

OCD Hobbs

15-715
FORM APPROVED
OMB No. 1004-0137
Expires October 31, 2014

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
APPLICATION FOR PERMIT TO DRILL OR REENTER

SECRETARY'S POTASH
HOBBS OCD
JAN 28 2016
RECEIVED

5. Lease Serial No.
NMNM85937

6. If Indian, Allottee or Tribe Name

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

8. Lease Name and Well No. (38682)
Airbonita 12 Federal #12H

9. API Well No.
30-025-43050

10. Field and Pool, or Exploratory (51683)
Red Tank; Bone Spring

11. Sec., T.R.M. or Bk and Survey or Area

Sec. 12 - T22S - R32E

12. County or Parish
Lea County

13. State
NM

1a. Type of Work: ☒ DRILL ☐ REENTER

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

2. Name of Operator

COG Operating LLC. (229137)

3a. Address
2208 West Main Street
Artesia, NM 88210

3b. Phone No. (include area code)
575-748-6940

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

At surface 60' FSL & 530' FWL Unit Letter M (SWSW) SHL
At proposed prod. Zone 330' FNL & 380' FWL Unit Letter D (NWNW) BHL

UNORTHODOX
LOCATION

14. Distance in miles and direction from nearest town or post office*

About 25 miles from Malaga

15. Distance from proposed*
location to nearest
property or lease line, ft.
(Also to nearest drig. Unit line, if any)

60'

16. No. of acres in lease

800

17. Spacing Unit dedicated to this well

160

18. Distance from location*
to nearest well, drilling, completed, SHL: 30' (Proposed Airbonita #8H)
applied for, on this lease, ft. BHL: 1674'

19. Proposed Depth
TVD: 9917' MD: 14599'

20. BLM/BIA Bond No. on file
NMB000740 & NMB000215

21. Elevations (Show whether DF, KDB, RT, GL, etc.)
3679.1' GL

22. Approximate date work will start*
9/1/2015

23. Estimated duration
30 days

24. Attachments

The following, completed in accordance with the requirements of Onshore Oil and Gas Order No. 1, shall be attached to this form:

1. Well plat certified by a registered surveyor.
2. A Drilling Plan
3. A Surface Use Plan (if the location is on National Forest System Lands, the SUPO shall be filed with the appropriate Forest Service Office).

4. Bond to cover the operations unless covered by an existing bond on file (see Item 20 above).
5. Operator certification
6. Such other site specific information and/or plans as may be required by the authorized officer.

25. Signature
Mayte Reyes
Title
Regulatory Analyst

Name (Printed/Typed)
Mayte Reyes

Date
5-6-15

Approved by (Signature)
George MacDonald

Name (Printed/Typed)

Date
JAN 25 2016

Title
FIELD MANAGER

Office
BLM-CARLSBAD FIELD OFFICE

Application approval does not warrant or certify that the applicant holds legan or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.

Conditions of approval, if any, are attached.

APPROVAL FOR TWO YEARS

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

(Continued on page 2)

*(Instructions on page 2)

APPROVAL SUBJECT TO
GENERAL REQUIREMENTS AND
SPECIAL STIPULATIONS
ATTACHED

K2
01/29/16
SEE ATTACHED FOR
CONDITIONS OF APPROVAL
FEB 01 2016

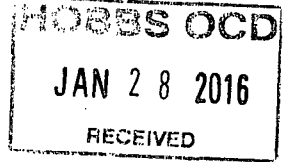
Witness Surface &
Intermediate Casing

Carlsbad Controlled Water Basin

Airbonita 12 Federal #12H

FID : OPERATOR

WELL_NAME	LATITUDE	LONGITUDE	API	SECTION	TOWNSHIP	RANGE	FTG_NS	NS_CD	FTG_EW	EW_CD	TVD_DEPTH	COMPL_STAT
0 OXY USA INC	32.393621	-103.623119	3002530137	13	22.05	32E	1980 N		990 E		15261 Active	
1 COG OPERATING LLC	32.408109	-103.634871	3002531137	12	22.05	32E	1980 N		660 W		15112 Active	
2 COG OPERATING LLC	32.404438	-103.647301	3002531716	11	22.05	32E	1980 S		2080 W		10100 Active	
3 COG OPERATING LLC	32.40814	-103.623143	3002531142	12	22.05	32E	1980 N		990 E		13780 Active	
4 EOG RESOURCES INC	32.389006	-103.647112	3002532528	14	22.05	32E	1650 S		2135 W		8900 Active	
5 EOG RESOURCES INC	32.389016	-103.643434	3002532545	14	22.05	32E	1650 S		1980 E		10100 Active	
6 COG OPERATING LLC	32.392656	-103.64344	3002532758	14	22.05	32E	2310 N		1980 E		9000 Active	
7 MARALO LLC	32.392647	-103.647049	3002532759	14	22.05	32E	2310 N		2155 W		8714 Plugged	
8 COG OPERATING LLC	32.392665	-103.640217	3002532760	14	22.05	32E	2310 N		990 E		9000 Active	
9 SUNSET WELL SERVICE INC	32.385396	-103.640205	3002532764	14	22.05	32E	330 S		990 E		10100 Active	
10 EOG RESOURCES INC	32.389024	-103.640211	3002532765	14	22.05	32E	1650 S		990 E		8905 Active	
11 OXY USA INC	32.385408	-103.635908	3002532999	13	22.05	32E	330 S		330 W		10070 Active	
12 OXY USA INC	32.389036	-103.635914	3002533026	13	22.05	32E	1650 S		330 W		10100 Active	
13 OXY USA INC	32.386337	-103.629484	3002535256	13	22.05	32E	660 S		2310 W		15445 Active	
14 OXY USA INC	32.389934	-103.639138	3002535530	14	22.05	32E	1980 S		660 E		0	
15 OXY USA INC	32.389965	-103.62947	3002535722	13	22.05	32E	1980 S		2310 W		10150 Active	
16 OXY USA INC	32.393107	-103.629671	3002536063	13	22.05	32E	2160 N		2250 W		10050 Active	
17 OXY USA INC	32.396736	-103.629482	3002536064	13	22.05	32E	840 N		2310 W		10050 Active	
18 OXY USA INC	32.404589	-103.642386	3002536265	11	22.05	32E	2030 S		1650 E		15160 Active	
19 OXY USA INC	32.39286	-103.634423	3002536415	13	22.05	32E	2245 N		790 W		10080 Active	
20 YATES PETROLEUM CORPORATION	32.387251	-103.627405	3002536883	13	22.05	32E	990 S		2310 E		10200 Active	
21 OXY USA INC	32.387502	-103.626331	3002537007	13	22.05	32E	1080 S		1980 E		0	
22 OXY USA INC	32.385415	-103.633759	3002537008	13	22.05	32E	330 S		990 W		0	
23 OXY USA INC	32.398126	-103.633781	3002537009	13	22.05	32E	330 N		990 W		0	
24 OXY USA INC	32.408075	-103.64763	3002537083	11	22.05	32E	1980 N		1980 W		15203 Active	
25 COG OPERATING LLC	32.404609	-103.635028	3002537227	12	22.05	32E	2030 S		610 W		8998 Active	
26 COG OPERATING LLC	32.408392	-103.631648	3002537228	12	22.05	32E	1880 N		1650 W		8960 Active	
27 COG OPERATING LLC	32.404485	-103.630567	3002537819	12	22.05	32E	1980 S		1980 W		8990 Active	
28 COG OPERATING LLC	32.400856	-103.630562	3002537821	12	22.05	32E	660 S		1980 W		8990 Active	
29 COG OPERATING LLC	32.407716	-103.62744	3002537822	12	22.05	32E	2130 N		2310 E		0	
30 OXY USA INC	32.398119	-103.635929	3002537929	13	22.05	32E	330 N		330 W		10050 Active	
31 COG OPERATING LLC	32.404496	-103.626751	3002538238	12	22.05	32E	1980 S		2100 E		0	
32 COG OPERATING LLC	32.400868	-103.626745	3002538239	12	22.05	32E	660 S		2100 E		0	
33 COG OPERATING LLC	32.400085	-103.626353	3002540179	12	22.05	32E	375 S		1980 E		14110 New (Not drilled or compl)	
34 OXY USA INC	32.399974	-103.622159	3002541380	13	22.05	32E	1974 S		697 E		0 New (Not drilled or compl)	
35 COG OPERATING LLC	32.395953	-103.62098	3002541491	12	22.05	32E	190 S		330 E		11937 New (Not drilled or compl)	
36 OXY USA INC	32.418496	-103.635961	3002540306	1	22.05	32E	1800 S		330 W		12735 New (Not drilled or compl)	
37 OXY USA INC	32.422615	-103.638115	3002540095	2	22.05	32E	1980 N		330 E		13774 New (Not drilled or compl)	
38 OXY USA INC	32.403746	-103.619375	3002541646	7	22.05	33E	1700 S		165 W		0 New (Not drilled or compl)	



1. Geologic Formations

TVD of target	9917'	Pilot hole depth	N/A
MD at TD:	14599'	Deepest expected fresh water:	580

Basin

Formation	Depth (TVD) from KB	Water/Mineral Bearing/Target Zone?	Hazards*
Quaternary-Fill	Surface	Water	
Rustler	884'	Water	
Top of Salt	968'	Salt	
Lamar	4724'		
Delaware Group	4823'	Oil/Gas	
Bone Spring	8595'	Oil/Gas	
First Bone Spring	9827'	Target Zone	
Second Bone Spring	10376'	Will Not Penetrate	

*H₂S, water flows, loss of circulation, abnormal pressures, etc.

