

DATE IN 1.12.12	SUSPENSE	ENGINEER DKB	LOGGED IN 1.12.12	TYPE NSL	APP NO. 1201255771
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ABOVE THIS LINE FOR DIVISION USE ONLY

NEW MEXICO OIL CONSERVATION DIVISION
 - Engineering Bureau -
 1220 South St. Francis Drive, Santa Fe, NM 87505



COG 229137

McFed #57

ADMINISTRATIVE APPLICATION CHECKLIST 30-025-40096

THIS CHECKLIST IS MANDATORY FOR ALL ADMINISTRATIVE APPLICATIONS FOR EXCEPTIONS TO DIVISION RULES AND REGULATIONS WHICH REQUIRE PROCESSING AT THE DIVISION LEVEL IN SANTA FE

Application Acronyms:

[NSL-Non-Standard Location] [NSP-Non-Standard Proration Unit] [SD-Simultaneous Dedication]
[DHC-Downhole Commingling] [CTB-Lease Commingling] [PLC-Pool/Lease Commingling]
[PC-Pool Commingling] [OLS - Off-Lease Storage] [OLM-Off-Lease Measurement]
[WFX-Waterflood Expansion] [PMX-Pressure Maintenance Expansion]
[SWD-Salt Water Disposal] [IPI-Injection Pressure Increase]
[EOR-Qualified Enhanced Oil Recovery Certification] [PPR-Positive Production Response]

- [1] **TYPE OF APPLICATION** - Check Those Which Apply for [A]
 [A] Location - Spacing Unit - Simultaneous Dedication
☒ NSL ☐ NSP ☐ SD

Check One Only for [B] or [C]

- [B] Commingling - Storage - Measurement
☐ DHC ☐ CTB ☐ PLC ☐ PC ☐ OLS ☐ OLM

- [C] Injection - Disposal - Pressure Increase - Enhanced Oil Recovery
☐ WFX ☐ PMX ☐ SWD ☐ IPI ☐ EOR ☐ PPR

- [D] Other: Specify _____

- [2] **NOTIFICATION REQUIRED TO:** - Check Those Which Apply, or ☒ Does Not Apply INTEREST ARE THE SAME
 [A] ☐ Working, Royalty or Overriding Royalty Interest Owners
 [B] ☐ Offset Operators, Leaseholders or Surface Owner
 [C] ☐ Application is One Which Requires Published Legal Notice
 [D] ☐ Notification and/or Concurrent Approval by BLM or SLO
U.S. Bureau of Land Management - Commissioner of Public Lands, State Land Office
 [E] ☐ For all of the above, Proof of Notification or Publication is Attached, and/or,
 [F] ☐ Waivers are Attached

- [3] **SUBMIT ACCURATE AND COMPLETE INFORMATION REQUIRED TO PROCESS THE TYPE OF APPLICATION INDICATED ABOVE.**

[4] **CERTIFICATION:** I hereby certify that the information submitted with this application for administrative approval is **accurate** and **complete** to the best of my knowledge. I also understand that **no action** will be taken on this application until the required information and notifications are submitted to the Division.

Note: Statement must be completed by an individual with managerial and/or supervisory capacity.

Kelly J. Holly
 Print or Type Name

Signature

Permitting Tech
 Title

1-11-12
 Date

(432) 685-4384
 Phone Number

kholly@concho.com
 E-mail Address

**M C Federal #57
Lea County, NM**

COG proposes to drill a **VERTICAL** NE/4 SE/4, 40 acre spacing
Maljamar; Yeso; West oil well
TD of approximately 7143' MD 7100' TVD

Non-Standard Location:

SHL: 2576' FSL & 1474' FEL Sec 21, T17S, R32E, Unit J
BHL: 2310' FSL & 990' FEL Sec 21, T17S, R32E, Unit I

This NSL request is due to due to buried pipe lines.

The plan for this well is to complete it in the Yeso formation.
We won't know the exact perms until we drill & log it, but it will be very similar to
the M C Federal #11 (2460' FSL & 2210' FEL, Section 21, UL J) which was
completed in August 2007.

M C Federal #11 has perms from: 5981' – 6854' overall, but broken up into 3
separate intervals, with 3 separate fracs

1st interval: 5981' – 6104',
acidized w/ 2000 gals,
frac'd w/ 98,658 gals gel, 8,000 # LiteProp, 96,680# 16/30 sand.

2nd interval: 6206' – 6527',
acidized w/ 2500 gals,
frac'd w/ 91,018# gal gel, 8000# LiteProp, & 88,500 gals 16/30 sand.

3rd interval: 6627' – 6854',
acidized w/ 1750 gals,
frac'd w/ 103,543# gal gel, 8000# LiteProp, & 89,800 gals 16/30 sand.

Attachment 1

Plat & Map

Attachment 2

Map & legend of offset wells.

Attachment 3

Updated land plat showing that COG owns the offset acreage.
The acreage we are encroaching on is the NW/4 SE/4, SW/4 NE/4 & SE/4 NE/4
of Section 21.

Interests are the same.

COG Operating LLC respectfully requests permission to have this NSL approved.

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

Form C-102
Revised August 1, 2011
Submit one copy to appropriate
District Office

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number 30-025-40096	Pool Code 44500	Pool Name Maljamar; Yeso West
Property Code 302519	Property Name MC FEDERAL	Well Number 57
OGRID No. 229137	Operator Name COG OPERATING, LLC	Elevation 4051'

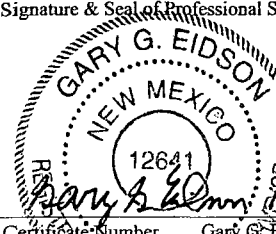
Surface Location

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
J	21	17-S	32-E		2576	SOUTH	1474	EAST	LEA

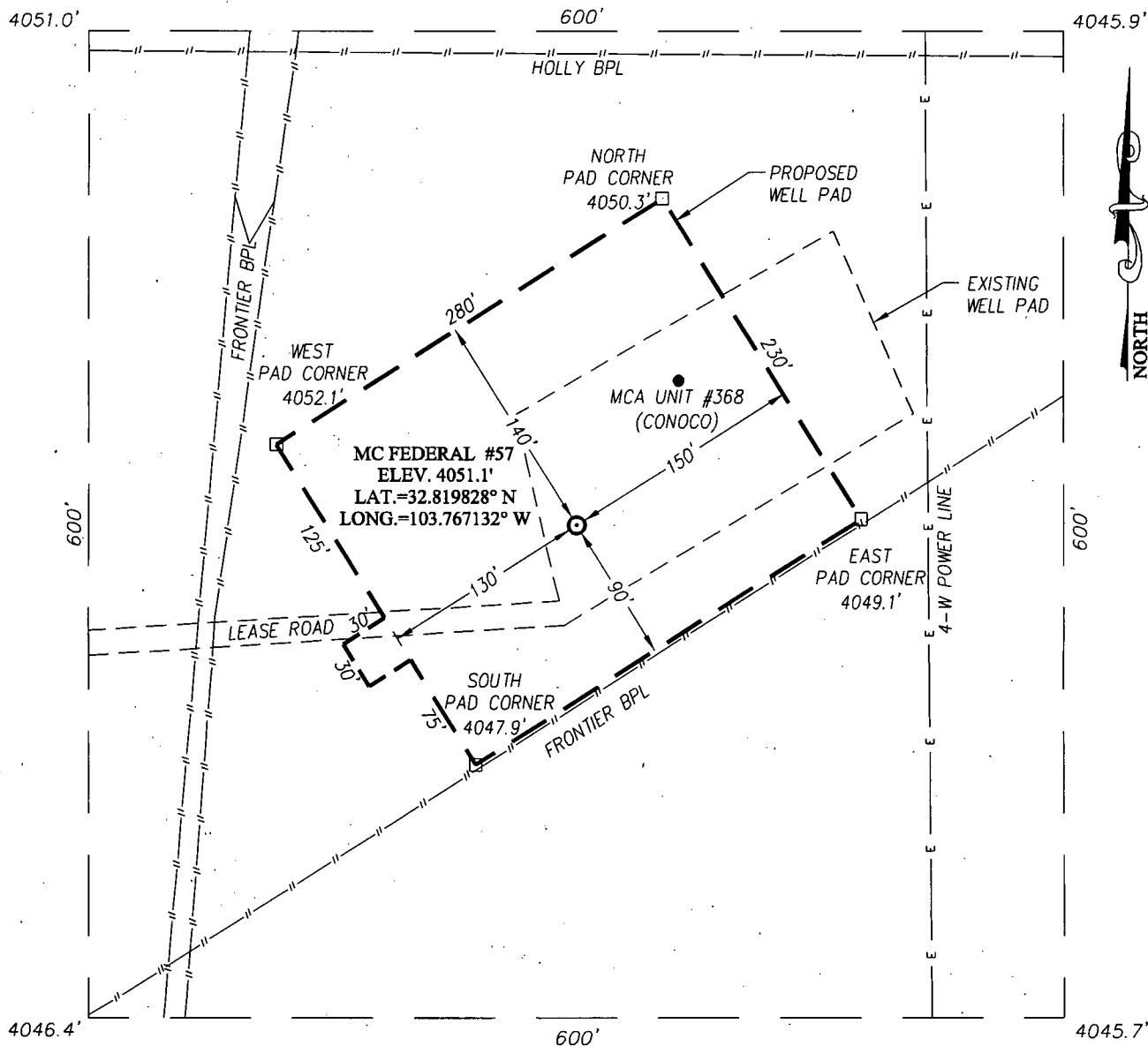
Bottom Hole Location If Different From Surface

