Peakview Operating Company, LLC
**Grassy Creek 13-26**
SHL: 2,009' FSL 998' FWL (NW/4 SW/4)
BHL: ±1,947' FSL ±717' FWL (NW/4 SW/4)
Sec. 26 T6N R87W,6th P.M.
Routt County, Colorado
Surface: Fee
Mineral Lease: Fee

DRILLING PROGRAM
**(All Drilling Procedures will be followed as Per Onshore Orders No. 1 and No. 2)**

Please contact Kim Rodell at 303-942-0506, if there are any questions or concerns regarding this Drilling Program.

SURFACE ELEVATION – 7,077' (Un-graded ground elevation)

SURFACE FORMATION – Almond – Freshwater possible

ESTIMATED FORMATION TOPS

| Formation | True Vertical Depth | Measured Depth | Geology |
|---|---|---|---|
| Williams Fork | Surface | Surface | Sandstone, Siltstone, Shale & Minor Coal |
| BWF | 300' | 300' | Sandstone, Shale & Coal |
| Trout Creek | 650' | 650' | Sandstone |
| Iles | 1,800' | 1,800' | Sandstone, Shale & Coal |
| Mancos | 2,088' | 2,088' | Sandstone, Shale & Coal |
| Fresh Water | 2,258' | 2,258' | Sandstone, Shale & Coal |
| Maraposa | 3,005' | 3,005' | Sandstone, Shale |
| Niobrara | 5,430' | 5,455' | Sandstone, Shale |
| Buck Peak Bench | 5,430' | 5,455' | Sandstone, Shale & Limestone |
| Tow Creek | 5,804' | 5,829' | Sandstone, Shale & Limestone |
| Wolf Mountain | 6,019' | 6,044' | Sandstone, Shale & Limestone |
| Codell | 6,535' | 6,560' | Sandstone, Shale & Limestone |
| **Total Depth** | **6,735'** | **6,760'** | |

ESTIMATED DEPTHS OF ANTICIPATED WATER, OIL, GAS, OR MINERAL BEARING FORMATIONS

Estimated depths at which water, oil, gas or other mineral-bearing formations are expected to be encountered:

| Formation | True Vertical Depth(TVD) | Measured Depth(MD) | Lithology |
|---|---|---|---|
| Almond | Surface | Surface | Some Water, Oil & Gas Bearing |
| BWF | 300' | 300' | Some Water, Oil & Gas Bearing |
| Trout Creek | 650' | 650' | Some Water, Oil & Gas Bearing |
| Iles | 1,800' | 1,800' | Some Water, Oil & Gas Bearing |
| Mancos | 2,088' | 2,088' | Some Water, Oil & Gas Bearing |
| Fresh Water | 2,258' | 2,258' | Some Water, Oil & Gas Bearing |
| Maraposa | 3,005' | 3,005' | Some Water, Oil & Gas Bearing |
| Niobrara | 5,430' | 5,455' | Some Oil & Gas Bearing |

| | | | |
|---|---|---|---|
| Buck Peak | 5,430’ | 5,455’ | Some oil & gas bearing |
| Tow Creek | 5,804’ | 5,829’ | Some oil & gas bearing |
| Wolf Mountain | 6,019’ | 6,044’ | Some oil & gas bearing |
| Codell | 6,535’ | 6,560’ | Some oil & gas bearing |
| Total Depth | 6760’ MD<br>6735’ TVD | | |

*All fresh water and prospectively valuable minerals encountered during drilling will be recorded by depth and protected.*

