Grid
Reference Well:	512H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000.1 Multi User Db
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Offset Design Cotton Draw Unit - 511H - OH - Plan #1 — **Offset Site Error:** 0.00 usft

Survey Program: 0-LEAM MWD+HDGM — **Offset Well Error:** 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
12,400.00	10,207.00	9,850.00	9,839.77	39.36	22.24	9.45	161.92	-342.09	1,693.00	1,647.80	45.20	37.454	
12,500.00	10,207.00	9,840.07	9,830.08	40.70	22.23	9.21	164.11	-342.09	1,790.56	1,745.28	45.28	39.545	
12,600.00	10,207.00	9,835.82	9,825.92	42.07	22.22	9.11	164.99	-342.09	1,888.35	1,842.99	45.36	41.631	
12,700.00	10,207.00	9,825.00	9,815.30	43.45	22.20	8.87	167.05	-342.09	1,986.39	1,940.96	45.43	43.726	
12,800.00	10,207.00	9,825.00	9,815.30	44.86	22.20	8.87	167.05	-342.09	2,084.48	2,038.97	45.51	45.807	
12,900.00	10,207.00	9,825.00	9,815.30	46.27	22.20	8.87	167.05	-342.09	2,182.74	2,137.16	45.58	47.890	
13,000.00	10,207.00	9,825.00	9,815.30	47.70	22.20	8.87	167.05	-342.09	2,281.14	2,235.50	45.65	49.973	
13,100.00	10,207.00	9,825.00	9,815.30	49.15	22.20	8.87	167.05	-342.09	2,379.69	2,333.97	45.71	52.056	
13,200.00	10,207.00	9,825.00	9,815.30	50.60	22.20	8.87	167.05	-342.09	2,478.35	2,432.57	45.78	54.138	
13,300.00	10,207.00	9,813.72	9,804.18	52.06	22.19	8.62	168.95	-342.09	2,576.95	2,531.11	45.84	56.217	
13,400.00	10,207.00	9,811.35	9,801.84	53.54	22.18	8.58	169.31	-342.09	2,675.73	2,629.83	45.90	58.292	
13,500.00	10,207.00	9,800.00	9,790.60	55.02	22.16	8.35	170.90	-342.09	2,774.69	2,728.73	45.96	60.366	
13,600.00	10,207.00	9,800.00	9,790.60	56.52	22.16	8.35	170.90	-342.09	2,873.58	2,827.55	46.03	62.432	
13,700.00	10,207.00	9,800.00	9,790.60	58.02	22.16	8.35	170.90	-342.09	2,972.54	2,926.45	46.09	64.495	
13,800.00	10,207.00	9,800.00	9,790.60	59.52	22.16	8.35	170.90	-342.09	3,071.56	3,025.41	46.15	66.554	
13,900.00	10,207.00	9,800.00	9,790.60	61.04	22.16	8.35	170.90	-342.09	3,170.65	3,124.43	46.21	68.609	
14,000.00	10,207.00	9,800.00	9,790.60	62.56	22.16	8.35	170.90	-342.09	3,269.79	3,223.51	46.28	70.658	
14,100.00	10,207.00	9,800.00	9,790.60	64.08	22.16	8.35	170.90	-342.09	3,368.98	3,322.64	46.34	72.703	
14,200.00	10,207.00	9,800.00	9,790.60	65.61	22.16	8.35	170.90	-342.09	3,468.22	3,421.82	46.40	74.743	
14,300.00	10,207.00	9,800.00	9,790.60	67.15	22.16	8.35	170.90	-342.09	3,567.51	3,521.04	46.47	76.777	
14,400.00	10,207.00	9,800.00	9,790.60	68.69	22.16	8.35	170.90	-342.09	3,666.83	3,620.30	46.53	78.805	
14,500.00	10,207.00	9,800.00	9,790.60	70.23	22.16	8.35	170.90	-342.09	3,766.18	3,719.59	46.60	80.827	
14,600.00	10,207.00	9,800.00	9,790.60	71.78	22.16	8.35	170.90	-342.09	3,865.57	3,818.91	46.66	82.842	
14,700.00	10,207.00	9,800.00	9,790.60	73.33	22.16	8.35	170.90	-342.09	3,964.99	3,918.27	46.73	84.851	
14,800.00	10,207.00	9,800.00	9,790.60	74.89	22.16	8.35	170.90	-342.09	4,064.44	4,017.65	46.80	86.853	
14,900.00	10,207.00	9,787.97	9,778.65	76.45	22.15	8.12	172.29	-342.09	4,163.75	4,116.88	46.87	88.831	
15,000.00	10,207.00	9,786.93	9,777.62	78.01	22.14	8.10	172.39	-342.09	4,263.22	4,216.28	46.94	90.817	
15,100.00	10,207.00	9,775.00	9,765.74	79.58	22.12	7.88	173.45	-342.09	4,362.85	4,315.83	47.02	92.785	
15,200.00	10,207.00	9,775.00	9,765.74	81.14	22.12	7.88	173.45	-342.09	4,462.34	4,415.25	47.09	94.755	
15,300.00	10,207.00	9,775.00	9,765.74	82.72	22.12	7.88	173.45	-342.09	4,561.85	4,514.69	47.17	96.718	
15,344.98	10,207.00	9,775.00	9,765.74	83.42	22.12	7.88	173.45	-342.09	4,606.61	4,559.41	47.20	97.599	
15,345.97	10,207.00	9,775.00	9,765.74	83.44	22.12	7.88	173.45	-342.09	4,607.60	4,556.92	50.68	90.915	

LEAM Drilling Systems LLC

Anticollision Report

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Project:	Eddy County, NM (NAD-83)	**TVD Reference:**	3511.9' GE + 23.5' KB @ 3535.40usft (Original Well Elev)
Reference Site:	Cotton Draw Unit	**MD Reference:**	3511.9' GE + 23.5' KB @ 3535.40usft (Original Well Elev)
Site Error:	0.00 usft	**North Reference:**	Grid
Reference Well:	512H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000.1 Multi User Db
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Offset Design Cotton Draw Unit - 513H - OH - Plan #1 — **Offset Site Error:** 0.00 usft

Survey Program: 0-LEAM MWD+HDGM — **Offset Well Error:** 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	2.00	2.00	0.00	0.00	89.66	0.72	119.97	119.97				
100.00	100.00	102.00	102.00	0.09	0.09	89.66	0.72	119.97	119.97	119.80	0.18	679.954	
200.00	200.00	202.00	202.00	0.31	0.32	89.66	0.72	119.97	119.97	119.35	0.63	191.657	
300.00	300.00	302.00	302.00	0.54	0.54	89.66	0.72	119.97	119.97	118.90	1.08	111.550	
400.00	400.00	402.00	402.00	0.76	0.76	89.66	0.72	119.97	119.97	118.45	1.53	78.668	
500.00	500.00	502.00	502.00	0.99	0.99	89.66	0.72	119.97	119.97	118.00	1.97	60.759	
600.00	600.00	602.00	602.00	1.21	1.21	89.66	0.72	119.97	119.97	117.55	2.42	49.491	
700.00	700.00	702.00	702.00	1.43	1.44	89.66	0.72	119.97	119.97	117.10	2.87	41.749	
800.00	800.00	802.00	802.00	1.66	1.66	89.66	0.72	119.97	119.97	116.65	3.32	36.102	
900.00	900.00	902.00	902.00	1.88	1.89	89.66	0.72	119.97	119.97	116.20	3.77	31.800	
1,000.00	1,000.00	1,002.00	1,002.00	2.11	2.11	89.66	0.72	119.97	119.97	115.75	4.22	28.414	
1,100.00	1,100.00	1,102.00	1,102.00	2.33	2.34	89.66	0.72	119.97	119.97	115.30	4.67	25.680	
1,200.00	1,200.00	1,202.00	1,202.00	2.56	2.56	89.66	0.72	119.97	119.97	114.85	5.12	23.426	
1,300.00	1,300.00	1,302.00	1,302.00	2.78	2.79	89.66	0.72	119.97	119.97	114.40	5.57	21.536	
1,400.00	1,400.00	1,402.00	1,402.00	3.01	3.01	89.66	0.72	119.97	119.97	113.95	6.02	19.928	
1,500.00	1,500.00	1,502.00	1,502.00	3.23	3.24	89.66	0.72	119.97	119.97	113.50	6.47	18.543	
1,600.00	1,600.00	1,602.00	1,602.00	3.46	3.46	89.66	0.72	119.97	119.97	113.05	6.92	17.338	
1,700.00	1,700.00	1,702.00	1,702.00	3.68	3.69	89.66	0.72	119.97	119.97	112.60	7.37	16.281	
1,800.00	1,800.00	1,802.00	1,802.00	3.91	3.91	89.66	0.72	119.97	119.97	112.15	7.82	15.345	
1,900.00	1,900.00	1,902.00	1,902.00	4.13	4.14	89.66	0.72	119.97	119.97	111.70	8.27	14.510	
2,000.00	2,000.00	2,002.00	2,002.00	4.36	4.36	89.66	0.72	119.97	119.97	111.25	8.72	13.762	
2,100.00	2,100.00	2,102.00	2,102.00	4.58	4.59	89.66	0.72	119.97	119.97	110.81	9.17	13.087	
2,200.00	2,200.00	2,202.00	2,202.00	4.81	4.81	89.66	0.72	119.97	119.97	110.36	9.62	12.476	
2,300.00	2,300.00	2,302.00	2,302.00	5.03	5.04	89.66	0.72	119.97	119.97	109.91	10.07	11.918	
2,400.00	2,400.00	2,402.00	2,402.00	5.26	5.26	89.66	0.72	119.97	119.97	109.46	10.52	11.409	
2,415.99	2,415.99	2,417.99	2,417.99	5.29	5.30	89.66	0.72	119.97	119.97	109.38	10.59	11.331	CC
2,500.00	2,500.00	2,501.96	2,501.96	5.48	5.48	89.66	0.72	119.97	119.97	109.01	10.96	10.942	ES
2,600.00	2,599.99	2,600.00	2,599.99	5.68	5.68	-126.72	0.34	120.75	121.29	109.93	11.36	10.676	
2,700.00	2,699.96	2,698.14	2,698.10	5.85	5.87	-127.11	-0.78	123.05	125.19	113.47	11.71	10.687	
2,800.00	2,799.86	2,795.97	2,795.84	6.03	6.05	-127.71	-2.63	126.84	131.67	119.60	12.07	10.909	
2,900.00	2,899.68	2,893.49	2,893.18	6.22	6.24	-128.45	-5.21	132.11	140.75	128.32	12.43	11.324	
3,000.00	2,999.37	2,990.60	2,990.01	6.41	6.44	-129.28	-8.49	138.83	152.42	139.63	12.79	11.915	
3,095.91	3,094.84	3,083.27	3,082.27	6.59	6.63	-130.08	-12.29	146.63	166.06	152.91	13.14	12.633	
3,100.00	3,098.90	3,087.21	3,086.18	6.60	6.64	-130.12	-12.47	146.99	166.69	153.53	13.16	12.666	
3,200.00	3,198.36	3,183.34	3,181.72	6.80	6.84	-130.84	-17.14	156.54	182.94	169.41	13.53	13.520	
3,300.00	3,297.82	3,279.02	3,276.62	7.01	7.05	-131.20	-22.48	167.49	200.63	186.72	13.91	14.427	
3,400.00	3,397.28	3,374.20	3,370.81	7.22	7.28	-131.29	-28.48	179.78	219.71	205.43	14.29	15.380	
3,500.00	3,496.74	3,468.84	3,464.23	7.44	7.51	-131.15	-35.13	193.40	240.18	225.52	14.67	16.374	
3,600.00	3,596.20	3,562.89	3,556.81	7.66	7.75	-130.86	-42.41	208.31	262.03	246.98	15.05	17.405	
3,700.00	3,695.66	3,656.31	3,648.48	7.89	8.00	-130.45	-50.30	224.46	285.26	269.81	15.44	18.471	
3,800.00	3,795.12	3,751.66	3,741.79	8.12	8.28	-129.97	-58.90	242.08	309.61	293.75	15.86	19.517	
3,900.00	3,894.58	3,848.59	3,836.63	8.35	8.56	-129.54	-67.69	260.08	334.09	317.78	16.31	20.485	
4,000.00	3,994.04	3,945.52	3,931.46	8.59	8.86	-129.18	-76.48	278.09	358.58	341.82	16.76	21.394	
4,100.00	4,093.50	4,042.45	4,026.30	8.83	9.17	-128.85	-85.28	296.10	383.09	365.87	17.22	22.247	
4,200.00	4,192.96	4,139.38	4,121.13	9.07	9.48	-128.57	-94.07	314.11	407.61	389.92	17.68	23.049	
4,300.00	4,292.42	4,236.31	4,215.97	9.31	9.80	-128.32	-102.86	332.12	432.13	413.98	18.15	23.803	
4,400.00	4,391.88	4,333.24	4,310.80	9.56	10.12	-128.10	-111.66	350.13	456.66	438.03	18.63	24.513	
4,500.00	4,491.34	4,430.17	4,405.64	9.80	10.45	-127.90	-120.45	368.14	481.20	462.09	19.11	25.182	
4,600.00	4,590.80	4,527.10	4,500.47	10.06	10.79	-127.71	-129.24	386.15	505.74	486.15	19.59	25.813	
4,700.00	4,690.26	4,624.03	4,595.31	10.31	11.13	-127.55	-138.03	404.16	530.29	510.21	20.08	26.408	
4,800.00	4,789.72	4,720.96	4,690.14	10.56	11.47	-127.40	-146.83	422.17	554.84	534.27	20.57	26.971	

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

LEAM Drilling Systems LLC

Anticollision Report

Company:	Devon Energy	**Local Co-ordinate Reference:**	Well 512H
Project:	Eddy County, NM (NAD-83)	**TVD Reference:**	3511.9' GE + 23.5' KB @ 3535.40usft (Original Well Elev)
Reference Site:	Cotton Draw Unit	**MD Reference:**	3511.9' GE + 23.5' KB @ 3535.40usft (Original Well Elev)
Site Error:	0.00 usft	**North Reference:**	Grid
Reference Well:	512H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000.1 Multi User Db
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Offset Design *Cotton Draw Unit - 513H - OH - Plan #1* — **Offset Site Error:** 0.00 usft

Survey Program: 0-LEAM MWD+HDGM — **Offset Well Error:** 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
4,900.00	4,889.18	4,817.89	4,784.98	10.82	11.82	-127.26	-155.62	440.17	579.39	558.33	21.07	27.503	
5,000.00	4,988.64	4,914.82	4,879.81	11.07	12.17	-127.13	-164.41	458.18	603.95	582.39	21.56	28.007	
5,100.00	5,088.10	5,011.75	4,974.65	11.33	12.52	-127.02	-173.21	476.19	628.51	606.44	22.07	28.484	
5,200.00	5,187.56	5,108.67	5,069.48	11.59	12.88	-126.91	-182.00	494.20	653.07	630.50	22.57	28.937	
5,300.00	5,287.02	5,205.60	5,164.32	11.85	13.24	-126.81	-190.79	512.21	677.63	654.56	23.08	29.366	
5,400.00	5,386.48	5,302.53	5,259.15	12.11	13.60	-126.72	-199.58	530.22	702.20	678.62	23.58	29.775	
5,500.00	5,485.94	5,399.46	5,353.99	12.37	13.96	-126.63	-208.38	548.23	726.77	702.67	24.09	30.163	
5,600.00	5,585.39	5,496.39	5,448.82	12.64	14.33	-126.55	-217.17	566.24	751.34	726.73	24.61	30.533	
5,700.00	5,684.85	5,593.32	5,543.66	12.90	14.69	-126.47	-225.96	584.25	775.91	750.78	25.12	30.885	
5,800.00	5,784.31	5,690.25	5,638.49	13.17	15.06	-126.40	-234.76	602.26	800.48	774.84	25.64	31.220	
5,900.00	5,883.77	5,787.18	5,733.33	13.43	15.43	-126.34	-243.55	620.27	825.05	798.89	26.16	31.541	
6,000.00	5,983.23	5,884.11	5,828.17	13.70	15.81	-126.27	-252.34	638.27	849.62	822.94	26.68	31.847	
6,100.00	6,082.69	5,981.04	5,923.00	13.97	16.18	-126.21	-261.14	656.28	874.20	846.99	27.20	32.139	
6,200.00	6,182.15	6,077.97	6,017.84	14.23	16.55	-126.16	-269.93	674.29	898.77	871.05	27.72	32.419	
6,300.00	6,281.61	6,174.90	6,112.67	14.50	16.93	-126.10	-278.72	692.30	923.35	895.10	28.25	32.686	
6,400.00	6,381.07	6,271.83	6,207.51	14.77	17.31	-126.05	-287.51	710.31	947.92	919.15	28.77	32.943	
6,500.00	6,480.53	6,368.76	6,302.34	15.04	17.69	-126.01	-296.31	728.32	972.50	943.20	29.30	33.189	
6,600.00	6,579.99	6,465.69	6,397.18	15.31	18.07	-125.96	-305.10	746.33	997.08	967.25	29.83	33.424	
6,700.00	6,679.45	6,562.62	6,492.01	15.58	18.45	-125.92	-313.89	764.34	1,021.65	991.29	30.36	33.651	
6,800.00	6,778.91	6,659.55	6,586.85	15.85	18.83	-125.88	-322.69	782.35	1,046.23	1,015.34	30.89	33.868	
6,900.00	6,878.37	6,756.48	6,681.68	16.13	19.21	-125.84	-331.48	800.36	1,070.81	1,039.39	31.42	34.077	
7,000.00	6,977.83	6,853.41	6,776.52	16.40	19.59	-125.80	-340.27	818.36	1,095.39	1,063.44	31.96	34.278	
7,100.00	7,077.29	6,950.34	6,871.35	16.67	19.98	-125.76	-349.06	836.37	1,119.97	1,087.48	32.49	34.471	
7,200.00	7,176.75	7,047.27	6,966.19	16.94	20.36	-125.73	-357.86	854.38	1,144.55	1,111.53	33.03	34.657	
7,300.00	7,276.21	7,144.20	7,061.02	17.22	20.74	-125.69	-366.65	872.39	1,169.13	1,135.57	33.56	34.836	
7,400.00	7,375.67	7,241.13	7,155.86	17.49	21.13	-125.66	-375.44	890.40	1,193.71	1,159.62	34.10	35.009	
7,500.00	7,475.13	7,338.06	7,250.69	17.76	21.52	-125.63	-384.24	908.41	1,218.30	1,183.66	34.63	35.176	
7,600.00	7,574.59	7,434.99	7,345.53	18.04	21.90	-125.60	-393.03	926.42	1,242.88	1,207.71	35.17	35.336	
7,700.00	7,674.05	7,531.92	7,440.36	18.31	22.29	-125.58	-401.82	944.43	1,267.46	1,231.75	35.71	35.492	
7,800.00	7,773.51	7,628.85	7,535.20	18.59	22.68	-125.55	-410.62	962.44	1,292.04	1,255.79	36.25	35.641	
7,900.00	7,872.97	7,725.78	7,630.04	18.86	23.07	-125.52	-419.41	980.45	1,316.62	1,279.83	36.79	35.786	
8,000.00	7,972.43	7,822.71	7,724.87	19.14	23.45	-125.50	-428.20	998.46	1,341.21	1,303.88	37.33	35.926	
8,100.00	8,071.89	7,919.64	7,819.71	19.41	23.84	-125.47	-436.99	1,016.46	1,365.79	1,327.92	37.87	36.061	
8,200.00	8,171.35	8,016.57	7,914.54	19.69	24.23	-125.45	-445.79	1,034.47	1,390.37	1,351.96	38.42	36.192	
8,300.00	8,270.80	8,113.50	8,009.38	19.97	24.62	-125.43	-454.58	1,052.48	1,414.96	1,376.00	38.96	36.319	
8,400.00	8,370.26	8,210.43	8,104.21	20.24	25.01	-125.41	-463.37	1,070.49	1,439.54	1,400.04	39.50	36.442	
8,500.00	8,469.72	8,307.35	8,199.05	20.52	25.40	-125.38	-472.17	1,088.50	1,464.13	1,424.08	40.05	36.561	
8,600.00	8,569.18	8,404.28	8,293.88	20.80	25.79	-125.36	-480.96	1,106.51	1,488.71	1,448.12	40.59	36.676	
8,700.00	8,668.64	8,501.21	8,388.72	21.07	26.19	-125.34	-489.75	1,124.52	1,513.29	1,472.16	41.14	36.788	
8,800.00	8,768.10	8,610.75	8,495.93	21.35	26.60	-125.33	-499.59	1,144.66	1,537.72	1,495.98	41.74	36.842	
8,900.00	8,867.56	8,739.48	8,622.39	21.63	26.97	-125.35	-510.14	1,166.27	1,560.52	1,518.14	42.39	36.817	
9,000.00	8,967.02	8,869.36	8,750.50	21.91	27.33	-125.41	-519.52	1,185.48	1,581.34	1,538.33	43.02	36.760	
9,068.05	9,034.70	8,958.34	8,838.53	22.09	27.56	-125.48	-525.21	1,197.14	1,594.37	1,550.93	43.44	36.705	
9,100.00	9,066.49	9,000.29	8,880.10	22.17	27.66	-125.56	-527.68	1,202.21	1,600.11	1,556.49	43.62	36.680	
9,200.00	9,166.09	9,132.34	9,011.20	22.38	27.97	-125.80	-534.60	1,216.37	1,616.07	1,571.92	44.16	36.599	
9,300.00	9,265.83	9,265.37	9,143.61	22.59	28.26	-125.98	-540.22	1,227.89	1,628.97	1,584.31	44.66	36.475	
9,400.00	9,365.67	9,399.18	9,277.06	22.78	28.52	-126.12	-544.52	1,236.69	1,638.77	1,593.64	45.13	36.311	
9,500.00	9,465.60	9,533.57	9,411.28	22.97	28.75	-126.21	-547.46	1,242.70	1,645.45	1,599.88	45.57	36.109	
9,600.00	9,565.58	9,668.32	9,545.97	23.14	28.96	-126.26	-549.01	1,245.89	1,648.99	1,603.02	45.97	35.869	
9,663.96	9,629.54	9,753.89	9,631.54	23.26	29.09	89.97	-549.28	1,246.44	1,649.61	1,603.39	46.22	35.687	

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

LEAM Drilling Systems LLC

Anticollision Report

Company:	Devon Energy	**Local Co-ordinate Reference:**	Well 512H
Project:	Eddy County, NM (NAD-83)	**TVD Reference:**	3511.9' GE + 23.5' KB @ 3535.40usft (Original Well Elev)
Reference Site:	Cotton Draw Unit	**MD Reference:**	3511.9' GE + 23.5' KB @ 3535.40usft (Original Well Elev)
Site Error:	0.00 usft	**North Reference:**	Grid
Reference Well:	512H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000.1 Multi User Db
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Offset Design Cotton Draw Unit - 513H - OH - Plan #1 — **Offset Site Error:** 0.00 usft