2. Casing Program

Hole Size	Casing Interval		Csg. Size	Weight (lbs)	Grade	Conn.	SF Collapse	SF Burst	SF Tension
	From	To							
17.5"	0	940 980'	13.375"	54.5	J55	STC	2.57	1.23	10.03
12.25"	0	4300	9.625"	40	J55	BTC	1.28	0.85*	3.32
12.25"	4300	4750	9.625"	40	L80	BTC	1.39	1.24	50.89
8.75"	0	14599	5.5"	17	P110	LTC	1.61	2.29	1.79D
BLM Minimum Safety Factor							1.125	1	1.6 Dry 1.8 Wet

- All casing strings will be tested in accordance with Onshore Oil and Gas Order #2 III.B.1.h
- BLM standard formulas used on all safety factor calculations
- Assumed 9 ppg MW equivalent pore pressure
- *Explanation for SF's below BLM's minimum standards:
 - 9-5/8" Burst SF @ 0.85 – used BLM's frac gradient scenario to qualify
 - $3950 \text{ psi} / 4750' = 0.83 > 0.7$

	Y or N
Is casing new? If used, attach certification as required in Onshore Order #1	Y
Does casing meet API specifications? If no, attach casing specification sheet.	Y
Is premium or uncommon casing planned? If yes attach casing specification sheet.	N
Does the above casing design meet or exceed BLM's minimum standards? If not provide justification (loading assumptions, casing design criteria).	N

COG Operating LLC, Airbonita 12 Fed 12H

Will the intermediate pipe be kept at a minimum 1/3 fluid filled to avoid approaching the collapse pressure rating of the casing?	Y
Is well located within Capitan Reef?	N
If yes, does production casing cement tie back a minimum of 50' above the Reef?	
Is well within the designated 4 string boundary.	
Is well located in SOPA but not in R-111-P?	Y
If yes, are the first 2 strings cemented to surface and 3 rd string cement tied back 500' into previous casing?	Y
Is well located in R-111-P and SOPA?	N
If yes, are the first three strings cemented to surface?	
Is 2 nd string set 100' to 600' below the base of salt?	
Is well located in high Cave/Karst?	N
If yes, are there two strings cemented to surface?	
(For 2 string wells) If yes, is there a contingency casing if lost circulation occurs?	
Is well located in critical Cave/Karst?	N
If yes, are there three strings cemented to surface?	

3. Cementing Program

Casing	# Skis	Wt. lb/gal	Yld ft3/sack	H ₂ O gal/sk	500# Comp Strength (hours)	Slurry Description
Surf.	440	13.5	1.75	9.15	5.5	Lead: Class C + 4.0% Gel + 2.0% CaCl ₂
	240	14.8	1.35	6.57	7	Tail: Class C + 2.0% CaCl ₂
Inter.	1080	13.5	1.73	9.15	5.5	Lead: Class C + 4.0% Gel
	350	14.8	1.34	6.47	5.5	Tail: Class C
Prod.	970	10.4	3.48	21.16	90	Lead: Tuned Lite + 2 lb/sk Kol-Seal + 0.125 lb/sk. Pol-E-Flake + 0.5 lb/sk HALAD-9 + 0.25 lb/sk D-Air 5000
	1225	14.4	1.25	5.69	19	Tail: Class H + 0.5% HALAD-9 + 0.05% SA-1015 + 1% NaCL + 2% Gel

Casing String	TOC	% Excess
Surface	0'	66%
Intermediate	0'	66%
Production	0'	48%

4. Pressure Control Equipment

N	A variance is requested for the use of a diverter on the surface casing. See attached for schematic.
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See CWA

BOP installed and tested before drilling which hole?	Size?	Min. Required WP	Type	✓	Tested to:
12-1/4"	13-5/8"	2M	Annular	X	WP
			Blind Ram		WP
			Pipe Ram		
			Double Ram		
			Other*		
8-3/4"	13-5/8"	3M	Annular	X	50% WP
			Blind Ram	X	WP
			Pipe Ram	X	
			Double Ram		
			Other*		

BOP/BOPE will be tested by an independent service company to 250 psi low and the high pressure indicated above per Onshore Order 2 requirements. The System may be upgraded to a higher pressure but still tested to the working pressure listed in the table above. If the system is upgraded all the components installed will be functional and tested.

Pipe rams will be operationally checked each 24 hour period. Blind rams will be operationally checked on each trip out of the hole. These checks will be noted on the daily tour sheets. Other accessories to the BOP equipment will include a Kelly cock and floor safety valve (inside BOP) and choke lines and choke manifold. See attached schematics.

See CWA

N	Formation integrity test will be performed per Onshore Order #2. On Exploratory wells or on that portion of any well approved for a 5M BOPE system or greater, a pressure integrity test of each casing shoe shall be performed. Will be tested in accordance with Onshore Oil and Gas Order #2 III.B.1.i.
Y	A variance is requested for the use of a flexible choke line from the BOP to Choke Manifold. See attached for specs and hydrostatic test chart.
N	Are anchors required by manufacturer?
N	A multibowl wellhead is being used. The BOP will be tested per Onshore Order #2 after installation on the surface casing which will cover testing requirements for a maximum of 30 days. If any seal subject to test pressure is broken the system must be tested. See attached schematic.

5. Mud Program

Depth		Type	Weight (ppg)	Viscosity	Water Loss
From	To				
0	Surf. shoe	FW Gel	8.4-9.4	32-34	N/C
Surf csg	Int shoe	Saturated Brine	10.0-10.2	28-30	N/C
Int shoe	TD	Cut Brine	8.8-9.2	28-30	N/C

Sufficient mud materials to maintain mud properties and meet minimum lost circulation and weight increase requirements will be kept on location at all times.

What will be used to monitor the loss or gain of fluid?	PVT/Pason/Visual Monitoring
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6. Logging and Testing Procedures

Logging, Coring and Testing	
X	Will run GR/CNL from TD to surface (horizontal well – vertical portion of hole). Stated logs run will be in the Completion Report and submitted to the BLM.
	No Logs are planned based on well control or offset log information.
	Drill stem test? If yes, explain
	Coring? If yes, explain

Additional logs planned	Interval
Resistivity	
Density	
CBL	
X Mud log	Production
PEX	

7. Drilling Conditions

Condition	Specify what type and where?
BH Pressure at deepest TVD	4,642 psi @ 9917' TVD
Abnormal Temperature	No

Mitigation measure for abnormal conditions. Describe: No abnormal drilling conditions are expected to occur.

Hydrogen Sulfide (H₂S) monitors will be installed prior to drilling out the surface shoe. If H₂S is detected in concentrations greater than 100 ppm, the operator will comply with the provisions of Onshore Oil and Gas Order #6. If Hydrogen Sulfide is encountered, measured values and formations will be provided to the BLM.

