

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
1800 Rio Bravo Road, Aztec, NM 87410
Phone: (505) 334-6173 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
Energy, Minerals & Natural Resources
OIL CONSERVATION DIVISION
ARTESIA DISTRICT
1220 South St. Francis Dr.
Santa Fe, NM 87505
Form C-102
Revised August 1, 2011
Submit one copy to appropriate
District Office
APR 23 2015

☐ AMENDED REPORT

RECEIVED
WELL LOCATION AND ACREAGE DEDICATION PLAT

1 API Number 30-015-43058	2 Pool Code 96610	3 Pool Name Empire; Glorieta Yeso East
4 Property Code 313320	5 Property Name BOSE IKARD 4 STATE COM	6 Well Number 28H
7 GRID NO. 229137	8 Operator Name COG OPERATING, LLC	9 Elevation 3603'

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	4	17S	29E		280	SOUTH	170	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
P	4	17S	29E		330	SOUTH	330	EAST	EDDY

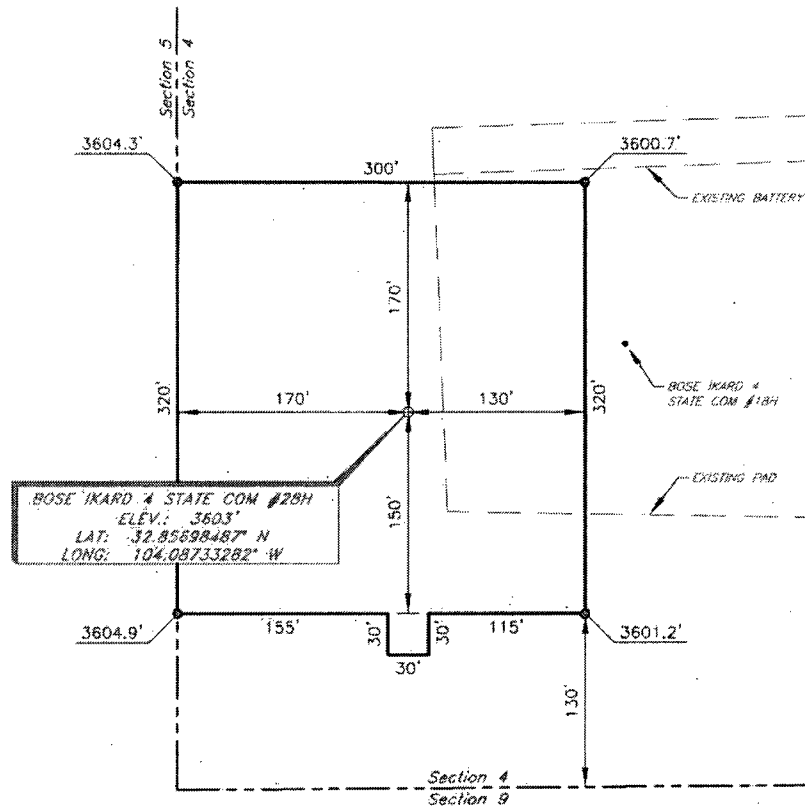
12 Dedicated Acres 160	13 Joint or Infill	14 Consolidation Code	15 Order No.
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No allowable will be assigned to this completion until all interest have been consolidated or a non-standard unit has been approved by the division.

LOT 4 40.00 Ac. (MSP 40.05 Ac.)	LOT 3 39.91 Ac. (MSP 40.00 Ac.)	LOT 2 39.80 Ac. (MSP 39.93 Ac.)	LOT 1 39.78 Ac. (MSP 39.88 Ac.)	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 undivided 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 by court or approved by the division. Signature: <u>Kelly J. Holly</u> Date: <u>4-22-15</u> Printed Name: <u>Kelly J. Holly</u> E-mail Address: <u>kholly@concho.com</u>
GEODETIC DATA NAD 27 GRID - NM EAST SURFACE LOCATION N 675570.4 - E 575541.2 LAT: 32.85698487° N LONG: 104.08733282° W BOTTOM HOLE N 675649.7 - E 580298.3	CORNER DATA NAD 27 GRID - NM EAST A: FOUND RED CAP "HOWETT PLS18680" N 675289.3 - E 575371.1 B: FOUND BRASS CAP "1914" N 677928.7 - E 575371.9 C: FOUND BRASS CAP "1914" N 680580.8 - E 575358.9 D: FOUND BRASS CAP "1914" N 680585.3 - E 577994.0 E: FOUND BRASS CAP "1914" N 680598.6 - E 580627.0	F: FOUND BRASS CAP "1914" N 677960.0 - E 580626.8 G: FOUND BRASS CAP "1914" N 675321.9 - E 580628.5 H: FOUND BRASS CAP "1914" N 675304.8 - E 577998.2 I: CALCULATED CORNER N 676609.0 - E 575371.5 J: CALCULATED CORNER N 576641.0 - E 580627.6		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: <u>3-18-2015</u> Signature and Seal of Professional Surveyor: <u>Robert M. Howett</u> Certificate Number: <u>19680</u>