Survey Program: 0-LEAM MWD+HDGM — **Offset Well Error:** 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
9,700.00	9,665.58	9,789.93	9,667.58	23.32	29.14	89.97	-549.28	1,246.44	1,649.61	1,603.26	46.35	35.587	
9,709.97	9,675.55	9,799.90	9,677.55	23.34	29.15	89.97	-549.28	1,246.44	1,649.61	1,603.22	46.39	35.560	
9,763.96	9,729.54	9,853.88	9,731.54	23.43	29.23	89.97	-549.28	1,246.44	1,649.61	1,603.03	46.58	35.414	
9,775.00	9,740.58	9,864.91	9,742.56	23.45	29.25	89.97	-549.10	1,246.44	1,649.61	1,602.99	46.62	35.386	
9,800.00	9,765.55	9,889.86	9,767.48	23.49	29.28	89.97	-547.77	1,246.44	1,649.61	1,602.92	46.69	35.328	
9,825.00	9,790.41	9,914.81	9,792.29	23.52	29.31	89.97	-545.14	1,246.44	1,649.61	1,602.85	46.76	35.280	
9,850.00	9,815.12	9,939.76	9,816.92	23.55	29.33	89.96	-541.22	1,246.44	1,649.61	1,602.80	46.81	35.241	
9,875.00	9,839.58	9,964.70	9,841.31	23.57	29.35	89.96	-536.01	1,246.44	1,649.61	1,602.76	46.85	35.212	
9,900.00	9,863.75	9,989.64	9,865.39	23.59	29.36	89.96	-529.55	1,246.44	1,649.61	1,602.74	46.88	35.191	
9,925.00	9,887.54	10,014.57	9,889.10	23.59	29.37	89.95	-521.83	1,246.44	1,649.61	1,602.72	46.89	35.180	
9,950.00	9,910.91	10,039.50	9,912.36	23.60	29.37	89.95	-512.89	1,246.44	1,649.61	1,602.71	46.90	35.176	
9,975.00	9,933.78	10,064.42	9,935.13	23.60	29.37	89.95	-502.75	1,246.44	1,649.61	1,602.72	46.89	35.179	
10,000.00	9,956.08	10,089.34	9,957.33	23.59	29.36	89.94	-491.44	1,246.44	1,649.61	1,602.73	46.88	35.190	
10,025.00	9,977.77	10,114.26	9,978.90	23.58	29.35	89.94	-478.99	1,246.44	1,649.61	1,602.76	46.86	35.206	
10,050.00	9,998.78	10,139.17	9,999.80	23.56	29.33	89.94	-465.43	1,246.44	1,649.61	1,602.79	46.83	35.229	
10,075.00	10,019.04	10,164.08	10,019.96	23.55	29.31	89.94	-450.80	1,246.44	1,649.61	1,602.82	46.79	35.256	
10,100.00	10,038.52	10,188.98	10,039.32	23.52	29.29	89.94	-435.15	1,246.44	1,649.61	1,602.86	46.75	35.286	
10,125.00	10,057.15	10,213.88	10,057.84	23.50	29.26	89.93	-418.50	1,246.44	1,649.61	1,602.91	46.70	35.320	
10,150.00	10,074.87	10,238.78	10,075.47	23.47	29.23	89.93	-400.92	1,246.44	1,649.61	1,602.95	46.66	35.356	
10,175.00	10,091.66	10,263.68	10,092.15	23.44	29.20	89.93	-382.44	1,246.44	1,649.61	1,603.00	46.61	35.393	
10,200.00	10,107.45	10,288.58	10,107.84	23.40	29.17	89.93	-363.12	1,246.44	1,649.61	1,603.05	46.56	35.431	
10,225.00	10,122.20	10,313.47	10,122.51	23.37	29.13	89.93	-343.01	1,246.44	1,649.61	1,603.10	46.51	35.467	
10,250.00	10,135.88	10,338.36	10,136.11	23.33	29.09	89.93	-322.16	1,246.44	1,649.61	1,603.15	46.46	35.503	
10,275.00	10,148.45	10,363.25	10,148.60	23.29	29.05	89.93	-300.64	1,246.44	1,649.61	1,603.19	46.42	35.535	
10,300.00	10,159.86	10,388.14	10,159.96	23.26	29.00	89.93	-278.49	1,246.44	1,649.61	1,603.23	46.38	35.565	
10,325.00	10,170.10	10,413.03	10,170.14	23.22	28.96	89.93	-255.78	1,246.44	1,649.61	1,603.26	46.35	35.590	
10,350.00	10,179.13	10,437.92	10,179.13	23.18	28.91	89.93	-232.58	1,246.44	1,649.61	1,603.29	46.32	35.611	
10,375.00	10,186.93	10,462.81	10,186.89	23.14	28.87	89.93	-208.93	1,246.44	1,649.61	1,603.31	46.30	35.626	
10,400.00	10,193.47	10,487.70	10,193.42	23.10	28.82	89.93	-184.92	1,246.44	1,649.61	1,603.32	46.29	35.635	
10,425.00	10,198.74	10,512.59	10,198.68	23.07	28.78	89.93	-160.59	1,246.44	1,649.61	1,603.32	46.29	35.637	
10,450.00	10,202.73	10,537.48	10,202.67	23.03	28.74	89.93	-136.02	1,246.44	1,649.61	1,603.32	46.29	35.633	
10,475.00	10,205.42	10,562.37	10,205.37	23.00	28.70	89.93	-111.28	1,246.44	1,649.61	1,603.30	46.31	35.621	
10,500.00	10,206.80	10,587.27	10,206.78	22.97	28.66	89.93	-86.43	1,246.44	1,649.61	1,603.28	46.33	35.602	
10,513.96	10,207.01	10,601.17	10,207.00	22.95	28.64	89.93	-72.53	1,246.44	1,649.61	1,603.26	46.35	35.589	
10,514.88	10,207.01	10,602.08	10,207.01	22.95	28.64	89.93	-71.62	1,246.44	1,649.61	1,603.26	46.35	35.588	
10,600.00	10,207.00	10,687.21	10,207.00	22.88	28.53	89.93	13.51	1,246.44	1,649.61	1,603.05	46.56	35.429	
10,700.00	10,207.00	10,787.21	10,207.00	22.97	28.48	89.93	113.51	1,246.44	1,649.61	1,602.60	47.01	35.091	
10,800.00	10,207.00	10,887.21	10,207.00	23.31	28.48	89.93	213.51	1,246.44	1,649.61	1,601.93	47.68	34.599	
10,900.00	10,207.00	10,987.21	10,207.00	23.80	28.59	89.93	313.51	1,246.44	1,649.61	1,601.05	48.56	33.971	
11,000.00	10,207.00	11,087.21	10,207.00	24.41	28.80	89.93	413.51	1,246.44	1,649.61	1,599.97	49.64	33.232	
11,100.00	10,207.00	11,187.21	10,207.00	25.10	29.14	89.93	513.51	1,246.44	1,649.61	1,598.70	50.91	32.404	
11,200.00	10,207.00	11,287.21	10,207.00	25.87	29.60	89.93	613.51	1,246.44	1,649.61	1,597.26	52.35	31.511	
11,300.00	10,207.00	11,387.21	10,207.00	26.71	30.19	89.93	713.51	1,246.44	1,649.61	1,595.66	53.95	30.575	
11,400.00	10,207.00	11,487.21	10,207.00	27.63	30.89	89.93	813.51	1,246.44	1,649.61	1,593.91	55.70	29.615	
11,500.00	10,207.00	11,587.21	10,207.00	28.60	31.68	89.93	913.51	1,246.44	1,649.61	1,592.03	57.58	28.647	
11,600.00	10,207.00	11,687.21	10,207.00	29.64	32.56	89.93	1,013.51	1,246.44	1,649.61	1,590.03	59.59	27.685	
11,700.00	10,207.00	11,787.21	10,207.00	30.72	33.51	89.93	1,113.51	1,246.44	1,649.61	1,587.92	61.70	26.738	
11,800.00	10,207.00	11,887.21	10,207.00	31.85	34.51	89.93	1,213.51	1,246.44	1,649.61	1,585.71	63.90	25.814	
11,900.00	10,207.00	11,987.21	10,207.00	33.02	35.57	89.93	1,313.51	1,246.44	1,649.61	1,583.41	66.20	24.919	
12,000.00	10,207.00	12,087.21	10,207.00	34.22	36.68	89.93	1,413.51	1,246.44	1,649.61	1,581.04	68.58	24.055	
12,100.00	10,207.00	12,187.21	10,207.00	35.46	37.82	89.93	1,513.51	1,246.44	1,649.61	1,578.59	71.02	23.227	

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

LEAM Drilling Systems LLC

Anticollision Report

Company:	Devon Energy	**Local Co-ordinate Reference:**	Well 512H
Project:	Eddy County, NM (NAD-83)	**TVD Reference:**	3511.9' GE + 23.5' KB @ 3535.40usft (Original Well Elev)
Reference Site:	Cotton Draw Unit	**MD Reference:**	3511.9' GE + 23.5' KB @ 3535.40usft (Original Well Elev)
Site Error:	0.00 usft	**North Reference:**	Grid
Reference Well:	512H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000.1 Multi User Db
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Offset Design Cotton Draw Unit - 513H - OH - Plan #1 — *Offset Site Error:* 0.00 usft

Survey Program: 0-LEAM MWD+HDGM — **Offset Well Error:** 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
12,200.00	10,207.00	12,287.21	10,207.00	36.74	39.00	89.93	1,613.51	1,246.44	1,649.61	1,576.08	73.53	22.434	
12,300.00	10,207.00	12,387.21	10,207.00	38.03	40.22	89.93	1,713.51	1,246.44	1,649.61	1,573.51	76.10	21.676	
12,400.00	10,207.00	12,487.21	10,207.00	39.36	41.46	89.93	1,813.51	1,246.44	1,649.61	1,570.89	78.72	20.955	
12,500.00	10,207.00	12,587.21	10,207.00	40.70	42.73	89.93	1,913.51	1,246.44	1,649.61	1,568.22	81.39	20.268	
12,600.00	10,207.00	12,687.21	10,207.00	42.07	44.03	89.93	2,013.51	1,246.44	1,649.61	1,565.51	84.10	19.615	
12,700.00	10,207.00	12,787.21	10,207.00	43.45	45.34	89.93	2,113.51	1,246.44	1,649.61	1,562.76	86.85	18.994	
12,800.00	10,207.00	12,887.21	10,207.00	44.86	46.68	89.93	2,213.51	1,246.44	1,649.61	1,559.98	89.63	18.404	
12,900.00	10,207.00	12,987.21	10,207.00	46.27	48.03	89.93	2,313.51	1,246.44	1,649.61	1,557.16	92.45	17.843	
13,000.00	10,207.00	13,087.21	10,207.00	47.70	49.41	89.93	2,413.51	1,246.44	1,649.61	1,554.31	95.30	17.310	
13,100.00	10,207.00	13,187.21	10,207.00	49.15	50.79	89.93	2,513.51	1,246.44	1,649.61	1,551.44	98.17	16.804	
13,200.00	10,207.00	13,287.21	10,207.00	50.60	52.19	89.93	2,613.51	1,246.44	1,649.61	1,548.55	101.06	16.322	
13,300.00	10,207.00	13,387.21	10,207.00	52.06	53.61	89.93	2,713.51	1,246.44	1,649.61	1,545.63	103.98	15.864	
13,400.00	10,207.00	13,487.21	10,207.00	53.54	55.03	89.93	2,813.51	1,246.44	1,649.61	1,542.69	106.92	15.428	
13,500.00	10,207.00	13,587.21	10,207.00	55.02	56.47	89.93	2,913.51	1,246.44	1,649.61	1,539.73	109.88	15.013	
13,600.00	10,207.00	13,687.21	10,207.00	56.52	57.92	89.93	3,013.51	1,246.44	1,649.61	1,536.76	112.85	14.617	
13,700.00	10,207.00	13,787.21	10,207.00	58.02	59.38	89.93	3,113.51	1,246.44	1,649.61	1,533.77	115.85	14.240	
13,800.00	10,207.00	13,887.21	10,207.00	59.52	60.84	89.93	3,213.51	1,246.44	1,649.61	1,530.76	118.85	13.880	
13,900.00	10,207.00	13,987.21	10,207.00	61.04	62.32	89.93	3,313.51	1,246.44	1,649.61	1,527.74	121.87	13.536	
14,000.00	10,207.00	14,087.21	10,207.00	62.56	63.80	89.93	3,413.51	1,246.44	1,649.61	1,524.71	124.90	13.207	
14,100.00	10,207.00	14,187.21	10,207.00	64.08	65.29	89.93	3,513.51	1,246.44	1,649.61	1,521.66	127.95	12.893	
14,200.00	10,207.00	14,287.21	10,207.00	65.61	66.78	89.93	3,613.51	1,246.44	1,649.61	1,518.61	131.00	12.592	
14,300.00	10,207.00	14,387.21	10,207.00	67.15	68.29	89.93	3,713.51	1,246.44	1,649.61	1,515.54	134.07	12.304	
14,400.00	10,207.00	14,487.21	10,207.00	68.69	69.80	89.93	3,813.51	1,246.44	1,649.61	1,512.47	137.14	12.028	
14,500.00	10,207.00	14,587.21	10,207.00	70.23	71.31	89.93	3,913.51	1,246.44	1,649.61	1,509.39	140.23	11.764	
14,600.00	10,207.00	14,687.21	10,207.00	71.78	72.83	89.93	4,013.51	1,246.44	1,649.61	1,506.29	143.32	11.510	
14,700.00	10,207.00	14,787.21	10,207.00	73.33	74.35	89.93	4,113.51	1,246.44	1,649.61	1,503.19	146.42	11.266	
14,800.00	10,207.00	14,887.21	10,207.00	74.89	75.88	89.93	4,213.51	1,246.44	1,649.61	1,500.09	149.53	11.032	
14,900.00	10,207.00	14,987.21	10,207.00	76.45	77.41	89.93	4,313.51	1,246.44	1,649.61	1,496.97	152.64	10.807	
15,000.00	10,207.00	15,087.21	10,207.00	78.01	78.95	89.93	4,413.51	1,246.44	1,649.61	1,493.85	155.76	10.591	
15,100.00	10,207.00	15,187.21	10,207.00	79.58	80.49	89.93	4,513.51	1,246.44	1,649.61	1,490.73	158.89	10.382	
15,200.00	10,207.00	15,287.21	10,207.00	81.14	82.03	89.93	4,613.51	1,246.44	1,649.61	1,487.59	162.02	10.182	
15,300.00	10,207.00	15,387.21	10,207.00	82.72	83.58	89.93	4,713.51	1,246.44	1,649.61	1,484.46	165.16	9.988	
15,344.98	10,207.00	15,432.18	10,207.00	83.42	84.28	89.93	4,758.48	1,246.44	1,649.61	1,483.04	166.57	9.903	
15,345.97	10,207.00	15,433.18	10,207.00	83.44	84.29	89.93	4,759.47	1,246.44	1,649.61	1,483.01	166.60	9.902 SF	

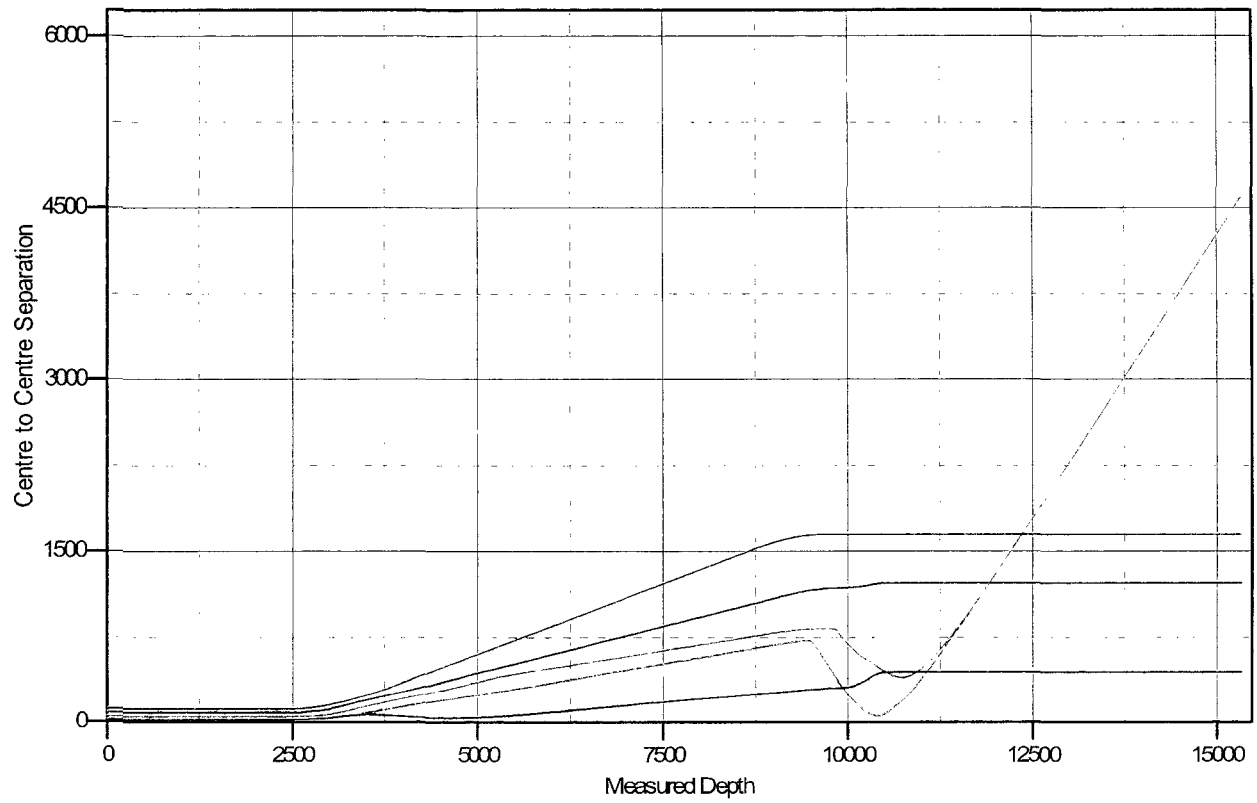
LEAM Drilling Systems LLC

Anticollision Report

Company:	Devon Energy	**Local Co-ordinate Reference:**	Well 512H
Project:	Eddy County, NM (NAD-83)	**TVD Reference:**	3511.9' GE + 23.5' KB @ 3535.40usft (Original Well Elev)
Reference Site:	Cotton Draw Unit	***MD Reference:***	3511.9' GE + 23.5' KB @ 3535.40usft (Original Well Elev)
Site Error:	0.00 usft	**North Reference:**	Grid
Reference Well:	512H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000.1 Multi User Db
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Reference Depths are relative to 3511.9' GE + 23.5' KB @ 3535.40usft	Coordinates are relative to: 512H
Offset Depths are relative to Offset Datum	Coordinate System is US State Plane 1983, New Mexico Eastern Zone
Central Meridian is 104° 20' 0.000 W	Grid Convergence at Surface is: 0.32°

Ladder Plot



LEGEND

511H, OH, Plan #1 V0 — 291H, OH, Plan #1 V0 — 294H, OH, Plan #1 V0

513H, OH, Plan #1 V0 — 293H, OH, Plan #1 V0

LEAM Drilling Systems LLC

Anticollision Report

Company:	Devon Energy	**Local Co-ordinate Reference:**	Well 512H
Project:	Eddy County, NM (NAD-83)	**TVD Reference:**	3511.9' GE + 23.5' KB @ 3535.40usft (Original Well Elev)
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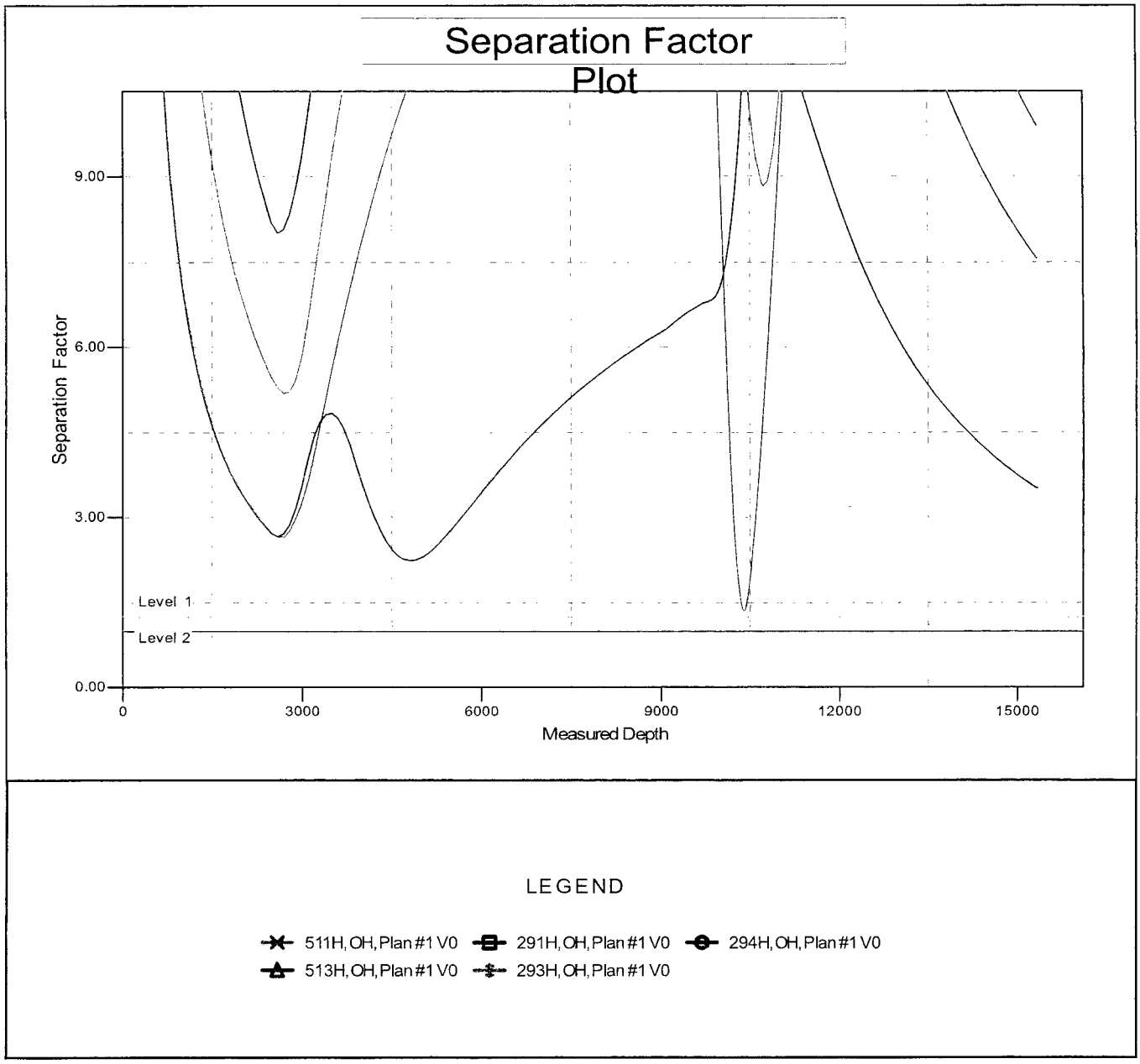
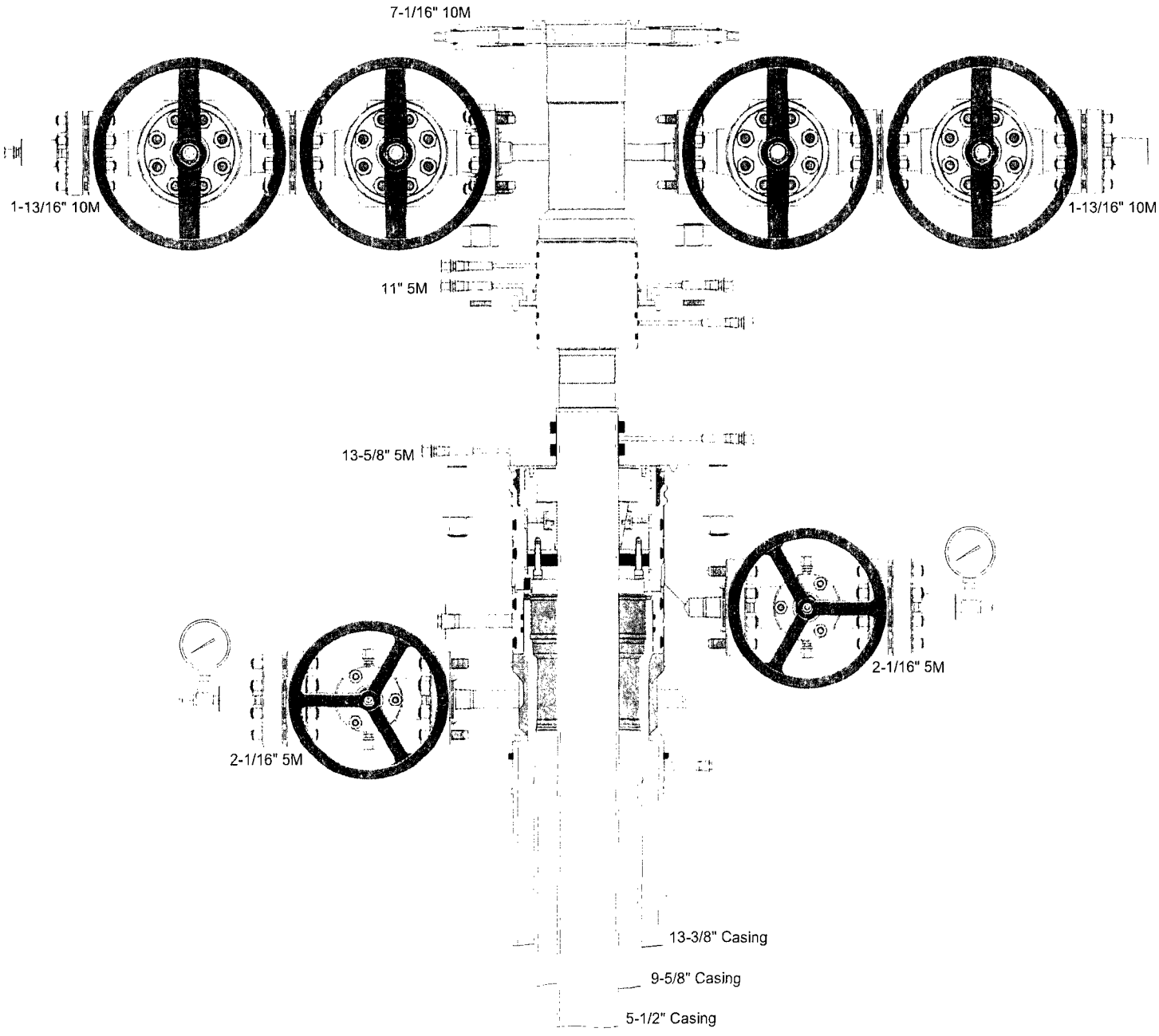
Offset Depths are relative to Offset Datum	Coordinate System is US State Plane 1983, New Mexico Eastern Zone
Central Meridian is 104° 20' 0.000 W	Grid Convergence at Surface is: 0.32°




7-1/16" 10M
1-13/16" 10M
1-13/16" 10M
11" 5M
13-5/8" 5M
2-1/16" 5M
2-1/16" 5M
13-3/8" Casing
9-5/8" Casing
5-1/2" Casing

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.

