<u>District I</u> 1625 N. French Dr., Hobbs, NM 88240 Phone: (575) 393-6161 Fax: (575) 393-0720	State of New Mexico	ARTESIA DISTRICT Revised July 18, 2013
District II 811 S. First St., Artesia, NM 88210	Energy Minerals and Natural Re	SEP 1 5 2015_
Phone: (575) 748-1283 Fax: (575) 748-9720 <u>District III</u> 1000 Rio Brazos Road, Aztec, NM 87410	Oil Conservation Division	
Phone: (505) 334-6178 Fax: (505) 334-6170 <u>District IV</u> 1220 S. St. Francis Dr., Santa Fe, NM 87505	1220 South St. Francis Dr Santa Fe, NM 87505	·· RECEIVED
Phone: (505) 476-3460 Fax: (505) 476-3462	Santa FC, 1414 07505	
	PERMIT TO DRILL, RE-ENTER, DEEPEN	, , , , , , , , , , , , , , , , , , , ,
	Operator Name and Address Strata Production Company	² OGRID Number 21712
	PO Box 1030 Roswell, NM 88202-1030	20 0 ^{APLNumber} /226/-
		$ 30^{\circ}013^{\circ}733300 $

.

^{9.} Pool Information Pool Name Pool Code 24750 Forty-Niner Ridge Delaware '

Additional Well Information

³ Property Name Forty-Niner Ridge

7. Surface Location

Feet from

2470`

* Proposed Bottom Hole Location

Feet from

1980'

Lot Idn

NA

Lot Idn

NA

Unit.

N/S Line

FNL

N/S Line

FNL

Feet From

410'

Feet From

330'

⁶ Well No. 16E #31S

County

Eddy

County

Eddy

E/W Line

FWL

E/W Line

FWL

^{11.} Work Type	^{12.} Well Type	^{13.} Cable/Rotary	^{14.} Lease Type	¹⁵ Ground Level Elevation
N	O	R	S	3180'
^{16.} Multiple	^{17.} Proposed Depth	¹⁸ Formation	^{19.} Contractor	^{20.} Spud Date
No	7750'	Delaware	TBD	01/01/2016
Depth to Ground water	Distance	rom nearest fresh water well	Distance to n	earest surface water
150'	1500'		NA	

We will be using a closed-loop system in lieu of lined pits

Property Code 28510

Section

16

Section

16

Township

23S

Township

23S

Range

30E

Range

30E

UL - Lot

Е

UL - Lot

^{21.} Proposed Casing and Cement Program Casing Weight/ft Hole Size Setting Depth Sacks of Cement Estimated TOC Туре Casing Size 17-1/2" 13-3/8" H40 48# 400' 765 Circ to Surf 9-5/8" 12-1/4" 3480' 900 J55 36# Circ to Surf 7" Circ to +/- 3000' N80 8-3/4" 26# 7597' 625 7

Casing/Cement Program: Additional Comments

^{22.} Proposed Blowout Prevention Program

Туре	Working Pressure	Test Pressure Manufacturer			
Hydraulically Operated - 2 Ram w/ annular	3000	3000	Schaffer		
best of my knowledge and belief.	given above is true and complete to the	OIL CONSERVATION DIVISION			
I further certify that I have complied 19.15.14.9 (B) NMAC I of applicab Signature:	with 19.15.14.9 (A) NMAC 🗌 and/or le.	Approved By: ADDade			
Printed name: Paul Ragsdale	y · · · · · · · ·	Title: Drst ESupervisi	1		
Title: Operations Manager		Approved Date: 9/16/2015 Ex	xpiration Date: 916 2017		
E-mail Address:pragsdale@stratanm.ne	t	the -			
Date:08-27-2015	Phone:575-622-1127 Ext #18	Conditions of Approval Attached			

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

ARTESIA DISTRICT State of New Mexico Energy, Minerals & Natural Resources Department 1 5 2015 Revised August 1, 2011 Submit one copy to appropriate OIL CONSERVATION DIVISION 1220 South St. Francis Dr. RECEIVED Santa Fe, NM 87505