CASING PROGRAM

| **Total Depth (MD)** | **Hole Diameter** | **Casing Diameter** | **Casing Weight and Grade** | **Cement** |
|---|---|---|---|---|
| 0 – 120’ | 26” | 20” | Conductor-20”,94#/ft,H40, ST&C- Casing | Cement to surface (±315 sxs Halcem V1 – Class G base ) * |
| 0’ – 2658’ | 14-3/4” | 9-5/8” | 36#/ft, J-55 LT&C Casing | Cement to surface, DV tool at 1500’ MD( 1 stage –shoe – lead 400 sks Varicem V1 , tail - 410 sks Varicem V1, stage 2 thru DV tool – Lead - 845 sks Varcem V1 cmt. Tail - 100 sks Varicem V1) * |
| 2658’ – 5455’ | 8-3/4” | 7” | 23#/ft, N-80 LT&C Casing | TOC at 1600’MD ( 1000’ overlap inside surface csg) DV Tool set at 3000’MD,1 stage thru shoe - Lead 145 sks Econocem V4 cmt, Tail 170 sks Expandacem V3 cmt., 2nd stage thru DV tool - Lead 80 sks Econocem V4 cmt. Tail 50 sks Halcem cmt. ** |
| 5455’ – 6760’ | 6-1/8” | 4-1/2” | 10.5 #/ft, K-55, LT&C Pre-perforated Liner | No cement – Open Hole completed w/ Slotted liner to TD and Top of Liner landed at 5255’MD |

* *Cement volume calculated with 100% excess.*

** *Cement volume calculated with 60% excess.*

*All fresh water and prospective valuable minerals encountered during drilling will be recorded by depth and protected.*

| | | | | |
|---|---|---|---|---|
| | Conductor: | | Halcem V1 class G base cmt. | Yield: 1.17 $ft^3$/sx, Weight: 15.8ppg Water: 5.02 Gal/sk |
| | Surface: | Stage 1 Lead & Tail | Varicem V1 Cement | 1 stg –Lead: Yield 2.24 $ft^3$/sk, Weight: 12.3 ppg, Tail: Yield 1.72 $ft^3$/sk, Weight: 13.5 ppg. |
| | Surface: | Stage 2: Lead & Tail: | Varicem V1 Cement | Lead 2nd stg: Yield 2.24 $ft^3$/sx, Weight: 12.3 ppg, Tail Yield 1.72 $ft^3$/sk, Weight 13.5 ppg |
| | Intermediate | Stage 1: Lead<br>Tail<br>Stage 2: Lead:<br>Tail | Econocem V4<br>Expandacem V3<br>Econocem V4<br>Halcem | Lead-1st stg: Yield 2.48 $ft^3$/sk, Weight: 11.5 ppg<br>Tail – 1st stg: Yield 1.50 $ft^3$/sk, Weight: 13.5 ppg<br>Lead-2nd stg: Yield 2.45 $ft^3$/sk, Weight 11.5 ppg<br>Tail Yield 1.15 $ft^3$/sk, weight 15.8 ppg |

Surface casing top job will be 100' will use 1" tubing, with Class "G" cement with 2% $CaCl_2$ if necessary.

Cement additives – (Note: Some additives are Halliburton proprietary products. If another cement contractor is used, these blends and products may vary slightly).

Cement additives:

| | | | |
|---|---|---|---|
| Conductor: | | | Halcem V1 – Class G base cement |
| Surface: | Stage 1 | Lead | Varicem V1 cmt, .125 lbm/sk Poly Flake, 0.2% Fe-2, Type III base cement |
| Surface | Stage 1 | Tail | Varicem V1 cmt., .125 lbm/sk Poly-flake, Type III base cement |
| Surface | Stage 2 | Lead | Varicem V1 cmt, .125 lbm/sk Poly Flake, type III base cement |
| Surface | Stage 2 | Tail | Varicem V1 cmt, .125 lbm/sk Poly flake, Type III base cement |
| Intermediate | Stage 1 | Lead | Econocem V4 cmt., 3 lbm/sk Kol-seal, 0.2 % HR-800, Type V Cement and Poz base system |
| Intermediate | Stage 1 | Tail | Expandacem V3 cmt., 0.4 % HR-800, 1lbm/sk Poly-flake, Class G and Poz base system |
| Intermediate | Stage 2 | Lead | Econocem V4 cmt., Type V Cement and Poz base system |
| Intermediate | Stage 2 | Tail | Halcem cmt., 0.1 % HR-5, Class G base cement |

PRESSURE CONTROL

- See attached blowout preventer diagram.

