NM OIL CONSERVATION
ARTESIA DISTRICT

JUN 15 2015

RECEIVED

Form 3160-3
(March 2012)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

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

APPLICATION FOR PERMIT TO DRILL OR REENTER

1a. Type of work: ☑ DRILL ☐ REENTER ATS-14-983	5. Lease Serial No. NMNM 025733
1b. Type of Well: ☑ Oil Well ☐ Gas Well ☐ Other ☐ Single Zone ☑ Multiple Zone	6. If Indian, Allotee or Tribe Name N/A
2. Name of Operator Tandem Energy Corporation	7. If Unit or CA Agreement, Name and No.
3a. Address 2700 Post Oak Blvd, Suite 1000 Houston, Texas 77056	8. Lease Name and Well No. Square Lake 12 Unit 119
3b. Phone No. (include area code) (713) 364-7822	9. API Well No. 30-015-43547
4. Location of Well (Report location clearly and in accordance with any State requirements.*) At surface 849' FSL & 600' FWL (SW/4 SW/4) of Section 1-17S-29E N.M. At proposed prod. zone 849' FSL & 600' FWL (SW/4 SW/4) of Section 1-17S-29E N.M.	10. Field and Pool, or Exploratory Metex/Premier
	11. Sec., T. R. M. or Blk. and Survey or Area 1-17S-29E N.M.
14. Distance in miles and direction from nearest town or post office* Approximately 4.2 miles northwest of Loco Hills, New Mexico.	12. County or Parish Eddy County / 13. State NM

15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any) 600' FWL	16. No. of acres in lease 434.75 ac.	17. Spacing Unit dedicated to this well 640 acres
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. 1,032' (Hogan State Com 004H)	19. Proposed Depth TVD: 2,950'	20. BLM/BIA Bond No. on file NMB 000563
21. Elevations (Show whether DF, KDB, RT, GL, etc.) 3,662.56' GL	22. Approximate date work will start* 08/20/2014	23. Estimated duration 75 Days

24. Attachments

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

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

25. Signature	Name (Printed/Typed) Troy Zaikis	Date 7-14-14
Title Agent for Tandem Energy Corporation		
Approved by (Signature) Steve Caffey	Name (Printed/Typed)	Date MAY 26 2015
Title FIELD MANAGER	Office CARLSBAD FIELD OFFICE	

Application approval does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.
Conditions of approval, if any, are attached.

APPROVAL FOR TWO YEARS

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

(Continued on page 2)

*(Instructions on page 2)

Roswell Controlled Water Basin

12/21/2015

Approval Subject to General Requirements & Special Stipulations Attached

SEE ATTACHED FOR CONDITIONS OF APPROVAL

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., Sante 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.
Sante Fe, NM 87505

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	2 Pool Code	3 Pool Name
30-015-43547	57570	Square Lake; Grayburg; San Andres

4 Property Code	5 Property Name	6 Well Number
305379	SQUARE LAKE 12 UNIT	#119

7 OGRID No.	8 Operator Name	9 Elevation
236183	TANDEM ENERGY CORP.	3665'

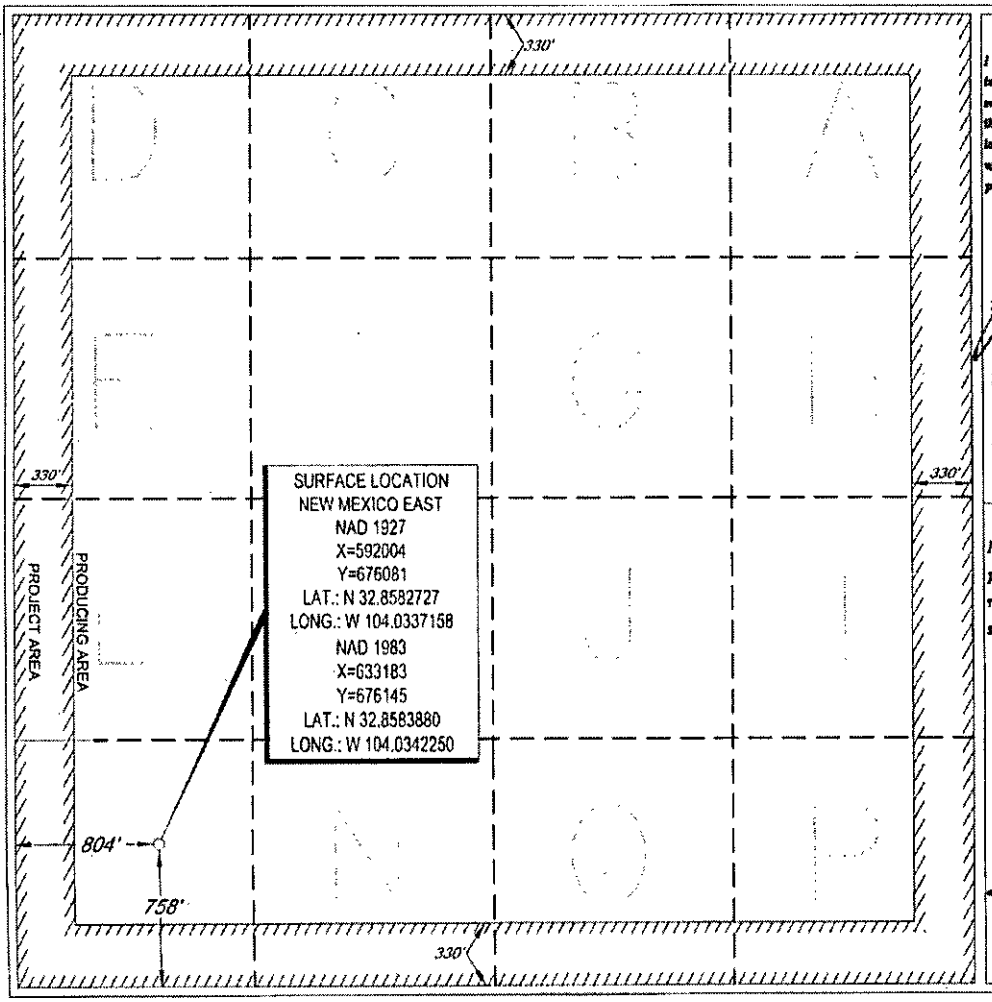
10 Surface Location

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
M	1	17-S	29-E		758'	SOUTH	804'	WEST	EDDY

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County

12 Dedicated Acres	13 Joint or Infill	14 Consolidation Code	15 Order No.
~~640.00~~ 40			

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 by the division.

Signature — Date: 9-3-15

Troy Zaikis
Printed Name

TZaikis@RSEnergySolutions.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 to the best of my belief.

NEW MEXICO — STEPHEN B. BROWN — 18329 — PROFESSIONAL SURVEYOR

5/19/2014

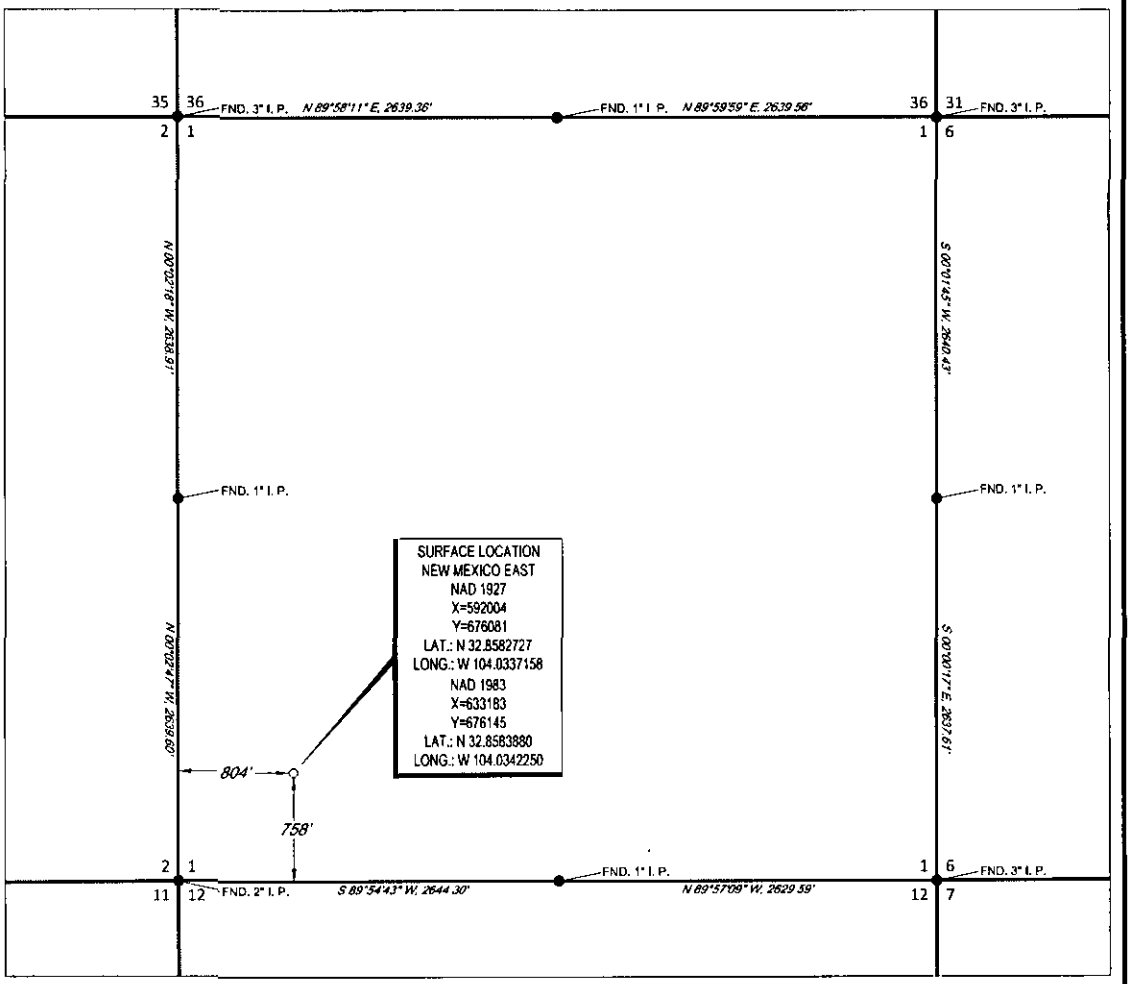
Date of Survey
Signature and Seal of Professional Surveyor

Certificate Number

M:\SURVEY\TANDEM ENERGY CORP\EDDY\SQUARE_LAKE_12\FINAL_PRODUCTS\UNIT 119\LO_SQUARE_LAKE_12_UNIT_119_REV4.DWG 8/29/2014 4:37:42 PM mprieto

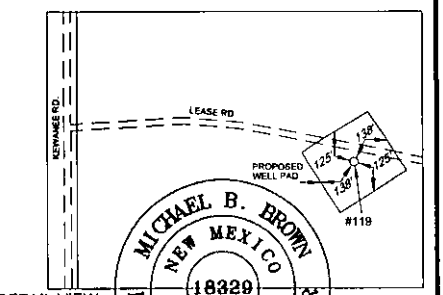
TANDEM ENERGY CORP.

SECTION 1, TOWNSHIP 16 SOUTH, RANGE 29 EAST, N.M.P.M.
EDDY COUNTY, NEW MEXICO



NAD 27
GRID BEARINGS

SCALE: 1" = 1000'
0' 500' 1000'



DETAIL VIEW
SCALE: 1" = 400'

MICHAEL B. BROWN
NEW MEXICO
18329
PROFESSIONAL SURVEYOR

LEASE NAME & WELL NO.: SQUARE LAKE 12 UNIT #119

SECTION 1 TWP 17-S RGE 29-E SURVEY N.M.P.M.
COUNTY EDDY STATE NM
DESCRIPTION 758' FSL & 804' FWL

DISTANCE & DIRECTION FROM INT. OF US-82 E & E MAIN ST., GO EAST ON US-82 E ±21.8 MILES, THENCE NORTH (LEFT) ON KEWANEE RD. ±2.6 MILES, THENCE EAST (RIGHT) ON LEASE RD. ±780 FEET TO A POINT ON THE NORTHWEST LINE OF PAD LOCATION.

ALL BEARINGS, DISTANCES, AND COORDINATE VALUES CONTAINED HEREON ARE GRID BASED UPON THE NEW MEXICO STATE PLANE COORDINATE SYSTEM, EAST ZONE OF THE NORTH AMERICAN DATUM 1983, U.S. SURVEY FEET

THIS EASEMENT/SERVITUDE LOCATION SHOWN HEREON HAS BEEN SURVEYED ON THE GROUND UNDER MY SUPERVISION AND PREPARED ACCORDING TO THE EVIDENCE FOUND AT THE TIME OF SURVEY, AND DATA PROVIDED BY TANDEM ENERGY CORP. THIS CERTIFICATION IS MADE AND LIMITED TO THOSE PERSONS OR ENTITIES SHOWN ON THE FACE OF THIS PLAT AND IS NON-TRANSFERABLE. THIS SURVEY IS CERTIFIED FOR THIS TRANSACTION ONLY.

