AFS-12-1027

R-111-POTASH

Form 3160-3
(August 2007)

OCD Artesia

FORM APPROVED
OMB No. 1004-0137
Expires July 31, 2010

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

5. Lease Serial No.: NM-114978

6. If Indian, Allotee or Tribe Name: JCS 2/4/2013

1a. Type of work: ☑ DRILL ☐ REENTER

7. If Unit or CA Agreement, Name and No.:

1b. Type of Well: ☑ Oil Well ☐ Gas Well ☐ Other ☑ Single Zone ☐ Multiple Zone

8. Lease Name and Well No.: ROADRUNNER FEDERAL #2H <38717>

2. Name of Operator: STRATA PRODUCTION COMPANY <21712>

9. API Well No.: 30-015-41041

3a. Address: PO DRAWER 1030, ROSWELL, NM 88202

3b. Phone No. (include area code): 575-622-1127

10. Field and Pool, or Exploratory: FORTY NINER RIDGE DELAWARE <24150>

4. Location of Well (Report location clearly and in accordance with any State requirements.*)

At surface: 1220' FNL & 660' FWL

At proposed prod. zone: 330' FSL & 2062' FWL

11. Sec., T. R. M. or Blk. and Survey or Area: SEC. 25, T23S-R30E

14. Distance in miles and direction from nearest town or post office*: ~14 MILES EAST OF LOVING, NM

12. County or Parish: EDDY

13. State: NM

15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any): 330' FOR BOTTOM HOLE

16. No. of acres in lease: 960

17. Spacing Unit dedicated to this well: 160

18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft.: 829' ROADRUNNER FED #1

19. Proposed Depth: PILOT 7885' MD & TVD, LAT. 11542' MD 7735' TVD

20. BLM/BIA Bond No. on file: NM 1538

21. Elevations (Show whether DF, KDB, RT, GL, etc.): 3310' GL

22. Approximate date work will start*: 12/01/2012

23. Estimated duration: 30 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: Frank Morgan — Name (Printed/Typed): FRANK MORGAN — Date: 7-30-12

Title: VICE PRESIDENT

Approved by (Signature): /s/ Aden L. Seidlitz — Name (Printed/Typed): — Date: JAN 25 2013

Title: STATE DIRECTOR — Office: NM STATE 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)

Approval Subject to General Requirements & Special Stipulations Attached

Carlsbad Controlled Water Basin

SEE ATTACHED FOR CONDITIONS OF APPROVAL

District I
1625 N. French Dr., Hobbs, NM 88240
District II
1301 W. Grand Avenue, Artesia, NM 88210
District III
1000 Rio Brazos Rd., Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

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

Form C-102
Revised October 12, 2005
Submit to Appropriate District Office
State Lease - 4 Copies
Fee Lease - 3 Copies

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number	Pool Code	Pool Name
30-015-41041	24750	FORTY NINER RIDGE DELAWARE

Property Code	Property Name	Well Number
38771	Roadrunner Federal	2 H

OGRID No.	Operator Name	Elevation
21712	Strata Production Company, Inc.	3310

10 Surface Location

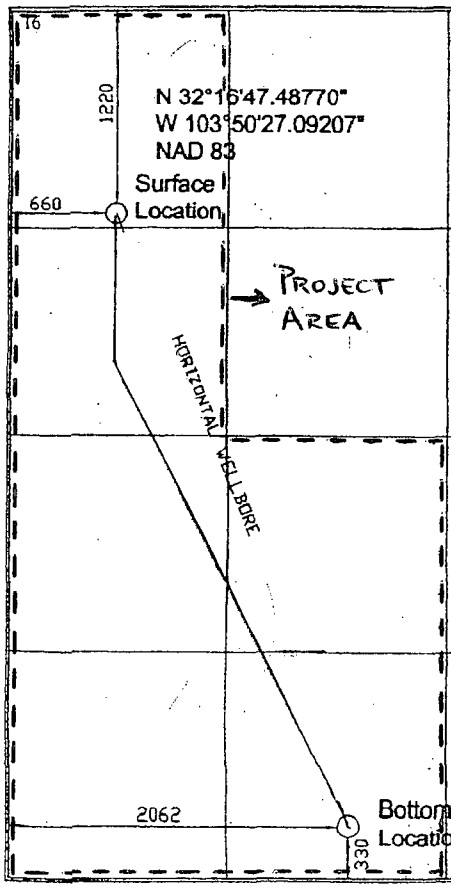
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
D	25	23s	30e		1220	North	660	West	Eddy

11 Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
N	25	23s	30e		330	South	2062	West	Eddy

12 Dedicated Acres	13 Joint or Infill	14 Consolidation Code	15 Order No.
240			25 11452

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 7-30-12 Date

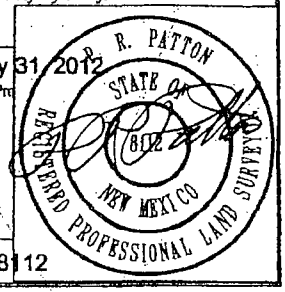
FRANK MORGAN
Printed Name

18 SURVEYOR CERTIFICATION

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.

Date of Survey May 31, 2012

Signature and Seal of Pr



Certificate Number 8112

POST OFFICE DRAWER 1030
ROSWELL, NM 88202-1030

STRATA PRODUCTION COMPANY

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

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

OPERATOR CERTIFICATION

I hereby certify that I, or someone under my direct supervision, has inspected the drill site and access route proposed herein; that I am familiar with the conditions which currently exist; that I have full knowledge of state and Federal laws applicable to this operation; that the statements made in this APD package are, to the best of my knowledge, true and correct; and that the work associated with the operations proposed herein will be performed in conformity with this APD package and the terms and conditions under which it is approved. I also certify that I, or Strata Production Company, am responsible for the operations conducted under this application. These statements are subject to the provisions of 18 U.S.C. 1001 for the filing of false statements.

EXECUTED THIS 30 DAY OF July, 2012

BY: _____
Frank Morgan

TITLE: Vice President

ADDRESS: Strata Production Company
PO Drawer 1030
Roswell, NM 88202-1030
575-622-1127

FIELD REPRESENTATIVE (If not above signatory) _____

ADDRESS (If different than above) _____

TELEPHONE (If different than above) _____

Agents not directly employed by the operator must submit a letter from the operator authorizing that agent to act or file this application on their behalf.

POST OFFICE DRAWER 1030
ROSWELL, NM 88202-1030

STRATA PRODUCTION COMPANY

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

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

July 30, 2012

Mr. Dan Morehouse
Mine Engineering Superintendent
Mosaic Potash Carlsbad, Inc
PO Box 71
Carlsbad, NM 88220

Re: Application to Drill in Potash Area
Roadrunner Federal #2 H
Section 25-23S-30E
Eddy County, NM

Dear Mr. Morehouse,

In accordance with the State of New Mexico Oil Conservation Division Rule R-111-P, enclosed herewith please find the following for your review and further action:

1. Form 3160-3 Application For Permit To Drill
2. Form C-102 Well Location and Acreage Dedication Plat

State of New Mexico Public Land records reflect Mosaic Potash Carlsbad, Inc ("Mosaic") as potash lessee in the area of the captioned lands. Strata Production Company ("Strata"), a New Mexico Corporation, hereby advises you of its intention to drill the subject well at a location of 1220' FNL & 660' FWL of Section 25, T23S-R30E, Eddy County, New Mexico.

We have already met and discussed this location and if you are in agreement that drilling at the proposed location will not interfere with potash operations, please sign and return one copy of this letter within 30 days of receipt.

Please contact me if you have any questions or require additional information.

