

OCD Hobbs  
**SECRETARY'S POTASH**

15-712  
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**

**JAN 11 2016**  
RECEIVED

5. Lease Serial No.  
SHL: NMNM85937  
BHL: NMNM064606

6. If Indian, Allottee or Tribe Name

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

8. Lease Name and Well No. **(38946)**  
Airbonita 12 Federal Com #9H

9. API Well No.  
**70-025-43014**

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

11. Sec., T.R.M. or Blk 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 190' FSL & 390' FEL Unit Letter P (SESE) SHL  
At proposed prod. Zone 330' FNL & 380' FEL Unit Letter A (NENE) 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)

190'

16. No. of acres in lease

SHL: 800, BHL: 160

17. Spacing Unit dedicated to this well

160

18. Distance from location\* to nearest well, drilling, completed, SHL: 30' (Proposed Airbonita #5H)  
applied for, on this lease, ft. BHL: 1759'

19. Proposed Depth

TVD: 9904' MD: 14458'

20. BLM/BIA Bond No. on file

NMB000740 & NMB000215

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

3623.8' 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:

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

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

25. Signature

Name (Printed/Typed)

Date

Title

Mayte Reyes

**5-6-15**

Regulatory Analyst

Approved by (Signature)

/s/George MacDoneil

Name (Printed/Typed)

Date

**JAN - 8 2016**

Title

FIELD MANAGER

Office

CARLSBAD FIELD OFFICE

Application approval 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.

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)

Carlsbad Controlled Water Basin

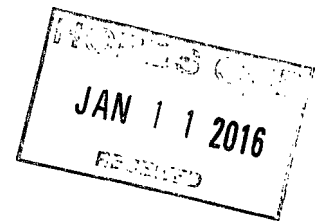
Approval Subject to General Requirements  
& Special Stipulations Attached

SEE ATTACHED FOR  
CONDITIONS OF APPROVAL

**JAN 12 2016**

\*(Instructions on page 2)

# COG Operating LLC, Airbonita 12 Federal Com 9H



## 1. Geologic Formations

TVD of target	9904'	Pilot hole depth	N/A
MD at TD:	14458'	Deepest expected fresh water:	580'

### Basin

Formation	Depth (TVD) from KB	Water/Mineral Bearing/Target Zone?	Hazards*
Quaternary Fill	Surface	Water	
Rustler	879'	Water	
Top of Salt	957'	Salt	
Lamar	4770'		
Delaware Group	4891'	Oil/Gas	
Bone Spring	8641'	Oil/Gas	
First Bone Spring	9834'	Target Zone	
Second Bone Spring	10366'	Will Not Penetrate	

\*H<sub>2</sub>S, 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	920 960	13.375"	54.5	J55	STC	2.62	1.22	10.25
12.25"	0	4300	9.625"	40	J55	BTC	1.28	0.85*	3.28
12.25"	4300	4800	9.625"	40	L80	BTC	1.38	1.24	45.80
8.75"	0	14458	5.5"	17	P110	LTC	1.61	2.30	1.81D
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 psi/4800' = 0.82 > 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 Federal Com 9H

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 <sup>rd</sup> 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 <sup>nd</sup> 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	# Sks	Wt. lb/ gal	Yld ft3/ sack	H <sub>2</sub> O gal/sk	500# Comp. Strength (hours)	Slurry Description
Surf.	430	13.5	1.75	9.15	5.5	Lead: Class C + 4.0% Gel + 2.0% CaCl <sub>2</sub>
	240	14.8	1.35	6.57	7	Tail: Class C + 2.0% CaCl <sub>2</sub>
Inter.	1100	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.	965	10.3	3.5	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
	1200	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'	45%

## COG Operating LLC, Airbonita 12 Federal Com 9H

### 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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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.

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.