N	H ₂ S is present
Y	H ₂ S Plan attached

8. Other facets of operation

Is this a walking operation? Yes

Will be pre-setting casing? No

No, if operator is drilling multiple wells, Submit Sunday

Attachments

- Directional Plan
- BOP & Choke Schematics
- C102 and supporting maps
- Rig plat
- H2S schematic
- H2S contingency plan
- Interim reclamation plat
- Variance for Flex Hose



COG Operating LLC

Lea County, NM

Airbonita 12 Federal

#12H

OH

Plan: Plan #1

Standard Planning Report

05 March, 2015



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well #12H
Company:	COG Operating LLC	TVD Reference:	KB @ 3710.2usft
Project:	Lea County, NM	MD Reference:	KB @ 3710.2usft
Site:	Airbonita 12 Federal	North Reference:	Grid
Well:	#12H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1		

Project		Lea 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	Airbonita 12 Federal				
Site Position:		Northing:	509,618.50 usft	Latitude:	32° 23' 56.826 N
From:	Map	Easting:	715,682.90 usft	Longitude:	103° 38' 4.321 W
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.37 °

Well	#12H					
Well Position	+N-S	-0.9 usft	Northing:	509,617.60 usft	Latitude:	32° 23' 56.821-N
	+E-W	-60.2 usft	Easting:	715,622.70 usft	Longitude:	103° 38' 5.023 W
Position Uncertainty		0.0 usft	Wellhead Elevation:	0.0 usft	Ground Level:	3,679.1 usft

Wellbore		OH			
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	3/5/2015	7.17	60.24	48,341

Design		Plan #1		
Audit Notes:				
Version:		Phase:	PLAN	Tie On Depth: 0.0
Vertical Section:	Depth From (TVD) (usft)	+N-S (usft)	+E-W (usft)	Direction (°)
	0.0	0.0	0.0	357.82

Plan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N-S (usft)	+E-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
9,439.5	0.00	0.00	9,439.5	0.0	0.0	0.00	0.00	0.00	0.00	
10,191.3	90.22	357.82	9,917.0	479.0	-18.2	12.00	12.00	-0.29	357.82	
14,599.2	90.22	357.82	9,900.0	4,883.6	-185.5	0.00	0.00	0.00	0.00	PBHL (A12F #12H/OH)



TDS
Planning Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well #12H
Company:	COG Operating LLC	TVD Reference:	KB @ 3710.2usft
Project:	Lea County NM	MD Reference:	KB @ 3710.2usft
Site:	Airbonita 12 Federal	North Reference:	Grid
Well:	#12H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
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
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
4,200.0	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
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



TDS
Planning Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well #12H
Company:	COG Operating LLC	TVD Reference:	KB @ 3710.2usft
Project:	Lea County, NM	MD Reference:	KB @ 3710.2usft
Site:	Airbonita 12 Federal	North Reference:	Grid
Well:	#12H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
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)
5,400.0	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
7,300.0	0.00	0.00	7,300.0	0.0	0.0	0.0	0.00	0.00	0.00
7,400.0	0.00	0.00	7,400.0	0.0	0.0	0.0	0.00	0.00	0.00
7,500.0	0.00	0.00	7,500.0	0.0	0.0	0.0	0.00	0.00	0.00
7,600.0	0.00	0.00	7,600.0	0.0	0.0	0.0	0.00	0.00	0.00
7,700.0	0.00	0.00	7,700.0	0.0	0.0	0.0	0.00	0.00	0.00
7,800.0	0.00	0.00	7,800.0	0.0	0.0	0.0	0.00	0.00	0.00
7,900.0	0.00	0.00	7,900.0	0.0	0.0	0.0	0.00	0.00	0.00
8,000.0	0.00	0.00	8,000.0	0.0	0.0	0.0	0.00	0.00	0.00
8,100.0	0.00	0.00	8,100.0	0.0	0.0	0.0	0.00	0.00	0.00
8,200.0	0.00	0.00	8,200.0	0.0	0.0	0.0	0.00	0.00	0.00
8,300.0	0.00	0.00	8,300.0	0.0	0.0	0.0	0.00	0.00	0.00
8,400.0	0.00	0.00	8,400.0	0.0	0.0	0.0	0.00	0.00	0.00
8,500.0	0.00	0.00	8,500.0	0.0	0.0	0.0	0.00	0.00	0.00
8,600.0	0.00	0.00	8,600.0	0.0	0.0	0.0	0.00	0.00	0.00
8,700.0	0.00	0.00	8,700.0	0.0	0.0	0.0	0.00	0.00	0.00
8,800.0	0.00	0.00	8,800.0	0.0	0.0	0.0	0.00	0.00	0.00
8,900.0	0.00	0.00	8,900.0	0.0	0.0	0.0	0.00	0.00	0.00
9,000.0	0.00	0.00	9,000.0	0.0	0.0	0.0	0.00	0.00	0.00
9,100.0	0.00	0.00	9,100.0	0.0	0.0	0.0	0.00	0.00	0.00
9,200.0	0.00	0.00	9,200.0	0.0	0.0	0.0	0.00	0.00	0.00
9,300.0	0.00	0.00	9,300.0	0.0	0.0	0.0	0.00	0.00	0.00
9,400.0	0.00	0.00	9,400.0	0.0	0.0	0.0	0.00	0.00	0.00
9,439.5	0.00	0.00	9,439.5	0.0	0.0	0.0	0.00	0.00	0.00
KOP: Start DLS 12.00 TFO 357.82									
9,450.0	1.26	357.82	9,450.0	0.1	0.0	0.1	12.00	12.00	0.00
9,475.0	4.26	357.82	9,475.0	1.3	-0.1	1.3	12.00	12.00	0.00
9,500.0	7.26	357.82	9,499.8	3.8	-0.1	3.8	12.00	12.00	0.00
9,525.0	10.26	357.82	9,524.5	7.6	-0.3	7.6	12.00	12.00	0.00
9,550.0	13.26	357.82	9,549.0	12.7	-0.5	12.7	12.00	12.00	0.00
9,575.0	16.26	357.82	9,573.2	19.1	-0.7	19.1	12.00	12.00	0.00
9,600.0	19.26	357.82	9,597.0	26.7	-1.0	26.7	12.00	12.00	0.00
9,625.0	22.26	357.82	9,620.4	35.6	-1.4	35.6	12.00	12.00	0.00
9,650.0	25.26	357.82	9,643.2	45.6	-1.7	45.7	12.00	12.00	0.00
9,675.0	28.26	357.82	9,665.6	56.9	-2.2	56.9	12.00	12.00	0.00



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well #12H
Company:	COG Operating LLC	TVD Reference:	KB @ 3710.2usft
Project:	Lea County, NM	MD Reference:	KB @ 3710.2usft
Site:	Airbonita 12 Federal	North Reference:	Grid
Well:	#12H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1		