Devon proposes using 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.

- Wellhead will be installed by wellhead representatives.
- If the welding is performed by a third party, the wellhead representative will monitor the temperature to verify that it does not exceed the maximum temperature of the seal.
- Wellhead representative will install the test plug for the initial BOP test.
- Wellhead company will install a solid steel body pack-off to completely isolate the lower head after cementing intermediate casing. After installation of the pack-off, the pack-off and the lower flange will be tested to 3M, as shown on the attached schematic. Everything above the pack-off will not have been altered whatsoever from the initial nipple up. Therefore the BOP components will not be retested at that time.
- If the cement does not circulate and one inch operations would have been possible with a standard wellhead, the well head will be cut and top out operations will be conducted.
- Devon will pressure test all seals above and below the mandrel (but still above the casing) to full working pressure rating.
- Devon will test the casing to 0.22 psi/ft or 1500 psi, whichever is greater, as per Onshore Order #2.

After running the 13-3/8" surface casing, a 13-5/8" BOP/BOPE system with a minimum rating of 3M will be installed on the wellhead system and will undergo a 250 psi low pressure test followed by a 3,000 psi high pressure test. The 3,000 psi high and 250 psi low test will cover testing requirements a maximum of 30 days, as per Onshore Order #2. If the well is not complete within 30 days of this BOP test, another full BOP test will be conducted, as per Onshore Order #2.
After running the 9-5/8' intermediate casing with a mandrel hanger, the 13-5/8" BOP/BOPE system with a minimum rating of 3M will already be installed on the wellhead.

The pipe rams will be operated and checked each 24 hour period and each time the drill pipe is out of the hole. These tests will be logged in the daily driller's log. A 2" kill line and 3" choke line will be incorporated into the drilling spool below the ram BOP. In addition to the rams and annular preventer, additional BOP accessories include a kelly cock, floor safety valve, choke lines, and choke manifold rated at 3,000 psi WP.

Devon's proposed wellhead manufactures will be FMC Technologies, Cactus Wellhead, or Cameron.

devon

Commitment Runs Deep

I. Design Plan

Devon uses MI SWACO closed loop system (CLS). The MI SWACO CLS is designed to maintain drill solids at or below 5%. The equipment is arranged to progressively remove solids from the largest to the smallest size. Drilling fluids can thus be reused and savings is realized on mud and disposal costs. Dewatering may be required with the centrifuges to insure removal of ultra fine solids.

The drilling location is constructed to allow storm water to flow to a central sump normally the cellar. This insures no contamination leaves the drilling pad in the event of a spill. Storm water is reused in the mud system or stored in a reserve fluid tank farm until it can be reused. All lubricants, oils, or chemicals are removed immediately from the ground to prevent the contamination of storm water. An oil trap is normally installed on the sump if an oil spill occurs during a storm.

A tank farm is utilized to store drilling fluids including fresh water and brine fluids. The tank farm is constructed on a 20 ml plastic lined, bermed pad to prevent the contamination of the drilling site during a spill. Fluids from other sites may be stored in these tanks for processing by the solids control equipment and reused in the mud system. At the end of the well the fluids are transported from the tank farm to an adjoining well or to the next well for the rig.

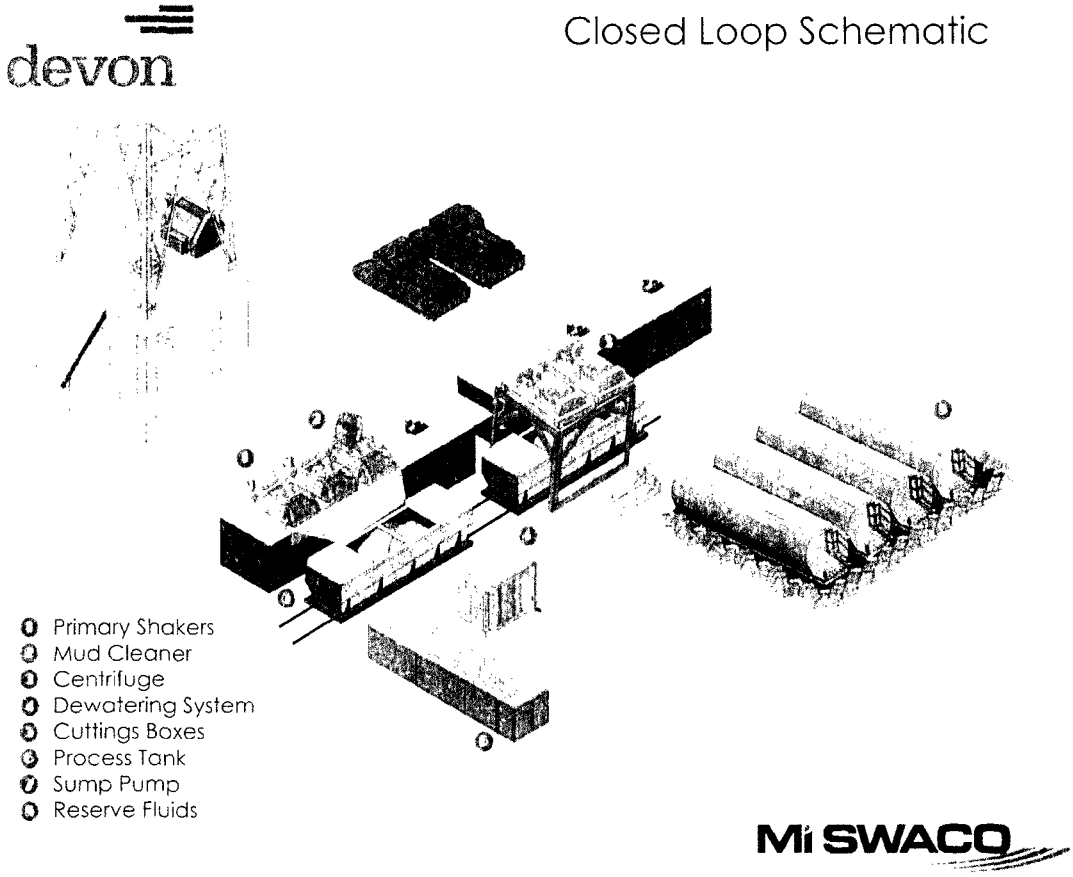
Prior to installing a closed-loop system on site, the topsoil, if present, will be stripped and stockpiled for use as the final cover or fill at the time of closure.

Signs will be posted on the fence surrounding the closed-loop system unless the closed-loop system is located on a site where there is an existing well, that is operated by Devon.

II. Operations and Maintenance Plan

Primary Shakers: The primary shakers make the first removal of drill solids from the drilling mud as it leaves the well bore. The shakers are sized to handle maximum drilling rate at optimal screen size. The shakers normally remove solids down to 74 microns.

Mud Cleaner: The Mud Cleaner cleans the fluid after it leaves the shakers. A set of hydrocyclones are sized to handle 1.25 to 1.5 times the maximum circulating rate. This ensures all the fluid is being processed to an average cut point of 25 microns. The wet discharged is dewatered on a shaker equipped with ultra fine mesh screens and generally cut at 40 microns.



Centrifuges: The centrifuges can be one or two in number depending on the well geometry or depth of well. The centrifuges are sized to maintain low gravity solids at 5% or below. They may or may not need a dewatering system to enhance the removal rates. The centrifuges can make a cut point of 8-10 microns depending on bowl speed, feed rate, solids loading and other factors.

The centrifuge system is designed to work on the active system and be flexible to process incoming fluids from other locations. This set-up is also dependant on well factors.

Dewatering System: The dewatering system is a chemical mixing and dosing system designed to enhance the solids removal of the centrifuge. Not commonly used in shallow wells. It may contain pH adjustment, coagulant mixing and dosing, and polymer mixing and dosing. Chemical flocculation binds ultra fine solids into a mass that is within the centrifuge operating design. The

dewatering system improves the centrifuge cut point to infinity or allows for the return of clear water or brine fluid. This ability allows for the ultimate control of low gravity solids.

Cuttings Boxes: Cuttings boxes are utilized to capture drill solids that are discarded from the solids control equipment. These boxes are set upon a rail system that allows for the removal and replacement of a full box of cuttings with an empty one. They are equipped with a cover that insures no product is spilled into the environment during the transportation phase.

Process Tank: (Optional) The process tank allows for the holding and process of fluids that are being transferred into the mud system. Additionally, during times of lost circulation the process tank may hold active fluids that are removed for additional treatment. It can further be used as a mixing tank during well control conditions.

Sump and Sump Pump: The sump is used to collect storm water and the pump is used to transfer this fluid to the active system or to the tank for to hold in reserve. It can also be used to collect fluids that may escape during spills. The location contains drainage ditches that allow the location fluids to drain to the sump.

Reserve Fluids (Tank Farm): A series of frac tanks are used to replace the reserve pit. These are steel tanks that are equipped with a manifold system and a transfer pump. These tanks can contain any number of fluids used during the drilling process. These can include fresh water, cut brine, and saturated salt fluid. The fluid can be from the active well or reclaimed fluid from other locations. A 20 ml liner and berm system is employed to ensure the fluids do not migrate to the environment during a spill.

If a leak develops, the appropriate division district office will be notified within 48 hours of the discovery and the leak will be addressed. Spill prevention is accomplished by maintaining pump packing, hoses, and pipe fittings to insure no leaks are occurring. During an upset condition the source of the spill is isolated and repaired as soon as it is discovered. Free liquid is removed by a diaphragm pump and returned to the mud system. Loose topsoil may be used to stabilize the spill and the contaminated soil is excavated and placed in the cuttings boxes. After the well is finished and the rig has moved, the entire location is scrapped and testing will be performed to determine if a release has occurred.

All trash is kept in a wire mesh enclosure and removed to an approved landfill when full. All spent motor oils are kept in separate containers and they are removed and sent to an approved recycling center. Any spilled lubricants, pipe

dope, or regulated chemicals are removed from soil and sent to landfills approved for these products.

These operations are monitored by Mi Swaco service technicians. Daily logs are maintained to ensure optimal equipment operation and maintenance. Screen and chemical use is logged to maintain inventory control. Fluid properties are monitored and recorded and drilling mud volumes are accounted for in the mud storage farm. This data is kept for end of well review to insure performance goals are met. Lessons learned are logged and used to help with continuous improvement.

A MI SWACO field supervisor manages from 3-5 wells. They are responsible for training personnel, supervising installations, and inspecting sites for compliance of MI SWACO safety and operational policy.

III. Closure Plan

A maximum 340' X 340' caliche pad is built per well. All of the trucks and steel tanks fit on this pad. All fluid cuttings go to the steel tanks to be hauled by various trucking companies to an agency approved disposal.

Continental CONTITECH

Fluid Technology

ContiTech Beattie Corp.
Website: www.contitechbeattie.com

Monday, June 14, 2010

RE: Drilling & Production Hoses
Lifting & Safety Equipment

To Helmerich & Payne,

A Continental ContiTech hose assembly can perform as intended and suitable for the application regardless of whether the hose is secured or unsecured in its configuration. As a manufacturer of High Pressure Hose Assemblies for use in Drilling & Production, we do offer the corresponding lifting and safety equipment, this has the added benefit of easing the lifting and handling of each hose assembly whilst affording hose longevity by ensuring correct handling methods and procedures as well as securing the hose in the unlikely event of a failure; but in no way does the lifting and safety equipment affect the performance of the hoses providing the hoses have been handled and installed correctly it is good practice to use lifting & safety equipment but not mandatory

Should you have any questions or require any additional information/clarifications then please do not hesitate to contact us.

ContiTech Beattie is part of the Continental AG Corporation and can offer the full support resources associated with a global organization.

Best regards,

Robin Hodgson
Sales Manager
ContiTech Beattie Corp

ContiTech Beattie Corp,
11535 Brittmoore Park Drive,
Houston, TX 77041
Phone: +1 (832) 327-0141
Fax: +1 (832) 327-0148
www.contitechbeattie.com

R16 212

PHOENIX

QUALITY DOCUMENT

PHOENIX RUBBER INDUSTRIAL LTD.

6728 Szeged, Budapesti út 10. Hungary • H-6701 Szeged, P. O. Box 152
Phone: (3662) 566-737 • Fax (3662) 566-738

SALES & MARKETING: H-1092 Budapest, Ráday u. 42-44. Hungary • H-1440 Budapest, P. O. Box 26
Phone: (361) 456-4200 · Fax: (361) 217-2972, 456-4273 · www.taurusemerge.hu

QUALITY CONTROL INSPECTION AND TEST CERTIFICATE				CERT. N°: 552	
PURCHASER: Phoenix Beattie Co.				P.O. N°: 1519FA-871	
PHOENIX RUBBER order N°: 170466		HOSE TYPE: 3" ID		Choke and Kill Hose	
HOSE SERIAL N°: 34128		NOMINAL / ACTUAL LENGTH:		11,43 m	
W.P. 68,96 MPa	10000 psi	T.P. 103,4 MPa	15000 psi	Duration: 60	min.

Pressure test with water at ambient temperature

See attachment. (1 page)

↑ 10 mm = 10 Min.
→ 10 mm = 25 MPa

COUPLINGS

Type	Serial N°	Quality	Heat N°
3" coupling with 4 1/16" Flange end	720 719	AISI 4130 AISI 4130	C7626 47357

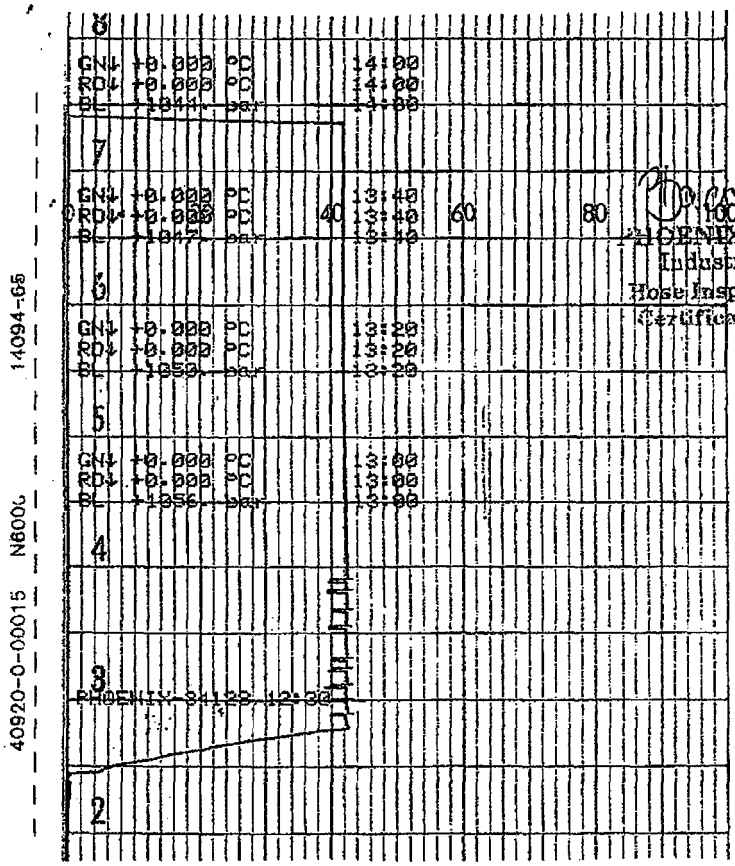
API Spec 16 C
Temperature rate:"B"

All metal parts are flawless

WE CERTIFY THAT THE ABOVE HOSE HAS BEEN MANUFACTURED IN ACCORDANCE WITH THE TERMS OF THE ORDER AND PRESSURE TESTED AS ABOVE WITH SATISFACTORY RESULT.

Date:	Inspector	Quality Control
29. April. 2002.		PHOENIX RUBBER Industrial Ltd. Hose Inspection and Verification Dept.

VERIFIED TRUE COPY
PHOENIX RUBBER Q.C.



PHOENIX RUBBER
Industrial Ltd.
Hose Inspection and
Certification Dept.

VERIFIED TRUE CO
PHOENIX RUBBER C.C.

APD ID: 10400011581 **Submission Date:** 02/23/2017

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: COTTON DRAW UNIT **Well Number:** 512H

Well Type: OIL WELL **Well Work Type:** Drill

Section 1 - Existing Roads

Will existing roads be used? YES

Existing Road Map:

CDU 512H_Ex AccessRd_02-21-2017.pdf

Existing Road Purpose: ACCESS,FLUID TRANSPORT **Row(s) Exist?** NO

ROW ID(s)

ID:

Do the existing roads need to be improved? YES

Existing Road Improvement Description: Improve road to accommodate Drilling and Completion operations.

Existing Road Improvement Attachment:

Section 2 - New or Reconstructed Access Roads

Will new roads be needed? YES

New Road Map:

CDU 512H_Access Rd_02-21-2017.pdf

New road type: COLLECTOR,RESOURCE

Length: 177 Feet **Width (ft.):** 16

Max slope (%): 6 **Max grade (%):** 4

Army Corp of Engineers (ACOE) permit required? NO

ACOE Permit Number(s):

New road travel width: 14

New road access erosion control: N/A

New road access plan or profile prepared? NO

New road access plan attachment:

Access road engineering design? NO

Access road engineering design attachment:

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: COTTON DRAW UNIT **Well Number:** 512H

Access surfacing type: GRAVEL

Access topsoil source: ONSITE

Access surfacing type description:

Access onsite topsoil source depth: 6

Offsite topsoil source description:

Onsite topsoil removal process: See attached Interim reclamation diagram.

Access other construction information:

Access miscellaneous information:

Number of access turnouts: **Access turnout map:**

Drainage Control

New road drainage crossing: OTHER

Drainage Control comments: N/A

Road Drainage Control Structures (DCS) description: N/A

Road Drainage Control Structures (DCS) attachment:

Access Additional Attachments

Additional Attachment(s):

Section 3 - Location of Existing Wells

Existing Wells Map? YES

Attach Well map:

CDU 512H_1 Mile Map_02-21-2017.pdf

Existing Wells description:

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

Submit or defer a Proposed Production Facilities plan? DEFER

Estimated Production Facilities description: ALL FLOWLINES WILL BE BURIED GOING TO THE COTTON DRAW UNIT 25 CTB

Section 5 - Location and Types of Water Supply

Water Source Table

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: COTTON DRAW UNIT **Well Number:** 512H

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: FEDERAL

Water source transport method: PIPELINE,TRUCKING

Source transportation land ownership: FEDERAL

Water source volume (barrels): 150000 **Source volume (acre-feet):** 19.333965

Source volume (gal): 6300000

Water source and transportation map:

CDU 512H_Wtr Xfr Map_02-21-2017.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.
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.

Construction Materials source location attachment:

CDU 512H_Caliche Pit_02-21-2017.pdf

Section 7 - Methods for Handling Waste

Waste type: DRILLING

Waste content description: Water Based Cuttings

Amount of waste: 1400 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: R360, Sundance, or equivalent.

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:

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

Waste type: FLOWBACK

Waste content description: Produced water during flowback operations. This amount is a daily average during flowback (BWPD).

Amount of waste: 1500 barrels

Waste disposal frequency : Daily

Safe containment description: N/A

Safe containmant attachment:

Waste disposal type: ON-LEASE INJECTION **Disposal location ownership:** PRIVATE

Disposal type description:

Disposal location description: One of three company owned SWD facilities in the area: CDU 181, CDU 89, CDU 84.

Waste type: PRODUCED WATER

Waste content description: Produced water during production operations. This amount is a daily average during the first year of production (BWPD).
Amount of waste: 1000 barrels

Waste disposal frequency : Daily

Safe containment description: N/A

Safe containmant attachment:

Waste disposal type: ON-LEASE INJECTION **Disposal location ownership:** PRIVATE

Disposal type description:

Disposal location description: One of three company owned SWD facilities in the area: CDU 181, CDU 89, CDU 84.

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

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: COTTON DRAW UNIT **Well Number:** 512H

Section 8 - Ancillary Facilities

Are you requesting any Ancillary Facilities?: NO

Ancillary Facilities attachment:

Comments:

Section 9 - Well Site Layout

Well Site Layout Diagram:

CDU 512H_Rig Layout_02-21-2017.pdf

Comments:

Section 10 - Plans for Surface Reclamation

Type of disturbance: NO NEW SURFACE DISTURBANCE

Recontouring attachment:

CDU 512H_Reclamation_02-21-2017.pdf

Drainage/Erosion control construction: All areas disturbed shall be reclaimed as early and as nearly as practicable to their original condition or their final land use and shall be maintained to control dust and minimize erosion to the extent practicable.
Drainage/Erosion control reclamation: Topsoils and subsoils 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. The disturbed area then shall be reseeded in the first favorable growing season.

Wellpad long term disturbance (acres): 4.245 **Wellpad short term disturbance (acres):** 4.245

Access road long term disturbance (acres): 0.081 **Access road short term disturbance (acres):** 0.081

Pipeline long term disturbance (acres): 2.844387 **Pipeline short term disturbance (acres):** 2.844387

Other long term disturbance (acres): 0 **Other short term disturbance (acres):** 0

Total long term disturbance: 7.1703873 **Total short term disturbance:** 7.1703873

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:

Existing Vegetation at the well pad attachment:

Existing Vegetation Community at the road:

Existing Vegetation Community at the road attachment:

Existing Vegetation Community at the pipeline:

Existing Vegetation Community at the pipeline attachment:

Existing Vegetation Community at other disturbances:

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:

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: MARK **Last Name:** SMITH

Phone: (575)746-5559 **Email:** mark.smith@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

Disturbance type: NEW ACCESS ROAD

Describe:

Surface Owner: BUREAU OF LAND MANAGEMENT

Other surface owner description:

BIA Local Office:

BOR Local Office:

COE Local Office:

DOD Local Office:

NPS Local Office:

State Local Office:

Military Local Office:

USFWS Local Office:

Other Local Office:

USFS Region:

USFS Forest/Grassland: **USFS Ranger District:**

Disturbance type: EXISTING ACCESS ROAD

Describe:

Surface Owner: BUREAU OF LAND MANAGEMENT

Other surface owner description:

BIA Local Office:

BOR Local Office:

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: COTTON DRAW UNIT **Well Number:** 512H

COE Local Office:

DOD Local Office:

NPS Local Office:

State Local Office:

Military Local Office:

USFWS Local Office:

Other Local Office:

USFS Region:

USFS Forest/Grassland: **USFS Ranger District:**

Disturbance type: WELL PAD

Describe:

Surface Owner: BUREAU OF LAND MANAGEMENT

Other surface owner description:

BIA Local Office:

BOR Local Office:

COE Local Office:

DOD Local Office:

NPS Local Office:

State Local Office:

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: COTTON DRAW UNIT **Well Number:** 512H

Disturbance type: PIPELINE

Describe:

Surface Owner: BUREAU OF LAND MANAGEMENT

Other surface owner description:

BIA Local Office:

BOR Local Office:

COE Local Office:

DOD Local Office:

NPS Local Office:

State Local Office:

Military Local Office:

USFWS Local Office:

Other Local Office:

USFS Region:

USFS Forest/Grassland: **USFS Ranger District:**

Section 12 - Other Information

Right of Way needed? NO **Use APD as ROW?**

ROW Type(s):

ROW Applications

SUPO Additional Information: Electrical (BLM) Survey Electrical (ST NM) Survey Flowline Survey

Use a previously conducted onsite? YES

Previous Onsite information: COTTON DRAW UNIT 291H/293H/294H ONSITED ON 4/2016

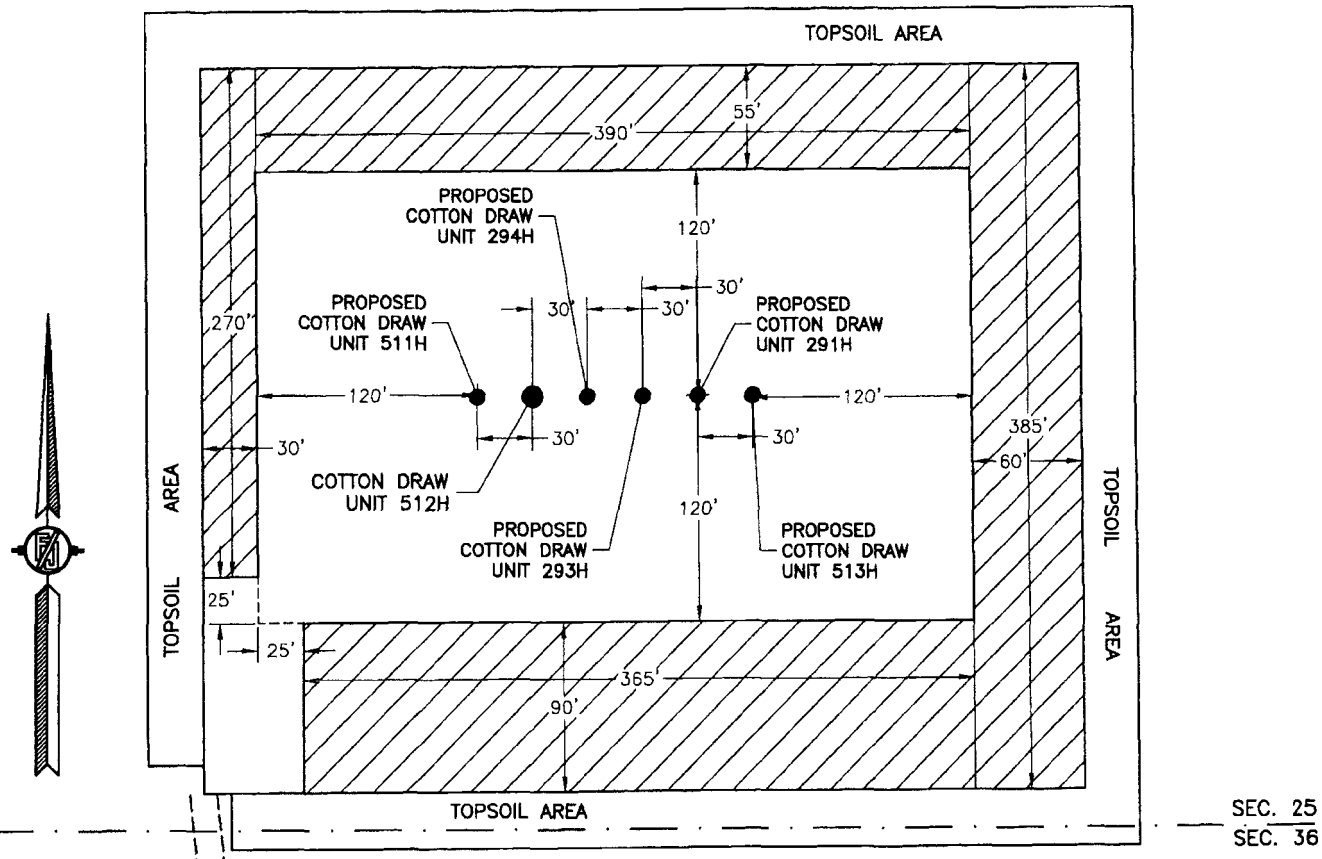
Other SUPO Attachment

CDU 512H_Electric_BLM_02-21-2017.PDF

CDU 512H_Electric_STNM_02-21-2017.PDF

CDU 512H_Flowlines_02-22-2017.pdf

PROPOSED INTERIM SITE RECLAMATION
FOR COTTON DRAW UNIT 512H
SECTION 25, TOWNSHIP 24 SOUTH, RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO



DENOTES RECLAMATION AREA

1.967± ACRES RECLAMATION AREA

DEVON ENERGY PRODUCTION COMPANY, L.P.

