

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

HOBBS OCD

Operator Copy
SEP 25 2012

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

SUNDRY NOTICES AND REPORTS ON WELLS
Do not use this form for proposals to drill or to re-enter an abandoned well. Use Form 3160-3 (APD) for such proposals.

RECEIVED

SUBMIT IN TRIPLICATE - Other Instructions on page 2.

1. Type of Well ☒ Oil Well ☐ Gas Well ☐ Other		5. Lease Serial No. NMNM0036100; NMNM01087; NMNM01088
2. Name of Operator COG Operating LLC		6. If Indian, Allottee, or Tribe Name
3a. Address 2208 W. Main Street Artesia, NM 88210	3b. Phone No. (include area code) 575-748-6940	7. If Unit or CA, Agreement Name and/or No. Lusk Deep Unit - NMNM70982X
4. Location of Well (Footage, Sec., T., R., M., or Survey Description) 330' FNL & 1770' FWL Unit Letter C (NENW) SHL 330' FSL & 1980' FWL Unit Letter N (SESW) BHL		8. Well Name and No. Lusk Deep Unit A #22H
Lat. Long.		9. API Well No. 30-025-40705
		10. Field and Pool, or Exploratory Area Lusk; Bone Spring,
		11. County or Parish, State Lea County NM

12. CHECK APPROPRIATE BOX(S) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION			
☒ Notice of Intent	☐ Acidize	☐ Deepen	☐ Production (Start/Resume)	☐ Water Shut-off
☐ Subsequent Report	☐ Altering Casing	☐ Fracture Treat	☐ Reclamation	☐ Well Integrity
☐ Final Abandonment Notice	☐ Casing Repair	☐ New Construction	☐ Recomplete	☒ Other SHL Change
	☐ Change Plans	☐ Plug and abandon	☐ Temporarily Abandon	
	☐ Convert to Injection	☐ Plug back	☐ Water Disposal	

13. Describe Proposed or Completed Operation (clearly state all pertinent details including estimated starting date of any proposed work and approximate duration thereof. If the proposal is to deepen directionally or recompleat horizontally, give subsurface locations and measured and true vertical depths or pertinent markers and sands. Attach the Bond under which the work will be performed or provide the Bond No. on file with the BLM/ BIA. Required subsequent reports shall be filed within 30 days following completion of the involved operations. If the operation results in a multiple completion or recompleat in a new interval, a Form 3160-4 shall be filed once testing has been completed. Final Abandonment Notice shall be filed only after all requirements, including reclamation, have been completed, and the operator has determined that the site is ready for final inspection.)

COG Operating LLC respectfully request the SHL changes for the original approved APD.

From: 330' FNL & 1650' FWL

*To: 330' FNL & 1770' FWL *

The change is requested due to the discovery of an active buried gas line during the one call process.

COG OPERATING, LLC
RECEIVED

AUG 29 2012

ARTESIA WEST

14. I hereby certify that the foregoing is true and correct.

Name (Printed/ Typed)

Mayte Reyes

Title: Regulatory Analyst

Signature: *Mayte Reyes*

Date: 8/8/12

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved by

Title: *APM*

Date: 8/24/12

Conditions of approval, if any are attached. Approval of this notice 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.

Office: CARLSBAD FIELD OFFICE

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 any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

(Instructions on page 2)

SEP 26 2012

HOBBS OCD

DISTRICT I

1625 N. FRENCH DR., HOBBS, NM 88240

State of New Mexico
Energy, Minerals and Natural Resources Department

SEP 25 2012

Form C-102

Revised October 12, 2010

Submit to Appropriate District Office

State Lease - 4 Copies

Fee Lease - 3 Copies

DISTRICT II

1301 W. GRAND AVENUE, ALBUQUERQUE, NM 87210

OIL CONSERVATION DIVISION RECEIVED

11885 SOUTH ST. FRANCIS DR.
Santa Fe, New Mexico 87505

DISTRICT III

1000 RIO BRAZOS RD., AZTEC, NM 87410

DISTRICT IV

11826 S. ST. FRANCIS DR., SANTA FE, NM 87506

WELL LOCATION AND ACREAGE DEDICATION PLAT

☐ AMENDED REPORT

API Number 30-025-40705	Pool Code 41440	Pool Name Lusk; Bone Spring
Property Code	Property Name LUSK DEEP UNIT A	Well Number 22H
OGRID No.	Operator Name COG OPERATING, LLC	Elevation 3610'

Surface Location

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
C	17	19-S	32-E		330	NORTH	1770	WEST	LEA

Bottom Hole Location If Different From Surface

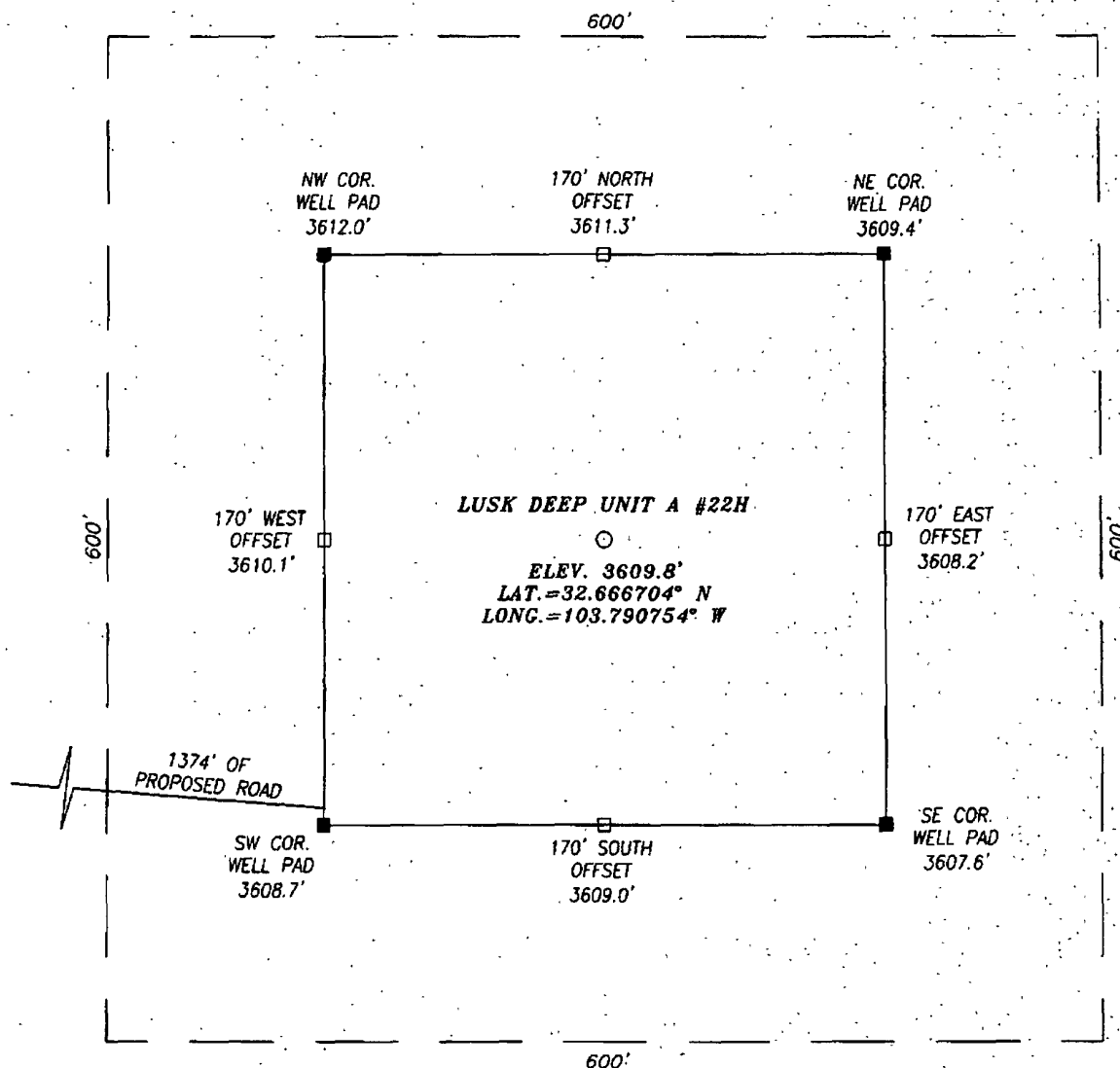
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
N	17	19-S	32-E		330	SOUTH	1980	WEST	LEA