NM OIL CONSERVATION

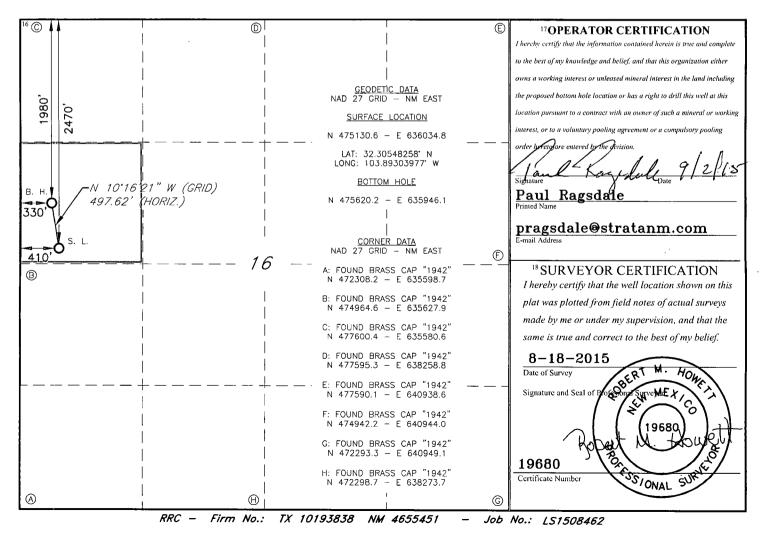
AMENDED REPORT

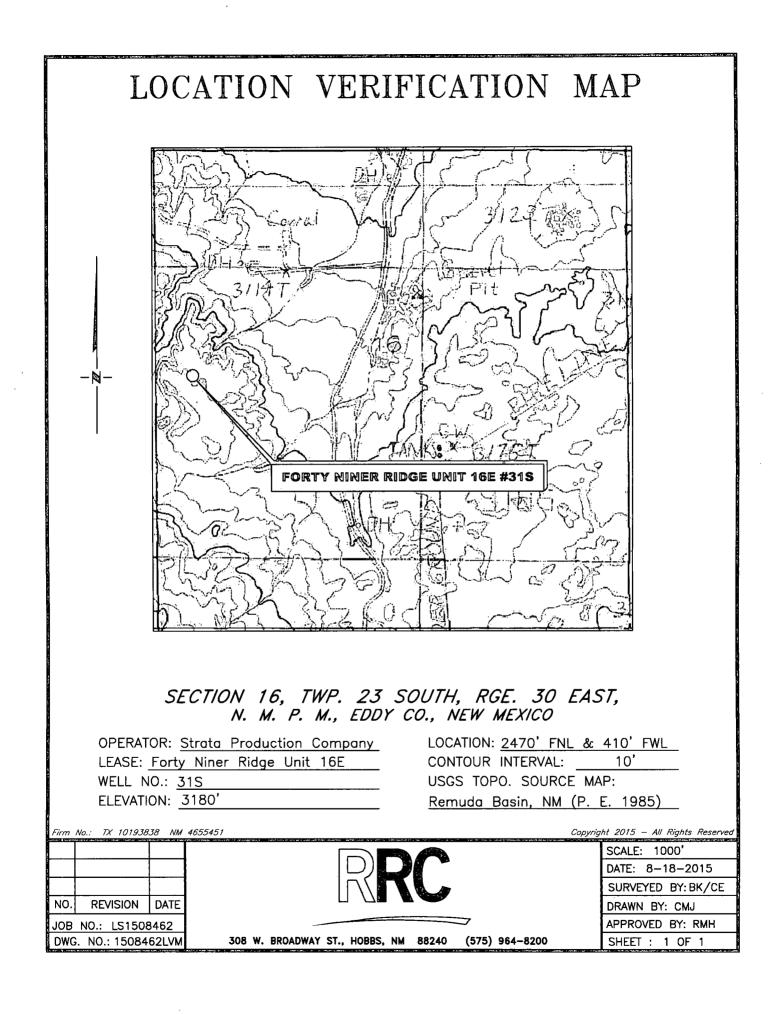
Form C-102

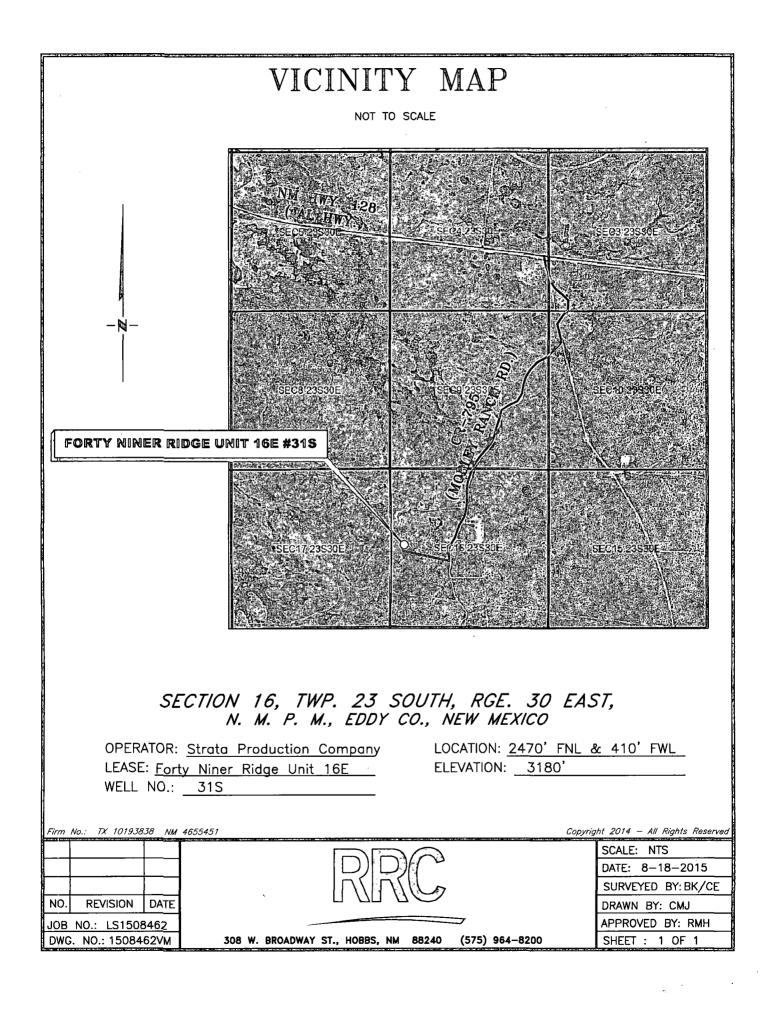
District Office

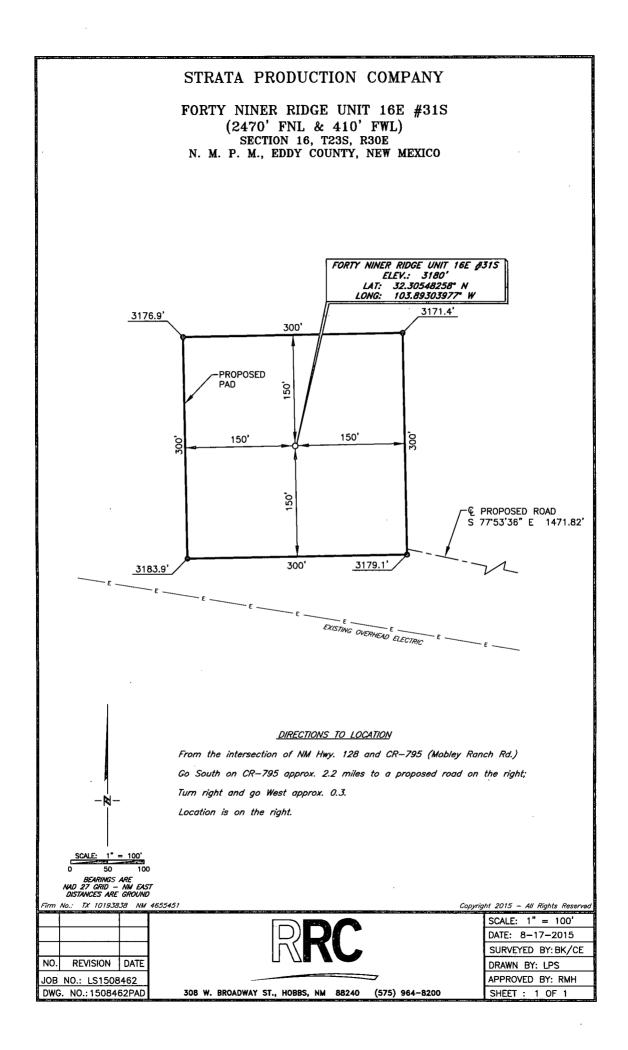
WELL LOCATION AND ACREAGE DEDICATION PLAT 1 API Number ²Pool Code 3 Pool Name 5-43356 24750 FORTY NINER RIDGE DELAWARE 5 Property Name 6 Well Number Property Code 28510 FORTY NINER RIDGE UNIT 16E 31S 70GRID NO 8 Operator Name 9Elevation 21712 3180' STRATA PRODUCTION COMPANY ¹⁰ Surface Location UL or lot no. Section Township Range Lot Idn Feet from the North/South line Feet From the East/West line County 23S **30E** 2470 NORTH 410 WEST EDDY Ε 16 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 E 16 23S30E 1980 NORTH 330 WEST EDDY 13 Joint or Infill 15 Order No. 12 Dedicated Acres 14 Consolidation Code 40

No allowable will be assigned to this completion until all interest have been consolidated or a non-standard unit has been approved by the division.









