

District I
1625 N. French Dr., Hobbs, NM 88240
Phone: (575) 393-6161 Fax: (575) 393-0720

District II
811 S. First St., Artesia, NM 88210
Phone: (575) 748-1283 Fax: (575) 748-9720

District III
1000 Rio Brazos Road, Aztec, NM 87410
Phone: (505) 334-6178 Fax: (505) 334-6170

District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505
Phone: (505) 476-3460 Fax: (505) 476-3462

State of New Mexico

Form C-101
Revised November 14, 2012

Energy Minerals and Natural Resources

Oil Conservation Division

1220 South St. Francis Dr.

Santa Fe, NM 87505

☐ AMENDED REPORT

RECEIVED

JUN 07 2013

NMOCD ARTESIA

APPLICATION FOR PERMIT TO DRILL, RE-ENTER, DEEPEN, PLUGBACK, OR ADD A ZONE

¹ Operator Name and Address LEGEND NATURAL GAS III, LP 15021 KATY FREEWAY, SUITE 200 HOUSTON, TX 77094		² OGRID Number 258894
		³ API Number 30-015- 41429
⁴ Property Code 39939	⁵ Property Name STATE GQ	⁶ Well No. 4H

7. Surface Location

UL - Lot	Section	Township	Range	Lot Idn	Feet from	N/S Line	Feet From	E/W Line	County
B	7	25S	28E		200	NORTH	1805	EAST	EDDY

8. Proposed Bottom Hole Location

UL - Lot	Section	Township	Range	Lot Idn	Feet from	N/S Line	Feet From	E/W Line	County
O	7	25S	28E		330	SOUTH	2260	EAST	EDDY

9. Pool Information

Pool Name	Pool Code
HAY HOLLOW; BONE SPRING, NORTH	30216

Additional Well Information

¹¹ Work Type N	¹² Well Type O	¹³ Cable/Rotary R	¹⁴ Lease Type S	¹⁵ Ground Level Elevation 3054' GR
¹⁶ Multiple N	¹⁷ Proposed Depth 7900'TVD, 12700'MD	¹⁸ Formation BONE SPRING	¹⁹ Contractor	²⁰ Spud Date UPON ARRIVAL
Depth to Ground water <133'		Distance from nearest fresh water well 3196' E OF WINDMILL		Distance to nearest surface water 1180'S OF NAMELESS DRAW

21. Proposed Casing and Cement Program

Type	Hole Size	Casing Size	Casing Weight/ft	Setting Depth	Sacks of Cement	Estimated TOC
SURFACE	17.5	13.375	48	400'TVD	445	SURFACE
INTERMED.	12.25	9.625	36	2500'TVD	655	SURFACE
PROD.	7.785	5.5	17	7900TVD&12700MD	2380	SURFACE

Casing/Cement Program: Additional Comments

LEAD 740 SXS; TAIL 1640 SXS

22. Proposed Blowout Prevention Program

Type	Working Pressure	Test Pressure	Manufacturer

²³ I hereby certify that the information given above is true and complete to the best of my knowledge and belief. I further certify that I have complied with 19.15.14.9 (A) NMAC ☐ and/or 19.15.14.9 (B) NMAC ☐ if applicable. Signature: <i>Jennifer Mosley</i>		OIL CONSERVATION DIVISION Approved By: <i>T. C. Shepard</i> Title: <i>Geologist</i> Approved Date: <i>6/7/2013</i> Expiration Date: <i>6/7/2015</i>	
Printed name: JENNIFER MOSLEY			
Title: SR. REGULATORY ANALYST			
E-mail Address: jmosley@lng2.com			
Date:	Phone: 817-872-7822	Conditions of Approval Attached	

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Phone (505) 478-3460 Fax: (505) 478-3462

State of New Mexico
Energy, Minerals and Natural Resources Department

Form C-102
Revised August 1, 2011

Submit one copy to appropriate
District Office

OIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Santa Fe, New Mexico 87505

WELL LOCATION AND ACREAGE DEDICATION PLAT

☐ AMENDED REPORT

API Number 30-015-41429	Pool Code 30216	Pool Name
Property Code 39939	Property Name STATE GQ	Well Number 4H
OGRID No.	Operator Name LEGEND NATURAL GAS III, L.P.	Elevation 3054'

Surface Location

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
B	7	25 S	28 E		200	NORTH	1805	EAST	EDDY

Bottom Hole Location If Different From Surface

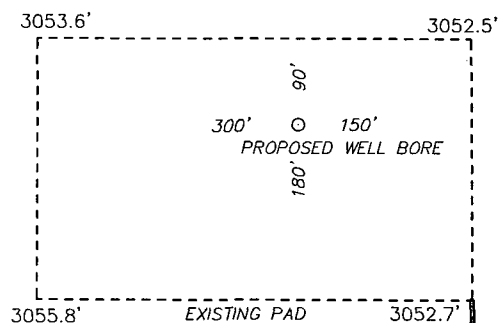
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
O	7	25 S	28 E		330	SOUTH	2260	EAST	EDDY

Dedicated Acres	Joint or Infill	Consolidation Code	Order No.

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

N: 419078.7 E: 602558.3 SURFACE LOCATION Lat - N 32°09'04.82" Long - W 104°07'27.27" NMSPCE- N 418855.5 E 606046.4 (NAD-83)		N: 419061.1 E: 605213.6 N: 419044.9 E: 607848.3 3053.6' 3052.5' 200' 1805' 3055.8' 3052.7'	
N: 413766.6 E: 602589.3 N: 413774.8 E: 605255.9 330'		N: 416413.4 E: 607883.1 2260' 28660'	
PROPOSED BOTTOM HOLE LOCATION Lat - N 32°08'17.83" Long - W 104°07'31.96" NMSPCE- N 414105.8 E 605652.6 (NAD-83)			
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. <i>[Signature]</i> Date 8/15/2013 Signature Jennifer Mosley Printed Name jmosley@lmz.com Email Address			
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 Surveyed 8/15/2013 Signature <i>[Signature]</i> Professional Surveyor 7977 Certificate No. 28660 Certificate No. Gary L. Jones 7977 BASIN SURVEYS 28660			

SECTION 7, TOWNSHIP 25 SOUTH, RANGE 28 EAST, N.M.P.M.,
EDDY COUNTY, NEW MEXICO.