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
I	21	17-S	32-E		2310	SOUTH	990	EAST	LEA
Dedicated Acres 40	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

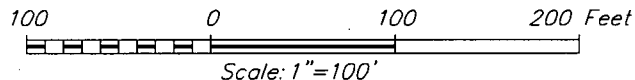
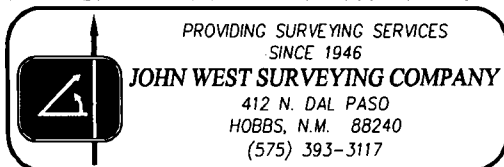
GEODETIC COORDINATES NAD 27 NME SURFACE LOCATION Y=662430.2 N X=673941.0 E LAT.=32.819828° N LONG.=103.767132° W BOTTOM HOLE LOCATION Y=662165.5 N X=674426.7 E CORNER COORDINATES TABLE Ⓐ - Y=662490.7 N, X=672774.4 E Ⓑ - Y=662496.6 N, X=675414.3 E Ⓒ - Y=661171.4 N, X=672782.6 E Ⓓ - Y=661177.7 N, X=675422.9 E DETAIL 4051.0' 4045.9' 4046.4' 4045.7' 600' Penetration Point 2412 FSL + 1101 FEL SEE DETAIL GRID. AZ.=118°35'25" HORIZ. DIST.=553.2' 2576' 2310' 1474' 990'	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 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 mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.  1-11-2012 Signature Date Kelly J. Holly Printed Name kholly@concho.com E-mail 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. OCTOBER 31, 2011 Date of Survey  Signature & Seal of Professional Surveyor: Certificate Number Gary G. Eidson 12641 Ronald J. Eidson 3239 AF REV. 11/02 PROFESSIONAL WSC W.O.: 11.13.2728
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SECTION 21, TOWNSHIP 17 SOUTH, RANGE 32 EAST, N.M.P.M.
LEA COUNTY NEW MEXICO



DIRECTIONS TO LOCATION

FROM THE INTERSECTION OF CONOCO ROAD AND MALJAMAR ROAD GO WEST ON CONOCO ROAD APPROX. 0.4 MILES. TURN RIGHT AND GO NORTH APPROX. 0.2 MILES. TURN RIGHT AND GO EAST APPROX. 0.1 MILE TO THE CONOCO MCA UNIT #368 WELL PAD. THIS LOCATION IS APPROX. 108 FEET SOUTHWEST OF THE EXISTING CONOCO PUMPING UNIT.



COG OPERATING, LLC

MC FEDERAL #57 WELL
LOCATED 2576 FEET FROM THE SOUTH LINE
AND 1474 FEET FROM THE EAST LINE OF SECTION 21,
TOWNSHIP 17 SOUTH, RANGE 32 EAST, N.M.P.M.,
LEA COUNTY, NEW MEXICO

Survey Date: 10/31/11	Sheet 1 of 1 Sheets
W.O. Number: 11.11.2219	Dr. By: AF Rev 1:
Date: 11/10/11	Rel. W.O.: 11112219 Scale: 1"=100'

Producing Wells in Sec 21, T17S, R32E

API#	Operator	Lease	Well#	County	Legal	Total Depth	Well Type	Well Status	First Prod.	Last Prod.	Avg. (BO/D)
30-025-00602	CONOCO, INC.	MCA UNIT	042	LEA	S:21, T:17S, R:32E		I	Temporarily Abandoned	Nov 1987	Dec 1990	0.00
30-025-00615	CONOCO, INC.	MCA UNIT	068	LEA	S:21, T:17S, R:32E		I	Temporarily Abandoned	Jan 1963	Nov 1963	0.00
30-025-12797	CONOCO, INC.	MCA UNIT	041	LEA	S:21, T:17S, R:32E		O	Pumping	Apr 1969	Dec 1990	0.00
30-025-00000		BAISH A	001	LEA	S:21, T:17S, R:32E		G	Active	Oct 1963	Dec 1969	0.00
30-025-00602	CONOCO, INC.	MCA UNIT	042	LEA	S:21, T:17S, R:32E		I	Temporarily Abandoned	Jan 1973	Dec 1973	0.03
30-025-00616	CONTINENTAL OIL COMPANY	MCA UNIT BATTERY 2	090	LEA	S:21, T:17S, R:32E	4,133	I	Pumping	Jan 1963	Sep 1969	0.20
30-025-00000	BUFFALO OIL COMPANY	BAISH A	17Y	LEA	S:21, T:17S, R:32E		O	Active	Apr 1948	Oct 1953	0.32
30-025-20522	CONOCOPHILLIPS COMPANY	MCA UNIT	234	LEA	S:21, T:17S, R:32E	4,100	O	Pumping	Jan 1993	Oct 2011	0.81
30-025-24258	CONOCOPHILLIPS COMPANY	MCA UNIT	326	LEA	S:21, T:17S, R:32E	4,250	O	Pumping	Jan 1993	Oct 2011	0.81
30-025-23660		MCA UNIT BATTERY 1	262	LEA	S:21, T:17S, R:32E	4,130	I	Pumping	Jan 1977	Oct 1990	0.90
30-025-00000	BUFFALO OIL COMPANY	BAISH A	001	LEA	S:21, T:17S, R:32E		O	Active	Dec 1947	Dec 1962	0.90
30-025-00618	CONOCOPHILLIPS COMPANY	BAISH A	003	LEA	S:21, T:17S, R:32E		O	Pumping	Jan 1963	Oct 2011	1.19
30-025-00620	CONOCO, INC.	BAISH A	006	LEA	S:21, T:17S, R:32E		O	Active	Jan 1959	Nov 1969	1.20
30-025-24461		MCA UNIT BATTERY 2	340	LEA	S:21, T:17S, R:32E	4,175	O	Temporarily Abandoned	Jan 1977	May 1991	1.23
30-025-00619	CONOCOPHILLIPS COMPANY	BAISH A	005	LEA	S:21, T:17S, R:32E		O	Pumping	Jan 1963	Oct 2011	1.45
30-025-00622	CONOCO, INC.	BAISH A	008	LEA	S:21, T:17S, R:32E	13,670	O	Active	Jan 1963	Dec 1969	1.48
30-025-00000	BUFFALO OIL COMPANY	BAISH A	17Y	LEA	S:21, T:17S, R:32E		O	Active	Jan 1952	Dec 1952	1.55
30-025-12763	CONOCOPHILLIPS COMPANY	MCA UNIT	044	LEA	S:21, T:17S, R:32E	4,066	O	Active	Jan 1970	Oct 2011	1.61
30-025-29854	CONOCOPHILLIPS COMPANY	MCA UNIT	368	LEA	S:21, T:17S, R:32E	4,229	O	Active	May 1987	Oct 2011	1.61
30-025-00607	CONOCOPHILLIPS COMPANY	MCA UNIT	026	LEA	S:21, T:17S, R:32E		PI	Injection Well	Jan 1963	Jul 1965	1.71
30-025-12748		MCA UNIT BATTERY 2	029	LEA	S:21, T:17S, R:32E		O	Active	Jan 1963	Jan 1974	1.77
30-025-00000	CONTINENTAL OIL CO HOBBS DIST	BAISH A FED	022	LEA	S:21, T:17S, R:32E		O	Active	Jan 1959	Dec 1962	2.06
	CONOCOPHILLIPS				S:21, T:17S, R:32E						