DRILLING PROGNOSIS

APPLICATION FOR PERMIT TO DRILL

STRATA PRODUCTION COMPANY

FORTY NINER RIDGE, 16E #31S

SECTION 16-23S-30E

- 1. <u>Geologic Name of Surface Formation:</u> Permian
- 2. Estimated Tops:

Rustler	150'
Top of Salt	470'
Base of Salt	3359'
Delaware	4380' - 5256' TVD
Cherry Canyon	5408' – 5512' TVD
КОР	4895' (Refer to attached plan)
TD	7597' MD

3. Estimated Depths of Anticipated Fresh Water, Oil or Gas & Drilling Plan:

Surface	+/- 150'	Fresh Water
Delaware	+/- 3900' – TD	Oil and Gas

No other formations are expected to produce oil, gas or fresh water in measurable quantities. The surface fresh water sands will be protected by setting 13 3/8" casing at +/- 400' and by setting 9 5/8 casing at +/-3480' and circulation cement back to surface. A 8 $\frac{3}{4}$ " hole will be drilled from below the 9 5/8" casing shoe until TD is reached. A string of 7" production casing will be run to TD and cemented back to tie in the surface casing at minimum.

Forty Niner Ridge 16E #31S

Page 2

4. Casing Program:

<u>Hole size</u>	<u>Depth</u>	OD Csg	Weight, Grade, Collars, New/Used
17 ½"	400'	13 3/8"	48#, H-40, STC, New
12 ¼″	3480'	9 5/8″	40#, J-55, STC, New
8 ¾″	7597'	7″	26#, N-80 LTC, New

Cementing Program:

Surface Casing:

13 3/8" casing will be set at +/-400' and cemented with 600 sacks Class C with 2% CAC12, 14.8 lb/gal, 1.34 cu. Ft. yield, 6.34 gal/sk H2O. Calculated with 100% excess. Cement in sufficient quantity to circulate to surface will be utilized.

Intermediate Casing: 95/8" casing will be set at 3480' and cemented with 900 sacks EconoCem HLC Cement with 5% salt, 5lb/bbl Kol-Seal plus 0.3% HR-800, 12.9 lb/gal, 1.88 cu ft. yield, 10.58 gal/sk H2O. 150 sacks tail of Class C Cement 14.8 lb/gal, 1.33 yield, 6.32 gal/sk H2P. Calculated to surface will be utilized.

Production Casing:

It is proposed that 7" casing will be run from the surface to the total depth of the well at 7597' and cemented with 475 sx of (35:65) Poz (Fly Ash) :Class H Cement + 4% bwoc Bentonite + 5% bwoc MPA-5 +0.2% bwoc FL-52 + 0.3% bwoc Sodium Metasilicate + 5% bwoc Sodium Chloride + 5 lbs/sack LCM-1+0.005 lbs/sack Static Free + 1 gals/100 sack FP-6L +0.125lbs/sack Cello Flake +106.5% Fresh Water. 12.5 density, 2.19 yield, 11.1 gal/sk H20. 150 sacks tail 50/50 Poz/Class H Cement + 0.3% bwoc FL-52 + 0.005 lbs/sack Static Free + 1 gals/100 sack FP-6L + 46.2% Fresh Water. 15.6 density, 1.21 hole and 10% excess in the cased annulus. Cement volumes are sufficient to circulate cement to the surface but will be recalculated using a fluid caliper.

Forty Niner Ridge 16E #31S

Page 3

5. Minimum Specifications for Pressure Control:

The blowout preventer equipment (BOP) shown in Exhibit "A" will consist of a two ram type (3000 psi WP) preventer and a bag-type (hydrill) preventer (3000 psi WP). All units will be equipped with blind rams on top and 4 ½" drill pipe rams on bottom. The 13 5/8", 3m, BOP's will be nippled up on the 13 3/8" surface casing and used continuously until TD is reached. All BOP's and accessory equipment will be tested to 3000 psi before drilling out surface casing. Before drilling out of intermediate casing, the ram-type BOP and accessory equipment will be tested to 3000 psi and the hydrill to 70% of rated working pressure (2100 psi). Low pressure tests at 250 psi will be conducted prior to the high pressure test.