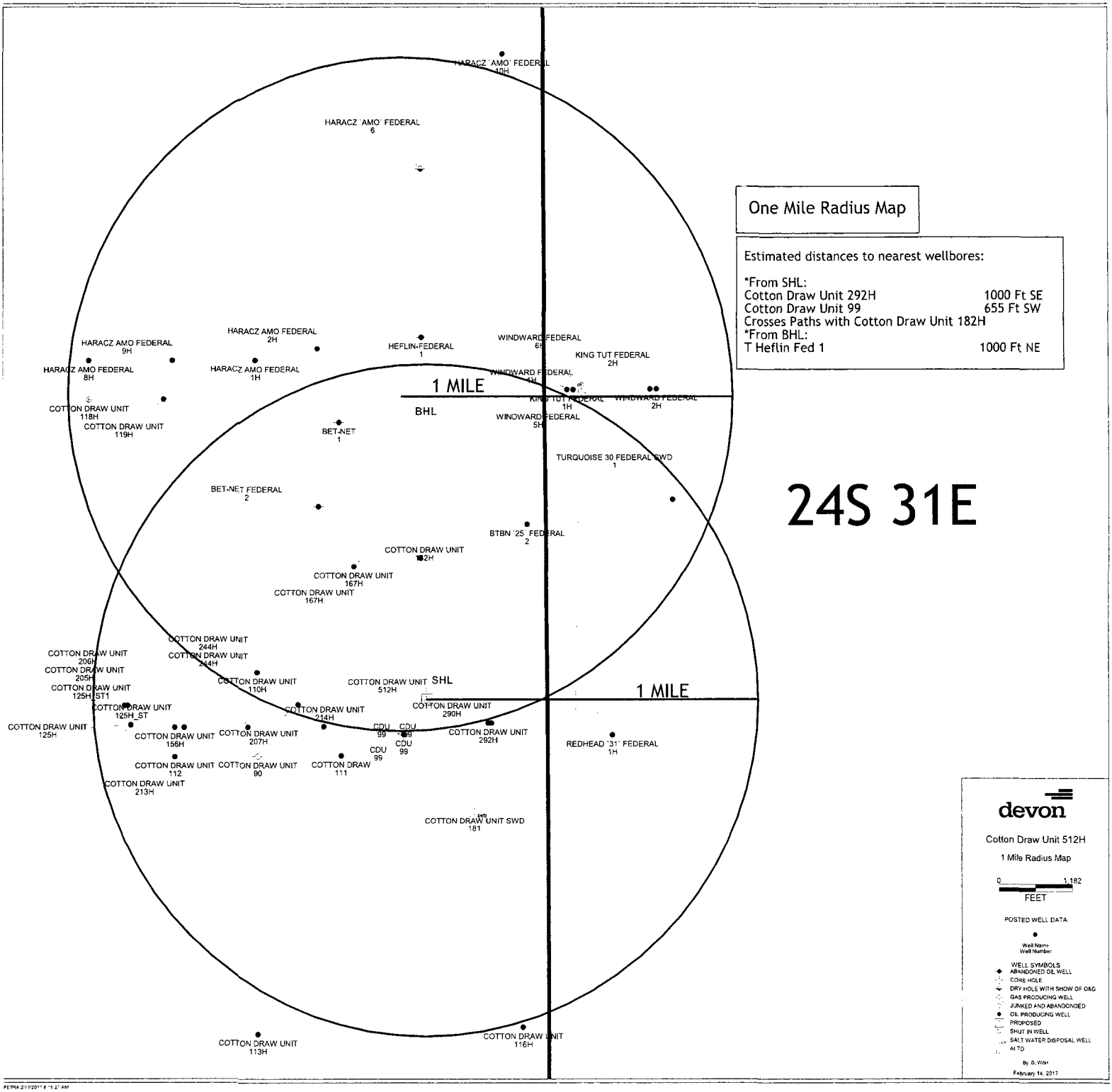
COTTON DRAW UNIT 512H

LOCATED 230 FT. FROM THE SOUTH LINE AND 1935 FT. FROM THE EAST LINE OF SECTION 25, TOWNSHIP 24 SOUTH, RANGE 31 EAST, N.M.P.M. EDDY COUNTY, STATE OF NEW MEXICO

FEBRUARY 7, 2017

SURVEY NO. 5155

MADRON SURVEYING, INC. 301 SOUTH CANAL (575) 234-3341 *CARLSBAD, NEW MEXICO*



One Mile Radius Map

Estimated distances to nearest wellbores:

*From SHL:

Cotton Draw Unit 292H	1000 Ft SE
Cotton Draw Unit 99	655 Ft SW

Crosses Paths with Cotton Draw Unit 182H

*From BHL:

T Heflin Fed 1	1000 Ft NE

24S 31E

devon

Cotton Draw Unit 512H

1 Mile Radius Map

0 1,182

FEET

POSTED WELL DATA

Well Name
Well Number

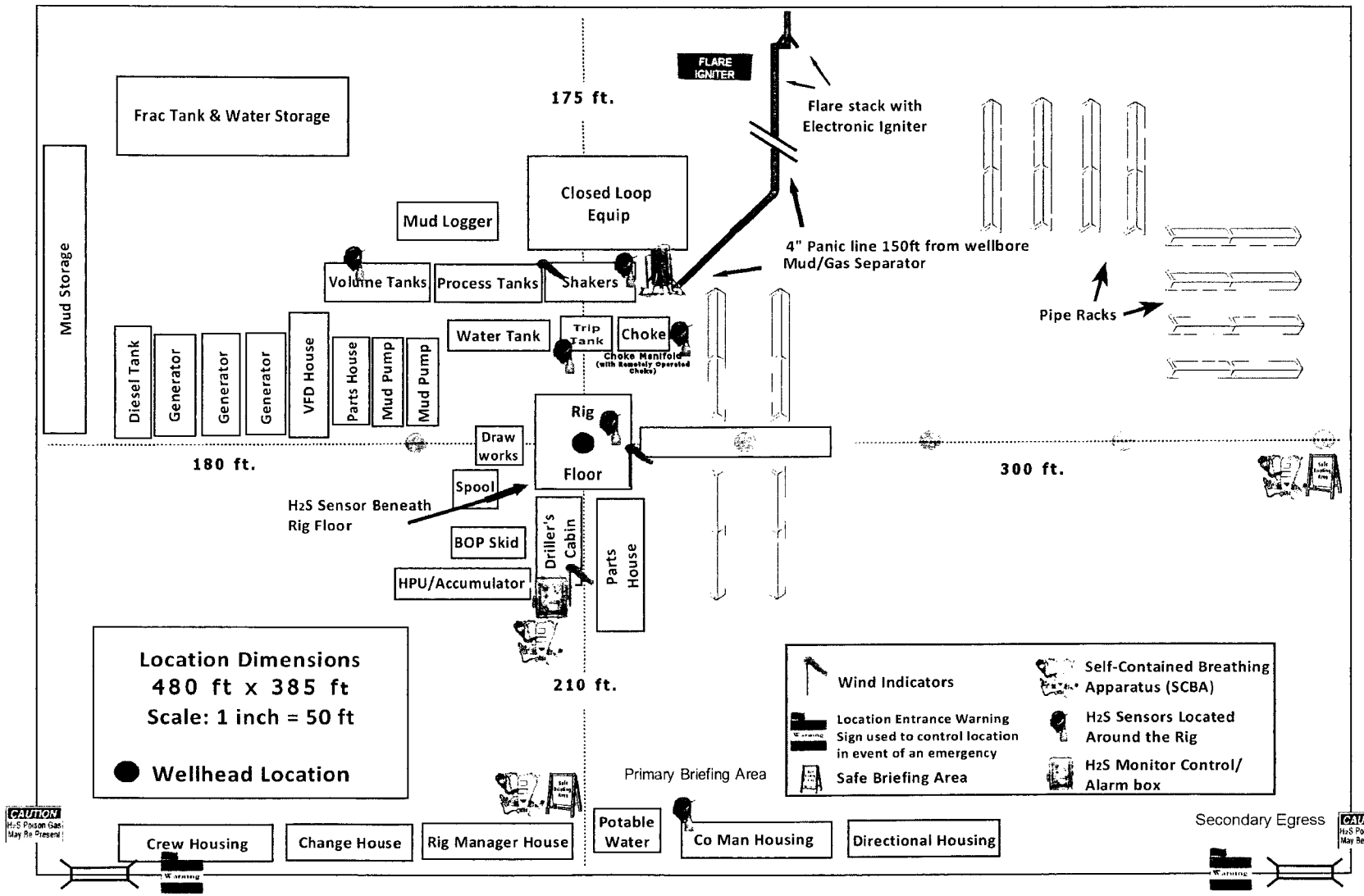
WELL SYMBOLS
ABANDONED OIL WELL
CORE HOLE
DRY HOLE WITH SHOW OF O&G
GAS PRODUCING WELL
JUNKED AND ABANDONDED
OIL PRODUCING WELL
PROPOSED
SHUT IN WELL
SALT WATER DISPOSAL WELL
At TD

By: D. Wills

February 14, 2017

PETRA 2/13/2017 8:15:27 AM

Devon Energy - Well Pad
Rig Location Layout
Safety Equipment Location

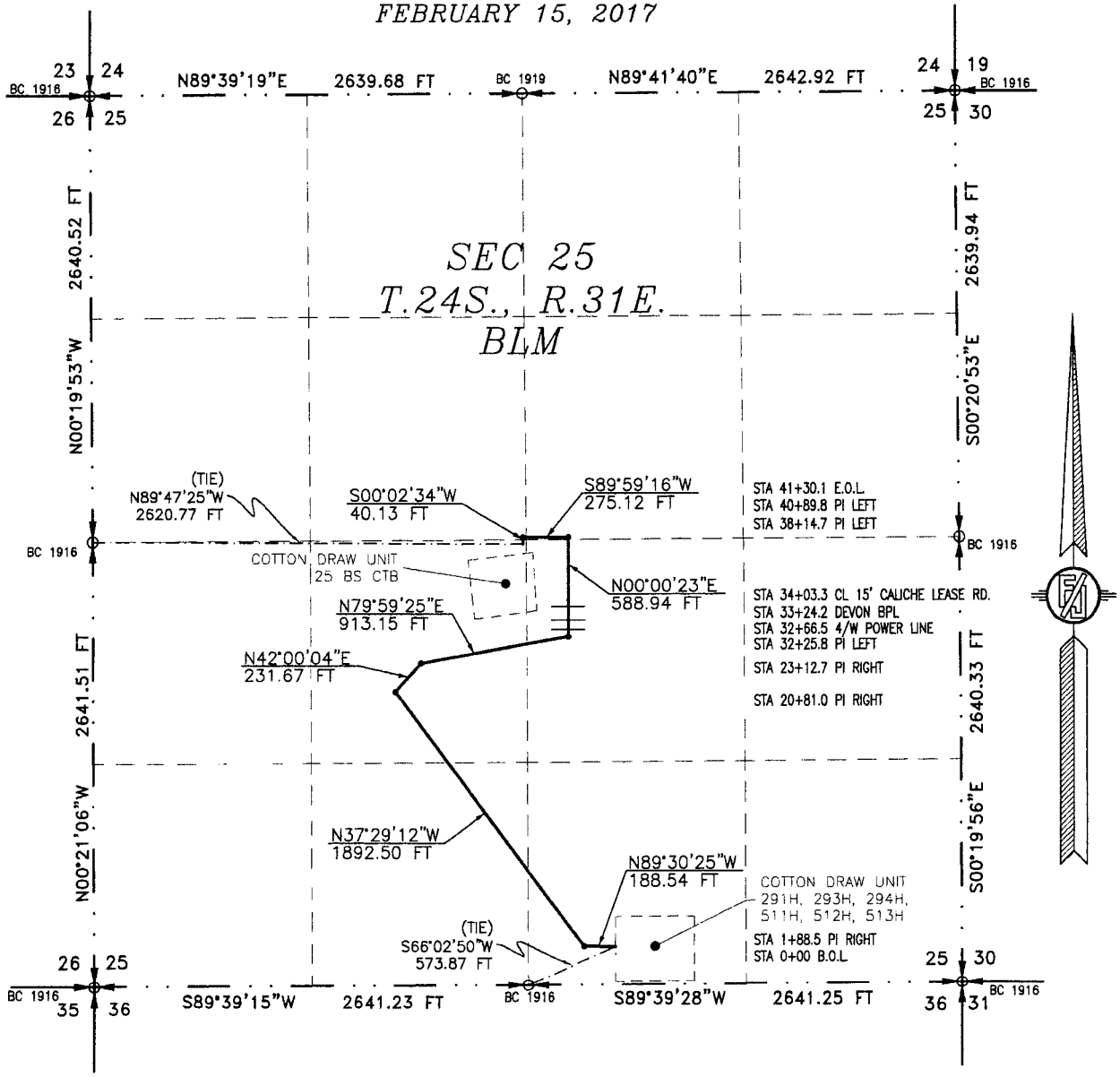


FLOWLINE PLAT (400654XYZ)

SIX 6" GAS LIFT LINES & SIX 6" FLOWLINES FROM THE COTTON DRAW UNIT 291H, 293H, 294H, 511H, 512H, & 513H TO THE COTTON DRAW UNIT 25 BS CTB

DEVON ENERGY PRODUCTION COMPANY, L.P.

CENTERLINE SURVEY OF A PIPELINE CROSSING
SECTION 25, TOWNSHIP 24 SOUTH, RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
FEBRUARY 15, 2017



SEE NEXT SHEET (2-4) FOR DESCRIPTION

1000 0 1000
Scale: 1" = 1000'

GENERAL NOTES

1.) THE INTENT OF THIS ROUTE SURVEY IS TO ACQUIRE AN EASEMENT

2.) BASIS OF BEARING IS NMSP EAST (NAD83) MODIFIED TO SURFACE COORDINATES. NAD 83 (FEET) AND NAVD 88 (FEET) COORDINATE SYSTEMS USED IN THE SURVEY

SURVEYOR CERTIFICATE

I, FILIMON F. JARAMILLO, A NEW MEXICO PROFESSIONAL SURVEYOR NO. 12797, HEREBY CERTIFY THAT I HAVE CONDUCTED AND AM RESPONSIBLE FOR THIS SURVEY, THAT THIS SURVEY IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF, AND THAT THIS SURVEY AND PLAT MEET THE MINIMUM STANDARDS FOR LAND SURVEYING IN THE STATE OF NEW MEXICO.

IN WITNESS WHEREOF, THIS CERTIFICATE IS EXECUTED AT CARLSBAD, NEW MEXICO, THIS 15 DAY OF FEBRUARY 2017

MADRON SURVEYING, INC.
301 SOUTH CANAL
CARLSBAD, NEW MEXICO 88220
Phone (575) 234-3341

FILIMON F. JARAMILLO PLS 12797

SHEET: 1-4

SURVEY NO. 4685A

MADRON SURVEYING, INC. CARLSBAD, NEW MEXICO

FLOWLINE PLAT (400654XYZ)

SIX 6" GAS LIFT LINES & SIX 6" FLOWLINES FROM THE COTTON DRAW UNIT 291H, 293H, 294H, 511H, 512H, & 513H TO THE COTTON DRAW UNIT 25 BS CTB

DEVON ENERGY PRODUCTION COMPANY, L.P.
CENTERLINE SURVEY OF A PIPELINE CROSSING
SECTION 25, TOWNSHIP 24 SOUTH, RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
FEBRUARY 15, 2017

DESCRIPTION

A STRIP OF LAND 30 FEET WIDE CROSSING BUREAU OF LAND MANAGEMENT LAND IN SECTION 25, TOWNSHIP 24 SOUTH, RANGE 31 EAST, N.M.P.M., EDDY COUNTY, STATE OF NEW MEXICO AND BEING 15 FEET EACH SIDE OF THE FOLLOWING DESCRIBED CENTERLINE SURVEY:

BEGINNING AT A POINT WITHIN THE SW/4 SE/4 OF SAID SECTION 25, TOWNSHIP 24 SOUTH, RANGE 31 EAST, N.M.P.M., WHENCE THE SOUTH QUARTER CORNER OF SAID SECTION 25, TOWNSHIP 24 SOUTH, RANGE 31 EAST, N.M.P.M. BEARS S66°02'50"W, A DISTANCE OF 573.87 FEET;
THENCE N89°30'25"W A DISTANCE OF 188.54 FEET TO AN ANGLE POINT OF THE LINE HEREIN DESCRIBED;
THENCE N37°29'12"W A DISTANCE OF 1892.50 FEET TO AN ANGLE POINT OF THE LINE HEREIN DESCRIBED;
THENCE N42°00'04"E A DISTANCE OF 231.67 FEET TO AN ANGLE POINT OF THE LINE HEREIN DESCRIBED;
THENCE N79°59'25"E A DISTANCE OF 913.15 FEET TO AN ANGLE POINT OF THE LINE HEREIN DESCRIBED;
THENCE N00°00'23"E A DISTANCE OF 588.94 FEET TO AN ANGLE POINT OF THE LINE HEREIN DESCRIBED;
THENCE S89°59'16"W A DISTANCE OF 275.12 FEET TO AN ANGLE POINT OF THE LINE HEREIN DESCRIBED;
THENCE S00°02'34"W A DISTANCE OF 40.13 FEET THE TERMINUS OF THIS CENTERLINE SURVEY, WHENCE THE WEST QUARTER CORNER OF SAID SECTION 25, TOWNSHIP 24 SOUTH, RANGE 31 EAST, N.M.P.M. BEARS N89°47'25"W, A DISTANCE OF 2620.77 FEET;

SAID STRIP OF LAND BEING 4130.05 FEET OR 250.31 RODS IN LENGTH, CONTAINING 2.844 ACRES MORE OR LESS AND BEING ALLOCATED BY FORTIES AS FOLLOWS:

SW/4 SE/4	747.48 L.F.	45.30 RODS	0.515 ACRES
SE/4 SW/4	805.80 L.F.	48.84 RODS	0.555 ACRES
NE/4 SW/4	1442.36 L.F.	87.42 RODS	0.993 ACRES
NW/4 SE/4	830.06 L.F.	50.31 RODS	0.572 ACRES
SW/4 NE/4	268.97 L.F.	16.30 RODS	0.185 ACRES
SE/4 NW/4	35.38 L.F.	2.14 RODS	0.024 ACRES

GENERAL NOTES

1.) THE INTENT OF THIS ROUTE SURVEY IS TO ACQUIRE AN EASEMENT.

2.) BASIS OF BEARING IS NMSP EAST (NAD83) MODIFIED TO SURFACE COORDINATES. NAD 83 (FEET) AND NAVD 88 (FEET) COORDINATE SYSTEMS USED IN THE SURVEY.

SURVEYOR CERTIFICATE

I, FILIMON F. JARAMILLO, A NEW MEXICO PROFESSIONAL SURVEYOR NO. 12797, HEREBY CERTIFY THAT I HAVE CONDUCTED AND AM RESPONSIBLE FOR THIS SURVEY, THAT THIS SURVEY IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF, AND THAT THIS SURVEY AND PLAT MEET THE MINIMUM STANDARDS FOR LAND SURVEYING IN THE STATE OF NEW MEXICO.

IN WITNESS WHEREOF, THIS CERTIFICATE IS EXECUTED AT CARLSBAD, NEW MEXICO, THIS 15 DAY OF FEBRUARY 2017

MADRON SURVEYING, INC
301 SOUTH CANAL
CARLSBAD, NEW MEXICO 88220
Phone (575) 234-3341

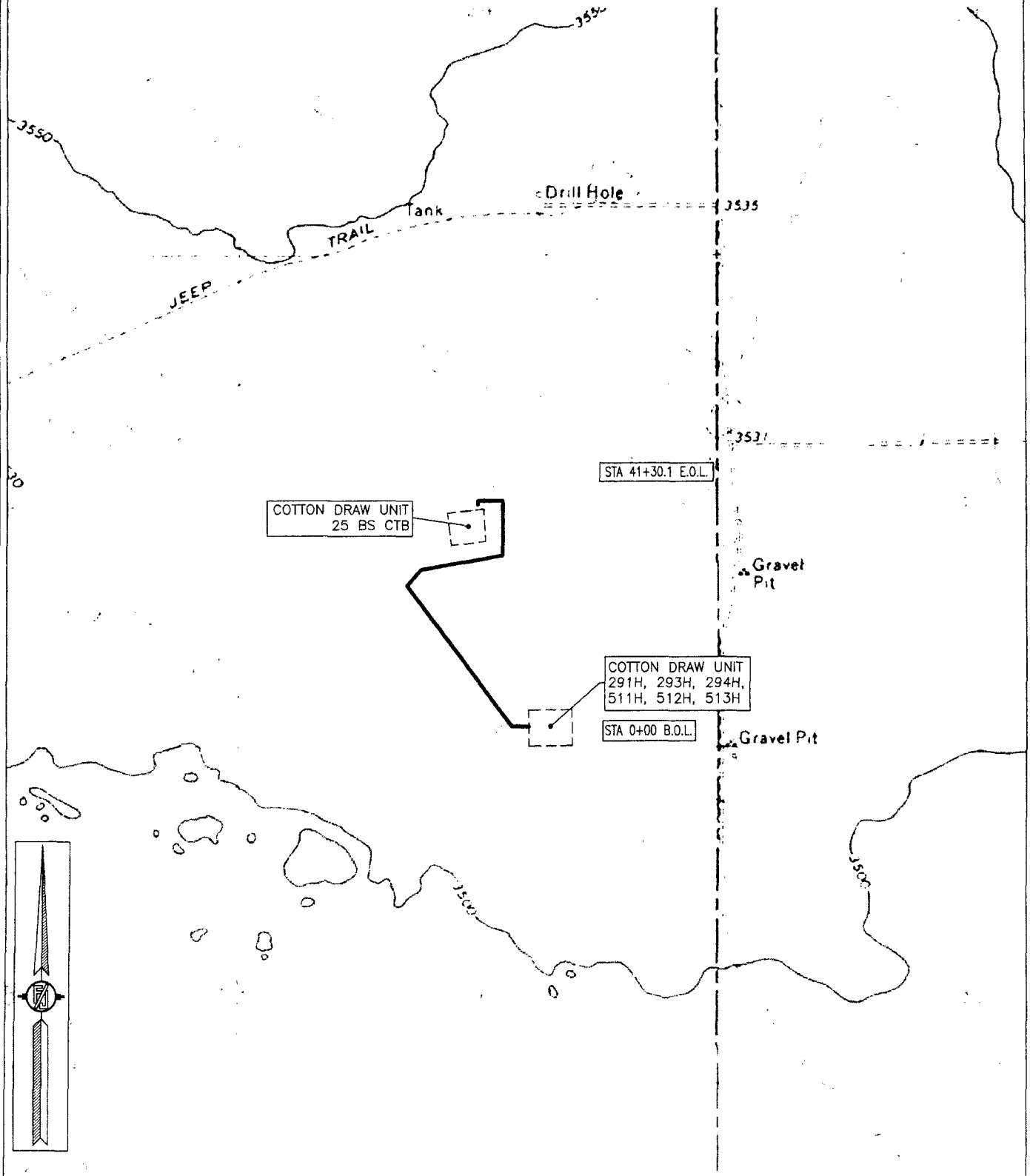
FILIMON F. JARAMILLO PLS. 12797

FLOWLINE PLAT (400654XYZ)

SIX 6" GAS LIFT LINES & SIX 6" FLOWLINES FROM THE COTTON DRAW UNIT 291H, 293H, 294H, 511H, 512H, & 513H TO THE COTTON DRAW UNIT 25 BS CTB

DEVON ENERGY PRODUCTION COMPANY, L.P.