Measured			Vertical			Vertical			Turn Rate (°/100usft)
Depth (usft)	Inclination (°)	Azimuth (°)	Depth (usft)	+N/-S (usft)	+E/-W (usft)	Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	
9,700.0	31.26	357.82	9,687.3	69.3	-2.6	69.3	12.00	12.00	0.00
9,725.0	34.26	357.82	9,708.3	82.8	-3.1	82.8	12.00	12.00	0.00
9,750.0	37.26	357.82	9,728.6	97.4	-3.7	97.5	12.00	12.00	0.00
9,775.0	40.26	357.82	9,748.1	113.0	-4.3	113.1	12.00	12.00	0.00
9,800.0	43.26	357.82	9,766.7	129.7	-4.9	129.8	12.00	12.00	0.00
9,825.0	46.26	357.82	9,784.5	147.2	-5.6	147.4	12.00	12.00	0.00
9,850.0	49.26	357.82	9,801.3	165.7	-6.3	165.9	12.00	12.00	0.00
9,875.0	52.26	357.82	9,817.1	185.1	-7.0	185.2	12.00	12.00	0.00
9,900.0	55.26	357.82	9,831.9	205.2	-7.8	205.4	12.00	12.00	0.00
9,925.0	58.26	357.82	9,845.6	226.1	-8.6	226.3	12.00	12.00	0.00
9,950.0	61.26	357.82	9,858.1	247.7	-9.4	247.9	12.00	12.00	0.00
9,975.0	64.26	357.82	9,869.6	269.9	-10.3	270.1	12.00	12.00	0.00
10,000.0	67.26	357.82	9,879.9	292.7	-11.1	292.9	12.00	12.00	0.00
10,025.0	70.26	357.82	9,888.9	316.0	-12.0	316.2	12.00	12.00	0.00
10,050.0	73.26	357.82	9,896.7	339.7	-12.9	339.9	12.00	12.00	0.00
10,075.0	76.26	357.82	9,903.3	363.8	-13.8	364.1	12.00	12.00	0.00
10,100.0	79.26	357.82	9,908.6	388.2	-14.7	388.5	12.00	12.00	0.00
10,125.0	82.26	357.82	9,912.6	412.9	-15.7	413.2	12.00	12.00	0.00
10,150.0	85.26	357.82	9,915.3	437.7	-16.6	438.0	12.00	12.00	0.00
10,175.0	88.26	357.82	9,916.7	462.6	-17.6	463.0	12.00	12.00	0.00
10,191.3	90.22	357.82	9,917.0	479.0	-18.2	479.3	12.00	12.00	0.00
EOC - Start 4407.9 hold at 10191.3 MD									
10,200.0	90.22	357.82	9,916.9	487.6	-18.5	488.0	0.00	0.00	0.00
10,300.0	90.22	357.82	9,916.5	587.5	-22.3	588.0	0.00	0.00	0.00
10,400.0	90.22	357.82	9,916.2	687.5	-26.1	688.0	0.00	0.00	0.00
10,500.0	90.22	357.82	9,915.8	787.4	-29.9	788.0	0.00	0.00	0.00
10,600.0	90.22	357.82	9,915.4	887.3	-33.7	888.0	0.00	0.00	0.00
10,700.0	90.22	357.82	9,915.0	987.2	-37.5	988.0	0.00	0.00	0.00
10,800.0	90.22	357.82	9,914.6	1,087.2	-41.3	1,088.0	0.00	0.00	0.00
10,900.0	90.22	357.82	9,914.2	1,187.1	-45.1	1,188.0	0.00	0.00	0.00
11,000.0	90.22	357.82	9,913.8	1,287.0	-48.9	1,288.0	0.00	0.00	0.00
11,100.0	90.22	357.82	9,913.5	1,387.0	-52.7	1,388.0	0.00	0.00	0.00
11,200.0	90.22	357.82	9,913.1	1,486.9	-56.5	1,488.0	0.00	0.00	0.00
11,300.0	90.22	357.82	9,912.7	1,586.8	-60.3	1,588.0	0.00	0.00	0.00
11,400.0	90.22	357.82	9,912.3	1,686.7	-64.1	1,688.0	0.00	0.00	0.00
11,500.0	90.22	357.82	9,911.9	1,786.7	-67.9	1,788.0	0.00	0.00	0.00
11,600.0	90.22	357.82	9,911.5	1,886.6	-71.7	1,888.0	0.00	0.00	0.00
11,700.0	90.22	357.82	9,911.2	1,986.5	-75.5	1,988.0	0.00	0.00	0.00
11,800.0	90.22	357.82	9,910.8	2,086.4	-79.3	2,088.0	0.00	0.00	0.00
11,900.0	90.22	357.82	9,910.4	2,186.4	-83.0	2,188.0	0.00	0.00	0.00
12,000.0	90.22	357.82	9,910.0	2,286.3	-86.8	2,288.0	0.00	0.00	0.00
12,100.0	90.22	357.82	9,909.6	2,386.2	-90.6	2,388.0	0.00	0.00	0.00
12,200.0	90.22	357.82	9,909.2	2,486.2	-94.4	2,487.9	0.00	0.00	0.00
12,300.0	90.22	357.82	9,908.8	2,586.1	-98.2	2,587.9	0.00	0.00	0.00
12,400.0	90.22	357.82	9,908.5	2,686.0	-102.0	2,687.9	0.00	0.00	0.00
12,500.0	90.22	357.82	9,908.1	2,785.9	-105.8	2,787.9	0.00	0.00	0.00
12,600.0	90.22	357.82	9,907.7	2,885.9	-109.6	2,887.9	0.00	0.00	0.00
12,700.0	90.22	357.82	9,907.3	2,985.8	-113.4	2,987.9	0.00	0.00	0.00
12,800.0	90.22	357.82	9,906.9	3,085.7	-117.2	3,087.9	0.00	0.00	0.00
12,900.0	90.22	357.82	9,906.5	3,185.6	-121.0	3,187.9	0.00	0.00	0.00
13,000.0	90.22	357.82	9,906.2	3,285.6	-124.8	3,287.9	0.00	0.00	0.00
13,100.0	90.22	357.82	9,905.8	3,385.5	-128.6	3,387.9	0.00	0.00	0.00
13,200.0	90.22	357.82	9,905.4	3,485.4	-132.4	3,487.9	0.00	0.00	0.00
13,300.0	90.22	357.82	9,905.0	3,585.4	-136.2	3,587.9	0.00	0.00	0.00

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well #12H
Company:	COG Operating LLC	TVD Reference:	KB @ 3710.2usft
Project:	Lea County, NM	MD Reference:	KB @ 3710.2usft
Site:	Airbonita 12 Federal	North Reference:	Grid
Well:	#12H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
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)
13,400.0	90.22	357.82	9,904.6	3,685.3	-140.0	3,687.9	0.00	0.00	0.00
13,500.0	90.22	357.82	9,904.2	3,785.2	-143.8	3,787.9	0.00	0.00	0.00
13,600.0	90.22	357.82	9,903.8	3,885.1	-147.6	3,887.9	0.00	0.00	0.00
13,700.0	90.22	357.82	9,903.5	3,985.1	-151.4	3,987.9	0.00	0.00	0.00
13,800.0	90.22	357.82	9,903.1	4,085.0	-155.2	4,087.9	0.00	0.00	0.00
13,900.0	90.22	357.82	9,902.7	4,184.9	-159.0	4,187.9	0.00	0.00	0.00
14,000.0	90.22	357.82	9,902.3	4,284.8	-162.8	4,287.9	0.00	0.00	0.00
14,100.0	90.22	357.82	9,901.9	4,384.8	-166.6	4,387.9	0.00	0.00	0.00
14,200.0	90.22	357.82	9,901.5	4,484.7	-170.3	4,487.9	0.00	0.00	0.00
14,300.0	90.22	357.82	9,901.2	4,584.6	-174.1	4,587.9	0.00	0.00	0.00
14,400.0	90.22	357.82	9,900.8	4,684.6	-177.9	4,687.9	0.00	0.00	0.00
14,500.0	90.22	357.82	9,900.4	4,784.5	-181.7	4,787.9	0.00	0.00	0.00
14,599.2	90.22	357.82	9,900.0	4,883.6	-185.5	4,887.1	0.00	0.00	0.00
TD at 14599.2									

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
PBHL (A12F #12H/OH)	0.00	0.00	9,900.0	4,883.6	-185.5	514,501.20	715,437.20	32° 24' 45.157 N	103° 38' 6.815 W
- hit/miss target									
- Shape									
- Point									
EOC (A12F #12H/OH PI)	0.00	0.00	9,917.0	478.9	-18.2	510,096.52	715,604.50	32° 24' 1.561 N	103° 38' 5.199 W
- plan hits target center									
- Point									

Plan Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
9,439.5	9,439.5	0.0	0.0	KOP - Start DLS 12.00 TFO 357.82
10,191.3	9,917.0	479.0	-18.2	EOC - Start 4407.9 hold at 10191.3 MD
14,599.2	9,900.0	4,883.6	-185.5	TD at 14599.2



COG Operating LLC
Project: Lea County, NM
Site: Airbonita 12 Federal
Well: #12H
Wellbore: OH
Plan: Plan #1 (#12H/OH)

Section Details

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	Vsect	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	9439.5	0.00	0.00	9439.5	0.0	0.0	0.00	0.00	0.0	
3	10191.3	90.22	357.82	9917.0	479.0	-18.2	12.00	357.82	479.3	
4	14599.2	90.22	357.82	9900.0	4883.6	-185.5	0.00	0.00	4887.1	PBHL (A12F #12H/OH)

WELL DETAILS: #12H
Ground Elevation: 3679.1
RKB Elevation: KB @ 3710.2usft
Rig Name:

Northings
509617.60

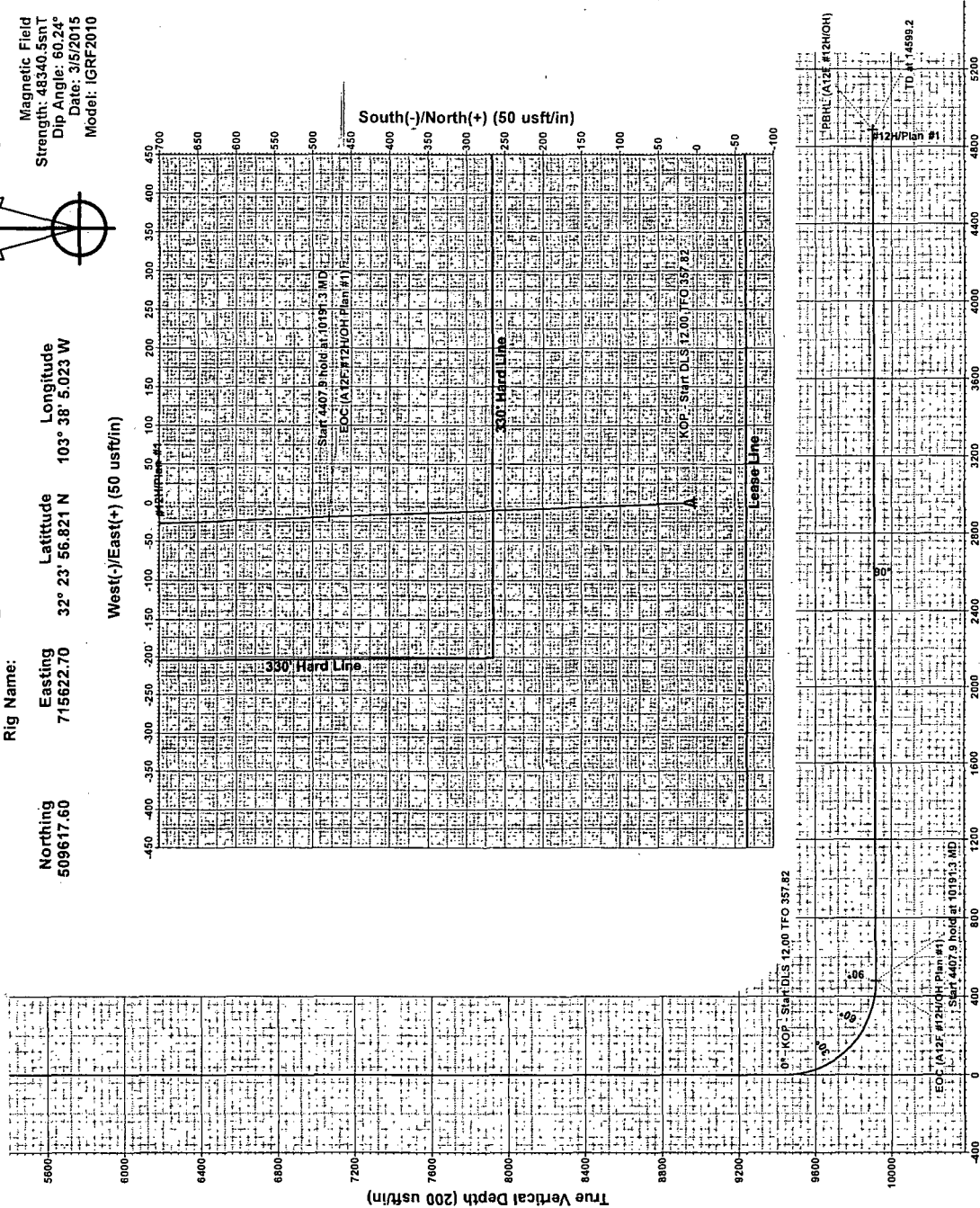
Easting
715622.70

Latitude
32° 23' 56.821 N

Longitude
103° 38' 5.023 W

Magnetic Field
Strength: 48340.5snT
Dip Angle: 60.24°
Date: 3/5/2015
Model: IGRF2010

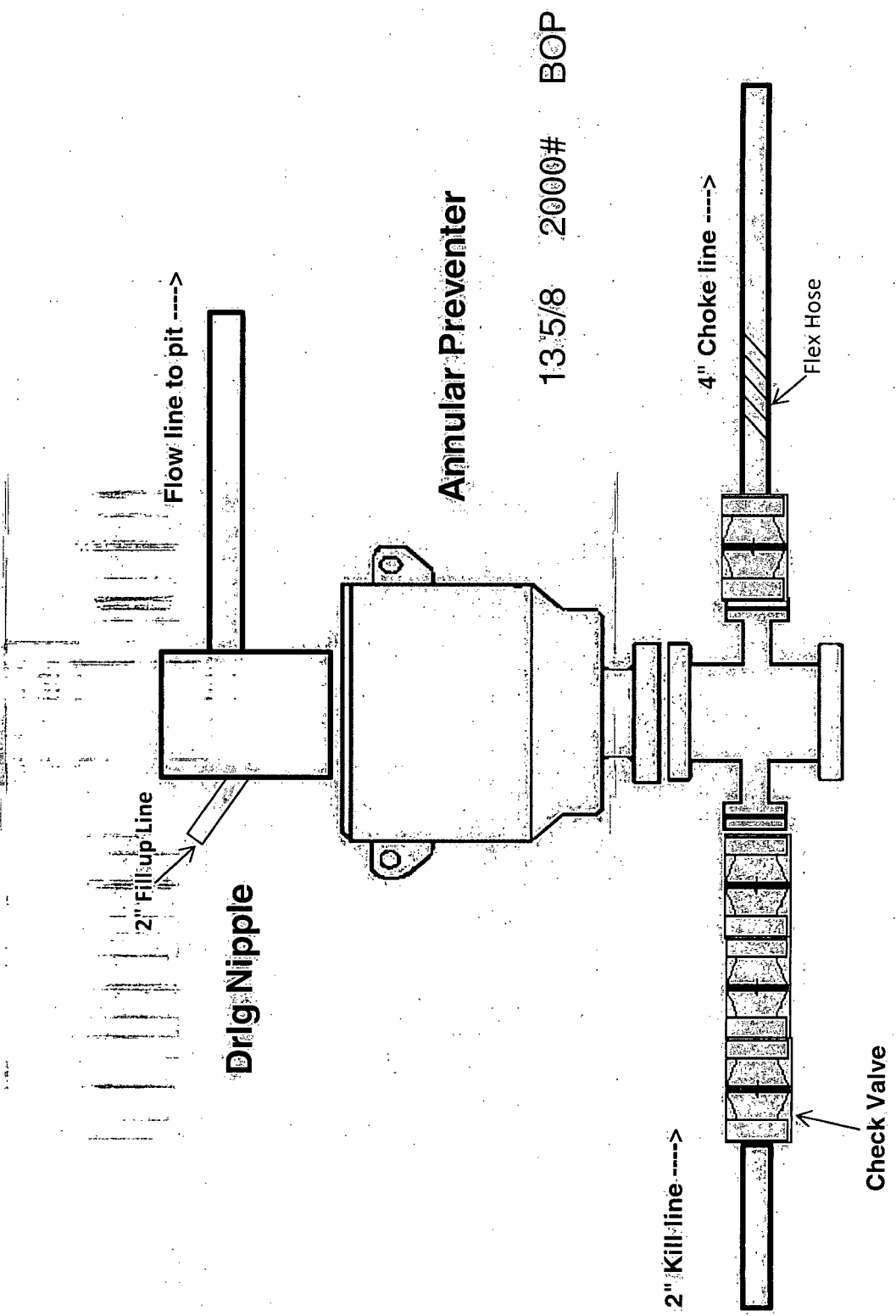
Azimuths to Grid North
True North: -0.37°
Magnetic North: 6.79°



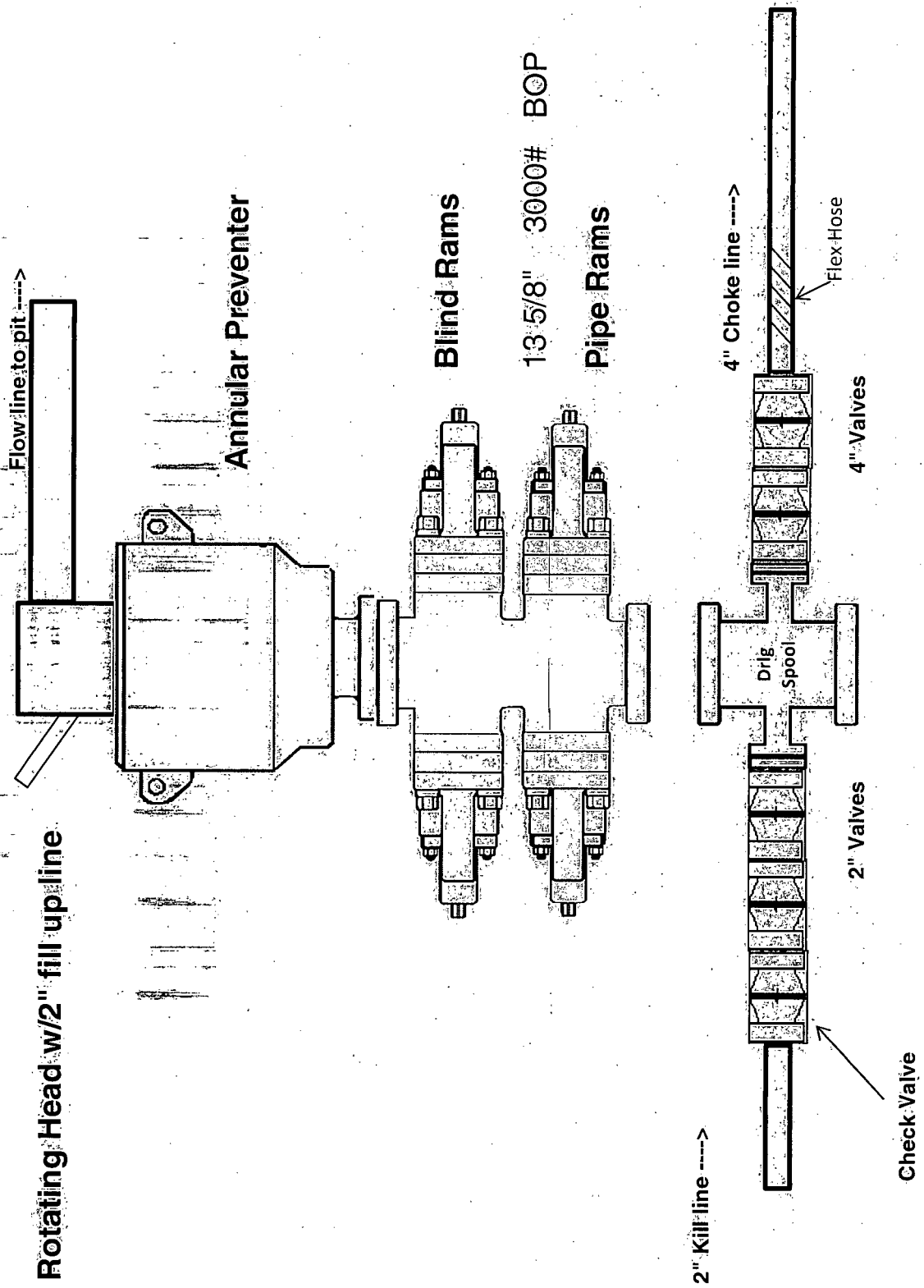
Terra Directional Services LLC
322 Spring Hill Drive, Suite A300, Spring, Tx 77386
Phone: 432-425-7532