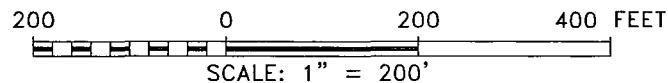


LEGEND NATURAL GAS III, L.P.
STATE GQ #4H
ELEV. - 3054'

Lat - N 32°09'04.82"
Long - W 104°07'27.27"
NMSPC- N 418855.5
E 606046.4
(NAD-83)

PROPOSED LEASE ROAD
500°53'53"W - 338.7'

EXISTING LEASE ROAD



LEGEND NATURAL GAS III, L.P.

REF: STATE GQ #4H / WELL PAD TOPO

THE STATE GQ #4H LOCATED 200'

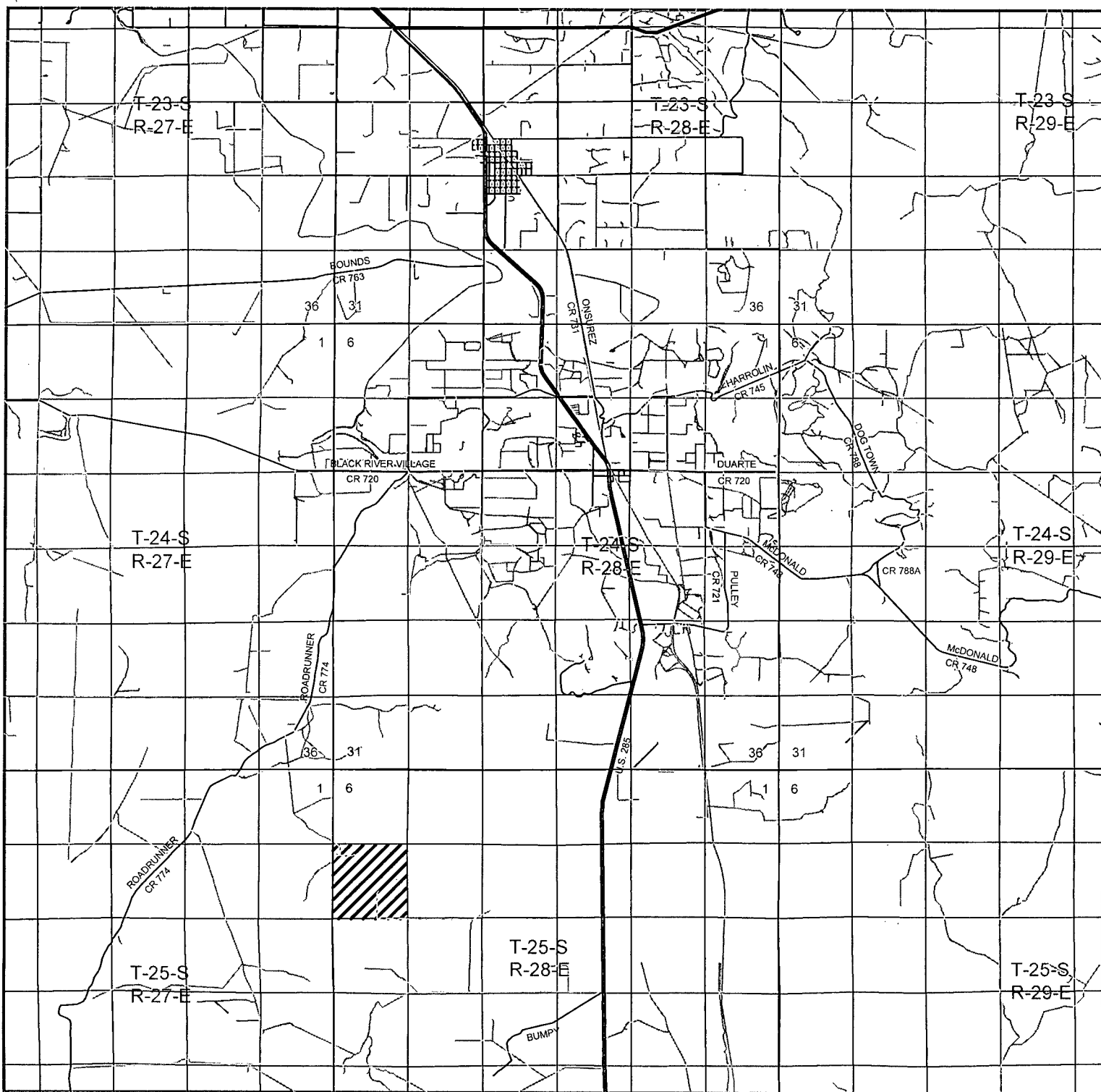
FROM THE NORTH LINE AND 1805' FROM THE EAST LINE OF
SECTION 7, TOWNSHIP 25 SOUTH, RANGE 28 EAST,
N.M.P.M., EDDY COUNTY, NEW MEXICO.