Regards,

Mitch Krakauskas
Land Coordinator

AGREED TO AND ACCEPTED THIS _____ DAY OF _____, 2012

BY: _____ TITLE: _____

cc: Bureau of Land Management, Carlsbad, NM

Attachment to Exhibit "C"

STATUS OF WELLS WITHIN ONE MILE RADIUS

ROADRUNNER FEDERAL #2
Section 25-23S-30E
1220' FNL & 660' FWL
Eddy County, NM

Operator	Well	Location	Status/Formation
Cimarex Energy	Forty Niner Ridge Fed #1H	Sec 23, 23S-30E 330' FSL & 600' FEL	Drilling/Bone Spring
Cimarex Energy	Forty Niner Ridge Fed #2H	Sec 23, 23S-30E 390' FSL & 1980' FEL	Proposed/Bone Spring
Strata Production Co	Sandy #1	Sec 24, 23S-30E 1980' FNL & 660' FWL	Producing/Delaware
Strata Production Co	Sandy Federal #2	Sec 24, 23S-30E 1979' FNL & 585' FWL	Proposed/Delaware
Strata Production Co	Sandy Federal #3	Sec 24, 23S-30E 330' FSL & 330' FWL	Drilling/Delaware
Cimarex Energy	Sandy Federal #20H	Sec 24, 23S-30E 2114' FNL & 592'FWL	Proposed/Bone Spring
Strata Production Co	Roadrunner Federal #1	Sec 25, 23S-30E 460' FNL & 330' FWL	Producing/Delaware
Strata Production Co	Roadrunner Federal #2	Sec 25, 23S-30E 1220' FNL & 660' FWL	Proposed/Delaware
Chesapeake Operating, Inc	Los Medanos 36 23 30 State 1H	Sec 36, 23S-30E 150' FNL & 660' FWL	Producing/Bone Spring

HOLE PROGNOSIS
FORM 3160-3 APPLICATION FOR PERMIT TO DRILL
STRATA PRODUCTION COMPANY
Roadrunner Federal #2H
1220' FNL & 660' FWL
SECTION 25-23S-30E
EDDY COUNTY, NEW MEXICO

In conjunction with Form 3160-3, Application for Permit to Drill, Deepen, or Plug Back, Strata Production Company submits the following items in accordance with Onshore Oil and Gas Order Numbers 1 and 2, and all other applicable federal and state regulations.

1. Geologic Name of Surface Formation:

Permian

2. Estimated Tops:

	TVD	MD
Rustler	200'	200'
Salado	500'	500'
Castile	2325'	2325'
Delaware	3910'	3910'
Bone Spring	7785'	7785'
KOP - curve	7238'	7238'
EOC	7715'	7978'
TD Pilot Hole*	7885'	7885'
TD Lateral	7735'	11542'

*The well will be drilled to a total depth not to exceed 7885' (100' in the Bone Spring formation), logged, and then a kickoff plug for the horizontal lateral will be set.

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

Surface	150'	Fresh Water
Delaware	3870' - TD	Oil or 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 ~330' and circulating cement back to surface. Potash will be protected by setting 9 5/8" casing at ~3860' and circulating cement back to surface. The Delaware pay intervals will be isolated by the kickoff plug and by setting 7" casing at the EOC at ~7978' and cementing back to surface. A 6 1/8" lateral hole will be drilled to TD and a 4 1/2" liner will be run for completion and cemented. The top of the 4 1/2" liner will be set approximately 100' above the KOP of the curve at 7138'.

4. Casing Program:

See COA

Hole Size	Depth	OD Csg	Weight, Grade, Collars, New/Used
17 1/2"	0 - ~~330'~~ 350	13 3/8"	48#, H-40, STC, New
12 1/4"	0 - 3860'	9 5/8"	40#, J-55, STC, New
8 3/4"	0 - 7978'	7 "	26#, HCP-110, LTC/BTC, New
6 1/8"	7138-11542'	4 1/2"	11.6#, HCP-110, BTC, New

On the 7" casing BTC will be run through the curve from 7238' - 7978'.
Minimum Casing Design Factors: Collapse 1.125, Burst 1.0, Joint Strength 1.8

Cementing Program:

Pilot Hole:
The pilot hole will be cemented from 7885' to ~6735' with 968 sacks Class H Cement + 0.1% bwoc ASA-301 + 0.2% bwoc R-3 + 0.8% bwoc CD-32 + 0.005% bwoc Static Free + 1 gals/100 sack FP-6L + 33.1% Fresh Water. Yield .99 ft3/sk. Calculated with 100% excess.

Surface Casing:
13 3/8" casing will be set at ~330' and cemented with 341 sacks Class C + .005 lbs/sack Static Free + 2% bwoc Calcium Cl + 1 gal/100 sack FP-6L + 56.3% Fresh Water. 14.8 density, 1.34 yield, 6.34 gal/sk H2O. Calculated with 100% excess. Cement in sufficient quantities to circulate to surface will be utilized.

Intermediate Casing:
9 5/8" casing will be set at ~3860' with a DV tool at 2000' and cemented with 1st stage lead of 450 sacks of 35/65 Ppz/C + 5%PF44(BWOW) + 6%PF20 + 3#/skPF42+ 1%PF1 + .125#/skPF29 + .25#/skPF46. Density 12.6, yield 2.06, 10.97 gal/sk H2O. 1st stage tail of 200sks C +.2%PF13. Density 14.8, yield 1.33, 6.35 gal/sk H2O. 2nd stage lead of 575sks 35/65 Ppz/C +5%PF44(BWOW) +6%PF20 +3#/skPF42 +1%PF1 +.125#/skPF29 +.25#/skPF46. Density 12.6, yield 2.07, 11.01 gal/sk H2O. 2nd stage tail of 100sks C +.2%PF13. Density 14.8, Yield 1.33, 6.35 gal/sk H2O. Calculated with 100% excess. Cement in sufficient quantity to circulate to surface will be utilized

Intermediate Casing:
7" casing will be set through the curve at ~7978' and cemented with 621 sacks lead (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% bwow Sodium Chloride + 5 lbs/sack CM-1 + 0.125 lbs/sack Cello Flake + 1 gals/100 sack FP-6L. 12.5 density, 2.12 yield, 11.1 gal/sk H2O. 200 sacks tail of 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, 1.18 yield, 5.21 gal/sk H2O. Calculated with 50% excess. Cement in sufficient quantity to circulate to surface will be utilized.

Production Casing:
4 1/2" casing will be run from 7138' to TD and cemented with 216 sacks lead (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% bwow Sodium Chloride + 5 lbs/sack LCM-1 + 0.005 lbs/sack Static Free + 1 gals/100 sack FP-6L + 0.125 lbs/sack Cello Flake + 106.5% Fresh Water. 12.5 density, 2.12 yield, 11.1 gal/sk H2O. 200 sacks tail 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, 1.18 yield, 5.21 gal/sk H2O. Calculated with 50% excess.

5. Minimum Specifications for Pressure Control:

The blowout preventer equipment (BOP) shown in Exhibit "A" will consist of a double ram-type (3000 psi WP) preventer and a bag-type (hydril) preventer (3000 psi WP). Both units will be hydraulically operated and the ram-type preventer will be equipped with blind rams on top and 4 1/2" drill pipe rams on bottom. Both BOP's will be nippled up on the 13 3/8" surface casing and used continuously until TD is reached. Before drilling out of surface casing, the ram-type BOP and accessory equipment will be tested to 250 psi low and 3000 psi high and the hydril 250 psi low and 70% of rated working pressure (2100 psi).

