Intent	v	As Drilled	
muent	Λ	ASDIMED	

NM OIL CONSERVATION ARTESIA DISTRICT

OCT 0 1 2018

API# 30.015-45302

JUNIUS		DECENCE	
Operator Name:	Property Name:	RECEIVED	Well Number
DEVON ENERGY PRODUCTION COMPANY, L.P.	SPUD MUFFIN 31-30		332H

Kick Off Point (KOP)

UL	Section 31	Township 23S	Range 29E	Lot	Feet 50	From N/S SOUTH	Feet 2549	From E/W WEST	County EDDY	
Latitu	de				Longitude				NAD	
	32.254735				-104.016322					

First Take Point (FTP)

UL N	Section 31	Township 23S	Range 29E	Lot	Feet 100	From N/S SOUTH	Feet 2631	From E/W WEST	County EDDY	
Latitu 32.	^{ude} 254524	9	<u></u>		Longitud	e 238397			NAD 83	

Last Take Point (LTP)

UL C	Section 30	Township 23S	Range 29E	Lot	Feet 100	From N/S NORTH	Feet 2549	From E/W WEST	County EDDY	
Latitu 32.2	de 283102	3	* <u></u>		Longit 104.	^{ude} 0240009			NAD 83	

Is this well the defining well for the Horizontal Spacing Unit? YES

Is this well an infill well?

If infill is yes please provide API if available, Operator Name and well number for Defining well for Horizontal Spacing Unit.

API #		
Operator Name:	Property Name:	Well Number

KZ 06/29/2018

1. Geologic Formations

TVD of target	9,655'	Pilot hole depth	N/A
MD at TD:	19,963'	Deepest expected fresh water:	

Basin

Formation	Depth (TVD) from KB	Water/Mineral Bearing/ Target Zone?	Hazards*
Top Salt	500		
Base of Salt	2700		· · · · - · · · · · · · · · · · · · · ·
Lamar	3106		
Bell Canyon	3157		
Brushy Canyon	5230		
Bone Spring Lime	6812		
1st BSPG Sand	7872		
2nd BSPG Sand	8716		
3rd BSPG Sand	9791		
Wolfcamp	10050		
Wolfcamp XY	10164		
Wolfcamp 100	10268		

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

2. Casing Program

Hole Size	Casing Interval		Csg.	Weight	Grade	Conn.	
	From	То	Size	(lbs)			
17.5"	0	400'	13.375"	48	H-40	STC	
12.25"	0	2,700'	9.625"	40	J-55	LTC	
8.75"	0	TD	5.5"	17	P-110	BTC	
8.75"0TD5.5"BLM Minimum Safety Factor				Collapse: 1.125	Burst: 1.00	Tension: 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

- Rustler top will be validated via drilling parameters (i.e. reduction in ROP) and surface casing setting depth revised accordingly if needed.
- Int casing shoe will be selected based on drilling data / gamma, setting depth with be revised accordingly if needed.

3. Cementing Program

Casing	# Sks	Wt. lb/ gal	H2O gal/sk	Yld ft3/ sack	Slurry Description
13-3/8″ Surf	310	14.8	6.368	1.33	C + Adds
9-5/8″	461	12.5	10.654	1.94	35:65 Poz:C + Adds
Inter.	156	14.8	6.352	1.33	C + Adds
5-1/2″	555	9	15.442	3.569	C + Adds
Prod	580	13.2	5.175	1.46	50:50 Poz:H + Adds

If a DV tool is used, 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	A	30%
5-1/2" Production Casing	2,500′	10%

Rw 10-2-18

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	Т	Туре		Tested to:
			An	nular	X	50% of rated working pressure
	12 5/02	514	Blin	d Ram	X	
Intermediate	13-5/8"	5M	Pip	e Ram		5M
			Dout	le Ram	X	5141
			Other*			
			Annu	lar (5M)	X	50% of rated working pressure
			Blin	d Ram	X	
Production	13-5/8"	5M	Pip	e Ram		
				ole Ram	X	5M
			Other *			
			An	nular		
			Blin	d Ram		
			Pip	e Ram		
			Dout	ole 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.
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	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 5000 (5M) 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 surface casing, a 13-5/8" BOP/BOPE system with a minimum rating of 5M will be installed on the wellhead system and will undergo a 250 psi low pressure test followed by a 5,000 psi high pressure test. The 5,000 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. 13-5/8" BOP/BOPE system will have been tested to 10M rating prior to drilling out intermediate casing.			
	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			

addition to the rams and annular preventer, additional BOP accessories include a kelly cock, floor safety valve, choke lines, and choke manifold rated at 5,000 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 straight as possible with minimal turns.