BOPs and choke manifold will be installed and pressure tested before drilling out of surface casing (subsequent pressure test will be performed whenever pressure seals are broken), and then will be checked daily as to mechanical operating condition. BOPs will be pressure tested at least once every 30 days. Ram type preventers and related pressure control equipment will be pressure tested to related working pressure of the stack assembly if a test plug is used. If a plug is not used, the stack assembly will be tested to the rated working pressure of the stack assembly or 70% of the minimum internal yield of the casing, whichever is less. Annular type preventers will be pressure tested to 50% of their working pressure. All casing strings will be pressure tested to 0.22 psi/ft or 1,500 psi, whichever is greater, not to exceed 70% of the internal yield. If a 5M system or greater is used, the casing shoe will be tested by drilling 5-20' out from under the shoe and pressure tested to a maximum expected mud weight equivalent as shown in the mud program listed below.

A manual locking device (i.e. hand wheels) or automatic locking devices shall be installed on the BOP stack. Remote controls capable of both opening and closing all preventers shall be readily accessible to the driller.

The choke manifold and accumulator will meet or exceed Onshore Order No. 2 (OSO #2) standards. The BOP equipment will be tested after any repairs to the equipment. Pipe rams, blind rams and annular preventer will be activated on each trip and weekly BOP drills will be conducted with each crew. All tests, maintenance, and BOP drills will be documented on rig "tower sheets".

*Statement of Accumulator System and Location of Hydraulic Controls*

*The drilling rig has not been selected for this well. Selection will take place after approval of this application is granted. Manual and/or hydraulic controls will be in compliance with OSO #2 for 2,000 psi system.*

*A remote accumulator will be used. Pressures, capacities, location of remote hydraulic and manual controls will be identified at the time of the COGCC supervised BOP test.*

MUD PROGRAM

| | | | |
|---|---|---|---|
| 0’ | - | 120’MD | **Fresh Water**<br>M.W.: 8.4<br>Visc.: 40<br>FL N/A |
| 120’ | - | 2,658’MD | **Spud Mud**<br>M.W.: 8.4 – 8.6 ppg<br>Visc.: 28 – 30<br>WL: N/C<br>pH: 7.5 – 8.5<br>Yield: 4 – 8<br>LGS: ≤ 4% |
| 2,658’MD | - | 5455’ MD | **DAP Fluid (Dimonium Phosphate)**<br>M.W.: 8.6 – 9.4 ppg<br>Visc.: 28 – 35<br>WL: ≥ 10<br>pH: 7.5 – 8.3<br>Yield: 10 – 16<br>LGS: ≤ 4% |
| 5455’MD | - | 6760’ MD | **Amodrill 1410 - Synthetic Olefin Fluid**<br>M.W.: 6.1 – 7.5 ppg, Density .733 relative to water of 1.0 mg/l<br>Visc.: 10 – 30<br>WL: N/A<br>Yield: 10 – 12<br>LGS: ≤ 2 % |

*Sufficient mud materials to maintain mud properties, control lost circulation and to contain a “kick” will be available on location.*

AUXILIARY EQUIPMENT

A. Upper Kelly cock; lower Kelly cock will be installed while drilling and tested with 5000 psi BOP.
B. Inside BOP or stabbing valve with handle (available on rig floor).
C. Safety valve(s) and subs to fit all string connections in use.
D. Mud monitoring will be with a flow sensor, pit level indicator, and visual observation.

LOGGING, CORING TESTING PROGRAM

| | | |
|---|---|---|
| A. | Logging: | CBL will be run on surface and intermediate.<br>Open-hole logging from TD – 5,000’<br>Platform Express, Array Induction, Lithio density/ Compensated Neutron, Bi-pole Sonic, FMI. |
| B. | Coring: | None planned – Whole core or rotary sidewall cores as warranted. |
| C. | Testing: | None planned – Drill Stem tests may be run on shows of interest. |

ABNORMAL CONDITIONS

A. Pressures: No abnormal conditions are anticipated.
Anticipated maximum BHP gradient: 0.45 psi/ft
True bottom-hole anticipated pressure ±2,100 psi taken from completed offset producers.