Michael Blake Brown, P.S. No. 18329
JULY 24, 2014

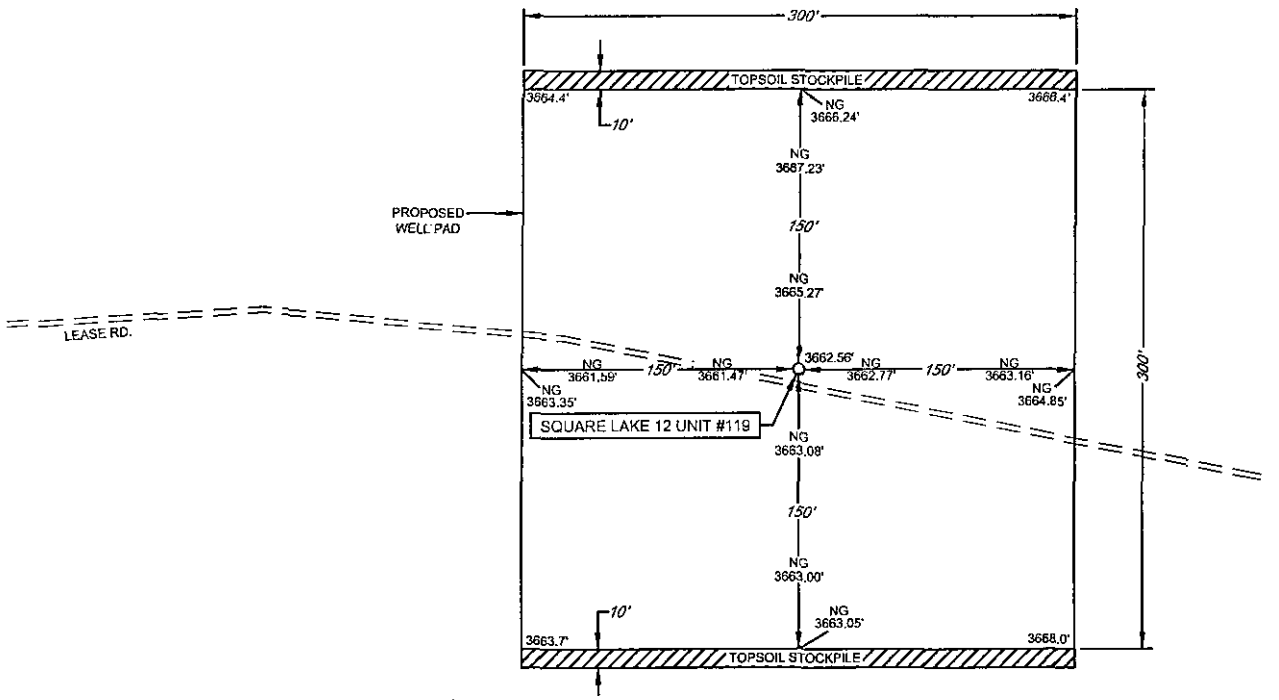
TOPOGRAPHIC
LOYALTY INNOVATION LEGACY

M:\SURVEY\TANDEM ENERGY CORP\EDDY\SQUARE_LAKE_12\FINAL_PRODUCTS\UNIT 119\DLO_SQUARE_LAKE_12_UNIT_119_REV4.DWG 8/29/2014 4:38:54 PM mpinello

TANDEM ENERGY CORP.

SECTION 1, TOWNSHIP 17 SOUTH, RANGE 29 EAST, N.M.P.M.
EDDY COUNTY, NEW MEXICO

DETAIL VIEW
SCALE: 1" = 100'



LEASE NAME & WELL NO.: SQUARE LAKE 12 UNIT #119

#119 LATITUDE N 32.858639068 #119 LONGITUDE W 104.034890365

-N-

SCALE: 1" = 100'

0' 50' 100'

LEGEND

- EXISTING ROAD
- SECTION LINE
- FENCE LINE
- EXISTING PIPELINE
- OHE OVERHEAD ELECTRIC

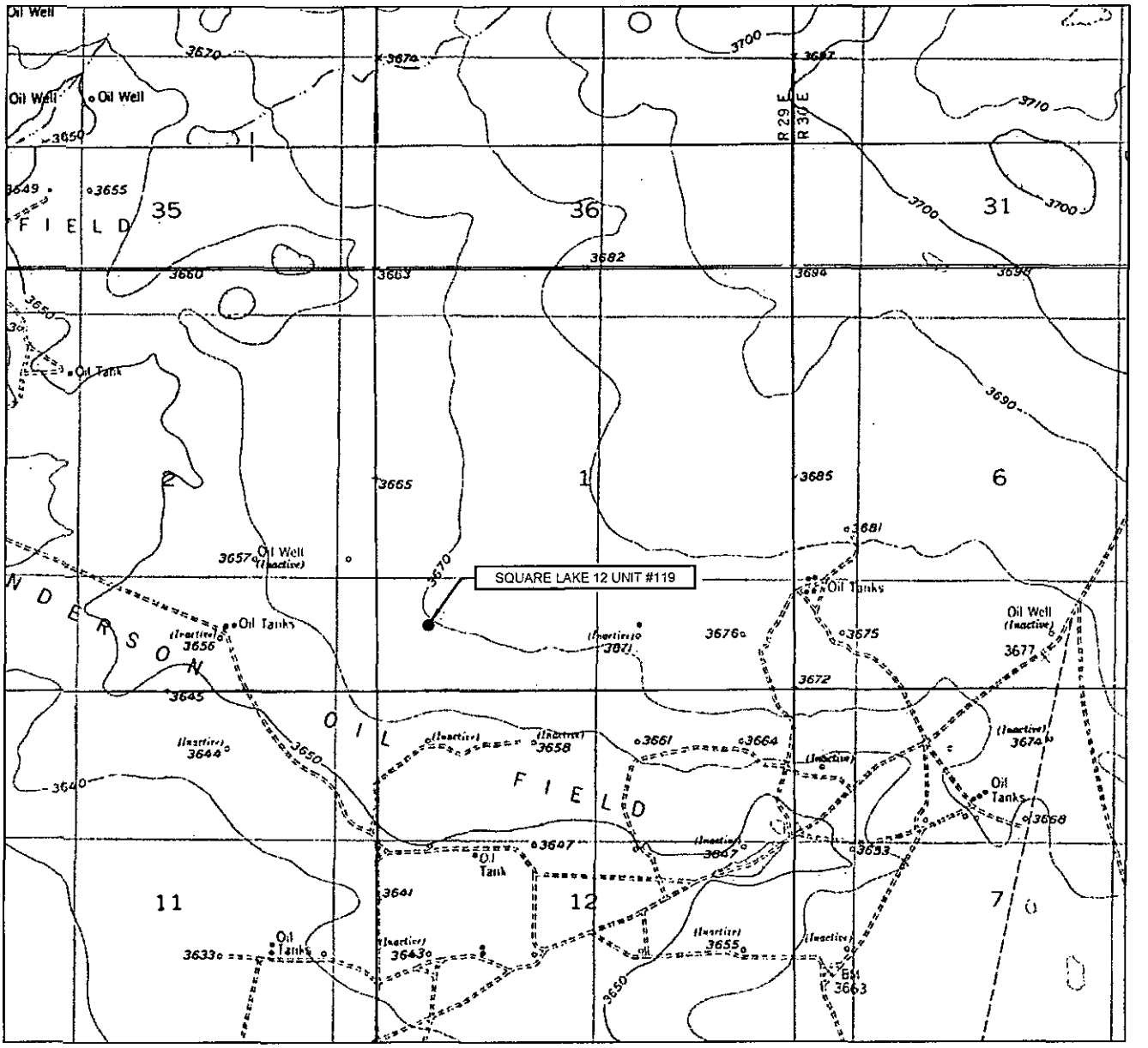
ALL BEARINGS, DISTANCES, AND COORDINATE VALUES CONTAINED HEREON ARE GRID BASED UPON THE NEW MEXICO STATE PLANE COORDINATE SYSTEM, EAST ZONE OF THE NORTH AMERICAN DATUM 1983, U.S. SURVEY FEET

THIS PROPOSED PAD SITE LOCATION SHOWN HEREON HAS BEEN SURVEYED ON THE GROUND UNDER MY SUPERVISION AND PREPARED ACCORDING TO THE EVIDENCE FOUND AT THE TIME OF SURVEY, AND DATA PROVIDED BY TANDEM ENERGY CORP. THIS CERTIFICATION IS MADE AND LIMITED TO THOSE PERSONS OR ENTITIES SHOWN ON THE FACE OF THIS PLAT AND IS NON-TRANSFERABLE. THIS SURVEY IS CERTIFIED FOR THIS TRANSACTION ONLY.

TOPOGRAPHIC
LOYALTY INNOVATION LEGACY
1400 EVERMAN PARKWAY, Ste. 197 • FT. WORTH, TEXAS 76140
TELEPHONE: (817) 744-7512 • FAX (817) 744-7548
2903 NORTH BIG SPRING • MIDLAND, TEXAS 79705
TELEPHONE: (432) 682-1653 OR (800) 767-1653 • FAX (432) 682-1743
WWW.TOPOGRAPHIC.COM

ORIGINAL DOCUMENT SIZE: 8.5" X 11"

LOCATION & ELEVATION VERIFICATION MAP



TANDEM ENERGY CORP.

LEASE NAME & WELL NO.: SQUARE LAKE 12 UNIT #119

SECTION 1 TWP 17-S RGE 29-E SURVEY N.M.P.M.
COUNTY EDDY STATE NM ELEVATION 3663'
DESCRIPTION 849' FSL & 600' FWL

LATITUDE N 32.858639068 LONGITUDE W 104.034890365

N

SCALE: 1" = 2000'
0' 1000' 2000'

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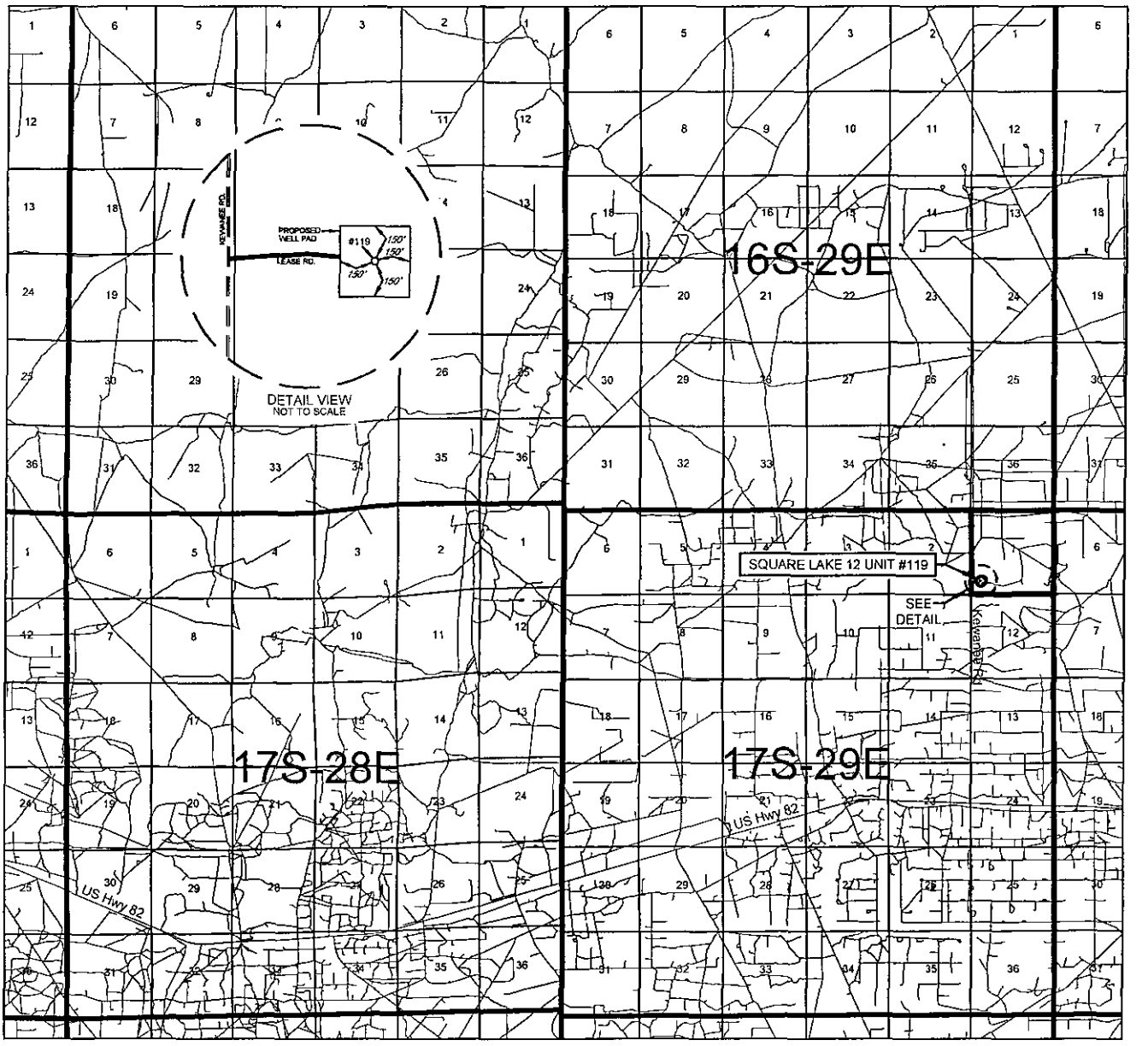
WWW.TOPOGRAPHIC.COM

VICINITY MAP



TANDEM ENERGY CORP.

