

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENTFORM APPROVED
OMB NO. 1004-0137
Expires: January 31, 2018**SUNDRY NOTICES AND REPORTS ON WELLS**
*Do not use this form for proposals to drill or to re-enter an abandoned well. Use form 3160-3 (APD) for such proposals.*5. Lease Serial No.
NMNM89055

6. If Indian, Allottee or Tribe Name

7. If Unit or CA/Agreement, Name and/or No.
891005247X8. Well Name and No.
COTTON DRAW UNIT 517H9. API Well No.
30-015-44718-00-X110. Field and Pool or Exploratory Area
PURPLE SAGE WOLFCAMP (GAS)
*Taduca Bone Springs*11. County or Parish, State
EDDY COUNTY, NM**SUBMIT IN TRIPLICATE - Other instructions on page 2**

1. Type of Well

☒ Oil Well ☐ Gas Well ☐ Other

2. Name of Operator

DEVON ENERGY PRODUCTION COMPANY

Contact: LINDA GOOD

E-Mail: linda.good@devn.com

3a. Address

333 WEST SHERIDAN AVENUE
OKLAHOMA, OK 731023b. Phone No. (include area code)
Ph: 405.552.6558

4. Location of Well (Footage, Sec., T., R., M., or Survey Description)

Sec 25 T24S R31E NENE 485FNL 470FEL
32.194267 N Lat, 103.724487 W Lon**12. CHECK THE APPROPRIATE BOX(ES) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA**

TYPE OF SUBMISSION	TYPE OF ACTION			
☒ Notice of Intent	☐ Acidize	☐ Deepen	☐ Production (Start/Resume)	☐ Water Shut-Off
☐ Subsequent Report	☐ Alter Casing	☐ Hydraulic Fracturing	☐ Reclamation	☐ Well Integrity
☐ Final Abandonment Notice	☐ Casing Repair	☐ New Construction	☐ Recomplete	☒ Other
	☐ Change Plans	☐ Plug and Abandon	☐ Temporarily Abandon	Change to Original A
	☐ Convert to Injection	☐ Plug Back	☐ Water Disposal	PD

13. Describe Proposed or Completed Operation: Clearly state all pertinent details, including estimated starting date of any proposed work and approximate duration thereof. If the proposal is to deepen directionally or recompleat horizontally, give subsurface locations and measured and true vertical depths of all pertinent markers and zones. Attach the Bond under which the work will be performed or provide the Bond No. on file with BLM/BIA. Required subsequent reports must be filed within 30 days following completion of the involved operations. If the operation results in a multiple completion or recompleat in a new interval, a Form 3160-4 must be filed once testing has been completed. Final Abandonment Notices must be filed only after all requirements, including reclamation, have been completed and the operator has determined that the site is ready for final inspection.

Devon Energy Production Co., LP respectfully requests permission to change the BHL from Lot 4, 200 FSL 330 FEL to Lot 3, 330 FSL 2310 FEL. Formation changed from Wolfcamp to Bone Spring.

Attached are the revised C-102, Drilling Plan and Directional Plan.

Carlsbad Field Office
OCD Artesia

RECEIVED

APR 26 2018

**SEE ATTACHED FOR
CONDITIONS OF APPROVAL**

DISTRICT II-ARTESIA O.C.D.

14. I hereby certify that the foregoing is true and correct.

Electronic Submission #410316 verified by the BLM Well Information System
For DEVON ENERGY PRODUCTION COMPANY LP, sent to the Carlsbad
Committed to AFMSS for processing by PRISCILLA PEREZ on 04/06/2018 (18PP1458SE)

Name (Printed/Typed) LINDA GOOD

Title REGULATORY SPECIALIST

Signature (Electronic Submission)

Date 04/04/2018

THIS SPACE FOR FEDERAL OR STATE OFFICE USEApproved By ZOTA STEVENS

Title PETROLEUM ENGINEER

Date 04/19/2018

Conditions of approval, if any, are attached. Approval of this notice 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.

Office Carlsbad

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.

(Instructions on page 2)

**** BLM REVISED ** BLM REVISED ** BLM REVISED ** BLM REVISED ** BLM REVISED *****RW 5-4-18**OIL*

District I
1625 N. French Dr., Hobbs, NM 88240
Phone: (575) 393-6161 Fax: (575) 393-0720
District II
811 S. First St., Artesia, NM 88210
Phone: (575) 748-1283 Fax: (575) 748-9720
District III
1000 Rio Brazos Road, Aztec, NM 87410
Phone: (505) 334-6178 Fax: (505) 334-6170
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505
Phone: (505) 476-3460 Fax: (505) 476-3462

State of New Mexico
Energy, Minerals & Natural Resources Department
OIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Santa Fe, NM 87505

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APR 26 2018

Form C-102

Revised August 1, 2011

Submit one copy to appropriate
District Office

☒ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

¹ API Number 30-015-44718	² Pool Code 96641	³ Pool Name Paduca; Bone Spring
⁴ Property Code 300635	⁵ Property Name COTTON DRAW UNIT	
⁷ OGRID No. 6137	⁸ Operator Name DEVON ENERGY PRODUCTION COMPANY, L.P.	
		⁶ Well Number 517H
		⁹ Elevation 3541.4

¹⁰ Surface Location

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
A	25	24 S	31 E		485	NORTH	470	EAST	EDDY

¹¹ Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
3	36	24 S	31 E		330	SOUTH	2310	EAST	EDDY

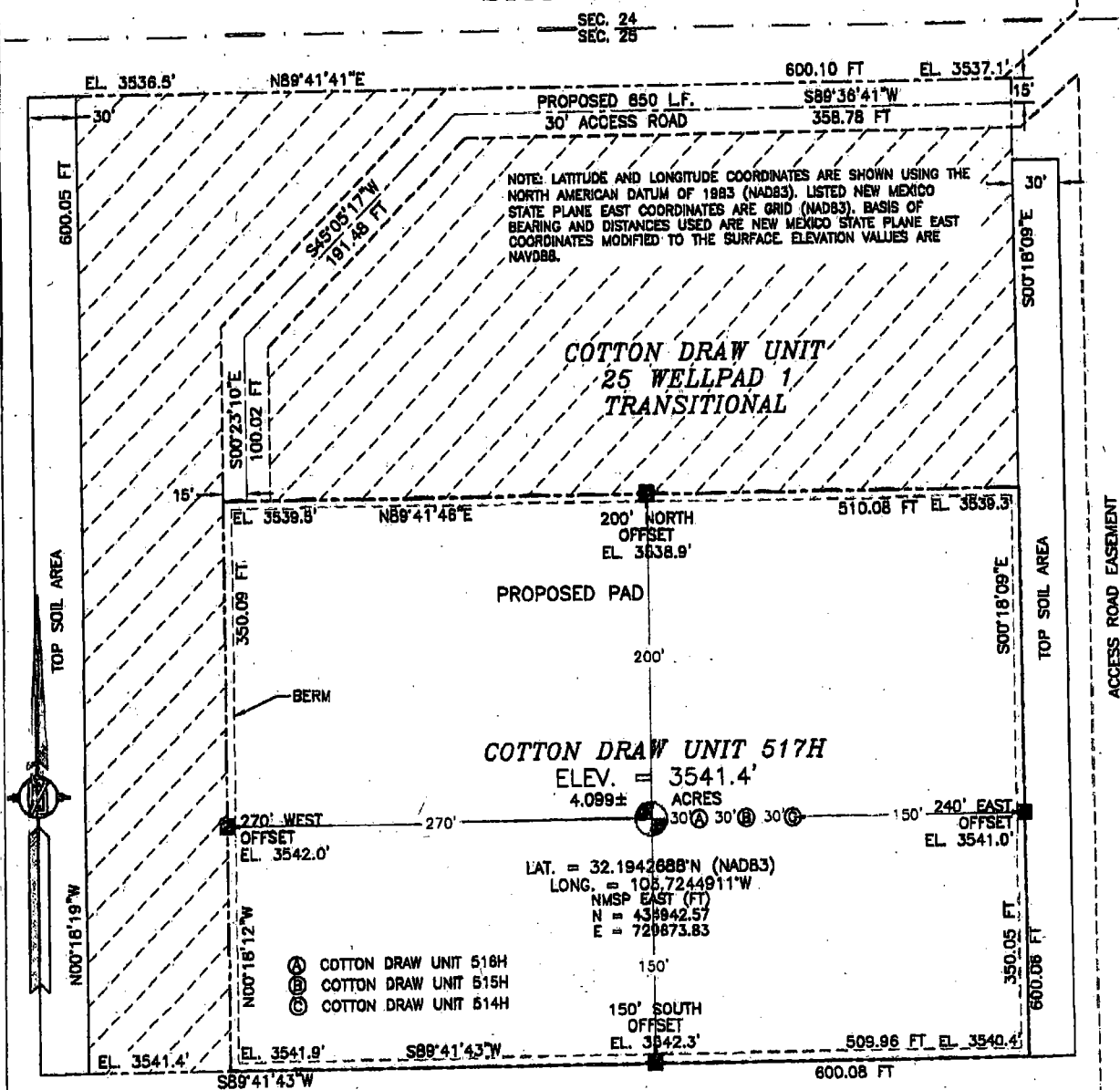
¹² Dedicated Acres 320	¹³ Joint or Infill	¹⁴ Consolidation Code	¹⁵ Order No.
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No allowable will be assigned to this completion until all interests have been consolidated or a non-standard unit has been approved by the division.

¹⁷ OPERATOR CERTIFICATION I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered <i>Linda Good</i> 4/4/2018 Signature: Date: Linda Good Printed Name linda.good@dvn.com E-mail Address		¹⁸ SURVEYOR CERTIFICATION I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief. MARCH 21, 2018 Date of Survey <i>Filimon F. Jaramillo</i> Signature and Seal of Professional Surveyor Certificate Number: FILIMON F. JARAMILLO, PLS 12797 SURVEY NO. 5335A	
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RUF 5-4-18

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



010 50 100 200

SCALE 1" = 100'

DIRECTIONS TO LOCATION

FROM THE INTERSECTION OF STATE HWY. 128 & CR. 788 (BUCK JACKSON ROAD), GO WEST ON BUCK JACKSON RD. APPROX. 0.4 MILE TO A LEASE ROAD ON LEFT (SOUTH), TURN SOUTH GO APPROX. 2.4 MILES TO A GATE ON RIGHT WEST AND ROAD LATHS WITH RED & YELLOW FLAGGING, FOLLOW ROAD LATHS WEST AND SOUTH APPROX. 0.1 MILE TO THE NORTHEAST CORNER OF THE COTTON DRAW UNIT 25 WELLPAD 1 TRANSITIONAL, THEN FOLLOW ROAD SURVEY WEST AND SOUTH 650 FEET TO THE NORTHWEST PAD CORNER FOR THIS LOCATION.