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 sheet. A 2" kill line and 3" choke line will be included in the drilling spool located below the ram-type BOP. Other floor safety valve (inside BOP) and choke lines and choke manifold with 3000 psi WP rating.

6. <u>Proposed Mud System:</u> 0-450' – fresh water with native mud sweeps. 8. 4-8.9 lb/gal, LCM as needed 450'-3800' brine water 10.0 lb/gal with LCM and gel sweeps 3800'-7200' cut brine 8.9-9.2 lb/gal with LCM and cut brine 8.9-9.2 lb/gal as required with sliders and gel sweeps sufficient mud materials to maintain weight, viscosity and combat lost circulation will be kept on location. Mud monitoring shall include equipment to monitor the circulation system which shall include but not be limited to daily records of pumps speeds, visual mud monitoring equipment to detect volume changes such as pit volumes, electronic/mechanical monitoring equipment for pit

volume totalizers, stroke counters and flow sensors. Daily mud tests to determine, as applicable, density, viscosity, gel strength, filtration and ph shall be conducted. Gas detecting equipment will be utilized below the intermediate casing. Gas flare lines and mud-gas separators will be utilized as necessary.

7. <u>Auxiliary Well Control and Monitoring Equipment:</u>

- A. A Kelly cock will be kept in the drill string at all times.
- B. A full opening drill pipe stabbing valve (inside BOP) with proper drill pipe connections will be on the rig floor at all times.
- C. Hydrogen Sulfide detection equipment will be in operation after drilling out the 13 3/8" casing shoe until the 7" casing is cemented. Breathing equipment will be on location upon drilling the 13 3/8" shoe until total depth is reached.

8. <u>Testing, Logging and Coring Program:</u>

Two man mudlogging until from 9 5/8" intermediate casing to TD and DLL-MSFL, CNL-Density. Gamma Ray, Caliper.

Mudlogging until will be employed from approximately 3500' to TD. The Dual Laterolog will be run from TD back to the intermediate casing and the Compensated Neutron/Density and Gamma Ray logs will be run from TD back to surface. In some cases, Strata elects to run rotary sidewall cores from selected intervals dependent upon logging results.

9. Abnormal Conditions, Pressures, Temperatures and Potential Hazards:

No abnormal pressures or temperatures are anticipated. BHT should not exceed 150 F and BHP should not exceed 3500 psi.

Loss of circulation is possible in the Delaware section of the hole, however, no major loss circulation zones have been reported in offsetting wells. Strata has drilled and completed a number of wells in the immediate area. To date, Hydrogen Sulfide has not been encountered. However, if Hydrogen Sulfide is encountered, a Hydrogen Sulfide alarm on the drilling rig would be activated. All personnel have had Hydrogen Sulfide training and appropriate breathing apparatus is located on site. If necessary, the well can be shut in utilizing the blowout preventer and other equipment to prevent the migration of Hydrogen Sulfide to the surface.

10. Anticipated Starting Date and Duration of Operations:

Work will not begin until approval has been received from the OCD. The anticipated spud date is January 1, 2016. Once commenced, the drilling operation should be finished in approximately 30 days. If the well is productive, an additional 15 days will be required for completion and testing before a decision is made to install permanent facilities.

STRATA PRODUCTION COMPANY

Emergency Contact List

Strata Personnel:

Paul Ragsdale, Operations Manager	575-626-7903
Virgil Smith, Production Superintendent 57	5-626-0528
Dwight Adamson, Ast. Production Superintendent	575-626-8657
Sheriff's Departments:	
Eddy County	575-887-1888
Lea County	575-396-3611
New Mexico State Police	575-392-5588
Fire Departments:	
	911
Carlsbad	575-885-3125
Eunice	575-394-2111
Hobbs	575-397-3908
lal	575-395-2221
Lovington	575-396-2359
Hospitals:	
	911
Carlsbad Medical Emergency	575-887-4100
Eunice Medical Emergency	575-394-2112