LEASE NAME & WELL NO.: SQUARE LAKE 12 UNIT #119

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COUNTY EDDY STATE NM
DESCRIPTION 849' FSL & 600' FWL

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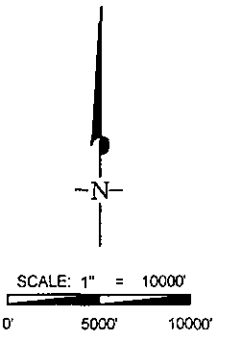

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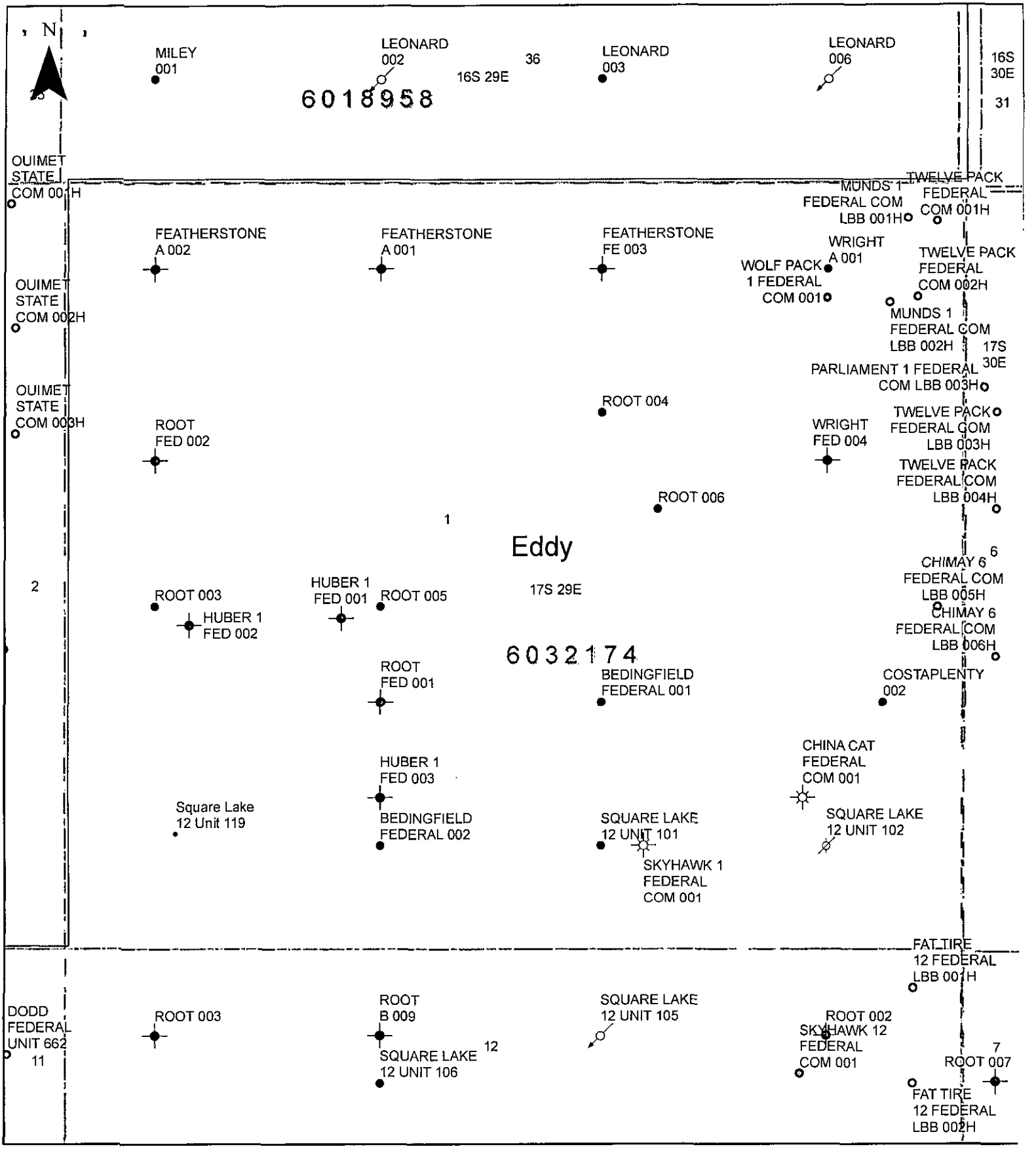


Square Lake 12 Unit 119
nm_own_2012

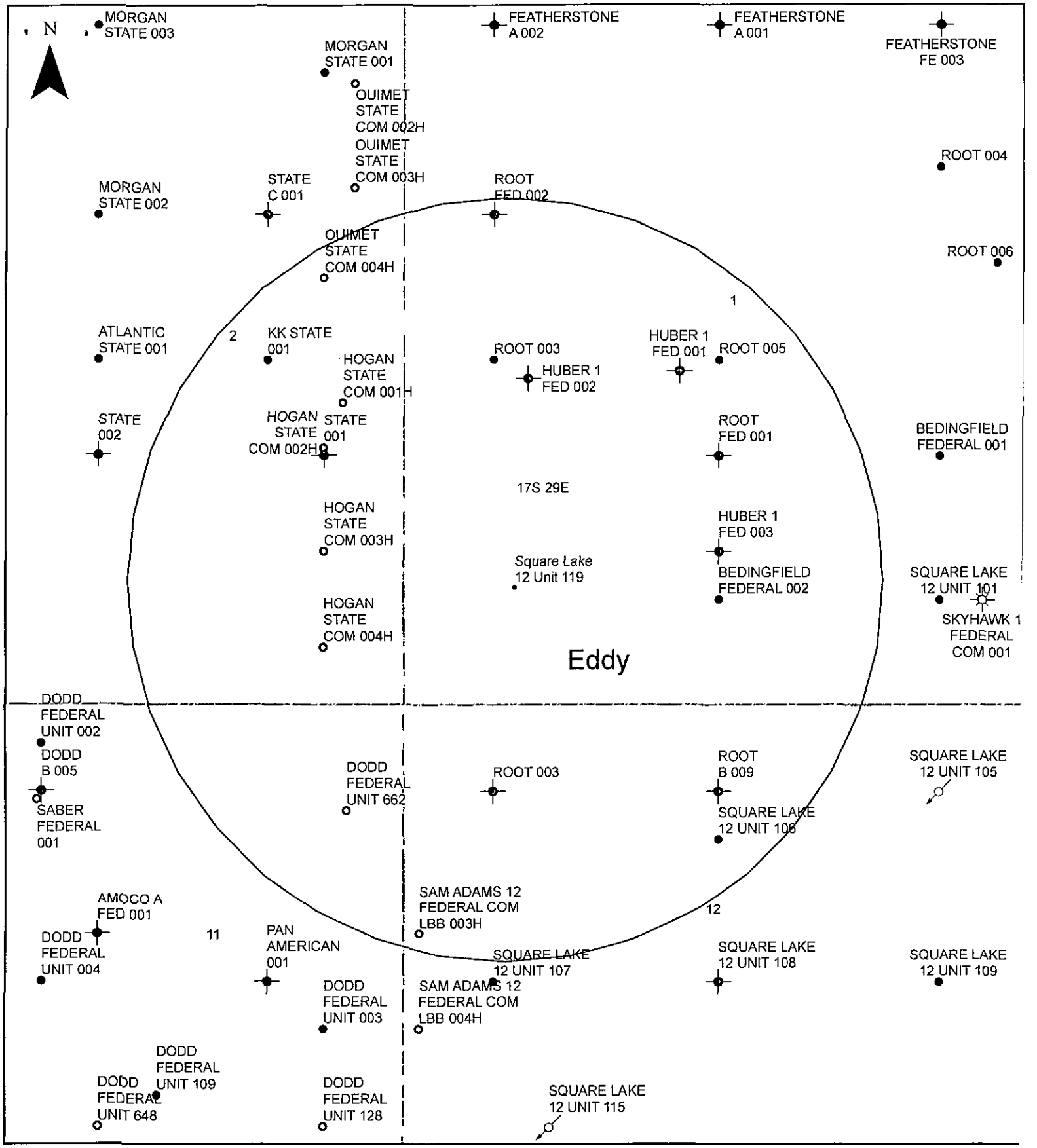
G, New (Not drilled or compl)
GAS, PA
INJ, AC
INJ, PA
OIL, AC
O, New (Not drilled or compl)
OIL, PA

Lease Plat

Tandem Energy Corporation
Square Lake 12 Unit 119
Eddy County, NM
Section 1-17S-29E

REAGAN SMITH ENERGY SOLUTIONS, INC.

Map Created July 10th, 2014
By: Alex Sherman
ASherman@rsenergysolutions.com



1m Radius Plat

Square Lake 12 Unit 119

GAS, PA

INJ, AC

OIL, AC

O, New (Not drilled or compl)

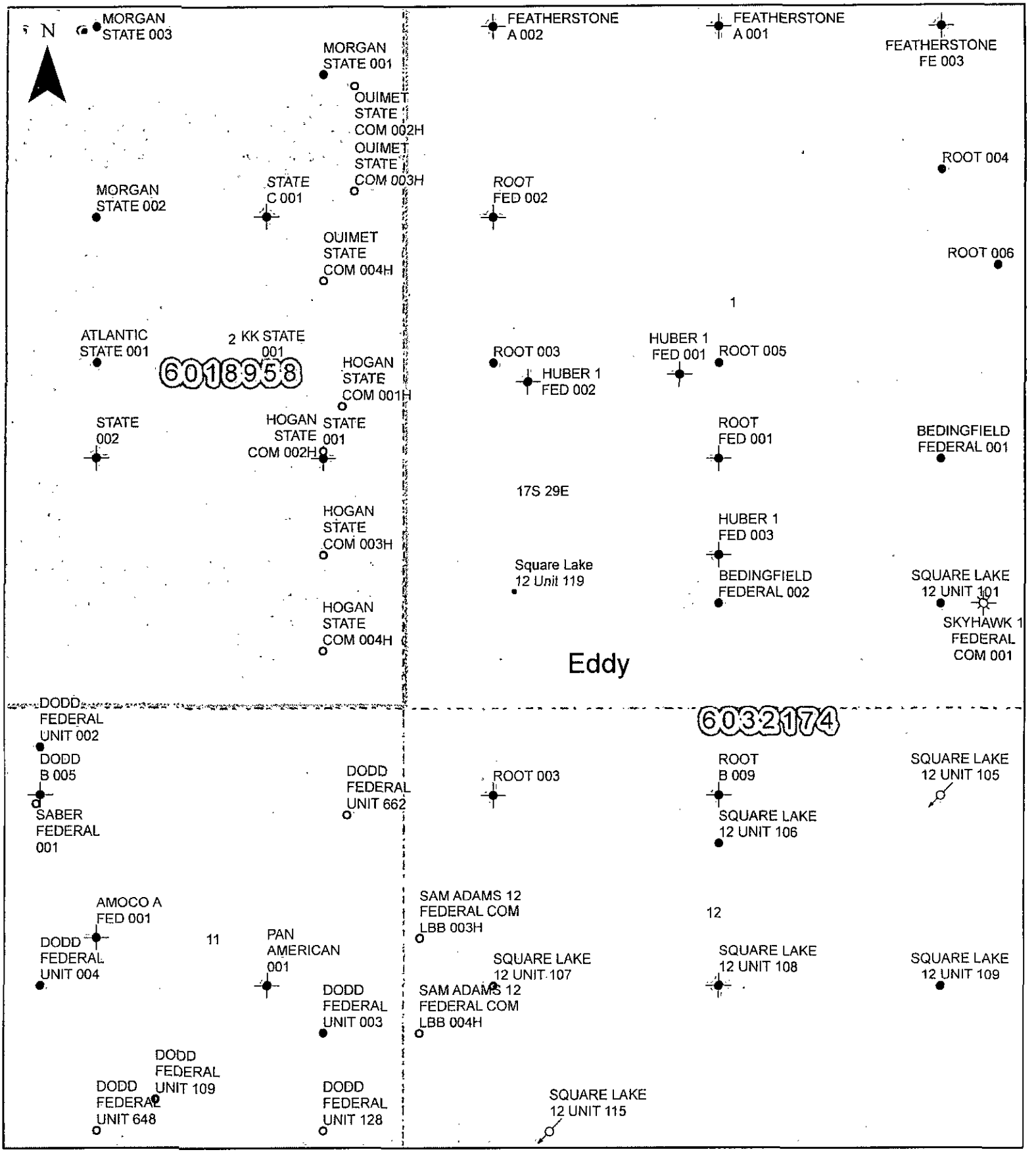
OIL, PA

S, Active

Tandem Energy Corporation
Square Lake 12 Unit 119
Eddy County, NM
Section 1-17S-29E

REAGAN SMITH ENERGY SOLUTIONS, INC.

Map Created July 10th, 2014
By: Alex Sherman
ASherman@rsenergysolutions.com



Square Lake 12 Unit 119
State of New Mexico
US Bureau of Land Management

GAS, PA
INJ, AC
OIL, AC
O, New (Not drilled or compl)
OIL, PA
S, Active

Lease Plat

Tandem Energy Corporation
Square Lake 12 Unit 119
Eddy County, NM
Section 1-17S-29E

REAGAN SMITH ENERGY SOLUTIONS, INC.