CENTERLINE SURVEY OF A PIPELINE CROSSING
SECTION 25, TOWNSHIP 24 SOUTH, RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
FEBRUARY 15, 2017



SHEET: 3-4

SURVEY NO. 4685A

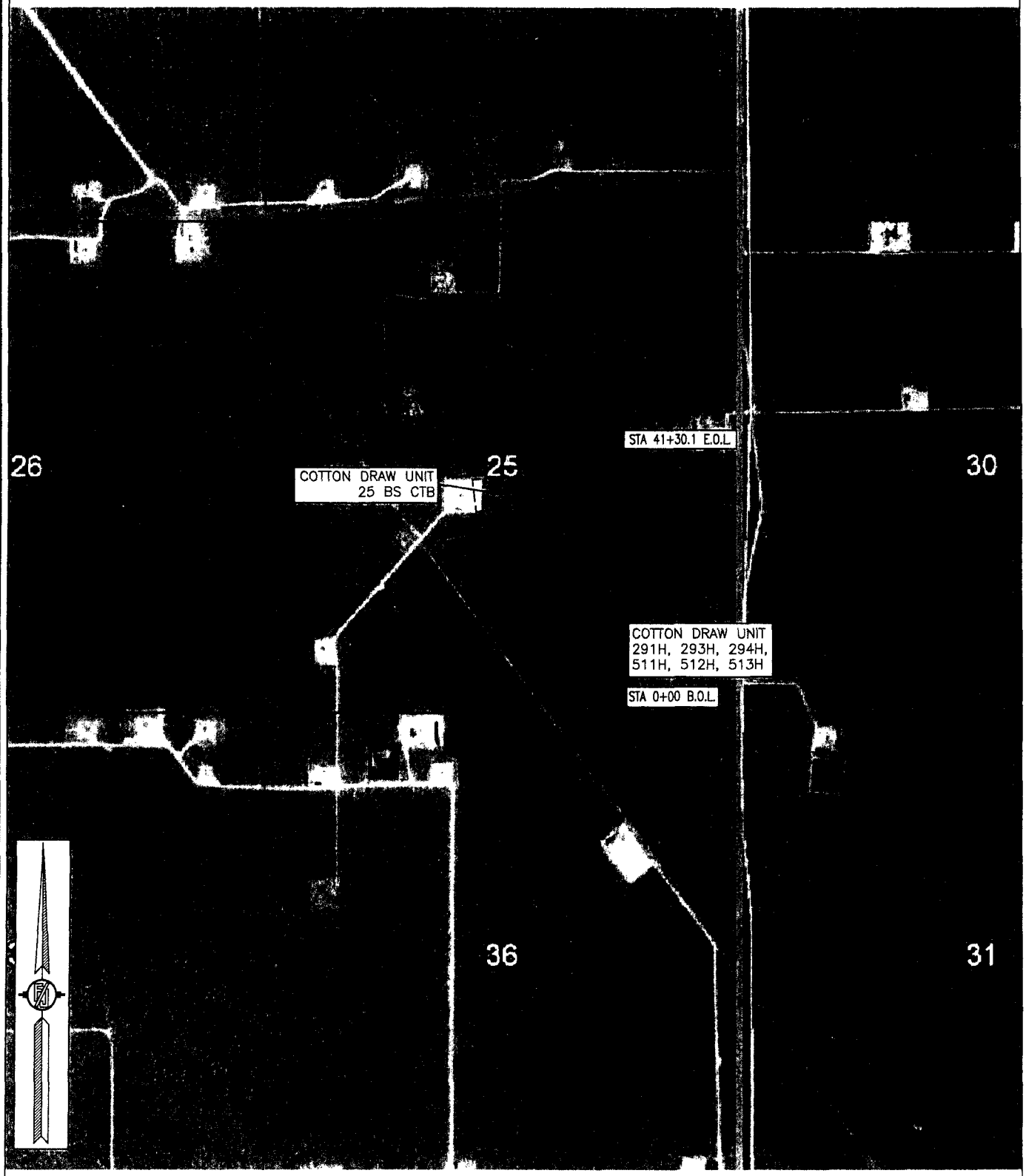
MADRON SURVEYING, INC. 301 SOUTH CANAL (575) 234-3341 CARLSBAD, NEW MEXICO

FLOWLINE PLAT (400654XYZ)

SIX 6" GAS LIFT LINES & SIX 6" FLOWLINES FROM THE COTTON DRAW UNIT 291H, 293H, 294H, 511H, 512H, & 513H TO THE COTTON DRAW UNIT 25 BS CTB

DEVON ENERGY PRODUCTION COMPANY, L.P.

CENTERLINE SURVEY OF A PIPELINE CROSSING
SECTION 25, TOWNSHIP 24 SOUTH, RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
FEBRUARY 15, 2017



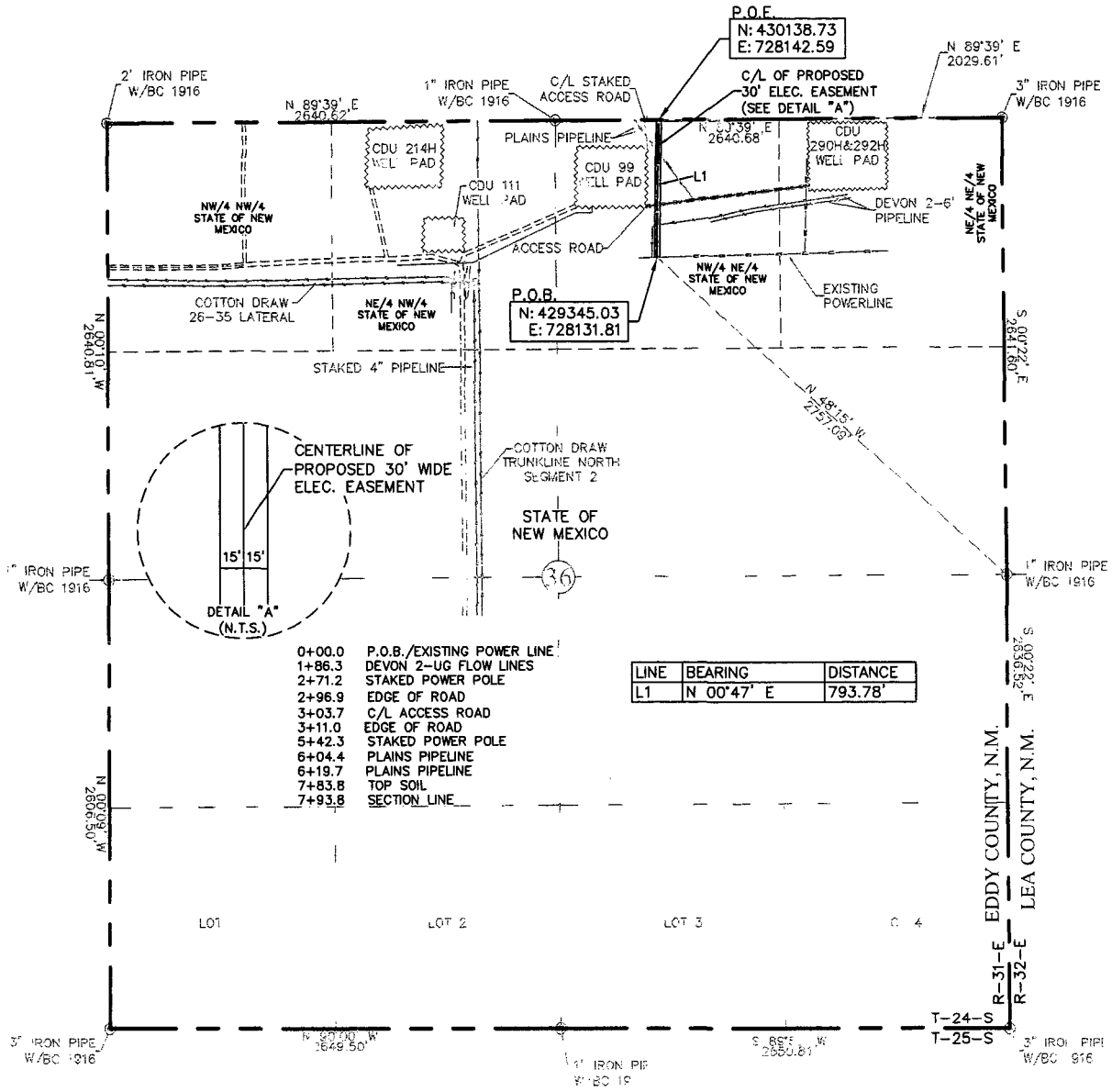
SHEET: 4-4

SURVEY NO. 4685A

MADRON SURVEYING, INC. 301 SOUTH CANAL (575) 234-3341 CARLSBAD, NEW MEXICO

EXHIBIT "A"
PAGE 1 of 2

ELECTRIC LINE PLAT
SECTION 36, T24S–R31E, N.M.P.M.
EDDY COUNTY, NEW MEXICO



LINE	BEARING	DISTANCE
L1	N 00°47' E	793.78'

0+00.0	P.O.B./EXISTING POWER LINE
1+86.3	DEVON 2-UG FLOW LINES
2+71.2	STAKED POWER POLE
2+96.9	EDGE OF ROAD
3+03.7	C/L ACCESS ROAD
3+11.0	EDGE OF ROAD
5+42.3	STAKED POWER POLE
6+04.4	PLAINS PIPELINE
6+19.7	PLAINS PIPELINE
7+83.8	TOP SOIL
7+93.8	SECTION LINE

QUARTER/QUARTER	30' ESMT. AREA	FEET	RODS
NW 1/4 OF NE 1/4	0.55 ACRES	793.78	48.11

SEE THE ATTACHED LEGAL DESCRIPTION

Note: All bearings recited herein are based on the New Mexico State Plane Coordinate System, NAD 83, New Mexico East Zone 3001, US Survey Feet, all distances are grid.

I, B.L. Laman, New Mexico PLS No. 22404, hereby certify this survey to reflect an actual survey made on the ground under my supervision. This survey meets the minimum standards for surveying in New Mexico.

B.L. LAMAN
NEW MEXICO
22404
PROFESSIONAL SURVEYOR

B.L. Laman PLS #22404
Date Signed: 06-02-2016
571 State Street, Jasper, TX.
(409) 202-5111 75951
Employee of Horizonrow, LLC

LEGEND
• POWER POLE

0 1000 2000

HORIZON ROW LLC
Drawn for: devon
Drawn by: CHRIS MAAS
Date: 05/24/2016

DEVON ENERGY PRODUCTION COMPANY, L.P.
CDU 291 & 293 & 294
PAD CONNECT ELECTRIC LINE
PROPOSED 30' EASEMENT
ON THE PROPERTY OF
STATE OF NEW MEXICO
SECTION 36, T24S–R31E, N.M.P.M.

LINE NUMBER: EL7831
WBS NUMBER: CC-112971.AL
SCALE: 1" = 1000'
REVISIONS:
SHEET: 1 OF 2

SECTION 36, T24S-R31E, N.M.P.M.,
EDDY COUNTY, NEW MEXICO

ELECTRIC LINE PLAT
LEGAL DESCRIPTION

FOR

DEVON ENERGY PRODUCTION COMPANY, L.P.

STATE OF NEW MEXICO

30' EASEMENT DESCRIPTION:

BEING an easement thirty (30) feet in width lying fifteen (15) feet on the right side and fifteen (15) feet on the left side of the survey centerline described below, being out of the northwest quarter of the northeast quarter (NW ¼, NE ¼) of Section 36, Township 24 South, Range 31 East, N.M.P.M., Eddy County, New Mexico, and being out of a parcel of land owned by the State of New Mexico. Said centerline of easement being more particularly described as follows:

Commencing from a 1" iron pipe w/ BC1916 found for the east quarter corner of Section 36, T24S-R31E, N.M.P.M., Eddy County, New Mexico;

Thence N 48°15' W a distance of 2757.09' to the **Point of Beginning** of this easement having coordinates of Northing=429345.03, Easting=728131.81 feet and continuing the following course;

Thence N 00°47' E, a distance of 793.78' to the **Point of Ending** having coordinates of Northing=430138.73, Easting=728142.59 feet, from said point a 3" iron pipe w/ BC1916 found for the northeast corner of Section 36, T24S-R31E, N.M.P.M., Eddy County, New Mexico bears N 89°39' E a distance of 2029.61', covering **793.78' or 48.11 rods** and having an area of **0.55 acres**.

NOTES:

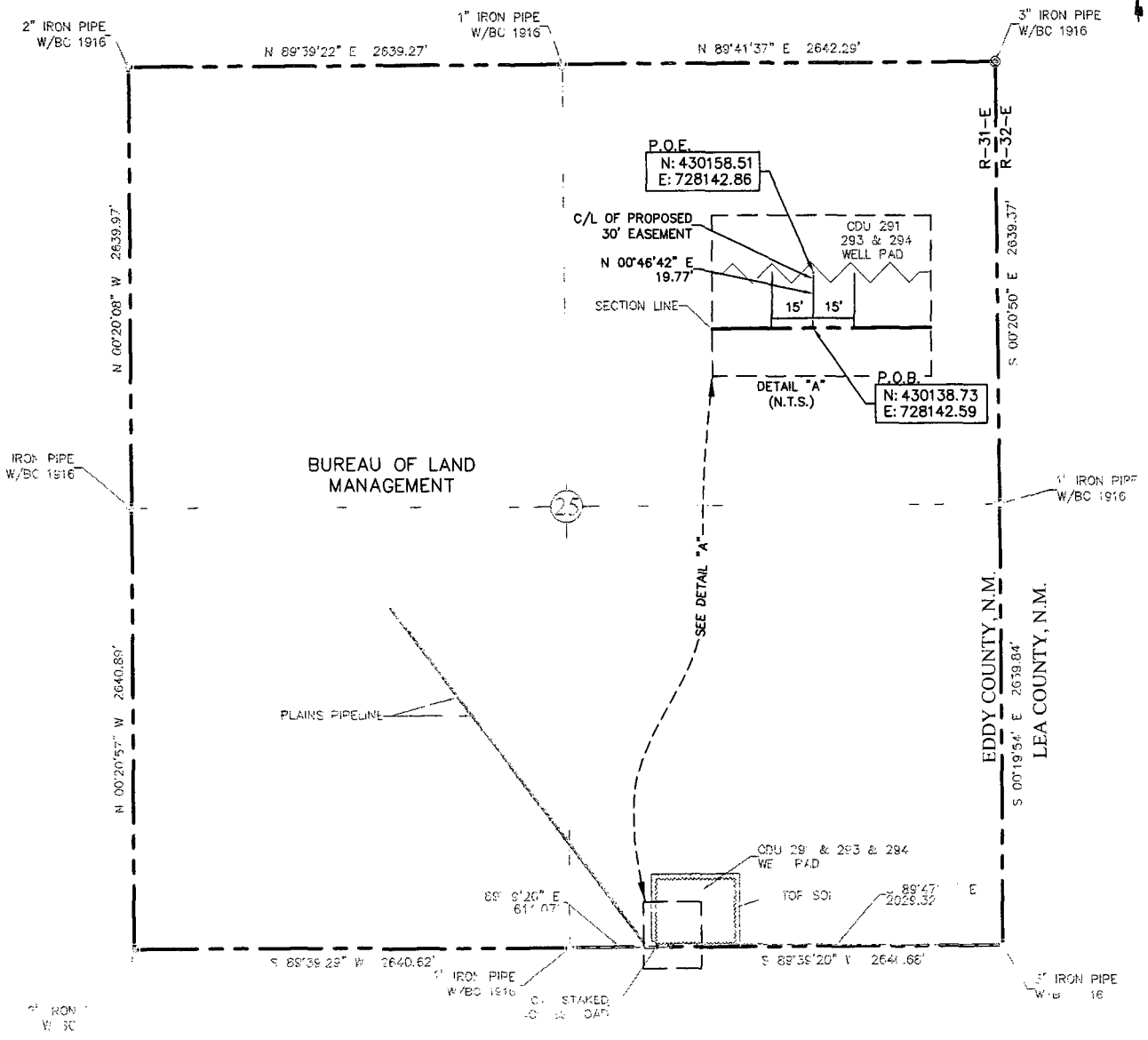
Bearings, distances and coordinates shown herein are based on New Mexico State Plane Coordinate System, NAD 83, East Zone 3001, US Survey Feet, all distances are grid.

I, B.L. Laman, New Mexico PLS No. 22404, hereby certify this survey to reflect an actual survey made on the ground under my supervision. This survey meets the minimum standards for surveying in New Mexico.

B.L. Laman PLS 22404
Date Signed: 06/02/2016
Horizon Row, LLC
571 State Street, Jasper, TX
(409) 202-5111 75951
Employee of Horizon Row, LLC

EXHIBIT "A"
PAGE 1 of 4

ELECTRIC LINE PLAT
SECTION 25, T24S–R31E, N.M.P.M.
EDDY COUNTY, NEW MEXICO



7+93.8 SECTION LINE
8+13.6 P.O.E./CDU 291 & 293 & 294 WELL PAD

30' EASEMENT AREA = 0.014 ACRE(S)
19.77 FEET OR 1.20 RODS

SEE THE ATTACHED LEGAL DESCRIPTION

Note: All bearings recited herein are based on the New Mexico State Plane Coordinate System, NAD 83, New Mexico East Zone 3001, US Survey Feet, all distances are grid.

I, B.L. Laman, New Mexico PLS No. 22404, hereby certify this survey to reflect an actual survey made on the ground under my supervision. This survey meets the minimum standards for surveying in New Mexico.

NEW MEXICO 22404 PROFESSIONAL SURVEYOR

B.L. Laman PLS #22404
Date Signed: 06-02-2016
571 State Street, Jasper, TX.
(409) 202-5111 75951
Employee of Horizonrow, LLC

LEGEND
• POWER POLE

0 1000 2000

HORIZON ROW LLC
Drawn for: devon
Drawn by: CHRIS MAAS
Date: 05/24/2016

DEVON ENERGY PRODUCTION COMPANY, L.P.
CDU 291 & 293 & 294
PAD CONNECT ELECTRIC LINE
PROPOSED 30' EASEMENT
ON THE PROPERTY OF
BUREAU OF LAND MANAGEMENT
SECTION 25, T24S–R31E, N.M.P.M.

LINE NUMBER: EL7831
WBS NUMBER: CC-112971.AL
SCALE: 1" = 1000'
REVISIONS:
SHEET: 1 OF 4

SECTION 25, T24S-R31E, N.M.P.M.,
EDDY COUNTY, NEW MEXICO

ELECTRIC LINE
LEGAL DESCRIPTION

FOR

DEVON ENERGY PRODUCTION COMPANY, L.P.

BUREAU OF LAND MANAGEMENT

30' EASEMENT DESCRIPTION:

BEING an easement thirty (30) feet in width lying fifteen (15) feet on the right side and fifteen (15) feet on the left side of the survey centerline described below, being out of the southeast quarter (SE ¼) of Section 25, Township 24 South, Range 31 East, N.M.P.M., Eddy County, New Mexico, and being out of a parcel of land owned by the Bureau of Land Management. Said centerline of easement being more particularly described as follows:

Commencing from a 1" iron pipe w/ BC1916 found for the south quarter corner of Section 25, T24S-R31E, N.M.P.M., Eddy County, New Mexico;

Thence N 89°39'20" E a distance of 611.07' to the **Point of Beginning** of this easement having coordinates of Northing=430138.73, Easting=728142.59 feet and continuing the following course;

Thence N 00°46'42" E, a distance of 19.77' to the **Point of Ending** having coordinates of Northing=430158.51, Easting=728142.86 feet, from said point a 3" iron pipe w/ BC1916 found for the southeast corner of Section 25, T24S-R31E, N.M.P.M., Eddy County, New Mexico bears S 89°47'10" E a distance of 2029.32', covering **19.77' or 1.20 rods** and having an area of **0.014 acres**.

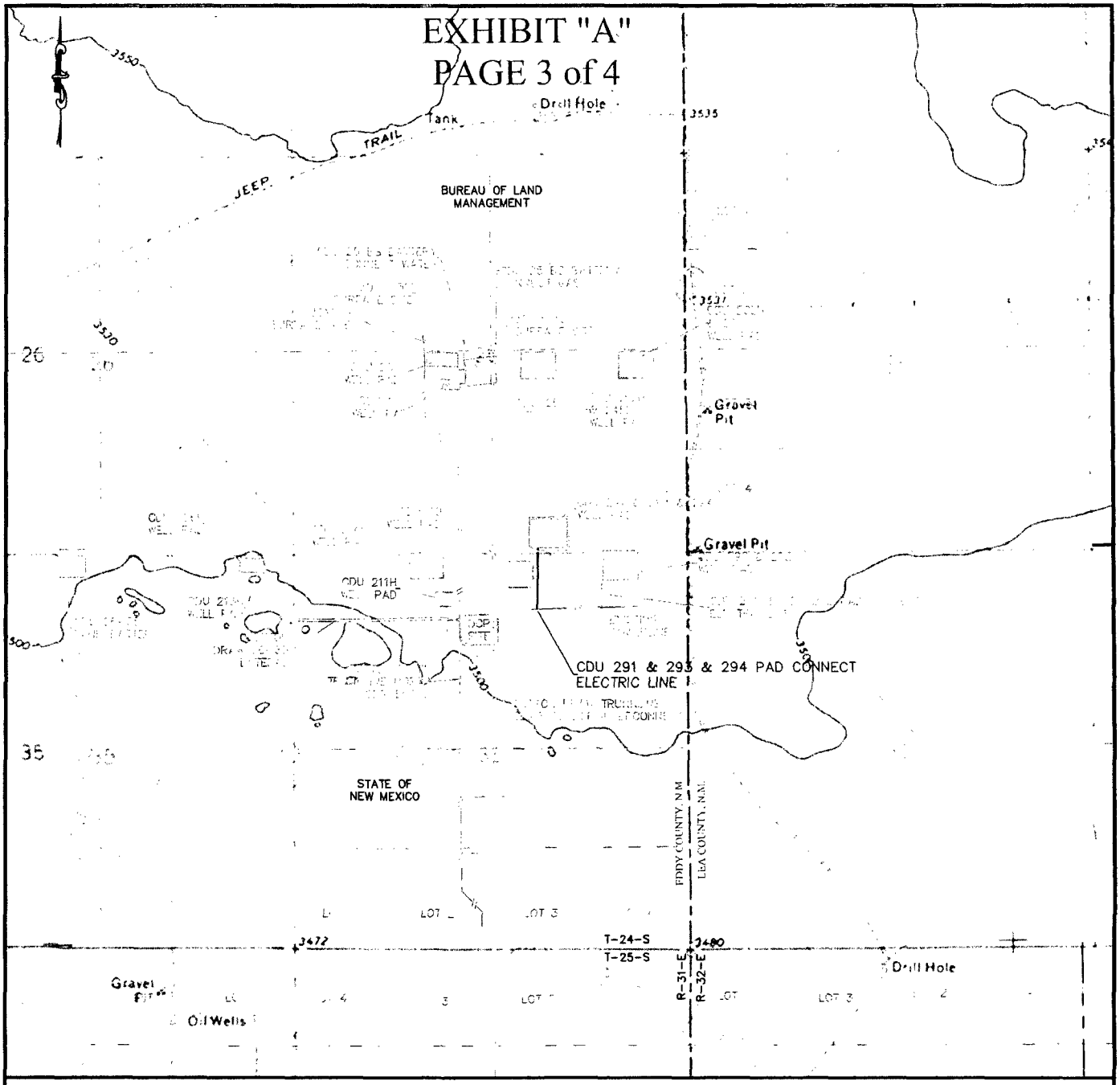
NOTES:

Bearings, distances and coordinates shown herein are based on New Mexico State Plane Coordinate System, NAD 83, East Zone 3001, US Survey Feet, all distances are grid.