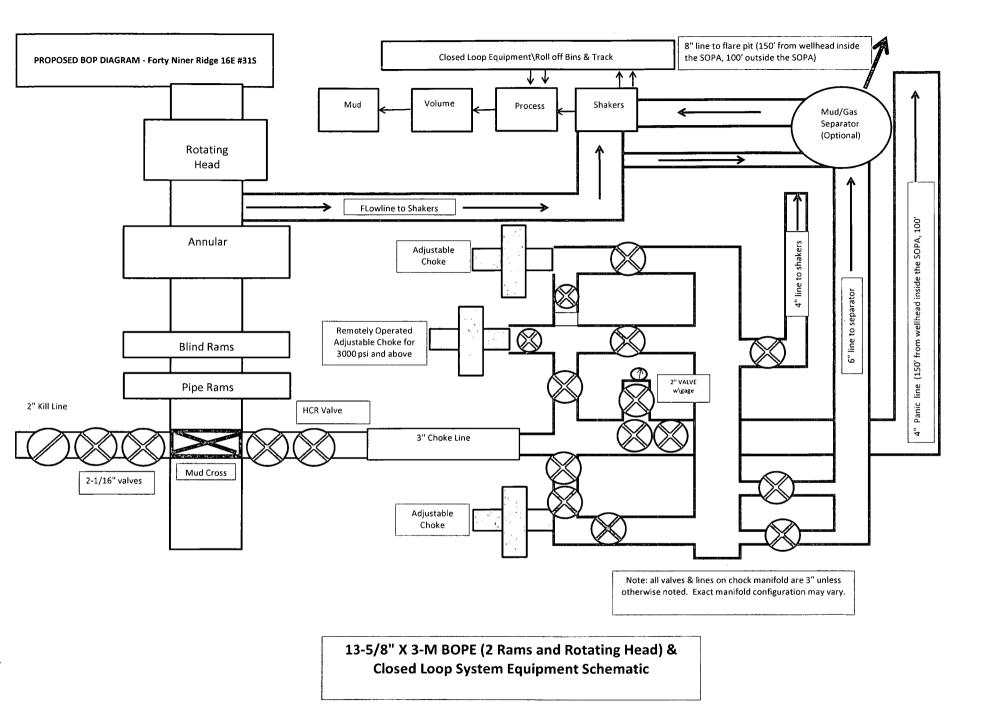
Hobbs Medical Emergency	575-397-9308
Jal Medical Emergency	575-395-2221
Lovington Medical Emergency	575-396-2359

Agent Notification:

Bureau of Land Management	575-393-3612
New Mexico Oil Conservation Division	575-393-6161
Mosaic Potash - Carlsbad	575-887-2871
Intrepid Potash - Carlsbad	800-451-2888

-

COMPANY			LEASE	ТҮРЕ		AI	PI NO.	SPUD DATE
STRATA PRODUCTION CO		X STATE	FEE] FEI	DERAL			1/1/2016
WELL NAME	SECTION	TW			NGE	16 EDDY / NM		COMP. DATE
FORTY NINER RIDGE Unit 16E #31S								
FOOTAGE	ELEVATION =	KELLY B	USHING =	STAT				P.B.T.D.
SL 2470' FNL & 410' FWL BHL 1980' FNL & 330' FWL	3180' GL			OIL		7750'		<u> </u>
FIELD/POOL/AREA		Size	Sks. Cmt.	Circ Depth	Weight	Grade	Thread	Depth
FORTY NINER RIDGE	SURF. CASING	13 3/8"	600	Surface	48#	H-40	STC	400'
LOCATION DESCRIPTION	INT. CASING	9 5/8""	900	Surface	36#	J-55	STC	3480'
	CASING	7"	500	Surface	26#	N80	LTC	7750'
12 MI E OF LOVING,NM Depth ft.		F	escription			0.D.	Length	Depth
	13 3/8" CSG. 48#	SET @ 3480' w/9	00 sacks					
	7" CSG. 26# SE	T @ 7597' w/62	25 sacks			STRA	TA PRODU	ICTION CO
7597' TD	TD = 7597' PBTD = P.O. BOX		1030					
<u>COMMENTS:</u>	•					ROS	WELL, NEW 88202 Revised 08/21/20	/ MEXICO