Dedicated Acres	Joint or Infill	Consolidation Code	Order No.
160			

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

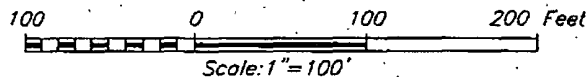
ALL COORDINATES ARE NME SPC NAD 27 SURFACE LOCATION Y=606684.7 N X=666969.5 E LAT.=32.666704° N LONG.=103.790754° W PROPOSED BOTTOM HOLE LOCATION Y=602066.3 N X=667210.9 E LAT.=32.654006° N LONG.=103.790046° W GRID AZ. 177°00'22" HORZ. DIST. 4624.82' Y=607012.7 N X=666520.5 E Y=607018.2 N X=667842.5 E Y=601732.7 N X=666555.5 E Y=601740.3 N X=667876.4 E		OPERATOR CERTIFICATION I hereby certify that the information 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 mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division. Signature: <i>Melanie J. Parker</i> Date: 8/8/12 Printed Name: <i>Melanie J. Parker</i>
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. AUGUST 3, 2012 Date Surveyed: <i>8/8/12</i> Signature: <i>Chad Hargrove</i> Seal of Professional Surveyor Certified Professional Surveyor LA 49-2012		

SECTION 17, TOWNSHIP 19 SOUTH, RANGE 32 EAST, N.M.P.M.,
EDDY COUNTY NEW MEXICO



DIRECTIONS TO LOCATION

HEADING EAST ON HWY. 529, TURN RIGHT ONTO CO. RD. 126A. HEAD
APPROXIMATELY 9.0 MILES SOUTH. THIS LOCATION IS APPROX. 0.3 MILES
EAST.



HARCROW SURVEYING
1107 WATSON, ARTESIA N.M. 88210
TEL: (575) 513-2570
FAX: (575) 746-2808
EST. 2007



COG OPERATING, LLC

LUSK DEEP UNIT A #22H WELL
LOCATED 330 FEET FROM THE NORTH LINE
AND 1770 FEET FROM THE WEST LINE OF SECTION 17,
TOWNSHIP 19 SOUTH, RANGE 32 EAST, N.M.P.M.,
LEA COUNTY, NEW MEXICO

SURVEY DATE: AUGUST 3, 2012 PAGE: 1 OF 1

DRAFTING DATE: AUGUST 6, 2010

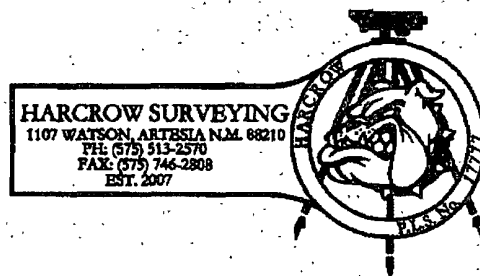
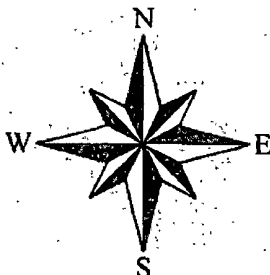
APPROVED BY: CH DRAWN BY: LA FILE: 12-83