I, B.L. Laman, New Mexico PLS No. 22404, hereby certify this survey to reflect an actual survey made on the ground under my supervision. This survey meets the minimum standards for surveying in New Mexico.

B.L. Laman PLS 22404
Date Signed: 06/02/2016
Horizon Row, LLC
571 State Street, Jasper, TX
(903) 388-3045 75951
Employee of Horizon Row, LLC

EXHIBIT "A"
PAGE 3 of 4

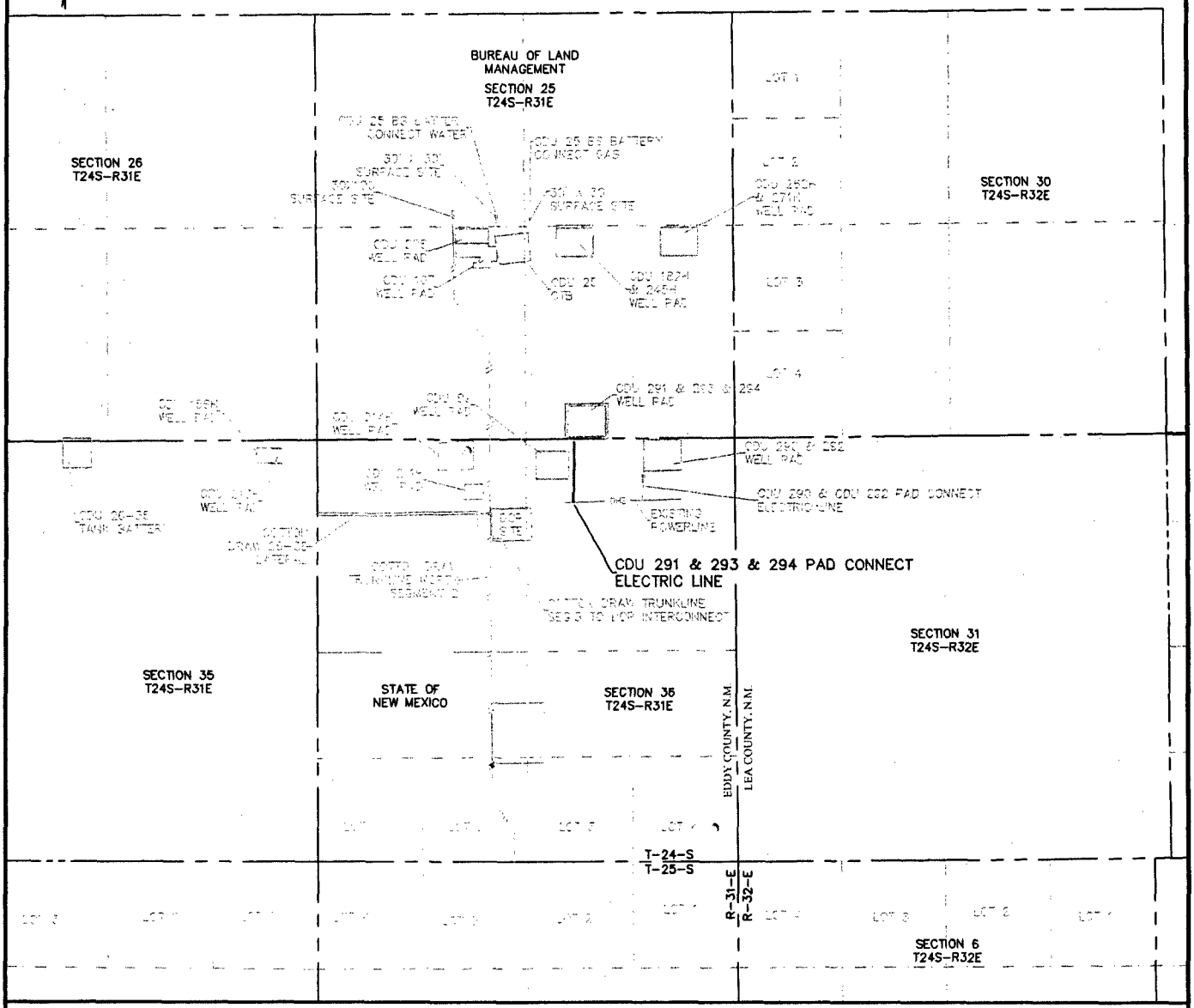


QUAD MAP

SECTION 36, T24S-R31E, N.M.P.M.
SECTION 25, T24S-R31E, N.M.P.M.
EDDY COUNTY, NEW MEXICO

HORIZON ROW LLC		Drawn for: devon	LINE NUMBER: EL7831
DEVON ENERGY PRODUCTION CO., L.P.			WBS NUMBER: CC-112971.AL
PROPOSED 30' EASEMENT			SCALE: 1" = 2000'
Drawn by: CHRIS MAAS	Date: 05/24/2016		REVISIONS:
			SHEET: 3 OF 4

EXHIBIT "A"
PAGE 4 of 4



AERIAL MAP

SECTION 36, T24S-R31E, N.M.P.M.
SECTION 25, T24S-R31E, N.M.P.M.
EDDY COUNTY, NEW MEXICO

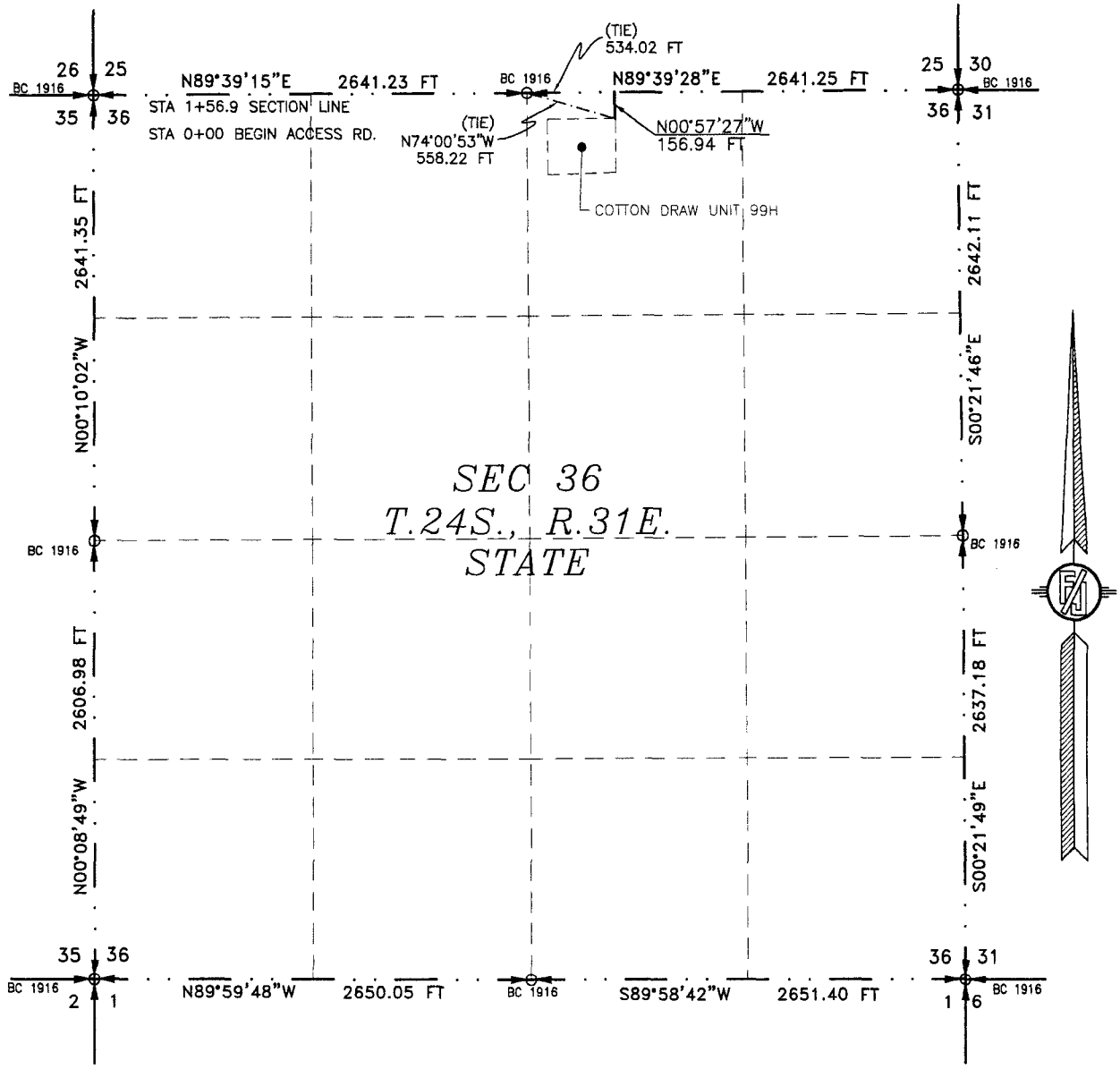
HORIZON ROW LLC	Drawn for:	LINE NUMBER: EL7831
DEVON ENERGY PRODUCTION CO., L.P.	devon	WBS NUMBER: CC-112971.AL
PROPOSED 30' EASEMENT		SCALE: 1" = 2000'
Drawn by: CHRIS MAAS / Date: 05/24/2016		REVISIONS:
		SHEET: 4 OF 4

ACCESS ROAD PLAT (AA0000000000)

ACCESS ROAD TO THE COTTON DRAW UNIT 294H, 293H, 291H, 511H, 512H, & 513H

DEVON ENERGY PRODUCTION COMPANY, L.P.

CENTERLINE SURVEY OF AN ACCESS ROAD CROSSING
SECTION 36, TOWNSHIP 24 SOUTH, RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
FEBRUARY 14, 2017



SEE NEXT SHEET (2-6) FOR DESCRIPTION

1000 0 1000
Scale: 1" = 1000'

GENERAL NOTES

1.) THE INTENT OF THIS ROUTE SURVEY IS TO ACQUIRE AN EASEMENT.

2.) BASIS OF BEARING IS NMSP EAST (NAD83) MODIFIED TO SURFACE COORDINATES. NAD 83 (FEET) AND NAVD 88 (FEET) COORDINATE SYSTEMS USED IN THE SURVEY.

SURVEYOR CERTIFICATE

I, FILIMON F. JARAMILLO, A NEW MEXICO PROFESSIONAL SURVEYOR NO. 12797, HEREBY CERTIFY THAT I HAVE CONDUCTED AND AM RESPONSIBLE FOR THIS SURVEY, THAT THIS SURVEY IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF, AND THAT THIS SURVEY AND PLAT MEET THE MINIMUM STANDARDS FOR LAND SURVEYING IN THE STATE OF NEW MEXICO.

IN WITNESS WHEREOF, THIS CERTIFICATE IS EXECUTED AT CARLSBAD, NEW MEXICO, THIS 14 DAY OF FEBRUARY 2017

FILIMON F. JARAMILLO PLS. 12797

MADRON SURVEYING, INC
301 SOUTH CANAL
CARLSBAD, NEW MEXICO 88220
Phone (575) 234-3341

SHEET: 1-6

SURVEY NO. 4738A

ACCESS ROAD PLAT (AA0000000000)

ACCESS ROAD TO THE COTTON DRAW UNIT 294H, 293H, 291H, 511H, 512H, & 513H

DEVON ENERGY PRODUCTION COMPANY, L.P.
CENTERLINE SURVEY OF AN ACCESS ROAD CROSSING
SECTION 36, TOWNSHIP 24 SOUTH, RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
FEBRUARY 14, 2017

DESCRIPTION

A STRIP OF LAND 20 FEET WIDE CROSSING STATE OF NEW MEXICO LAND IN SECTION 36, TOWNSHIP 24 SOUTH, RANGE 31 EAST, N.M.P.M., EDDY COUNTY, STATE OF NEW MEXICO AND BEING 10 FEET EACH SIDE OF THE FOLLOWING DESCRIBED CENTERLINE SURVEY:

BEGINNING AT A POINT WITHIN THE NW/4 NE/4 OF SAID SECTION 36, TOWNSHIP 24 SOUTH, RANGE 31 EAST, N.M.P.M., WHENCE THE NORTH QUARTER CORNER OF SAID SECTION 36, TOWNSHIP 24 SOUTH, RANGE 31 EAST, N.M.P.M. BEARS N74°00'53"W, A DISTANCE OF 558.22 FEET;
THENCE N00°57'27"W A DISTANCE OF 156.94 FEET THE TERMINUS OF THIS CENTERLINE SURVEY, WHENCE THE NORTH QUARTER CORNER OF SAID SECTION 36, TOWNSHIP 24 SOUTH, RANGE 31 EAST, N.M.P.M. BEARS S89°39'28"W, A DISTANCE OF 534.02 FEET;

SAID STRIP OF LAND BEING 156.94 FEET OR 9.51 RODS IN LENGTH, CONTAINING 0.072 ACRES MORE OR LESS AND BEING ALLOCATED BY FORTIES AS FOLLOWS:

NW/4 NE/4 156.94 L.F. 9.51 RODS 0.072 ACRES

GENERAL NOTES

1.) THE INTENT OF THIS ROUTE SURVEY IS TO ACQUIRE AN EASEMENT.

2.) BASIS OF BEARING IS NMSP EAST (NAD83) MODIFIED TO SURFACE COORDINATES. NAD 83 (FEET) AND NAVD 88 (FEET) COORDINATE SYSTEMS USED IN THE SURVEY.

SURVEYOR CERTIFICATE

I, FILIMON F. JARAMILLO, A NEW MEXICO PROFESSIONAL SURVEYOR NO. 12797, HEREBY CERTIFY THAT I HAVE CONDUCTED AND AM RESPONSIBLE FOR THIS SURVEY, THAT THIS SURVEY IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF, AND THAT THIS SURVEY AND PLAT MEET THE MINIMUM STANDARDS FOR LAND SURVEYING IN THE STATE OF NEW MEXICO.

IN WITNESS WHEREOF, THIS CERTIFICATE IS EXECUTED AT CARLSBAD, NEW MEXICO, THIS 14 DAY OF FEBRUARY 2017

MADRON SURVEYING, INC.
301 SOUTH CANAL
CARLSBAD, NEW MEXICO 88220
Phone (575) 234-3341

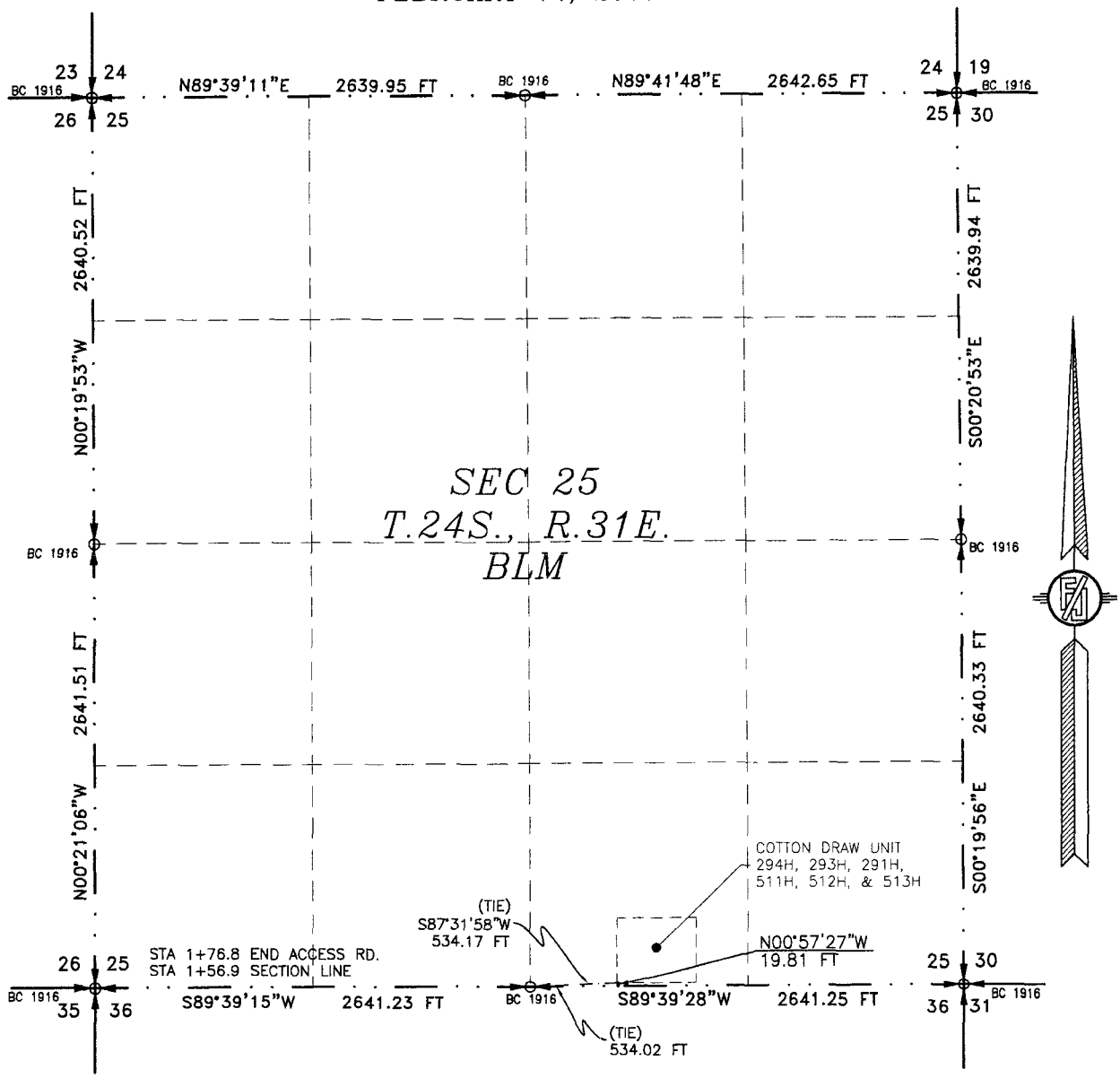
FILIMON F. JARAMILLO PLS 12797

ACCESS ROAD PLAT (AA000000000)

ACCESS ROAD TO THE COTTON DRAW UNIT 294H, 293H, 291H, 511H, 512H, & 513H

DEVON ENERGY PRODUCTION COMPANY, L.P.

CENTERLINE SURVEY OF AN ACCESS ROAD CROSSING
SECTION 25, TOWNSHIP 24 SOUTH, RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
FEBRUARY 14, 2017



SEE NEXT SHEET (4-6) FOR DESCRIPTION

1000 0 1000
Scale: 1" = 1000'

GENERAL NOTES

1.) THE INTENT OF THIS ROUTE SURVEY IS TO ACQUIRE AN EASEMENT.

2.) BASIS OF BEARING IS NMSP EAST (NAD83) MODIFIED TO SURFACE COORDINATES. NAD 83 (FEET) AND NAVD 88 (FEET) COORDINATE SYSTEMS USED IN THE SURVEY.

SURVEYOR CERTIFICATE

I, FILIMON F. JARAMILLO, A NEW MEXICO PROFESSIONAL SURVEYOR NO. 12797, HEREBY CERTIFY THAT I HAVE CONDUCTED AND AM RESPONSIBLE FOR THIS SURVEY, THAT THIS SURVEY IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF, AND THAT THIS SURVEY AND PLAT MEET THE MINIMUM STANDARDS FOR LAND SURVEYING IN THE STATE OF NEW MEXICO.

IN WITNESS WHEREOF, THIS CERTIFICATE IS EXECUTED AT CARLSBAD, NEW MEXICO, THIS 14 DAY OF FEBRUARY 2017

MADRON SURVEYING, INC
301 SOUTH CANAL
CARLSBAD, NEW MEXICO 88220
Phone (575) 234-3341

FILIMON F. JARAMILLO PLS: 12797

301 SOUTH CANAL
(575) 234-3341

SHEET: 3-6

SURVEY NO. 4738A

MADRON SURVEYING, INC. CARLSBAD, NEW MEXICO

ACCESS ROAD PLAT (AA0000000000)

ACCESS ROAD TO THE COTTON DRAW UNIT 294H, 293H, 291H, 511H, 512H, & 513H

DEVON ENERGY PRODUCTION COMPANY, L.P.
CENTERLINE SURVEY OF AN ACCESS ROAD CROSSING
SECTION 25, TOWNSHIP 24 SOUTH, RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
FEBRUARY 14, 2017

DESCRIPTION

A STRIP OF LAND 20 FEET WIDE CROSSING BUREAU OF LAND MANAGEMENT LAND IN SECTION 25, TOWNSHIP 24 SOUTH, RANGE 31 EAST, N.M.P.M., EDDY COUNTY, STATE OF NEW MEXICO AND BEING 10 FEET EACH SIDE OF THE FOLLOWING DESCRIBED CENTERLINE SURVEY:

BEGINNING AT A POINT WITHIN THE SW/4 SE/4 OF SAID SECTION 25, TOWNSHIP 24 SOUTH, RANGE 31 EAST, N.M.P.M., WHENCE THE SOUTH QUARTER CORNER OF SAID SECTION 25, TOWNSHIP 24 SOUTH, RANGE 31 EAST, N.M.P.M. BEARS S89°39'28"W, A DISTANCE OF 534.02 FEET;
THENCE N00°57'27"W A DISTANCE OF 19.81 FEET THE TERMINUS OF THIS CENTERLINE SURVEY, WHENCE THE SOUTH QUARTER CORNER OF SAID SECTION 25, TOWNSHIP 24 SOUTH, RANGE 31 EAST, N.M.P.M. BEARS S87°31'58"W, A DISTANCE OF 534.17 FEET;

SAID STRIP OF LAND BEING 19.81 FEET OR 1.20 RODS IN LENGTH, CONTAINING 0.009 ACRES MORE OR LESS AND BEING ALLOCATED BY FORTIES AS FOLLOWS:

SW/4 SE/4	19.81 L.F.	1.20 RODS	0.009 ACRES

GENERAL NOTES

1.) THE INTENT OF THIS ROUTE SURVEY IS TO ACQUIRE AN EASEMENT.

2.) BASIS OF BEARING IS NMSP EAST (NAD83) MODIFIED TO SURFACE COORDINATES. NAD 83 (FEET) AND NAVD 88 (FEET) COORDINATE SYSTEMS USED IN THE SURVEY.

SURVEYOR CERTIFICATE

I, FILIMON F. JARAMILLO, A NEW MEXICO PROFESSIONAL SURVEYOR NO. 12797, HEREBY CERTIFY THAT I HAVE CONDUCTED AND AM RESPONSIBLE FOR THIS SURVEY, THAT THIS SURVEY IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF, AND THAT THIS SURVEY AND PLAT MEET THE MINIMUM STANDARDS FOR LAND SURVEYING IN THE STATE OF NEW MEXICO.

IN WITNESS WHEREOF, THIS CERTIFICATE IS EXECUTED AT CARLSBAD, NEW MEXICO, THIS 14 DAY OF FEBRUARY 2017

MADRON SURVEYING, INC.
301 SOUTH CANAL
CARLSBAD, NEW MEXICO 88220
Phone (575) 234-3341

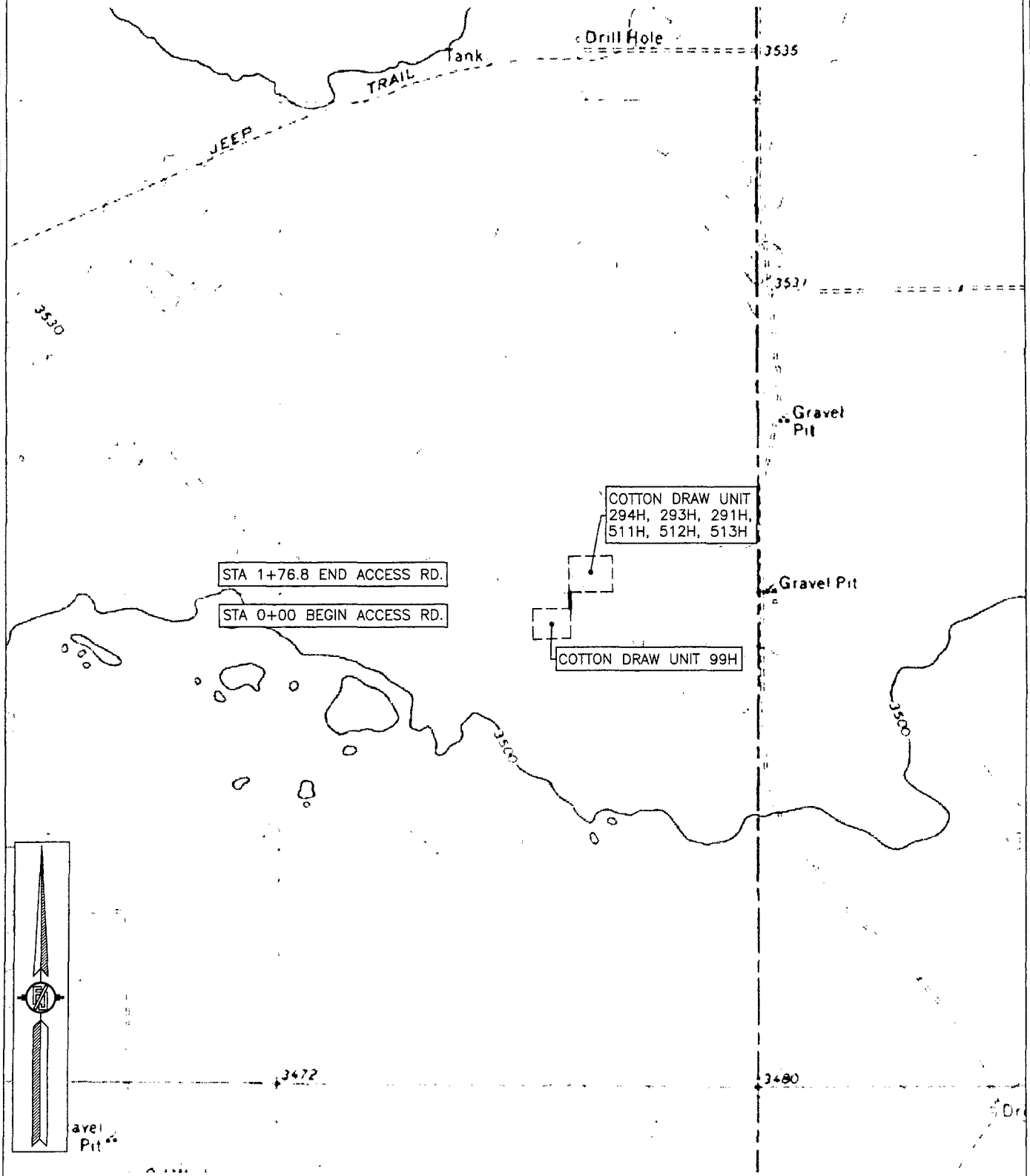
FILIMON F. JARAMILLO PLS 12797

ACCESS ROAD PLAT (AA000000000)

ACCESS ROAD TO THE COTTON DRAW UNIT 294H, 293H, 291H, 511H, 512H, & 513H

DEVON ENERGY PRODUCTION COMPANY, L.P.