## COG Operating LLC, Airbonita 12 Federal Com 9H

### 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	4635 psi @ 9904' TVD
Abnormal Temperature	No

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

Hydrogen Sulfide (H<sub>2</sub>S) monitors will be installed prior to drilling out the surface shoe. If H<sub>2</sub>S 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 <sub>2</sub> S is present
Y	H <sub>2</sub> S Plan attached

See  
COA

## COG Operating LLC, Airbonita 12 Federal Com 9H

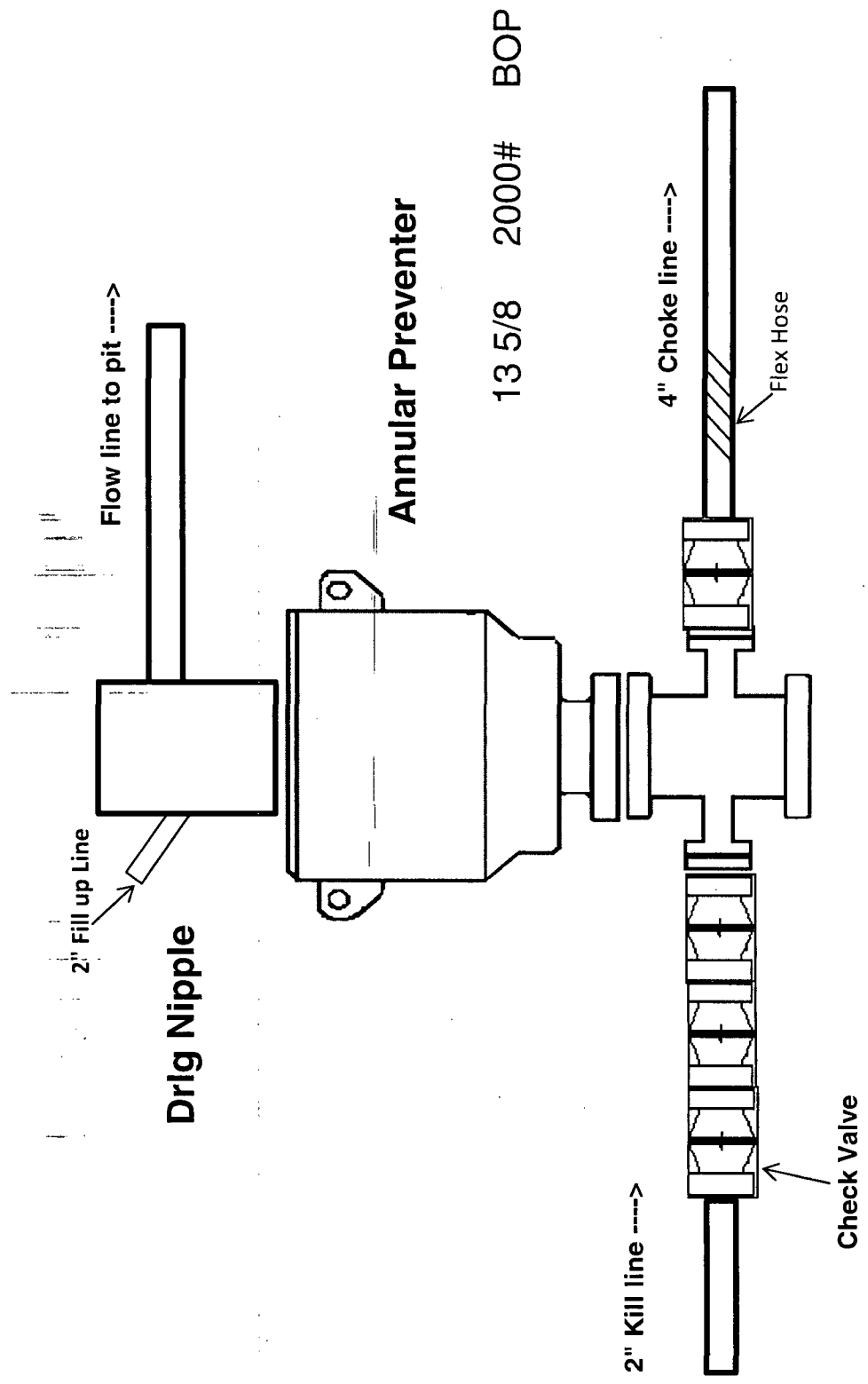
### 8. Other facets of operation

Is this a walking operation? Yes No, if drilling multiple submit Sundry.  
Will be pre-setting casing? No