30-025-00603	COMPANY	MCA UNIT	043	LEA	R:32E		O	Pumping	Jan 1977	Oct 2011	2.45
30-025-00609	CONOCOPHILLIPS COMPANY	MCA UNIT	092	LEA	S:21, T:17S, R:32E	4,082	O	Pumping	Jan 1964	Oct 2011	2.45
30-025-22661	CONOCOPHILLIPS COMPANY	MCA UNIT	245	LEA	S:21, T:17S, R:32E	4,130	O	Pumping	Jan 1993	Oct 2011	2.45
30-025-24267	CONOCOPHILLIPS COMPANY	MCA UNIT	328	LEA	S:21, T:17S, R:32E	4,200	O	Pumping	Jan 1993	Oct 2011	2.45
30-025-00621		BAISH A	007	LEA	S:21, T:17S, R:32E		O	Active	Jan 1963	Dec 1971	2.52
30-025-00000	BUFFALO OIL COMPANY	BAISH A	23Y	LEA	S:21, T:17S, R:32E		O	Active	Jan 1953	Dec 1955	3.13
30-025-00611	CONOCOPHILLIPS COMPANY	MCA UNIT	069	LEA	S:21, T:17S, R:32E	0	O	Pumping	Jan 1964	Oct 2011	3.23
30-025-29959	CONOCOPHILLIPS COMPANY	MCA UNIT	373	LEA	S:21, T:17S, R:32E	4,350	PO	Pumping	Oct 1987	Aug 2002	3.42
30-025-00000	CONTINENTAL OIL	BAISH A Y FED	022	LEA	S:21, T:17S, R:32E		O	Active	Jan 1958	Dec 1961	3.42
30-025-00613	CONOCO, INC.	BAISH A	004	LEA	S:21, T:17S, R:32E		O	Active	Dec 1966	Apr 1970	3.57
30-025-00601	CONTINENTAL OIL COMPANY	MCA UNIT BATTERY 2	027	LEA	S:21, T:17S, R:32E	4,167	O	Pumping	Jan 1963	Dec 1971	3.90
30-025-20216		BAISH A	009	LEA	S:21, T:17S, R:32E	9,822	O	Active	Oct 1963	Dec 1967	3.97
30-025-00000	BUFFALO OIL COMPANY	BAISH A	22Y	LEA	S:21, T:17S, R:32E		O	Active	Jun 1952	Dec 1957	4.00
30-025-00000	CONTINENTAL OIL CO HOBBS DIST	BAISH A FED	023	LEA	S:21, T:17S, R:32E		O	Active	Jan 1959	Dec 1962	4.00
30-025-00608	CONOCOPHILLIPS COMPANY	MCA UNIT	093	LEA	S:21, T:17S, R:32E	0	O	Pumping	Jan 1977	Oct 2011	4.03
30-025-08031	CONOCOPHILLIPS COMPANY	MCA UNIT	046	LEA	S:21, T:17S, R:32E	0	O	Pumping	Jan 1993	Oct 2011	4.03
30-025-34973	COG OPERATING LLC	MC FEDERAL	5	LEA	S:21, T:17S, R:32E	6,908	O	Pumping	Apr 2001	Oct 2011	4.06
30-025-00605	CONOCOPHILLIPS COMPANY	MCA UNIT	045	LEA	S:21, T:17S, R:32E	4,106	PI	Injection Well	Jan 1977	Dec 1992	4.16
30-025-24258		MCA UNIT BATTERY 2	326	LEA	S:21, T:17S, R:32E	4,250	O	Pumping	Jan 1977	Dec 1993	4.26
30-025-00000	CONTINENTAL OIL CO	BAISH A Y FED	023	LEA	S:21, T:17S, R:32E		O	Active	Jan 1958	Dec 1961	4.29
30-025-38387	COG OPERATING LLC	MC FEDERAL	11	LEA	S:21, T:17S, R:32E	7,015	O	Active Permit	Aug 2007	Jan 2008	4.48
30-025-00000	BUFFALO OIL COMPANY	BAISH A	22Y	LEA	S:21, T:17S, R:32E		O	Active	Jan 1953	Dec 1955	4.71
30-025-00606	CONOCOPHILLIPS COMPANY	MCA UNIT	047	LEA	S:21, T:17S, R:32E	0	O	Pumping	May 1973	Oct 2011	4.84
30-025-00000	BUFFALO OIL COMPANY	BAISH A	23Y	LEA	S:21, T:17S, R:32E		O	Active	Jun 1952	Dec 1957	5.00
30-025-00000	BUFFALO OIL COMPANY	BAISH A	012	LEA	S:21, T:17S, R:32E		G	Active	Jan 1945	Dec 1962	5.00

30-025-00000	BUFFALO OIL COMPANY	BAISH A	015	LEA	S:21, T:17S, R:32E		G	Active	Jan 1945	Dec 1962	5.00
30-025-38739	COG OPERATING LLC	MC FEDERAL	16	LEA	S:21, T:17S, R:32E	7,021	O	Active Permit	Feb 2009	Oct 2011	5.10
30-025-00000	BUFFALO OIL COMPANY	BAISH A	019	LEA	S:21, T:17S, R:32E		O	Active	Aug 1948	Dec 1962	5.13
30-025-23433	CONOCOPHILLIPS COMPANY	MCA UNIT	251	LEA	S:21, T:17S, R:32E		O	Pumping	Jan 1993	Oct 2011	5.61
30-025-00606	CONTINENTAL OIL COMPANY	MCA UNIT BATTERY 2	047	LEA	S:21, T:17S, R:32E	0	O	Pumping	Jan 1968	Dec 1968	5.74
30-025-38387	COG OPERATING LLC	MC FEDERAL	11	LEA	S:21, T:17S, R:32E	7,015	O	Active Permit	Sep 2007	Oct 2011	5.81
30-025-00601	CONOCO, INC.	MCA UNIT	027	LEA	S:21, T:17S, R:32E	4,167	O	Pumping	Jan 1977	Dec 1992	6.26
30-025-00000	BUFFALO OIL COMPANY	BAISH A	016	LEA	S:21, T:17S, R:32E		G	Active	Jan 1945	Dec 1962	6.42
30-025-24461		MCA UNIT BATTERY 2	340	LEA	S:21, T:17S, R:32E	4,175	O	Temporarily Abandoned	Aug 1973	Dec 1976	6.45
30-025-38509	COG OPERATING LLC	MC FEDERAL	12	LEA	S:21, T:17S, R:32E	7,012	O	Active Permit	Nov 2007	Oct 2011	6.61
30-025-38717	COG OPERATING LLC	MC FEDERAL	24	LEA	S:21, T:17S, R:32E	7,042	O	Active Permit	Sep 2008	Oct 2011	6.61
30-025-00000	BUFFALO OIL CO	BAISH A	018	LEA	S:21, T:17S, R:32E		O	Active	Jul 1948	Dec 1962	6.68
30-025-20568	CONOCOPHILLIPS COMPANY	BAISH A	012	LEA	S:21, T:17S, R:32E		O	Pumping	Apr 1964	Oct 2011	6.87
30-025-00000	BUFFALO OIL COMPANY	BAISH A	017	LEA	S:21, T:17S, R:32E		O	Active	Apr 1948	Dec 1950	7.00
30-025-00000	BUFFALO OIL CO.	BAISH A	010	LEA	S:21, T:17S, R:32E		O	Active	Jan 1949	Dec 1949	7.00
30-025-00612	CONOCOPHILLIPS COMPANY	MCA UNIT	071	LEA	S:21, T:17S, R:32E	4,131	O	Pumping	Jan 1963	Oct 2011	7.26
30-025-00000	BUFFALO OIL COMPANY	BAISH A	005	LEA	S:21, T:17S, R:32E		O	Active	Jan 1945	Dec 1962	7.32
30-025-35252	COG OPERATING LLC	MC FEDERAL	006	LEA	S:21, T:17S, R:32E	15,026	G	Pumping	Apr 2001	Oct 2011	7.81
30-025-22661		MCA UNIT BATTERY 2	245	LEA	S:21, T:17S, R:32E	4,130	O	Pumping	Sep 1968	Dec 1993	8.03
30-025-00000	BUFFALO OIL COMPANY	BAISH A	19Y	LEA	S:21, T:17S, R:32E		O	Active	Jan 1952	Dec 1957	8.32
30-025-00000	BUFFALO OIL COMPANY	BAISH A	19Y	LEA	S:21, T:17S, R:32E		O	Active	Aug 1948	Dec 1955	8.61
30-025-39000	COG OPERATING LLC	MC FEDERAL	32	LEA	S:21, T:17S, R:32E	7,042	O	Active Permit	Nov 2009	Oct 2011	9.16
30-025-00000	BUFFALO OIL COMPANY	BAISH A	18Y	LEA	S:21, T:17S, R:32E		O	Active	Jan 1952	Dec 1957	9.35
30-025-20568	CONOCOPHILLIPS COMPANY	BAISH A	012	LEA	S:21, T:17S, R:32E		O	Pumping	Feb 1964	Oct 2011	9.39
30-025-38997	COG OPERATING LLC	MC FEDERAL	28	LEA	S:21, T:17S, R:32E	7,013	O	Active Permit	Jun 2009	Oct 2011	9.45