BASIN SURVEYS P.O. BOX 1786-HOBBS, NEW MEXICO

W.O. Number: 28663 Drawn By: J. GOAD

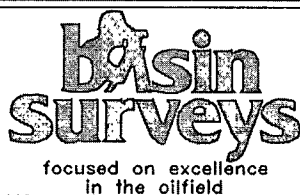
Date: 5-24-2013 Disk: JG - 28663

Survey Date: 5-19-2013 Sheet 1 of 1 Sheets



STATE GQ #4H

Located 200' FNL and 1805' FEL
Section 7, Township 25 South, Range 28 East,
N.M.P.M., Eddy County, New Mexico.



P.O. Box 1786
1120 N. West County Rd.
Hobbs, New Mexico 88241
(575) 393-7316 - Office
(575) 392-2206 - Fax
basinsurveys.com

W.O. Number: JG - 28660

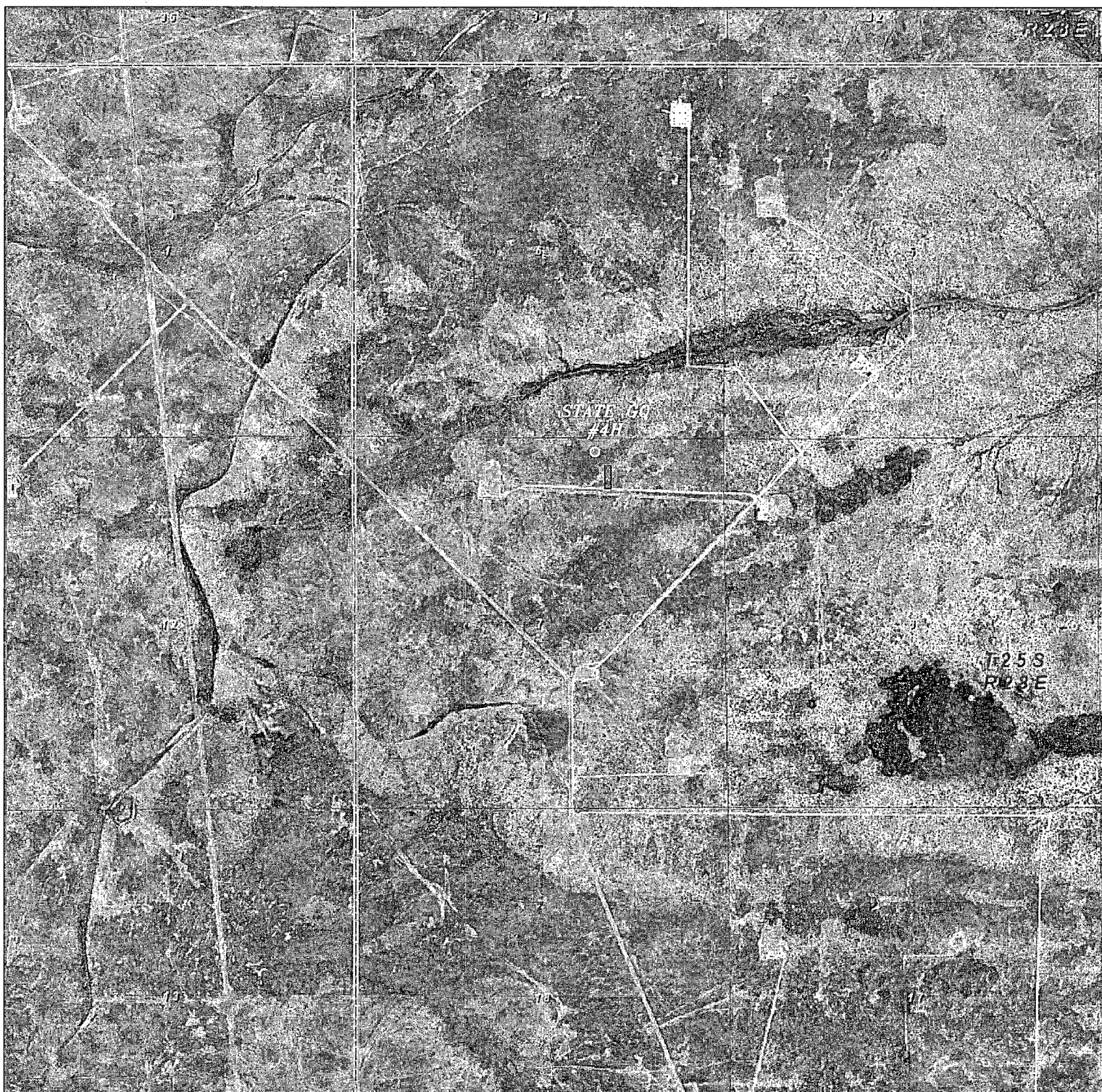
Survey Date: 5-19-2013

Scale: 1" = 2 Miles

Date: 5-24-2013

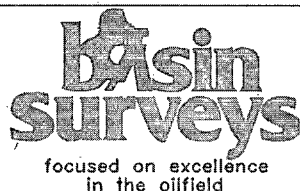


LEGEND
NATURAL GAS
III, L.P.



STATE GQ #4H

Located 200' FNL and 1775' FEL
Section 7, Township 25 South, Range 28 East,
N.M.P.M., Eddy County, New Mexico.



P.O. Box 1786
1120 N. West County Rd.
Hobbs, New Mexico 88241
(575) 393-7316 - Office
(575) 392-2206 - Fax
basinsurveys.com

W.O. Number: JG - 28660

Scale: 1" = 2000'

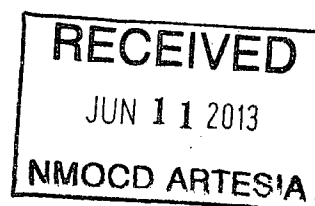
YELLOW TINT - USA LAND
BLUE TINT - STATE LAND
NATURAL COLOR - FEE LAND



LEGEND
NATURAL GAS
III, L.P.