Pipe rams will be operationally checked each 24 hour period. Blind rams will be operationally checked on each trip out of the hole. These checks will be noted on the daily tour sheets. A 2" kill line and 3" choke line will be included in the drilling spool located below the ram-type BOP. Other accessories to the BOP equipment will include a kelly cock and floor safety valve (inside BOP) and choke lines and choke manifold with 3000 psi WP rating.

6. Proposed Mud System:

See Attached Detailed Summary

7. Auxiliary Well Control and Monitoring Equipment:

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.

8. Testing, Logging and Coring Program: See COA

Two (2) man Mudlogging unit from 9 5/8" intermediate casing to TD and DLL-MSFL, CNL-Density, Gamma Ray, Caliper.

Mudlogging unit will be employed from approximately 3860' 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 eighteen (18) 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 blow out 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 BLM. The anticipated spud date is Dec 1, 2012. Once commenced, the drilling operation should be finished in approximately 25 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.

Drilling Fluid Summary

Strata Production Company

Roadrunner Federal #2

Hole Size	Depth (feet)	Density (lb/gal)	Viscosity (sec/qt)	YP (lb/100ft²)	API FL (ml/30min)	Cl⁻ (mg/L)	pH	Solids (% vol)
17 1/2"	0' - 330'	8.5 - 8.7	30 - 34	4 - 6	NC	< 6,000	9.0 - 10.0	< 5
Set 13 3/8" Surface Casing								
12 1/4"	330' - 3860'	9.7 - 10.1	29 - 32	1 - 2	NC	160 - 180 K	10.0 - 10.5	< 5
Set 9 5/8" Casing								
8 3/4"	3860' - 7978'	8.8 - 9.2	28 - 30	1 - 2	NC	60 - 110 K	10.0 - 10.5	< 5
Set 7" Casing								
6 1/8"	7978' - 11542'	9.1 - 9.5	34 - 38	6 - 10	8 - 10	80 - 120 K	10.0 - 10.5	< 5
Set 4 1/2" Production Liner								

1. Spud in with fresh water spud mud to 250' containing **Anco Gel** with a viscosity of 30 - 34 sec/qt. Add 1 sack **Drill Paper** every connection. Mix **Lime** for a 9.0 - 10.0 pH. At TD, sweep the hole with 100 bbls of premixed **Anco Gel** with a 45 - 50 sec/qt viscosity prior to tripping out of the hole, to ensure a clean well bore before running casing.
2. After setting 13 3/8" surface casing, drill out with native brine. Mix **Lime** to control the pH at 10.0 - 10.5. Add 1 gallon **Anco Drill N** at the flow line every 90' drilled. Add 1 sack **Drill Paper** every other connection for added hole cleaning and seepage control. Sweep the hole with 50 bbl **Anco Salt Gel** sweeps with a viscosity of 40 - 60 sec/qt every 250' drilled for hole cleaning. At interval TD, sweep the hole with 100 bbl **Anco Salt Gel** with viscosity of 60 - 80 sec/qt prior to POH to ensure a clean well bore to run intermediate casing.
3. After setting 9 5/8" intermediate casing, drill out with cut brine. Mix **Lime** for 10.0 - 10.5 pH. Add 1 gallon **Anco Drill N** at flow line every 90' drilled. Add 1 sack **Drill Paper** every other connection for seepage control. Sweep the hole with 50 bbl **Anco Salt Gel** sweeps with a viscosity of 40 - 60 sec/qt every 250' drilled. At interval TD, circulate a 100 bbls **Anco Salt Gel** sweep with viscosity of 60 - 80 sec/qt to ensure a clean well bore prior to running casing.
4. After setting 7" casing and prior to drilling the lateral interval, build 9.1 - 9.5 lb/gal **Anco Zan / Starch** system in steel pits with cut brine, **Anco Zan**, **Anco Starch White**, and **Caustic Soda**. Mix **Anco Zan** for a viscosity of 34 - 38 sec/qt and Yield Point of 6 - 10 lb/100ft². Mix **Anco Starch White** API filtrate control of 8 - 10 ml/30 min. Mix **Caustic Soda** to control pH at 10.0 - 10.5. Add **WT-22** at 5 gallons per 100 bbls active drilling fluid for control of bacteria. Sweep the hole every 250' drilled with 50 bbls active fluid containing 10 - 15 lb/bbl **Walnut Hulls (M)** or 25 gallons **Tork Buster Plus**. Jet the **Shale Pit** every 4 hours or as needed to control solids concentration and fluid density. Circulate to move cuttings above BHA prior to connections to reduce packing off and/or stuck pipe. Prior to trips, circulate at least bottoms up to clean hole.
5. At TD, pump a low viscosity sweep, followed by a high viscosity sweep, and circulate for minimum of three hours prior to tripping out of the hole for logging and casing operations.

Mud weights for guidelines only, allow hole conditions to dictate actual mud weights

Anchor Drilling Fluids USA, Inc.

P. O. Box 61310
Midland, Texas 79711-1310

Strata Production Co.

Eddy County New Mexico (NAD83)
Sec 25, T23S, R30E
Roadrunner Federal #2 H

Wellbore #1

Plan: Design #2

DDC Well Planning Report

13 July, 2012

The DIRECTIONAL DRILLING COMPANY

Database:	EDM 5000.1 Single User Db	**Local Co-ordinate Reference:**	Well Roadrunner Federal #2
Company:	Strata Production Co.	**TVD Reference:**	WELL @ 3327.0usft
Project:	Eddy County New Mexico (NAD83)	**MD Reference:**	WELL @ 3327.0usft
Site:	Sec 25, T23S, R30E	**North Reference:**	Grid
Well:	Roadrunner Federal #2	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #2		

Project	Eddy County New Mexico (NAD83)		
Map System:	US State Plane 1983	**System Datum:**	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site	Sec 25, T23S, R30E				
Site Position:		**Northing:**	465,894.40 usft	**Latitude:**	32° 16' 47.488 N
From:	Lat/Long	**Easting:**	693,533.99 usft	**Longitude:**	103° 50' 27.092 W
Position Uncertainty:	0.0 usft	**Slot Radius:**	13-3/16 "	**Grid Convergence:**	0.26 °

Well	Roadrunner Federal #2					
Well Position	**+N/-S**	0.0 usft	**Northing:**	465,894.40 usft	**Latitude:**	32° 16' 47.488 N
	+E/-W	0.0 usft	**Easting:**	693,533.99 usft	**Longitude:**	103° 50' 27.092 W
Position Uncertainty		0.0 usft	**Wellhead Elevation:**		**Ground Level:**	3,310.0 usft

Wellbore	Wellbore #1				
Magnetics	**Model Name**	**Sample Date**	**Declination (°)**	**Dip Angle (°)**	**Field Strength (nT)**
	IGRF2010	7/6/2012	7.58	60.17	48,515

Design	Design #2				
Audit Notes:					
Version:		**Phase:**	PLAN	**Tie On Depth:**	0.0
Vertical Section:	**Depth From (TVD) (usft)**	**+N/-S (usft)**	**+E/-W (usft)**	**Direction (°)**	
	0.0	0.0	0.0	159.40	

Plan Sections

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
7,237.6	0.00	0.00	7,237.6	0.0	0.0	0.00	0.00	0.00	0.00	
7,978.5	88.91	180.00	7,715.0	-468.4	0.0	12.00	12.00	0.00	180.00	
8,447.8	88.91	155.12	7,724.0	-923.0	100.3	5.30	0.00	-5.30	-90.24	
9,551.8	88.91	155.12	7,745.0	-1,924.4	564.6	0.00	0.00	0.00	0.00	2000' VS
9,621.9	90.31	155.12	7,745.5	-1,987.9	594.1	2.00	2.00	0.00	-0.11	
11,542.4	90.31	155.12	7,735.0	-3,730.2	1,402.0	0.00	0.00	0.00	0.00	PBHL Roadrunner I