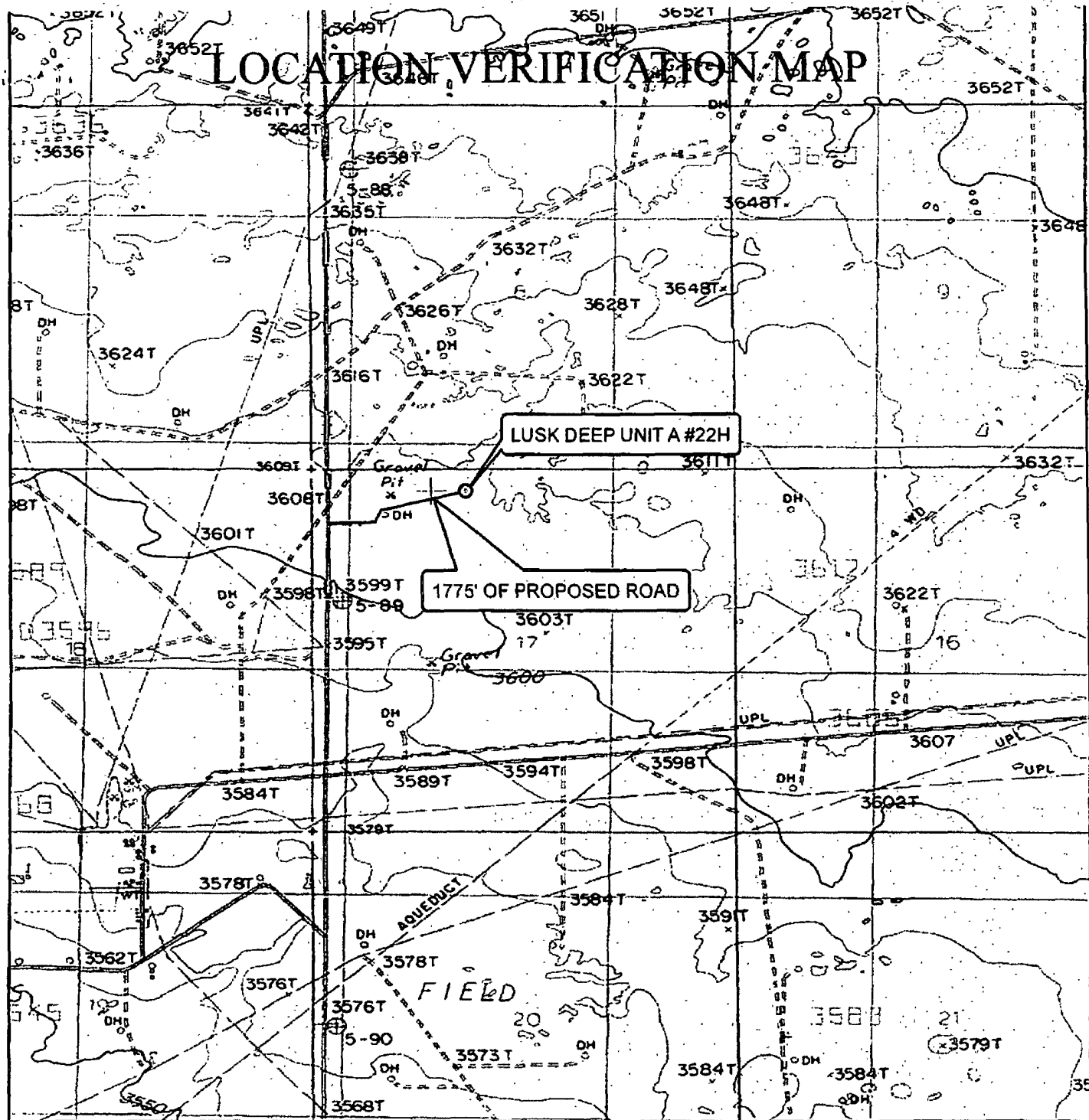
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020	021	022	023	024	019	020	021	022	023	024	019	020	021
029	028	027	026	025	030	029	028	027	026	025	030	029	028
032	033	034	035	036	031	032	033	034	035	036	031	032	033
005	004	003	002	001	006	005	004	003	002	001	006	005	004
008	009	010	011	012	007	008	009	010	011	012	007	008	009
017	016	015	014	013	018	017	016	015	014	013	018	017	016
020	021	022	023	024	019	020	021	022	023	024	019	020	021
029	028	027	026	025	030	029	028	027	026	025	030	029	028
032	033	034	035	036	031	032	033	034	035	036	031	032	033
005	004	003	002	001	006	005	004	003	002	001	006	005	004
008	009	010	011	012	007	008	009	010	011	012	007	008	009
017	016	015	014	013	018	017	016	015	014	013	018	017	016
020	021	022	023	024	019	020	021	022	023	024	019	020	021
029	028	027	026	025	030	029	028	027	026	025	030	029	028
032	033	034	035	036	031	032	033	034	035	036	031	032	033
005	004	003	002	001	006	005	004	003	002	001	006	005	004
008	009	010	011	012	007	008	009	010	011	012	007	008	009
017	016	015	014	013	018	017	016	015	014	013	018	017	016
020	021	022	023	024	019	020	021	022	023	024	019	020	021
029	028	027	026	025	030	029	028	027	026	025	030	029	028
032	033	034	035	036	031	032	033	034	035	036	031	032	033
005	004	003	002	001	006	005	004	003	002	001	006	005	004
008	009	010	011	012	007	008	009	010	011	012	007	008	009
017	016	015	014	013	018	017	016	015	014	013	018	017	016
020	021	022	023	024	019	020	021	022	023	024	019	020	021

LUSK DEEP UNIT A #22H

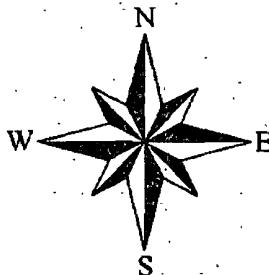
SCALE - 1"=10,560'

SEC. 17 TWP. 19S RGE. 32E
 SURVEY N.M.P.M.
 COUNTY LEA STATE NEW MEXICO
 DESCRIPTION 330' FNL & 1770' FWL
 ELEVATION 3610'
 OPERATOR COG OPERATING, LLC
 LEASE LUSK DEEP UNIT A





SEC. 17 TWP. 19S RGE. 32E
 SURVEY N.M.P.M.
 COUNTY LEA STATE NEW MEXICO
 DESCRIPTION 330' FNL & 1770' FWL
 ELEVATION 3610'
 OPERATOR COG OPERATING, LLC
 LEASE LUSK DEEP UNIT A



HARCROW SURVEYING
 1107 WATSON, ARTESIA N.M. 88210
 PH: (575) 513-2570
 FAX: (575) 744-2808
 EST. 2007





A Schlumberger Company

COG Operating LLC

Lea County(NAD27)

Lusk Deep Unit A

#22H

OH

Plan: Plan #1

Pathfinder X&Y Report

07 August, 2012



30-025-40705



A Schlumberger Company

Pathfinder Pathfinder X&Y Report



Company: COG Operating LLC
Project: Lea County(NAD27)
Site: Lusk Deep Unit A
Well: #22H
Wellbore: OH
Design: Plan #1

Local Co-ordinate Reference: Well #22H
TVD Reference: KB = 17' @ 3627.0usft (Original Well Elev)
MD Reference: KB = 17' @ 3627.0usft (Original Well Elev)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM 5000.1 Single User Db

Project	Lea County(NAD27)		
Map System:	US State Plane 1927 (Exact solution)		
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	New Mexico East 3001		
System Datum:	Mean Sea Level		

Site	Lusk Deep Unit A		
Site Position:		Northing:	599,927.400 usft
From:	Map	Easting:	665,577.000 usft
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "
		Latitude:	32.648
		Longitude:	-103.795
		Grid Convergence:	0.29 °