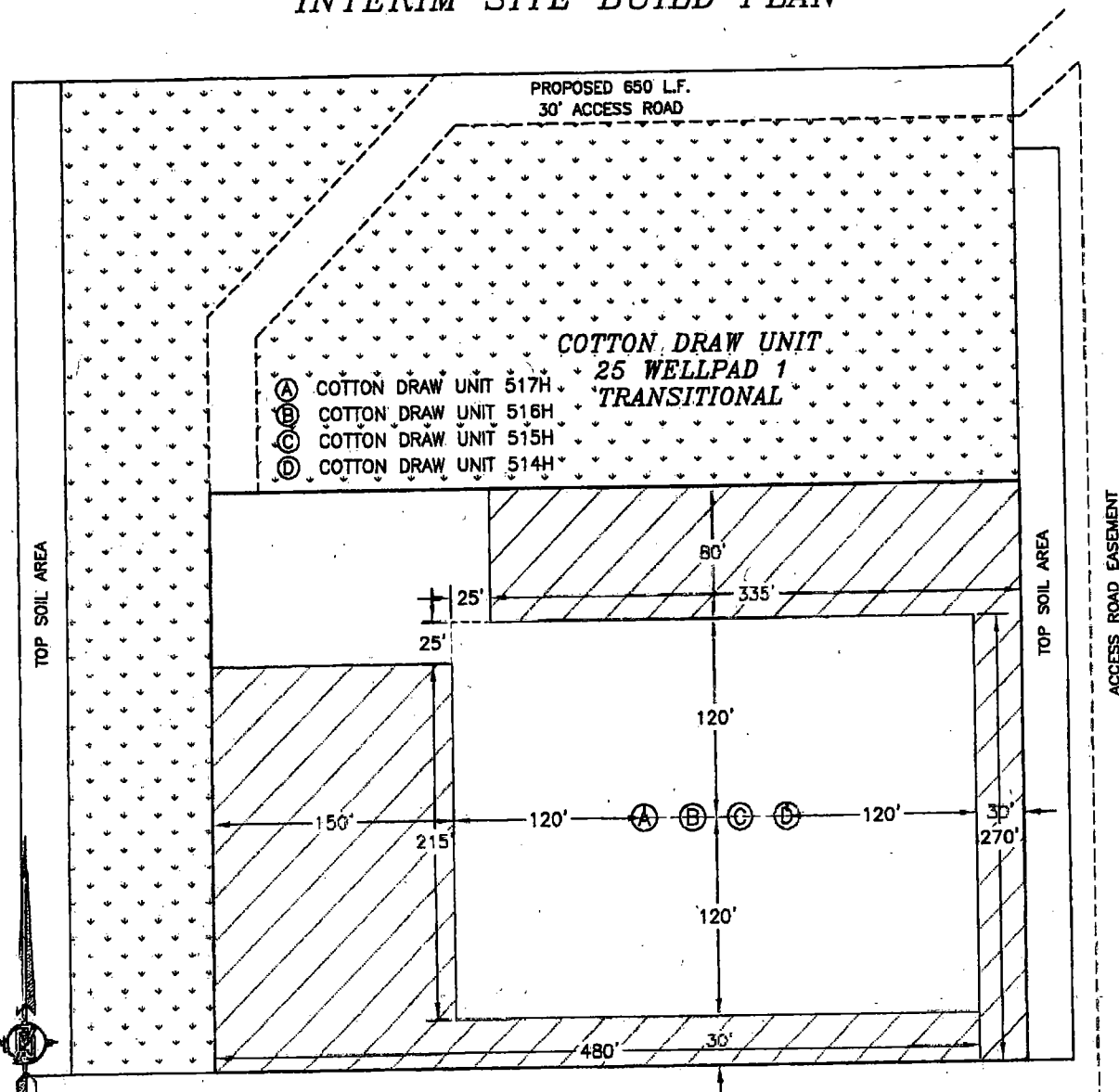
DEVON ENERGY PRODUCTION COMPANY, L.P.
COTTON DRAW UNIT 517H
LOCATED 485 FT. FROM THE NORTH LINE
AND 470 FT. FROM THE EAST LINE OF
SECTION 25, TOWNSHIP 24 SOUTH,
RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO

MARCH 21, 2018

SURVEY NO. 5386A

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

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



DENOTES INTERIM PAD RECLAMATION AREA

DENOTES GRADING SITE RECLAMATION AREA

010 50 100 200
SCALE 1" = 100'

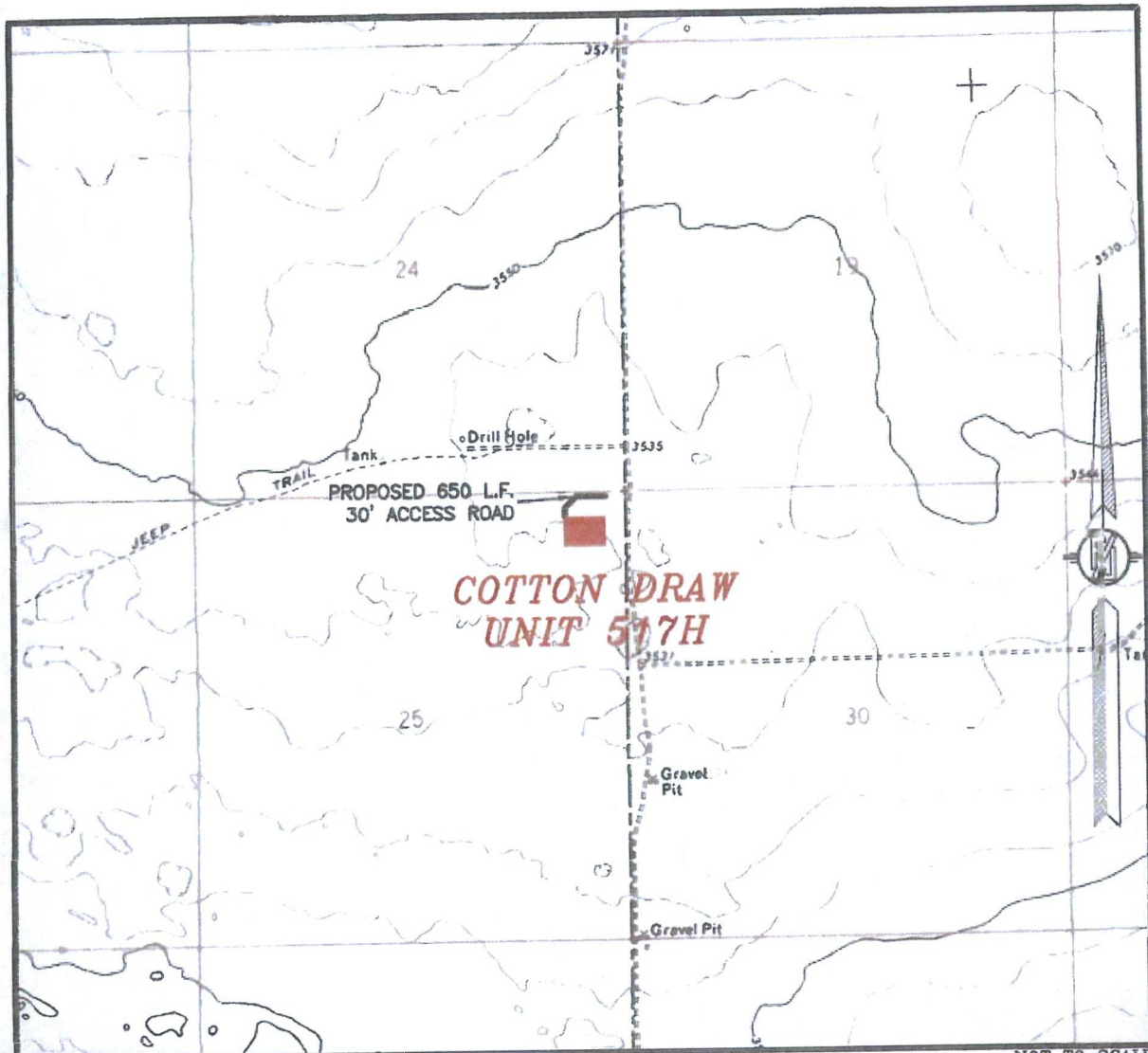
1.872± ACRES INTERIM PAD RECLAMATION AREA
3.718± ACRES GRADING SITE RECLAMATION AREA
2.677± ACRES NON-RECLAIMED AREA
8.267± ACRES COTTON DRAW UNIT 25
WELLPAD 1 TRANSITIONAL

DEVON ENERGY PRODUCTION COMPANY, L.P.
COTTON DRAW UNIT 517H
LOCATED 485 FT. FROM THE NORTH LINE
AND 470 FT. FROM THE EAST LINE OF
SECTION 25, TOWNSHIP 24 SOUTH,
RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO

MARCH 21, 2018 SURVEY NO. 5395A

MADRON SURVEYING, INC. 301 SOUTH CANAL CARLSBAD, NEW MEXICO
(675) 234-3341

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 517H

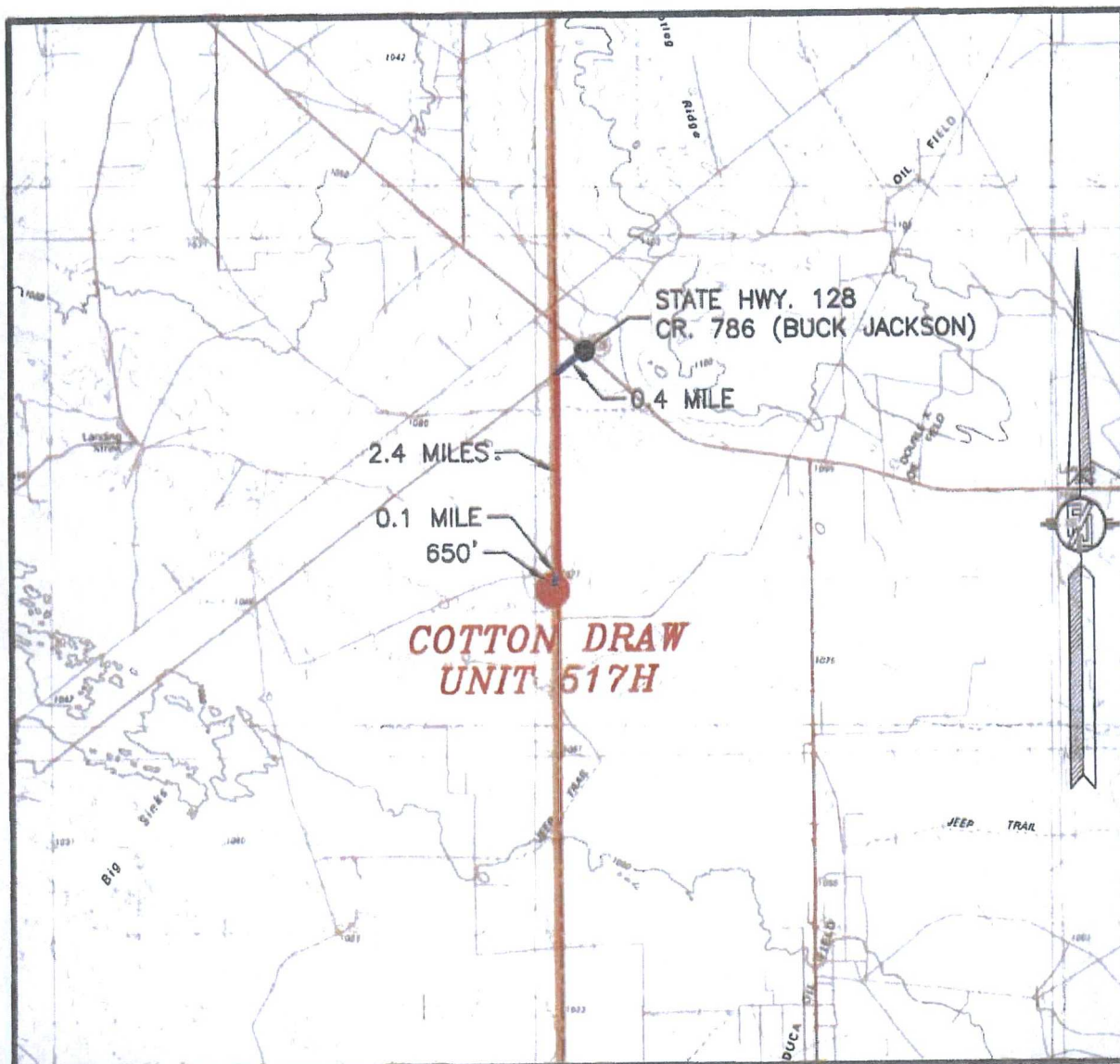
LOCATED 485 FT. FROM THE NORTH LINE
AND 470 FT. FROM THE EAST LINE OF
SECTION 25, TOWNSHIP 24 SOUTH,
RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO

MARCH 21, 2018

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

SURVEY NO. 5335A

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

DIRECTIONS TO LOCATION

FROM THE INTERSECTION OF STATE HWY. 128 & CR. 786 (BUCK JACKSON ROAD), GO WEST ON BUCK JACKSON RD. APPROX. 0.4 MILE TO A LEASE ROAD ON LEFT (SOUTH), TURN SOUTH GO APPROX 2.4 MILES TO A GATE ON RIGHT WEST AND ROAD LATHS WITH RED & YELLOW FLAGGING, FOLLOW ROAD LATHS WEST AND SOUTH APPROX. 0.1 MILE TO THE NORTHEAST CORNER OF THE COTTON DRAW UNIT 25 WELLPAD 1 TRANSITIONAL, THEN FOLLOW ROAD SURVEY WEST AND SOUTH 650 FEET TO THE NORTHWEST PAD CORNER FOR THIS LOCATION.