Database:	EDM 5000.1 Single User Db	**Local Co-ordinate Reference:**	Well Roadrunner Federal #2
Company:	Strata Production Co.	**TVD Reference:**	WELL @ 3327.0usft
Project:	Eddy County New Mexico (NAD83)	**MD Reference:**	WELL @ 3327.0usft
Site:	Sec 25, T23S, R30E	**North Reference:**	Grid
Well:	Roadrunner Federal #2	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #2		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
Build 12° / 100'									
7,237.6	0.00	0.00	7,237.6	0.0	0.0	0.0	0.00	0.00	0.00
7,300.0	7.49	180.00	7,299.8	-4.1	0.0	3.8	12.00	12.00	0.00
7,400.0	19.49	180.00	7,396.9	-27.4	0.0	25.6	12.00	12.00	0.00
7,500.0	31.49	180.00	7,487.0	-70.3	0.0	65.8	12.00	12.00	0.00
7,600.0	43.49	180.00	7,566.2	-131.1	0.0	122.7	12.00	12.00	0.00
7,700.0	55.49	180.00	7,631.0	-206.9	0.0	193.7	12.00	12.00	0.00
7,800.0	67.49	180.00	7,678.7	-294.7	0.0	275.8	12.00	12.00	0.00
7,900.0	79.49	180.00	7,707.1	-390.4	0.0	365.4	12.00	12.00	0.00
End of Curve / 88.91° Inc / 180° Azm / Turn 5.30° / 100'									
7,978.5	88.91	180.00	7,715.0	-468.4	0.0	438.4	12.00	12.00	0.00
8,000.0	88.91	178.86	7,715.4	-489.9	0.2	458.6	5.30	-0.02	-5.30
8,100.0	88.89	173.56	7,717.3	-589.6	6.8	554.3	5.30	-0.02	-5.30
8,200.0	88.88	168.26	7,719.3	-688.3	22.6	652.2	5.30	-0.01	-5.30
8,300.0	88.89	162.96	7,721.2	-785.1	47.4	751.6	5.30	0.00	-5.30
8,400.0	88.90	157.66	7,723.1	-879.2	81.1	851.5	5.30	0.01	-5.30
End of Turn 155.12° Azm									
8,447.8	88.91	155.12	7,724.0	-923.0	100.3	899.2	5.30	0.02	-5.30
8,500.0	88.91	155.12	7,725.0	-970.3	122.2	951.3	0.00	0.00	0.00
8,600.0	88.91	155.12	7,726.9	-1,061.0	164.3	1,051.0	0.00	0.00	0.00
8,700.0	88.91	155.12	7,728.8	-1,151.7	206.3	1,150.7	0.00	0.00	0.00
8,800.0	88.91	155.12	7,730.7	-1,242.4	248.4	1,250.4	0.00	0.00	0.00
8,900.0	88.91	155.12	7,732.6	-1,333.1	290.5	1,350.1	0.00	0.00	0.00
9,000.0	88.91	155.12	7,734.5	-1,423.9	332.5	1,449.8	0.00	0.00	0.00
9,100.0	88.91	155.12	7,736.4	-1,514.6	374.6	1,549.5	0.00	0.00	0.00
9,200.0	88.91	155.12	7,738.3	-1,605.3	416.6	1,649.2	0.00	0.00	0.00
9,300.0	88.91	155.12	7,740.2	-1,696.0	458.7	1,748.9	0.00	0.00	0.00
9,400.0	88.91	155.12	7,742.1	-1,786.7	500.7	1,848.6	0.00	0.00	0.00
9,500.0	88.91	155.12	7,744.0	-1,877.4	542.8	1,948.3	0.00	0.00	0.00
2000' VS / Build 2° / 100'									
9,551.8	88.91	155.12	7,745.0	-1,924.4	564.6	2,000.0	0.00	0.00	0.00
9,600.0	89.88	155.12	7,745.5	-1,968.1	584.9	2,048.0	2.00	2.00	0.00
End of Build 90.31° Inc									
9,621.9	90.31	155.12	7,745.5	-1,987.9	594.1	2,069.8	2.00	2.00	0.00
9,700.0	90.31	155.12	7,745.0	-2,058.8	626.9	2,147.8	0.00	0.00	0.00
9,800.0	90.31	155.12	7,744.5	-2,149.5	669.0	2,247.5	0.00	0.00	0.00
9,900.0	90.31	155.12	7,744.0	-2,240.2	711.1	2,347.2	0.00	0.00	0.00
10,000.0	90.31	155.12	7,743.4	-2,331.0	753.1	2,446.9	0.00	0.00	0.00
10,100.0	90.31	155.12	7,742.9	-2,421.7	795.2	2,546.6	0.00	0.00	0.00
10,200.0	90.31	155.12	7,742.3	-2,512.4	837.3	2,646.4	0.00	0.00	0.00
10,300.0	90.31	155.12	7,741.8	-2,603.1	879.3	2,746.1	0.00	0.00	0.00
10,400.0	90.31	155.12	7,741.2	-2,693.8	921.4	2,845.8	0.00	0.00	0.00
10,500.0	90.31	155.12	7,740.7	-2,784.6	963.5	2,945.5	0.00	0.00	0.00
10,600.0	90.31	155.12	7,740.1	-2,875.3	1,005.5	3,045.2	0.00	0.00	0.00
10,700.0	90.31	155.12	7,739.6	-2,966.0	1,047.6	3,144.9	0.00	0.00	0.00
10,800.0	90.31	155.12	7,739.0	-3,056.7	1,089.7	3,244.7	0.00	0.00	0.00
10,900.0	90.31	155.12	7,738.5	-3,147.4	1,131.8	3,344.4	0.00	0.00	0.00
11,000.0	90.31	155.12	7,738.0	-3,238.2	1,173.8	3,444.1	0.00	0.00	0.00
11,100.0	90.31	155.12	7,737.4	-3,328.9	1,215.9	3,543.8	0.00	0.00	0.00
11,200.0	90.31	155.12	7,736.9	-3,419.6	1,258.0	3,643.5	0.00	0.00	0.00
11,300.0	90.31	155.12	7,736.3	-3,510.3	1,300.0	3,743.3	0.00	0.00	0.00
11,400.0	90.31	155.12	7,735.8	-3,601.0	1,342.1	3,843.0	0.00	0.00	0.00
11,500.0	90.31	155.12	7,735.2	-3,691.7	1,384.2	3,942.7	0.00	0.00	0.00

Database:	EDM 5000.1 Single User Db	**Local Co-ordinate Reference:**	Well Roadrunner Federal #2
Company:	Strata Production Co.	**TVD Reference:**	WELL @ 3327.0usft
Project:	Eddy County New Mexico (NAD83)	**MD Reference:**	WELL @ 3327.0usft
Site:	Sec 25, T23S, R30E	**North Reference:**	Grid
Well:	Roadrunner Federal #2	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #2		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
TD @ 11542' MD / 7735' TVD									
11,542.2	90.31	155.12	7,735.0	-3,730.0	1,401.9	3,984.8	0.00	0.00	0.00
11,542.4	90.31	155.12	7,735.0	-3,730.2	1,402.0	3,985.0	0.00	0.00	0.00