Well	#22H		
Well Position	+N/-S	0.0 usft	Northing:
	+E/-W	0.0 usft	Easting:
Position Uncertainty	0.0 usft	Wellhead Elevation:	usft
		Latitude:	32.667
		Longitude:	-103.791
		Ground Level:	3,610.0 usft

Wellbore	OH		
Magnetics	Model Name	Sample Date	Declination
	IGRF200510	8/7/2012	7.57
		Dip Angle	60.56
		Field Strength	48,783

Design	Plan #1		
Audit Notes:			
Version:	Phase:	PLAN	Tie On Depth:
			0.0
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W
	(usft)	(usft)	(usft)
	0.0	0.0	0.0
			Direction
			(°)
			177.01

Survey Tool Program	Date 8/7/2012		
From	To	Survey (Wellbore)	Tool Name
(usft)	(usft)		
0.0	13,640.2	Plan #1 (OH)	MWD
			Description
			MWD - Standard



A Schlumberger Company

Pathfinder Pathfinder X&Y Report



Company: COG Operating LLC
Project: Lea County(NAD27)
Site: Lusk Deep Unit A
Well: #22H
Wellbore: OH
Design: Plan #1

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North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM 5000.1 Single User Db

Planned Survey												
MD (usft)	Inc (")	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLog ("/100usft)	Northing (usft)	Easting (usft)		
0.0	0.00	0.00	0.0	-3,627.0	0.0	0.0	0.0	0.00	606,684.70	666,969.50		
100.0	0.00	0.00	100.0	-3,527.0	0.0	0.0	0.0	0.00	606,684.70	666,969.50		
200.0	0.00	0.00	200.0	-3,427.0	0.0	0.0	0.0	0.00	606,684.70	666,969.50		
300.0	0.00	0.00	300.0	-3,327.0	0.0	0.0	0.0	0.00	606,684.70	666,969.50		
400.0	0.00	0.00	400.0	-3,227.0	0.0	0.0	0.0	0.00	606,684.70	666,969.50		
500.0	0.00	0.00	500.0	-3,127.0	0.0	0.0	0.0	0.00	606,684.70	666,969.50		
600.0	0.00	0.00	600.0	-3,027.0	0.0	0.0	0.0	0.00	606,684.70	666,969.50		
700.0	0.00	0.00	700.0	-2,927.0	0.0	0.0	0.0	0.00	606,684.70	666,969.50		
800.0	0.00	0.00	800.0	-2,827.0	0.0	0.0	0.0	0.00	606,684.70	666,969.50		
900.0	0.00	0.00	900.0	-2,727.0	0.0	0.0	0.0	0.00	606,684.70	666,969.50		
1,000.0	0.00	0.00	1,000.0	-2,627.0	0.0	0.0	0.0	0.00	606,684.70	666,969.50		
1,100.0	0.00	0.00	1,100.0	-2,527.0	0.0	0.0	0.0	0.00	606,684.70	666,969.50		
1,200.0	0.00	0.00	1,200.0	-2,427.0	0.0	0.0	0.0	0.00	606,684.70	666,969.50		
1,300.0	0.00	0.00	1,300.0	-2,327.0	0.0	0.0	0.0	0.00	606,684.70	666,969.50		
1,400.0	0.00	0.00	1,400.0	-2,227.0	0.0	0.0	0.0	0.00	606,684.70	666,969.50		
1,500.0	0.00	0.00	1,500.0	-2,127.0	0.0	0.0	0.0	0.00	606,684.70	666,969.50		
1,600.0	0.00	0.00	1,600.0	-2,027.0	0.0	0.0	0.0	0.00	606,684.70	666,969.50		
1,700.0	0.00	0.00	1,700.0	-1,927.0	0.0	0.0	0.0	0.00	606,684.70	666,969.50		
1,800.0	0.00	0.00	1,800.0	-1,827.0	0.0	0.0	0.0	0.00	606,684.70	666,969.50		
1,900.0	0.00	0.00	1,900.0	-1,727.0	0.0	0.0	0.0	0.00	606,684.70	666,969.50		
2,000.0	0.00	0.00	2,000.0	-1,627.0	0.0	0.0	0.0	0.00	606,684.70	666,969.50		
2,100.0	0.00	0.00	2,100.0	-1,527.0	0.0	0.0	0.0	0.00	606,684.70	666,969.50		
2,200.0	0.00	0.00	2,200.0	-1,427.0	0.0	0.0	0.0	0.00	606,684.70	666,969.50		
2,300.0	0.00	0.00	2,300.0	-1,327.0	0.0	0.0	0.0	0.00	606,684.70	666,969.50		
2,400.0	0.00	0.00	2,400.0	-1,227.0	0.0	0.0	0.0	0.00	606,684.70	666,969.50		
2,500.0	0.00	0.00	2,500.0	-1,127.0	0.0	0.0	0.0	0.00	606,684.70	666,969.50		
2,600.0	0.00	0.00	2,600.0	-1,027.0	0.0	0.0	0.0	0.00	606,684.70	666,969.50		



A Schlumberger Company

Pathfinder Pathfinder X&Y Report



Company: COG Operating LLC
Project: Lea County(NAD27)
Site: Lusk Deep Unit A
Well: #22H
Wellbore: OH
Design: Plan #1

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

Well #22H
KB = 17' @ 3627.0usft (Original Well Elev)
KB = 17' @ 3627.0usft (Original Well Elev)
Grid
Minimum Curvature
EDM 5000.1 Single User Db