DEVON ENERGY PRODUCTION COMPANY, L.P.
COTTON DRAW UNIT 517H

LOCATED 485 FT. FROM THE NORTH LINE
AND 470 FT. FROM THE EAST LINE OF
SECTION 25, TOWNSHIP 24 SOUTH,
RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO

MARCH 21, 2018

MADRON SURVEYING, INC.

301 SOUTH CANAL
(575) 234-3341

CARLSBAD, NEW MEXICO

SURVEY NO. 5335A

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
FEB. 2017

DEVON ENERGY PRODUCTION COMPANY, L.P.
COTTON DRAW UNIT 517H

LOCATED 485 FT. FROM THE NORTH LINE
AND 470 FT. FROM THE EAST LINE OF
SECTION 25, TOWNSHIP 24 SOUTH,
RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO

MARCH 21, 2018

SURVEY NO. 5335A

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 ACCESS ROUTE MAP



NOT TO SCALE
AERIAL PHOTO:
GOOGLE EARTH
FEB. 2017

DEVON ENERGY PRODUCTION COMPANY, L.P.
COTTON DRAW UNIT 517H

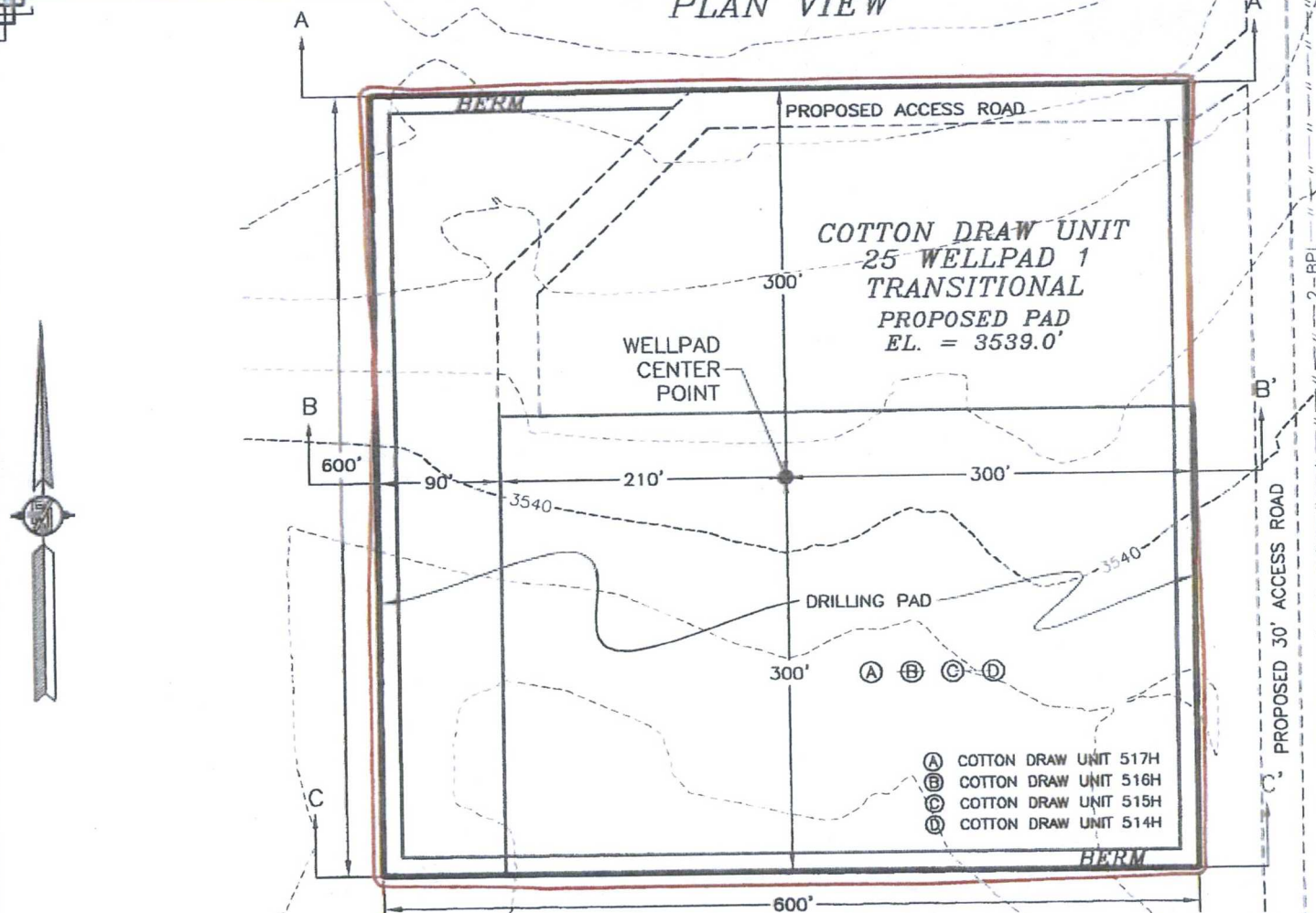
LOCATED 485 FT. FROM THE NORTH LINE
AND 470 FT. FROM THE EAST LINE OF
SECTION 25, TOWNSHIP 24 SOUTH,
RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO

MARCH 21, 2018

SURVEY NO. 5335A

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

PLAN VIEW



012 60 120 240
SCALE 1" = 120'

DEVON ENERGY PRODUCTION COMPANY, L.P.
GRADING PLAN AND CROSS SECTIONS
FOR COTTON DRAW UNIT 517H
SECTION 25, TOWNSHIP 24 SOUTH,
RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO

EARTHWORK QUANTITIES FOR
COTTON DRAW UNIT 25 WELLPAD 1 TRANSITIONAL

CUT	FILL	NET
13827 CU. YD	6937 CU. YD	6890 CU. YD (CUT)

EARTHWORK QUANTITIES ARE ESTIMATED

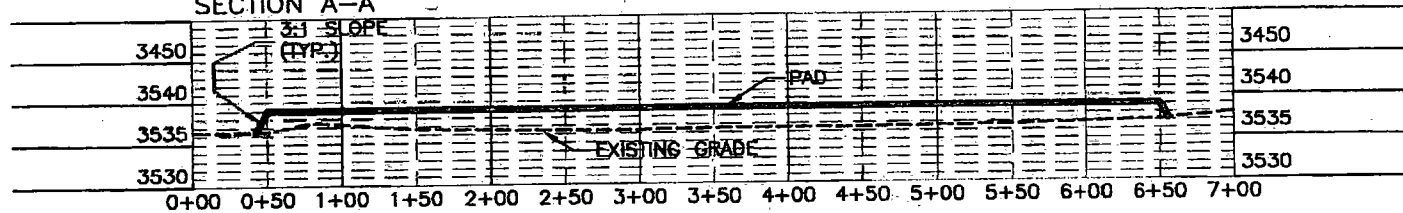
MARCH 21, 2018

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

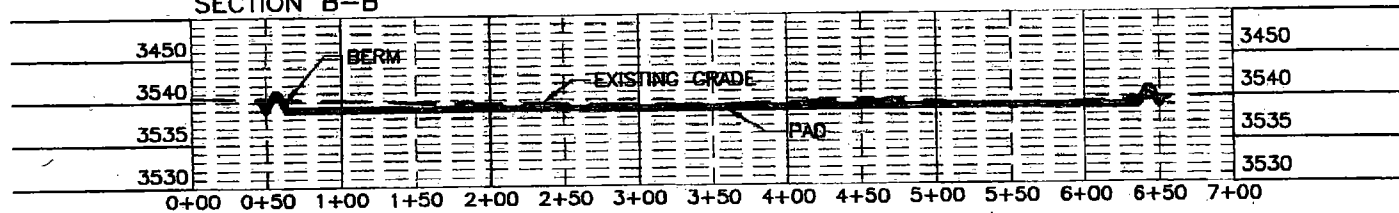
SHEET 1-2
SURVEY NO. 5335A

CROSS-SECTIONS

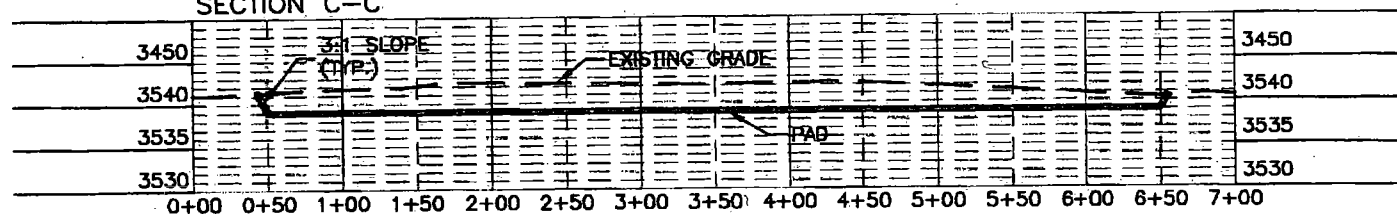
SECTION A-A'



SECTION B-B'



SECTION C-C'



0 12 60 120 240
SCALE 1" = 120' - 1" = 20' VER

DEVON ENERGY PRODUCTION COMPANY, L.P.
GRADING PLAN AND CROSS SECTIONS
FOR COTTON DRAW UNIT 617H
SECTION 25, TOWNSHIP 24 SOUTH,
RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO

EARTHWORK QUANTITIES FOR
COTTON DRAW UNIT 25 WELLPAD 1 TRANSITIONAL

CUT	FILL	NET
13827 CU. YD	6937 CU. YD	6890 CU. YD (CUT)