5. Mud Program

Depth		Туре	Weight (ppg)	Viscosity	Water Loss
From	То				
0	400'	FW Gel	8.6-8.8	28-34	N/C
400'	2700'	Sat Brine	9.9-10.1	34-40	N/C - 6
2700'	TD	Cut Brine	9.0-9.8	32-36	N/C - 6

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	PVT/Pason/Visual Monitoring
of fluid?	

6. Logging and Testing Procedures

Logg	ing, 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	4920 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? Potentially

- 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 gauge installed for monitoring the well before walking to the next well.
- 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? Potentially

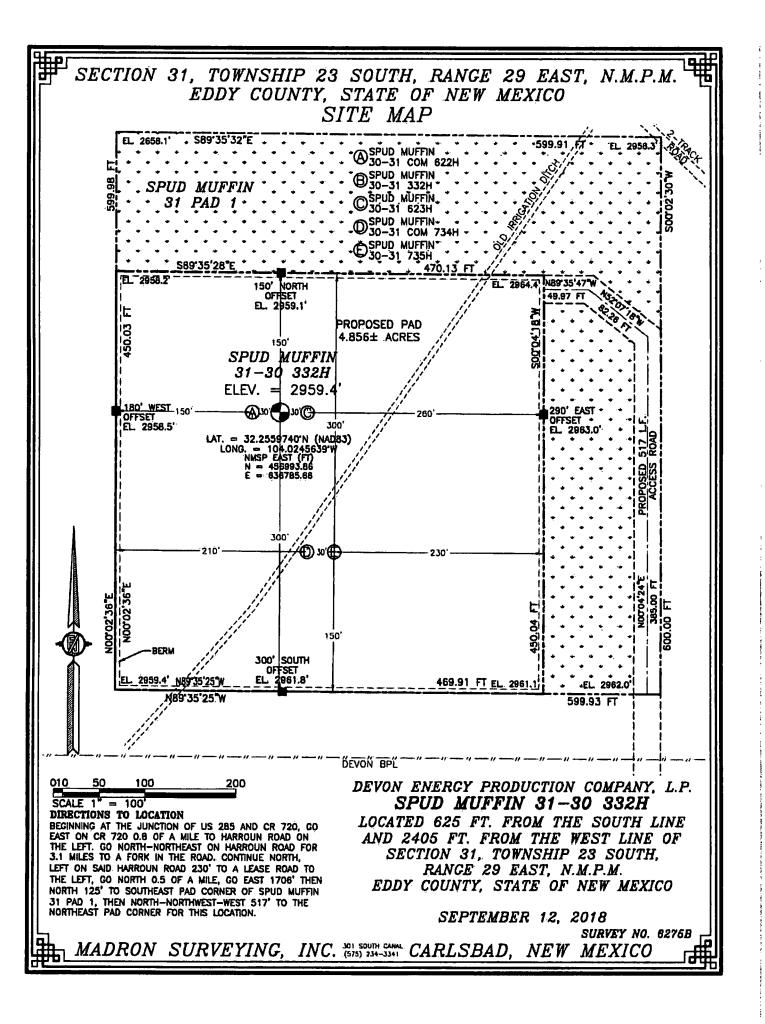
- 1. Spudder rig will move in and drill surface hole.
 - a. Rig will utilize fresh water based mud to drill surface hole to TD. Solids control will be handled entirely on a closed loop basis.
- 2. After drilling the surface hole section, the spudder rig will run casing and cement following all of the applicable rules and regulations (OnShore Order 2, all COAs and NMOCD regulations).
- 3. The wellhead will be installed and tested once the 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 nippled 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.