Directional Drilling Plan

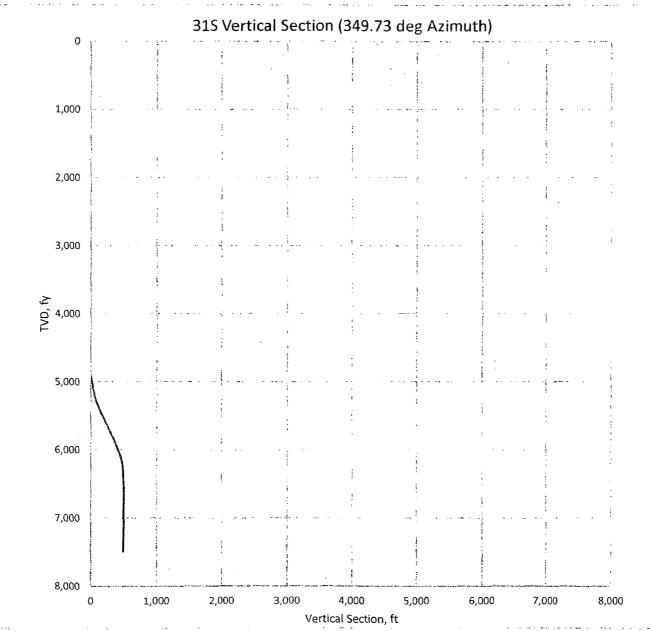
STRATA PRODUCTION COMPANY

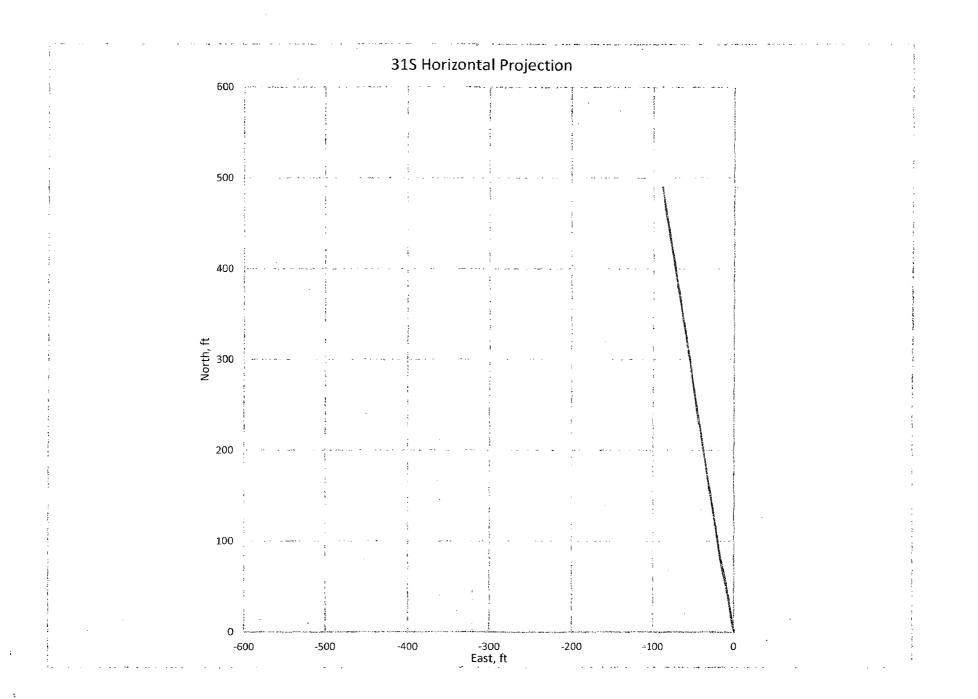
FORTY NINER RIDGE UNIT 16E #31S

SECTION 16-23S-30E

SL 2470' FNL & 410' FWL BHL 1980' FNL & 330' FWL

MD	Inc	Az	TVD	N	E	DLS	V/S	N	E
ft	deg	deg	ft	ft	ft	deg/100'	ft	ft	ft
0	0	0	0.00	0.00	0.00			475,130.60	636,034.80
4895	0	0	4,895.00	0.00	0.00	0.00 '	0.00	475,130.60	636,034.80
5311	25	349.73	5,298.31	87.98	-15.94	6.00	89.41	475,218.58	636,018.86
6065	25	349.73	5,981.70	401.54	-72.76	0.00	408.08	475,532.14	635,962.04
6482	0	349.73	6,385.27	489.58	-88.71	6.00	497.55	475,620.18	635,946.09
7597	0	349.73	7,500.00	489.58	-88.71	0.00	497.55	475,620.18	635,946.09





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POST OFFICE DRAWER 1030 ROSWELL, NM 88202-1030



TELEPHONE (575) 622-1127 FACSIMILE (575) 623-3533

1301 NORTH SYCAMORE AVENUE ROSWELL, NEW MEXICO 88201 www.stratanm.com

September 11, 2015

HAND DELIVERED

Mr. Randy Dade District Supervisor NMOCD 811 S. First Artesia, NM 88210

Re: STRATA Production APD's

Dear Randy,

Please find in the enclosed packet 5 APD's for drilling new wells in the Forty Niner Ridge Unit in Eddy County. All of these proposed wells are inside the Potash Area. Strata, the BLM and Mosaic Potash have developed the "Olive Branch Drill Island". A map of the Drill Island is attached and a copy of an email from Jim Rutley with the BLM to Mosaic is also attached.