EARTHWORK QUANTITIES ARE ESTIMATED

MARCH 21, 2018

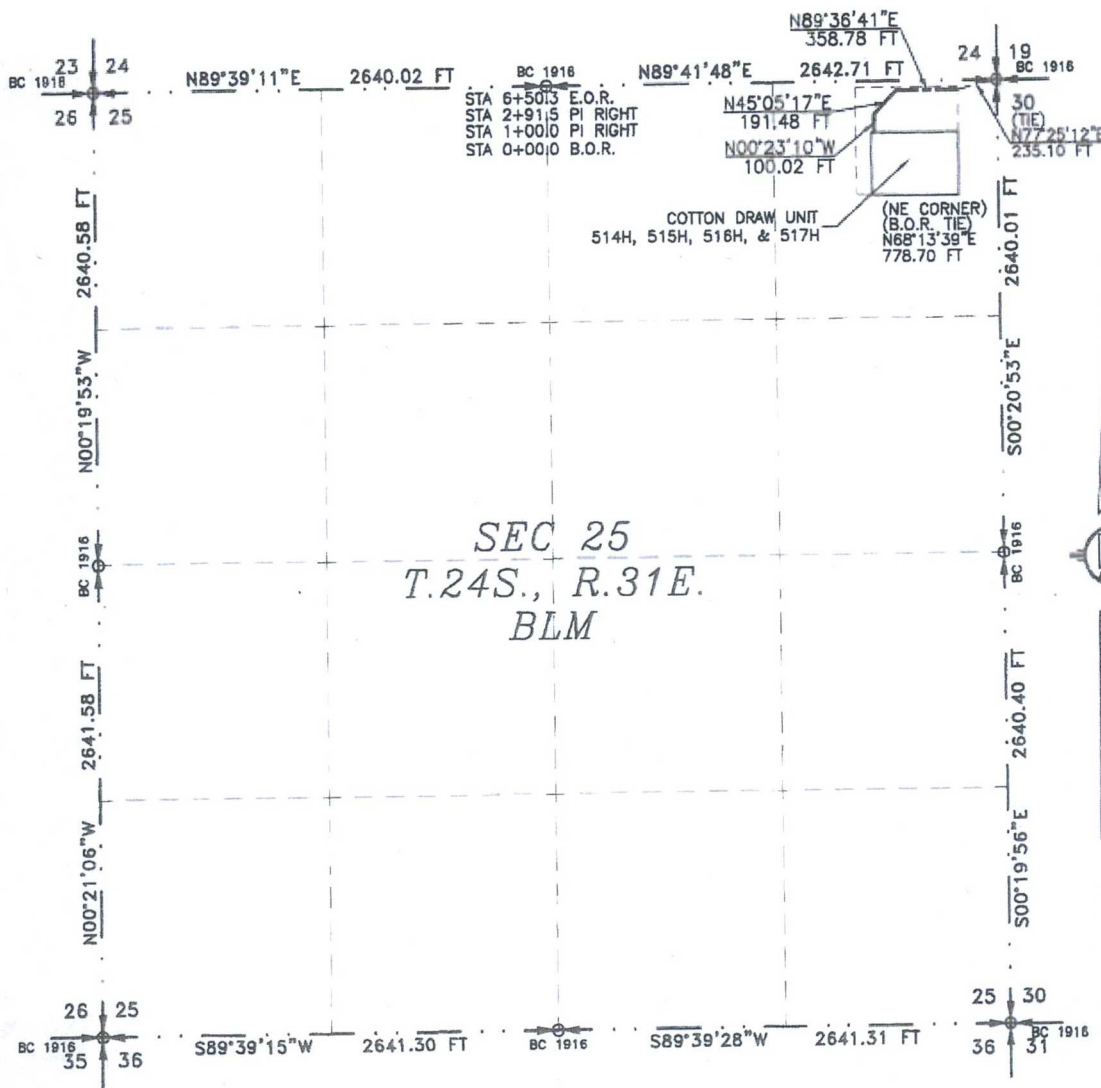
MADRON SURVEYING, INC. 301 SOUTH CANAL (575) 234-3341 CARLSBAD, NEW MEXICO

SHEET 2-2
SURVEY NO. 5396A

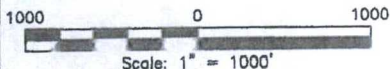
ACCESS ROAD PLAT

ACCESS ROAD FOR COTTON DRAW UNIT 514H, 515H, 516H, & 517H

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
MARCH 21, 2018



SEE NEXT SHEET (2-2) FOR DESCRIPTION



GENERAL NOTES

- 1.) THE INTENT OF THIS ROUTE SURVEY IS TO ACQUIRE AN EASEMENT.
- 2.) BASIS OF BEARING AND DISTANCE IS NMSP EAST (NAD83) MODIFIED TO SURFACE COORDINATES. NAD 83 (FEET) AND NAVD 88 (FEET) COORDINATE SYSTEMS USED IN THE SURVEY.

SHEET: 1-2

MADRON SURVEYING, INC.

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 22 DAY OF MARCH 2018

FILIMON F. JARAMILLO, SLS 12797
301 SOUTH CANAL
(575) 234-3341

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

SURVEY NO. 5335A

CARLSBAD, NEW MEXICO

ACCESS ROAD PLAT

ACCESS ROAD FOR COTTON DRAW UNIT 514H, 516H, 516H, & 517H

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 MARCH 21, 2018

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 NE/4 NE/4 OF SAID SECTION 25, TOWNSHIP 24 SOUTH, RANGE 31 EAST, N.M.P.M., WHENCE THE NORTHEAST CORNER OF SAID SECTION 25, TOWNSHIP 24 SOUTH, RANGE 31 EAST, N.M.P.M. BEARS N68°13'39"E, A DISTANCE OF 778.70 FEET;
THENCE N00°23'10"W A DISTANCE OF 100.02 FEET TO AN ANGLE POINT OF THE LINE HEREIN DESCRIBED;
THENCE N45°05'17"E A DISTANCE OF 191.48 FEET TO AN ANGLE POINT OF THE LINE HEREIN DESCRIBED;
THENCE N89°36'41"E A DISTANCE OF 358.78 FEET THE TERMINUS OF THIS CENTERLINE SURVEY, WHENCE THE NORTHEAST CORNER OF SAID SECTION 25, TOWNSHIP 24 SOUTH, RANGE 31 EAST, N.M.P.M. BEARS N77°25'12"E, A DISTANCE OF 235.10 FEET;

SAID STRIP OF LAND BEING 650.28 FEET OR 39.41 RODS IN LENGTH, CONTAINING 0.448 ACRES MORE OR LESS AND BEING ALLOCATED BY FORTIES AS FOLLOWS:

NE/4 NE/4 650.28 L.F. 39.41 RODS 0.448 ACRES

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 22 DAY OF MARCH 2018

FILIMON F. JARAMILLO - PLS. 12797

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

GENERAL NOTES

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

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

SHEET: 2-2

MADRON SURVEYING, INC. CARLSBAD, NEW MEXICO

SURVEY NO. 5335A

**Cotton Draw Unit 517H
Sec 25-T24S-R31E
Eddy County, NM**

Drilling Plan

1. Geologic Formations

TVD of target	9091'	Pilot hole depth	N/A
MD at TD:	19286'	Deepest Expected fresh water:	

Formation	Depth (TVD) from KB	Hydrocarbon/Water Bearing Zones	Potential Hazard(s)
Rustler	696.4	Barren	
Salado	1026.4	Barren	
Base of Salt	4618.87	Barren	
Delaware	4634.3	Oil	
Bell Canyon	4670.3	Oil	
Cherry Canyon	5565.4	Oil	
Brushy Canyon	8302.15	Oil	
IBSLM	8631.38	Oil	
Leonard A	8718.83	Oil	
Leonard B	9232.27	Oil	

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

2. Casing Program

Hole Size	Casing Interval Interval	Casing Size	Weight (lbs)	Grade	Connection	SF Collapse	SF Burst	SF Tension
17.5"	0 - 721'	13.375"	48	H-40	STC	1.125	1.25	1.6
12.25"	0 - 4769'	9.625"	40	J-55	BTC	1.125	1.25	1.6
8.75"	0 - 19286'	5.5"	17	P110	BTC	1.125	1.25	1.6
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 (load 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 3 rd 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 2 nd 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	# Sacks	Weight lb/gal	H ₂ O gal/sack	Yield ft ³ /sack	500# Compressive Strength (hours)	Slurry Description
Surface	559	14.8	6.32	1.34	6	Lead: Class C cement +0.125 lbs/sack Poly-F-Flake
Intermediate	470	10.3	22.06	3.65	24	Lead: (50:50) Poz (Silica) 3 lbm/sk Kol-Seal, .125 lbm/sk Poly-E-Flake
	153	14.8	6.32	1.33	6	Tail: Class C cement + 0.125 lbs/sack Poly-E-Flake
Production	501	11	13.5	3.27	21	Lead: Tuned Light Cement
	2439	13.2	7.45	1.2	18	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

Casing String	TOC	% Excess
Surface	0'	50%
Intermediate	0'	30%
Production	3769'	25%

4. Pressure Control Equipment

N	A variance is requested for the use of a diverter on the surface casing. See attached for schematic
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BOP installed and tested before drilling which hole?	Size?	Min. Required WP	Type	Check	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% of working pressure
			Blind Ram		3M
			Pipe Ram		
			Double Ram	X	
			Other*		
			Annular	X	
			Blind Ram		
			Pipe Ram		
			Double Ram	X	
			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.
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 - Wellhead will be installed by wellhead representatives. 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. is broken the system must be tested. - 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 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
--	---

5. Mud Program

Depth		Type	Weight (pgg)	Viscosity	Water Loss
From	To				
0'	721'	FW Gel	8.4 - 9	28-34	N/C
721'	4769'	Saturated Brine	9 - 10.5	28-34	N/C
4769'	19286'	Water Based Mud	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 from TD to surface (horizontal well – vertical portion of hole). Stated logs
	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	KOP TD
	PEX	

7. Drilling Conditions

Condition	Specify what type and where?
BH Pressure at deepest TVD	3971
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

7. Other facets of operation

Is this a walking operation? Yes

1. In the event the spudder rig is unable to drill the surface holes the drilling rig will batch drill the surface holes and run/cement surface casing; walking the rig to next wells on the pad.
2. The drilling rig will then batch drill the intermediate sections with either OBM or cut brine and run/cement intermediate casing; the wellbore will be isolated with a blind flange and pressure
3. The drilling rig will then batch drill the production hole sections on the wells with OBM, run/cement production casing, and install TA caps or tubing heads for completions.

NOTE: During batch operations the drilling rig will be moved from well to well however, it will not be removed from the pad until all wells have production casing run/cemented.

Will be pre-setting casing? Yes

1. Spudder rig will move in and drill surface hole.
 - a. Rig will utilize fresh water based mud to drill 17½" surface hole to TD. Solids control will be handled entirely on a closed loop basis.
2. After drilling the surface hole section, the spudder rig will run casing and cement following all of the applicable rules and regulations (OnShore Order 2, all COAs and NMOCD regulations).
3. The wellhead will be installed and tested once the 13-3/8" surface casing is cut off and the WOC time has been reached.
4. A blind flange with the same pressure rating as the wellhead will be installed to seal the wellbore. Pressure will be monitored with a pressure gauge installed on the wellhead.
5. Spudder rig operations is expected to take 4-5 days per well on a multi well pad.
6. The NMOCD will be contacted and notified 24 hours prior to commencing spudder rig operations.
7. Drilling operations will be performed with the drilling rig. At that time an approved BOP stack will be nipped up and tested on the wellhead before drilling operations commences on each well.
 - a. The NMOCD will be contacted / notified 24 hours before the drilling rig moves back on to the pad with the pre-set surface casing.