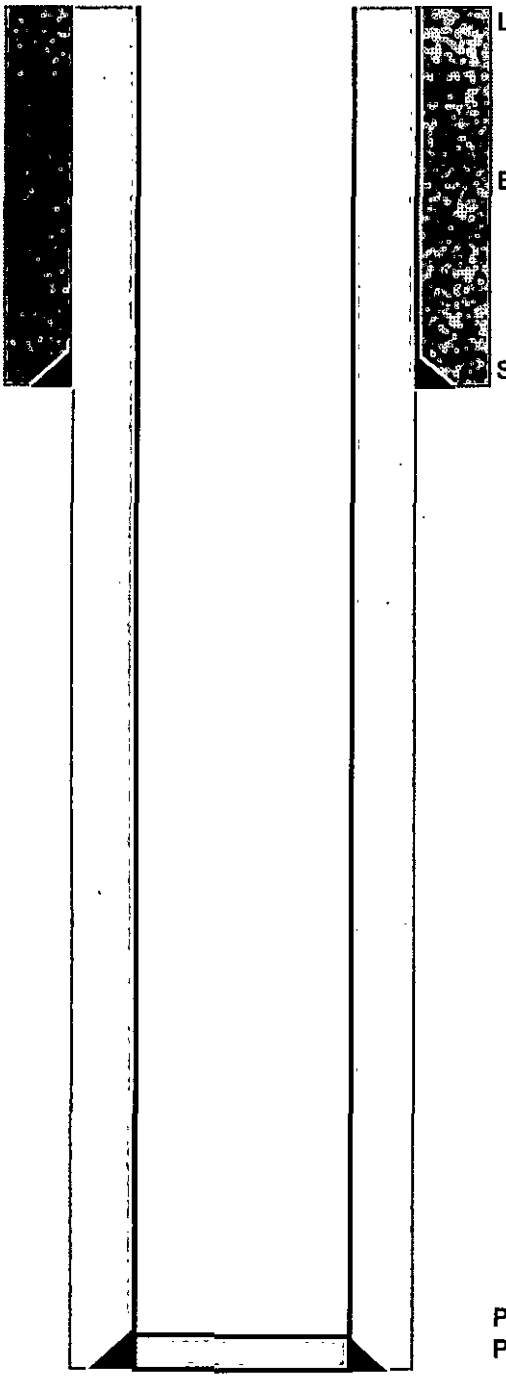
Map Created July 10th, 2014
By: Alex Sherman
ASherman@rsenergysolutions.com

Tandem Energy Corporation

SQUARE LAKE 12 UNIT

WELL NAME - SQUARE LAKE 12 UNIT #119

Planned



TD 2950

Legals:
Lease: Square Lake 12 Unit #119
Location: M 1775' FSL, 1783' FEL,
SW/SW Sec. 1 Township 17S Range 29E
Field: Square Lake 12 Unit

Elevation: 3662

Surface Csg.: 8- 5/8" 24# @ 400'
cmt'd to surface 250 sx cmt.
12 1/4" Hole size

PBTD 2900'

Prod. Csg.: 5 1/2" 17 #, LTD @ 2948'
450 sxs cmt.
TOC calculated at surface

DRILLING PROGRAM

Operator:
Tandem Energy Corporation

Project Name:
Square Lake 12 Unit 119

Project Location:
Surface Hole: 849' FSL & 600' FWL of Section 1-17S-29E N.M.

Federal Nexus:
Mineral Estate

Bureau of Land Management Lease: # NMNM 025733 (Grayburg formation)
SW/4 SW/4 Section 1-T17S-R29E, Eddy County, New Mexico
Containing 434.75 acres

Prepared By:
Reagan Smith Energy Solutions, Inc.

Date Prepared:
July 22, 2014

Submitted To:
Bureau of Land Management
Carlsbad Field Office

Please address inquiries, questions, scheduling of meetings and deficiency statements, if any, to Scott St. John and/or Monica Smith Griffin at the address shown below:

Reagan Smith Energy Solutions, Inc.
1219 Classen Drive
Oklahoma City, OK 73103
405-286-9326
sstjohn@rsenergysolutions.com msmith@rsenergysolutions.com

1.0 Drilling Programs

1.1.1 Estimated Formation Tops

EST. FORMATION TOP	Average Depth		13-004		19-004		23-006		3-004	
	SUBSEA	MD	SUBSEA	MD	SUBSEA	MD	SUBSEA	MD	SUBSEA	MD
Rustler (TOP OF SALT)	3,200	375	3,200	375	3,200	375	3,200	375	3,200	375
BASE OF SALT	2,850	725	2,850	725	2,850	725	2,850	725	2,850	725
YATES	2,679	898	2,691	887	2,671	897	2,678	908	2,677	898
SEVEN RIVERS	2,323	1,254	2,326	1,252	2,313	1,255	2,326	1,260	2,325	1,250
QUEEN	1,677	1,900	1,670	1,908	1,681	1,887	1,669	1,917	1,688	1,887
GRAYBURG	1,327	2,250	1,290	2,288	1,348	2,220	1,316	2,270	1,353	2,222
LOCO HILLS	1,207	2,370	1,166	2,412	1,229	2,339	1,197	2,389	1,236	2,339
METEX	1,100	2,477	1,056	2,522	1,124	2,444	1,091	2,495	1,129	2,446
PREMIER	979	2,598	942	2,636	999	2,569	969	2,617	1,007	2,568
SAN ANDRES	904	2,673	865	2,713	922	2,646	894	2,692	933	2,642
Total Depth (TD)	727	2,850	728	2,850	718	2,850	736	2,850	725	2,850

Target Formation and Total Depth:

The depth of the proposed well is TVD 2,900' in the Metex and Premier.

1.1.2 Estimated Depths of Anticipated Fresh Water, Oil, and Gas

Substance	Depth
Fresh Water	0'-400'
Hydrocarbons	2,477' - TD

1.1.2.1 Water Protection Compliance

No other formations are expected to yield oil, gas, or freshwater in measureable volumes. The potential fresh water sands will be protected with the 8-5/8" casing set at ~~400~~', based on 25 ft penetration into the Rustler Formation at 375'. See COA

1.1.3 Pressure Control Equipment

* See COA

Surface: 0'-400' None. * See COA

* See COA

Production: 400' MD/TVD – 2,900' TVD The minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required to drill below the surface casing shoe shall be 3000 (3M) psi. Operator will be using an 11" 3M two ram stack with 3M annular preventer, & 3M Choke Manifold.

a. The 11" 3000 psi blowout prevention equipment will be installed and operational after setting the 8 5/8" surface casing and the 8 5/8" SOW x 11" 3K conventional wellhead; the rotating head body will be installed but the rubber will be installed when it becomes operationally necessary.
b. The BOP and ancillary BOPE will be tested by a third party after setting surface casing. All equipment will be tested to 250/3000 psi for 10 minutes and charted, except the annular, which will be tested to 50% of working pressure.
c. The BOPE test will be repeated within 21 days of the original test, on the first trip.
d. Other accessory BOP equipment will include a floor safety valve, choke lines, and choke manifold having a 3000 psi working pressure rating and tested to 3000 psi.
e. The Operator also requests a variance to connect the BOP choke outlet to the choke manifold using a 3" co-flex hose with a working pressure of 3000 psi.
f. BOP & Choke manifold diagrams attached.

* See COA

An 11" 3M system will be installed, used, maintained, and tested accordingly as described in Onshore Oil and Gas Order No. 2.

Our BOP equipment will be:

- Rotating Head
- Annular BOP I 11" 3M
- a Blind Ram, 11" 3M
- Pipe Ram, 11" 3M

After nippling up, and every 30 days thereafter or whenever any seal subject to test pressure is broken followed by related repairs, blowout preventors will be pressure tested. BOP will be inspected and operated at least daily to insure good working order. All pressure and operating tests will be done by an independent service company and recorded on the daily drilling reports. BOP will be tested using a test plug to isolate BOP stack from casing. BOP test will include a low pressure test from 250 to 300 psi for a minimum of 10 minutes or until requirements of test are met, whichever is longer. Ram type preventers and associated equipment will be tested to the approved stack working pressure of 3000 psi isolated by test plug. Annular type preventers will be tested to 50 percent of rated working pressure, and therefore will be tested to 1500 psi. Pressure will be held for at least 10 minutes or until provisions of test are met, whichever is longer. Valve on casing head below test plug will be open during testing of BOP stack. BOP will comply with all provisions of Onshore Oil and Gas Order No. 2 as specified (See Attached BOP Schematic).

1.1.4 Proposed Casing and Cementing Program

1.1.4.1 Proposed Casing Program

See COA

See COA

Interval	Length (MD)	Size	Weight/ft	Grade	Thread	Condition	Hole size	Washout Factor	Cement Yield
Surface	400'	8 5/8"	24.0#	J-55	ST&C	New	12 ¼"	100%	1.35 cu. Ft/sk
Production	2,900'	5 1/2"	17.0#	J-55	LT&C	New	6 ¾"	100%	2.37/1.53 cu. Ft/sk

8-3/4" per Operator

Surface Casing:

Top	Bottom	Size	Weight/Ft	Grade	Collapse psi	Internal Yld psi	Body Yld Strength	Joint Strength
Surface	400'	8 6/8"	24#	J-55	1,370	2,950	381,000	244,000

See COA

Production Casing:

Top	Bottom	Size	Weight/Ft	Grade	Thread	Collapse psi	Internal Yld psi	Body Yld Strength	Joint Strength
Surface	2,900'	5-1/2"	17#	J-55	LT&C	4,910	5,320	273,000	247,000

1.1.4.2 Proposed Cement Program

See COA

Surface Casing: 250 sx Class "C" with 2% CaCl, 0.25% R-38 and 0.25 lb/sx Cellophane flakes (14.8 ppg, 1.35 ft3/sx, 6.34 gps)

Production Casing: Lead – 320 sx Lite (35% Poz, 65% Class "C", 6% gel) with 5 lbs/sx CaCl and ¼ lb/sx Cellophane flakes (12.01 ppg, 2.37 ft3/sx, 14.08 gps) **Tail** – 115 sx Class "C" with 0.25 lb/sx Cellophane flakes (13.9 ppg, 1.53 ft3/sx)

Cement volumes are based on bringing TOC to surface.

Operator reserves the right to change cement designs as hole conditions may warrant.

1.1.5 Proposed Mud Program

See COA

Interval	Type	Mud Weight for Pressure Control Design	Maximum Mud Weight for Hole Control Design	Viscosity	Formation Fracture Gradient	Fluid Loss
0' - 400'	Freshwater	8.4 - 8.8	8.8	26 - 36	.60	NC
400' - TD'	Cut Brine	8.8 - 9.2	9.2	28 - 32	.60	NC to <8

1.1.5.1 Mud System Requirements

Interval	Max TVD (ft)	Anticipated Mud Weight (ppg)	Estimated Max Pore Pressure (ppg)	Internal Yield Strength (psi)	Collapse Strength (psi)	Joint Strenght (psi)	Body Strength (psi)	Burst Safety Factor (Min 1.0)	Collpase Safety Factor (Min 1.1)	Tensile Safety Factor (Min 1.8)
Surface	~~400'~~	8.8	5	2,950	1,370	244,000	381,000	16.12	26.82	25.42
Prod.	2,900'	9.2	5	5,320	4,910	247,000	273,000	1.3	3.65	5.10

See COA

The production hole will start with the fresh water mud to test the surface casing and drill out the shoe track into open hole. The fresh water mud system will be allowed to gain chlorides through the salt section and be cut with brine water for weight increase. Plan to drill with a cut brine system with a mud weight of 8.8-9.2 ppg with no water loss control. When the hole is within 50-100 ft of TD, will start using gel to increase viscosity and LCM (paper) to control fluid loss during logging operations.

If the well will have whole core, sidewall core and open hole logs, the mud properties will be altered to provide a better wall cake and lower fluid loss to improve the quality of the core samples.

The Mud System will run as a closed loop system with PVT monitoring. All drill cuttings and liquid mud will be hauled to an approved site.

1.1.6 Evaluation Program — See COA

See COA

Samples:	10' from 1,800' to TD
Logging:	GR/Neutron/Density/Resistivity/CAL-Triple Combo Run
Coring:	Whole cores and sidewall cores may be taken subject to the conditions of the hole and drilling fluid
Drill Stem Tests:	None planned

1.1.7 Downhole Conditions

Zones of possible lost circulation:	N/A
Zones of possible abnormal pressure:	N/A
Maximum bottom hole temperature:	110° F
Maximum bottom hole pressure:	1,200 psi or less.

1.1.8 Flare Pit

The proposed well will not require a flare pit.