30-025-39168	COG OPERATING LLC	J C FEDERAL	30	LEA	S:21, T:17S, R:32E	7,120	O	Active Permit	Sep 2009	Oct 2011	9.87
30-025-00620	BUFFALO OIL COMPANY	BAISH A	006	LEA	S:21, T:17S, R:32E		O	Active	Jan 1945	Dec 1962	10.00
30-025-38551	COG OPERATING LLC	MC FEDERAL	13	LEA	S:21, T:17S, R:32E	7,125	O	Active Permit	Dec 2007	Oct 2011	10.03
30-025-20522		MCA UNIT BATTERY 2	234	LEA	S:21, T:17S, R:32E	4,100	O	Pumping	Aug 1963	Dec 1993	10.13
30-025-38996	COG OPERATING LLC	MC FEDERAL	27	LEA	S:21, T:17S, R:32E	7,012	O	Active Permit	Dec 2009	Oct 2011	10.13
30-025-00000	BUFFALO OIL COMPANY	BAISH A	18Y	LEA	S:21, T:17S, R:32E		O	Active	Jan 1951	Dec 1955	10.16
30-025-24267		MCA UNIT BATTERY 2	328	LEA	S:21, T:17S, R:32E	4,200	O	Pumping	Jan 1977	Dec 1993	10.45
30-025-00000	BUFFALO OIL COMPANY	BAISH A	18Y	LEA	S:21, T:17S, R:32E		O	Active	Jul 1948	Dec 1954	11.65
30-025-39002	COG OPERATING LLC	MC FEDERAL	34	LEA	S:21, T:17S, R:32E	7,033	O	Active Permit	Nov 2009	Oct 2011	11.77
30-025-39060	COG OPERATING LLC	J C FEDERAL	26	LEA	S:21, T:17S, R:32E	7,010	O	Active Permit	Apr 2009	Oct 2011	11.84
30-025-38716	COG OPERATING LLC	MC FEDERAL	23	LEA	S:21, T:17S, R:32E	6,999	O	Active Permit	Nov 2008	Oct 2011	11.87
30-025-00606		MCA UNIT BATTERY 2	047	LEA	S:21, T:17S, R:32E	0	O	Pumping	Feb 1967	Dec 1974	12.06
30-025-00000	BUFFALO OIL COMPANY	BAISH A	009	LEA	S:21, T:17S, R:32E		G	Active	Jan 1945	Dec 1962	12.87
30-025-00606	CONOCOPHILLIPS COMPANY	MCA UNIT	047	LEA	S:21, T:17S, R:32E	0	O	Pumping	Jan 1973	Dec 1976	12.94
30-025-39506	COG OPERATING LLC	J C FEDERAL	35	LEA	S:21, T:17S, R:32E	7,107	O	Active Permit	Jun 2010	Oct 2011	13.32
30-025-00000	BUFFALO OIL COMPANY	BAISH A	025	LEA	S:21, T:17S, R:32E		O	Active	Jan 1954	May 1954	13.81
30-025-38715	COG OPERATING LLC	MC FEDERAL	22	LEA	S:21, T:17S, R:32E	6,920	O	Active Permit	Jul 2009	Oct 2011	14.23
30-025-39292	COG OPERATING LLC	MC FEDERAL	38	LEA	S:21, T:17S, R:32E	7,035	O	Active Permit	Jun 2010	Oct 2011	14.23
30-025-39293	COG OPERATING LLC	MC FEDERAL	39	LEA	S:21, T:17S, R:32E	7,040	O	Active Permit	Jul 2010	Oct 2011	15.26
30-025-23433		MCA UNIT BATTERY 2	251	LEA	S:21, T:17S, R:32E		O	Pumping	Apr 1970	Dec 1993	15.61
30-025-39107	COG OPERATING LLC	MC FEDERAL	35	LEA	S:21, T:17S, R:32E	7,050	O	Active Permit	Mar 2010	Oct 2011	16.32
30-025-00620	BUFFALO OIL CO.	BAISH A	006	LEA	S:21, T:17S, R:32E		O	Active	Jan 1948	Dec 1948	16.97
30-025-39059	COG OPERATING LLC	J C FEDERAL	25	LEA	S:21, T:17S, R:32E	7,017	O	Active Permit	Jul 2009	Oct 2011	17.03
30-025-38703	COG OPERATING LLC	MC FEDERAL	20	LEA	S:21, T:17S, R:32E	7,400	PO	Active Permit	Apr 2008	Oct 2011	17.10
30-025-00000	BUFFALO OIL COMPANY	BAISH B	006	LEA	S:21, T:17S, R:32E		G	Active	Mar 1947	Dec 1962	17.19