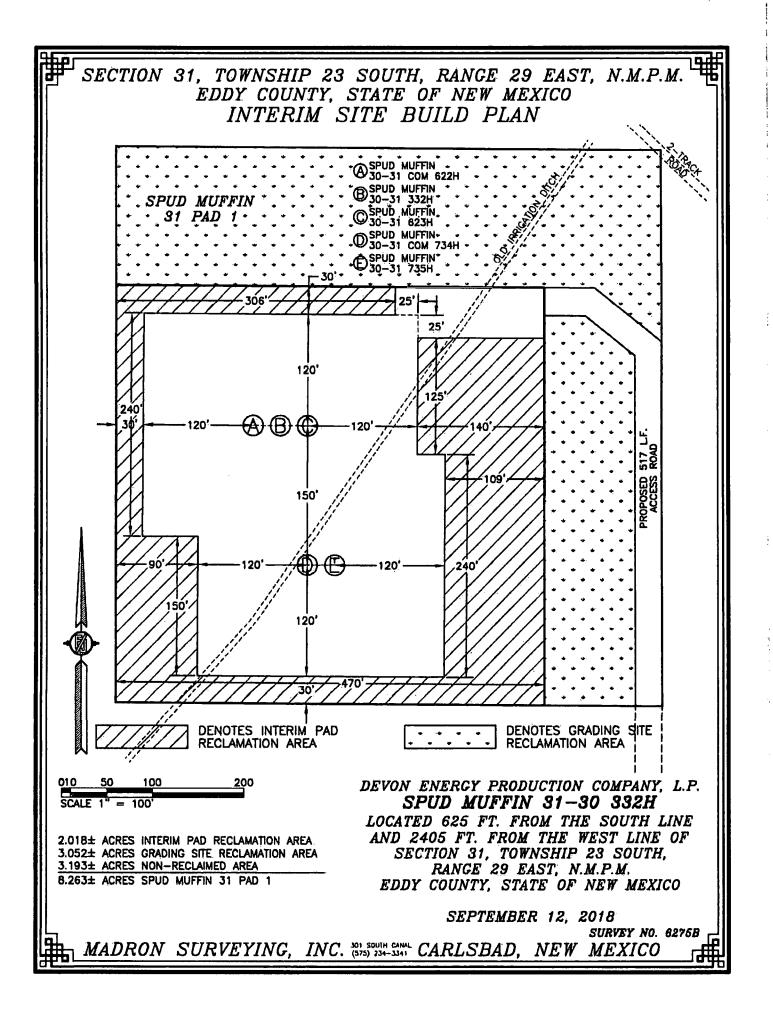
Attachments

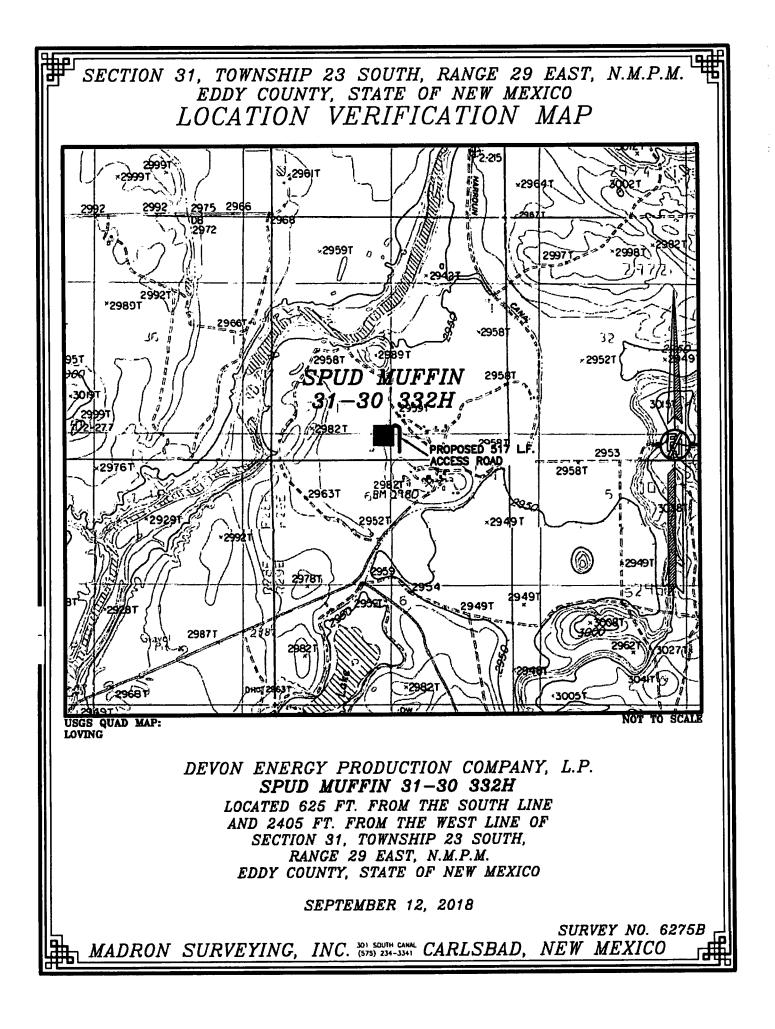