Attachments

X	Directional Plan
	Other, describe

WCDSC Permian NM

Eddy County (NAD 83 NM Eastern)

Sec 25-T24S-R31E

Cotton Draw Unit 517H

Wellbore #1

Plan: Plan 1

Standard Planning Report - Geographic

27 March, 2018

Planning Report - Geographic

Database:	EDM r5000.141_Prod US	Local Co-ordinate Reference:	Well Cotton Draw Unit 517H
Company:	WCDSC Permian NM	TVD Reference:	RKB @ 3566.40ft
Project:	Eddy County (NAD 83 NM Eastern)	MD Reference:	RKB @ 3566.40ft
Site:	Sec 25-T24S-R31E	North Reference:	Grid
Well:	Cotton Draw Unit 517H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan 1		

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

Site	Sec 25-T24S-R31E		
Site Position:		Northing:	435,400.53 usft
From:	Map	Easting:	724,859.44 usft
Position Uncertainty:	5.00 ft	Slot Radius:	13-3/16 "
		Latitude:	32.195602
		Longitude:	-103.740046
		Grid Convergence:	0.32 °

Well	Cotton Draw Unit 517H		
Well Position	+N/-S	0.00 ft	Northing: 434,942.57 usft
	+E/-W	0.00 ft	Easting: 729,673.83 usft
Position Uncertainty	0.50 ft	Wellhead Elevation:	Latitude: 32.194269
			Longitude: -103.724491
			Ground Level: 3,541.40 ft

Wellbore	Wellbore #1		
Magnetics	Model Name	Sample Date	Declination (°)
	IGRF2015	2/19/2018	6.95
			Dip Angle (°) 60.00
			Field Strength (nT) 47,833.89811058

Design	Plan 1		
Audit Notes:			
Version:	Phase:	PLAN	Tie On Depth: 0.00
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)
	0.00	0.00	0.00
			Direction (°) 190.20

Plan Survey Tool Program	Date	3/27/2018		
Depth From (ft)	Depth To (ft)	Survey (Wellbore)	Tool Name	Remarks
1	0.00	19,285.26 Plan 1 (Wellbore #1)	MWD+HDGM	
			OWSG MWD + HDGM	

Planning Report - Geographic

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Company:	WCDSC Permian NM	TVD Reference:	RKB @ 3566.40ft
Project:	Eddy County (NAD 83 NM Eastern)	MD Reference:	RKB @ 3566.40ft
Site:	Sec 25-T24S-R31E	North Reference:	Grid
Well:	Cotton Draw Unit 517H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan 1		

Plan Sections										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
950.00	0.00	0.00	950.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,309.99	13.60	281.18	2,297.26	31.16	-157.60	1.00	1.00	0.00	281.18	
8,720.65	13.60	281.18	8,528.17	323.53	-1,636.38	0.00	0.00	0.00	0.00	
9,647.96	90.12	180.00	9,111.00	-250.00	-1,775.00	10.00	8.25	-10.91	-100.85	
12,736.50	90.12	180.00	9,104.53	-3,338.54	-1,775.00	0.00	0.00	0.00	0.00	
13,536.50	90.12	172.00	9,102.85	-4,135.94	-1,719.24	1.00	0.00	-1.00	-89.99	
13,936.50	90.12	172.00	9,102.02	-4,532.04	-1,663.57	0.00	0.00	0.00	0.00	
15,536.50	90.12	188.00	9,098.64	-6,126.85	-1,663.57	1.00	0.00	1.00	89.98	
15,936.50	90.12	188.00	9,097.80	-6,522.95	-1,719.24	0.00	0.00	0.00	0.00	
16,736.50	90.12	180.00	9,096.13	-7,320.35	-1,775.00	1.00	0.00	-1.00	-89.99	
19,286.02	90.12	180.00	9,090.79	-9,869.87	-1,775.00	0.00	0.00	0.00	0.00	PBHL - CDU 517H

Planning Report - Geographic

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Company:	WCDSC Permian NM	TVD Reference:	RKB @ 3566.40ft
Project:	Eddy County (NAD 83 NM Eastern)	MD Reference:	RKB @ 3566.40ft
Site:	Sec 25-T24S-R31E	North Reference:	Grid
Well:	Cotton Draw Unit 517H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan 1		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
0.00	0.00	0.00	0.00	0.00	0.00	434,942.57	729,673.83	32.194269	-103.724491
100.00	0.00	0.00	100.00	0.00	0.00	434,942.57	729,673.83	32.194269	-103.724491
200.00	0.00	0.00	200.00	0.00	0.00	434,942.57	729,673.83	32.194269	-103.724491
300.00	0.00	0.00	300.00	0.00	0.00	434,942.57	729,673.83	32.194269	-103.724491
400.00	0.00	0.00	400.00	0.00	0.00	434,942.57	729,673.83	32.194269	-103.724491
500.00	0.00	0.00	500.00	0.00	0.00	434,942.57	729,673.83	32.194269	-103.724491
600.00	0.00	0.00	600.00	0.00	0.00	434,942.57	729,673.83	32.194269	-103.724491
700.00	0.00	0.00	700.00	0.00	0.00	434,942.57	729,673.83	32.194269	-103.724491
800.00	0.00	0.00	800.00	0.00	0.00	434,942.57	729,673.83	32.194269	-103.724491
900.00	0.00	0.00	900.00	0.00	0.00	434,942.57	729,673.83	32.194269	-103.724491
950.00	0.00	0.00	950.00	0.00	0.00	434,942.57	729,673.83	32.194269	-103.724491
Begin Nudge									
1,000.00	0.50	281.18	1,000.00	0.04	-0.21	434,942.61	729,673.61	32.194269	-103.724492
1,100.00	1.50	281.18	1,099.98	0.38	-1.93	434,942.95	729,671.90	32.194270	-103.724498
1,200.00	2.50	281.18	1,199.92	1.06	-5.35	434,943.63	729,668.48	32.194272	-103.724509
1,300.00	3.50	281.18	1,299.78	2.07	-10.48	434,944.64	729,663.34	32.194275	-103.724525
1,400.00	4.50	281.18	1,399.54	3.43	-17.33	434,946.00	729,656.50	32.194279	-103.724547
1,500.00	5.50	281.18	1,499.16	5.12	-25.88	434,947.69	729,647.95	32.194283	-103.724575
1,600.00	6.50	281.18	1,598.61	7.14	-36.13	434,949.71	729,637.70	32.194289	-103.724608
1,700.00	7.50	281.18	1,697.86	9.51	-48.09	434,952.08	729,625.74	32.194296	-103.724647
1,800.00	8.50	281.18	1,796.89	12.21	-61.74	434,954.78	729,612.09	32.194303	-103.724691
1,900.00	9.50	281.18	1,895.65	15.24	-77.09	434,957.81	729,596.74	32.194312	-103.724740
2,000.00	10.50	281.18	1,994.13	18.61	-94.12	434,961.18	729,579.71	32.194322	-103.724795
2,100.00	11.50	281.18	2,092.29	22.31	-112.84	434,964.88	729,560.99	32.194332	-103.724856
2,200.00	12.50	281.18	2,190.11	26.34	-133.23	434,968.91	729,540.59	32.194343	-103.724922
2,300.00	13.50	281.18	2,287.54	30.70	-155.30	434,973.27	729,518.52	32.194356	-103.724993
2,309.99	13.60	281.18	2,297.26	31.16	-157.60	434,973.73	729,516.23	32.194357	-103.725000
EOB									
2,400.00	13.60	281.18	2,384.74	35.26	-178.36	434,977.83	729,495.47	32.194369	-103.725067
2,500.00	13.60	281.18	2,481.94	39.82	-201.43	434,982.39	729,472.40	32.194382	-103.725142
2,600.00	13.60	281.18	2,579.13	44.39	-224.50	434,986.96	729,449.33	32.194394	-103.725216
2,700.00	13.60	281.18	2,676.33	48.95	-247.56	434,991.52	729,426.26	32.194407	-103.725291
2,800.00	13.60	281.18	2,773.53	53.51	-270.63	434,996.08	729,403.20	32.194420	-103.725365
2,900.00	13.60	281.18	2,870.72	58.07	-293.70	435,000.64	729,380.13	32.194433	-103.725440
3,000.00	13.60	281.18	2,967.92	62.63	-316.77	435,005.20	729,357.06	32.194446	-103.725514
3,100.00	13.60	281.18	3,065.11	67.19	-339.83	435,009.76	729,333.99	32.194459	-103.725589
3,200.00	13.60	281.18	3,162.31	71.75	-362.90	435,014.32	729,310.93	32.194472	-103.725663
3,300.00	13.60	281.18	3,259.51	76.31	-385.97	435,018.88	729,287.86	32.194485	-103.725738
3,400.00	13.60	281.18	3,356.70	80.87	-409.04	435,023.44	729,264.79	32.194498	-103.725812
3,500.00	13.60	281.18	3,453.90	85.43	-432.10	435,028.00	729,241.72	32.194510	-103.725887
3,600.00	13.60	281.18	3,551.10	89.99	-455.17	435,032.56	729,218.66	32.194523	-103.725961
3,700.00	13.60	281.18	3,648.29	94.55	-478.24	435,037.12	729,195.59	32.194536	-103.726036
3,800.00	13.60	281.18	3,745.49	99.11	-501.31	435,041.68	729,172.52	32.194549	-103.726110
3,900.00	13.60	281.18	3,842.68	103.67	-524.37	435,046.24	729,149.45	32.194562	-103.726185
4,000.00	13.60	281.18	3,939.88	108.24	-547.44	435,050.80	729,126.39	32.194575	-103.726259
4,100.00	13.60	281.18	4,037.08	112.80	-570.51	435,055.37	729,103.32	32.194588	-103.726334
4,200.00	13.60	281.18	4,134.27	117.36	-593.58	435,059.93	729,080.25	32.194601	-103.726408
4,300.00	13.60	281.18	4,231.47	121.92	-616.64	435,064.49	729,057.18	32.194614	-103.726483
4,400.00	13.60	281.18	4,328.66	126.48	-639.71	435,069.05	729,034.12	32.194627	-103.726557
4,500.00	13.60	281.18	4,425.86	131.04	-662.78	435,073.61	729,011.05	32.194639	-103.726632
4,600.00	13.60	281.18	4,523.06	135.60	-685.85	435,078.17	728,987.98	32.194652	-103.726706
4,700.00	13.60	281.18	4,620.25	140.16	-708.91	435,082.73	728,964.91	32.194665	-103.726780
4,800.00	13.60	281.18	4,717.45	144.72	-731.98	435,087.29	728,941.85	32.194678	-103.726855
4,900.00	13.60	281.18	4,814.65	149.28	-755.05	435,091.85	728,918.78	32.194691	-103.726929