Planned Survey												
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)		
2,700.0	0.00	0.00	2,700.0	-927.0	0.0	0.0	0.0	0.00	606,684.70	666,969.50		
2,800.0	0.00	0.00	2,800.0	-827.0	0.0	0.0	0.0	0.00	606,684.70	666,969.50		
2,900.0	0.00	0.00	2,900.0	-727.0	0.0	0.0	0.0	0.00	606,684.70	666,969.50		
3,000.0	0.00	0.00	3,000.0	-627.0	0.0	0.0	0.0	0.00	606,684.70	666,969.50		
3,100.0	0.00	0.00	3,100.0	-527.0	0.0	0.0	0.0	0.00	606,684.70	666,969.50		
3,200.0	0.00	0.00	3,200.0	-427.0	0.0	0.0	0.0	0.00	606,684.70	666,969.50		
3,300.0	0.00	0.00	3,300.0	-327.0	0.0	0.0	0.0	0.00	606,684.70	666,969.50		
3,400.0	0.00	0.00	3,400.0	-227.0	0.0	0.0	0.0	0.00	606,684.70	666,969.50		
3,500.0	0.00	0.00	3,500.0	-127.0	0.0	0.0	0.0	0.00	606,684.70	666,969.50		
3,600.0	0.00	0.00	3,600.0	-27.0	0.0	0.0	0.0	0.00	606,684.70	666,969.50		
3,700.0	0.00	0.00	3,700.0	73.0	0.0	0.0	0.0	0.00	606,684.70	666,969.50		
3,800.0	0.00	0.00	3,800.0	173.0	0.0	0.0	0.0	0.00	606,684.70	666,969.50		
3,900.0	0.00	0.00	3,900.0	273.0	0.0	0.0	0.0	0.00	606,684.70	666,969.50		
4,000.0	0.00	0.00	4,000.0	373.0	0.0	0.0	0.0	0.00	606,684.70	666,969.50		
4,100.0	0.00	0.00	4,100.0	473.0	0.0	0.0	0.0	0.00	606,684.70	666,969.50		
4,200.0	0.00	0.00	4,200.0	573.0	0.0	0.0	0.0	0.00	606,684.70	666,969.50		
4,300.0	0.00	0.00	4,300.0	673.0	0.0	0.0	0.0	0.00	606,684.70	666,969.50		
4,400.0	0.00	0.00	4,400.0	773.0	0.0	0.0	0.0	0.00	606,684.70	666,969.50		
4,500.0	0.00	0.00	4,500.0	873.0	0.0	0.0	0.0	0.00	606,684.70	666,969.50		
4,600.0	0.00	0.00	4,600.0	973.0	0.0	0.0	0.0	0.00	606,684.70	666,969.50		
4,700.0	0.00	0.00	4,700.0	1,073.0	0.0	0.0	0.0	0.00	606,684.70	666,969.50		
4,800.0	0.00	0.00	4,800.0	1,173.0	0.0	0.0	0.0	0.00	606,684.70	666,969.50		
4,900.0	0.00	0.00	4,900.0	1,273.0	0.0	0.0	0.0	0.00	606,684.70	666,969.50		
5,000.0	0.00	0.00	5,000.0	1,373.0	0.0	0.0	0.0	0.00	606,684.70	666,969.50		
5,100.0	0.00	0.00	5,100.0	1,473.0	0.0	0.0	0.0	0.00	606,684.70	666,969.50		
5,200.0	0.00	0.00	5,200.0	1,573.0	0.0	0.0	0.0	0.00	606,684.70	666,969.50		
5,300.0	0.00	0.00	5,300.0	1,673.0	0.0	0.0	0.0	0.00	606,684.70	666,969.50		



A Schlumberger Company

Pathfinder Pathfinder X&Y Report



Company: COG Operating LLC
Project: Lea County(NAD27)
Site: Lusk Deep Unit A
Well: #22H
Wellbore: OH
Design: Plan #1

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

Well #22H
KB = 17' @ 3627.0usft (Original Well Elev)
KB = 17' @ 3627.0usft (Original Well Elev)
Grid
Minimum Curvature
EDM 5000.1 Single User Db

Planned Survey												
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLog (°/100usft)	Northing (usft)	Easting (usft)		
5,400.0	0.00	0.00	5,400.0	1,773.0	0.0	0.0	0.0	0.00	606,684.70	666,969.50		
5,500.0	0.00	0.00	5,500.0	1,873.0	0.0	0.0	0.0	0.00	606,684.70	666,969.50		
5,600.0	0.00	0.00	5,600.0	1,973.0	0.0	0.0	0.0	0.00	606,684.70	666,969.50		
5,700.0	0.00	0.00	5,700.0	2,073.0	0.0	0.0	0.0	0.00	606,684.70	666,969.50		
5,800.0	0.00	0.00	5,800.0	2,173.0	0.0	0.0	0.0	0.00	606,684.70	666,969.50		
5,900.0	0.00	0.00	5,900.0	2,273.0	0.0	0.0	0.0	0.00	606,684.70	666,969.50		
6,000.0	0.00	0.00	6,000.0	2,373.0	0.0	0.0	0.0	0.00	606,684.70	666,969.50		
6,100.0	0.00	0.00	6,100.0	2,473.0	0.0	0.0	0.0	0.00	606,684.70	666,969.50		
6,200.0	0.00	0.00	6,200.0	2,573.0	0.0	0.0	0.0	0.00	606,684.70	666,969.50		
6,300.0	0.00	0.00	6,300.0	2,673.0	0.0	0.0	0.0	0.00	606,684.70	666,969.50		
6,400.0	0.00	0.00	6,400.0	2,773.0	0.0	0.0	0.0	0.00	606,684.70	666,969.50		
6,500.0	0.00	0.00	6,500.0	2,873.0	0.0	0.0	0.0	0.00	606,684.70	666,969.50		
6,600.0	0.00	0.00	6,600.0	2,973.0	0.0	0.0	0.0	0.00	606,684.70	666,969.50		
6,700.0	0.00	0.00	6,700.0	3,073.0	0.0	0.0	0.0	0.00	606,684.70	666,969.50		
6,800.0	0.00	0.00	6,800.0	3,173.0	0.0	0.0	0.0	0.00	606,684.70	666,969.50		
6,900.0	0.00	0.00	6,900.0	3,273.0	0.0	0.0	0.0	0.00	606,684.70	666,969.50		
7,000.0	0.00	0.00	7,000.0	3,373.0	0.0	0.0	0.0	0.00	606,684.70	666,969.50		
7,100.0	0.00	0.00	7,100.0	3,473.0	0.0	0.0	0.0	0.00	606,684.70	666,969.50		
7,200.0	0.00	0.00	7,200.0	3,573.0	0.0	0.0	0.0	0.00	606,684.70	666,969.50		
7,300.0	0.00	0.00	7,300.0	3,673.0	0.0	0.0	0.0	0.00	606,684.70	666,969.50		
7,400.0	0.00	0.00	7,400.0	3,773.0	0.0	0.0	0.0	0.00	606,684.70	666,969.50		
7,500.0	0.00	0.00	7,500.0	3,873.0	0.0	0.0	0.0	0.00	606,684.70	666,969.50		
7,600.0	0.00	0.00	7,600.0	3,973.0	0.0	0.0	0.0	0.00	606,684.70	666,969.50		
7,700.0	0.00	0.00	7,700.0	4,073.0	0.0	0.0	0.0	0.00	606,684.70	666,969.50		
7,800.0	0.00	0.00	7,800.0	4,173.0	0.0	0.0	0.0	0.00	606,684.70	666,969.50		
7,900.0	0.00	0.00	7,900.0	4,273.0	0.0	0.0	0.0	0.00	606,684.70	666,969.50		
8,000.0	0.00	0.00	8,000.0	4,373.0	0.0	0.0	0.0	0.00	606,684.70	666,969.50		