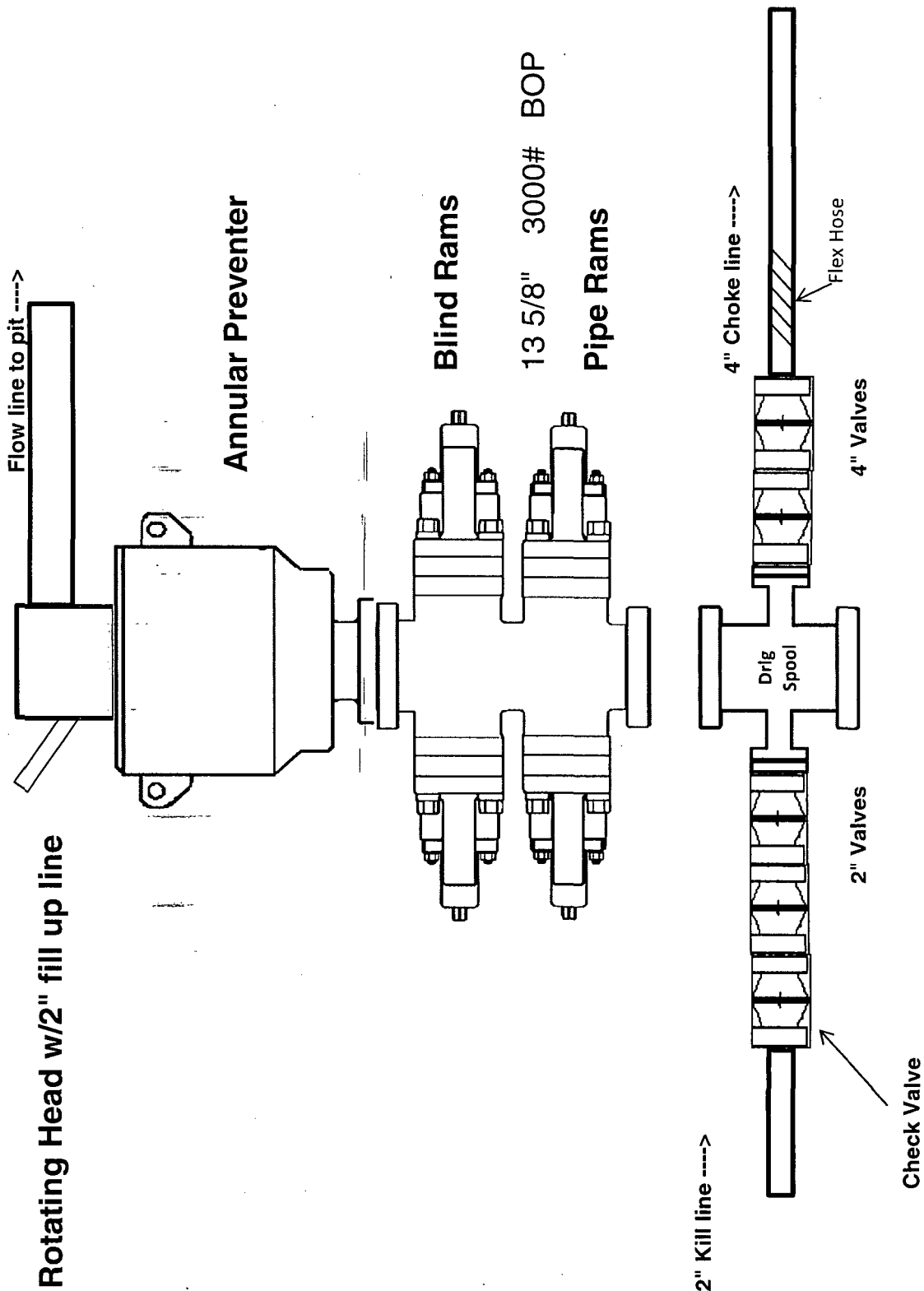
#### Attachments

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

# 2,000 psi BOP Schematic

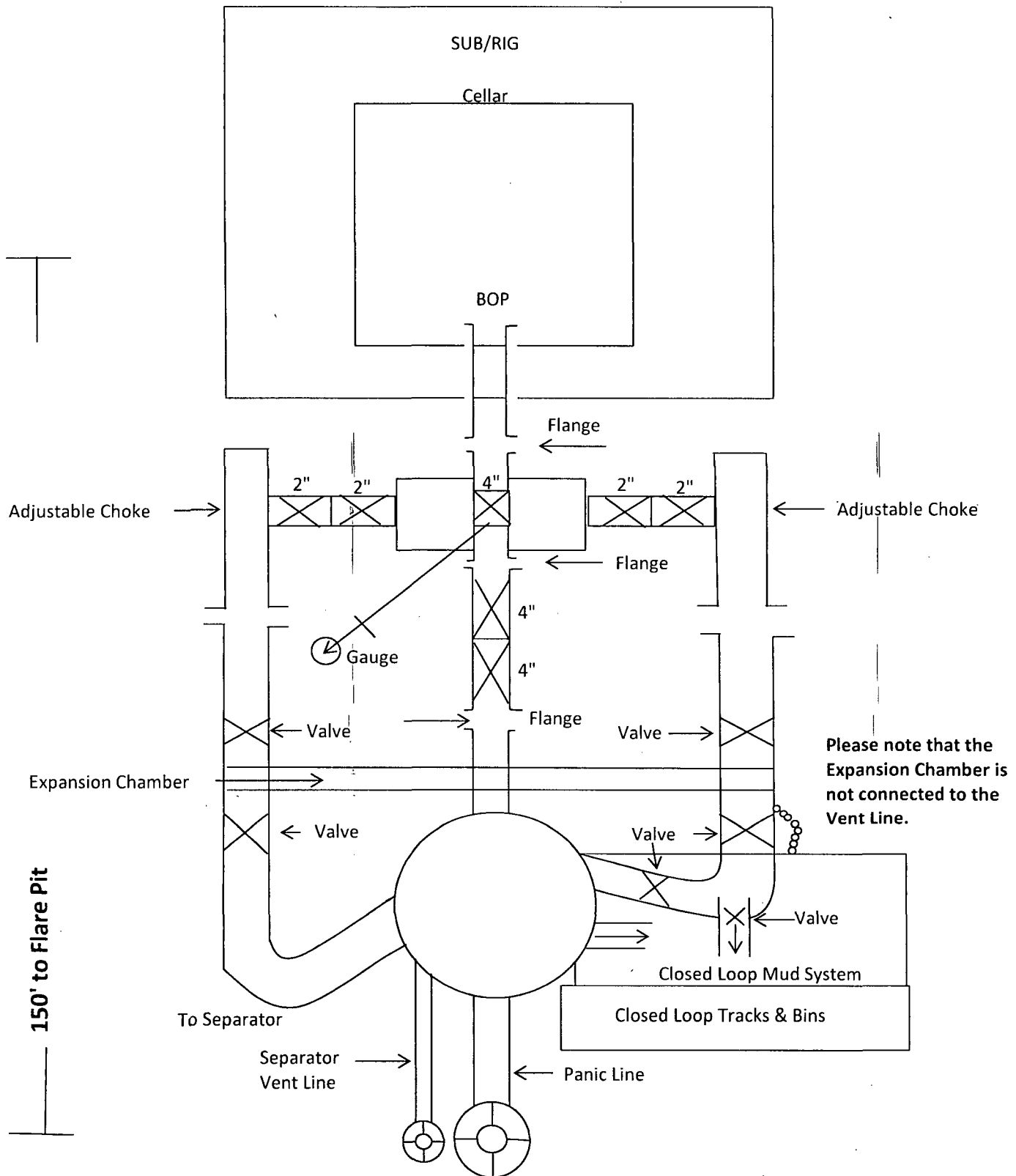


# 3,000 psi BOP Schematic

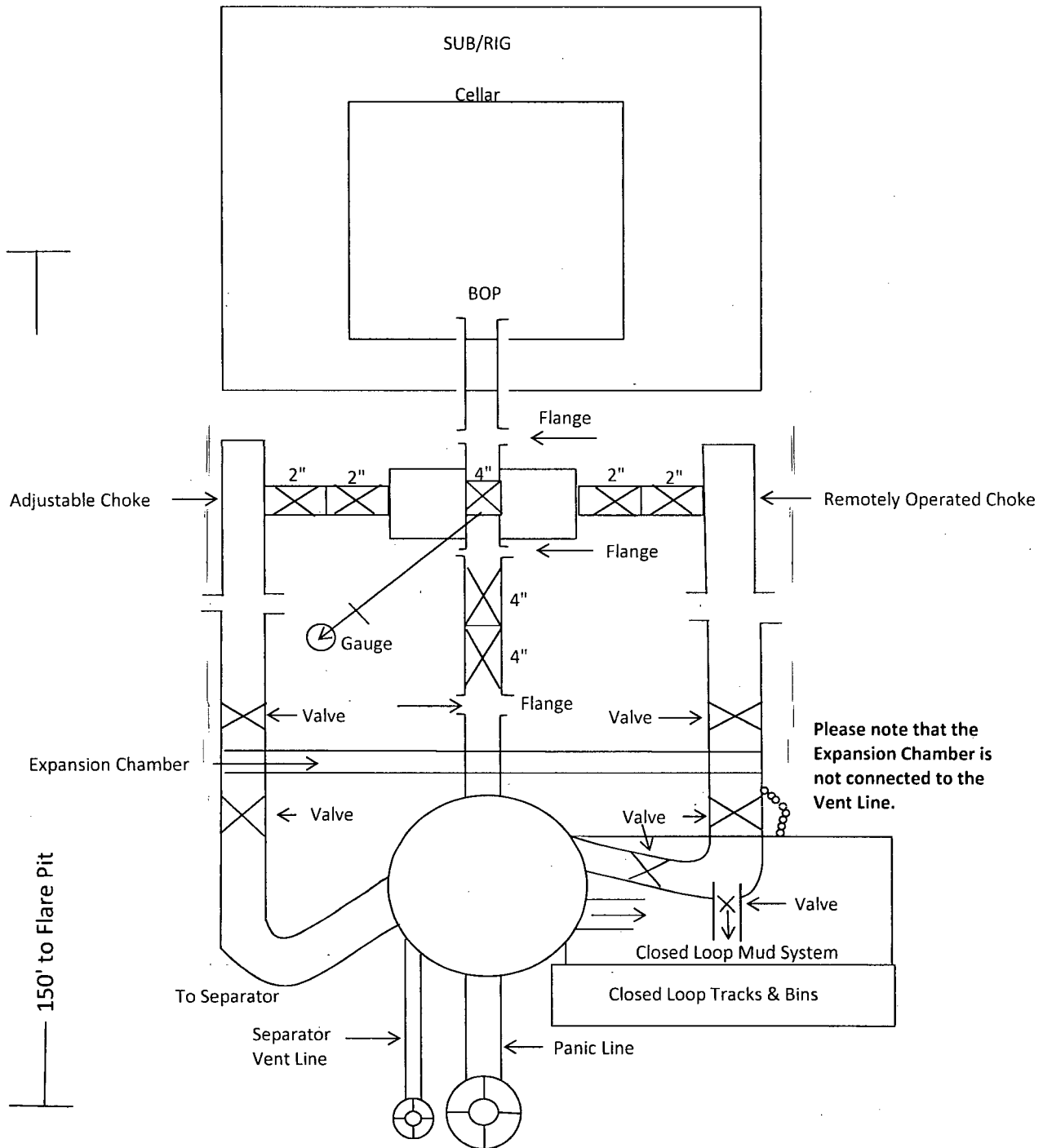