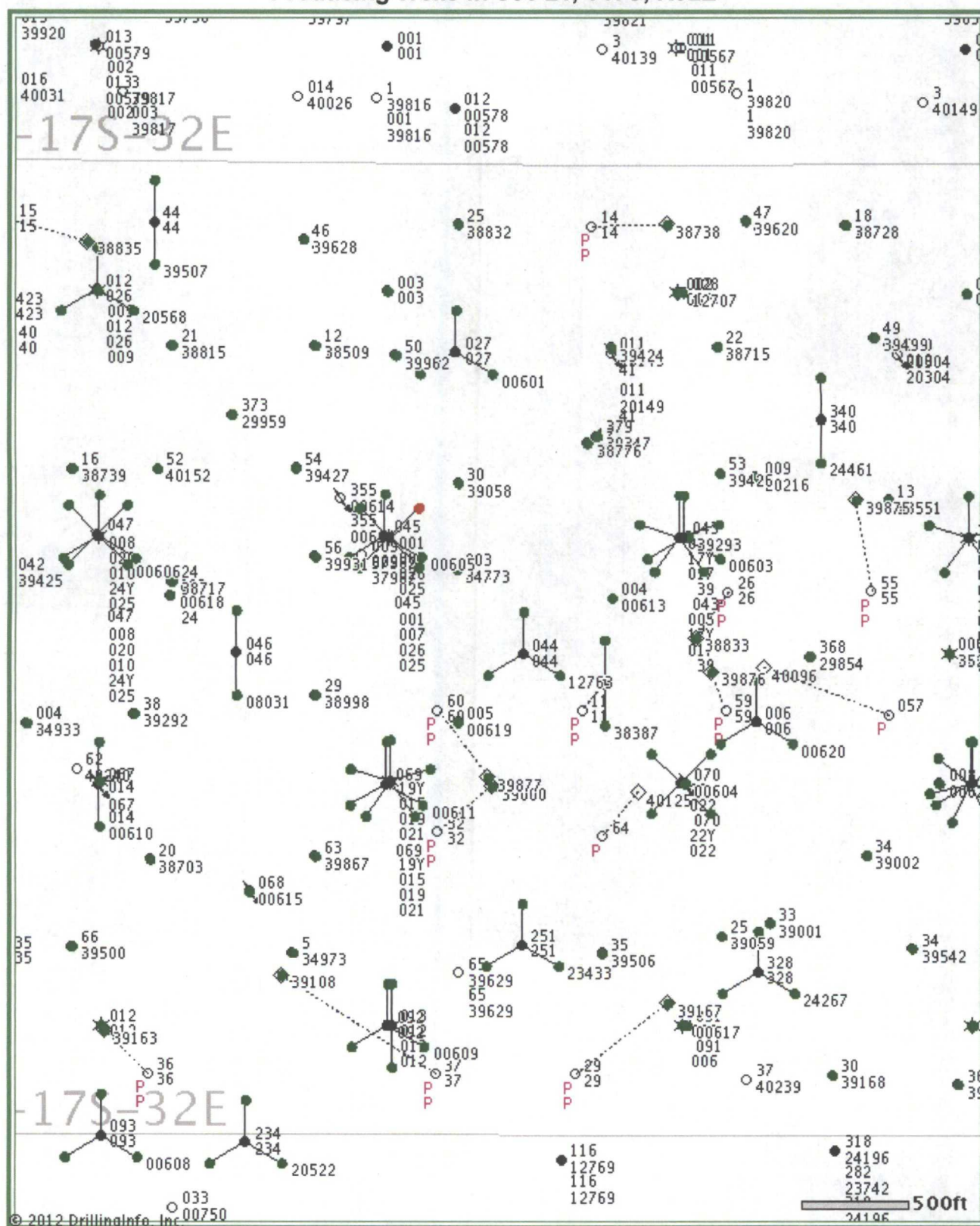
30-025-39614	COG OPERATING LLC	J C FEDERAL	36	LEA	S:21, T:17S, R:32E	7,146	O	Active Permit	Sep 2010	Oct 2011	17.23
30-025-12707	CONOCOPHILLIPS COMPANY	MCA UNIT	028	LEA	S:21, T:17S, R:32E	4,117	PI	Temporarily Abandoned	Jan 1963	Jul 1965	17.26
30-025-38738	COG OPERATING LLC	MC FEDERAL	14	LEA	S:21, T:17S, R:32E	7,015	O	Active Permit	Oct 2008	Oct 2011	17.94
30-025-39163	COG OPERATING LLC	MC FEDERAL	36	LEA	S:21, T:17S, R:32E	7,012	PO	Active Permit	Mar 2009	Oct 2011	18.03
30-025-39500	COG OPERATING LLC	MC FEDERAL	66	LEA	S:21, T:17S, R:32E	7,025	O	Active Permit	Feb 2011	Oct 2011	18.16
30-025-00000	BUFFALO OIL COMPANY	BAISH A	021	LEA	S:21, T:17S, R:32E		G	Active	Jan 1953	Dec 1962	18.61
30-025-39542	COG OPERATING LLC	J C FEDERAL	34	LEA	S:21, T:17S, R:32E	6,995	O	Active Permit	May 2010	Oct 2011	18.77
30-025-22661		MCA UNIT BATTERY 2	245	LEA	S:21, T:17S, R:32E	4,130	O	Pumping	Jan 1969	Dec 1976	19.39
30-025-23660		MCA UNIT BATTERY 1	262	LEA	S:21, T:17S, R:32E	4,130	I	Pumping	Jan 1971	Dec 1976	19.39
30-025-39867	COG OPERATING LLC	MC FEDERAL	63	LEA	S:21, T:17S, R:32E	7,110	O	Active Permit	Feb 2011	Oct 2011	19.71
30-025-00000	BUFFALO OIL COMPANY	BAISH A	24Y	LEA	S:21, T:17S, R:32E		O	Active	Jul 1952	Dec 1952	20.16
30-025-39423	COG OPERATING LLC	MC FEDERAL	40	LEA	S:21, T:17S, R:32E	7,010	O	Active Permit	Sep 2010	Oct 2011	20.16
30-025-00604	CONOCO, INC.	MCA UNIT	070	LEA	S:21, T:17S, R:32E	0	I	Injection Well	Jan 1963	Jul 1965	20.39
30-025-00608	CONOCOPHILLIPS COMPANY	MCA UNIT	093	LEA	S:21, T:17S, R:32E	0	O	Pumping	Jan 1973	Dec 1976	20.48
30-025-39001	COG OPERATING LLC	MC FEDERAL	33	LEA	S:21, T:17S, R:32E	7,138	O	Active Permit	Nov 2009	Oct 2011	21.16
30-025-00603	CONTINENTAL OIL COMPANY	MCA UNIT BATTERY 2	043	LEA	S:21, T:17S, R:32E		O	Pumping	Jan 1963	Dec 1971	21.45
30-025-00603	CONOCOPHILLIPS COMPANY	MCA UNIT	043	LEA	S:21, T:17S, R:32E		O	Pumping	Jan 1973	Dec 1976	21.55
30-025-38776	COG OPERATING LLC	MC FEDERAL	17	LEA	S:21, T:17S, R:32E	7,039	O	Active Permit	Jun 2008	Oct 2011	21.84
30-025-38998	COG OPERATING LLC	MC FEDERAL	29	LEA	S:21, T:17S, R:32E	7,000	PO	Active Permit	Dec 2008	Oct 2011	21.84
30-025-38728	COG OPERATING LLC	MC FEDERAL	18	LEA	S:21, T:17S, R:32E	7,350	PO	Active Permit	Jun 2008	Oct 2011	22.97
30-025-38833	COG OPERATING LLC	MC FEDERAL	26	LEA	S:21, T:17S, R:32E	7,035	O	Active Permit	Sep 2009	Oct 2011	23.19
30-025-00610	CONTINENTAL OIL COMPANY	MCA UNIT BATTERY 2	067	LEA	S:21, T:17S, R:32E	4,125	I	Injection Well	Jan 1963	Dec 1971	23.68
30-025-00000	BUFFALO IOL COMPANY	BAISH A	020	LEA	S:21, T:17S, R:32E		G	Active	Jan 1949	Dec 1962	23.77
30-025-00000	BUFFALO OIL CO.	BAISH A	005	LEA	S:21, T:17S, R:32E		O	Active	Jan 1948	Dec 1948	24.00
30-025-39167	COG OPERATING LLC	J C FEDERAL	29	LEA	S:21, T:17S, R:32E	7,134	O	Active Permit	Jul 2010	Oct 2011	24.00

30-025-00612	CONOCOPHILLIPS COMPANY	MCA UNIT	071	LEA	S:21, T:17S, R:32E	4,131	O	Pumping	Jan 1969	Dec 1976	24.68
30-025-00602		MCA UNIT BATTERY 2	042	LEA	S:21, T:17S, R:32E		I	Temporarily Abandoned	Jan 1963	Jul 1965	24.74
30-025-39108	COG OPERATING LLC	MC FEDERAL	37	LEA	S:21, T:17S, R:32E	7,197	O	Active Permit	Dec 2009	Oct 2011	25.68
30-025-00611		MCA UNIT BATTERY 2	069	LEA	S:21, T:17S, R:32E	0	O	Pumping	Jan 1967	Dec 1974	25.87
30-025-39424	COG OPERATING LLC	MC FEDERAL	41	LEA	S:21, T:17S, R:32E	7,041	O	Active Permit	Jun 2010	Oct 2011	26.32
30-025-38835	COG OPERATING LLC	MC FEDERAL	15	LEA	S:21, T:17S, R:32E	7,055	O	Active Permit	Mar 2010	Oct 2011	26.32
30-025-00000	BUFFALO IOL COMPANY	BAISH A	014	LEA	S:21, T:17S, R:32E		G	Active	Jan 1945	Dec 1962	27.00
30-025-39875	COG OPERATING LLC	MC FEDERAL	55	LEA	S:21, T:17S, R:32E	7,138	O	Active Permit	Apr 2011	Oct 2011	27.58
30-025-38815	COG OPERATING LLC	MC FEDERAL	21	LEA	S:21, T:17S, R:32E	7,020	O	Active Permit	Aug 2009	Oct 2011	28.45
30-025-39425	COG OPERATING LLC	MC FEDERAL	042	LEA	S:21, T:17S, R:32E	7,084	O	Active Permit	Aug 2010	Oct 2011	28.97
30-025-00608	CONTINENTAL OIL COMPANY	MCA UNIT BATTERY 2	093	LEA	S:21, T:17S, R:32E	0	O	Pumping	Jan 1963	Dec 1971	29.23
30-025-00000	BUFFALO OIL CO.	BAISH A	007	LEA	S:21, T:17S, R:32E		G	Active	Jan 1948	Dec 1948	29.58
30-025-39058	COG OPERATING LLC	MC FEDERAL	30	LEA	S:21, T:17S, R:32E	7,030	O	Active Permit	Feb 2010	Oct 2011	29.58
30-025-00617		MCA UNIT BATTERY 2	091	LEA	S:21, T:17S, R:32E		O	Active	Jan 1963	Dec 1975	30.10
30-025-00609	CONOCOPHILLIPS COMPANY	MCA UNIT	092	LEA	S:21, T:17S, R:32E	4,082	O	Pumping	Jan 1973	Dec 1976	30.16
30-025-39864	COG OPERATING LLC	MC FEDERAL	61	LEA	S:21, T:17S, R:32E	7,018	O	Active Permit	Jul 2011	Oct 2011	30.26
30-025-39507	COG OPERATING LLC	MC FEDERAL	44	LEA	S:21, T:17S, R:32E	7,000	O	Active Permit	Sep 2010	Oct 2011	30.26
30-025-00000	BUFFALO OIL COMPANY	BAISH A	007	LEA	S:21, T:17S, R:32E		G	Active	Jan 1945	Dec 1962	30.71
30-025-00000	BUFFALO OIL COMPANY	BAISH A	013	LEA	S:21, T:17S, R:32E		G	Active	Jan 1945	Dec 1962	31.00
30-025-24258		MCA UNIT BATTERY 2	326	LEA	S:21, T:17S, R:32E	4,250	O	Pumping	Jan 1973	Dec 1976	31.29
30-025-00000	BUFFALO OIL CO.	BAISH A	012	LEA	S:21, T:17S, R:32E		O	Active	Jan 1948	Dec 1948	33.10
30-025-00000	BUFFALO OIL COMPANY	BAISH B	005	LEA	S:21, T:17S, R:32E		G	Active	Jan 1945	Dec 1962	35.39
30-025-39874	COG OPERATING LLC	MC FEDERAL	51	LEA	S:21, T:17S, R:32E	7,035	O	Active Permit	Mar 2011	Oct 2011	35.58
30-025-39426	COG OPERATING LLC	MC FEDERAL	53	LEA	S:21, T:17S, R:32E	7,115	O	Active Permit	Mar 2010	Oct 2011	36.97
30-025-00601	CONOCO, INC.	MCA UNIT	027	LEA	S:21, T:17S, R:32E	4,167	O	Pumping	Jan 1973	Dec 1976	38.77