Design Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
PBHL Roadrunner Fe - plan hits target center - Point	0.00	0.01	7,735.0	-3,730.2	1,402.0	462,164.20	694,935.99	32° 16' 10.511 N	103° 50' 10.962 W
2000' VS - plan hits target center - Point	0.00	0.01	7,745.0	-1,924.4	564.6	463,970.00	694,098.59	32° 16' 28.419 N	103° 50' 20.619 W

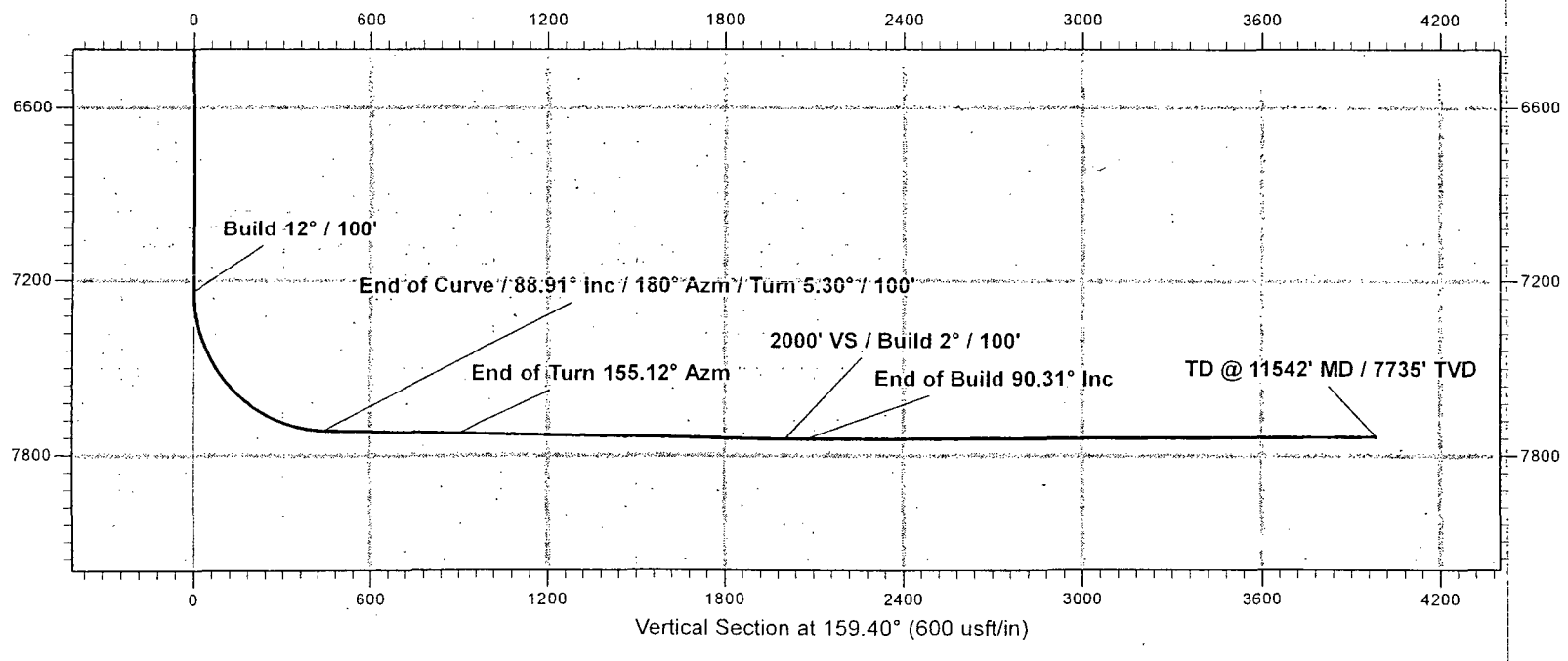
Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates +N/-S (usft)	Local Coordinates +E/-W (usft)	Comment
7,237.6	7,237.6	0.0	0.0	Build 12° / 100'
7,978.5	7,715.0	-468.4	0.0	End of Curve / 88.91° Inc / 180° Azm / Turn 5.30° / 100'
8,447.8	7,724.0	-923.0	100.3	End of Turn 155.12° Azm
9,551.8	7,745.0	-1,924.4	564.6	2000' VS / Build 2° / 100'
9,621.9	7,745.5	-1,987.9	594.1	End of Build 90.31° Inc
11,542.2	7,735.0	-3,730.0	1,401.9	TD @ 11542' MD / 7735' TVD

Strata Production

The DIRECTIONAL DRILLING COMPANY

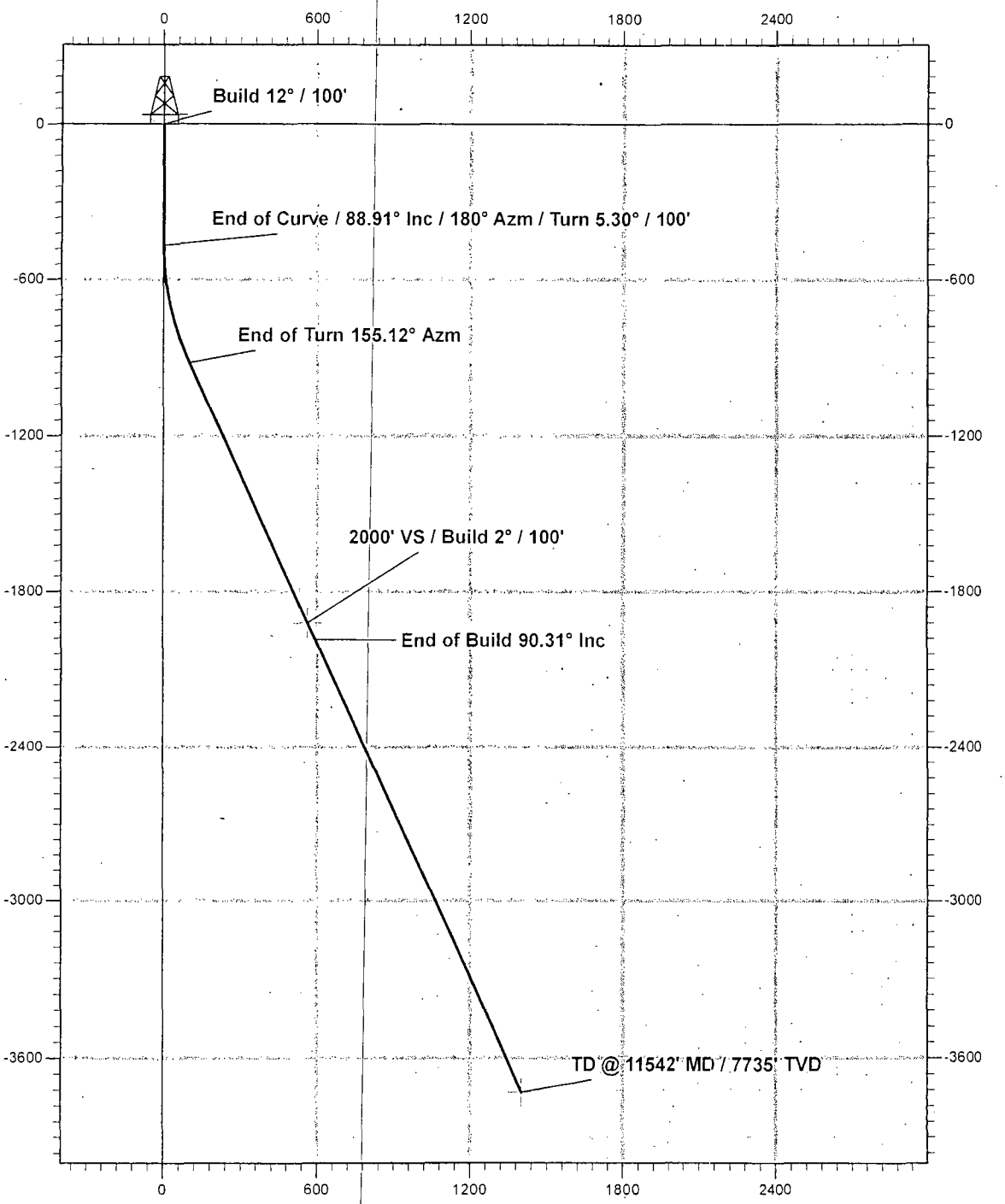
Eddy County New Mexico (NAD83)
Roadrunner Federal #2 H
Quote 120500
Design #2