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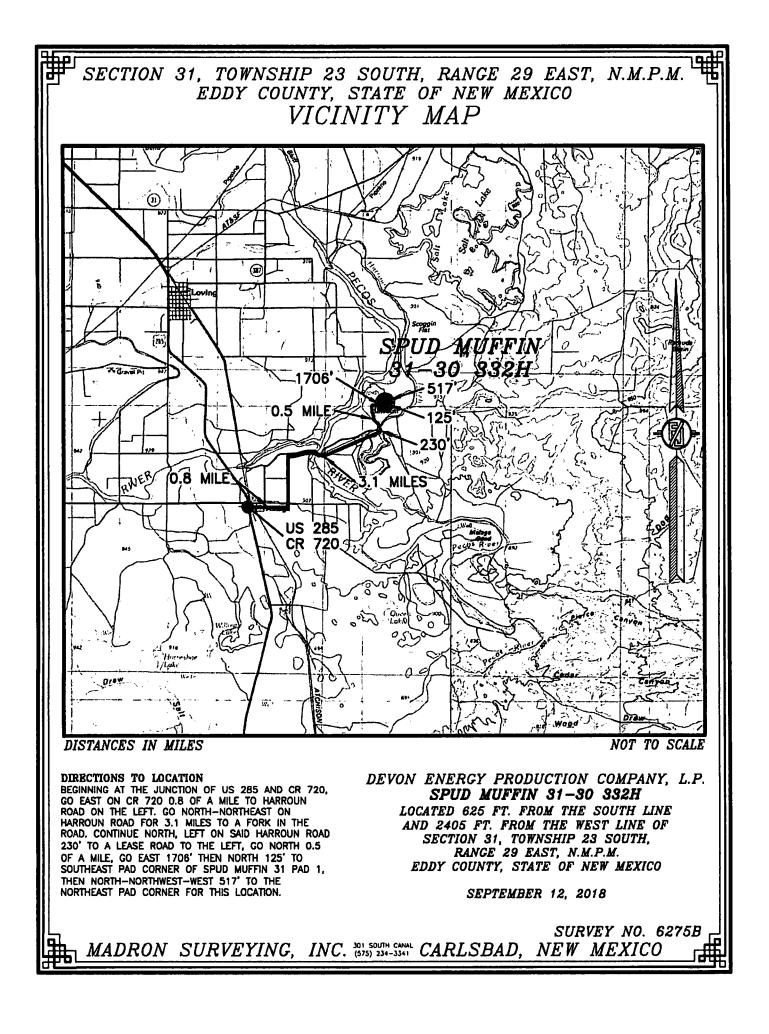
<u>x</u> Directional Plan Other, describe