Scientific Drilling



Legend Natural Gas

Eddy County, New Mexico

State GQ

State GQ 4H

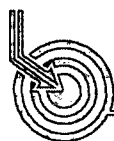
30-015-4429

Original Wellpath

Plan: Plan #1

Standard Planning Report

31 May, 2013



Scientific Drilling



To convert a Magnetic Direction to a Grid Direction, Add 7.48°
To convert a True Direction to a Grid Direction, Subtract 0.11°



GL: 3054.0'

State GQ 4H
Eddy County, New Mexico
Northing: 418855.50
Easting: 606046.40
Plan #1

WELL DETAILS

State GQ 4H

+N/-S	+E/-W	Northing	Ground Level:	Easting	Latitude	Longitude
0.0	0.0	418855.50	3054.0	606046.40	32° 9' 4.822 N	104° 7' 27.275 W

SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSec	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
7245.9	0.00	0.00	7245.9	0.0	0.0	0.00	0.00	0.0	
7745.9	50.00	242.00	7684.8	-96.1	-180.7	10.00	242.00	110.7	
8440.2	90.00	179.30	7940.0	-635.8	-444.4	10.00	-71.65	670.3	
12554.4	90.00	179.30	7940.0	-4749.7	-394.1	0.00	0.00	4766.0	4H PBHL

DESIGN TARGET DETAILS

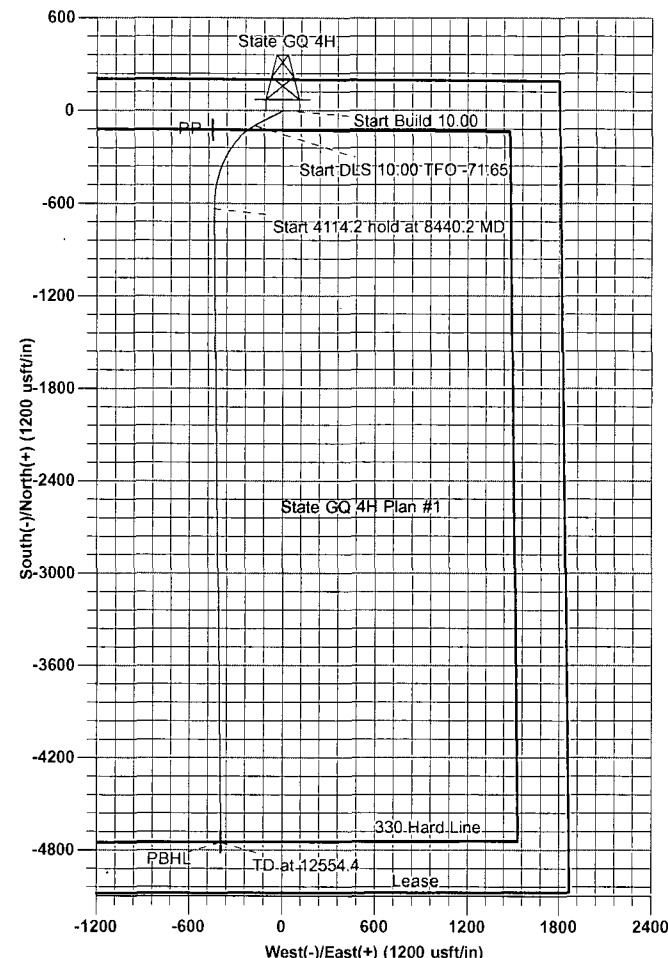
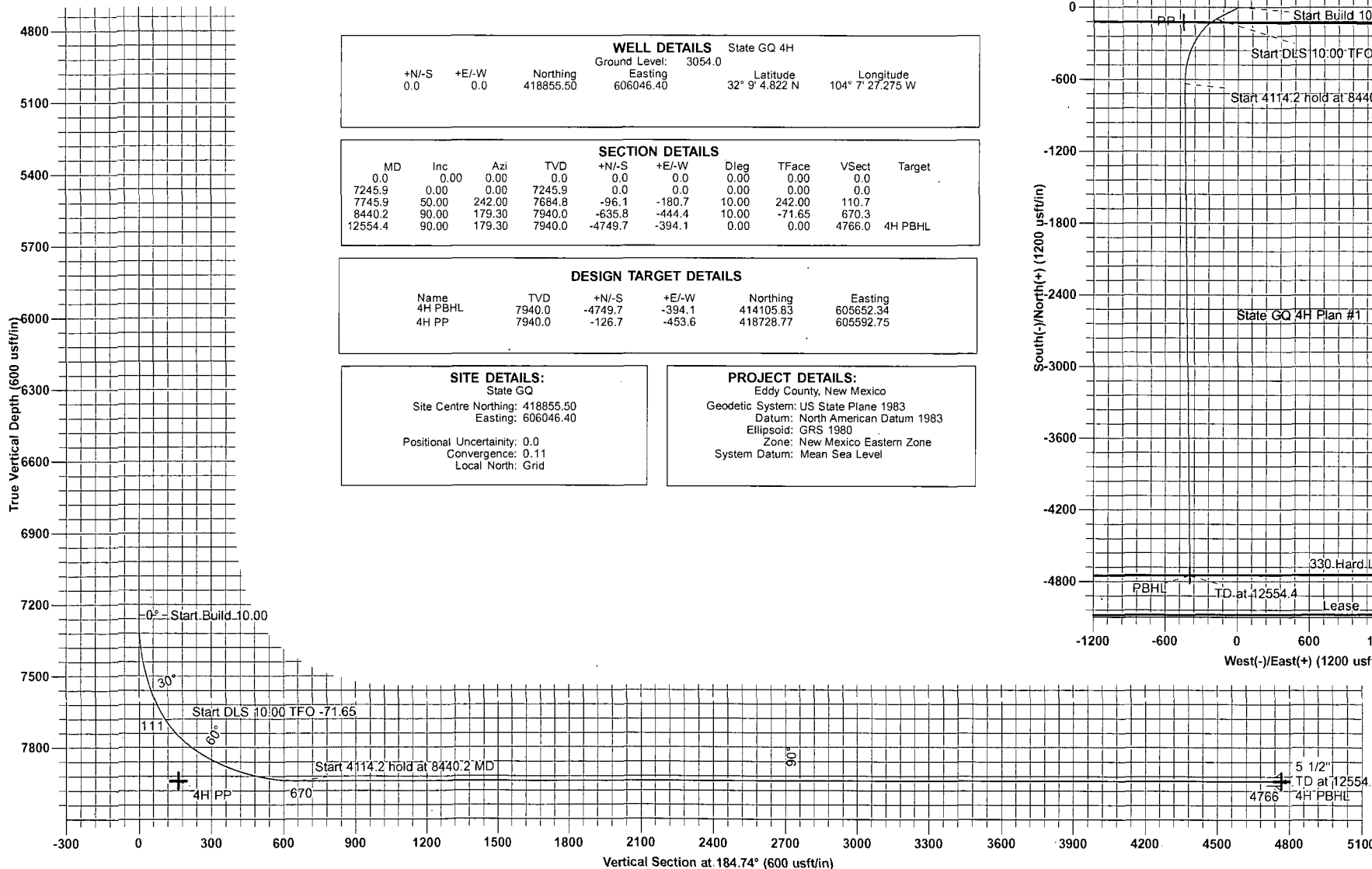
Name	TVD	+N/-S	+E/-W	Northing	Easting
4H PBHL	7940.0	-4749.7	-394.1	414105.83	605652.34
4H PP	7940.0	-126.7	-453.6	418728.77	605592.75