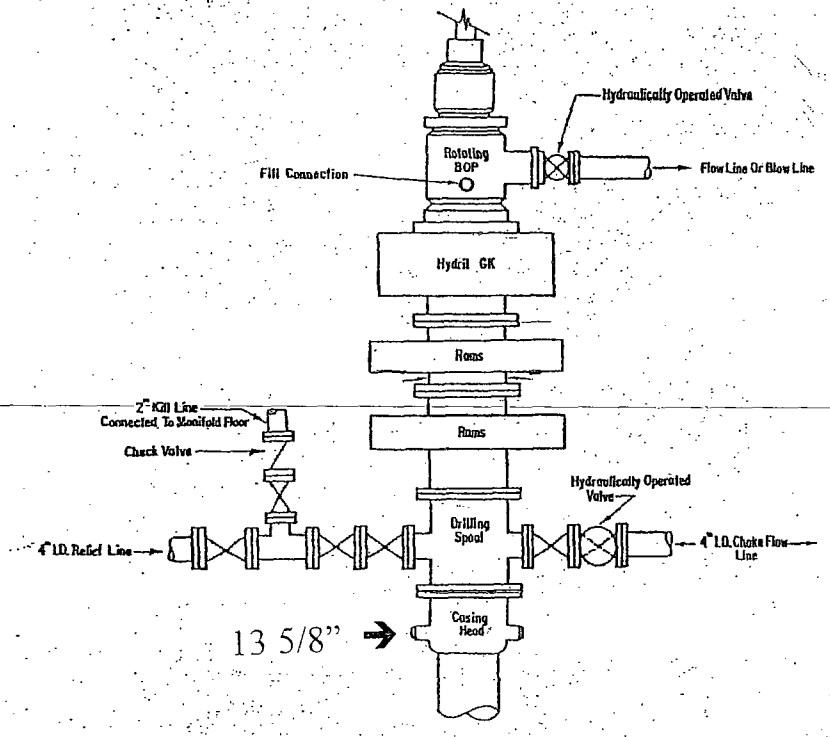


Strata Production

Eddy County New Mexico (NAD83)
Roadrunner Federal #2 H
Quote 120500
Design #2

The DIRECTIONAL DRILLING COMPANY





3000# PSI WORKING PRESSURE
BLOWOUT PREVENTER HOOK-UP

The blowout preventer assembly shall consist of one single type blind ram preventer and one single type pipe ram preventer, both hydraulically operated; a Hydril "GK" preventer; a rotating blowout preventer; valves; chokes and connections, as illustrated. If a tapered drill string is used, a ram preventer must be provided for each size of drill pipe. Casing and tubing rams to fit the preventers are to be available as needed. If correct in size, the flanged outlets of the ram preventer may be used for connecting to the 4-inch I.D. choke flow line and 4-inch I.D. relief line, except when air or gas drilling. All preventer connections are to be open-face flanged.

Minimum operating equipment for the preventers and hydraulically operated valves shall be as follows: (1)Multiple pumps, driven by a continuous source of power, capable of fluid charging the total accumulator volume from the nitrogen precharge pressure to its rated pressure within_____ minutes. Also, the pumps are to be connected to the hydraulic operating system which is to be a closed system. (2) Accumulators with a precharge of nitrogen of not less than 750 PSI and connected so as to receive the aforementioned fluid charge. With the charging pumps shut down, the pressurized fluid volume stored in the accumulators must be sufficient to close all the pressure-operated devices simultaneously within_____ seconds; after closure, the remaining accumulator pressure shall be not less than 1000 PSI with the remaining accumulator fluid volume at least_____ percent of the original. (3) When requested, an additional source of power, remote and equivalent, is to be available to operate the above pumps; or there shall be additional pumps operated by separate power and equal in performance capabilities.

The closing manifold and remote closing manifold shall have a separate control for each pressure-operated device. Controls are to be labeled, with control handles indicating open and closed positions. A pressure reducer and regulator must be provided for operating the Hydril preventer. When requested, a second pressure reducer shall be available to limit operating fluid pressures to ram preventers. Gulf Legion No. 38 hydraulic oil, an equivalent or better, is to be used as the fluid to operate the hydraulic equipment.

The choke manifold, choke flow line, relief line, and choke lines are to be supported by metal stands and adequately anchored. The choke flow line, relief line, and choke lines shall be constructed as straight as possible and without sharp bends. Easy and safe access is to be maintained to the choke manifold. If deemed necessary, walkways and stairways shall be erected in and around the choke manifold. All valves are to be selected for operation in the presence of oil, gas, and drilling fluids. The choke flow line valves and relief line valves connected to the drilling spool and all ram type preventers must be equipped with stem extensions, universal joints if needed, and hand wheels which are to extend beyond the edge of the derrick substructure. All other valves are to be equipped with handles.

* To include derrick floor mounted controls.

EXHIBIT "A"

BLOWOUT PREVENTER EQUIPMENT DESCRIPTION

All equipment should be at least 3,000 psi WP or higher unless otherwise specified.

1. Bell nipple
2. Hydril bag type preventer
3. Ram type pressure operated blowout preventer with blind rams.
4. Flanged spool with one 3"and one 2"(minimum) outlet.
5. 2"(minimum) flanged plug or gate valve.
6. 2"x 2"x 2"(minimum) flanged.
7. 3"gate valve.
8. Ram type pressure operated blowout preventer with pipe rams.
9. Flanged type casing head with one side outlet.
10. 2" threaded (or flanged) plug or gate valve. Flanged on 5000# WP, threaded on 3000# WP or less.
11. 3" flanged spacer spool.
12. 3"x 2"x 2"x 2" flanged cross.
13. 2" flanged plug or gate valve.
14. 2" flanged adjustable choke.
15. 2" threaded flange.
16. 2" XXH nipple.
17. 2" forged steel 90`Ell.
18. Cameron (or equal) threaded pressure gauge.
19. Threaded flange.
20. 2" flanged tee.
21. 2" flanged plug or gate valve.
22. 2 1/2" pipe, 300' to pit, anchored.
23. 2 1/2" SE valve.
24. 2 1/2" line to steel pit or separator.

NOTES:

1). Items 3,4 and 8 may be replaced with double ram type preventer with side outlets between the rams.
2). The two valves next tho the stack on the fill and kill line to be closed unless drill string is being pulled.
3). Kill line is for emergency use only. This connection shall not be used for filling.
4). Replacement pipe rams and blind rams shall be on location at all times.
5). Only type U, LSW and QRC ram type preventers with secondary seals are acceptable for 5000 psi WP and higher BOP stacks.
6). Type E ram-type BOP's with factory modified side outlets may be used on 3000 psi or lower WP BOP stacks.