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Well:	Cotton Draw Unit 517H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan 1		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
5,000.00	13.60	281.18	4,911.84	153.84	-778.12	435,096.41	728,895.71	32.194704	-103.727004
5,100.00	13.60	281.18	5,009.04	158.40	-801.18	435,100.97	728,872.64	32.194717	-103.727078
5,200.00	13.60	281.18	5,106.23	162.96	-824.25	435,105.53	728,849.58	32.194730	-103.727153
5,300.00	13.60	281.18	5,203.43	167.52	-847.32	435,110.09	728,826.51	32.194743	-103.727227
5,400.00	13.60	281.18	5,300.63	172.09	-870.39	435,114.65	728,803.44	32.194755	-103.727302
5,500.00	13.60	281.18	5,397.82	176.65	-893.45	435,119.22	728,780.37	32.194768	-103.727376
5,600.00	13.60	281.18	5,495.02	181.21	-916.52	435,123.78	728,757.31	32.194781	-103.727451
5,700.00	13.60	281.18	5,592.21	185.77	-939.59	435,128.34	728,734.24	32.194794	-103.727525
5,800.00	13.60	281.18	5,689.41	190.33	-962.66	435,132.90	728,711.17	32.194807	-103.727600
5,900.00	13.60	281.18	5,786.61	194.89	-985.72	435,137.46	728,688.10	32.194820	-103.727674
6,000.00	13.60	281.18	5,883.80	199.45	-1,008.79	435,142.02	728,665.04	32.194833	-103.727749
6,100.00	13.60	281.18	5,981.00	204.01	-1,031.86	435,146.58	728,641.97	32.194846	-103.727823
6,200.00	13.60	281.18	6,078.20	208.57	-1,054.93	435,151.14	728,618.90	32.194859	-103.727898
6,300.00	13.60	281.18	6,175.39	213.13	-1,077.99	435,155.70	728,595.83	32.194871	-103.727972
6,400.00	13.60	281.18	6,272.59	217.69	-1,101.06	435,160.26	728,572.77	32.194884	-103.728047
6,500.00	13.60	281.18	6,369.78	222.25	-1,124.13	435,164.82	728,549.70	32.194897	-103.728121
6,600.00	13.60	281.18	6,466.98	226.81	-1,147.20	435,169.38	728,526.63	32.194910	-103.728196
6,700.00	13.60	281.18	6,564.18	231.37	-1,170.26	435,173.94	728,503.56	32.194923	-103.728270
6,800.00	13.60	281.18	6,661.37	235.94	-1,193.33	435,178.50	728,480.50	32.194936	-103.728345
6,900.00	13.60	281.18	6,758.57	240.50	-1,216.40	435,183.07	728,457.43	32.194949	-103.728419
7,000.00	13.60	281.18	6,855.76	245.06	-1,239.47	435,187.63	728,434.36	32.194962	-103.728494
7,100.00	13.60	281.18	6,952.96	249.62	-1,262.53	435,192.19	728,411.29	32.194975	-103.728568
7,200.00	13.60	281.18	7,050.16	254.18	-1,285.60	435,196.75	728,388.23	32.194988	-103.728643
7,300.00	13.60	281.18	7,147.35	258.74	-1,308.67	435,201.31	728,365.16	32.195000	-103.728717
7,400.00	13.60	281.18	7,244.55	263.30	-1,331.74	435,205.87	728,342.09	32.195013	-103.728792
7,500.00	13.60	281.18	7,341.74	267.86	-1,354.80	435,210.43	728,319.02	32.195026	-103.728866
7,600.00	13.60	281.18	7,438.94	272.42	-1,377.87	435,214.99	728,295.96	32.195039	-103.728941
7,700.00	13.60	281.18	7,536.14	276.98	-1,400.94	435,219.55	728,272.89	32.195052	-103.729015
7,800.00	13.60	281.18	7,633.33	281.54	-1,424.01	435,224.11	728,249.82	32.195065	-103.729090
7,900.00	13.60	281.18	7,730.53	286.10	-1,447.07	435,228.67	728,226.75	32.195078	-103.729164
8,000.00	13.60	281.18	7,827.73	290.66	-1,470.14	435,233.23	728,203.69	32.195091	-103.729238
8,100.00	13.60	281.18	7,924.92	295.22	-1,493.21	435,237.79	728,180.62	32.195104	-103.729313
8,200.00	13.60	281.18	8,022.12	299.78	-1,516.28	435,242.35	728,157.55	32.195116	-103.729387
8,300.00	13.60	281.18	8,119.31	304.35	-1,539.34	435,246.91	728,134.48	32.195129	-103.729462
8,400.00	13.60	281.18	8,216.51	308.91	-1,562.41	435,251.48	728,111.42	32.195142	-103.729536
8,500.00	13.60	281.18	8,313.71	313.47	-1,585.48	435,256.04	728,088.35	32.195155	-103.729611
8,600.00	13.60	281.18	8,410.90	318.03	-1,608.55	435,260.60	728,065.28	32.195168	-103.729685
8,700.00	13.60	281.18	8,508.10	322.59	-1,631.61	435,265.16	728,042.21	32.195181	-103.729760
8,720.65	13.60	281.18	8,528.17	323.53	-1,636.38	435,266.10	728,037.45	32.195184	-103.729775
EOH; KOP									
8,800.00	14.36	248.04	8,605.29	321.66	-1,654.68	435,264.23	728,019.15	32.195179	-103.729834
8,900.00	20.22	220.15	8,700.89	303.76	-1,677.38	435,246.33	727,996.45	32.195130	-103.729908
9,000.00	28.42	206.04	8,792.01	269.08	-1,699.03	435,211.65	727,974.80	32.195035	-103.729979
9,100.00	37.46	198.08	8,875.89	218.66	-1,718.96	435,161.23	727,954.87	32.194897	-103.730044
9,200.00	46.84	192.89	8,949.97	154.04	-1,736.58	435,096.60	727,937.25	32.194719	-103.730102
9,300.00	56.39	189.10	9,012.00	77.17	-1,751.34	435,019.74	727,922.49	32.194508	-103.730151
9,400.00	66.04	186.08	9,060.11	-9.60	-1,762.80	434,932.97	727,911.03	32.194270	-103.730190
9,500.00	75.73	183.49	9,092.82	-103.64	-1,770.61	434,838.93	727,903.22	32.194011	-103.730217
9,600.00	85.45	181.11	9,109.15	-202.09	-1,774.54	434,740.48	727,899.29	32.193741	-103.730231
9,647.96	90.12	180.00	9,111.00	-250.00	-1,775.00	434,692.57	727,898.83	32.193609	-103.730234
LP									
9,700.00	90.12	180.00	9,110.89	-302.04	-1,775.00	434,640.53	727,898.83	32.193466	-103.730235
9,800.00	90.12	180.00	9,110.68	-402.04	-1,775.00	434,540.53	727,898.83	32.193191	-103.730237
9,900.00	90.12	180.00	9,110.47	-502.04	-1,775.00	434,440.53	727,898.83	32.192916	-103.730238

Planning Report - Geographic

Database: EDM r5000.141_Prod US
Company: WCDSC Permian NM
Project: Eddy County (NAD 83 NM Eastern)
Site: Sec 25-T24S-R31E
Well: Cotton Draw Unit 517H
Wellbore: Wellbore #1
Design: Plan 1

Local Co-ordinate Reference:
TVD Reference:
MD Reference:
North Reference:
Survey Calculation Method:

Well Cotton Draw Unit 517H
RKB @ 3566.40ft
RKB @ 3566.40ft
Grid
Minimum Curvature

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
10,000.00	90.12	180.00	9,110.26	-602.04	-1,775.00	434,340.53	727,898.83	32.192642	-103.730240
10,100.00	90.12	180.00	9,110.05	-702.04	-1,775.00	434,240.53	727,898.83	32.192367	-103.730242
10,200.00	90.12	180.00	9,109.84	-802.04	-1,775.00	434,140.53	727,898.83	32.192092	-103.730244
10,300.00	90.12	180.00	9,109.63	-902.04	-1,775.00	434,040.53	727,898.83	32.191817	-103.730246
10,400.00	90.12	180.00	9,109.43	-1,002.04	-1,775.00	433,940.53	727,898.83	32.191542	-103.730247
10,500.00	90.12	180.00	9,109.22	-1,102.04	-1,775.00	433,840.53	727,898.83	32.191267	-103.730249
10,600.00	90.12	180.00	9,109.01	-1,202.04	-1,775.00	433,740.53	727,898.83	32.190992	-103.730251
10,700.00	90.12	180.00	9,108.80	-1,302.04	-1,775.00	433,640.53	727,898.83	32.190717	-103.730253
10,800.00	90.12	180.00	9,108.59	-1,402.04	-1,775.00	433,540.53	727,898.83	32.190443	-103.730255
10,900.00	90.12	180.00	9,108.38	-1,502.04	-1,775.00	433,440.53	727,898.83	32.190168	-103.730256
11,000.00	90.12	180.00	9,108.17	-1,602.04	-1,775.00	433,340.54	727,898.83	32.189893	-103.730258
11,100.00	90.12	180.00	9,107.96	-1,702.04	-1,775.00	433,240.54	727,898.83	32.189618	-103.730260
11,200.00	90.12	180.00	9,107.75	-1,802.04	-1,775.00	433,140.54	727,898.83	32.189343	-103.730262
11,300.00	90.12	180.00	9,107.54	-1,902.04	-1,775.00	433,040.54	727,898.83	32.189068	-103.730264
11,400.00	90.12	180.00	9,107.33	-2,002.04	-1,775.00	432,940.54	727,898.83	32.188793	-103.730266
11,500.00	90.12	180.00	9,107.12	-2,102.04	-1,775.00	432,840.54	727,898.83	32.188518	-103.730267
11,600.00	90.12	180.00	9,106.91	-2,202.04	-1,775.00	432,740.54	727,898.83	32.188244	-103.730269
11,700.00	90.12	180.00	9,106.70	-2,302.04	-1,775.00	432,640.54	727,898.83	32.187969	-103.730271
11,800.00	90.12	180.00	9,106.49	-2,402.04	-1,775.00	432,540.54	727,898.83	32.187694	-103.730273
11,900.00	90.12	180.00	9,106.28	-2,502.04	-1,775.00	432,440.54	727,898.83	32.187419	-103.730275
12,000.00	90.12	180.00	9,106.07	-2,602.04	-1,775.00	432,340.54	727,898.83	32.187144	-103.730276
12,100.00	90.12	180.00	9,105.86	-2,702.04	-1,775.00	432,240.54	727,898.83	32.186869	-103.730278
12,200.00	90.12	180.00	9,105.66	-2,802.04	-1,775.00	432,140.54	727,898.83	32.186594	-103.730280
12,300.00	90.12	180.00	9,105.45	-2,902.03	-1,775.00	432,040.54	727,898.83	32.186319	-103.730282
12,400.00	90.12	180.00	9,105.24	-3,002.03	-1,775.00	431,940.54	727,898.83	32.186045	-103.730284
12,500.00	90.12	180.00	9,105.03	-3,102.03	-1,775.00	431,840.54	727,898.83	32.185770	-103.730285
12,600.00	90.12	180.00	9,104.82	-3,202.03	-1,775.00	431,740.54	727,898.83	32.185495	-103.730287
12,700.00	90.12	180.00	9,104.61	-3,302.03	-1,775.00	431,640.54	727,898.83	32.185220	-103.730289
12,736.50	90.12	180.00	9,104.53	-3,338.53	-1,775.00	431,604.04	727,898.83	32.185120	-103.730290
EOH; 3600' VS									
12,800.00	90.12	179.37	9,104.40	-3,402.03	-1,774.65	431,540.54	727,899.18	32.184945	-103.730290
12,900.00	90.12	178.37	9,104.19	-3,502.01	-1,772.67	431,440.57	727,901.16	32.184670	-103.730285
13,000.00	90.12	177.37	9,103.98	-3,601.94	-1,768.94	431,340.64	727,904.89	32.184395	-103.730275
13,100.00	90.12	176.37	9,103.77	-3,701.79	-1,763.47	431,240.79	727,910.36	32.184121	-103.730259
13,200.00	90.12	175.37	9,103.56	-3,801.53	-1,756.26	431,141.05	727,917.57	32.183847	-103.730238
13,300.00	90.12	174.37	9,103.35	-3,901.12	-1,747.31	431,041.45	727,926.52	32.183573	-103.730210
13,400.00	90.12	173.37	9,103.14	-4,000.55	-1,736.63	430,942.03	727,937.20	32.183299	-103.730178
13,500.00	90.12	172.37	9,102.93	-4,099.77	-1,724.21	430,842.80	727,949.62	32.183026	-103.730139
13,536.50	90.12	172.00	9,102.85	-4,135.94	-1,719.24	430,806.64	727,954.59	32.182927	-103.730124
EOT; Steer for AC									
13,600.00	90.12	172.00	9,102.72	-4,198.82	-1,710.40	430,743.76	727,963.43	32.182754	-103.730097
13,700.00	90.12	172.00	9,102.51	-4,297.84	-1,696.49	430,644.73	727,977.34	32.182481	-103.730053
13,800.00	90.12	172.00	9,102.30	-4,396.87	-1,682.57	430,545.71	727,991.26	32.182209	-103.730010
13,900.00	90.12	172.00	9,102.09	-4,495.90	-1,668.65	430,446.68	728,005.18	32.181937	-103.729967
13,936.50	90.12	172.00	9,102.02	-4,532.04	-1,663.57	430,410.54	728,010.26	32.181837	-103.729951
EOH									
14,000.00	90.12	172.63	9,101.88	-4,594.97	-1,655.08	430,347.61	728,018.75	32.181664	-103.729925
14,100.00	90.12	173.63	9,101.67	-4,694.25	-1,643.13	430,248.33	728,030.70	32.181391	-103.729888
14,200.00	90.12	174.63	9,101.46	-4,793.73	-1,632.91	430,148.85	728,040.92	32.181117	-103.729857
14,300.00	90.12	175.63	9,101.25	-4,893.37	-1,624.43	430,049.21	728,049.40	32.180843	-103.729831
14,400.00	90.12	176.63	9,101.04	-4,993.14	-1,617.69	429,949.44	728,056.14	32.180569	-103.729811
14,500.00	90.12	177.63	9,100.83	-5,093.01	-1,612.69	429,849.57	728,061.14	32.180294	-103.729797
14,600.00	90.12	178.63	9,100.62	-5,192.96	-1,609.44	429,749.62	728,064.39	32.180020	-103.729788
14,700.00	90.12	179.63	9,100.41	-5,292.94	-1,607.93	429,649.64	728,065.90	32.179745	-103.729785