1.1.9 Plug and Abandon Costs

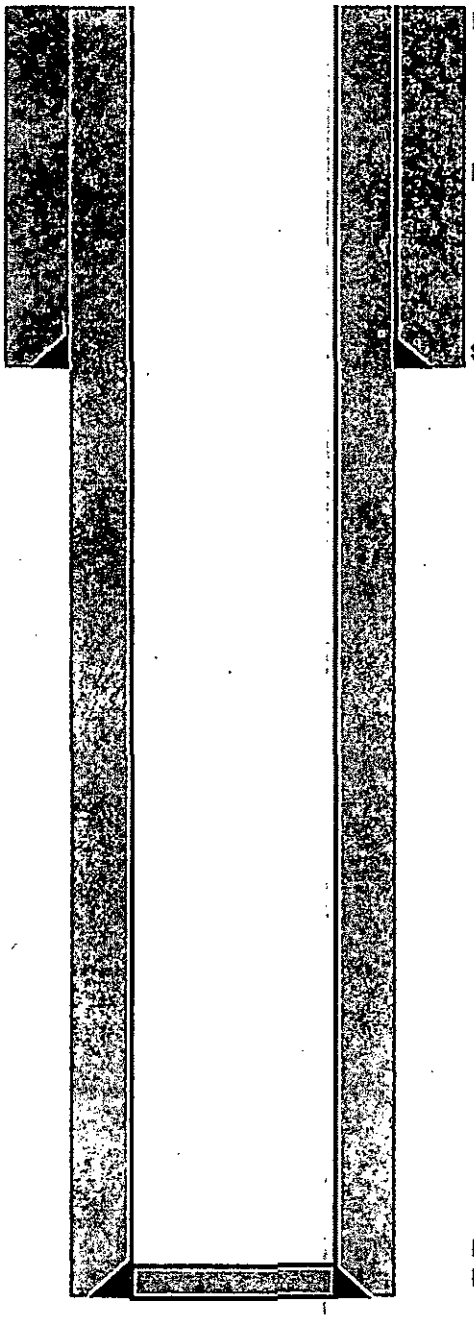
It estimated that P&A costs associated with this well, including reclamation, is $35,000.

Tandem Energy Corporation

SQUARE LAKE 12 UNIT

WELL NAME - NUNLEE FEDERAL #009

Planned



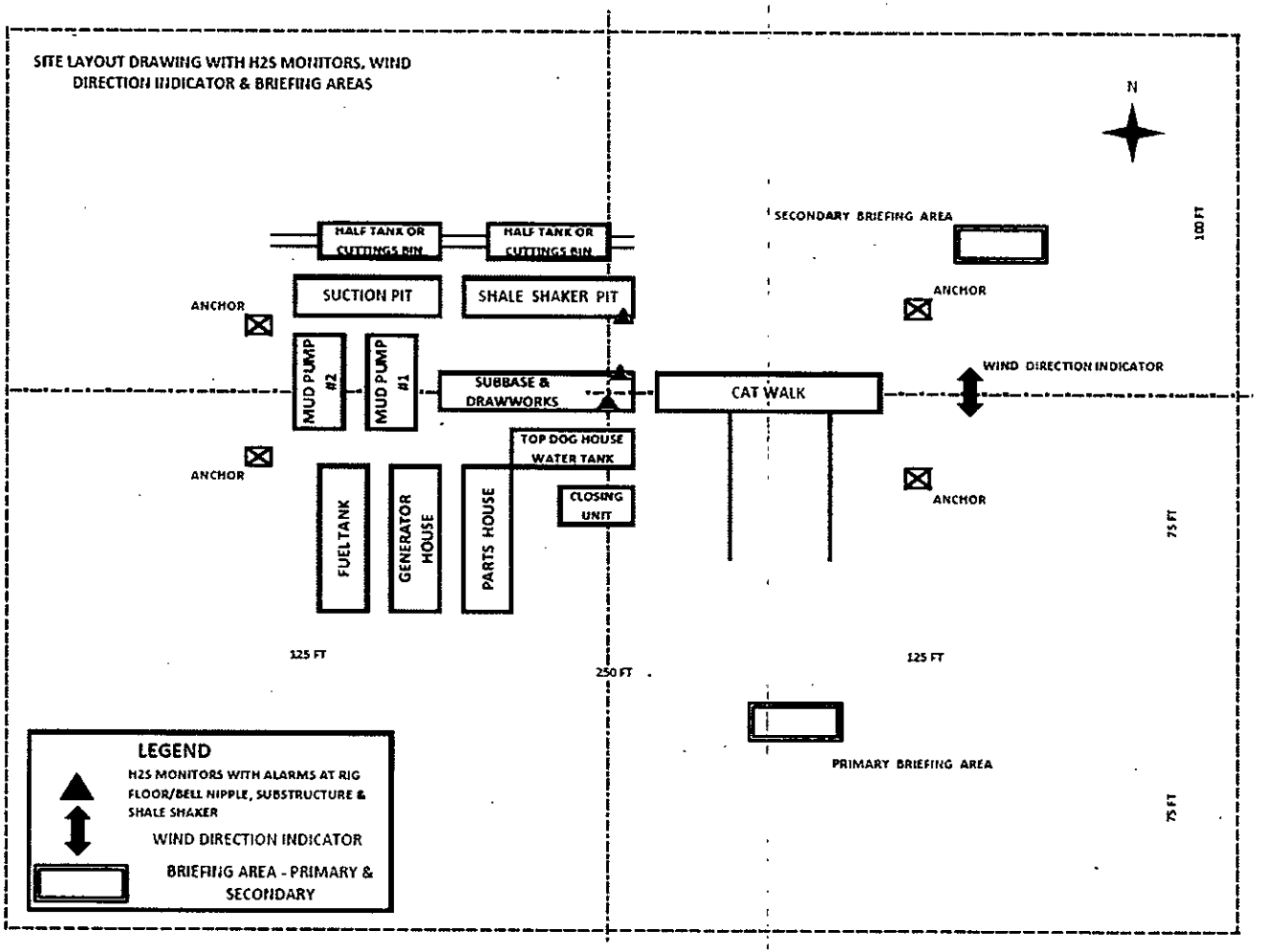
TD 2950

Legals: Lease: Nunlee Federal #009
Location: 1139' FNL, 1812' FEL,
NW/NE Sec. 35 Township 16S Range 29E
Field: Square Lake 12 Unit

Elevation: 3672 KB 7' above GL

Surface Csg.: 8-5/8" 24# @ 400'
cmt'd to surface 250 sx cmt.
12 1/4" Hole size

PBTD 2900'
Prod. Csg.: 5 1/2" 17 #, LTD @ 2948'
450 sxs cmt.
TOC calculated at surface


SITE LAYOUT DRAWING WITH H2S MONITORS, WIND DIRECTION INDICATOR & BRIEFING AREAS
N
HALF TANK OR CUTTINGS BIN
HALF TANK OR CUTTINGS BIN
SECONDARY BRIEFING AREA
100 FT
ANCHOR
SUCTION PIT
SHALE SHAKER PIT
ANCHOR
MUD PUMP #2
MUD PUMP #1
SUBBASE & DRAWWORKS
CAT WALK
WIND DIRECTION INDICATOR
TOP DOG HOUSE WATER TANK
ANCHOR
CLOSING UNIT
ANCHOR
FUEL TANK
GENERATOR HOUSE
PARTS HOUSE
75 FT
125 FT
250 FT
125 FT
PRIMARY BRIEFING AREA
75 FT
LEGEND
H2S MONITORS WITH ALARMS AT RIG FLOOR/BELL NIPPLE, SUBSTRUCTURE & SHALE SHAKER
WIND DIRECTION INDICATOR
BRIEFING AREA - PRIMARY & SECONDARY

SURFACE USE PLAN

Operator:
Tandem Energy Corporation

Project Name:
Square Lake Unit Plan of Development

Project Location:
Nunlee Federal 009
Surface Hole: 1,139' FNL & 1,812' FEL of Section 35-16S-29E N.M.
Root 007
Surface Hole: 2,075' FNL & 1,781' FWL of Section 1-17S-29E N.M.
Square Lake 12 Unit 119
Surface Hole: 849' FSL & 600' FWL of Section 1-17S-29E N.M.
Square Lake 12 Unit 120
Surface Hole: 1,775' FSL & 1,783' FEL of Section 6-17S-30E N.M.

Federal Nexus:
Mineral Estate

Bureau of Land Management Lease: # NMNM 012764
NE/4, NE/4 SE/4 Section 35-T16S-R29E, Eddy County, New Mexico
Containing 1,000 acres

Bureau of Land Management Lease: # NMNM 007752
S/2 NW/4 Section 1-T17S-R29E, Eddy County, New Mexico
Containing 1,154 acres

Bureau of Land Management Lease: # NMNM 007752 (includes all formations except Grayburg)
SW/4 SW/4 Section 1-T17S-R29E, Eddy County, New Mexico
Containing 1,154 acres

Bureau of Land Management Lease: # NMNM 025733 (Grayburg formation)
SW/4 SW/4 Section 1-T17S-R29E, Eddy County, New Mexico
Containing 434.75 acres

Bureau of Land Management Lease: # NMNM 007752 (includes all formations except Grayburg)
NW/4 SE/4 Section 6-T17S-R30E, Eddy County, New Mexico
Containing 1,154.53 acres

Bureau of Land Management Lease: # NMNM 025733 (Grayburg formation)
NW/4 SE/4 Section 6-T17S-R30E, Eddy County, New Mexico
Containing 434.75 acres

Prepared By:
Reagan Smith Energy Solutions, Inc.
Date Prepared:
July 10, 2014
Submitted To:
Bureau of Land Management
Carlsbad Field Office

Please address inquiries, questions, scheduling of meetings and deficiency statements, if any, to Scott St. John and/or Monica Smith Griffin at the address shown below:

Reagan Smith Energy Solutions, Inc.
1219 Classen Drive
Oklahoma City, OK 73103
405-286-9326
sstjohn@rsenergysolutions.com msmith@rsenergysolutions.com

2.0 Surface Use Plan

Tandem Energy Corporation proposes to drill the Nunlee Federal 009, Root 007, Square Lake 12 Unit 119, and Square Lake 12 Unit 120 oil wells. The proposed wells are located on Bureau of Land Management surface and will be drilled through and produce from Bureau of Land Management managed minerals in NE/4 of Section 35-16S-29E Eddy County, New Mexico, SE/4 NW/4, SW/4 SW/4 of Section 1-17S-29E Eddy County, New Mexico and NW/4 SE/4 of Section 6-17S-30E, Eddy County, New Mexico.

Nunlee Federal 009: The Nunlee Federal well pad will be approximately 300' by 300' (2.07 acres) (See well pad cut/fill plat in exhibit section). A proposed lease road commences at the southeast corner of the well pad and traverses 1,281' south to an existing lease road. Total length of the lease road will be 1,281' with a 30' right-of-way (0.88 acres). The proposed pipeline will be placed above the surface and will run to an existing tank battery. The project area falls in an arid grassland utilized for cattle grazing.

Root 007: The Root 007 well pad will be approximately 300' by 300' (2.07 acres). A proposed lease road commences at the northeast corner of the well pad and traverses 219' northwest to an existing lease road. Total length of the lease road will be 219' with a 30' right-of-way (0.15 acres). The proposed pipeline will be placed above the surface and will run to an existing tank battery. The project area falls in an arid grassland utilized for cattle grazing.

Square Lake 12 Unit 119: The Square Lake 12 Unit 119 well pad will be approximately 300' by 300' (2.07 acres). An existing lease road will be utilized, no new lease road construction will be required. The proposed pipeline will be placed above the surface and will run to an existing tank battery. The project area falls in an arid grassland utilized for cattle grazing.

Square Lake 12 Unit 120: The Square Lake 12 Unit 120 well pad will be approximately 300' by 300' (2.07 acres). A proposed lease road commences at the northeast corner of the well pad and traverses 485' east; Thence northeast 1,388' to an existing lease road. Total length of the lease road will be 1,873' with a 30' right-of-way (1.29 acres). The proposed pipeline will be placed above the surface and will run to an existing tank battery. The project area falls in an arid grassland utilized for cattle grazing.

Due to the proposed wells producing from Bureau of Land Management managed minerals, these wells must be permitted through the Bureau of Land Management.

2.1 Cultural and Biological Clearances

2.1.1 Cultural Clearances

In lieu of a cultural resources inventory survey, compliance with Section 106 of the National Historic Preservation Act will be met via contribution to the Permian Basin Programmatic Agreement off-site mitigation fund.

2.1.2 Special Status Species

The Biota Information System of New Mexico was consulted to find special status species at or near the proposed location. A Biological Evaluation was performed for the project area for Tandem Energy Corporation's Ballard Plan of Development in Eddy County, New Mexico.

Determination of Effect Summary

Federally Endangered or Threatened Species:
A determination of **"No Effect"** on federally listed species has been made for the proposed project.

New Mexico Species of Concern:
A determination of **"May Impact Individuals but not likely to Cause a Trend to Federal Listing or a Loss of Viability"** has been assessed to the following species:

Swift Fox (*Vulpes velox*)

A determination of **"No Impact"** on all other New Mexico Species of Concern has been assessed for this project.

2.1.3 Wetlands

A Wetland Delineation was performed for the proposed project. The on-site inspection determined that there is no wetland habitat in the project area; therefore, no impact on wetland habitat is expected (See the attached Biological Evaluation).

2.2 Surface Use Program

2.2.1 Staking Information

Well site staking was performed on May 13, 2014, prior to on-site survey and POD approval. The staking and associated plats include directional reference stakes, exterior dimensions of the drill pad, cut/fill, lease road, and pipeline (See Staking Plats in Exhibit Section).

2.3 Existing Roads

2.3.1 Route and distance from nearest town or locatable reference point to where well access route leaves main road is given below.

Nunlee Federal 009:
From the intersection of U.S. 82 Highway and Kewanee road; thence north on Kewanee road for approximately 4.5 miles; thence west on an existing lease road 0.30 miles; Thence north on proposed lease road 1,281' arriving at the southeast corner of the proposed well pad.