B. Temperatures: No abnormal conditions are anticipated.

C. $H_2S$: None Anticipated.

D. Estimated bottom-hole pressure: 3,031 psi

ANTICIPATED START DATE

June 1, 2013

COMPLETION

The location pad will be sufficient size to accommodate all completion equipment activities and equipment. A string of 2-7/8" 6.5#, N-80, 8rnd EUE will be run as production tubing. A Sundry Notice (SN) will be submitted with a revised completion program if warranted.

| | | | |
|---|---|---|---|
| Well Name: | Grassy Creek 13-26 | Operator: | Peakview Operating Company LLC. |
| Location: | NW SW, Sec 26, T6N, R87W, 6th P.M. | | |
| SHL: | 2008.8' FSL & 998.2' FWL | | |
| BHL: | 1947.1' FSL & 717.0' FWL | | |
| County: | Routt | | |
| State: | Colorado | | |

**SURFACE CASING**

| Size | Weight | Grade | Conn |
|---|---|---|---|
| 9-5/8" | 36.00 | J-55 | LT&C |

| | | | | |
|---|---|---|---|---|
| Setting Depth of Surface Casing: | 2,658' | | | |
| TD of Next Hole Section: | 5,455' | MW Behind Surface: | 8.7 | ppg @ 2,658' |
| Press Gradient @ This Depth: | 0.45 psi/ft | MW At Next Section TD: | 10.5 | ppg @ 5,455' |
| Press Gradient of Formation Fluid: | 0.22 psi/ft | | | |
| **BHP @ 5,455'** | **2,455 psi** | | | |
| **Hydrostatic Head of Form Fluid @ 5,455'** | **1,200 psi** | | | |
| **Max Design Surface Pressure:** | **1,255 psi** | | | |

Casing Specs For: 9-5/8", 36.00 ppf, J-55, LT&C

**100% STRENGTHS**

| COLLAPSE | BURST | TENSION |
|---|---|---|
| 2,020 | 3,520 | 453,000 |

| DESIGN SAFETY FACTORS | | CALCULATED SAFETY FACTORS | | |
|---|---|---|---|---|
| COLLAPSE: | 1.125 | COLLAPSE: | 1.7 | OK |
| BURST: | 1.0 | BURST: | 2.8 | OK |
| TENSION: | 1.8 | TENSION: | 4.7 | OK |

**CALCULATED SAFETY FACTORS**

Collapse:

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Hydrostatic Pressure:** | **0.052** | **8.7 ppg** | **2,658'** | **= 0.052 X 8.7 X 2,658' =** | | **1202** | **psi** |
| **Safety Factor (Collapse):** | **2,020 psi** | **1,202 psi** | **1.7** | **OK** | | | |
| **Safety Factor (Burst):** | **3,520 psi** | **1,255 psi** | **2.8** | **OK** | | | |
| **Tension:** | **36.00 ppf** | **2,658'** | **= 36 X 2,658' =** | | **95,688** | **lbs** | |
| **Safety Factor (Tension):** | **453,000** | **95,688** | **= 453,000 / 95,688' =** | | **4.7** | **OK** | |

| | | | |
|---|---|---|---|
| Well Name: | Grassy Creek 13-26 | Operator: | Peakview Operating Company LLC. |
| Location: | NW SW, Sec 26, T6N, R87W, 6th P.M. | | |
| SHL: | 2008.8' FSL & 998.2' FWL | | |
| BHL: | 1947.1' FSL & 717.0' FWL | | |
| County: | Routt | | |
| State: | Colorado | | |

**INTERMEDIATE CASING**

| Size | Weight | Grade | Conn |
|---|---|---|---|
| 7" | 23.00 | N-80 | LT&C |

| | | | | |
|---|---|---|---|---|
| Setting Depth of Intermediate Casing: | 5,455' | | | |
| TD Of Next Hole Section: | 6,760' | MW Behind Surface: | | 8.7 ppg @ 5,455' |
| Press Gradient @ This Depth: | 0.44 psi/ft | MW At Next Section TD: | | 9.5 ppg @ 6,760' |
| Press Gradient of Formation Fluid: | 0.22 psi/ft | | | |
| **BHP @ 6,760'** | **2,974 psi** | | | |
| **Hydrostatic Head of Form Fluid @ 6,760'** | **1,487 psi** | | | |
| **Max Design Surface Pressure:** | **1,487 psi** | | | |