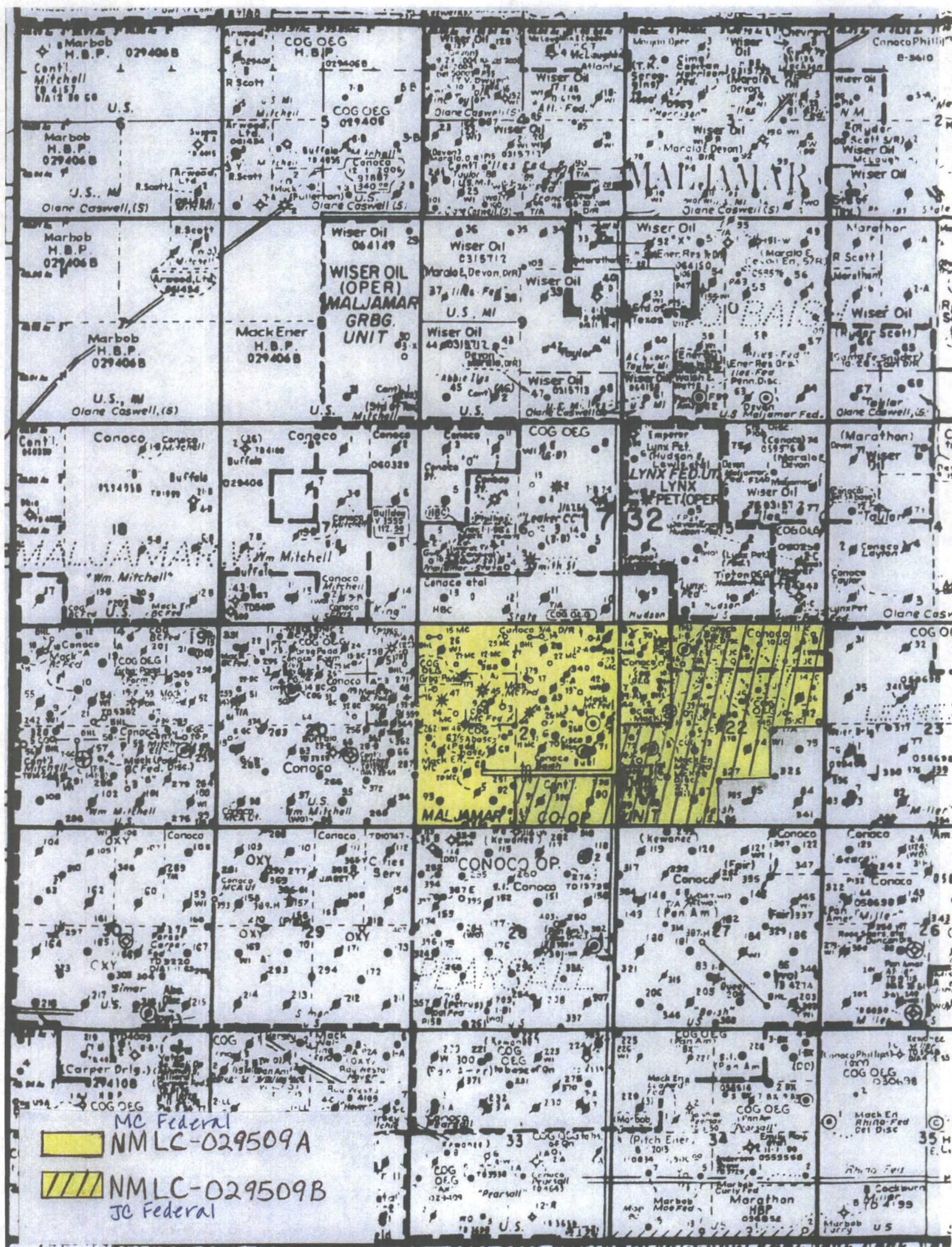
30-025-12763	CONTINENTAL OIL COMPANY	MCA UNIT BATTERY 2	044	LEA	S:21, T:17S, R:32E	4,066	O	Active	Jan 1969	Dec 1971	39.03
30-025-39877	COG OPERATING LLC	MC FEDERAL	60	LEA	S:21, T:17S, R:32E	7,145	O	Active Permit	Jun 2011	Oct 2011	39.10
30-025-39499	COG OPERATING LLC	MC FEDERAL	49	LEA	S:21, T:17S, R:32E	7,023	O	Active Permit	Apr 2011	Oct 2011	39.77
30-025-39628	COG OPERATING LLC	MC FEDERAL	46	LEA	S:21, T:17S, R:32E	7,030	O	Active Permit	Apr 2011	Oct 2011	39.77
30-025-00000	BUFFALO OIL COMPANY	BAISH A	002	LEA	S:21, T:17S, R:32E		G	Active	Jan 1945	Dec 1962	40.29
30-025-00000	BUFFALO OIL COMPANY	BAISH A	004	LEA	S:21, T:17S, R:32E		G	Active	Jan 1945	Dec 1962	40.29
30-025-38832	COG OPERATING LLC	MC FEDERAL	25	LEA	S:21, T:17S, R:32E	7,027	O	Active Permit	Aug 2009	Oct 2011	42.48
30-025-00000	BUFFALO OIL COMPANY	BAISH A	003	LEA	S:21, T:17S, R:32E		O	Active	Jan 1945	Dec 1962	43.58
30-025-39620	COG OPERATING LLC	MC FEDERAL	47	LEA	S:21, T:17S, R:32E	7,008	O	Active Permit	Jun 2011	Oct 2011	43.61
30-025-39962	COG OPERATING LLC	MC FEDERAL	50	LEA	S:21, T:17S, R:32E	7,010	O	Active Permit	May 2011	Oct 2011	44.39
30-025-39619	COG OPERATING LLC	MC FEDERAL	45	LEA	S:21, T:17S, R:32E	7,010	O	Active Permit	Nov 2010	Oct 2011	45.55
30-025-00605	COG OPERATING LLC	MCA UNIT BATTERY 2	045	LEA	S:21, T:17S, R:32E	4,106	PI	Injection Well	Jan 1963	Jul 1965	46.68
30-025-34773	COG OPERATING LLC	MC FEDERAL	003	LEA	S:21, T:17S, R:32E	5,952	O	Pumping	Apr 2000	Oct 2011	47.77
30-025-00611	CONTINENTAL OIL COMPANY	MCA UNIT BATTERY 2	069	LEA	S:21, T:17S, R:32E	0	O	Pumping	Jan 1963	Dec 1968	51.16
30-025-39931	COG OPERATING LLC	MC FEDERAL	56	LEA	S:21, T:17S, R:32E	7,110	O	Active Permit	May 2011	Oct 2011	62.00
30-025-39427	COG OPERATING LLC	MC FEDERAL	54	LEA	S:21, T:17S, R:32E	7,045	O	Active Permit	May 2011	Oct 2011	67.06
30-025-34933	COG OPERATING LLC	MC FEDERAL	004	LEA	S:21, T:17S, R:32E	5,982	O	Pumping	Jun 2000	Oct 2011	67.58
30-025-24267	CONOCOPHILLIPS COMPANY	MCA UNIT BATTERY 2	328	LEA	S:21, T:17S, R:32E	4,200	O	Pumping	Jan 1973	Dec 1976	67.77
30-025-00605	CONOCOPHILLIPS COMPANY	MCA UNIT	045	LEA	S:21, T:17S, R:32E	4,106	PI	Injection Well	Jan 1973	Dec 1976	77.58
30-025-00612	CONTINENTAL OIL CO	MCA UNIT BATTERY 3	071	LEA	S:21, T:17S, R:32E	4,131	O	Pumping	Jan 1965	Dec 1971	79.39
30-025-12763	CONTINENTAL OIL COMPANY	MCA UNIT BATTERY 2	044	LEA	S:21, T:17S, R:32E	4,066	O	Active	Mar 1968	Dec 1968	80.90
30-025-00609	CONTINENTAL OIL COMPANY	MCA UNIT BATTERY 2	092	LEA	S:21, T:17S, R:32E	4,082	O	Pumping	Jan 1963	Dec 1971	85.90
30-025-23433		MCA UNIT BATTERY 2	251	LEA	S:21, T:17S, R:32E		O	Pumping	Apr 1970	Dec 1976	86.19
30-025-40152	COG OPERATING LLC	MC FEDERAL	52	LEA	S:21, T:17S, R:32E	7,014	O	Active Permit	Aug 2011	Oct 2011	97.58
30-025-00000	CONTINENTAL OIL CO	BAISH A FED	027	LEA	S:21, T:17S, R:32E		G	Active	Jan 1960	Dec 1961	102.16