Drilling Operations
Choke Manifold

EXHIBIT A-2

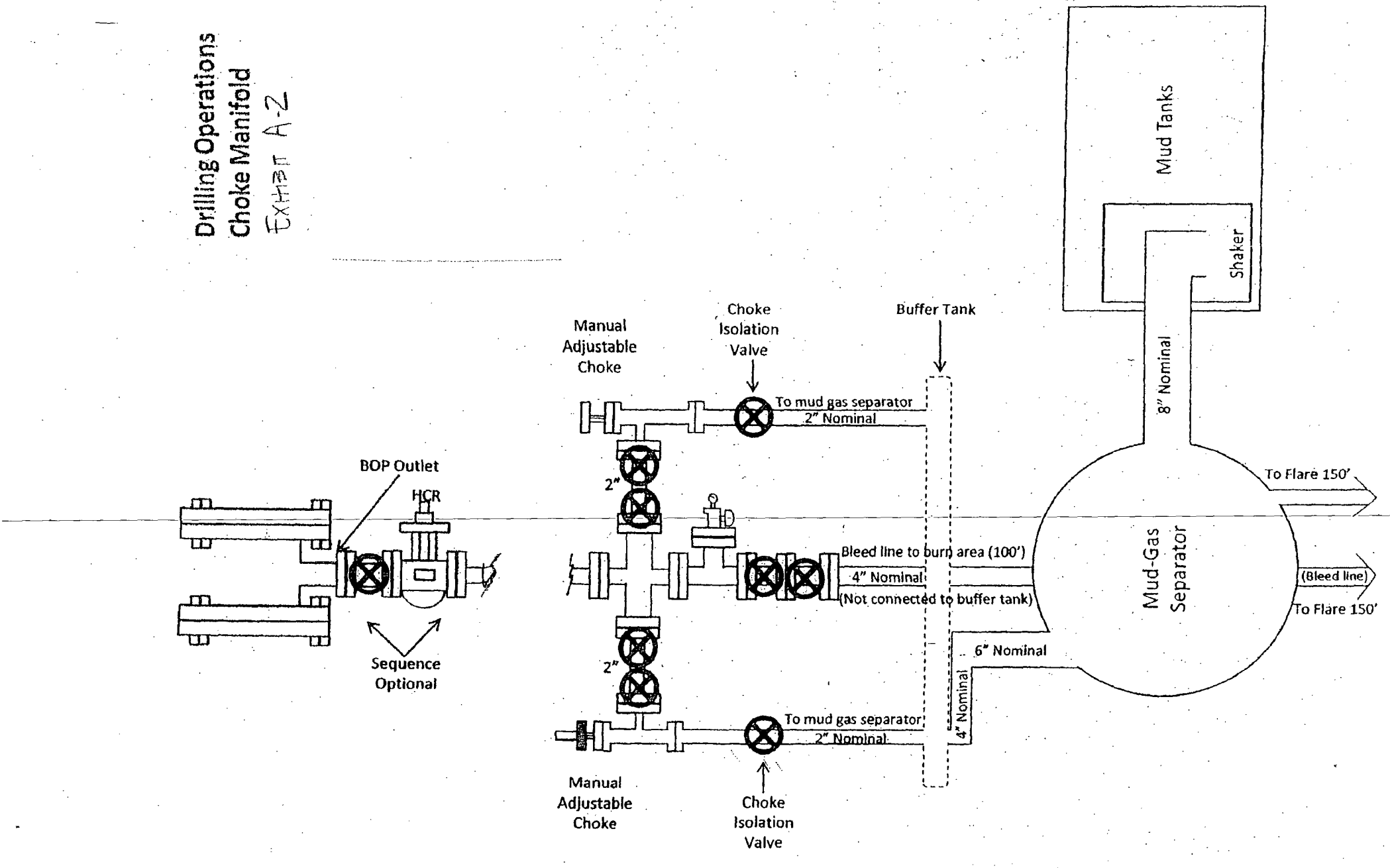
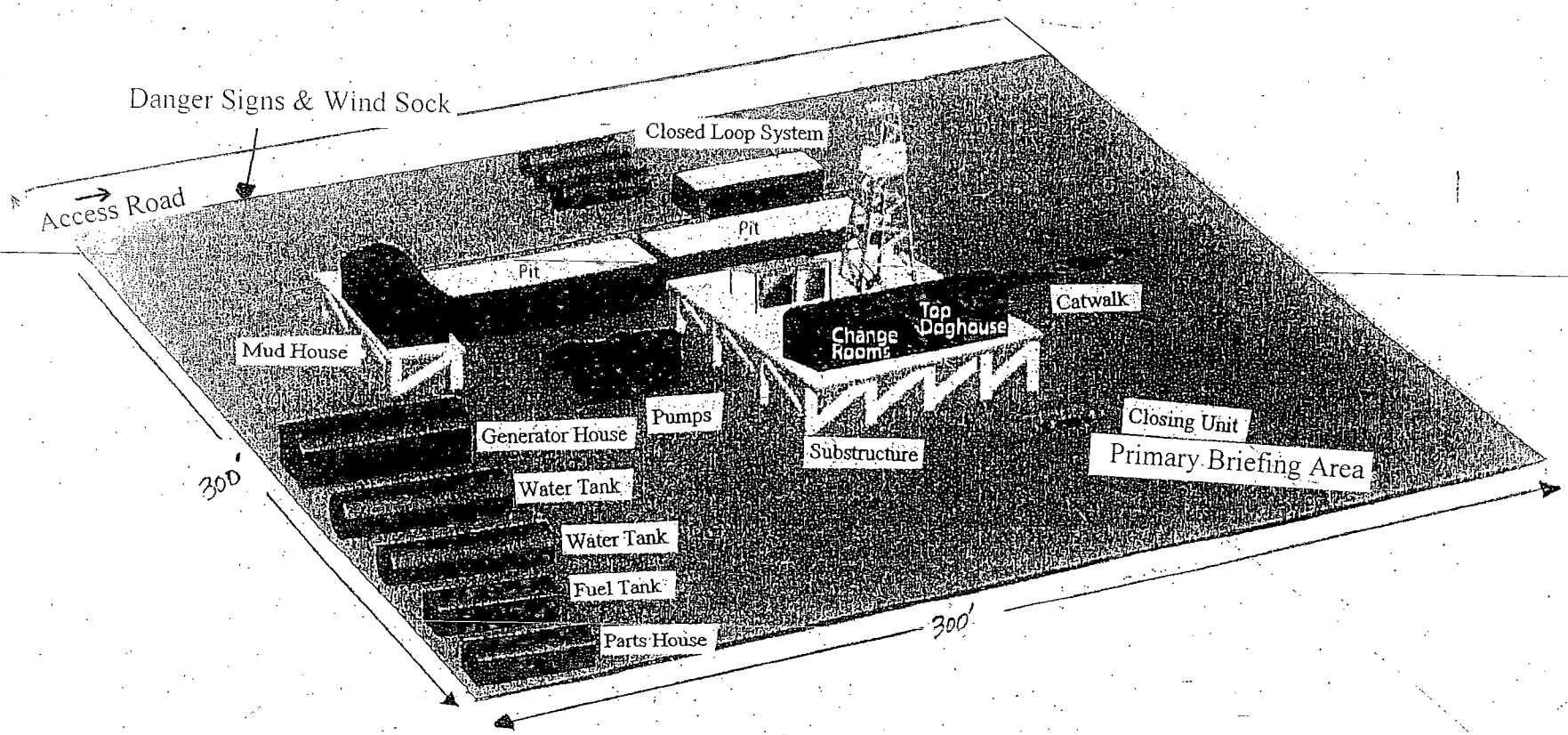


EXHIBIT "D" ROADRUNNER FEDERAL #2

TYPICAL WELL SITE LAYOUT PLAN
SILVEROAK DRILLING



Prevailing Winds From South

Location Size with Closed Loop System
300' Deep x 300' Wide

~150' from front of location to hole

~150' from left of location to hole

STRATA PRODUCTION COMPANY

H_2S DRILLING OPERATIONS PLAN

I. HYDROGEN SULFIDE TRAINING

A. All contractors and subcontractors employed by Strata Production Company will receive or have received training from a qualified instructor within the last twelve months in the following areas prior to commencing drilling operations on the well.