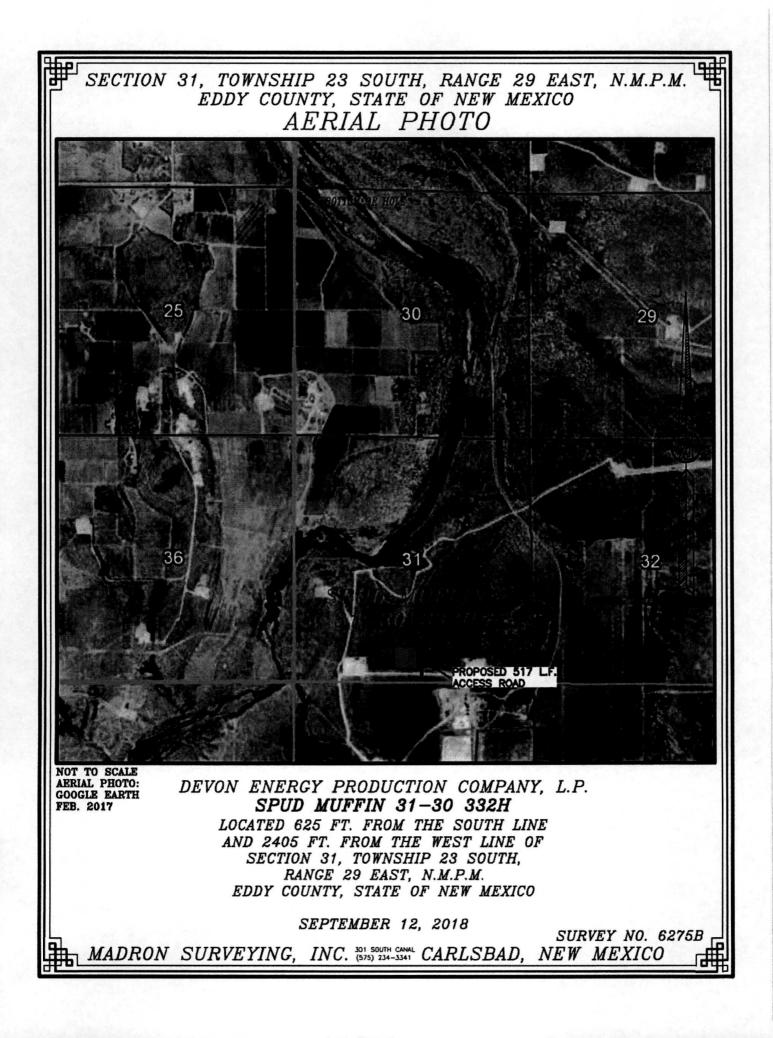
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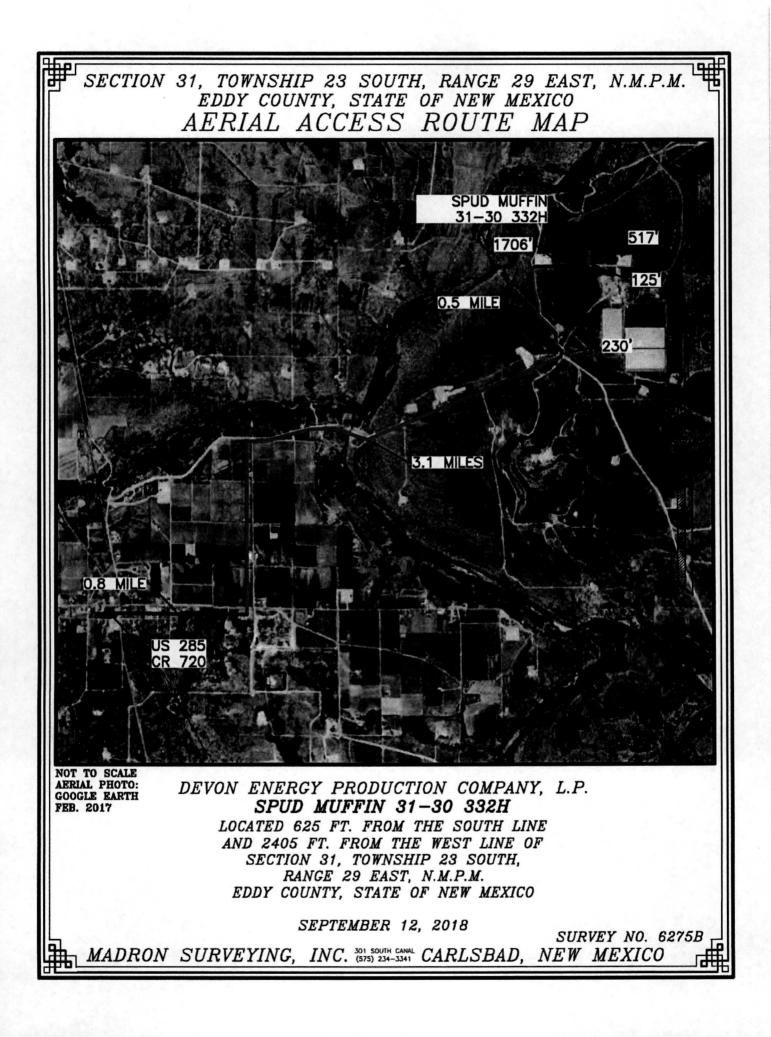