Please let me know if you need any other information. I can be reached at 575-622-1127 ext. 18 or at <u>pragsdale@stratanm.com</u>.

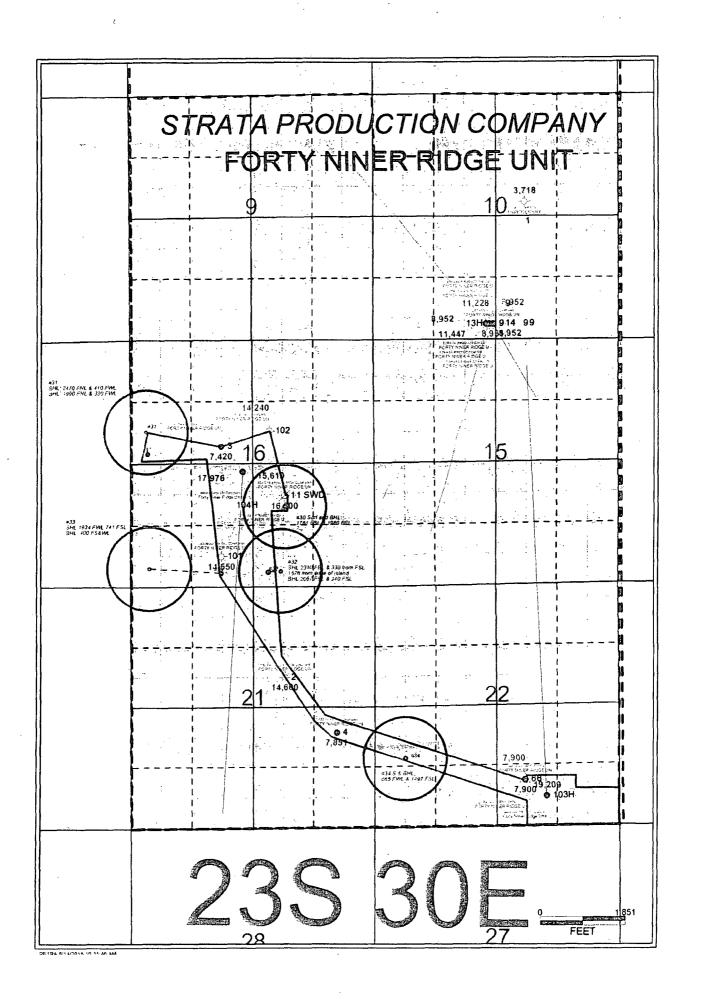
Thanks very much,

Lave

Paul Ragsdale Operations Manager

NM OIL CONSERVATION ARTESIA DISTRICT SEP 1 5 2015

RECEIVED



and the second second

Paul Ragsdale

From:	Rutley, James <jrutley@blm.gov></jrutley@blm.gov>
Sent:	Wednesday, September 9, 2015 12:23 PM
То:	Mitch Krakauskas; Paul Ragsdale; David Lanning
Cc:	James Stovall; George MacDonell
Subject:	Fwd: Strata Olive Branch request to modify approved drill island
Attachments:	Strata request to expand approved olive branch DI to include orange modification.pdf

David,

This is an e-mail to Mosaic requesting a modification to existing approved drill island.

Thanks

Jim

James S. Rutley Geologist *Carlsbad Field Office Bureau of Land Management* (575) 234-5904

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----- Forwarded message ------From: **Rutley, James** <<u>irutley@blm.gov</u>> Date: Tue, Aug 18, 2015 at 3:39 PM Subject: Strata Olive Branch request to modify approved drill island To: <u>dan.morehouse@mosaicco.com</u>, "Bell, Ric - Carlsbad (Third Party)" <<u>Ric.Bell@mosaicco.com</u>>, Indra Dahal <<u>idahal@blm.gov</u>>

Dan and Ric,

Attached is a map of the "Approved" Olive Branch Drill Island. The green is for shallow wells as currently classified and the purple is for deep wells as currently classified. The original proposal is in black outline.

Strata has requested to modify (expand) the drill island to include the "orange" triangle. Most of Strata's projects are vertically drilled with a few being drilled as "S" curves which allow them to drill from an allowable surface location then directionally drill to their preferred vertical horizon. The request is for shallow projects only.

Is Mosaic amenable to the modification?

Thanks

1

Jim

James S. Rutley Geologist *Carlsbad Field Office Bureau of Land Management* (575) 234-5904

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