Root 007:
From the intersection of U.S. 82 Highway and Kewanee road; Thence north for approximately 3 miles; thence northeast on an existing lease road for 0.25 miles; thence east 0.13 miles to the proposed lease road; Thence south 219' arriving at the northeast corner of the proposed well pad.

Square Lake 12 Unit 119:
From the intersection of U.S. 82 Highway and Kewanee road; thence north on Kewanee road for approximately 2.5 miles; Thence east on an existing lease road for 0.15 miles arriving at the center of the proposed well location.

Square Lake 12 Unit 120:
From the intersection of U.S. 82 Highway and Interstate 529 west of Maljamar, New Mexico; Thence west on U.S. 82 Highway for 6.5 miles to Hagerman Cutoff road; Thence north for approximately 3.5 miles; thence west on Mallet Rd. for approximately 0.9 miles; thence south and southwest on an existing lease road for 0.8 miles to the proposed lease road; Thence west 485' arriving at the northeast corner of the proposed well pad.

2.3.2 Plans for improvement and/or statement that existing roads will be maintained in the same or better condition is given below.

The proposed lease roads will be new road construction and maintained as described below during the operation activity of the proposed well.

All existing Federal, State and County roadways which may be utilized during the proposed action will be maintained and, where necessary, improved in accordance with the rules and regulations of the applicable Federal, State and/or County transportation department and their governing bodies. Federal, State and County permits will be acquired where necessary.

2.4 Planned Lease Road(s)

2.4.1 New roads are to be centerline flagged at time of location staking.

All new roads have been center lined surveyed. A legible map of all necessary lease roads to be constructed is attached.

2.4.2 All lease roads require a minimum width of 14 feet.

The proposed lease road rights-of-way are approximately 30' wide, while the road surface is approximately 14' wide.

2.4.3 Length of Lease Roads

Nunlee Federal 009: A proposed lease road commences at the southeast corner of the well pad and traverses 1,281' south to an existing lease road. Total length of the lease road will be 1,281' with a 30' right-of-way (0.88 acres).

Root 007: A proposed lease road commences at the northeast corner of the well pad and traverses 219' northwest to an existing lease road. Total length of the lease road will be 219' with a 30' right-of-way (0.15 acres).

Square Lake 12 Unit 119: An existing lease road will be utilized, no new lease road construction will be required.

Square Lake 12 Unit 120: A proposed lease road commences at the northeast corner of the well pad and traverses 485' east; Thence northeast 1,388' to an existing lease road. Total length of the lease road will be 1,873' with a 30' right-of-way (1.29 acres).

2.4.4 Maximum grade of lease road is required to be less than 8%

Nunlee Federal 009: The proposed lease road has an elevation change of approximately 3' over the 1,281' road length (approximately 0.2%).

Root 007: The proposed lease road has an elevation change of approximately 1' over the 219' road length (approximately 0.4%).

Square Lake 12 Unit 119: An existing lease road will be utilized, no new lease road construction will be required.

Square Lake 12 Unit 120: The proposed lease road has an elevation change of approximately 5' over the 1,873' road length (approximately 0.3%).

2.4.5 Description of Turnouts

No turnouts will be constructed for this project.

2.4.6 Drainage Design

The proposed project locations are located in arid grasslands. The surface is leased through the BLM for grazing. All runoff from the project areas would flow southeast before reaching road bar ditches.

To mitigate erosion and protect the natural drainage areas, erosion control methods (e.g. cut ratios of 3:1 and fill ratios of 2:1) will be implemented during the construction and production phases of this project. The slopes of the well pads and the pipeline right-of-way will be seeded. Erosion mitigation such as silt fences and hay bales, will be located on as need surrounding the well pads due to the natural drainage slope that exists in relation to the orientation of the pad and its proximity to the natural drainages.

2.4.7 Location and size of culverts

No culverts will be required for this project.

2.4.8 Major cuts and fills

Nunlee Federal 009: A maximum 1' fill will be required west of the location stake for the well pad. A maximum 2' cut will be required north of the location stake for the well pad. A maximum

3' cut will be required east of the location stake for the well pad. A maximum 2' cut will be required south of the location stake for the well pad. All cut ratios will be 3:1 and all fill ratios will be 2:1.

Root 007: No cut/fill will be required west of the location stake for the well pad. A maximum 1' cut will be required north of the location stake for the well pad. A maximum 3' cut will be required east of the location stake for the well pad. A maximum 1' fill will be required south of the location stake for the well pad. All cut ratios will be 3:1 and all fill ratios will be 2:1.

Square Lake 12 Unit 119: A maximum 1' cut will be required west of the location stake for the well pad. A maximum 4' cut will be required north of the location stake for the well pad. A maximum 2' cut will be required east of the location stake for the well pad. A maximum 1' cut will be required south of the location stake for the well pad. All cut ratios will be 3:1 and all fill ratios will be 2:1.

Square Lake 12 Unit 120: A maximum 5' fill will be required west of the location stake for the well pad. A maximum 1' fill will be required north of the location stake for the well pad. A maximum 2' cut will be required east of the location stake for the well pad. A maximum 1' cut will be required south of the location stake for the well pad. All cut ratios will be 3:1 and all fill ratios will be 2:1.

2.4.9 Stormwater Management Plan

During drilling activities, trenches will surround all pumps, motors and rig such that runoff will be directed to a sump area on the well site and pumped into a haul off tank. During production operations all runoff contained within the tank battery facility will be pumped into the water tank and disposed of according to applicable regulations.

2.4.10 Surfacing Material

Native on-site material will be used for surfacing with gravel furnished from a private commercial source.

2.4.11 Necessary gates, cattle guards, or fence cuts are described as follows:

No fencing is required.

2.4.12 Lease Road Construction

Nunlee Federal 009: A proposed 1,281' new construction lease road will be utilized to access the Nunlee Federal 009.

Root 007: A proposed 219' new construction lease road will be utilized to access the BGSAU 13-004.

BGSAU 19-004: An existing lease road will be utilized, no new lease road construction will be required.

Square Lake 12 Unit 120: A proposed 1,873' new construction lease road will be utilized to access the Square Lake 12 Unit 120.

All lease roads will provide all weather access to this property. All lease roads will be maintained with a motor grader in a prudent manner as an all weather road. Maintenance activity shall include but not be limited to re-rocking, reshaping, compacting and crowning said location road as necessary. Any ruts, rills, and eroded areas will be filled as necessary. The soils underlying said location road are discussed in Section 2.14 - Other Information.

2.5 Location of Existing Wells within a One-Mile Radius

2.5.1 Abandoned Wells

See attached 1-mile radius plat

2.5.2 Temporary Abandoned or Shut-In Well

See attached 1-mile radius plat

2.5.3 Disposal Wells or Injection Wells

See attached 1-mile radius plat

2.5.4 Producing Wells

See attached 1-mile radius plat

2.6 Location of Production Facilities

According to NTL 87-1 production facilities shall be painted according to stipulations provided by the surface managing agency; the Ballard Unit Master Development Plan is located on BLM surface.

2.7 Location and Type of Water Supply

Water required for drilling and fracturing of the proposed well will be obtained from a private source. There will not be an on-site frac pit.

2.8 Source of Construction Material

Locations will be graded and leveled with existing soil at proposed site. Construction material for both the roads and well pads will be obtained from Sweatt Construction Inc. in Artesia, NM, a commercial private site.

2.9 Methods for Handling Waste Disposal

Drilling fluids will be contained in a closed system. All drill cuttings and liquid mud will be hauled to an approved site for disposal or soil farmed upon receiving appropriate State of New Mexico Oil Conservation Division approval.

All construction related debris will be disposed of in an approved manner. Sewage, garbage and other waste material will be placed in containers kept on the well site and disposed of in accordance with all applicable regulations.

2.9.1 Plans for eventual disposal of drilling fluids and any produced oil or water recovered during testing operations are as follows:

All drilling fluids including but not limited to salts, chemicals, oil residues, water, sewage and all other waste and chemical pollutants, which may be generated during testing operations, will be disposed of according to applicable regulations.

The BLM Carlsbad Field Office, will be notified in writing if any hazardous materials or hazardous substances are used or if any hazardous waste is generated in or from drilling mud or any part of the drilling, completion, recompletion, producing, or plugging and abandonment process, including the construction, operation, or abandonment of any treatment or process facilities. Included will be a list of the name, kind and amount of any such hazardous materials, substances, or waste, the disposal of such waste and the names addresses and telephone numbers of EPA-qualified transporters and disposers that will be used. The BLM will be furnished with a copy of the manifest after delivery and disposal

of the hazardous waste. This manifest copy will be signed by the transporter and disposer (see 40 CFR 116 & 262).

2.10 Ancillary Facilities

There are no ancillary facilities associated with the proposed wells.

2.11 Well Site Layout Plat

Please see attached rig layout plat in Exhibit Section.

2.12 Plans for Reclamation of Surface upon Completion of Operations

2.12.1 Tandem Energy Corporation will restore topsoil to its original condition after well pad is downsized during the production phase.

2.12.2 Tandem Energy Corporation will backfill, level and restore to original contours with segregation of spoiled materials as needed.

2.12.3 **Nunlee Federal 009:** Well pad site will be downsized from the west edge of the well pad to the deadman anchors to allow maintenance on well to continue after the well is placed into production.

Root 007: Well pad site will be downsized from the east edge of the well pad to the deadman anchors.

Square Lake 12 Unit 119: Well pad site will be downsized from the south and north edges of the well pad to the deadman anchors.

Square Lake 12 Unit 120: Well pad site will be downsized from the south edge of the well pad to the deadman anchors.

2.12.4 Tandem Energy Corporation will rehabilitate all disturbed areas, including lease roads. All areas of reclamation will be rehabilitated by seeding.

2.12.5 If a well is not a producer, the restoration process would begin within sixty (60) days of the rig release and completed within thirty (30) days, weather permitting.

If a well is a producer, all areas not being used for production purposes (typically within the dimensions of the anchors and the production facilities) would be reclaimed in the interim period

(The interim period is forty-five (45) days after the setting of the production casing string or completion of plugging as a dry hole). After a well is no longer in production, the remainder of the restoration process would begin as soon as possible, but in no case longer than sixty (60) days from final plugging of the well. The restoration process would be completed within thirty (30) days, weather permitting.

2.12.6 Upon abandonment of a well, all waste will be hauled away and disposed of in an approved manner. All equipment and salvageable material will be removed from the drill site. All debris generated from the drilling and operating of a well, which is unsuited for burial at an approved landfill, will be disposed of according to applicable regulations. Cleaning operations will commence with completion of drilling activity and should be completed in approximately 10 days. The drill site will be restored as near as practicable to its preconstruction condition and topography. All surface drainage patterns, which may be affected by the proposed action, will be shaped and restored to preconstruction conditions. The soil will be graded and tilled to prepare its surface for seedbed in accordance with the applicable regulatory and conservation agencies. Erosion control techniques will be implemented when necessary.

2.13 Surface Ownership

The surface ownership at the well locations is as follows:

Bureau of Land Management
Carlsbad Field Office
620 E. Greene St.
Carlsbad, NM 88220
(575) 234-5972

2.14 Other Information

The proposed well sites, lease roads and pipelines are located in Eddy County, New Mexico. Eddy County is situated in the southeastern part of New Mexico which is largely rural. The principal land usage is oil and gas production with light cattle grazing.

More particularly, the project areas are located in arid grasslands. The proposed well pads will be approximately 300' by 300' (2.91 acres). The construction of the well pad will not require the removal of trees.

The proposed well pads are located in arid grasslands. The topography surrounding the well pads is flat.

2.14.1 Noise Abatement

There are no residences within a ¼ mile of the proposed project area. There are no compressor engines, or any other machinery currently planned which may cause noise pollution. However, should any machinery be needed or used which may result in noise pollution, Tandem Energy Corporation will address noise abatement appropriately.

2.14.2 Soil

The Natural Resources Conservation Service (NRCS) Web Soil Survey and the NRCS Soil Survey for Eddy County, New Mexico, was used to determine the soils present in the proposed project areas.