30-025-39876	COG OPERATING LLC	MC FEDERAL	59	LEA	S:21, T:17S, R:32E	7,227	O	Active Permit	Jul 2011	Oct 2011	103.06
30-025-00000		BAISH A	027	LEA	S:21, T:17S, R:32E		G	Active	Sep 1959	Dec 1962	111.32
30-025-08031	CONTINENTAL OIL COMPANY	MCA UNIT BATTERY 2	046	LEA	S:21, T:17S, R:32E	0	O	Pumping	Jan 1963	Dec 1971	140.55
30-025-20522		MCA UNIT BATTERY 2	234	LEA	S:21, T:17S, R:32E	4,100	O	Pumping	Jan 1969	Dec 1976	143.29
30-025-39507	COG OPERATING LLC	MC FEDERAL	44	LEA	S:21, T:17S, R:32E	7,000	O	Active Permit	Sep 2010	Jan 2011	151.81
30-025-23660	CONTINENTAL OIL CO	MCA UNIT BATTERY 2	262	LEA	S:21, T:17S, R:32E	4,130	I	Pumping	Jan 1971	Dec 1971	342.94
30-025-00610	CONOCOPHILLIPS COMPANY	MCA UNIT	067	LEA	S:21, T:17S, R:32E	4,125	I	Injection Well	Jan 1964	Oct 2011	
30-025-30347	CONOCOPHILLIPS COMPANY	MCA UNIT	379	LEA	S:21, T:17S, R:32E	4,220	PO	Pumping	Sep 1988	Feb 2007	

Producing Wells in Sec 21, T17S, R32E



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COG Operating LLC

Lea County, NM (NAD27 NME)

MC Federal #57

MC Federal #57

OH

Plan: Plan #3 - 7-7/8" Hole

SHL = 2561' FSL & 1567' FEL

BHL = 2300' FSL & 980' FEL

Top of Paddock = 164' S of Surface & 373' E of Surface @ 5375' TVD

Standard Planning Report

10 January, 2012





SDI
Planning Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well MC Federal #57
Company:	COG Operating LLC	TVD Reference:	GL Elev @ 4053.00usft
Project:	Lea County, NM (NAD27 NME)	MD Reference:	GL Elev @ 4053.00usft
Site:	MC Federal #57	North Reference:	Grid
Well:	MC Federal #57	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #3 - 7-7/8" Hole		

Project:	Lea County, NM (NAD27 NME)		
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:	MC Federal #57		
Site Position:		Northing:	662,415.00 usft
From:	Map	Easting:	673,848.10 usft
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 49' 11.234 N
		Longitude:	103° 46' 2.764 W
		Grid Convergence:	0.31 °

Well:	MC Federal #57		
Well Position	+N-S	0.00 usft	Northing: 662,415.00 usft
	+E-W	0.00 usft	Easting: 673,848.10 usft
Position Uncertainty	0.00 usft	Wellhead Elevation:	Ground Level: 4,053.00 usft

Wellbore:	OH		
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Magnetics	Model Name	Sample Date	Declination	Dip Angle	Field Strength
			(°)	(°)	(nT)
	IGRF2010	2011/11/10	7.67	60.69	48,909

Design:	Plan #3 - 7-7/8" Hole		
Audit Notes:			
Version:	Phase:	PLAN	Tie On Depth: 0.00
Vertical Section:	Depth From (TVD)	+N-S	+E-W
	(usft)	(usft)	(usft)
	0.00	0.00	0.00
			113.79

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)		
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,200.00	0.00	0.00	2,200.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,589.25	7.79	113.79	2,588.06	-10.65	24.16	2.00	2.00	29.23	113.79	
7,143.17	7.79	113.79	7,100.00	-259.50	588.60	0.00	0.00	0.00	0.00	PBHL-MC Fed #57



Database:	EDM:5000.1:Single User Db	Local Co-ordinate Reference:	Well MC Federal #57
Company:	COG Operating LLC	TVD Reference:	GL Elev @ 4053.00usft
Project:	Lea County, NM (NAD27 NME)	MD Reference:	GL Elev @ 4053.00usft
Site:	MC Federal #57	North Reference:	Grid
Well:	MC Federal #57	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #3 - 7-7/8" Hole		