SITE DETAILS:

State GQ
Site Centre Northing: 418855.50
Easting: 606046.40
Positional Uncertainty: 0.0
Convergence: 0.11
Local North: Grid

PROJECT DETAILS:

Eddy County, New Mexico
Geodetic System: US State Plane 1983
Datum: North American Datum 1983
Ellipsoid: GRS 1980
Zone: New Mexico Eastern Zone
System Datum: Mean Sea Level



Jody Barclay
13:31, May 31 2013

Scientific Drilling
2740 N. Highway 287
Decatur, TX 76234

Database:	CompassC	Local Co-ordinate Reference:	Well State GQ 4H
Company:	Legend Natural Gas	TVD Reference:	Gr: @ 3054.0usft (Ground)
Project:	Eddy County, New Mexico	MD Reference:	Gr: @ 3054.0usft (Ground)
Site:	State GQ	North Reference:	Grid
Well:	State GQ 4H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Wellpath		
Design:	Plan #1		

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

Site:	State GQ		
Site Position:		Northing:	418,855.50 usft
From:	Map	Easting:	606,046.40 usft
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 9' 4.822 N
		Longitude:	104° 7' 27.275 W
		Grid Convergence:	0.11 °

Well:	State GQ 4H		
Well Position	+N/-S	0.0 usft	Northing:
	+E/-W	0.0 usft	Easting:
Position Uncertainty	0.0 usft	Wellhead Elevation:	
		Latitude:	32° 9' 4.822 N
		Longitude:	104° 7' 27.275 W
		Ground Level:	3,054.0 usft

Wellbore:	Original Wellpath		
Magnetics	Model Name	Sample Date	Declination
			(°)
	IGRF2010	5/31/2013	7.59
			Dip Angle
			(°)
			Field Strength
			(nT)
			48,319

Design:	Plan #1		
Audit Notes:			
Version:	Phase:	PROTOTYPE	Tie On Depth:
			0.0
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W
	(usft)	(usft)	(usft)
	0.0	0.0	0.0
			Direction
			(°)
			184.74

Plan Sections:										
Measured	Inclination	Azimuth	Vertical	+N/-S	+E/-W	Dogleg	Build	Turn	TFO	Target
Depth	(°)	(°)	Depth	(usft)	(usft)	Rate	Rate	Rate	(°)	
(usft)			(usft)			(°/100usft)	(°/100usft)	(°/100usft)		
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
7,245.9	0.00	0.00	7,245.9	0.0	0.0	0.00	0.00	0.00	0.00	
7,745.9	50.00	242.00	7,684.8	-96.1	-180.7	10.00	10.00	0.00	242.00	
8,440.2	90.00	179.30	7,940.0	-635.8	-444.4	10.00	5.76	-9.03	-71.65	
12,554.4	90.00	179.30	7,940.0	-4,749.7	-394.1	0.00	0.00	0.00	0.00	4H PBHL

Database:	CompassC	Local Co-ordinate Reference:	Well State GQ 4H
Company:	Legend Natural Gas	TVD Reference:	Gr: @ 3054.0usft (Ground)
Project:	Eddy County, New Mexico	MD Reference:	Gr: @ 3054.0usft (Ground)
Site:	State GQ	North Reference:	Grid
Well:	State GQ 4H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Wellpath		
Design:	Plan #1		