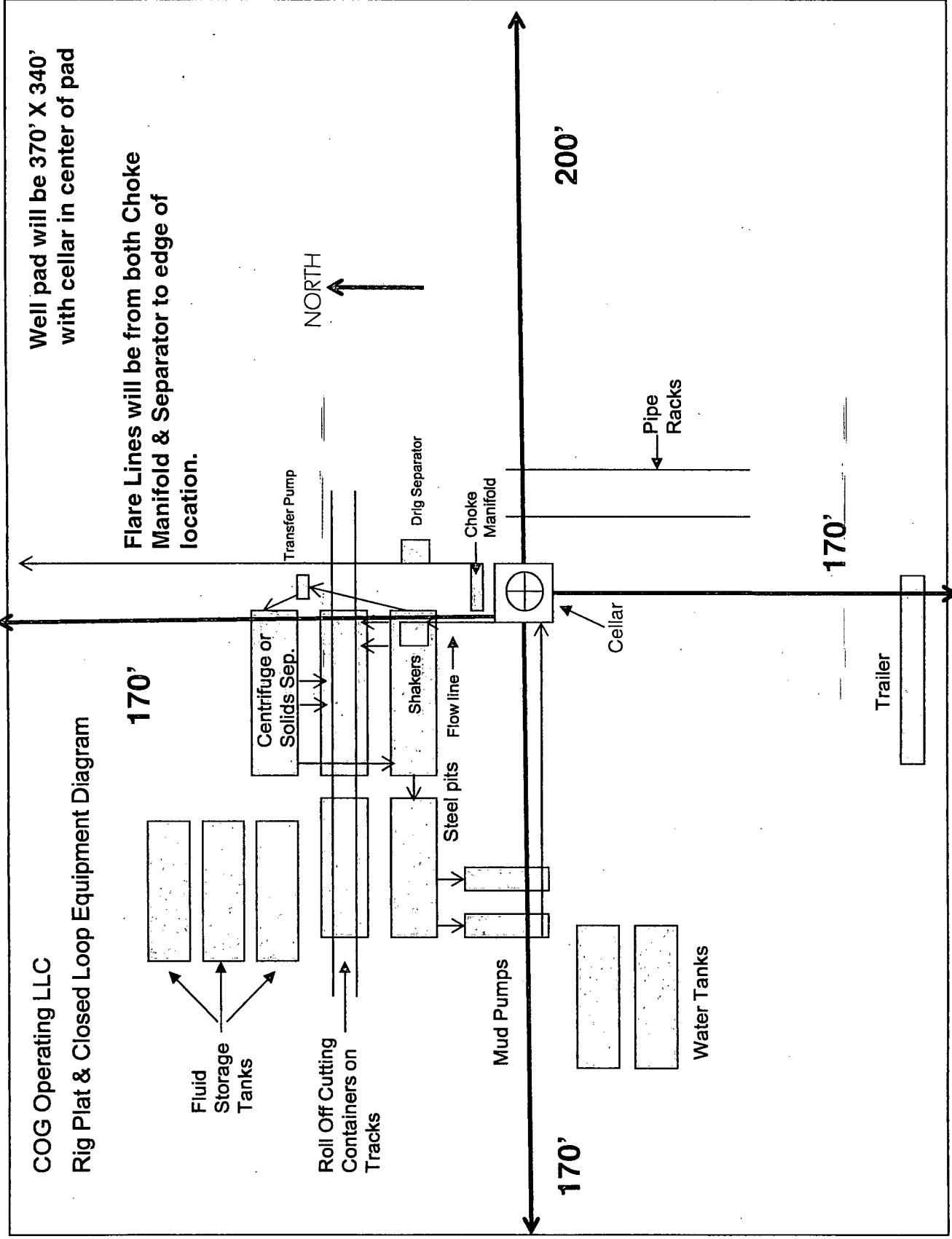


## 2M Choke Manifold Equipment



# 3M Choke Manifold Equipment



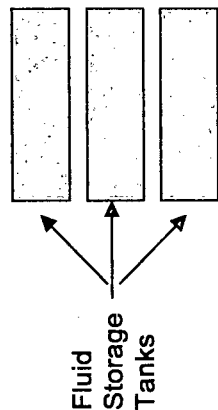


"I further certify that COG will comply with Rule 19.15.17 NMAC by using a Closed Loop System."

COG Operating LLC  
H<sub>2</sub>S Equipment Schematic  
Terrain: Shinnery sand hills.

Well pad will be 370' X 340'  
with cellar in center of pad

Secondary egress.

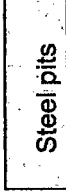
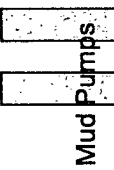


Roll Off Cutting Containers on Tracks

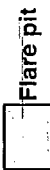


170'

Windstock on 20' pole



Transfer Pump



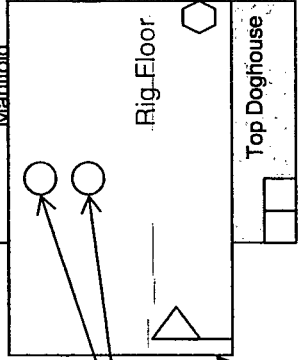
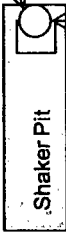
Buried Flare Line