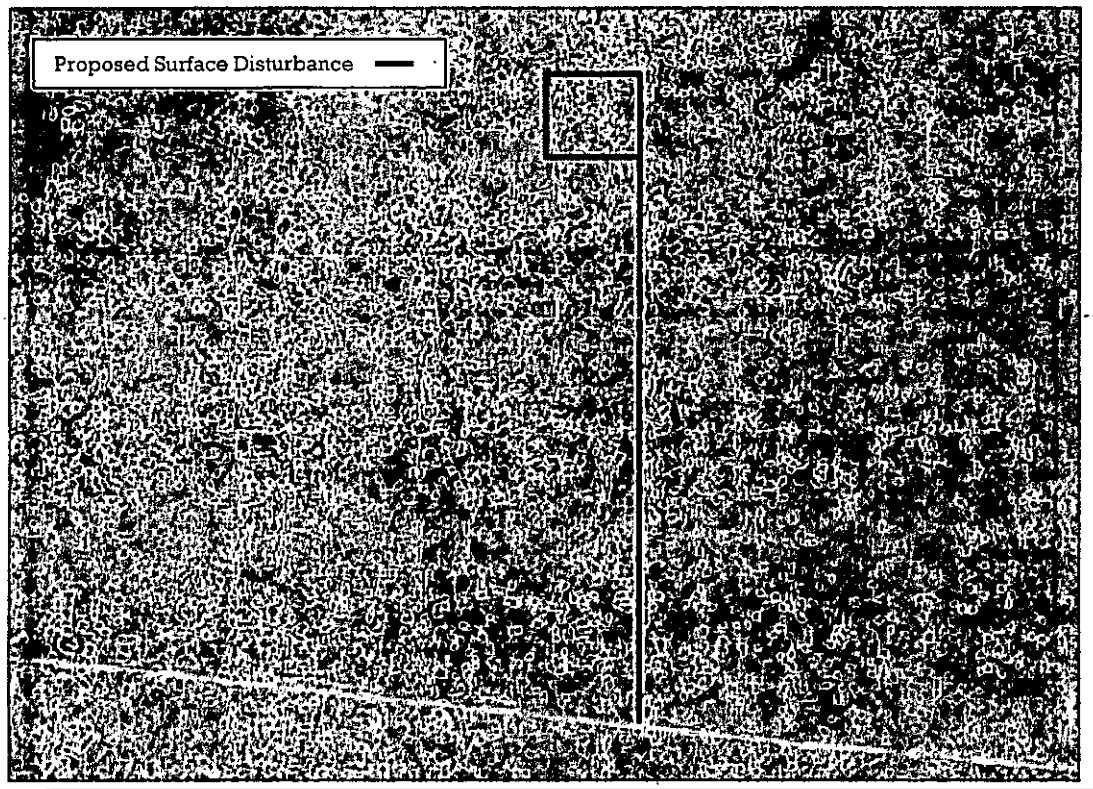
A "Kw" factor has been determined for the soil type. The "Kw" factor relates to erosion caused by water and is based on a scale ranging from 0.02-0.69 with a larger value denoting a higher susceptibility for water caused erosion. The project area contains soil types with a low rating for erosion susceptibility due to water.

A Wind Erodibility Group has also been determined for the soil type. The Wind Erodibility Group is a parameter used to show a soils susceptibility to erosion caused by wind. The rating scale is based on a 1 to 8 rating with 1 being the most susceptible to wind erosion and 8 being the least susceptible. The project area contains soil types with a high rating for erosion susceptibility due to wind.

However, with implementations of erosion control measures, erosion will not have a major impact on environmental resources in the vicinity of the project area.

Nunlee Federal 009:

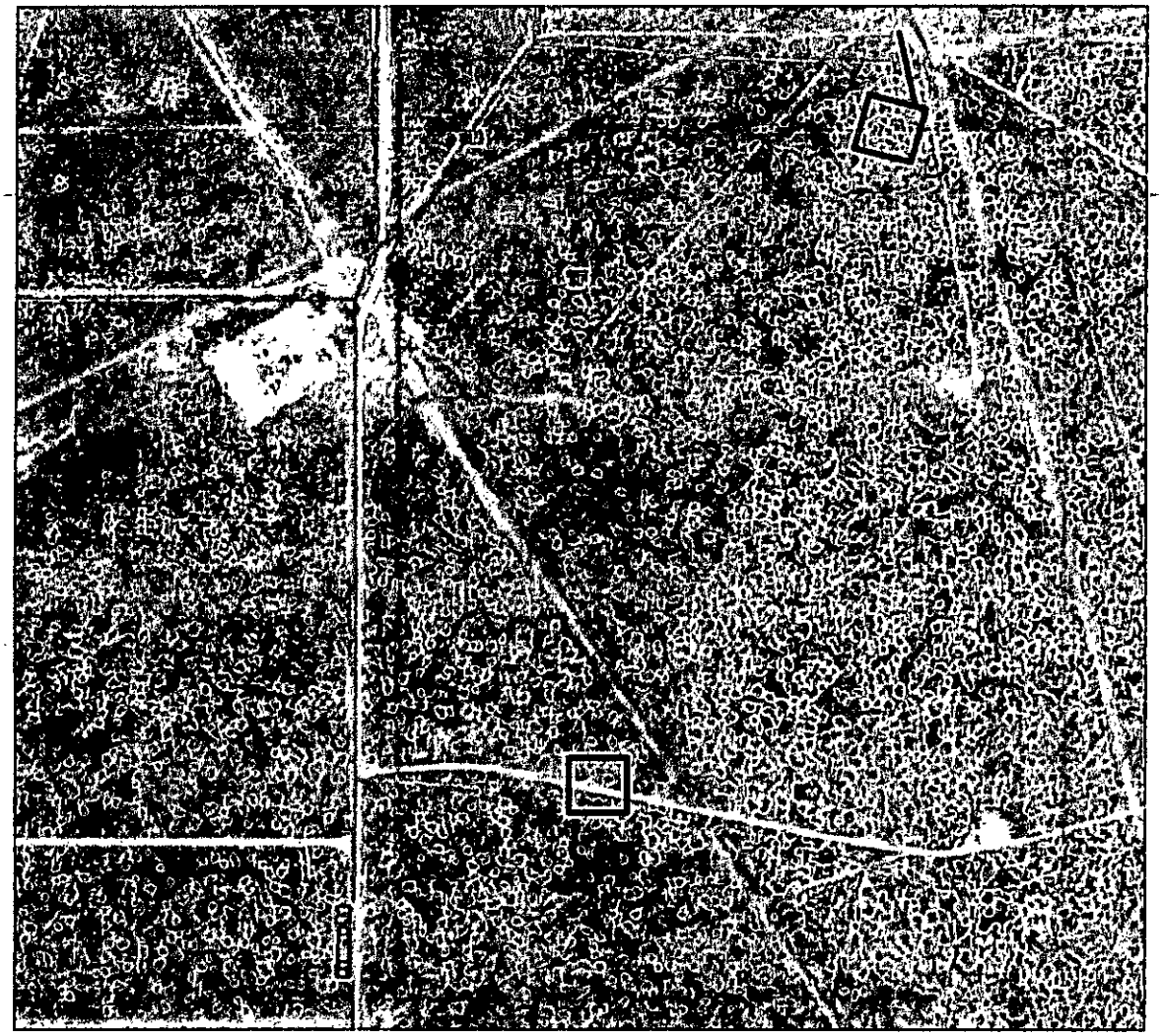
Figure 1. Soil Map



Soil Type	Slope	Drainage	Parent Material	Frequency of Flooding	Frequency of Ponding	"Kw" Factor	Wind Erodibility Group
Simona-Bippus complex (SM)	0-5%	Well Drained	Mixed alluvium and/or eolian sands	None	None	0.15	4

Root 007 & Square Lake 12 Unit 119:

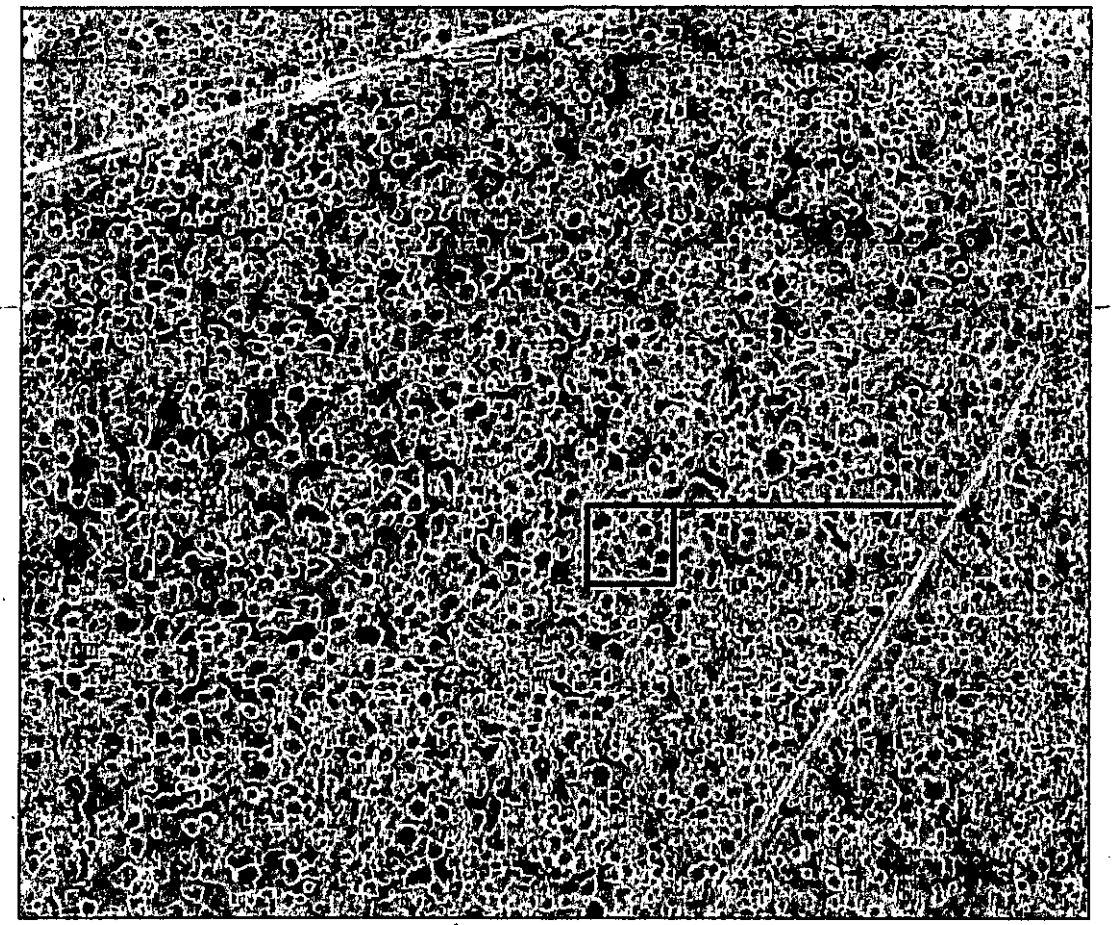
Figure 1. Soil Map



Soil Type	Slope	Drainage	Parent Material	Frequency of Flooding	Frequency of Ponding	"Kw" Factor	Wind Erodibility Group
Cacique loamy sand (CA)	0-3%	Well Drained	Mixed alluvium	None	None	0.17	2
Kermit-Berino fine sands (KM)	0-3%	Excessively Drained	Mixed alluvium and/or eolian sands	None	None	0.17	1

Square Lake 12 Unit 120:

Figure 1. Soil Map



Soil Type	Slope	Drainage	Parent Material	Frequency of Flooding	Frequency of Ponding	"Kw" Factor	Wind Erodibility Group
Kermit-Berino fine sands (KM)	0-3%	Excessively Drained	Mixed alluvium and/or eolian sands	None	None	0.17	1

Please see attached Biological Evaluation for discussion of wildlife in the area.

2.14.3 Pipeline Construction Plan

Nunlee Federal 009: The proposed pipeline will be placed above the surface and will run to an existing tank battery.

Root 007: The proposed pipeline will be placed above the surface and will run to an existing tank battery.

Square Lake 12 Unit 119: The proposed pipeline will be placed above the surface and will run to an existing tank battery.

Square Lake 12 Unit 120: The proposed pipeline will be placed above the surface and will run to an existing tank battery.

The BLM will be provided a map indicating the surface pipeline route whenever a route is decided.

2.15 Bond Certification

Tandem Energy Corporation is responsible under the terms and conditions of the lease to conduct lease operations in conjunction with the application. Bond coverage pursuant to CFR 43 for lease activities is being provided by Tandem Energy Corporation under their Statewide Bond BLM Bond No. NMB 00432 & NMB 000563.

2.16 Certification

I hereby certify, that I, or persons under my direct supervision, have inspected the proposed drill sites and access routes; that I am familiar with the conditions which presently exist; that the statements made in this plan are, to the best of my knowledge, true and correct; and, that the work associated with the operations proposed herein will be performed by Tandem Energy Corporation and its contractors and sub-contractors in conformity with this plan and the terms and conditions under which it is approved. This statement is subject to the provisions of 18 U.S.C. 1001 for the filing of a false statement.

Tandem Energy Corporation

_____

Troy Zaikis
Agent for Tandem Energy Corporation
Date 7-14-14

IV. Lessee's or operator's representative

Ralph W. Schofield
Tandem Energy Corporation
2700 Post Oak Blvd, Suite 1000
Houston, Texas 77056
(713) 364-7822

Please address inquiries, questions, scheduling of meetings and deficiency statements, if any, to Scott St. John and/or Monica Smith Griffin at the address shown below:

Reagan Smith Energy Solutions, Inc.
1219 Classen Drive
Oklahoma City, OK 73103
405-286-9326
sstjohn@rsenergysolutions.com msmith@rsenergysolutions.com

TANDEM ENERGY
CORPORATION

June 18, 2014

Bureau of Land Management – New Mexico
P.O. Box 27115
Santa Fe, New Mexico 87502-0115

To Whom It May Concern:

Tandem Energy Corporation has contracted with REAGAN SMITH Energy Solutions, Inc. to act as its Designated Agent to complete the application process for obtaining drilling permits on Department of Interior - Bureau of Land Management leases within the state of New Mexico.

Thank you for your cooperation and assistance in this matter.