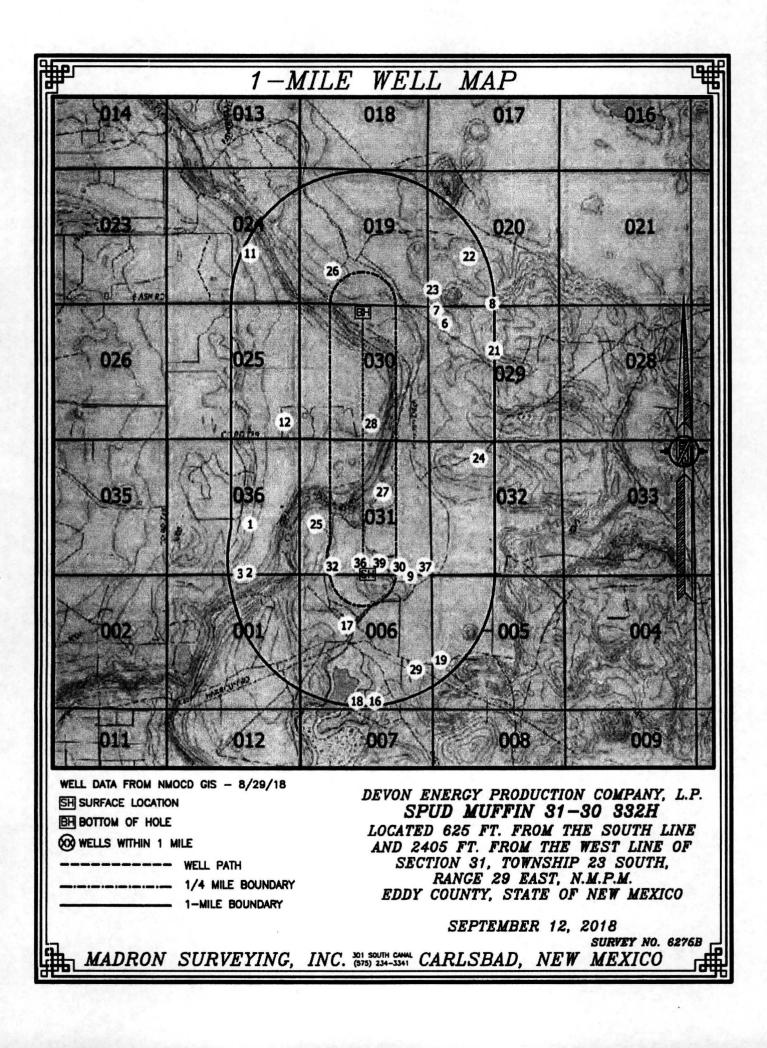


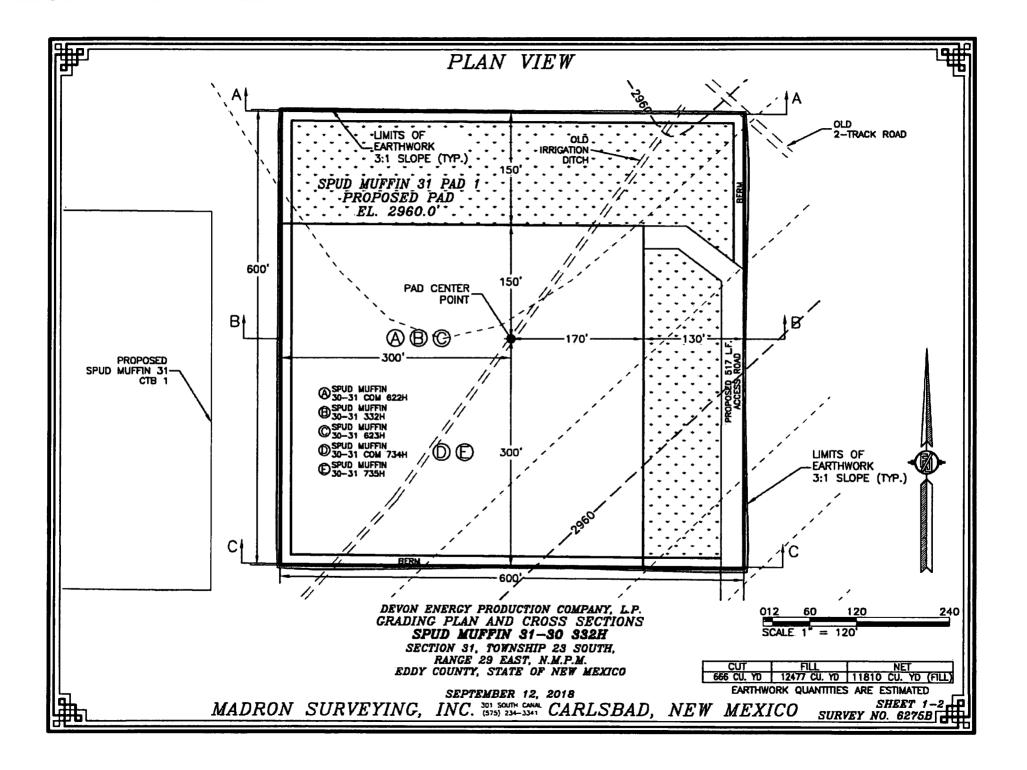


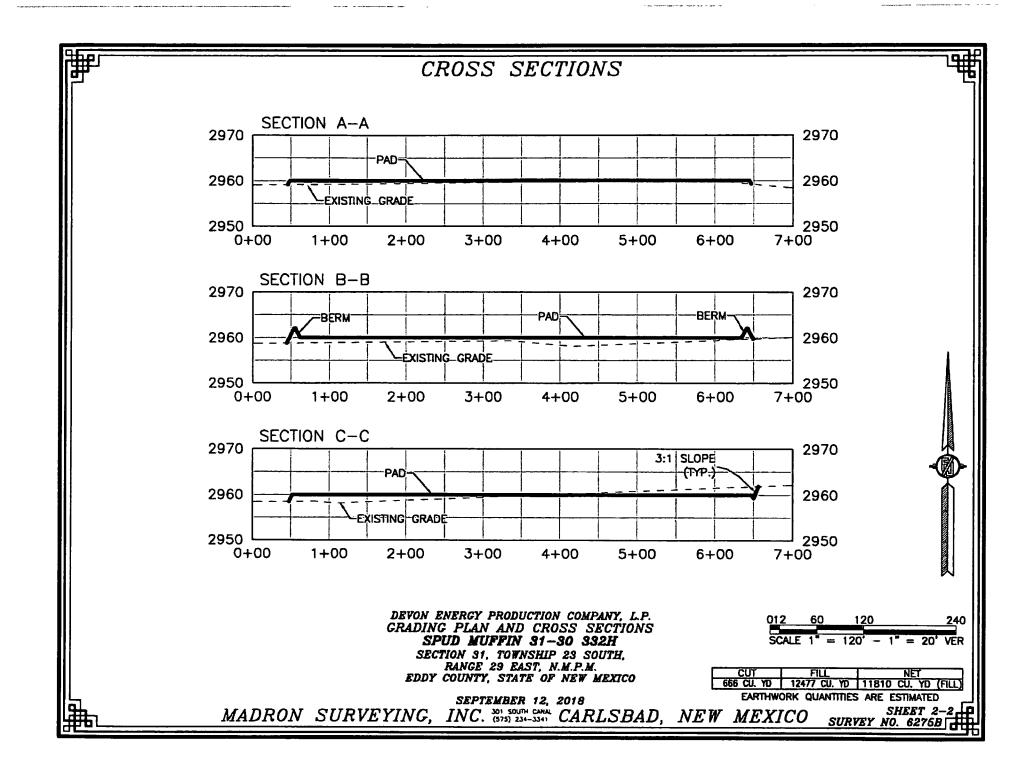


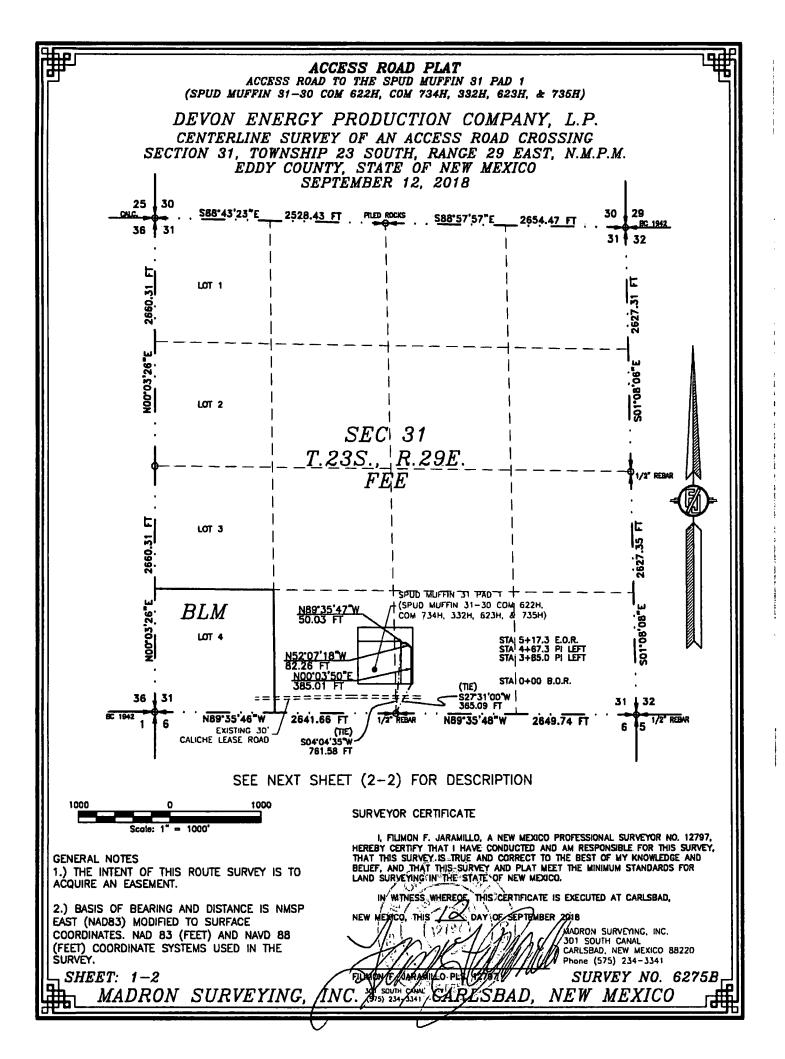












ACCESS ROAD PLAT ACCESS ROAD TO THE SPUD MUFFIN 31 PAD 1 (SPUD MUFFIN 31-30 COM 622H, COM 734H, 332H, 623H, & 735H)

DEVON ENERGY PRODUCTION COMPANY, L.P. CENTERLINE SURVEY OF AN ACCESS ROAD CROSSING SECTION 31, TOWNSHIP 23 SOUTH, RANGE 29 EAST, N.M.P.M. EDDY COUNTY, STATE OF NEW MEXICO SEPTEMBER 12, 2018

DESCRIPTION

A STRIP OF LAND 30 FEET WIDE CROSSING FEE LAND IN SECTION 31, TOWNSHIP 23 SOUTH, RANGE 29 EAST, N.M.P.M., EDDY COUNTY, STATE OF NEW MEXICO AND BEING 15 FEET EACH SIDE OF THE FOLLOWING DESCRIBED CENTERUNE SURVEY:

BEGINNING AT A POINT WITHIN THE SW/4 SE/4 OF SAID SECTION 31, TOWNSHIP 23 SOUTH, RANGE 29 EAST, N.M.P.M., WHENCE THE SOUTH QUARTER CORNER OF SAID SECTION 31, TOWNSHIP 23 SOUTH, RANGE 29 EAST, N.M.P.M. BEARS S2731'00"W, A DISTANCE OF 385.09 FEET; THENCE NO0'03'50"E A DISTANCE OF 385.01 FEET TO AN ANGLE POINT OF THE LINE HEREIN DESCRIBED; THENCE N52'07'18"W A DISTANCE OF 82.26 FEET TO AN ANGLE POINT OF THE LINE HEREIN DESCRIBED; THENCE N89'35'47"W A DISTANCE OF 50.03 FEET THE TERMINUS OF THIS CENTERLINE SURVEY, WHENCE THE SOUTH QUARTER CORNER OF SAID SECTION 31, TOWNSHIP 23 SOUTH, RANGE 29 EAST, N.M.P.M. BEARS S04'04'35"W, A DISTANCE OF 761.58 FEET;

SAID STRIP OF LAND BEING 517.30 FEET OR 31.35 RODS IN LENGTH, CONTAINING 0.358 ACRES MORE OR LESS AND BEING ALLOCATED BY FORTIES AS FOLLOWS:

SW/4 SE/4 517.30 L.F. 31.35 RODS 0.356 ACRES

GENERAL NOTES

ACQUIRE AN EASEMENT.

1.) THE INTENT OF THIS ROUTE SURVEY IS TO

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,

2.) BASIS OF BEARING AND DISTANCE IS NMSP EAST (NADB3) MODIFIED TO SURFACE COORDINATES. NAD B3 (FEET) AND NAVD BB	NEW MEXICO, THIS LOL DAY OF SEPTEMBER 2018 MADRON SURVEYING, INC. 301 SOUTH CANAL	
(FEET) COORDINATE SYSTEMS USED IN THE SURVEY. SHEET: 2-2	CARLSBAD, NEW MEXICO 88220 Phone (575) 234-3341 FILIMEN F. JARAMILLO DE LISTATURE SURVEY NO. 6275B	
MADRON SURVEYING,	INC. (575) 234-334T CARLSBAD, NEW MEXICO	