PROJECT DETAILS: Lea County, NM
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

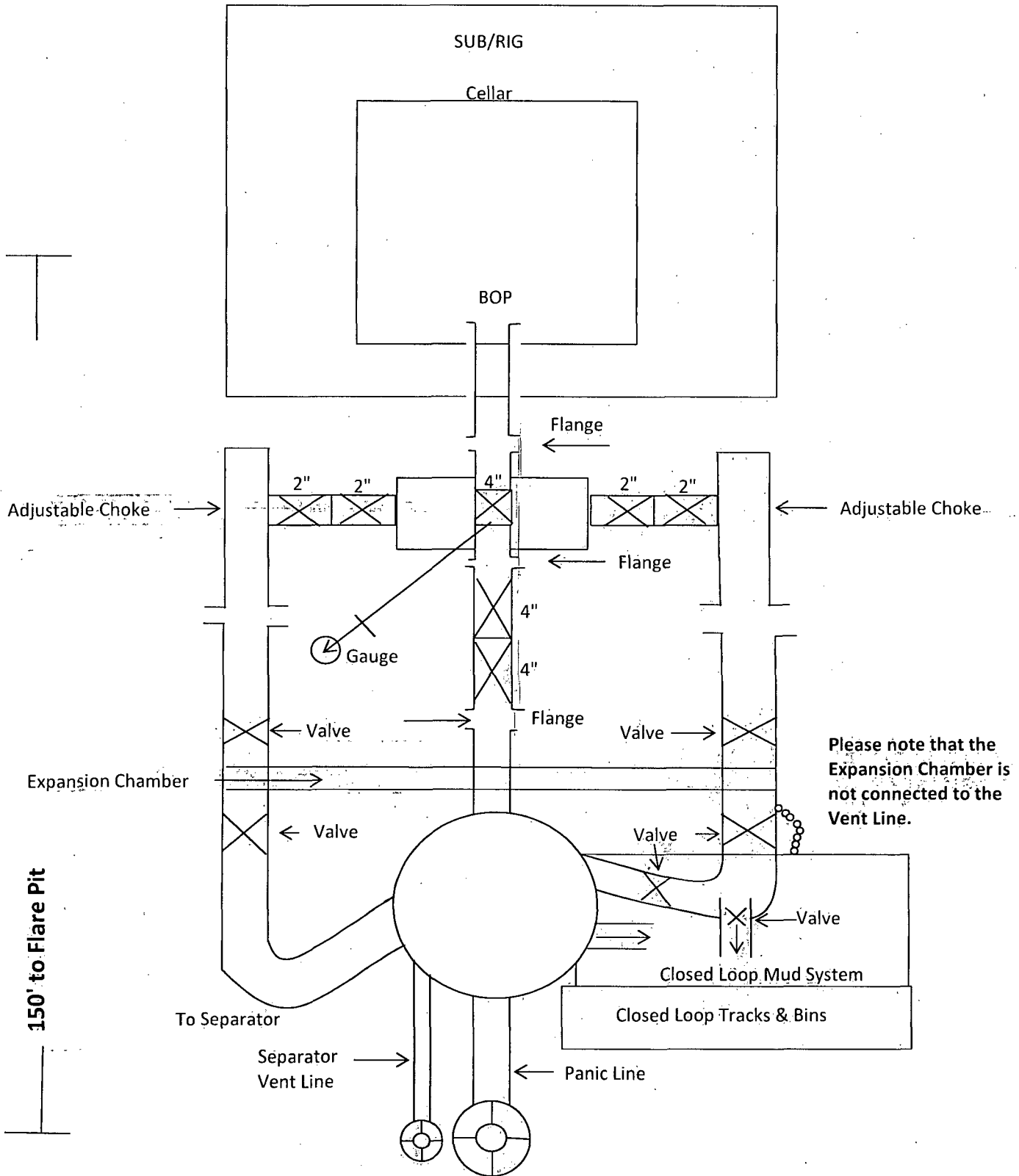
2,000 psi BOP Schematic



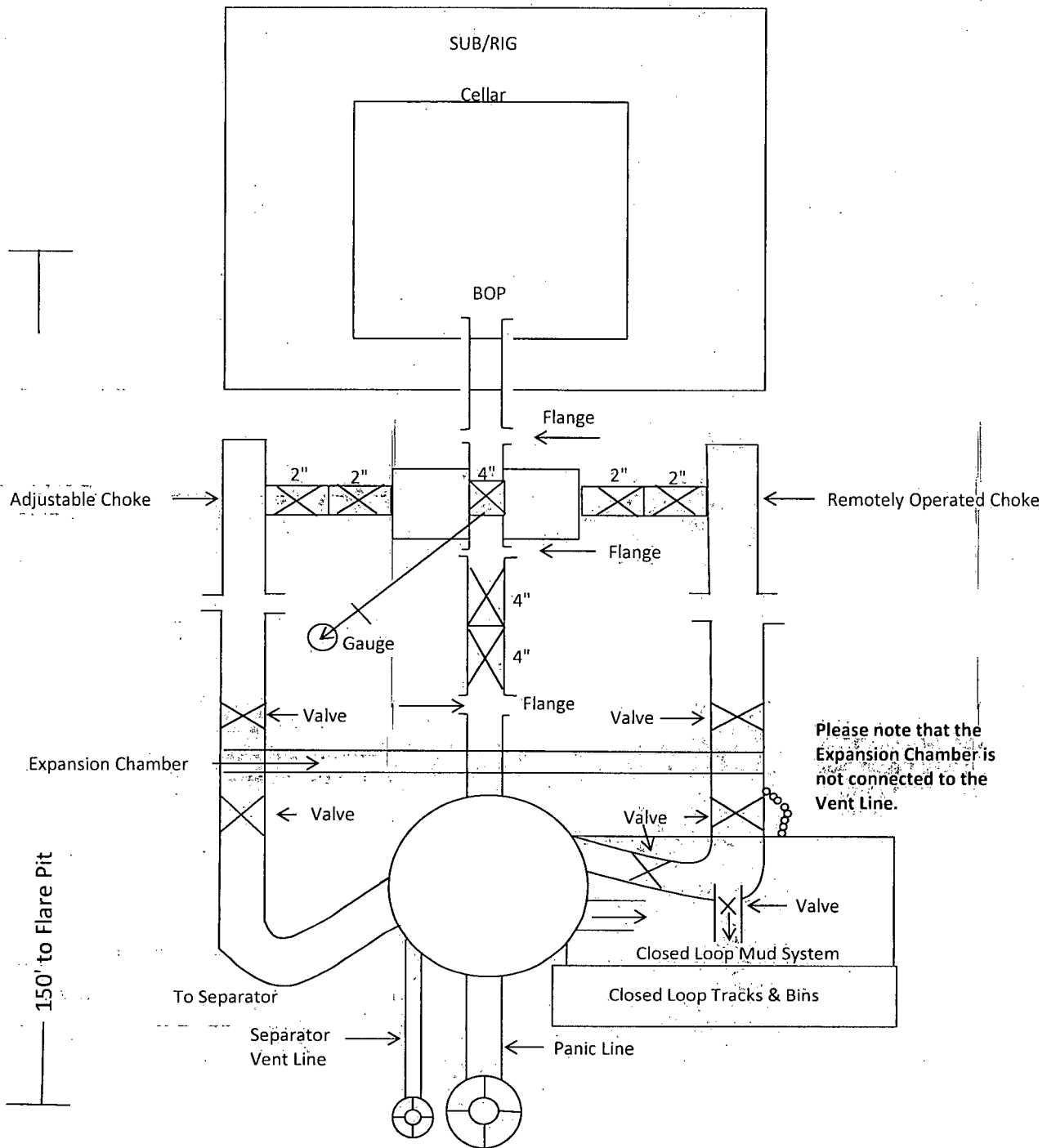
3,000 psi BOP Schematic



2M Choke Manifold Equipment

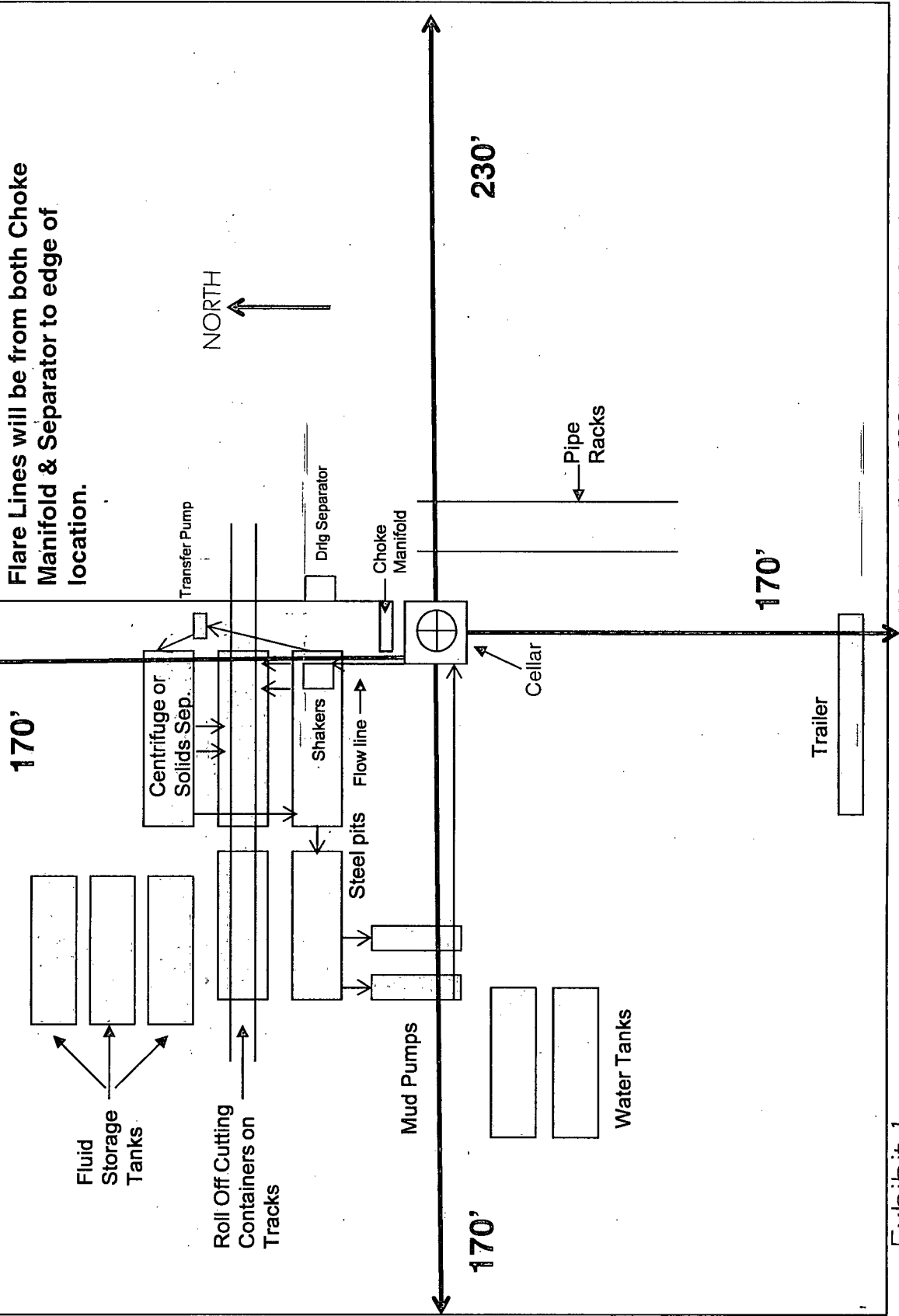


3M Choke Manifold Equipment



COG Operating LLC

Rig Plat & Closed Loop Equipment Diagram