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)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
East HL-MC Fed #68 - North HL-MC Fed #68									
2,100.00	0.00	0.00	2,100.00	0.00	0.00	0.00	0.00	0.00	0.00
8-5/8" Casing									
2,200.00	0.00	0.00	2,200.00	0.00	0.00	0.00	0.00	0.00	0.00
KOP Start Build 2.00°/100'									
2,300.00	2.00	113.79	2,299.98	-0.70	1.60	1.75	2.00	2.00	0.00
2,400.00	4.00	113.79	2,399.84	-2.82	6.39	6.98	2.00	2.00	0.00
2,500.00	6.00	113.79	2,499.45	-6.33	14.36	15.69	2.00	2.00	0.00
2,589.25	7.78	113.79	2,588.05	-10.65	24.16	26.40	2.00	2.00	0.00
EOC hold 7.79°									
2,600.00	7.79	113.79	2,598.70	-11.24	25.49	27.86	0.00	0.00	0.00
2,700.00	7.79	113.79	2,697.78	-16.70	37.89	41.41	0.00	0.00	0.00
2,800.00	7.79	113.79	2,796.86	-22.17	50.28	54.95	0.00	0.00	0.00
2,900.00	7.79	113.79	2,895.94	-27.63	62.68	68.50	0.00	0.00	0.00
3,000.00	7.79	113.79	2,995.02	-33.10	75.07	82.04	0.00	0.00	0.00
3,100.00	7.79	113.79	3,094.10	-38.56	87.47	95.59	0.00	0.00	0.00
3,200.00	7.79	113.79	3,193.17	-44.03	99.86	109.13	0.00	0.00	0.00
3,300.00	7.79	113.79	3,292.25	-49.49	112.25	122.68	0.00	0.00	0.00
3,400.00	7.79	113.79	3,391.33	-54.95	124.65	136.23	0.00	0.00	0.00
3,500.00	7.79	113.79	3,490.41	-60.42	137.04	149.77	0.00	0.00	0.00
3,600.00	7.79	113.79	3,589.49	-65.88	149.44	163.32	0.00	0.00	0.00
3,700.00	7.79	113.79	3,688.57	-71.35	161.83	176.86	0.00	0.00	0.00
3,800.00	7.79	113.79	3,787.64	-76.81	174.23	190.41	0.00	0.00	0.00
3,900.00	7.79	113.79	3,886.72	-82.28	186.62	203.95	0.00	0.00	0.00
4,000.00	7.79	113.79	3,985.80	-87.74	199.02	217.50	0.00	0.00	0.00
4,100.00	7.79	113.79	4,084.88	-93.21	211.41	231.05	0.00	0.00	0.00
4,200.00	7.79	113.79	4,183.96	-98.67	223.81	244.59	0.00	0.00	0.00
4,300.00	7.79	113.79	4,283.04	-104.14	236.20	258.14	0.00	0.00	0.00
4,400.00	7.79	113.79	4,382.11	-109.60	248.60	271.68	0.00	0.00	0.00
4,500.00	7.79	113.79	4,481.19	-115.06	260.99	285.23	0.00	0.00	0.00
4,600.00	7.79	113.79	4,580.27	-120.53	273.38	298.77	0.00	0.00	0.00
4,700.00	7.79	113.79	4,679.35	-125.99	285.78	312.32	0.00	0.00	0.00
4,800.00	7.79	113.79	4,778.43	-131.46	298.17	325.87	0.00	0.00	0.00
4,900.00	7.79	113.79	4,877.51	-136.92	310.57	339.41	0.00	0.00	0.00
5,000.00	7.79	113.79	4,976.58	-142.39	322.96	352.96	0.00	0.00	0.00
5,100.00	7.79	113.79	5,075.66	-147.85	335.36	366.50	0.00	0.00	0.00
5,200.00	7.79	113.79	5,174.74	-153.32	347.75	380.05	0.00	0.00	0.00
5,300.00	7.79	113.79	5,273.82	-158.78	360.15	393.59	0.00	0.00	0.00
5,400.00	7.79	113.79	5,372.90	-164.24	372.54	407.14	0.00	0.00	0.00
5,402.12	7.79	113.79	5,375.00	-164.36	372.80	407.43	0.00	0.00	0.00
Top of Paddock									
5,500.00	7.79	113.79	5,471.98	-169.71	384.94	420.69	0.00	0.00	0.00
5,600.00	7.79	113.79	5,571.05	-175.17	397.33	434.23	0.00	0.00	0.00
5,700.00	7.79	113.79	5,670.13	-180.64	409.72	447.78	0.00	0.00	0.00
5,800.00	7.79	113.79	5,769.21	-186.10	422.12	461.32	0.00	0.00	0.00
5,900.00	7.79	113.79	5,868.29	-191.57	434.51	474.87	0.00	0.00	0.00
6,000.00	7.79	113.79	5,967.37	-197.03	446.91	488.41	0.00	0.00	0.00
6,100.00	7.79	113.79	6,066.45	-202.50	459.30	501.96	0.00	0.00	0.00
6,200.00	7.79	113.79	6,165.52	-207.96	471.70	515.51	0.00	0.00	0.00
6,300.00	7.79	113.79	6,264.60	-213.43	484.09	529.05	0.00	0.00	0.00
6,400.00	7.79	113.79	6,363.68	-218.89	496.49	542.60	0.00	0.00	0.00
6,500.00	7.79	113.79	6,462.76	-224.35	508.88	556.14	0.00	0.00	0.00
6,600.00	7.79	113.79	6,561.84	-229.82	521.28	569.69	0.00	0.00	0.00

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well MC Federal #57
Company:	COG Operating LLC	TVD Reference:	GL Elev @ 4053.00usft
Project:	Lea County, NM (NAD27 NME)	MD Reference:	GL Elev @ 4053.00usft
Site:	MC Federal #57	North Reference:	Grid
Well:	MC Federal #57	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #3 - 7-7/8" Hole		

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)
6,700.00	7.79	113.79	6,660.92	-235.28	533.67	583.23	0.00	0.00	0.00
6,800.00	7.79	113.79	6,759.99	-240.75	546.07	596.78	0.00	0.00	0.00
6,900.00	7.79	113.79	6,859.07	-246.21	558.46	610.33	0.00	0.00	0.00
7,000.00	7.79	113.79	6,958.15	-251.68	570.85	623.87	0.00	0.00	0.00
7,100.00	7.79	113.79	7,057.23	-257.14	583.25	637.42	0.00	0.00	0.00
7,143.17	7.79	113.79	7,100.00	-259.50	588.60	643.27	0.00	0.00	0.00
PBHL-MC Fed #57									

Design Targets									
Target Name	hit/miss target	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude Longitude
East HL-MC Fed #68		0.00	0.00	-1.00	-249.50	578.60	662,165.50	674,426.70	32° 49' 8.734 N 103° 45' 56.000 W
- plan misses target center by 630.10usft at 0.00usft MD (0.00 TVD, 0.00 N, 0.00 E)									
- Rectangle (sides W0.00 H100.00 D0.00)									
North HL-MC Fed #68		0.00	0.01	-1.00	-249.50	578.60	662,165.50	674,426.70	32° 49' 8.734 N 103° 45' 56.000 W
- plan misses target center by 630.10usft at 0.00usft MD (0.00 TVD, 0.00 N, 0.00 E)									
- Rectangle (sides W100.00 H0.00 D0.00)									
PBHL-MC Fed #57		0.00	0.00	7,100.00	-259.50	588.60	662,155.50	674,436.70	32° 49' 8.635 N 103° 45' 55.884 W
- plan hits target center									
- Circle (radius 10.00)									

Casing Points				
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
2,100.00	2,100.00	8-5/8" Casing	8-5/8	12-1/4

Formations				
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°) Direction (°)
5,402.12	5,375.00	Top of Paddock		0.00

Plan Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
2,200.00	2,200.00	0.00	0.00	KOP Start Build 2.00°/100'
2,589.25	2,588.05	-10.65	24.16	EOC hold 7.79°

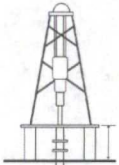


MC Federal #57
Lea County, NM (NAD27 NME)
Northing (Y) 662415.00
Easting (X) 673848.10
Plan #3 - 7-7/8" Hole



Azimuth to Grid North
True North: 0.31°
Magnetic North: 7.36°
Magnetic Field
Strength: 48908.7nT
Dip Angle: 60.89°
Date: 2011/11/10
Model: IGRF2010

To convert a Magnetic Direction to a Grid Direction, Add 7.36°
To convert a True Direction to a Grid Direction, Subtract 0.31°



GL 4053.00

WELL DETAILS: MC Federal #57

	+N/-S	+E/-W	Northing	Ground Level	Easting	Latitude	Longitude	Slot
	0.00	0.00	662415.00	673848.10	32° 49' 11.234 N	103° 46' 2.754 W		

SITE DETAILS: MC Federal #57

Site Centre Northing: 662415.00
Easting: 673848.10
Positional Uncertainty: 0.00
Convergence: 0.31
Local North: Grid

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSec	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	2200.00	0.00	0.00	2200.00	0.00	0.00	0.00	0.00	0.00	
3	2589.25	7.79	113.79	2588.06	-10.85	24.16	2.00	113.79	25.40	
4	7143.17	7.79	113.79	7100.00	-259.50	588.60	0.00	0.00	643.27	PBHL-MC Fed #57

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
East HL-MC Fed #68	-1.00	-249.50	578.80	662185.50	674426.70	32° 49' 8.734 N	103° 45' 56.000 W	Rectangle (Sides: L100.00 W0.00)
- plan misses target center by 630.10usft at 0.00usft MD (0.00 TVD, 0.00 N, 0.00 E)								
North HL-MC Fed #68	-1.00	-249.50	578.80	662185.50	674426.70	32° 49' 8.734 N	103° 45' 56.000 W	Rectangle (Sides: L0.00 W100.00)
- plan misses target center by 630.10usft at 0.00usft MD (0.00 TVD, 0.00 N, 0.00 E)								
PBHL-MC Fed #57	7100.00	-259.50	588.60	662155.50	674436.70	32° 49' 8.635 N	103° 45' 55.884 W	Circle (Radius: 10.00)
- plan hits target center								

FORMATION TOP DETAILS

TVDPath	MDPath	Formation	DipAngle	DipDir
5375.00	5402.12	Top of Padrock	0.00	

CASING DETAILS

TVD	MD	Name	Size
2100.00	2100.00	8-5/8" Casing	8-5/8"

PROJECT DETAILS: Lea County, NM (NAD27 NME)

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