Project Area
Producing Area
Estimated Completed Interval: 330 FSL 674 FWH
RRC - Firm No.: TX 10193838 NM 4655451 - Job No.: LS1503086

COG OPERATING, LLC
 BOSE IKARD 4 STATE COM #28H
 (280' FSL & 170' FWL)
 SECTION 4, T17S, R29E
 N. M. P. M., EDDY CO., NEW MEXICO



DIRECTIONS TO LOCATION

From the intersection of CR-214 (Barnaval Draw) and CR-211 (Old Loco)
 Go West on CR-211 approx. 0.6 miles;
 Turn left on lease rd. and go South approx. 0.5 miles to the Bose Ikard 4 State
 Cam #18H;
 Location is approx. 167 feet to the Southwest of Bose Ikard 4 State Cam #18H.

SCALE: 1" = 100'
 0 50 100
 BEARINGS ARE
 NAD 27 GRID - NM EAST
 DISTANCES ARE
 GROUND.

Form No. TX 10193838 NM 4655451

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NO.	REVISION	DATE
JOB NO.: LS1503086		
DWG. NO.: 1503086PAD		

RRC

308 W. BROADWAY ST., HOBBS, NM 88240 (575) 964-8200

SCALE: 1" = 100'
DATE: 3-18-2015
SURVEYED BY: GB/JB
DRAWN BY: CMJ
APPROVED BY: RMH
SHEET: 1 OF 1

VICINITY MAP

NOT TO SCALE



BOSE IKARD 4 STATE COM #28H

**SECTION 4, TWP. 17 SOUTH, RGE. 29 EAST,
N. M. P. M., EDDY CO., NEW MEXICO**

OPERATOR: COG Operating, LLC
LEASE: Bose Ikard 4 State Com
WELL NO.: 28H

LOCATION: 280' FSL & 170' FWL
ELEVATION: 3603'

Firm No.: TX 1019383R NM 4655451

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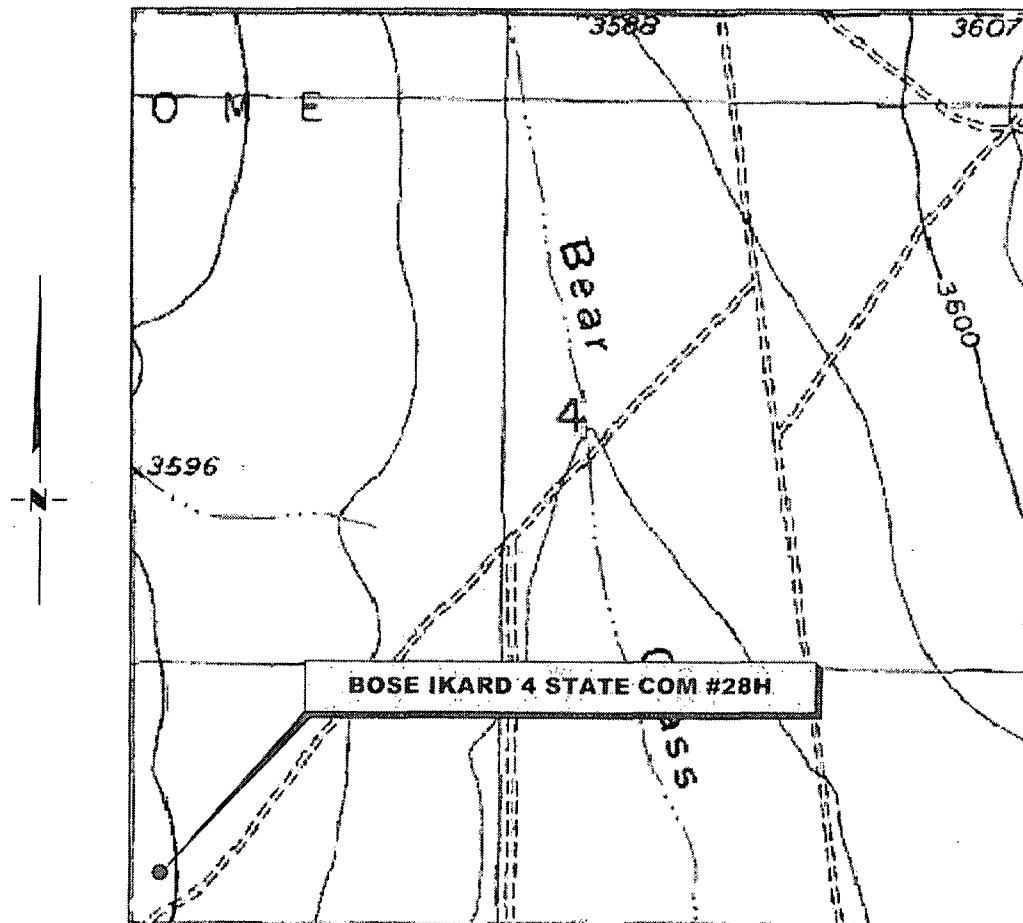
NO.	REVISION	DATE
JOB NO.: LS1503086		
DWG. NO.: 1503086VM		