Planning Report - Geographic

Database: EDM r5000.141_Prod US
Company: WCDSC Permian NM
Project: Eddy County (NAD 83 NM Eastern)
Site: Sec 25-T24S-R31E
Well: Cotton Draw Unit 517H
Wellbore: Wellbore #1
Design: Plan 1

Local Co-ordinate Reference:
TVD Reference:
MD Reference:
North Reference:
Survey Calculation Method:

Well Cotton Draw Unit 517H
RKB @ 3566.40ft
RKB @ 3566.40ft
Grid
Minimum Curvature

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
14,800.00	90.12	180.63	9,100.19	-5,392.94	-1,608.16	429,549.64	728,065.67	32.179470	-103.729788
14,900.00	90.12	181.63	9,099.98	-5,492.92	-1,610.14	429,449.66	728,063.69	32.179195	-103.729796
15,000.00	90.12	182.63	9,099.77	-5,592.85	-1,613.87	429,349.73	728,059.96	32.178920	-103.729810
15,100.00	90.12	183.63	9,099.56	-5,692.70	-1,619.34	429,249.88	728,054.49	32.178646	-103.729829
15,200.00	90.12	184.63	9,099.35	-5,792.44	-1,626.55	429,150.14	728,047.28	32.178372	-103.729854
15,300.00	90.12	185.63	9,099.14	-5,892.03	-1,635.50	429,050.55	728,038.33	32.178098	-103.729885
15,400.00	90.12	186.63	9,098.93	-5,991.46	-1,646.19	428,951.12	728,027.64	32.177825	-103.729921
15,500.00	90.12	187.63	9,098.72	-6,090.68	-1,658.61	428,851.90	728,015.22	32.177553	-103.729963
15,536.50	90.12	188.00	9,098.64	-6,126.84	-1,663.57	428,815.74	728,010.26	32.177453	-103.729980
EOT									
15,600.00	90.12	188.00	9,098.51	-6,189.73	-1,672.41	428,752.86	728,001.42	32.177281	-103.730010
15,700.00	90.12	188.00	9,098.30	-6,288.75	-1,686.33	428,653.83	727,987.50	32.177009	-103.730057
15,800.00	90.12	188.00	9,098.09	-6,387.78	-1,700.24	428,554.80	727,973.59	32.176737	-103.730103
15,900.00	90.12	188.00	9,097.88	-6,486.81	-1,714.16	428,455.78	727,959.67	32.176465	-103.730150
15,936.50	90.12	188.00	9,097.80	-6,522.95	-1,719.24	428,419.63	727,954.59	32.176365	-103.730167
EOH									
16,000.00	90.12	187.37	9,097.67	-6,585.88	-1,727.73	428,356.70	727,946.10	32.176193	-103.730196
16,100.00	90.12	186.37	9,097.46	-6,685.16	-1,739.68	428,257.42	727,934.15	32.175920	-103.730236
16,200.00	90.12	185.37	9,097.25	-6,784.64	-1,749.90	428,157.95	727,923.93	32.175647	-103.730271
16,300.00	90.12	184.37	9,097.04	-6,884.28	-1,758.38	428,058.31	727,915.45	32.175373	-103.730300
16,400.00	90.12	183.37	9,096.83	-6,984.05	-1,765.12	427,958.54	727,908.71	32.175099	-103.730324
16,500.00	90.12	182.37	9,096.62	-7,083.92	-1,770.12	427,858.66	727,903.71	32.174824	-103.730342
16,600.00	90.12	181.37	9,096.41	-7,183.87	-1,773.37	427,758.72	727,900.46	32.174550	-103.730354
16,700.00	90.12	180.37	9,096.20	-7,283.85	-1,774.88	427,658.73	727,898.95	32.174275	-103.730361
16,736.50	90.12	180.00	9,096.13	-7,320.35	-1,775.00	427,622.23	727,898.83	32.174174	-103.730362
EOT									
16,800.00	90.12	180.00	9,095.99	-7,383.85	-1,775.00	427,558.73	727,898.83	32.174000	-103.730363
16,900.00	90.12	180.00	9,095.78	-7,483.85	-1,775.00	427,458.73	727,898.83	32.173725	-103.730365
17,000.00	90.12	180.00	9,095.57	-7,583.85	-1,775.00	427,358.73	727,898.83	32.173450	-103.730367
17,100.00	90.12	180.00	9,095.37	-7,683.85	-1,775.00	427,258.73	727,898.83	32.173175	-103.730368
17,200.00	90.12	180.00	9,095.16	-7,783.85	-1,775.00	427,158.73	727,898.83	32.172900	-103.730370
17,300.00	90.12	180.00	9,094.95	-7,883.85	-1,775.00	427,058.73	727,898.83	32.172626	-103.730372
17,400.00	90.12	180.00	9,094.74	-7,983.85	-1,775.00	426,958.73	727,898.83	32.172351	-103.730374
17,500.00	90.12	180.00	9,094.53	-8,083.85	-1,775.00	426,858.74	727,898.83	32.172076	-103.730376
17,600.00	90.12	180.00	9,094.32	-8,183.85	-1,775.00	426,758.74	727,898.83	32.171801	-103.730378
17,700.00	90.12	180.00	9,094.11	-8,283.85	-1,775.00	426,658.74	727,898.83	32.171526	-103.730379
17,800.00	90.12	180.00	9,093.90	-8,383.85	-1,775.00	426,558.74	727,898.83	32.171251	-103.730381
17,900.00	90.12	180.00	9,093.69	-8,483.85	-1,775.00	426,458.74	727,898.83	32.170976	-103.730383
18,000.00	90.12	180.00	9,093.48	-8,583.85	-1,775.00	426,358.74	727,898.83	32.170701	-103.730385
18,100.00	90.12	180.00	9,093.27	-8,683.85	-1,775.00	426,258.74	727,898.83	32.170427	-103.730387
18,200.00	90.12	180.00	9,093.06	-8,783.85	-1,775.00	426,158.74	727,898.83	32.170152	-103.730388
18,300.00	90.12	180.00	9,092.85	-8,883.85	-1,775.00	426,058.74	727,898.83	32.169877	-103.730390
18,400.00	90.12	180.00	9,092.64	-8,983.85	-1,775.00	425,958.74	727,898.83	32.169602	-103.730392
18,500.00	90.12	180.00	9,092.43	-9,083.85	-1,775.00	425,858.74	727,898.83	32.169327	-103.730394
18,600.00	90.12	180.00	9,092.22	-9,183.85	-1,775.00	425,758.74	727,898.83	32.169052	-103.730396
18,700.00	90.12	180.00	9,092.01	-9,283.85	-1,775.00	425,658.74	727,898.83	32.168777	-103.730397
18,800.00	90.12	180.00	9,091.80	-9,383.85	-1,775.00	425,558.74	727,898.83	32.168502	-103.730399
18,900.00	90.12	180.00	9,091.60	-9,483.85	-1,775.00	425,458.74	727,898.83	32.168228	-103.730401
19,000.00	90.12	180.00	9,091.39	-9,583.85	-1,775.00	425,358.74	727,898.83	32.167953	-103.730403
19,100.00	90.12	180.00	9,091.18	-9,683.85	-1,775.00	425,258.74	727,898.83	32.167678	-103.730405
19,200.00	90.12	180.00	9,090.97	-9,783.85	-1,775.00	425,158.74	727,898.83	32.167403	-103.730406
19,286.02	90.12	180.00	9,090.79	-9,869.87	-1,775.00	425,072.72	727,898.83	32.167166	-103.730408
PBHL									

Planning Report - Geographic

Database:	EDM r5000.141_Prod US	Local Co-ordinate Reference:	Well Cotton Draw Unit 517H
Company:	WCDSC Permian NM	TVD Reference:	RKB @ 3566.40ft
Project:	Eddy County (NAD 83 NM Eastern)	MD Reference:	RKB @ 3566.40ft
Site:	Sec 25-T24S-R31E	North Reference:	Grid
Well:	Cotton Draw Unit 517H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan 1		

Design Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
PBHL - CDU 517H 2210 - plan misses target center by 9091.34ft at 19286.02ft MD (9090.79 TVD, -9869.87 N, -1775.00 E) - Point	0.00	0.00	0.00	-9,869.87	-1,675.00	425,072.72	727,998.83	32.167165	-103.730085
PBHL - CDU 517H - plan misses target center by 9090.79ft at 19286.02ft MD (9090.79 TVD, -9869.87 N, -1775.00 E) - Point	0.00	0.00	0.00	-9,869.87	-1,775.00	425,072.72	727,898.83	32.167166	-103.730408
LP - CDU 517H - plan misses target center by 0.96ft at 9615.30ft MD (9110.16 TVD, -217.35 N, -1774.79 E) - Point	0.00	0.00	9,111.00	-217.32	-1,775.26	434,725.25	727,898.57	32.193699	-103.730234
LP - CDU 517H 2210 FE - plan misses target center by 99.52ft at 9614.33ft MD (9110.11 TVD, -216.39 N, -1774.77 E) - Point	0.00	0.00	9,111.00	-217.32	-1,675.26	434,725.25	727,998.57	32.193698	-103.729911