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)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	0.00
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	0.00
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	0.00
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	0.00
450.0	0.00	0.00	450.0	0.0	0.0	0.0	0.00	0.00	0.00
13 3/8"									
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	0.00
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	0.00
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	0.00	0.00
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	0.00
900.0	0.00	0.00	900.0	0.0	0.0	0.0	0.00	0.00	0.00
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	0.00	0.00
1,100.0	0.00	0.00	1,100.0	0.0	0.0	0.0	0.00	0.00	0.00
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.0	0.00	0.00	0.00
1,300.0	0.00	0.00	1,300.0	0.0	0.0	0.0	0.00	0.00	0.00
1,400.0	0.00	0.00	1,400.0	0.0	0.0	0.0	0.00	0.00	0.00
1,500.0	0.00	0.00	1,500.0	0.0	0.0	0.0	0.00	0.00	0.00
1,600.0	0.00	0.00	1,600.0	0.0	0.0	0.0	0.00	0.00	0.00
1,700.0	0.00	0.00	1,700.0	0.0	0.0	0.0	0.00	0.00	0.00
1,800.0	0.00	0.00	1,800.0	0.0	0.0	0.0	0.00	0.00	0.00
1,900.0	0.00	0.00	1,900.0	0.0	0.0	0.0	0.00	0.00	0.00
2,000.0	0.00	0.00	2,000.0	0.0	0.0	0.0	0.00	0.00	0.00
2,100.0	0.00	0.00	2,100.0	0.0	0.0	0.0	0.00	0.00	0.00
2,200.0	0.00	0.00	2,200.0	0.0	0.0	0.0	0.00	0.00	0.00
2,300.0	0.00	0.00	2,300.0	0.0	0.0	0.0	0.00	0.00	0.00
2,400.0	0.00	0.00	2,400.0	0.0	0.0	0.0	0.00	0.00	0.00
2,500.0	0.00	0.00	2,500.0	0.0	0.0	0.0	0.00	0.00	0.00
9 5/8"									
2,600.0	0.00	0.00	2,600.0	0.0	0.0	0.0	0.00	0.00	0.00
2,700.0	0.00	0.00	2,700.0	0.0	0.0	0.0	0.00	0.00	0.00
2,800.0	0.00	0.00	2,800.0	0.0	0.0	0.0	0.00	0.00	0.00
2,900.0	0.00	0.00	2,900.0	0.0	0.0	0.0	0.00	0.00	0.00
3,000.0	0.00	0.00	3,000.0	0.0	0.0	0.0	0.00	0.00	0.00
3,100.0	0.00	0.00	3,100.0	0.0	0.0	0.0	0.00	0.00	0.00
3,200.0	0.00	0.00	3,200.0	0.0	0.0	0.0	0.00	0.00	0.00
3,300.0	0.00	0.00	3,300.0	0.0	0.0	0.0	0.00	0.00	0.00
3,400.0	0.00	0.00	3,400.0	0.0	0.0	0.0	0.00	0.00	0.00
3,500.0	0.00	0.00	3,500.0	0.0	0.0	0.0	0.00	0.00	0.00
3,600.0	0.00	0.00	3,600.0	0.0	0.0	0.0	0.00	0.00	0.00
3,700.0	0.00	0.00	3,700.0	0.0	0.0	0.0	0.00	0.00	0.00
3,800.0	0.00	0.00	3,800.0	0.0	0.0	0.0	0.00	0.00	0.00
3,900.0	0.00	0.00	3,900.0	0.0	0.0	0.0	0.00	0.00	0.00
4,000.0	0.00	0.00	4,000.0	0.0	0.0	0.0	0.00	0.00	0.00
4,100.0	0.00	0.00	4,100.0	0.0	0.0	0.0	0.00	0.00	0.00
4,200.0	0.00	0.00	4,200.0	0.0	0.0	0.0	0.00	0.00	0.00
4,300.0	0.00	0.00	4,300.0	0.0	0.0	0.0	0.00	0.00	0.00
4,400.0	0.00	0.00	4,400.0	0.0	0.0	0.0	0.00	0.00	0.00
4,500.0	0.00	0.00	4,500.0	0.0	0.0	0.0	0.00	0.00	0.00
4,600.0	0.00	0.00	4,600.0	0.0	0.0	0.0	0.00	0.00	0.00
4,700.0	0.00	0.00	4,700.0	0.0	0.0	0.0	0.00	0.00	0.00
4,800.0	0.00	0.00	4,800.0	0.0	0.0	0.0	0.00	0.00	0.00
4,900.0	0.00	0.00	4,900.0	0.0	0.0	0.0	0.00	0.00	0.00
5,000.0	0.00	0.00	5,000.0	0.0	0.0	0.0	0.00	0.00	0.00

Database:	CompassC	Local Co-ordinate Reference:	Well State GQ 4H
Company:	Legend Natural Gas	TVD Reference:	Gr: @ 3054.0usft (Ground)
Project:	Eddy County, New Mexico	MD Reference:	Gr: @ 3054.0usft (Ground)
Site:	State GQ	North Reference:	Grid:
Well:	State GQ 4H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Wellpath		
Design:	Plan #1		