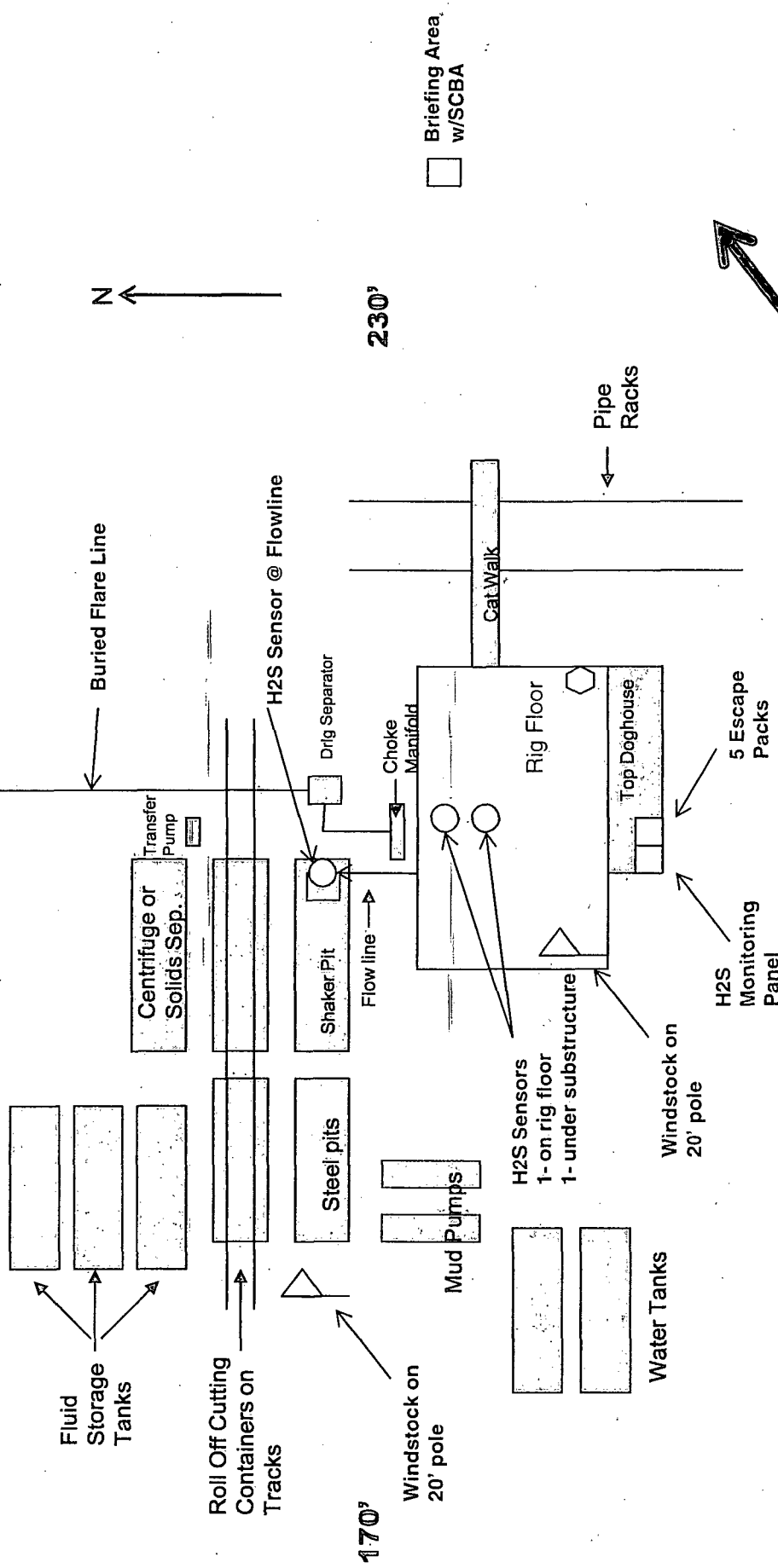


* I further certify that COG will comply with Rule 19.15.17 NMAC by using a Closed Loop System."

COG Operating LLC
H₂S Equipment Schematic
Terrain: Shinnery sand hills.

Well pad will be 400' X 340'
with cellar in center of pad

Location Entry
Condition Sign



Briefing Area
w/SCBA

Secondary egress.