RRC

308 W. BROADWAY ST., HOBBS, NM 88240 (575) 964-8200

SCALE: NTS
DATE: 3-18-2015
SURVEYED BY: GB/JB
DRAWN BY: CMJ
APPROVED BY: RMH
SHEET : 1 OF 1

LOCATION VERIFICATION MAP



SECTION 4, TWP. 17 SOUTH, RGE. 29 EAST,
N. M. P. M., EDDY CO., NEW MEXICO

OPERATOR: COG Operating, LLC
LEASE: Bose Ikard 4 State Com
WELL NO.: 28H
ELEVATION: 3603'

LOCATION: 280' FSL & 170' FWL
CONTOUR INTERVAL: 10'
USGS TOPO. SOURCE MAP:
Red Lake SE, NM (1955)

Firm No.: 1X 10193638 NM 4655451

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NO.	REVISION	DATE
JOB NO.: LS1503086		
DWG. NO.: 1503086LVM		

RRC

308 W. BROADWAY ST., HOBBS, NM 88240 (575) 964-8200

SCALE: 1" = 1000'
DATE: 3-18-2015
SURVEYED BY: GB/JB
DRAWN BY: CMJ
APPROVED BY: RMH
SHEET : 1 OF 1



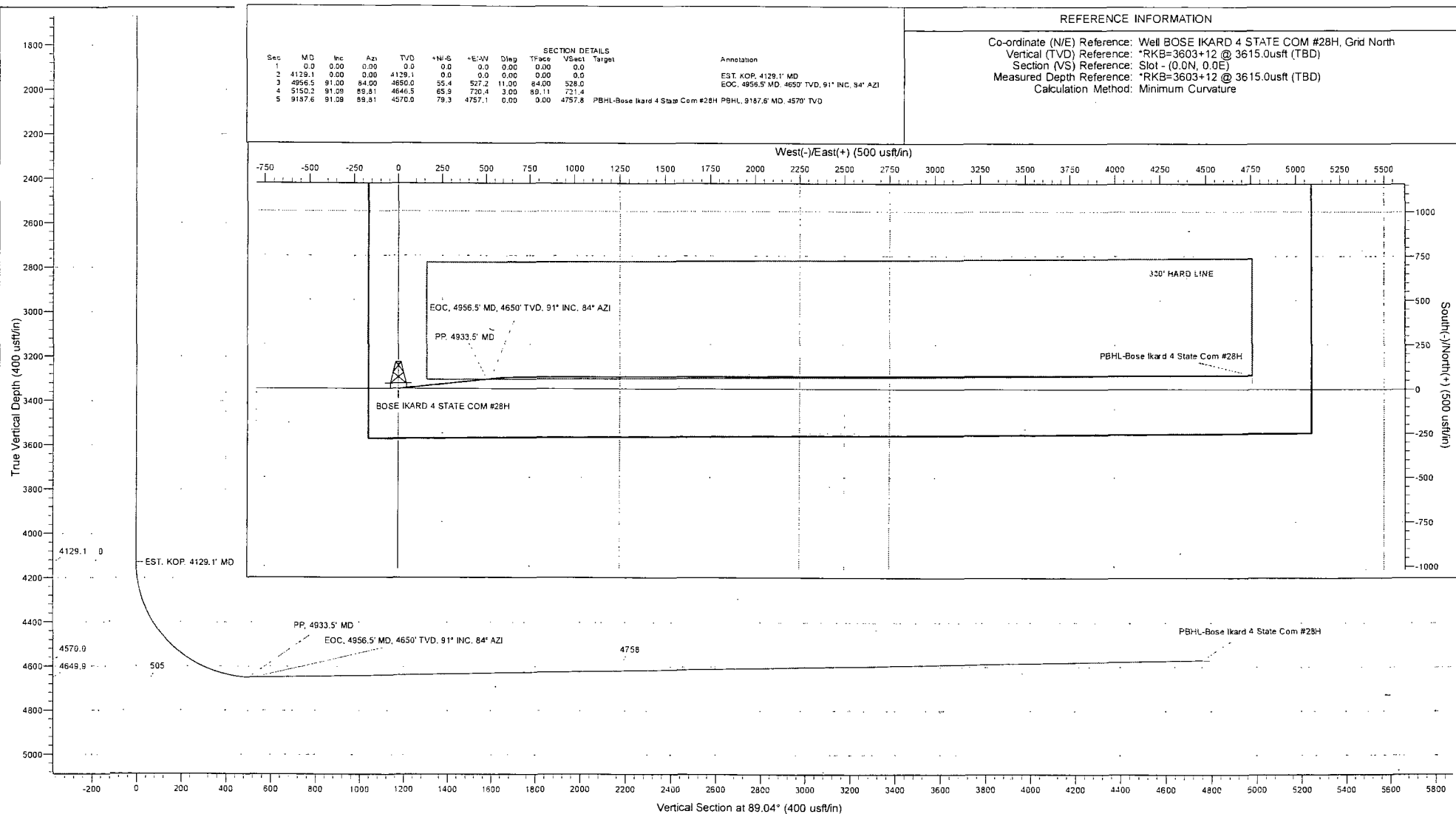
Project: EDDY COUNTY, NM
 Site: EMPIRE
 Well: BOSE IKARD 4 STATE COM #28H
 Wellbore: OWB
 Design: PWP0

REFERENCE INFORMATION

Co-ordinate (N/E) Reference: Well BOSE IKARD 4 STATE COM #28H, Grid North
 Vertical (TVD) Reference: *RKB=3603+12 @ 3615.0usft (TBD)
 Section (VS) Reference: Slot - (0.0N, 0.0E)
 Measured Depth Reference: *RKB=3603+12 @ 3615.0usft (TBD)
 Calculation Method: Minimum Curvature