H<sub>2</sub>S Sensor @ Flowline

Drig Separator

Flow line

Choke Manifold



H<sub>2</sub>S Sensors  
1- on rig floor  
1- under substructure

Water Tanks

Windstock on 20' pole

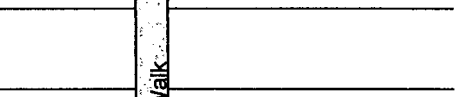
H<sub>2</sub>S Monitoring Panel

5 Escape Packs

170'



Pipe Racks



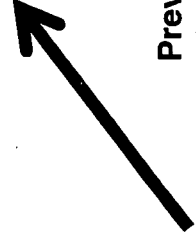
200'

N

Briefing Area w/SCBA

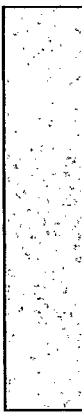
Location Entry  
Condition Sign

Prevailing Wind Direction in SENM



Company Representative's Trailer

Primary Briefing Area w/SCBA





TECHNIP Umbilicals Inc.  
COFLEXIP® Products Division

## CERTIFICATE OF CONFORMITY

**SUPPLIER**

COFLEXIP® Products Division  
16661 Jacintoport Blvd.  
Houston, Texas 77015

<b>CUSTOMER</b>	OFS CANADA INC
<b>CUSTOMER PROJECT</b>	OFS GLOBAL RIG 772 PROJECT 59
<b>CONTRACT NUMBER</b>	OFS-012060-1
<b>COFLEXIP REFERENCE NUMBER</b>	K12386
<b>COFLEXIP LINE DESCRIPTION</b>	3" x 30' 10K CHOKE/KILL LINE
<b>COFLEXIP LINE SERIAL NUMBER</b>	K12386-202
<b>WORKING / TEST PRESSURE (PSI)</b>	10000 / 15000
<b>COFLEXIP ID (inches)/PART NUMBER</b>	3 / 076 60414 13 13
<b>COFLEXIP STRUCTURE NUMBER</b>	076 60414
<b>END FITTING REFERENCE NUMBER</b>	EM 076 65000 13 / EM 076 65000 13
<b>END FITTING DESCRIPTION</b>	4 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**

*U. A. Acelin* 4/30/15  
Name/ Date/ Stamp



**Technip**

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 076 60414 13 13

Application 3" x 30' 10K 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		

*[Signature]*  
Technip  
6

THIRD PARTY INSPECTION FIRM OR CUSTOMER REPRESENTATIVE

SI CO INC. QUALITY CONTROL

DOAC 1124 Rev 2 18 Sept 09

Date Printed: 4/28/2015 1:49:43 PM

## Test Configuration 12 Zone

### Production Information Input

Customer ID

OFS CANADA INC.