A Schlumberger Company

Pathfinder Pathfinder X&Y Report



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Site: Lusk Deep Unit A
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8,100.0	0.00	0.00	8,100.0	4,473.0	0.0	0.0	0.0	0.00	606,684.70	666,969.50
8,200.0	0.00	0.00	8,200.0	4,573.0	0.0	0.0	0.0	0.00	606,684.70	666,969.50
8,300.0	0.00	0.00	8,300.0	4,673.0	0.0	0.0	0.0	0.00	606,684.70	666,969.50
8,400.0	0.00	0.00	8,400.0	4,773.0	0.0	0.0	0.0	0.00	606,684.70	666,969.50
8,500.0	0.00	0.00	8,500.0	4,873.0	0.0	0.0	0.0	0.00	606,684.70	666,969.50
8,600.0	0.00	0.00	8,600.0	4,973.0	0.0	0.0	0.0	0.00	606,684.70	666,969.50
8,700.0	0.00	0.00	8,700.0	5,073.0	0.0	0.0	0.0	0.00	606,684.70	666,969.50
8,742.6	0.00	0.00	8,742.6	5,115.6	0.0	0.0	0.0	0.00	606,684.70	666,969.50
8,750.0	0.89	177.01	8,750.0	5,123.0	-0.1	0.0	0.1	12.00	606,684.64	666,969.50
8,775.0	3.89	177.01	8,775.0	5,148.0	-1.1	0.1	1.1	12.00	606,683.60	666,969.56
8,800.0	6.89	177.01	8,799.9	5,172.9	-3.4	0.2	3.4	12.00	606,681.26	666,969.68
8,825.0	9.89	177.01	8,824.6	5,197.6	-7.1	0.4	7.1	12.00	606,677.62	666,969.87
8,850.0	12.89	177.01	8,849.1	5,222.1	-12.0	0.6	12.0	12.00	606,672.69	666,970.13
8,875.0	15.89	177.01	8,873.3	5,246.3	-18.2	1.0	18.2	12.00	606,666.49	666,970.45
8,900.0	18.89	177.01	8,897.2	5,270.2	-25.7	1.3	25.7	12.00	606,659.03	666,970.84
8,925.0	21.89	177.01	8,920.6	5,293.6	-34.4	1.8	34.4	12.00	606,650.33	666,971.30
8,950.0	24.89	177.01	8,943.5	5,316.5	-44.3	2.3	44.3	12.00	606,640.42	666,971.81
8,975.0	27.89	177.01	8,965.9	5,338.9	-55.4	2.9	55.5	12.00	606,629.32	666,972.39
9,000.0	30.89	177.01	8,987.7	5,360.7	-67.6	3.5	67.7	12.00	606,617.07	666,973.03
9,025.0	33.89	177.01	9,008.8	5,381.8	-81.0	4.2	81.1	12.00	606,603.70	666,973.73
9,050.0	36.89	177.01	9,029.2	5,402.2	-95.5	5.0	95.6	12.00	606,589.25	666,974.49
9,075.0	39.89	177.01	9,048.8	5,421.8	-111.0	5.8	111.1	12.00	606,573.75	666,975.30
9,100.0	42.89	177.01	9,067.5	5,440.5	-127.5	6.7	127.6	12.00	606,557.24	666,976.16
9,125.0	45.89	177.01	9,085.4	5,458.4	-144.9	7.6	145.1	12.00	606,539.78	666,977.08
9,150.0	48.89	177.01	9,102.3	5,475.3	-163.3	8.5	163.5	12.00	606,521.41	666,978.04
9,175.0	51.89	177.01	9,118.3	5,491.3	-182.5	9.5	182.8	12.00	606,502.18	666,979.04
9,200.0	54.89	177.01	9,133.2	5,506.2	-202.6	10.6	202.8	12.00	606,482.14	666,980.09



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Pathfinder Pathfinder X&Y Report



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WellBore: OH
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Local Co-ordinate Reference:
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Well #22H
KB = 17' @ 3627.0usft (Original Well Elev)
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Planned Survey											
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)	
9,225.0	57.89	177.01	9,147.0	5,520.0	-223.4	11.7	223.7	12.00	606,461.35	666,981.17	
9,250.0	60.89	177.01	9,159.7	5,532.7	-244.8	12.8	245.2	12.00	606,439.86	666,982.30	
9,275.0	63.89	177.01	9,171.3	5,544.3	-267.0	14.0	267.3	12.00	606,417.74	666,983.45	
9,300.0	66.89	177.01	9,181.7	5,554.7	-289.7	15.1	290.0	12.00	606,395.05	666,984.64	
9,325.0	69.89	177.01	9,191.0	5,564.0	-312.9	16.4	313.3	12.00	606,371.84	666,985.85	
9,350.0	72.89	177.01	9,198.9	5,571.9	-336.5	17.6	337.0	12.00	606,348.18	666,987.09	
9,375.0	75.89	177.01	9,205.7	5,578.7	-360.6	18.8	361.1	12.00	606,324.14	666,988.35	
9,400.0	78.89	177.01	9,211.1	5,584.1	-384.9	20.1	385.4	12.00	606,299.78	666,989.62	
9,425.0	81.89	177.01	9,215.3	5,588.3	-409.5	21.4	410.1	12.00	606,275.17	666,990.91	
9,450.0	84.89	177.01	9,218.2	5,591.2	-434.3	22.7	434.9	12.00	606,250.37	666,992.20	
9,475.0	87.89	177.01	9,219.7	5,592.7	-459.2	24.0	459.9	12.00	606,225.46	666,993.50	
9,485.7	89.17	177.01	9,220.0	5,593.0	-469.9	24.6	470.6	12.00	606,214.77	666,994.06	
9,500.0	89.17	177.01	9,220.2	5,593.2	-484.2	25.3	484.9	0.00	606,200.50	666,994.81	
9,600.0	89.17	177.01	9,221.7	5,594.7	-584.1	30.5	584.9	0.00	606,100.64	667,000.03	
9,700.0	89.17	177.01	9,223.1	5,596.1	-683.9	35.7	684.8	0.00	606,000.79	667,005.25	
9,800.0	89.17	177.01	9,224.6	5,597.6	-783.8	41.0	784.8	0.00	605,900.94	667,010.47	
9,900.0	89.17	177.01	9,226.0	5,599.0	-883.6	46.2	884.8	0.00	605,801.08	667,015.69	
10,000.0	89.17	177.01	9,227.4	5,600.4	-983.5	51.4	984.8	0.00	605,701.23	667,020.91	
10,100.0	89.17	177.01	9,228.9	5,601.9	-1,083.3	56.6	1,084.8	0.00	605,601.38	667,026.13	
10,200.0	89.17	177.01	9,230.3	5,603.3	-1,183.2	61.8	1,184.8	0.00	605,501.52	667,031.34	
10,300.0	89.17	177.01	9,231.8	5,604.8	-1,283.0	67.1	1,284.8	0.00	605,401.67	667,036.56	
10,400.0	89.17	177.01	9,233.2	5,606.2	-1,382.9	72.3	1,384.8	0.00	605,301.82	667,041.78	
10,500.0	89.17	177.01	9,234.7	5,607.7	-1,482.7	77.5	1,484.8	0.00	605,201.96	667,047.00	
10,600.0	89.17	177.01	9,236.1	5,609.1	-1,582.6	82.7	1,584.7	0.00	605,102.11	667,052.22	
10,700.0	89.17	177.01	9,237.5	5,610.5	-1,682.4	87.9	1,684.7	0.00	605,002.26	667,057.44	
10,800.0	89.17	177.01	9,239.0	5,612.0	-1,782.3	93.2	1,784.7	0.00	604,902.41	667,062.66	
10,900.0	89.17	177.01	9,240.4	5,613.4	-1,882.1	98.4	1,884.7	0.00	604,802.55	667,067.88	