CENTERLINE SURVEY OF AN ACCESS ROAD CROSSING
SECTIONS 36, 25, TOWNSHIP 24 SOUTH, RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
FEBRUARY 14, 2017



SHEET: 5-6

SURVEY NO. 4738A

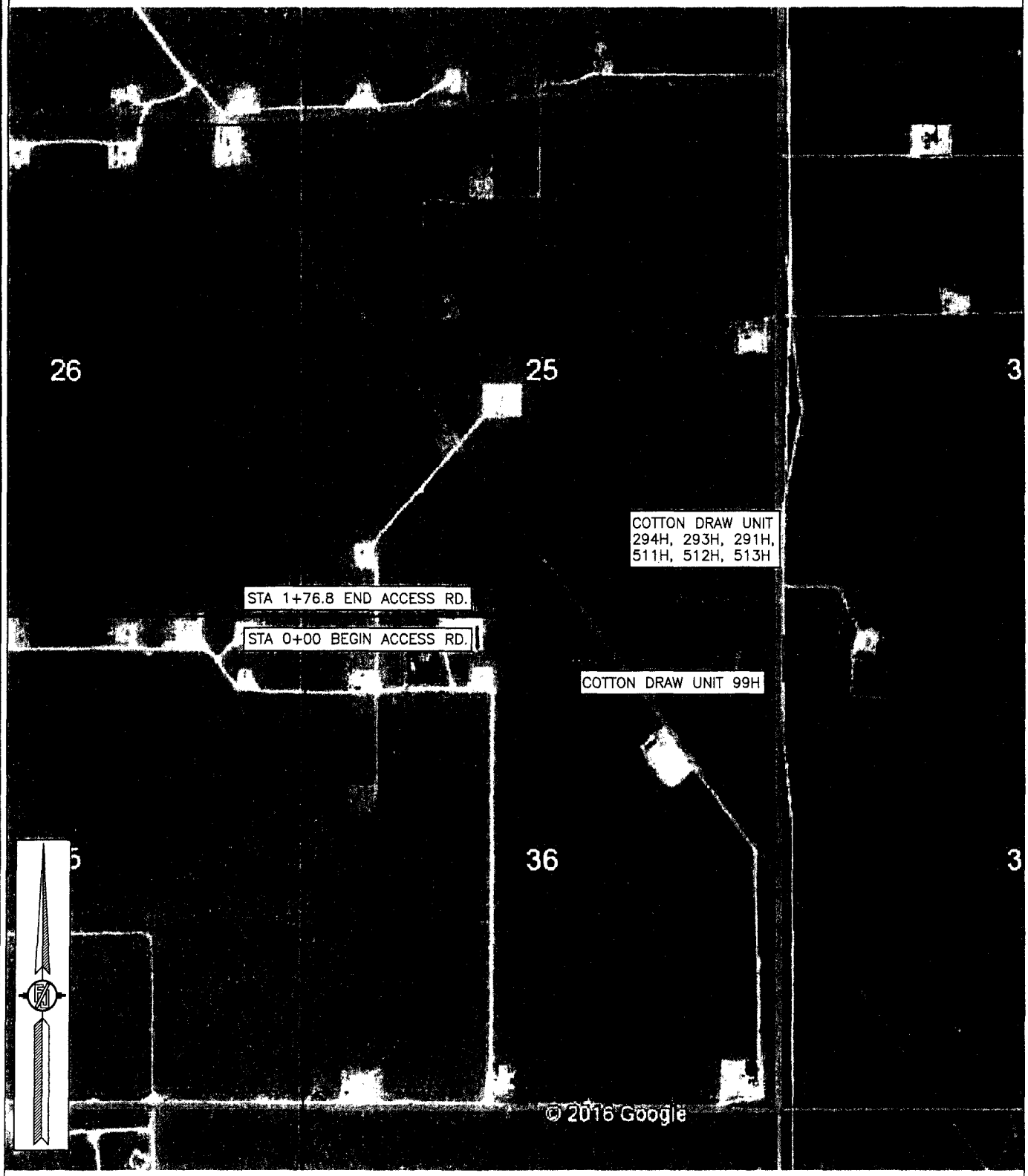
MADRON SURVEYING, INC. 301 SOUTH CANAL (575) 234-3341 CARLSBAD, NEW MEXICO

ACCESS ROAD PLAT (AA000000000)

ACCESS ROAD TO THE COTTON DRAW UNIT 294H, 293H, 291H, 511H, 512H, & 513H

DEVON ENERGY PRODUCTION COMPANY, L.P.

CENTERLINE SURVEY OF AN ACCESS ROAD CROSSING
SECTIONS 36, 25, TOWNSHIP 24 SOUTH, RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
FEBRUARY 14, 2017



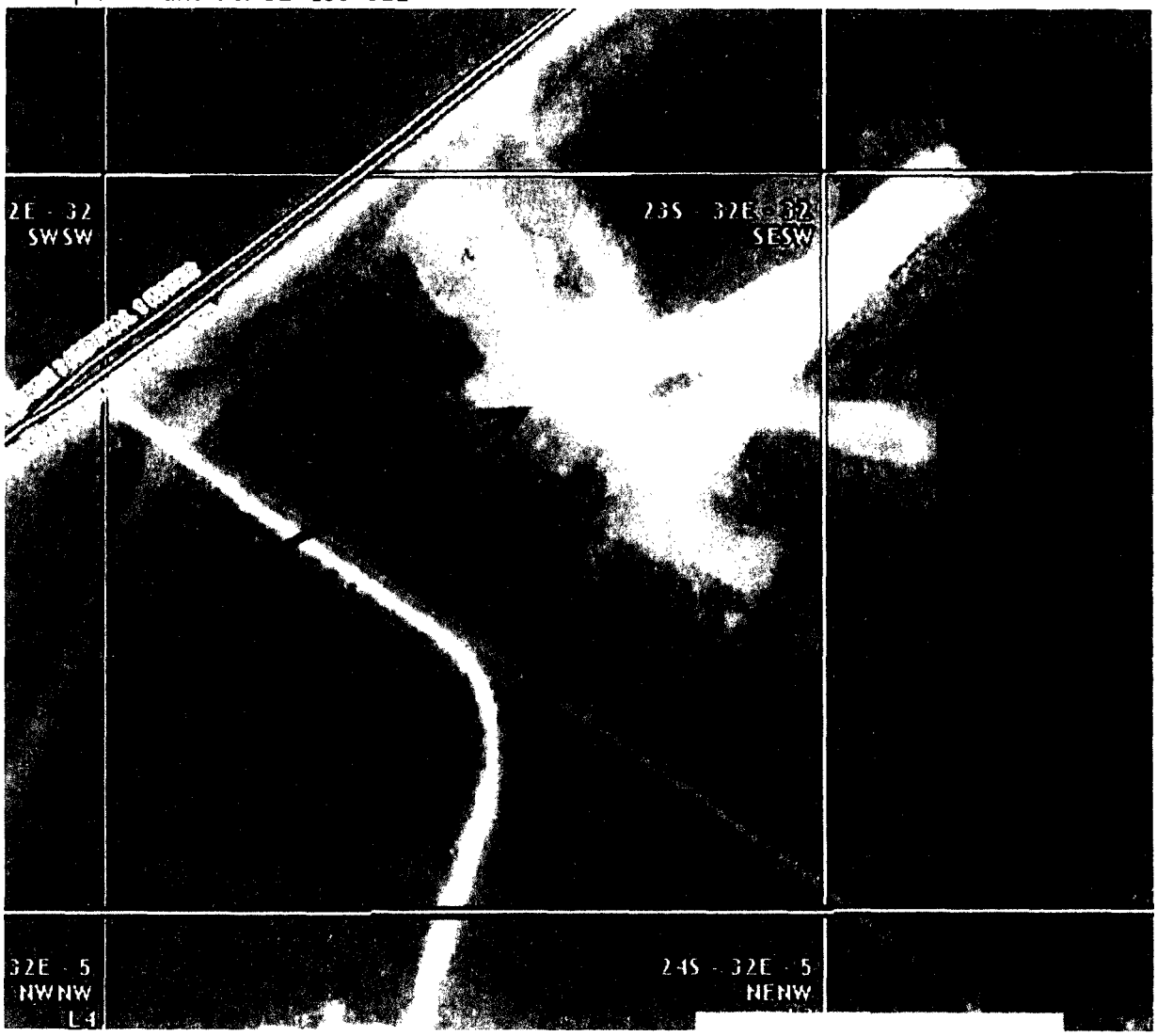
SHEET: 6-6 *SURVEY NO. 4738A*

MADRON SURVEYING, INC. 301 SOUTH CANAL (575) 234-3341 *CARLSBAD, NEW MEXICO*

- Private pit 26- 23S- 31E


27
23S - 31E - 26
34
23S - 31E
5

- State pit 616 and 617 32- 23S- 32E



- Fed pit 25- 23S- 31E

COTTON DRAW UNIT 512H

devon

This map is for illustrative purposes only and is neither a legally recorded map nor survey and is not intended to be used as one. Devon makes no warranty, representation, or guarantee of any kind regarding this map.

WGS_1984_Web_Mercator_Auxiliary_Sphere
Prepared by: _User
Map is current as of: 16-Feb-2017

N

Miles
0 0.07 0.14 0.28

1:14,228

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

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:

Decribe 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:

Decribe precipitated solids disposal:

Precipitated solids disposal permit:

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?

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:

AFMSS

U.S. Department of the Interior
BUREAU OF LAND MANAGEMENT

Bond Info Data Report

05/18/2017

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:

Reclamation bond amount:

Reclamation bond rider amount:

Additional reclamation bond information attachment:

PECOS DISTRICT
DRILLING OPERATIONS
CONDITIONS OF APPROVAL

OPERATOR'S NAME:	Devon Energy Production Company, LP
LEASE NO.:	NMNM012121
WELL NAME & NO.:	512H-Cotton Draw Unit
SURFACE HOLE FOOTAGE:	230'/S & 1935'/E
BOTTOM HOLE FOOTAGE	290'/N & 2310'/E
LOCATION:	Section 25, T.24 S., R.31 E., NMPM
COUNTY:	Eddy County, New Mexico

Unit Wells
The well sign for a unit well shall include the unit number in addition to the surface and bottom hole lease numbers. This also applies to participating area numbers. If a participating area has not been established, the operator can use the general unit designation, but will replace the unit number with the participating area number when the sign is replaced.

Commercial Well Determination
A commercial well determination shall be submitted after production has been established for at least six months.

A. DRILLING OPERATIONS REQUIREMENTS

The BLM is to be notified in advance for a representative to witness:
a. Spudding well (minimum of 24 hours)
b. Setting and/or Cementing of all casing strings (minimum of 4 hours)
c. BOPE tests (minimum of 4 hours)

☒ **Lea County**
Call the Hobbs Field Station, 414 West Taylor, Hobbs NM 88240, (575) 393-3612

1. Hydrogen Sulfide (H2S) monitors shall be installed prior to drilling out the surface shoe. If H2S is detected in concentrations greater than 100 ppm, the Hydrogen Sulfide area shall meet Onshore Order 6 requirements, which includes equipment and personnel/public protection items. If Hydrogen Sulfide is encountered, provide measured values and formations to the BLM.

2. Unless the production casing has been run and cemented or the well has been properly plugged, the drilling rig shall not be removed from over the hole without prior approval. **If the drilling rig is removed without approval – an Incident of Non-Compliance will be written and will be a "Major" violation.**

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.

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. 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.).

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. DURING THIS WOC TIME, NO DRILL PIPE, ETC. SHALL BE RUN IN THE HOLE. 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 Castile and Salado.
Possibility of lost circulation in Rustler, Delaware and Red Beds.

1. The **13-3/8** inch surface casing shall be set at approximately **700** 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. **Additional cement maybe required.**

    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:

Intermediate casing must maintain 1/3 fluid filled during drilling operations

☒ Cement to surface. If cement does not circulate see B.1.a, c-d above. **Additional cement maybe required. Excess calculates to 12%.**

3. The minimum required fill of cement behind the **5-1/2** inch production casing is:

Option 1:

Operator has proposed DV tool at depth of 4350', but will adjust cement proportionately if moved. DV tool shall be set a minimum of 50' below previous shoe and a minimum of 200' above current shoe. Operator shall submit sundry if DV tool depth cannot be set in this range. Additional cement may be required – excess calculates to 15%.

a. First stage to DV tool:
☒ Cement to circulate. If cement does not circulate, contact the appropriate BLM office before proceeding with second stage cement job. Operator should have plans as to how they will achieve approved top of cement on the next stage.

b. Second stage above DV tool:
☒ Cement should tie-back at least 200 feet into previous casing string. Operator shall provide method of verification.

Option 2:

☒ Cement should tie-back at least 200 feet into previous casing string. Operator shall provide method of verification. **Additional cement may be required – excess calculates to 15%.**

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.

CLN 05042017

PECOS DISTRICT
SURFACE USE
CONDITIONS OF APPROVAL

OPERATOR'S NAME:	Devon Energy Production Company, LP
LEASE NO.:	NMNM012121
WELL NAME & NO.:	512H-Cotton Draw Unit
SURFACE HOLE FOOTAGE:	230'/S & 1935'/E
BOTTOM HOLE FOOTAGE	290'/N & 2310'/E
LOCATION:	Section 25, T.24 S., R.31 E., NMPM
COUNTY:	Eddy County, New Mexico

TABLE OF CONTENTS

Standard Conditions of Approval (COA) apply to this APD. If any deviations to these standards exist or special COAs are required, the section with the deviation or requirement will be checked below.

I. GENERAL PROVISIONS

The approval of the Application For Permit To Drill (APD) is in compliance with all applicable laws and regulations: 43 Code of Federal Regulations 3160, the lease terms, Onshore Oil and Gas Orders, Notices To Lessees, New Mexico Oil Conservation Division (NMOCD) Rules, National Historical Preservation Act As Amended, and instructions and orders of the Authorized Officer. Any request for a variance shall be submitted to the Authorized Officer on Form 3160-5, Sundry Notices and Report on Wells.

II. PERMIT EXPIRATION

If the permit terminates prior to drilling and drilling cannot be commenced within 60 days after expiration, an operator is required to submit Form 3160-5, Sundry Notices and Reports on Wells, requesting surface reclamation requirements for any surface disturbance. However, if the operator will be able to initiate drilling within 60 days after the expiration of the permit, the operator must have set the conductor pipe in order to allow for an extension of 60 days beyond the expiration date of the APD. (Filing of a Sundry Notice is required for this 60 day extension.)

III. ARCHAEOLOGICAL, PALEONTOLOGY & HISTORICAL SITES

Any cultural and/or paleontological resource discovered by the operator or by any person working on the operator's behalf shall immediately report such findings to the Authorized Officer. The operator is fully accountable for the actions of their contractors and subcontractors. The operator shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the Authorized Officer. An evaluation of the discovery shall be made by the Authorized Officer to determine the appropriate actions that shall be required to prevent the loss of significant cultural or scientific values of the discovery. The operator shall be held responsible for the cost of the proper mitigation measures that the Authorized Officer assesses after consultation with the operator on the evaluation and decisions of the discovery. Any unauthorized collection or disturbance of cultural or paleontological resources may result in a shutdown order by the Authorized Officer.

IV. NOXIOUS WEEDS

The operator shall be held responsible if noxious weeds become established within the areas of operations. Weed control shall be required on the disturbed land where noxious weeds exist, which includes the roads, pads, associated pipeline corridor, and adjacent land affected by the establishment of weeds due to this action. The operator shall consult with the Authorized Officer for acceptable weed control methods, which include following EPA and BLM requirements and policies.

V. SPECIAL REQUIREMENT(S)

The BLM is Not Approving Any water line with this APD!!!

Timing Limitation Stipulation / Condition of Approval for lesser prairie-chicken: Oil and gas activities including 3-D geophysical exploration, and drilling will not be allowed in lesser prairie-chicken habitat during the period from March 1st through June 15th annually. During that period, other activities that produce noise or involve human activity, such as the maintenance of oil and gas facilities, pipeline, road, and well pad construction, will be allowed except between 3:00 am and 9:00 am. The 3:00 am to 9:00 am restriction will not apply to normal, around-the-clock operations, such as venting, flaring, or pumping, which do not require a human presence during this period. Additionally, no new drilling will be allowed within up to 200 meters of leks known at the time of permitting. Normal vehicle use on existing roads will not be restricted. Exhaust noise from pump jack engines must be muffled or otherwise controlled so as not to exceed 75 db measured at 30 feet from the source of the noise.

Below Ground-level Abandoned Well Marker to avoid raptor perching: Upon the plugging and subsequent abandonment of the well, the well marker will be installed at ground level on a plate containing the pertinent information for the plugged well. For more installation details, contact the Carlsbad Field Office at 575-234-5972.

This authorization is subject to your Certificate of Participation and/or Certificate of Inclusion under the New Mexico Candidate Conservation Agreement. Because it involves surface disturbing activities covered under your Certificate, your Habitat Conservation Fund Account with the Center of Excellence for Hazardous Materials Management (CEHMM) will be debited according to Exhibit B Part 2 of the Certificate of Participation.

Avian Protection

Power lines shall be constructed and designed in accordance to standards outlined in "Suggested Practices for Avian Protection on Power lines: The State of the Art in 2006" Edison Electric Institute, APLIC, and the California Energy Commission 2006. The holder shall assume the burden and expense of proving that pole designs not shown in the above publication deter raptor perching, roosting, and nesting. Such proof shall be provided by a raptor expert approved by the Authorized Officer. The BLM reserves the right to require modification or additions to all power line structures placed on this right-of-way, should they be necessary to ensure the safety of large perching birds. The holder without liability or expense shall make such modifications and/or additions to the United States.

During construction, the proponent shall minimize disturbance to existing fences, water lines, troughs, windmills, and other improvements on public lands. The proponent is required to promptly repair improvements to at least their former state. Functional use of these improvements will be maintained at all times. The holder will contact the grazing permittee/allottee prior to disturbing any range improvement projects. When necessary

to pass through a fence line, the fence shall be braced on both sides of the passageway prior to cutting of the fence. No permanent gates will be allowed unless approved by the Authorized Officer.

VI. CONSTRUCTION

A. NOTIFICATION

The BLM shall administer compliance and monitor construction of the access road and well pad. Notify the Carlsbad Field Office at (575) 234-5909 at least 3 working days prior to commencing construction of the access road and/or well pad.

When construction operations are being conducted on this well, the operator shall have the approved APD and Conditions of Approval (COA) on the well site and they shall be made available upon request by the Authorized Officer.

B. TOPSOIL

The operator shall strip the top portion of the soil (root zone) from the entire well pad area and stockpile the topsoil along the edge of the well pad as depicted in the APD. The root zone is typically six (6) inches in depth. All the stockpiled topsoil will be redistributed over the interim reclamation areas. Topsoil shall not be used for berming the pad or facilities. For final reclamation, the topsoil shall be spread over the entire pad area for seeding preparation.

Other subsoil (below six inches) stockpiles must be completely segregated from the topsoil stockpile. Large rocks or subsoil clods (not evident in the surrounding terrain) must be buried within the approved area for interim and final reclamation.

C. CLOSED LOOP SYSTEM

Tanks are required for drilling operations: No Pits.

The operator shall properly dispose of drilling contents at an authorized disposal site.

D. FEDERAL MINERAL MATERIALS PIT

Payment shall be made to the BLM prior to removal of any federal mineral materials. Call the Carlsbad Field Office at (575) 234-5972.

E. WELL PAD SURFACING

Surfacing of the well pad is not required.

If the operator elects to surface the well pad, the surfacing material may be required to be removed at the time of reclamation. The well pad shall be constructed in a manner which creates the smallest possible surface disturbance, consistent with safety and operational needs.

F. EXCLOSURE FENCING (CELLARS & PITS)

Exclosure Fencing
The operator will install and maintain exclosure fencing for all open well cellars to prevent access to public, livestock, and large forms of wildlife before and after drilling operations until the pit is free of fluids and the operator initiates backfilling. (For examples of exclosure fencing design, refer to BLM's Oil and Gas Gold Book, Exclosure Fence Illustrations, Figure 1, Page 18.)

G. ON LEASE ACCESS ROADS

Road Width
The access road shall have a driving surface that creates the smallest possible surface disturbance and does not exceed fourteen (14) feet in width. The maximum width of surface disturbance, when constructing the access road, shall not exceed twenty-five (25) feet.

Surfacing
Surfacing material is not required on the new access road driving surface. If the operator elects to surface the new access road or pad, the surfacing material may be required to be removed at the time of reclamation.

Where possible, no improvements should be made on the unsurfaced access road other than to remove vegetation as necessary, road irregularities, safety issues, or to fill low areas that may sustain standing water.

The Authorized Officer reserves the right to require surfacing of any portion of the access road at any time deemed necessary. Surfacing may be required in the event the road deteriorates, erodes, road traffic increases, or it is determined to be beneficial for future field development. The surfacing depth and type of material will be determined at the time of notification.

Crowning
Crowning shall be done on the access road driving surface. The road crown shall have a grade of approximately 2% (i.e., a 1" crown on a 14' wide road). The road shall conform to Figure 1; cross section and plans for typical road construction.

Ditching
Ditching shall be required on both sides of the road.

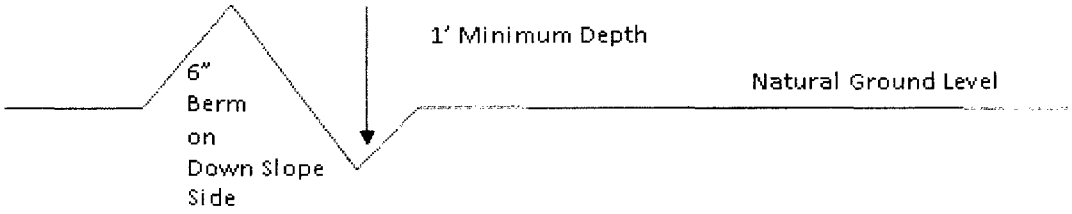
Turnouts
Vehicle turnouts shall be constructed on the road. Turnouts shall be intervisible with interval spacing distance less than 1000 feet. Turnouts shall conform to Figure 1; cross section and plans for typical road construction.

Drainage

Drainage control systems shall be constructed on the entire length of road (e.g. ditches, sidehill outsloping and insloping, lead-off ditches, culvert installation, and low water crossings).

A typical lead-off ditch has a minimum depth of 1 foot below and a berm of 6 inches above natural ground level. The berm shall be on the down-slope side of the lead-off ditch.

Cross Section of a Typical Lead-off Ditch



All lead-off ditches shall be graded to drain water with a 1 percent minimum to 3 percent maximum ditch slope. The spacing interval are variable for lead-off ditches and shall be determined according to the formula for spacing intervals of lead-off ditches, but may be amended depending upon existing soil types and centerline road slope (in %);

Formula for Spacing Interval of Lead-off Ditches

Example - On a 4% road slope that is 400 feet long, the water flow shall drain water into a lead-off ditch. Spacing interval shall be determined by the following formula:

400 foot road with 4% road slope: $\frac{400'}{4\%} + 100' = 200'$ lead-off ditch interval

Cattle guards

An appropriately sized cattle guard sufficient to carry out the project shall be installed and maintained at fence/road crossings. Any existing cattle guards on the access road route shall be repaired or replaced if they are damaged or have deteriorated beyond practical use. The operator shall be responsible for the condition of the existing cattle guards that are in place and are utilized during lease operations.