SECTION DETAILS										
Sec	MD	Inc	Azi	TVD	+N-S	+E-W	Diag	Trace	VSect	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	4129.1	0.00	0.00	4129.1	0.0	0.0	0.00	0.00	0.0	
3	4956.5	91.00	84.00	4650.0	55.4	527.2	11.00	84.00	528.0	
4	5150.2	91.09	89.81	4646.5	65.3	730.4	3.00	89.11	731.4	
5	9137.6	91.08	89.81	4570.0	79.3	4757.1	0.00	0.00	4757.6	PBHL-Bose Ikard 4 State Com #28H PBHL 9187.6' MD, 4570' TVD

Annotation
 EST. KOP, 4129.1' MD
 EOC, 4956.5' MD, 4650' TVD, 91° INC, 84° AZI





**COG Operating LLC
NEW MEXICO SHELF**

EDDY COUNTY, NM

EMPIRE

BOSE IKARD 4 STATE COM #28H

OWB

Plan: PWP0

SHL: 280' FSL, 170' FWL, SEC. 4, T17S, R29E, UNIT M

PP: 330' FSL, 674' FWL, SEC. 4, T17S, R29E, UNIT M

BHL: 330 FSL, 330' FEL, SEC. 4, T17S, R29E, UNIT P

Standard Planning Report

16 April, 2015



COG Operating LLC
Planning Report

Database:	EDM_Users	Local Co-ordinate Reference:	Well BOSE IKARD 4 STATE COM #28H
Company:	NEW MEXICO SHELF	TVD Reference:	*RKB=3603+12 @ 3615.0usft (TBD)
Project:	EDDY COUNTY, NM	MD Reference:	*RKB=3603+12 @ 3615.0usft (TBD)
Site:	EMPIRE	North Reference:	Grid
Well:	BOSE IKARD 4 STATE COM #28H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OWB		
Design:	PWP0		