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
696.40	696.40	Rustler		0.00	
1,026.40	1,026.40	Salado		0.00	
4,618.87	4,541.40	Base of Salt			
4,634.31	4,556.40	Delaware			
4,670.31	4,591.40	Bell Canyon			
5,565.41	5,461.40	Cherry Canyon			
8,302.15	8,121.40	L Brushy			
8,631.38	8,441.40	1st BSPG Lime			
8,718.83	8,526.40	Leonard 'A'			
9,232.27	8,971.40	Leonard 'B'			
9,494.34	9,091.40	TVD at TD		0.00	

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
950.00	950.00	0.00	0.00	Begin Nudge
2,309.99	2,297.26	31.16	-157.60	EOB
8,720.65	8,528.17	323.53	-1,636.38	EOH; KOP
9,647.96	9,111.00	-250.00	-1,775.00	LP
12,736.50	9,104.53	-3,338.53	-1,775.00	EOH; 3600' VS
13,536.50	9,102.85	-4,135.94	-1,719.24	EOT; Steer for AC
13,936.50	9,102.02	-4,532.04	-1,663.57	EOH
15,536.50	9,098.64	-6,126.84	-1,663.57	EOT
15,936.50	9,097.80	-6,522.95	-1,719.24	EOH
16,736.50	9,096.13	-7,320.35	-1,775.00	EOT
19,286.02	9,090.79	-9,869.87	-1,775.00	PBHL

PECOS DISTRICT

DRILLING CONDITIONS OF APPROVAL

OPERATOR'S NAME:	DEVON ENERGY
LEASE NO.:	NMNM89055
WELL NAME & NO.:	COTTON DRAW UNIT 517H
SURFACE HOLE FOOTAGE:	485' FNL & 470' FEL
BOTTOM HOLE FOOTAGE:	330' FSL & 2310' FEL
LOCATION:	Section 25, T. 24 S., R 31 E., NMPM
COUNTY:	Eddy County, New Mexico

COA

H2S	☐ Yes	☒ No	
Potash	☒ None	☐ Secretary	☐ R-111-P
Cave/Karst Potential	☒ Low	☐ Medium	☐ High
Variance	☐ None	☒ Flex Hose	☐ Other
Wellhead	☐ Conventional	☒ Multibowl	☐ Both
Other	☐ 4 String Area	☐ Capitan Reef	☐ WIPP

A. Hydrogen Sulfide

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.

B. CASING

1. The 13-3/8 inch surface casing shall be set at approximately **721** feet (a minimum of 25 feet into the Rustler Anhydrite and above the salt) and cemented to the surface.
 - 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 will be a minimum of **8 hours** or 500 pounds compressive strength, whichever is greater. (This is to include the lead cement).

- 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.

Operator shall filled 1/3rd casing with fluid while running intermediate casing to maintain collapse safety factor. Opearator WOC , see B.1.b.

- 2. The minimum required fill of cement behind the 9-5/8 inch intermediate casing is:
 - Cement to surface. If cement does not circulate see B.1.a, c-d above. **Additional cement maybe required. Excess calculates to 23%.**
- 3. The minimum required fill of cement behind the 5-1/2 inch production casing is:
 - Cement should tie-back at least 200 feet into previous casing string. Operator shall provide method of verification. **Additional cement maybe required. Excess calculates to 23%.**

C. PRESSURE CONTROL

- 1. Variance approved to use flex line from BOP to choke manifold. Manufacturer's specification to be readily available. No external damage to flex line. Flex line to be installed as straight as possible (no hard bends).
- 2. 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.**
- 3. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the 9-5/8 intermediate casing shoe shall be **3000 (3M) psi.**

GENERAL 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)

☒ **Chaves and Roosevelt Counties**

Call the Roswell Field Office, 2909 West Second St., Roswell NM 88201.
During office hours call (575) 627-0272.
After office hours call (575)

☒ **Eddy County**

Call the Carlsbad Field Office, 620 East Greene St., Carlsbad, NM 88220,
(575) 361-2822

☒ Lea County

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

1. 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.
 - a. In the event the operator has proposed to drill multiple wells utilizing a skid/walking rig. Operator shall secure the wellbore on the current well, after installing and testing the wellhead, by installing a blind flange of like pressure rating to the wellhead and a pressure gauge that can be monitored while drilling is performed on the other well(s).
 - b. When the operator proposes to set surface casing with Spudder Rig
 - Notify the BLM when moving in and removing the Spudder Rig.
 - Notify the BLM when moving in the 2nd Rig. Rig to be moved in within 90 days of notification that Spudder Rig has left the location.
 - BOP/BOPE test to be conducted per Onshore Oil and Gas Order No. 2 as soon as 2nd Rig is rigged up on well.
2. 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 are located, this does not include the dog house or stairway area.
3. 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.

A. CASING

1. Changes to the approved APD casing program need prior approval if the items substituted are of lesser grade or different casing size or are Non-API. The Operator can exchange the components of the proposal with that of superior strength (i.e. changing from J-55 to N-80, or from 36# to 40#). Changes to the approved cement program need prior approval if the altered cement plan has less volume or strength or if the changes are substantial (i.e. Multistage tool, ECP, etc.). The initial wellhead installed on the well will remain on the well with spools used as needed.
2. Wait on cement (WOC) for Potash Areas: 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 for all cement blends, 2) until cement has been in place at least 24 hours. WOC time will be recorded in the driller's log. The casing integrity test can be done (prior to the cement setting up) immediately after bumping the plug.

3. Wait on cement (WOC) for Water Basin: After cementing but before commencing any tests, the casing string shall stand cemented under pressure until both of the following conditions have been met: 1) cement reaches a minimum compressive strength of 500 psi at the shoe, 2) until cement has been in place at least 8 hours. WOC time will be recorded in the driller's log. See individual casing strings for details regarding lead cement slurry requirements. The casing integrity test can be done (prior to the cement setting up) immediately after bumping the plug.
4. Provide compressive strengths including hours to reach required 500 pounds compressive strength prior to cementing each casing string. Have well specific cement details onsite prior to pumping the cement for each casing string.
5. No pea gravel permitted for remedial or fall back remedial without prior authorization from the BLM engineer.
6. 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. Formation at the shoe shall be tested to a minimum of the mud weight equivalent anticipated to control the formation pressure to the next casing depth or at total depth of the well. This test shall be performed before drilling more than 20 feet of new hole.
7. 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.
8. Whenever a casing string is cemented in the R-111-P potash area, the NMOCD requirements shall be followed.

B. 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. If a variance is approved for a flexible hose to be installed from the BOP to the choke manifold, the following requirements apply: The flex line must meet the requirements of API 16C. 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.

3. 5M or higher system requires an HCR valve, remote kill line and annular to match. The remote kill line is to be installed prior to testing the system and tested to stack pressure.
4. If the operator has proposed a multi-bowl wellhead assembly in the APD. The following requirements must be met:
 - 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. 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.
 - e. Whenever any seal subject to test pressure is broken, all the tests in OOGO2.III.A.2.i must be followed.
5. 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. In potash areas, 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. For all casing strings, casing cut-off and BOP installation can be initiated at twelve hours after bumping the plug. However, **no tests** shall commence until the cement has had a minimum of 24 hours setup time, except the casing pressure test can be initiated immediately after bumping the plug (only applies to single stage cement jobs).
 - c. The tests shall be done by an independent service company utilizing a test

plug. The results of the test shall be reported to the appropriate BLM office.

- d. 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.
- 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. This test shall be performed prior to the test at full stack pressure.
- g. BOP/BOPE must be tested by an independent service company within 500 feet of the top of the Wolfcamp formation if the time between the setting of the intermediate casing and reaching this depth exceeds 20 days. This test does not exclude the test prior to drilling out the casing shoe as per Onshore Order No. 2.

C. DRILLING MUD

Mud system monitoring equipment, with derrick floor indicators and visual and audio alarms, shall be operating before drilling into the Wolfcamp formation, and shall be used until production casing is run and cemented.

D. 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.

Waste Minimization Plan (WMP)

In the interest of resource development, submission of additional well gas capture development plan information is deferred but may be required by the BLM Authorized Officer at a later date.

ZS 041918

Lesser Prairie-Chicken.

13 3/8	surface csg in a	17 1/2	inch hole.	Design Factors			SURFACE		
Segment	#/ft	Grade	Coupling	Joint	Collapse	Burst	Length	Weight	
"A"	48.00	H 40	ST&C	9.30	2.28	0.67	721	34,608	
"B"							0	0	
w/8.4#/g mud, 30min Sfc Csg Test psig: 896			Tail Cmt	does	circ to sfc.	Totals:	721	34,608	
Comparison of Proposed to Minimum Required Cement Volumes									
Hole	Annular	1 Stage	1 Stage	Min	1 Stage	Drilling	Calc	Req'd	Min Dist
Size	Volume	Cmt Sx	CuFt Cmt	Cu Ft	% Excess	Mud Wt	MASP	BOPE	Hole-Cplg
17 1/2	0.6946	559	749	556	35	9.00	1552	2M	1.56

Burst Frac Gradient(s) for Segment(s) A, B = , b All > 0.70, OK.

9 5/8	casing inside the	13 3/8	Design Factors				INTERMEDIATE		
Segment	#/ft	Grade	Coupling	Body	Collapse	Burst	Length	Weight	
"A"	40.00	J 55	BUTT	3.30	0.99	0.9	4,769	190,760	
"B"							0	0	
w/8.4#/g mud, 30min Sfc Csg Test psig:						Totals:	4,769	190,760	
The cement volume(s) are intended to achieve a top of				0	ft from surface or a		721	overlap.	
Hole	Annular	1 Stage	1 Stage	Min	1 Stage	Drilling	Calc	Req'd	Min Dist
Size	Volume	Cmt Sx	CuFt Cmt	Cu Ft	% Excess	Mud Wt	MASP	BOPE	Hole-Cplg
12 1/4	0.3132	623	1919	1558	23	10.50	2392	3M	0.81

Burst Frac Gradient(s) for Segment(s): A, B, C, D = 0.83, b, c, d
All > 0.70, OK.

ALT. COLLAPSE SF: 0.99*1.5= 1.49

5 1/2 casing inside the 9 5/8					Design Factors			PRODUCTION	
Segment	#/ft	Grade	Coupling	Body	Collapse	Burst	Length	Weight	
"A"	17.00	P 110	BUTT	2.89	3.41	1.93	8,721	148,257	
"B"	17.00	P 110	BUTT	7.02	2.95	1.93	10,565	179,605	
w/8.4#/g mud, 30min Sfc Csg Test psig: 1,919							Totals:	19,286	327,862
B	would be:			70.91	3.27	if it were a vertical wellbore.			
No Pilot Hole Planned			MTD	Max VTD	Csg VD	Curve KOP	Dogleg°	Severity°	MEOC
			19286	9091	9091	8721	90	10	9648
The cement volume(s) are intended to achieve a top of				4569	ft from surface or a		200	overlap.	
Hole	Annular	1 Stage	1 Stage	Min	1 Stage	Drilling	Calc	Req'd	Min Dist
Size	Volume	Cmt Sx	CuFt Cmt	Cu Ft	% Excess	Mud Wt	MASP	BOPE	Hole-Cplg
8 3/4	0.2526	2940	4565	3725	23	9.30			1.35