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Pathfinder Pathfinder X&Y Report



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Wellbore: OH
Design: Plan #1

Local Co-ordinate Reference:
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Well #22H
KB = 17' @ 3627.0usft (Original Well Elev)
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11,000.0	89.17	177.01	9,241.9	5,614.9	-1,982.0	103.6	1,984.7	0.00	604,702.70	667,073.10	
11,100.0	89.17	177.01	9,243.3	5,616.3	-2,081.9	108.8	2,084.7	0.00	604,602.85	667,078.32	
11,200.0	89.17	177.01	9,244.8	5,617.8	-2,181.7	114.0	2,184.7	0.00	604,502.99	667,083.54	
11,300.0	89.17	177.01	9,246.2	5,619.2	-2,281.6	119.3	2,284.7	0.00	604,403.14	667,088.76	
11,400.0	89.17	177.01	9,247.7	5,620.7	-2,381.4	124.5	2,384.7	0.00	604,303.29	667,093.98	
11,500.0	89.17	177.01	9,249.1	5,622.1	-2,481.3	129.7	2,484.7	0.00	604,203.43	667,099.20	
11,600.0	89.17	177.01	9,250.5	5,623.5	-2,581.1	134.9	2,584.6	0.00	604,103.58	667,104.42	
11,700.0	89.17	177.01	9,252.0	5,625.0	-2,681.0	140.1	2,684.6	0.00	604,003.73	667,109.64	
11,800.0	89.17	177.01	9,253.4	5,626.4	-2,780.8	145.4	2,784.6	0.00	603,903.87	667,114.85	
11,900.0	89.17	177.01	9,254.9	5,627.9	-2,880.7	150.6	2,884.6	0.00	603,804.02	667,120.07	
12,000.0	89.17	177.01	9,256.3	5,629.3	-2,980.5	155.8	2,984.6	0.00	603,704.17	667,125.29	
12,100.0	89.17	177.01	9,257.8	5,630.8	-3,080.4	161.0	3,084.6	0.00	603,604.31	667,130.51	
12,200.0	89.17	177.01	9,259.2	5,632.2	-3,180.2	166.2	3,184.6	0.00	603,504.46	667,135.73	
12,300.0	89.17	177.01	9,260.6	5,633.6	-3,280.1	171.5	3,284.6	0.00	603,404.61	667,140.95	
12,400.0	89.17	177.01	9,262.1	5,635.1	-3,379.9	176.7	3,384.6	0.00	603,304.75	667,146.17	
12,500.0	89.17	177.01	9,263.5	5,636.5	-3,479.8	181.9	3,484.6	0.00	603,204.90	667,151.39	
12,600.0	89.17	177.01	9,265.0	5,638.0	-3,579.7	187.1	3,584.5	0.00	603,105.05	667,156.61	
12,700.0	89.17	177.01	9,266.4	5,639.4	-3,679.5	192.3	3,684.5	0.00	603,005.19	667,161.83	
12,800.0	89.17	177.01	9,267.9	5,640.9	-3,779.4	197.5	3,784.5	0.00	602,905.34	667,167.05	
12,900.0	89.17	177.01	9,269.3	5,642.3	-3,879.2	202.8	3,884.5	0.00	602,805.49	667,172.27	
13,000.0	89.17	177.01	9,270.8	5,643.8	-3,979.1	208.0	3,984.5	0.00	602,705.63	667,177.49	
13,100.0	89.17	177.01	9,272.2	5,645.2	-4,078.9	213.2	4,084.5	0.00	602,605.78	667,182.71	
13,200.0	89.17	177.01	9,273.6	5,646.6	-4,178.8	218.4	4,184.5	0.00	602,505.93	667,187.93	
13,300.0	89.17	177.01	9,275.1	5,648.1	-4,278.6	223.6	4,284.5	0.00	602,406.07	667,193.15	
13,400.0	89.17	177.01	9,276.5	5,649.5	-4,378.5	228.9	4,384.5	0.00	602,306.22	667,198.36	
13,500.0	89.17	177.01	9,278.0	5,651.0	-4,478.3	234.1	4,484.4	0.00	602,206.37	667,203.58	
13,600.0	89.17	177.01	9,279.4	5,652.4	-4,578.2	239.3	4,584.4	0.00	602,106.51	667,208.80	



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Pathfinder
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Design: Plan #1

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EDM 5000.1 Single User Db

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13,640.2	89.17	177.01	9,280.0	5,653.0	-4,618.3	241.4	4,624.6	0.00	602,086.40	667,210.90

Checked By: _____ Approved By: _____ Date: _____



Project: Lea County(NAD27)
Site: Lusk Deep Unit A
Well: #22H
Wellbore: OH
Plan: Plan #1 (#22H/OH)



Azimuths to Grid North
True North: 0.29°
Magnetic North: 7.28°
Magnetic Field
Strength: 48783.0snT
Dip Angle: 60.56°
Date: 8/7/2012
Model: IGRF200510