Project:	EDDY COUNTY, NM		
Map System:	US State Plane 1927 (Exact solution)	System Datum:	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	New Mexico East 3001		

Site:	EMPIRE		
Site Position:		Northing:	667,066.90 usft
From:	Map	Easting:	582,960.90 usft
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 50' 0.822 N
		Longitude:	104° 3' 47.669 W
		Grid Convergence:	0.15 °

Well:	BOSE IKARD 4 STATE COM #28H		
Well Position	+N/-S	8,503.5 usft	Northing:
	+E/-W	-7,419.7 usft	Easting:
Position Uncertainty	3.0 usft		Wellhead Elevation:
			Ground Level:

Wellbore:	OWB		
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Magnetics	Model Name	Sample Date	Declination	Dip Angle	Field Strength
			(°)	(°)	(nT)
	WMM_2005	12/31/2009	8.04	60.72	49,110

Design:	PWP0		
Audit Notes:			
Version:	Phase:	PROTOTYPE	Tie On Depth:
			0.0
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W
	(usft)	(usft)	(usft)
	4,570.0	0.0	0.0

Plan Sections										
Measured Depth	Inclination	Azimuth	Vertical Depth	+N/-S	+E/-W	Dogleg Rate	Build Rate	Turn Rate	TFO	Target
(usft)	(°)	(°)	(usft)	(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	
4,129.1	0.00	0.00	4,129.1	0.0	0.0	0.00	0.00	0.00	0.00	
4,956.5	91.00	84.00	4,650.0	55.4	527.2	11.00	11.00	0.00	84.00	
5,150.2	91.09	89.81	4,646.5	65.9	720.4	3.00	0.04	3.00	89.11	
9,187.6	91.09	89.81	4,570.0	79.3	4,757.1	0.00	0.00	0.00	0.00	PBHL-Bose Ikard 4 S



COG Operating LLC

Planning Report

Database:	EDM_Users	Local Co-ordinate Reference:	Well BOSE IKARD 4 STATE COM #28H
Company:	NEW MEXICO SHELF	TVD Reference:	*RKB=3603+12 @ 3615.0usft (TBD)
Project:	EDDY COUNTY, NM	MD Reference:	*RKB=3603+12 @ 3615.0usft (TBD)
Site:	EMPIRE	North Reference:	Grid
Well:	BOSE IKARD 4 STATE COM #28H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OWB		
Design:	PWP0		

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
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
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
4,129.1	0.00	0.00	4,129.1	0.0	0.0	0.0	0.00	0.00	0.00
EST. KOP, 4129.1' MD									
4,200.0	7.80	84.00	4,199.8	0.5	4.8	4.8	11.00	11.00	0.00
4,300.0	18.80	84.00	4,297.0	2.9	27.6	27.7	11.00	11.00	0.00
4,400.0	29.79	84.00	4,388.0	7.2	68.5	68.6	11.00	11.00	0.00
4,500.0	40.79	84.00	4,469.5	13.2	125.9	126.1	11.00	11.00	0.00
4,600.0	51.79	84.00	4,538.4	20.8	197.6	197.9	11.00	11.00	0.00
4,700.0	62.79	84.00	4,592.4	29.6	281.2	281.6	11.00	11.00	0.00
4,800.0	73.78	84.00	4,629.4	39.2	373.4	374.0	11.00	11.00	0.00
4,900.0	84.78	84.00	4,647.9	49.5	471.0	471.8	11.00	11.00	0.00
4,933.5	88.47	84.00	4,649.9	53.0	504.3	505.1	11.00	11.00	0.00
PP, 4933.5' MD									



COG Operating LLC

Planning Report

Database: EDM Users
Company: NEW MEXICO SHELF
Project: EDDY COUNTY, NM
Site: EMPIRE
Well: BOSE IKARD 4 STATE COM #28H
Wellbore: OWB
Design: PWP0