Sincerely,

TANDEM ENERGY CORPORATION

Kimmy Watson
Manager, Health, Safety, Environmental and Compliance

Galleria Tower 1 • 2700 Post Oak Blvd • Suite 1000 • Houston, Texas 77056 • Phone: 713.364.7822 • Fax: 713.364.7820

PECOS DISTRICT
CONDITIONS OF APPROVAL

OPERATOR'S NAME:	Tandem Energy Corp
LEASE NO.:	NM025733
WELL NAME & NO.:	119-Square Lake 12 Unit
SURFACE HOLE FOOTAGE:	849'/S & 600'/W
BOTTOM HOLE FOOTAGE	849'/S & 600'/W
LOCATION:	Section 1, T. 17 S., R. 29 E., NMPM
COUNTY:	Eddy County, New Mexico

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

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I. GENERAL PROVISIONS

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

II. PERMIT EXPIRATION

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

III. ARCHAEOLOGICAL, PALEONTOLOGY & HISTORICAL SITES

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

IV. NOXIOUS WEEDS

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

V. SPECIAL REQUIREMENT(S)

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

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

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

Plan of Development
Operator is to submit a Unit Plan of Development (UPOD) annually to the BLM. Guidelines for UPOD are available upon request at the BLM Carlsbad Field Office.

VI. CONSTRUCTION

A. NOTIFICATION

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

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

B. TOPSOIL

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

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

C. CLOSED LOOP SYSTEM

Tanks are required for drilling operations: No Pits.

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

D. FEDERAL MINERAL MATERIALS PIT

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

E. WELL PAD SURFACING

Surfacing of the well pad is not required.

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

F. EXCLOSURE FENCING (CELLARS & PITS)

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

G. ON LEASE ACCESS ROADS

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

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

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

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

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

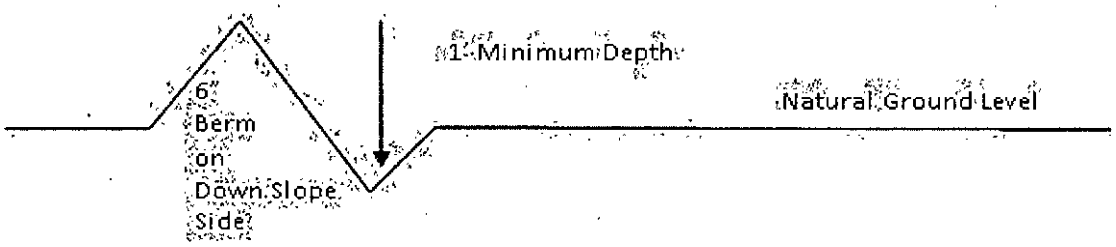
Ditching
Ditching shall be required on both sides of the road.

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

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

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

Cross Section of a Typical Lead-off Ditch



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

Formula for Spacing Interval of Lead-off Ditches

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

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

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

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

Public Access

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

Construction Steps

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

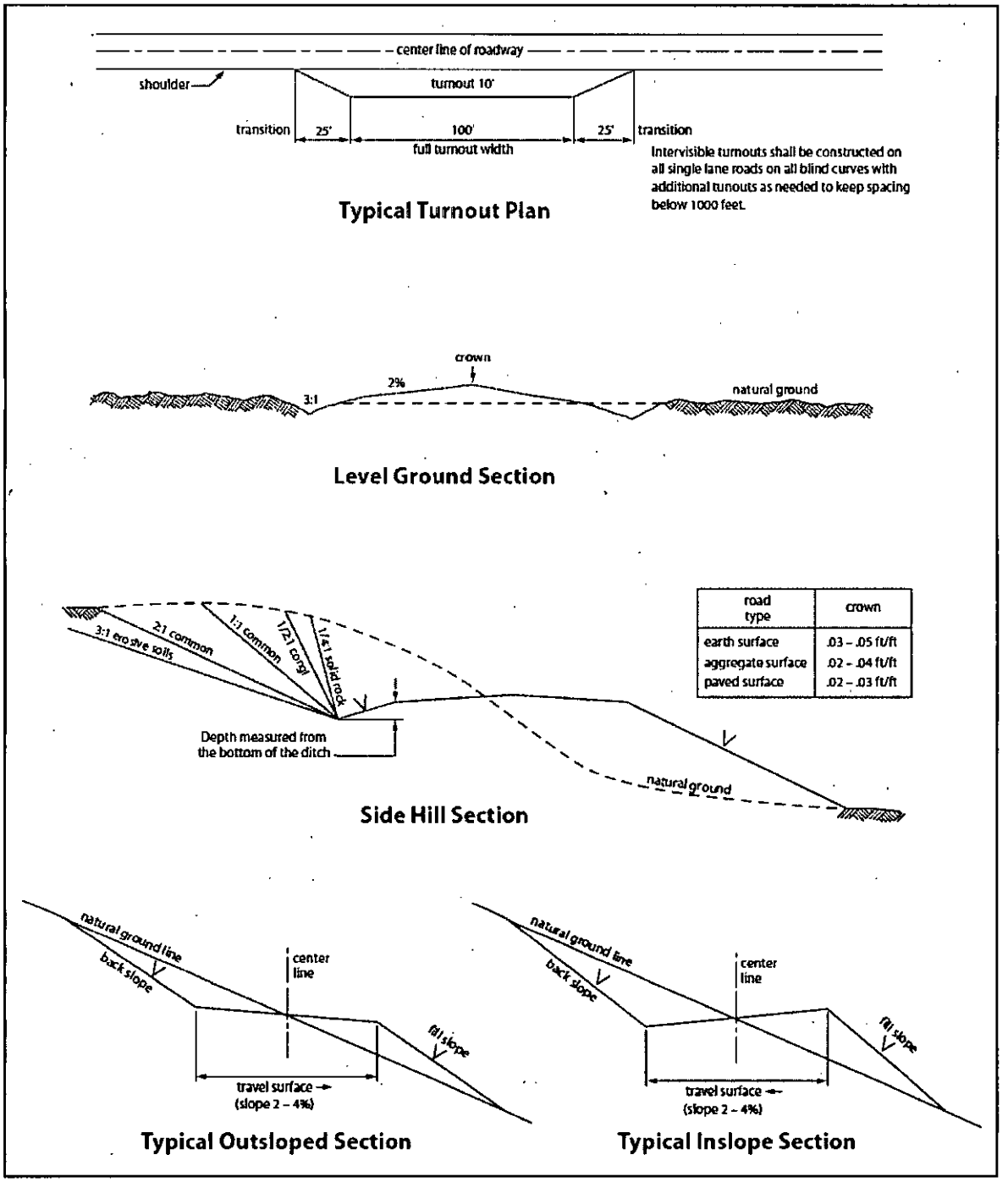


Figure 1. Cross-sections and plans for typical road sections representative of BLM resource or FS local and higher-class roads.

VII. DRILLING

A. DRILLING OPERATIONS REQUIREMENTS

The BLM is to be notified in advance for a representative to witness:

a. Spudding well (minimum of 24 hours)
b. Setting and/or Cementing of all casing strings (minimum of 4 hours)
c. BOPE tests (minimum of 4 hours)

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

1. A Hydrogen Sulfide (H2S) Drilling Plan shall be activated 500 feet prior to drilling into the **Grayburg** formation. **As a result, the Hydrogen Sulfide area must meet Onshore Order 6 requirements, which includes equipment and personnel/public protection items. If Hydrogen Sulfide is encountered, please provide measured values and formations to the BLM.**

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

3. Floor controls are required for 3M or Greater systems. These controls will be on the rig floor, unobstructed, readily accessible to the driller and will be operational at all times during drilling and/or completion activities. Rig floor is defined as the area immediately around the rotary table; the area immediately above the substructure on which the draw works is located, this does not include the dog house or stairway area.

4. **The record of the drilling rate along with the GR/N well log run from TD to surface (horizontal well – vertical portion of hole) shall be submitted to the BLM office as well as all other logs run on the borehole 30 days from completion. If available, a digital copy of the logs is to be submitted in addition to the paper copies. The Rustler top and top and bottom of Salt are to be recorded on the Completion Report.**

B. CASING

Changes to the approved APD casing program need prior approval if the items substituted are of lesser grade or different casing size 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.

Centralizers required on surface casing per Onshore Order 2.III.B.1.f.

Wait on cement (WOC) time prior to drilling out for a primary cement job will be a minimum 18 hours for a water basin, 24 hours in the potash area, or 500 pounds compressive strength, whichever is greater for all casing strings. DURING THIS WOC TIME, NO DRILL PIPE, ETC. SHALL BE RUN IN THE HOLE. Provide compressive strengths including hours to reach required 500 pounds compressive strength prior to cementing each casing string. See individual casing strings for details regarding lead cement slurry requirements.

No pea gravel permitted for remedial or fall back remedial without prior authorization from the BLM engineer.

Medium Cave/Karst
Possibility of water flows in the Salado and Queen.
Possibility of lost circulation in the Artesia Group, Rustler, San Andres, and Grayburg.

1. The **13-3/8** inch surface casing shall be set at approximately **350** feet (a minimum of 25 feet into the Rustler Anhydrite and above the salt) and cemented to the surface. **If salt is encountered, set casing at least 25 feet above the salt.**

    a. If cement does not circulate to the surface, the appropriate BLM office shall be notified and a temperature survey utilizing an electronic type temperature survey with surface log readout will be used or a cement bond log shall be run to verify the top of the cement. Temperature survey will be run a minimum of six hours after pumping cement and ideally between 8-10 hours after completing the cement job.

    b. Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry.

    c. Wait on cement (WOC) time for a remedial job will be a minimum of 4 hours after bringing cement to surface or 500 pounds compressive strength, whichever is greater.

    d. If cement falls back, remedial cementing will be done prior to drilling out that string.

2. Drilled with an 8-3/4" hole, the minimum required fill of cement behind the **5-1/2** inch production casing is:

   ☒ Cement to surface. If cement does not circulate, contact the appropriate BLM office.

C. PRESSURE CONTROL

1. All blowout preventer (BOP) and related equipment (BOPE) shall comply with well control requirements as described in Onshore Oil and Gas Order No. 2 and API RP 53 Sec. 17.

2. **In the case where the only BOP installed is an annular preventer, it shall be tested to a minimum of 2000 psi (which may require upgrading to 3M or 5M annular).**

3. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be **2000 (2M)** psi.

4. The appropriate BLM office shall be notified a minimum of 4 hours in advance for a representative to witness the tests.

   a. In a water basin, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been done. The casing cut-off and BOP installation can be initiated four hours after installing the slips, which will be approximately six hours after bumping the plug. For those casing strings not using slips, the minimum wait time before cut-off is eight hours after bumping the plug. BOP/BOPE testing can begin after cut-off or once cement reaches 500 psi compressive strength (including lead when specified), whichever is greater. However, if the float does not hold, cut-off cannot be initiated until cement reaches 500 psi compressive strength (including lead when specified).

   b. The tests shall be done by an independent service company utilizing a test plug **not a cup or J-packer**.

   c. The test shall be run on a 5000 psi chart for a 2-3M BOP/BOP, on a 10000 psi chart for a 5M BOP/BOPE and on a 15000 psi chart for a 10M BOP/BOPE. If a linear chart is used, it shall be a one hour chart. A circular chart shall have a maximum 2 hour clock. If a twelve hour or twenty-four hour chart is used, tester shall make a notation that it is run with a two hour clock.

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

e. All tests are required to be recorded on a calibrated test chart. **A copy of the BOP/BOPE test chart and a copy of independent service company test will be submitted to the appropriate BLM office.**

f. The BOP/BOPE test shall include a low pressure test from 250 to 300 psi. The test will be held for a minimum of 10 minutes if test is done with a test plug and 30 minutes without a test plug. This test shall be performed prior to the test at full stack pressure.

D. DRILL STEM TEST

If drill stem tests are performed, Onshore Order 2.III.D shall be followed.

E. WASTE MATERIAL AND FLUIDS

All waste (i.e. drilling fluids, trash, salts, chemicals, sewage, gray water, etc.) created as a result of drilling operations and completion operations shall be safely contained and disposed of properly at a waste disposal facility. No waste material or fluid shall be disposed of on the well location or surrounding area.

Porto-johns and trash containers will be on-location during fracturing operations or any other crew-intensive operations.

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VIII. PRODUCTION (POST DRILLING)

A. WELL STRUCTURES & FACILITIES

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

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

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

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

Containment Structures
Proposed production facilities such as storage tanks and other vessels will have a secondary containment structure that is constructed to hold the capacity of 1.5 times the

largest tank, plus freeboard to account for precipitation, unless more stringent protective requirements are deemed necessary.

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

IX. INTERIM RECLAMATION

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

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

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

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

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

X. FINAL ABANDONMENT & RECLAMATION

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

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

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

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

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

SEED MIXTURE LPC (SAND/SHINNERY LOCATIONS)

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

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

Species to be planted in pounds of pure live seed* per acre (note: if broadcasting seed, amounts are to be doubled):

Species	**Pound/acre**
Plains Bristlegrass (*Setaria macrostachya)*	5
Sand Bluestem (*Andropogon hallii)*	5
Little Bluestem (*Schizachyrium scoparium)*	3
Big Bluestem (*Andropogon gerardii)*	6
Plains Coreopsis (*Coreopsis tinctoria)*	2
Sand Dropseed (*Sporobolus cryptandrus)*	1
Four-winged Saltbush** (*Atriplex canescens*)	5

** Four-winged Saltbush can be used around well pads and other areas where caliche cannot be removed

* Pounds of pure live seed = (Pounds of seed) x (Percent purity) x (Percent germination)