Casing Specs For: 7", 23.00 ppf, N-80, LT&C

**100% STRENGTHS**

| COLLAPSE | BURST | TENSION |
|---|---|---|
| 3,830 | 6,340 | 442,000 |

| DESIGN SAFETY FACTORS | | CALCULATED SAFETY FACTORS | | |
|---|---|---|---|---|
| COLLAPSE: | 1.125 | COLLAPSE: | 1.6 | OK |
| BURST: | 1.0 | BURST: | 4.3 | OK |
| TENSION: | 1.8 | TENSION: | 3.5 | OK |

**CALCULATED SAFETY FACTORS**

Collapse:

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Hydrostatic Pressure:** | **0.052** | **8.7 ppg** | **5,455'** | **= 0.052 X 8.7 X 5,455' =** | | **2468** | **psi** |
| **Safety Factor (Collapse):** | **3,830 psi** | **2,468 psi** | **1.6** | **OK** | | | |
| **Safety Factor (Burst):** | **6,340 psi** | **1,487 psi** | **4.3** | **OK** | | | |
| **Tension:** | **23.00 ppf** | **5,455'** | **= 23 X 5,455' =** | | **125,465** | **lbs** | |
| **Safety Factor (Tension):** | **442,000** | **125,465** | **= 442,000 / 125,465' =** | | **3.5** | **OK** | |

| | | | |
|---|---|---|---|
| Well Name: | Grassy Creek 13-26 | Operator: | Peakview Operating Company LLC. |
| Location: | NW SW, Sec 26, T6N, R87W, 6th P.M. | | |
| SHL: | 2008.8' FSL & 998.2' FWL | | |
| BHL: | 1947.1' FSL & 717.0' FWL | | |
| County: | Routt | | |
| State: | Colorado | | |

**PRODUCTION CASING**

| Size | Weight | Grade | Conn |
|---|---|---|---|
| 4-1/2" | 10.50 | N80 | ST&C |

| | | | |
|---|---|---|---|
| Setting Depth of Production Casing: | 6,760' | | |
| Hole Total Depth: | 6,760' | MW Behind Production Casing: | 9.5 ppg @ 6,760' |
| Press Gradient @ This Depth: | 0.433 psi/ft | MW At TD: | 9.5 ppg @ 6,760' |
| Press Gradient of Formation Fluid: | 0.22 psi/ft | | |
| **BHP @ 6,760'** | **2,927 psi** | | |
| **Hydrostatic Head of Form Fluid @ 6,760'** | **1,487 psi** | | |