1. The hazards and characteristics of hydrogen sulfide (H_2S).
2. Safety precautions.
3. Operations of safety equipment and life support systems.

B. In addition, contractor supervisory personnel will be trained or prepared in the following areas:

1. The effect of H_2S on metal components in the system. If high tensile tubulars are to be used, personnel will be trained in their special maintenance requirements.
2. Corrective action and shut-down procedures when drilling or reworking a well, blowout prevention and well control procedures, if the nature of work performed involves these items.
3. The contents and requirements of the contingency plan when such plan is required.

C. All personnel will be required to carry documentation of the above training on their person.

II. H_2S EQUIPMENT AND SYSTEMS

A. SAFETY EQUIPMENT

The following safety equipment will be on location.

1. Wind direction indicators as seen in attached diagram.
2. Automatic H_2S detection alarm equipment both audio and visual.

3. Clearly visible warning signs as seen on the attached diagram. Signs will use the words "POISON GAS" and "CAUTION" with a strong color contrast.
4. Protective breathing equipment will be located in the dog house and at briefing areas as seen in the attached Diagram.

B. WELL CONTROL SYSTEMS

1. Blowout Prevention Equipment

   Equipment includes but is not limited to:

   a. Pipe rams to accommodate all pipe sizes.
   b. Blind rams.
   c. Choke manifold.
   d. Closing unit.

2. Communication

   a. The rig contractor will be required to have two-way communication capability. Strata Production Company will have either land-line or mobile telephone capabilities.

3. Mud Program

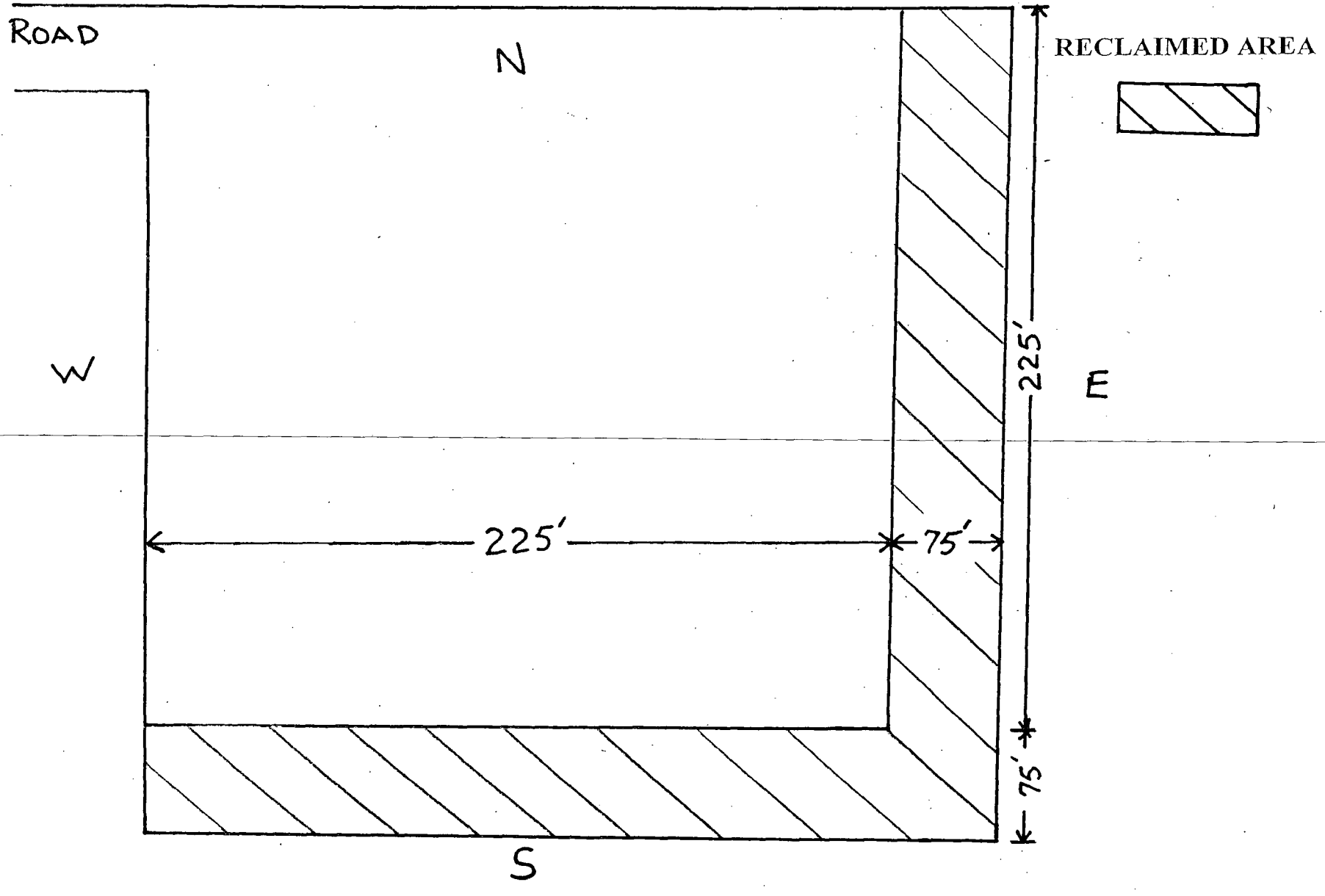
   a. The mud program has been designed to minimize the volume of H_2S circulated to surface. Proper mud weight, safe drilling practices and the use of H_2S scavengers, when appropriate, will minimize hazards when penetrating H_2S bearing zones.

4. Drill Stem Test intervals are as follows:

   a. None planned

EXHIBIT D-1

ROADRUNNER FEDERAL #2
PROPOSED INTERIM RECLAMATION PLAN



PECOS DISTRICT
CONDITIONS OF APPROVAL

OPERATOR'S NAME:	STRATA PRODUCTION
LEASE NO.:	NM114978
WELL NAME & NO.:	2H ROADRUNNER FEDERAL
SURFACE HOLE FOOTAGE:	1220'/N. & 660'/W.
BOTTOM HOLE FOOTAGE	330'/S. & 2062'/W.
LOCATION:	Section 25, T. 23 S., R. 30 E., NMPM
COUNTY:	Eddy County, New Mexico

TABLE OF CONTENTS

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

- ☐ **General Provisions**
- ☐ **Permit Expiration**
- ☐ **Archaeology, Paleontology, and Historical Sites**
- ☐ **Noxious Weeds**
- ☒ **Special Requirements**
  - Lesser Prairie-Chicken Timing Stipulations
  - Ground-level Abandoned Well Marker
  - Cave/Karst
  - Well Plat
- ☐ **Construction**
  - Notification
  - Topsoil
  - Closed Loop System
  - Federal Mineral Material Pits
  - Well Pads
  - Roads
- ☐ **Road Section Diagram**
- ☒ **Drilling**
  - High Cave/Karst
  - Logging Requirements
  - R-111-Potash
  - Waste Material and Fluids
- ☐ **Production (Post Drilling)**
  - Well Structures & Facilities
  - Pipelines
  - Electric Lines
- ☐ **Interim Reclamation**
- ☐ **Final Abandonment & Reclamation**