Local Co-ordinate Reference:
TVD Reference:
MD Reference:
North Reference:
Survey Calculation Method:

Well BOSE IKARD 4 STATE COM #28H
*RKB=3603+12 @ 3615.0usft (TBD)
*RKB=3603+12 @ 3615.0usft (TBD)
Grid
Minimum Curvature

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)
4,956.5	91.00	84.00	4,650.0	55.4	527.1	528.0	11.00	11.00	0.00
EOC, 4956.5' MD, 4650' TVD, 91° INC, 84° AZI									
5,000.0	91.02	85.30	4,649.2	59.5	570.4	571.3	3.00	0.06	3.00
5,100.0	91.06	88.30	4,647.4	65.0	670.2	671.2	3.00	0.04	3.00
5,150.2	91.09	89.81	4,646.5	65.9	720.4	721.4	3.00	0.04	3.00
5,200.0	91.09	89.81	4,645.5	66.0	770.2	771.2	0.00	0.00	0.00
5,300.0	91.09	89.81	4,643.6	66.4	870.2	871.2	0.00	0.00	0.00
5,400.0	91.09	89.81	4,641.7	66.7	970.2	971.2	0.00	0.00	0.00
5,500.0	91.09	89.81	4,639.8	67.0	1,070.2	1,071.1	0.00	0.00	0.00
5,600.0	91.09	89.81	4,638.0	67.4	1,170.1	1,171.1	0.00	0.00	0.00
5,700.0	91.09	89.81	4,636.1	67.7	1,270.1	1,271.1	0.00	0.00	0.00
5,800.0	91.09	89.81	4,634.2	68.0	1,370.1	1,371.0	0.00	0.00	0.00
5,900.0	91.09	89.81	4,632.3	68.4	1,470.1	1,471.0	0.00	0.00	0.00
6,000.0	91.09	89.81	4,630.4	68.7	1,570.1	1,571.0	0.00	0.00	0.00
6,100.0	91.09	89.81	4,628.5	69.0	1,670.0	1,671.0	0.00	0.00	0.00
6,200.0	91.09	89.81	4,626.6	69.4	1,770.0	1,770.9	0.00	0.00	0.00
6,300.0	91.09	89.81	4,624.7	69.7	1,870.0	1,870.9	0.00	0.00	0.00
6,400.0	91.09	89.81	4,622.8	70.0	1,970.0	1,970.9	0.00	0.00	0.00
6,500.0	91.09	89.81	4,620.9	70.4	2,070.0	2,070.9	0.00	0.00	0.00
6,600.0	91.09	89.81	4,619.0	70.7	2,170.0	2,170.8	0.00	0.00	0.00
6,700.0	91.09	89.81	4,617.1	71.0	2,269.9	2,270.8	0.00	0.00	0.00
6,800.0	91.09	89.81	4,615.2	71.4	2,369.9	2,370.8	0.00	0.00	0.00
6,900.0	91.09	89.81	4,613.3	71.7	2,469.9	2,470.8	0.00	0.00	0.00
7,000.0	91.09	89.81	4,611.4	72.0	2,569.9	2,570.7	0.00	0.00	0.00
7,100.0	91.09	89.81	4,609.5	72.3	2,669.9	2,670.7	0.00	0.00	0.00
7,200.0	91.09	89.81	4,607.6	72.7	2,769.8	2,770.7	0.00	0.00	0.00
7,300.0	91.09	89.81	4,605.8	73.0	2,869.8	2,870.6	0.00	0.00	0.00
7,400.0	91.09	89.81	4,603.9	73.3	2,969.8	2,970.6	0.00	0.00	0.00
7,500.0	91.09	89.81	4,602.0	73.7	3,069.8	3,070.6	0.00	0.00	0.00
7,600.0	91.09	89.81	4,600.1	74.0	3,169.8	3,170.6	0.00	0.00	0.00
7,700.0	91.09	89.81	4,598.2	74.3	3,269.8	3,270.5	0.00	0.00	0.00
7,800.0	91.09	89.81	4,596.3	74.7	3,369.7	3,370.5	0.00	0.00	0.00
7,900.0	91.09	89.81	4,594.4	75.0	3,469.7	3,470.5	0.00	0.00	0.00
8,000.0	91.09	89.81	4,592.5	75.3	3,569.7	3,570.5	0.00	0.00	0.00
8,100.0	91.09	89.81	4,590.6	75.7	3,669.7	3,670.4	0.00	0.00	0.00
8,200.0	91.09	89.81	4,588.7	76.0	3,769.7	3,770.4	0.00	0.00	0.00
8,300.0	91.09	89.81	4,586.8	76.3	3,869.6	3,870.4	0.00	0.00	0.00
8,400.0	91.09	89.81	4,584.9	76.7	3,969.6	3,970.4	0.00	0.00	0.00
8,500.0	91.09	89.81	4,583.0	77.0	4,069.6	4,070.3	0.00	0.00	0.00
8,600.0	91.09	89.81	4,581.1	77.3	4,169.6	4,170.3	0.00	0.00	0.00
8,700.0	91.09	89.81	4,579.2	77.7	4,269.6	4,270.3	0.00	0.00	0.00
8,800.0	91.09	89.81	4,577.3	78.0	4,369.6	4,370.2	0.00	0.00	0.00
8,900.0	91.09	89.81	4,575.4	78.3	4,469.5	4,470.2	0.00	0.00	0.00
9,000.0	91.09	89.81	4,573.6	78.7	4,569.5	4,570.2	0.00	0.00	0.00
9,100.0	91.09	89.81	4,571.7	79.0	4,669.5	4,670.2	0.00	0.00	0.00
9,187.6	91.09	89.81	4,570.0	79.3	4,757.1	4,757.7	0.00	0.00	0.00