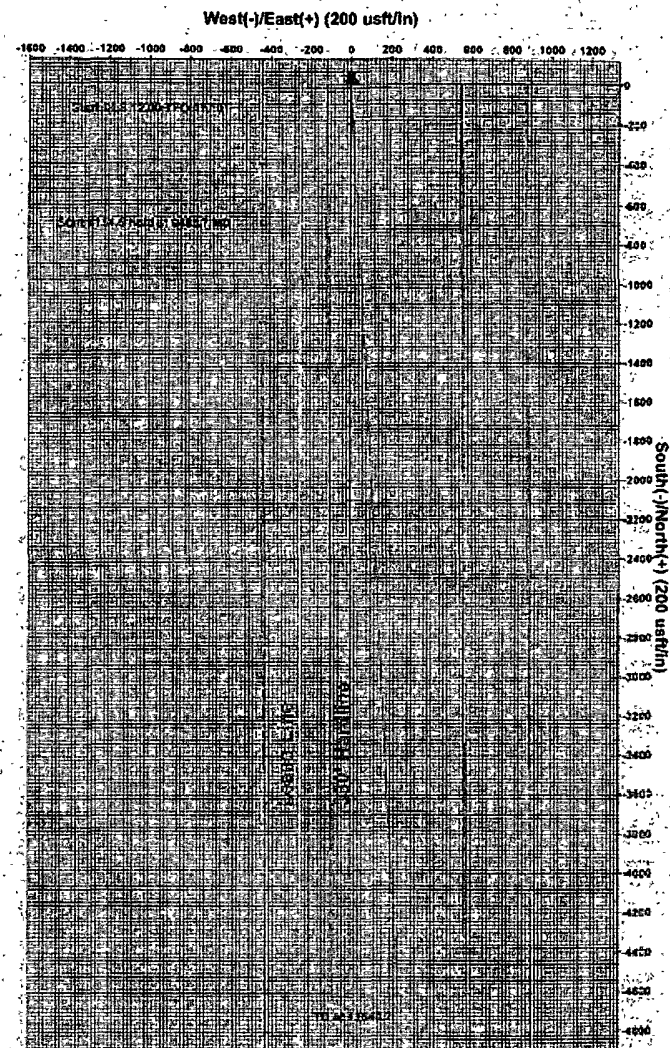
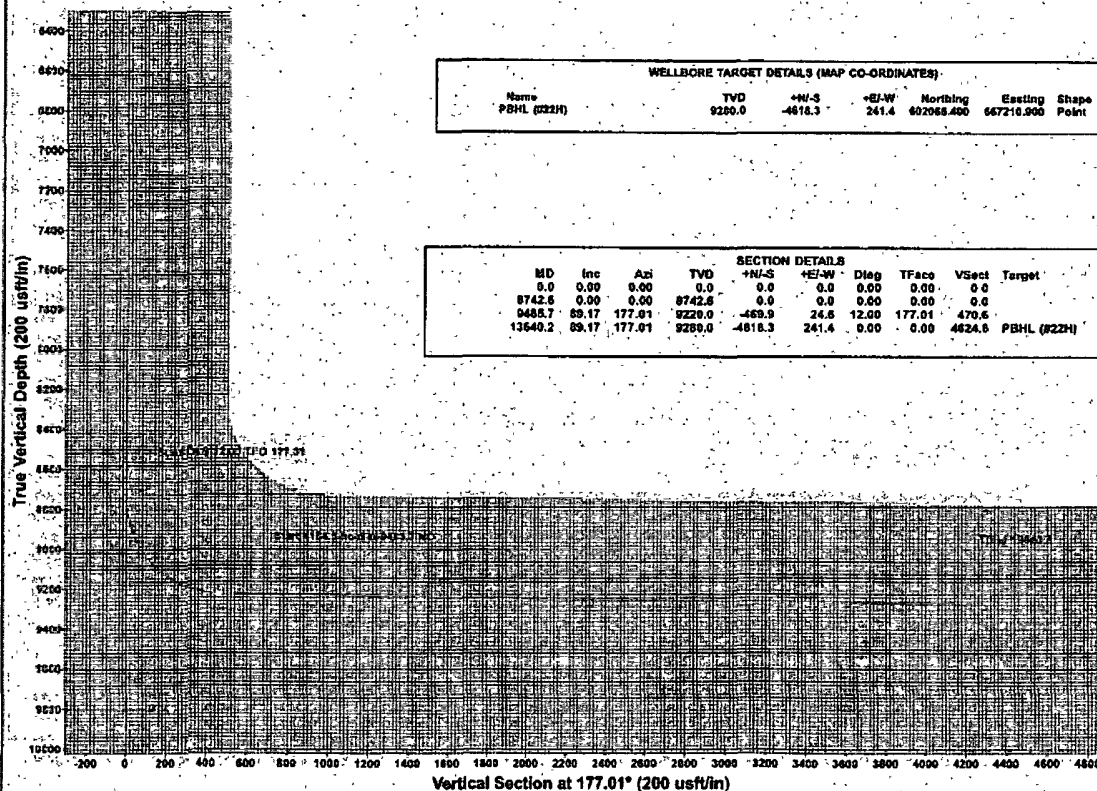
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PROJECT DETAILS: Lea County(NAD27)
Geodetic System: US State Plane 1927 (Exact solution)
Datum: NAD 1927 (NADCON CONUS)
Ellipsoid: Clarke 1866
Zone: New Mexico East 3001
System Datum: Mean Sea Level
Local North: Grid

WELL DETAILS: #22H						
Ground Elevation: 3510.9						
RKB Elevation: KB = 17' @ 3427.5usft (Original Well Elev)						
Rig Name: Original Well Elev						
+N-S	+E-W	Northing	Easting	Latitude	Longitude	Shot
0.0	0.0	605654.708	665969.500	32.687	-103.791	

WELLBORE TARGET DETAILS (MAP CO-ORDINATES)						
Name	TVD	+N-S	+E-W	Northing	Easting	Shape
PBHL (#22H)	9220.0	-4818.3	241.4	602068.400	667216.500	Point

SECTION DETAILS									
MD	Inc	Asi	TVD	+N-S	+E-W	Diag	TFac	VSect	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
8742.6	0.00	0.00	8742.6	0.0	0.0	0.00	0.00	0.0	
9485.7	69.17	177.01	9220.0	-489.9	24.6	12.00	177.01	470.6	
13640.2	69.17	177.01	9220.0	-4818.3	241.4	0.00	0.00	4624.6	PBHL (#22H)



Plan: Plan #1 (#22H/OH)	
Created By: Michael Trout	Date: 15:53, August 07 2012
Checked: _____	Date: _____
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