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)
5,100.0	0.00	0.00	5,100.0	0.0	0.0	0.0	0.00	0.00	0.00
5,200.0	0.00	0.00	5,200.0	0.0	0.0	0.0	0.00	0.00	0.00
5,300.0	0.00	0.00	5,300.0	0.0	0.0	0.0	0.00	0.00	0.00
5,400.0	0.00	0.00	5,400.0	0.0	0.0	0.0	0.00	0.00	0.00
5,500.0	0.00	0.00	5,500.0	0.0	0.0	0.0	0.00	0.00	0.00
5,600.0	0.00	0.00	5,600.0	0.0	0.0	0.0	0.00	0.00	0.00
5,700.0	0.00	0.00	5,700.0	0.0	0.0	0.0	0.00	0.00	0.00
5,800.0	0.00	0.00	5,800.0	0.0	0.0	0.0	0.00	0.00	0.00
5,900.0	0.00	0.00	5,900.0	0.0	0.0	0.0	0.00	0.00	0.00
6,000.0	0.00	0.00	6,000.0	0.0	0.0	0.0	0.00	0.00	0.00
6,100.0	0.00	0.00	6,100.0	0.0	0.0	0.0	0.00	0.00	0.00
6,200.0	0.00	0.00	6,200.0	0.0	0.0	0.0	0.00	0.00	0.00
6,300.0	0.00	0.00	6,300.0	0.0	0.0	0.0	0.00	0.00	0.00
6,400.0	0.00	0.00	6,400.0	0.0	0.0	0.0	0.00	0.00	0.00
6,500.0	0.00	0.00	6,500.0	0.0	0.0	0.0	0.00	0.00	0.00
6,600.0	0.00	0.00	6,600.0	0.0	0.0	0.0	0.00	0.00	0.00
6,700.0	0.00	0.00	6,700.0	0.0	0.0	0.0	0.00	0.00	0.00
6,800.0	0.00	0.00	6,800.0	0.0	0.0	0.0	0.00	0.00	0.00
6,900.0	0.00	0.00	6,900.0	0.0	0.0	0.0	0.00	0.00	0.00
7,000.0	0.00	0.00	7,000.0	0.0	0.0	0.0	0.00	0.00	0.00
7,100.0	0.00	0.00	7,100.0	0.0	0.0	0.0	0.00	0.00	0.00
7,200.0	0.00	0.00	7,200.0	0.0	0.0	0.0	0.00	0.00	0.00
7,245.9	0.00	0.00	7,245.9	0.0	0.0	0.0	0.00	0.00	0.00
7,250.0	0.41	242.00	7,250.0	0.0	0.0	0.0	10.00	10.00	0.00
7,300.0	5.41	242.00	7,299.9	-1.2	-2.3	1.4	10.00	10.00	0.00
7,350.0	10.41	242.00	7,349.4	-4.4	-8.3	5.1	10.00	10.00	0.00
7,400.0	15.41	242.00	7,398.1	-9.7	-18.2	11.1	10.00	10.00	0.00
7,450.0	20.41	242.00	7,445.7	-16.9	-31.8	19.5	10.00	10.00	0.00
7,500.0	25.41	242.00	7,491.8	-26.0	-48.9	30.0	10.00	10.00	0.00
7,550.0	30.41	242.00	7,535.9	-37.0	-69.6	42.6	10.00	10.00	0.00
7,600.0	35.41	242.00	7,577.9	-49.8	-93.6	57.3	10.00	10.00	0.00
7,650.0	40.41	242.00	7,617.3	-64.2	-120.7	73.9	10.00	10.00	0.00
7,700.0	45.41	242.00	7,653.9	-80.2	-150.7	92.3	10.00	10.00	0.00
7,745.9	50.00	242.00	7,684.8	-96.1	-180.7	110.7	10.00	10.00	0.00
7,750.0	50.13	241.49	7,687.4	-97.6	-183.5	112.4	10.00	3.18	-12.37
7,800.0	51.89	235.47	7,718.9	-117.9	-216.6	135.4	10.00	3.52	-12.05
7,850.0	53.94	229.75	7,749.1	-142.1	-248.2	162.2	10.00	4.10	-11.44
7,900.0	56.25	224.34	7,777.7	-170.1	-278.2	192.5	10.00	4.62	-10.82
7,950.0	58.78	219.23	7,804.6	-201.5	-306.3	226.1	10.00	5.06	-10.23
8,000.0	61.50	214.39	7,829.5	-236.2	-332.2	262.9	10.00	5.45	-9.67
8,050.0	64.39	209.81	7,852.2	-273.9	-355.8	302.4	10.00	5.77	-9.17
8,100.0	67.41	205.44	7,872.6	-314.4	-377.0	344.5	10.00	6.04	-8.73
8,150.0	70.54	201.27	7,890.6	-357.2	-395.5	388.7	10.00	6.27	-8.35
8,200.0	73.77	197.25	7,905.9	-402.1	-411.1	434.7	10.00	6.45	-8.03
8,250.0	77.07	193.37	7,918.5	-448.8	-423.9	482.3	10.00	6.60	-7.77
8,300.0	80.43	189.59	7,928.3	-496.8	-433.6	531.0	10.00	6.71	-7.56
8,350.0	83.82	185.88	7,935.1	-545.9	-440.3	580.4	10.00	6.79	-7.41
8,400.0	87.24	182.22	7,939.0	-595.6	-443.8	630.3	10.00	6.84	-7.32
8,440.2	90.00	179.30	7,940.0	-635.8	-444.4	670.3	10.00	6.86	-7.28
8,500.0	90.00	179.30	7,940.0	-695.6	-443.6	729.9	0.00	0.00	0.00
8,600.0	90.00	179.30	7,940.0	-795.6	-442.4	829.4	0.00	0.00	0.00
8,700.0	90.00	179.30	7,940.0	-895.6	-441.2	929.0	0.00	0.00	0.00
8,800.0	90.00	179.30	7,940.0	-995.5	-440.0	1,028.5	0.00	0.00	0.00
8,900.0	90.00	179.30	7,940.0	-1,095.5	-438.7	1,128.1	0.00	0.00	0.00

Database:	CompassC	Local Co-ordinate Reference:	Well State GQ 4H
Company:	Legend Natural Gas	TVD Reference:	Gr: @ 3054.0usft (Ground)
Project:	Eddy County, New Mexico	MD Reference:	Gr: @ 3054.0usft (Ground)
Site:	State GQ	North Reference:	Grid
Well:	State GQ 4H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Wellpath		
Design:	Plan #1		