PBHL, 9187.6' MD, 4570' TVD



COG Operating LLC
Planning Report

Database:	EDM_Users	Local Co-ordinate Reference:	Well BOSE IKARD 4 STATE COM #28H
Company:	NEW MEXICO SHELF	TVD Reference:	*RKB=3603+12 @ 3615.0usft (TBD)
Project:	EDDY COUNTY, NM	MD Reference:	*RKB=3603+12 @ 3615.0usft (TBD)
Site:	EMPIRE	North Reference:	Grid
Well:	BOSE IKARD 4 STATE COM #28H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OWB		
Design:	PWP0		

Design Targets									
Target Name	hit/miss target	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	
Shape		(°)	(°)	(usft)	(usft)	(usft)	(usft)	(usft)	Latitude Longitude
PBHL-Bose Ikard 4 Stati		0.00	0.00	4,570.0	79.3	4,757.1	675,649.70	580,298.30	32° 51' 25.818 N 104° 4' 18.626 W
- plan hits target center									
- Point									

Plan Annotations				
Measured Depth	Vertical Depth	Local Coordinates		Comment
(usft)	(usft)	+N/-S (usft)	+E/-W (usft)	
4,129.1	4,129.1	0.0	0.0	EST. KOP, 4129.1' MD
4,933.5	4,649.9	53.0	504.3	PP, 4933.5' MD
4,956.5	4,650.0	55.4	527.1	EOC, 4956.5' MD, 4650' TVD, 91° INC, 84° AZI
9,187.6	4,570.0	79.3	4,757.1	PBHL, 9187.6' MD, 4570' TVD



Project: EDDY COUNTY, NM
 Site: EMPIRE
 Well: BOSE IKARD 4 STATE COM #17H
 Wellbore: OWS
 Design: PWP0

REFERENCE INFORMATION

Co-ordinate (N/E) Reference: Well BOSE IKARD 4 STATE COM #17H, Grid North
 Vertical (TVD) Reference: RKB=3601+12 @ 3613.0usft (TBD)
 Section (VS) Reference: Slot - (0.0N, 0.0E)
 Measured Depth Reference: RKB=3601+12 @ 3613.0usft (TBD)
 Calculation Method: Minimum Curvature

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	SECTION DETAILS		Annotation
									VSec1	Target	
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	0.0	
2	3629.1	0.00	0.00	3629.1	0.0	0.0	0.00	0.00	0.0	0.0	EST KOP, 3629.1' MD
3	4457.3	91.08	87.86	4150.0	19.9	530.4	11.00	87.86	530.8	530.8	EOC, 4457.3' MD, 4150' TVD, 91° INC, 87.86° AZI
4	8707.1	91.08	87.86	4070.0	178.8	4778.5	0.00	0.00	4779.8	4779.8	PBHL-Bose Ikard 4 State Com #17H PBHL 8707.1' MD, 4070' TVD