Line S/N

KL2386-202@KL2387-202

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

1211579

Static Press

16500

Calib Due

9/9/2015 8:29:12 AM

Temperature S/N

TL3A

Test Press

15000

Pressure Range

0 - 30000

### Station 04

### Calibration

Raw Minimum

0.004000

Raw Maximum

0.020000

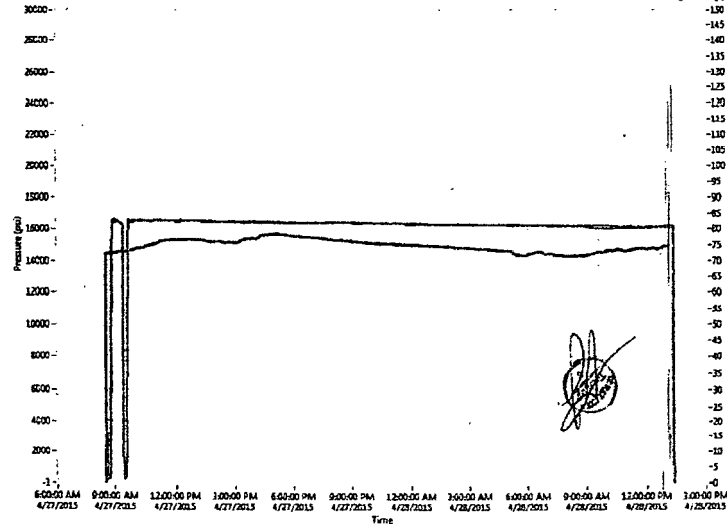
Eng Minimum

0.000000

Eng Maximum

30000.000000

KV Graph

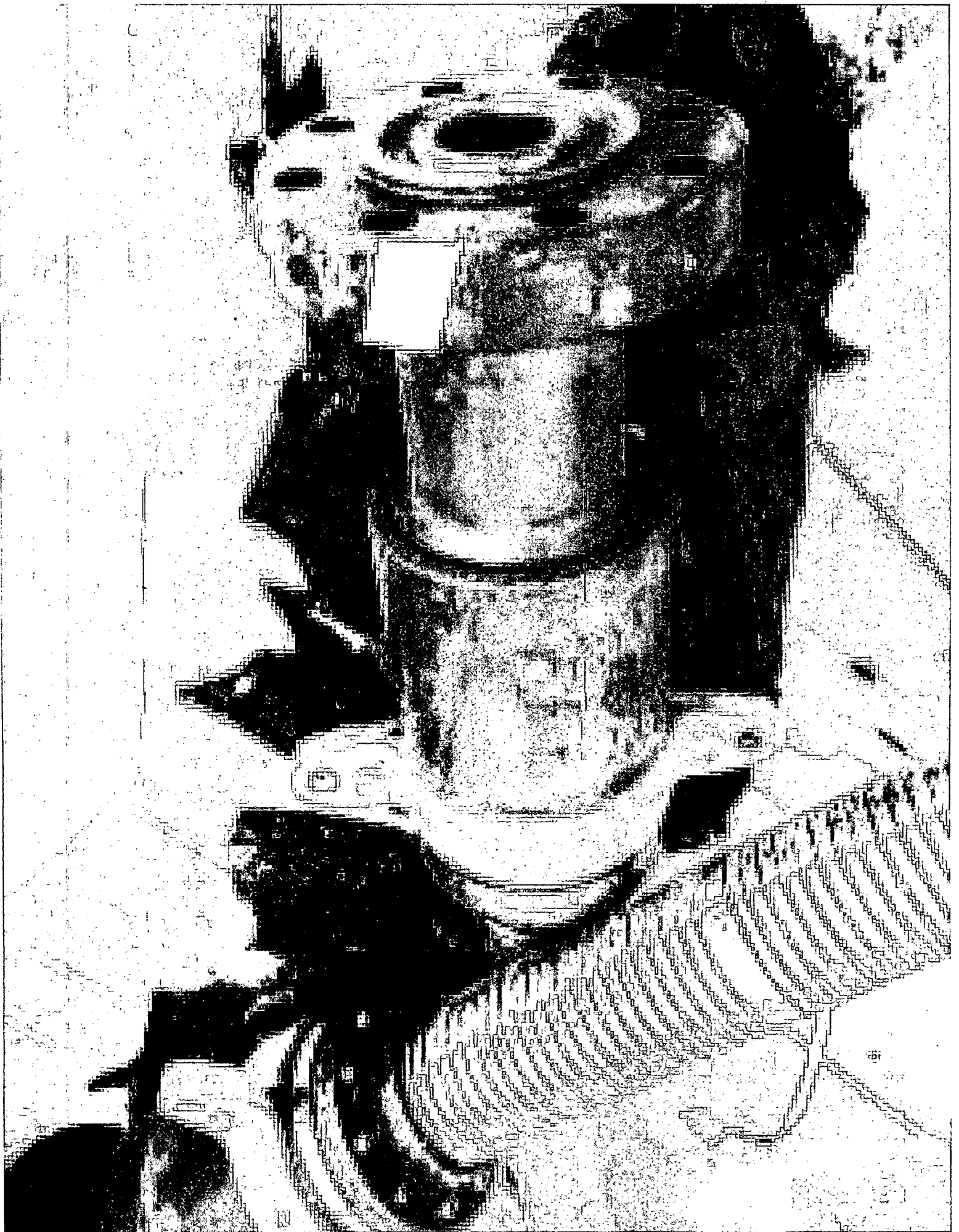


Pressure 4

Temp 4

Plot 3

Temperature (deg)





CHOM

82387

5117

1041

1041