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)
9,000.0	90.00	179.30	7,940.0	-1,195.5	-437.5	1,227.6	0.00	0.00	0.00
9,100.0	90.00	179.30	7,940.0	-1,295.5	-436.3	1,327.2	0.00	0.00	0.00
9,200.0	90.00	179.30	7,940.0	-1,395.5	-435.1	1,426.7	0.00	0.00	0.00
9,300.0	90.00	179.30	7,940.0	-1,495.5	-433.8	1,526.3	0.00	0.00	0.00
9,400.0	90.00	179.30	7,940.0	-1,595.5	-432.6	1,625.8	0.00	0.00	0.00
9,500.0	90.00	179.30	7,940.0	-1,695.5	-431.4	1,725.4	0.00	0.00	0.00
9,600.0	90.00	179.30	7,940.0	-1,795.5	-430.2	1,824.9	0.00	0.00	0.00
9,700.0	90.00	179.30	7,940.0	-1,895.5	-429.0	1,924.5	0.00	0.00	0.00
9,800.0	90.00	179.30	7,940.0	-1,995.5	-427.7	2,024.0	0.00	0.00	0.00
9,900.0	90.00	179.30	7,940.0	-2,095.5	-426.5	2,123.6	0.00	0.00	0.00
10,000.0	90.00	179.30	7,940.0	-2,195.5	-425.3	2,223.1	0.00	0.00	0.00
10,100.0	90.00	179.30	7,940.0	-2,295.4	-424.1	2,322.7	0.00	0.00	0.00
10,200.0	90.00	179.30	7,940.0	-2,395.4	-422.8	2,422.2	0.00	0.00	0.00
10,300.0	90.00	179.30	7,940.0	-2,495.4	-421.6	2,521.7	0.00	0.00	0.00
10,400.0	90.00	179.30	7,940.0	-2,595.4	-420.4	2,621.3	0.00	0.00	0.00
10,500.0	90.00	179.30	7,940.0	-2,695.4	-419.2	2,720.8	0.00	0.00	0.00
10,600.0	90.00	179.30	7,940.0	-2,795.4	-418.0	2,820.4	0.00	0.00	0.00
10,700.0	90.00	179.30	7,940.0	-2,895.4	-416.7	2,919.9	0.00	0.00	0.00
10,800.0	90.00	179.30	7,940.0	-2,995.4	-415.5	3,019.5	0.00	0.00	0.00
10,900.0	90.00	179.30	7,940.0	-3,095.4	-414.3	3,119.0	0.00	0.00	0.00
11,000.0	90.00	179.30	7,940.0	-3,195.4	-413.1	3,218.6	0.00	0.00	0.00
11,100.0	90.00	179.30	7,940.0	-3,295.4	-411.8	3,318.1	0.00	0.00	0.00
11,200.0	90.00	179.30	7,940.0	-3,395.4	-410.6	3,417.7	0.00	0.00	0.00
11,300.0	90.00	179.30	7,940.0	-3,495.4	-409.4	3,517.2	0.00	0.00	0.00
11,400.0	90.00	179.30	7,940.0	-3,595.4	-408.2	3,616.8	0.00	0.00	0.00
11,500.0	90.00	179.30	7,940.0	-3,695.3	-406.9	3,716.3	0.00	0.00	0.00
11,600.0	90.00	179.30	7,940.0	-3,795.3	-405.7	3,815.9	0.00	0.00	0.00
11,700.0	90.00	179.30	7,940.0	-3,895.3	-404.5	3,915.4	0.00	0.00	0.00
11,800.0	90.00	179.30	7,940.0	-3,995.3	-403.3	4,015.0	0.00	0.00	0.00
11,900.0	90.00	179.30	7,940.0	-4,095.3	-402.1	4,114.5	0.00	0.00	0.00
12,000.0	90.00	179.30	7,940.0	-4,195.3	-400.8	4,214.1	0.00	0.00	0.00
12,100.0	90.00	179.30	7,940.0	-4,295.3	-399.6	4,313.6	0.00	0.00	0.00
12,200.0	90.00	179.30	7,940.0	-4,395.3	-398.4	4,413.2	0.00	0.00	0.00
12,300.0	90.00	179.30	7,940.0	-4,495.3	-397.2	4,512.7	0.00	0.00	0.00
12,400.0	90.00	179.30	7,940.0	-4,595.3	-395.9	4,612.3	0.00	0.00	0.00
12,500.0	90.00	179.30	7,940.0	-4,695.3	-394.7	4,711.8	0.00	0.00	0.00
12,554.4	90.00	179.30	7,940.0	-4,749.7	-394.1	4,766.0	0.00	0.00	0.00

5 1/2"

Design Targets									
Target Name	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- hit/miss target	(°)	(°)	(usft)	(usft)	(usft)	(usft)	(usft)		
- Shape									
4H PP	0.00	0.00	7,940.0	-126.7	-453.6	418,728.77	605,592.75	32° 9' 3.577 N	104° 7' 32.554 W
- plan misses target center by 195.2usft at 8025.1usft MD (7841.2 TVD, -254.8 N, -344.4 E)									
- Point									
4H PBHL	0.00	0.00	7,940.0	-4,749.7	-394.1	414,105.83	605,652.34	32° 8' 17.826 N	104° 7' 31.965 W
- plan hits target center									
- Point									

Database:	CompassC	Local Co-ordinate Reference:	Well State GQ 4H
Company:	Legend Natural Gas	TYD Reference:	Gr: @ 3054.0usft (Ground)
Project:	Eddy County, New Mexico	MD Reference:	Gr: @ 3054.0usft (Ground)
Site:	State GQ	North Reference:	Grid
Well:	State GQ 4H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Wellpath		
Design:	Plan #1		

Casing Points.

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
450.0	450.0	13 3/8"	13-3/8	17-1/2
2,500.0	2,500.0	9 5/8"	9-5/8	12-1/4
12,554.4	7,940.0	5 1/2"	5-1/2	8-3/4

Permit Conditions of Approval

API: 30-015-41429

OCD Reviewer	Condition
CSHAPARD	Once the well is spud, to prevent ground water contamination through whole or partial conduits from the surface, the operator shall drill without interruption through the fresh water zone or zones and shall immediately set in cement the water protection string