**Max Design Surface Pressure:** **1,440 psi**

Casing Specs For: 4-1/2", 10.50 ppf, N80, ST&C

**100% STRENGTHS**

| COLLAPSE | BURST | TENSION |
|---|---|---|
| 4,010 | 4,790 | 132,000 |

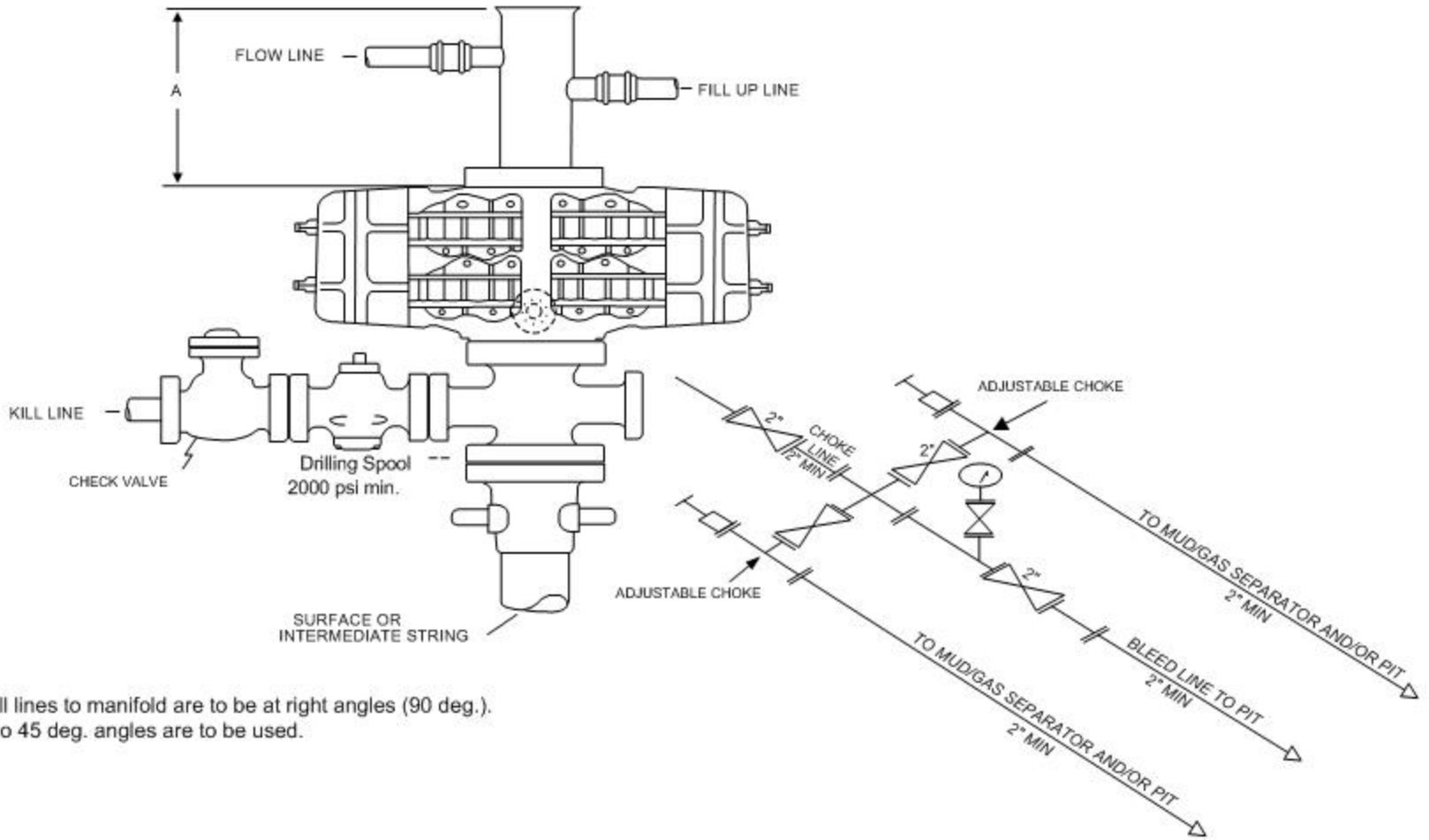
| DESIGN SAFETY FACTORS | | CALCULATED SAFETY FACTORS | | |
|---|---|---|---|---|
| COLLAPSE: | 1.125 | COLLAPSE: | 1.2 | OK |
| BURST: | 1.0 | BURST: | 3.3 | OK |
| TENSION: | 1.8 | TENSION: | 1.9 | OK |

**CALCULATED SAFETY FACTORS**

Collapse:

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Hydrostatic Pressure:** | **0.052** | **9.5 ppg** | **6,760'** | **= 0.052 X 9.5 X 6,760' =** | | **3339** | **psi** |
| **Safety Factor (Collapse):** | **4,010 psi** | **3,339 psi** | **1.2** | **OK** | | | |
| **Safety Factor (Burst):** | **4,790 psi** | **1,440 psi** | **3.3** | **OK** | | | |
| **Tension:** | **10.50 ppf** | **6,760'** | **= 10.5 X 6,760' =** | | **70,980** | **lbs** | |
| **Safety Factor (Tension):** | **132,000** | **70,980** | **= 132,000 / 70,980' =** | | **1.9** | **OK** | |

ANNULAR PREVENTER MAY BE SUBSTITUTED FOR DOUBLE GATE PREVENTERS




All lines to manifold are to be at right angles (90 deg.).
No 45 deg. angles are to be used.

2M CHOKE MANIFOLD EQUIPMENT – CONFIGURATION MAY VARY

## BLOWOUT PREVENTER

2,000 psi minimum