Company Representative's Trailer

Prevaling Wind
Direction in SENM

Primary Briefing
Area w/SCBA

Company Representative's Trailer

TechnipTECHNIP Umbilicals Inc.
COFLEXIP® Products Division**CERTIFICATE OF CONFORMITY****SUPPLIER**COFLEXIP® Products Division
16661 Jacintoport Blvd.
Houston, Texas 77015**CUSTOMER**

OFS CANADA INC

CUSTOMER PROJECT

OFS GLOBAL RIG 772 PROJECT 59

CONTRACT NUMBER

OFS-012060-1

COFLEXIP REFERENCE NUMBER

K12386

COFLEXIP LINE DESCRIPTION

3" x 30' 10K CHOKE/KILL LINE

COFLEXIP LINE SERIAL NUMBER

K12386-202

WORKING / TEST PRESSURE (PSI)

10000 / 15000

COFLEXIP ID (inches)/PART NUMBER

3 / 076 60414 13 13

COFLEXIP STRUCTURE NUMBER

076 60414

END FITTING REFERENCE NUMBER

EM 076 65000 13

EM 076 65000 13

END FITTING DESCRIPTION4 1/16" 10K FLG BX 155 INC. 625 RG / 4 1/16" 10K FLG BX 155 INC. 625
RG**IRC REFERENCE****SAFE WORKING LOADS****NOMINAL DAMAGING PULL (STRAIGHT LINE)****MINIMUM BENDING RADIUS****MAXIMUM DESIGN TEMPERATURE**

-4 Deg. F To 212 Deg. F/B

We certify that the supply detailed above was manufactured and inspected in accordance with the technical specifications specified within the contract referenced above and any specifications checked below. This document serves as a Declaration and Confirmation from the Manufacturer, TECHNIP Umbilicals Inc., Houston, Texas, that asbestos materials are not utilized in any part(s) or sub-part(s) or component(s) during the assembly process of any of our Coflexip® flexible pipes.

Licence Number 16C-0001

(If Required)

TECHNIP QUALITY CONTROL

Name/ Date/ Stamp





TECHNIP Umbilicals Inc.
COFLEXIP® Products Division

Quality Control Department

Control Report Dated 4/28/2015

COFLEXIP FLEXIBLE PIPE TEST CERTIFICATE

Customer: OFS CANADA INC Job Number: K12387
Address: Line Serial Number: K12387-202
Part Number: 07660414-13 13

Application: 3" x 30' 10" CHOKE/KILL LINE

COFLEXIP certifies that the results of the test and controls performed on the above mentioned flexible pipe is as follows:

Internal Diameter	3	inches
Length	30.83	feet
Working Pressure	10000	psi
Test Pressure	15000	psi
As per attached recorder chart	24	hours
Test Duration:		


SUCCO INC. QUALITY CONTROL

THIRD PARTY INSPECTION FIRM OR CUSTOMER REPRESENTATIVE

Test Configuration 12 Zone

Production Information Input

Customer ID
OFS CANADA INC.
Line S/N
KJ2385-202@KJ2387-202
Technician
ROY

QC Information Input

QC Insp
PAT
Witness?
Yes
Special Instructions
Third Party
BV
Test Procedure
SIC 01 60

Station Information

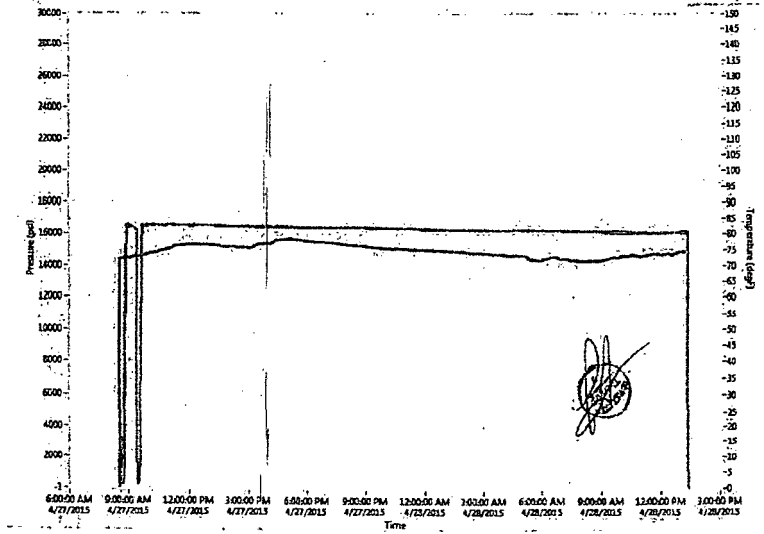
Pressure Transducer S/N
1211570
Stable Press
15500
Cal. Due
9/9/2015 8:29:12 AM
Temperature S/N
T13A
Tao Press
15000
Pressure Range
0 - 30000

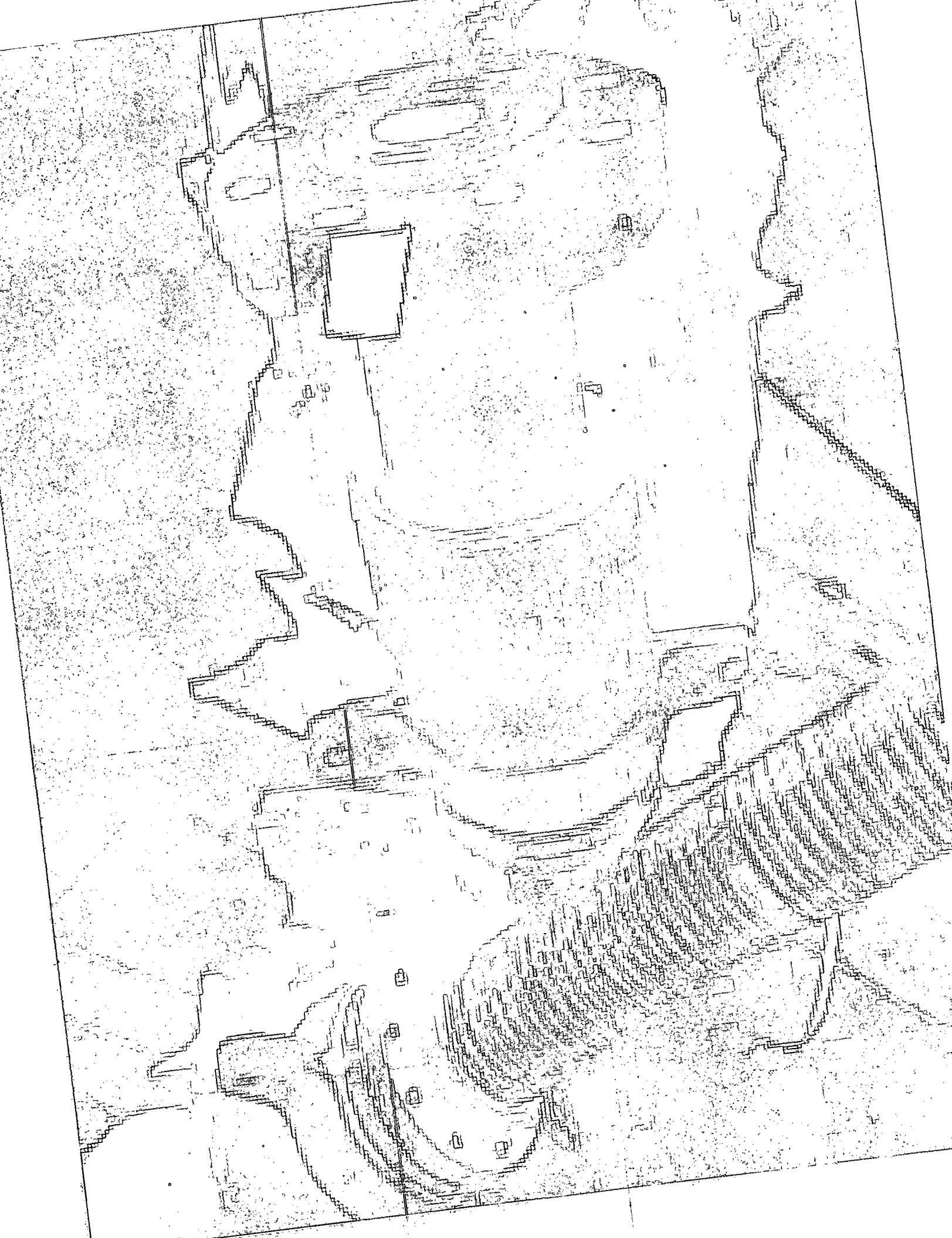
Station 04

Calibration

Raw Maximum
0.004000
Raw Minimum
0.020000
Eng Minimum
0.000000
Eng Maximum
30000.000000

XY Graph





1000 KT2387
S14/15
CHOD