Fence Requirement

Where entry is granted across a fence line, the fence shall be braced and tied off on both sides of the passageway prior to cutting. The operator shall notify the private surface landowner or the grazing allotment holder prior to crossing any fences.

Public Access

Public access on this road shall not be restricted by the operator without specific written approval granted by the Authorized Officer.

Construction Steps

1. Salvage topsoil
2. Construct road
3. Redistribute topsoil
4. Revegetate slopes

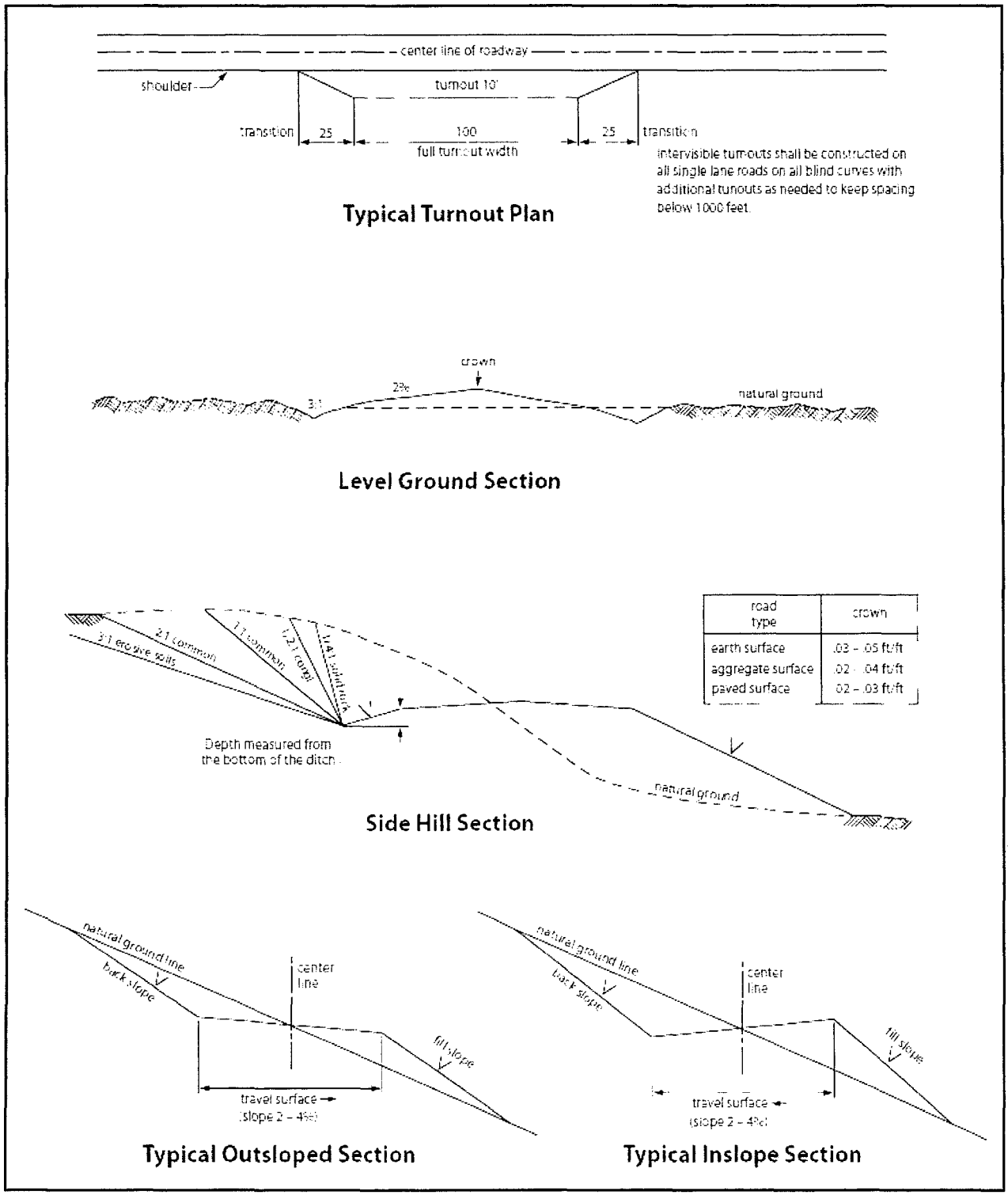


Figure 1. Cross-sections and plans for typical road sections representative of BLM resource or FS local and higher-class roads.

VII. PRODUCTION (POST DRILLING)

A. WELL STRUCTURES & FACILITIES

Placement of Production Facilities
Production facilities should be placed on the well pad to allow for maximum interim recontouring and revegetation of the well location.

Exclosure Netting (Open-top Tanks)
Immediately following active drilling or completion operations, the operator will take actions necessary to prevent wildlife and livestock access, including avian wildlife, to all open-topped tanks that contain or have the potential to contain salinity sufficient to cause harm to wildlife or livestock, hydrocarbons, or Resource Conservation and Recovery Act of 1976-exempt hazardous substances. At a minimum, the operator will net, screen, or cover open-topped tanks to exclude wildlife and livestock and prevent mortality. If the operator uses netting, the operator will cover and secure the open portion of the tank to prevent wildlife entry. The operator will net, screen, or cover the tanks until the operator removes the tanks from the location or the tanks no longer contain substances that could be harmful to wildlife or livestock. Use a maximum netting mesh size of 1 ½ inches. The netting must not be in contact with fluids and must not have holes or gaps.

Chemical and Fuel Secondary Containment and Exclosure Screening
The operator will prevent all hazardous, poisonous, flammable, and toxic substances from coming into contact with soil and water. At a minimum, the operator will install and maintain an impervious secondary containment system for any tank or barrel containing hazardous, poisonous, flammable, or toxic substances sufficient to contain the contents of the tank or barrel and any drips, leaks, and anticipated precipitation. The operator will dispose of fluids within the containment system that do not meet applicable state or U. S. Environmental Protection Agency livestock water standards in accordance with state law; the operator must not drain the fluids to the soil or ground. The operator will design, construct, and maintain all secondary containment systems to prevent wildlife and livestock exposure to harmful substances. At a minimum, the operator will install effective wildlife and livestock exclosure systems such as fencing, netting, expanded metal mesh, lids, and grate covers. Use a maximum netting mesh size of 1 ½ inches.

Open-Vent Exhaust Stack Exclosures
The operator will construct, modify, equip, and maintain all open-vent exhaust stacks on production equipment to prevent birds and bats from entering, and to discourage perching, roosting, and nesting. (*Recommended exclosure structures on open-vent exhaust stacks are in the shape of a cone.*) Production equipment includes, but may not be limited to, tanks, heater-treaters, separators, dehydrators, flare stacks, in-line units, and compressor mufflers.

Containment Structures

Proposed production facilities such as storage tanks and other vessels will have a secondary containment structure that is constructed to hold the capacity of 1.5 times the largest tank, plus freeboard to account for precipitation, unless more stringent protective requirements are deemed necessary.

Painting Requirement
All above-ground structures including meter housing that are not subject to safety requirements shall be painted a flat non-reflective paint color, **Shale Green** from the BLM Standard Environmental Color Chart (CC-001: June 2008).

A. PIPELINES

BURIED PIPELINE STIPULATIONS

A copy of the application (Grant, APD, or Sundry Notice) and attachments, including conditions of approval, survey plat and/or map, will be on location during construction. BLM personnel may request to you a copy of your permit during construction to ensure compliance with all stipulations.

Holder agrees to comply with the following stipulations to the satisfaction of the Authorized Officer:

1. The Holder shall indemnify the United States against any liability for damage to life or property arising from the occupancy or use of public lands under this grant.

2. The Holder shall comply with all applicable Federal laws and regulations existing or hereafter enacted or promulgated. In any event, the holder shall comply with the Toxic Substances Control Act of 1976 as amended, 15 USC 2601 et seq. (1982) with regards to any toxic substances that are used, generated by or stored on the right-of-way or on facilities authorized under this right-of-way grant. (See 40 CFR Part 702-799 and especially, provisions on polychlorinated biphenyls, 40 CFR 761.1-761.193.) Additionally, any release of toxic substances (leaks, spills, etc.) in excess of the reportable quantity established by 40 CFR Part 117 shall be reported as required by the Comprehensive Environmental Response, Compensation, and Liability Act, section 102b. A copy of any report required or requested by any Federal agency or State government as a result of a reportable release or spill of any toxic substances shall be furnished to the authorized officer concurrent with the filing of the reports to the involved Federal agency or State government.

3. The holder agrees to indemnify the United States against any liability arising from the release of any hazardous substance or hazardous waste (as these terms are defined in the Comprehensive Environmental Response, Compensation and Liability Act of 1980, 42 U.S.C. 9601, et seq. or the Resource Conservation and Recovery Act, 42 U.S.C.6901, et seq.) on the Right-of-Way (unless the release or threatened release is wholly unrelated to the Right-of-Way holder's activity on the Right-of-Way), or resulting from the activity of

the Right-of-Way holder on the Right-of-Way. This agreement applies without regard to whether a release is caused by the holder, its agent, or unrelated third parties.

4. If, during any phase of the construction, operation, maintenance, or termination of the pipeline, any oil or other pollutant should be discharged from the pipeline system, impacting Federal lands, the control and total removal, disposal, and cleaning up of such oil or other pollutant, wherever found, shall be the responsibility of holder, regardless of fault. Upon failure of holder to control, dispose of, or clean up such discharge on or affecting Federal lands, or to repair all damages resulting therefrom, on the Federal lands, the Authorized Officer may take such measures as he deems necessary to control and clean up the discharge and restore the area, including where appropriate, the aquatic environment and fish and wildlife habitats, at the full expense of the holder. Such action by the Authorized Officer shall not relieve holder of any responsibility as provided herein.

5. All construction and maintenance activity will be confined to the authorized right-of-way.

6. The pipeline will be buried with a minimum cover of **36** inches between the top of the pipe and ground level.

7. The maximum allowable disturbance for construction in this right-of-way will be **30** feet:

- Blading of vegetation within the right-of-way will be allowed: maximum width of blading operations will not exceed **20** feet. The trench is included in this area. (*Blading is defined as the complete removal of brush and ground vegetation.*)

- Clearing of brush species within the right-of-way will be allowed: maximum width of clearing operations will not exceed **30** feet. The trench and bladed area are included in this area. (*Clearing is defined as the removal of brush while leaving ground vegetation (grasses, weeds, etc.) intact. Clearing is best accomplished by holding the blade 4 to 6 inches above the ground surface.*)

- The remaining area of the right-of-way (if any) shall only be disturbed by compressing the vegetation. (*Compressing can be caused by vehicle tires, placement of equipment, etc.*)

8. The holder shall stockpile an adequate amount of topsoil where blading is allowed. The topsoil to be stripped is approximately 6 inches in depth. The topsoil will be segregated from other spoil piles from trench construction. The topsoil will be evenly distributed over the bladed area for the preparation of seeding.

9. The holder shall minimize disturbance to existing fences and other improvements on public lands. The holder is required to promptly repair improvements to at least their former state. Functional use of these improvements will be maintained at all times. The holder will contact the owner of any improvements prior to disturbing them. When necessary to pass through a fence line, the fence shall be braced on both sides of the passageway prior to cutting of the fence. No permanent gates will be allowed unless approved by the Authorized Officer.

10. Vegetation, soil, and rocks left as a result of construction or maintenance activity will be randomly scattered on this right-of-way and will not be left in rows, piles, or berms, unless otherwise approved by the Authorized Officer. The entire right-of-way shall be recontoured to match the surrounding landscape. The backfilled soil shall be compacted and a 6 inch berm will be left over the ditch line to allow for settling back to grade.

11. In those areas where erosion control structures are required to stabilize soil conditions, the holder will install such structures as are suitable for the specific soil conditions being encountered and which are in accordance with sound resource management practices.

12. The holder will reseed all disturbed areas. Seeding will be done according to the attached seeding requirements, using the following seed mix.

( ) seed mixture 1 ( ) seed mixture 3

() seed mixture 2 ( ) seed mixture 4

(X) seed mixture 2/LPC ( ) Aplomado Falcon Mixture

13. All above-ground structures not subject to safety requirements shall be painted by the holder to blend with the natural color of the landscape. The paint used shall be color which simulates "Standard Environmental Colors" – **Shale Green**, Munsell Soil Color No. 5Y 4/2.

14. The pipeline will be identified by signs at the point of origin and completion of the right-of-way and at all road crossings. At a minimum, signs will state the holder's name, BLM serial number, and the product being transported. All signs and information thereon will be posted in a permanent, conspicuous manner, and will be maintained in a legible condition for the life of the pipeline.

15. The holder shall not use the pipeline route as a road for purposes other than routine maintenance as determined necessary by the Authorized Officer in consultation with the holder before maintenance begins. The holder will take whatever steps are necessary to ensure that the pipeline route is not used as a roadway. As determined necessary during the life of the pipeline, the Authorized Officer may ask the holder to construct temporary deterrence structures.

16. Any cultural and/or paleontological resources (historic or prehistoric site or object) discovered by the holder, or any person working on his behalf, on public or Federal land shall be immediately reported to the Authorized Officer. Holder shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the Authorized Officer. An evaluation of the discovery will be made by the Authorized Officer to determine appropriate actions to prevent the loss of significant cultural or scientific values. The holder will be responsible for the cost of evaluation and any decision as to proper mitigation measures will be made by the Authorized Officer after consulting with the holder.

17. The operator shall be held responsible if noxious weeds become established within the areas of operations. Weed control shall be required on the disturbed land where noxious weeds exist, which includes associated roads, pipeline corridor and adjacent land affected by the establishment of weeds due to this action. The operator shall consult with the Authorized Officer for acceptable weed control methods, which include following EPA and BLM requirements and policies.

18. Escape Ramps - The operator will construct and maintain pipeline/utility trenches [that are not otherwise fenced, screened, or netted] to prevent livestock, wildlife, and humans from becoming entrapped. At a minimum, the operator will construct and maintain escape ramps, ladders, or other methods of avian and terrestrial wildlife escape in the trenches according to the following criteria:

a. Any trench left open for eight (8) hours or less is not required to have escape ramps; however, before the trench is backfilled, the contractor/operator shall inspect the trench for wildlife, remove all trapped wildlife, and release them at least 100 yards from the trench.
b. For trenches left open for eight (8) hours or more, earthen escape ramps (built at no more than a 30 degree slope and spaced no more than 500 feet apart) shall be placed in the trench.

19. Special Stipulations:

Lesser Prairie-Chicken

Oil and gas activities will not be allowed in lesser prairie-chicken habitat during the period from March 1st through June 15th annually. During that period, other activities

that produce noise or involve human activity, such as the maintenance of oil and gas facilities, geophysical exploration other than 3-D operations, and pipeline, road, and well pad construction, will be allowed except between 3:00 am and 9:00 am. The 3:00 am to 9:00 am restriction will not apply to normal, around-the-clock operations, such as venting, flaring, or pumping, which do not require a human presence during this period. Normal vehicle use on existing roads will not be restricted. Exhaust noise from pump jack engines must be muffled or otherwise controlled so as not to exceed 75 db measured at 30 ft. from the source of the noise.

This authorization is subject to your Certificate of Participation and/or Certificate of Inclusion under the New Mexico Candidate Conservation Agreement. Because it involves surface disturbing activities covered under your Certificate, your Habitat Conservation Fund Account with the Center of Excellence for Hazardous Materials Management (CEHMM) will be debited according to Exhibit B Part 2 of the Certificate of Participation.

B. ELECTRIC LINES

STANDARD STIPULATIONS FOR OVERHEAD ELECTRIC DISTRIBUTION LINES

A copy of the grant and attachments, including stipulations, survey plat and/or map, will be on location during construction. BLM personnel may request to you a copy of your permit during construction to ensure compliance with all stipulations.

Holder agrees to comply with the following stipulations to the satisfaction of the Authorized Officer:

1. The holder shall indemnify the United States against any liability for damage to life or property arising from the occupancy or use of public lands under this grant.

2. The holder shall comply with all applicable Federal laws and regulations existing or hereafter enacted or promulgated. In any event, the holder shall comply with the Toxic Substances Control Act of 1976 as amended, 15 USC 2601 et seq. (1982) with regards to any toxic substances that are used, generated by or stored on the right-of-way or on facilities authorized under this right-of-way grant. (See 40 CFR, Part 702-799 and especially, provisions on polychlorinated biphenyls, 40 CFR 761.1-761.193.) Additionally, any release of toxic substances (leaks, spills, etc.) in excess of the reportable quantity established by 40 CFR, Part 117 shall be reported as required by the Comprehensive Environmental Response, Compensation, and Liability Act, section 102b. A copy of any report required or requested by any Federal agency or State government as a result of a reportable release or spill of any toxic substances shall be furnished to the authorized officer concurrent with the filing of the reports to the involved Federal agency or State government.

3. The holder agrees to indemnify the United States against any liability arising from the

release of any hazardous substance or hazardous waste (as these terms are defined in the Comprehensive Environmental Response, Compensation and Liability Act of 1980, 42 U.S.C. 9601, et seq. or the Resource Conservation and Recovery Act, 42 U.S.C. 6901, et seq.) on the Right-of-Way (unless the release or threatened release is wholly unrelated to the Right-of-Way holder's activity on the Right-of-Way), or resulting from the activity of the Right-of-Way holder on the Right-of-Way. This agreement applies without regard to whether a release is caused by the holder, its agent, or unrelated third parties.

4. There will be no clearing or blading of the right-of-way unless otherwise agreed to in writing by the Authorized Officer.

5. Power lines shall be constructed and designed in accordance to standards outlined in "Suggested Practices for Avian Protection on Power lines: The State of the Art in 2006" Edison Electric Institute, APLIC, and the California Energy Commission 2006 . The holder shall assume the burden and expense of proving that pole designs not shown in the above publication deter raptor perching, roosting, and nesting. Such proof shall be provided by a raptor expert approved by the Authorized Officer. The BLM reserves the right to require modification or additions to all powerline structures placed on this right-of-way, should they be necessary to ensure the safety of large perching birds. Such modifications and/or additions shall be made by the holder without liability or expense to the United States.

Raptor deterrence will consist of but not limited to the following: triangle perch discouragers shall be placed on each side of the cross arms and a nonconductive perching deterrence shall be placed on all vertical poles that extend past the cross arms.

6. The holder shall minimize disturbance to existing fences and other improvements on public lands. The holder is required to promptly repair improvements to at least their former state. Functional use of these improvements will be maintained at all times. The holder will contact the owner of any improvements prior to disturbing them. When necessary to pass through a fence line, the fence shall be braced on both sides of the passageway prior to cutting the fence. No permanent gates will be allowed unless approved by the Authorized Officer.

7. The BLM serial number assigned to this authorization shall be posted in a permanent, conspicuous manner where the power line crosses roads and at all serviced facilities. Numbers will be at least two inches high and will be affixed to the pole nearest the road crossing and at the facilities served.

8. Upon cancellation, relinquishment, or expiration of this grant, the holder shall comply with those abandonment procedures as prescribed by the Authorized Officer.

9. All surface structures (poles, lines, transformers, etc.) shall be removed within 180 days of abandonment, relinquishment, or termination of use of the serviced facility or facilities or within 180 days of abandonment, relinquishment, cancellation, or expiration of this grant, whichever comes first. This will not apply where the power line extends

service to an active, adjoining facility or facilities.

10. Any cultural and/or paleontological resource (historic or prehistoric site or object) discovered by the holder, or any person working on his behalf, on public or Federal land shall be immediately reported to the Authorized Officer. Holder shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the Authorized Officer. An evaluation of the discovery will be made by the Authorized Officer to determine appropriate actions to prevent the loss of significant cultural or scientific values. The holder will be responsible for the cost of evaluation and any decision as to proper mitigation measures will be made by the Authorized Officer after consulting with the holder.

11. Special Stipulations:
- For reclamation remove poles, lines, transformer, etc. and dispose of properly.
- Fill in any holes from the poles removed.

Timing Limitation Stipulation/Condition of Approval for Lesser Prairie-Chicken: Oil and gas activities including 3-D geophysical exploration, and drilling will not be allowed in lesser prairie-chicken habitat during the period from March 1st through June 15th annually. During that period, other activities that produce noise or involve human activity, such as the maintenance of oil and gas facilities, geophysical exploration other than 3-D operations, and pipeline, road, and well pad construction, will be allowed except between 3:00 am and 9:00 am. The 3:00 am to 9:00 am restriction will not apply to normal, around-the-clock operations, such as venting, flaring, or pumping, which do not require a human presence during this period. Additionally, no new drilling will be allowed within up to 200 meters of leks known at the time of permitting. Normal vehicle use on existing roads will not be restricted. Exhaust noise from pump jack engines must be muffled or otherwise controlled so as not to exceed 75 db measured at 30 ft. from the source of the noise.

This authorization is subject to your Certificate of Participation and/or Certificate of Inclusion under the New Mexico Candidate Conservation Agreement. Because it involves surface disturbing activities covered under your Certificate, your Habitat Conservation Fund Account with the Center of Excellence for Hazardous Materials Management (CEHMM) will be debited according to Exhibit B Part 2 of the Certificate of Participation.

VIII. INTERIM RECLAMATION

During the life of the development, all disturbed areas not needed for active support of production operations should undergo interim reclamation in order to minimize the environmental impacts of development on other resources and uses.

Within six (6) months of well completion, operators should work with BLM surface management specialists (Jim Amos: 575-234-5909) to devise the best strategies to reduce the size of the location. Interim reclamation should allow for remedial well operations, as well as safe and efficient removal of oil and gas.

During reclamation, the removal of caliche is important to increasing the success of revegetating the site. Removed caliche that is free of contaminants may be used for road repairs, fire walls or for building other roads and locations. In order to operate the well or complete workover operations, it may be necessary to drive, park and operate on restored interim vegetation within the previously disturbed area. Disturbing revegetated areas for production or workover operations will be allowed. If there is significant disturbance and loss of vegetation, the area will need to be revegetated. Communicate with the appropriate BLM office for any exceptions/exemptions if needed.

All disturbed areas after they have been satisfactorily prepared need to be reseeded with the seed mixture provided below.

Upon completion of interim reclamation, the operator shall submit a Sundry Notices and Reports on Wells, Subsequent Report of Reclamation (Form 3160-5).

IX. FINAL ABANDONMENT & RECLAMATION

At final abandonment, well locations, production facilities, and access roads must undergo "final" reclamation so that the character and productivity of the land are restored.

Earthwork for final reclamation must be completed within six (6) months of well plugging. All pads, pits, facility locations and roads must be reclaimed to a satisfactory revegetated, safe, and stable condition, unless an agreement is made with the landowner or BLM to keep the road and/or pad intact.

After all disturbed areas have been satisfactorily prepared, these areas need to be revegetated with the seed mixture provided below. Seeding should be accomplished by drilling on the contour whenever practical or by other approved methods. Seeding may need to be repeated until revegetation is successful, as determined by the BLM.

Operators shall contact a BLM surface protection specialist prior to surface abandonment operations for site specific objectives (Jim Amos: 575-234-5909).

Below Ground-level Abandoned Well Marker to avoid raptor perching: Upon the plugging and subsequent abandonment of the well, the well marker will be installed at ground level on a plate containing the pertinent information for the plugged well.

Seed Mixture for LPC Sand/Shinnery Sites

Holder shall seed all disturbed areas with the seed mixture listed below. The seed mixture shall be planted in the amounts specified in pounds of pure live seed (PLS)* per acre. There shall be no primary or secondary noxious weeds in the seed mixture. Seed will be tested and the viability testing of seed shall be done in accordance with State law(s) and within nine (9) months prior to purchase. Commercial seed shall be either certified or registered seed. The seed container shall be tagged in accordance with State law(s) and available for inspection by the Authorized Officer.

Seed will be planted using a drill equipped with a depth regulator to ensure proper depth of planting where drilling is possible. The seed mixture will be evenly and uniformly planted over the disturbed area (smaller/heavier seeds have a tendency to drop the bottom of the drill and are planted first). Holder shall take appropriate measures to ensure this does not occur. Where drilling is not possible, seed will be broadcast and the area shall be raked or chained to cover the seed. When broadcasting the seed, the pounds per acre are to be doubled. Seeding shall be repeated until a satisfactory stand is established as determined by the Authorized Officer. Evaluation of growth may not be made before completion of at least one full growing season after seeding.

Species to be planted in pounds of pure live seed* per acre:

Species	lb/acre
Plains Bristlegrass	5lbs/A
Sand Bluestem	5lbs/A
Little Bluestem	3lbs/A
Big Bluestem	6lbs/A
Plains Coreopsis	2lbs/A
Sand Dropseed	1lbs/A

*Pounds of pure live seed:

Pounds of seed **x** percent purity **x** percent germination = pounds pure live seed