SAFE WORK PRACTICE **SWP-03**

April 18, 2018 **BLINDING BLANKING**

PURPOSE/APPLICATION

"Blanking or blinding" means the absolute closure of a pipe, line, or duct by the fastening of a solid plate (such as a spectacle blind or a skillet blind) that completely covers the bore and that is capable of withstanding the maximum pressure of the pipe, line, or duct with no leakage beyond the plate.

An alternative to blanking is the "double-block and bleed". The double-block and bleed system is made up of three valves arranged in a "T" configuration. The double-block and bleed allow for the closure of a line, duct, or pipe by closing and locking or tagging two in-line valves and by opening and locking or tagging a drain or vent (bleed) valve in the line between the two closed valves.

Blanking or blinding devices are required on piping systems where there may be or are dangers to the workers from the release of energy or other hazardous substances into the system.

PPE

- Canadian Plains Energy Services (CPE) minimum requirements

TRAINING

HAZARDS & CONCERNS

- Fire/explosion
- Burns
- Spill
- Oxygen deficiency
- Exposure to hazardous chemicals
- Stored energy, uncontrolled release

PRECAUTIONS

Confirm that the materials being used for blanking are adequate for the potential pressures in the system.

1) **Blind List**: A blind list identifies all blinds to be installed for the job.

- The blind list provides; communication within the control room, the status of the blinds for the job and the status of blinds through shift change.
- It allows confirmation of blinds to install, sign-off for installation and removal confirmation and sign off.

2) **Isolate and depressurize system**

- Assist operations with isolation and depressurizing of system to be blinded.
- Operations must verify that zero pressure in system
- Ground the system

3) **Breaking system integrity** (Disassembly of Piping)

- Follow first open piping and vessel policy
- Spill tray and spill containment kit on hand in case of any unknown fluid trapped in system.
- Keep face and body to the side when breaking flanges in case of any trapped fluids or pressure
- Always loosen flange away from your body

4) **Bolt-Up (Installation)**

- Inspect and clean surfaces when blinds/blanks are being installed
- Torque flanges to specifications
- Proper gasket rating and placement when installed.
- Monitor for leaks
- Aligned flanges within acceptable tolerances

A blind list shall include the following:

- Blind number
- Location of gasket
- Blind size
- Installation check (sign off)
- Blind rating
- Removal check (sign off)
- Blind type
- Plant equipment number and name
- Blind thickness
- Lockouts on related electrical and mechanical equipment name
- Location of blind

REFERENCES / ADDITIONAL INFORMATION

None

REGULATIONS

Alberta OHS Code - Part 15 Managing the Control of Hazardous Energy

Isolating piping 215.4

1. *To isolate piping or a pipeline containing harmful substances under pressure, an employer may use:*
    a. *a system of blanking or blinding, or*
    b. *a double block and bleed isolation system providing*
        I. *2 blocking seals on either side of the isolation point, and*
        II. *an operable bleed-off between the two seals.*
2. *An employer must ensure that piping that is blanked or blinded is clearly marked to indicate that a blank or blind is installed.*
3. *An employer must ensure that, if valves or similar blocking seals with a bleed-off valve between them are used to isolate piping, the bleed-off valve is secured in the "OPEN" position and the valves or similar blocking seals in the flow lines are functional and secured in the "CLOSED" position.*

4. *An employer must ensure that the device used to secure the valves or seals described in subsection (3) is:*
    a. *a positive mechanical means of keeping the valves or seals in the required position, and*
    b. *is strong enough and designed to withstand inadvertent opening without the use of excessive force, unusual measures, or destructive techniques.*
5. *If it is not reasonably practicable to provide blanking, blinding or double block and bleed isolation, an employer must ensure that an alternate means of isolation that provides adequate protection to workers, certified as appropriate and safe by a professional engineer, is implemented.*

Saskatchewan OHS Regulation - PART XXV Fire and Explosion Hazards

Piping 374

1. *Where workers are required or permitted to work on piping that may contain harmful substances or substances under pressure, an employer or contractor, in consultation with the committee, shall develop written procedures to protect the workers from contact with those substances.*
2. *The procedures developed pursuant to subsection (1) must include:*
    a. *the installation of a blank that is appropriate for the proper pressure in the piping;*
    b. *the closing of two blocking valves installed in the piping and the opening of a bleed-off valve installed between the blocking valves;*
    c. *the installation of an approved safety device; or*
    d. *where the procedures mentioned in clauses (a), (b) and (c) are not reasonably practicable, any other procedures that are adequate to protect the health and safety of the workers.*
3. *An employer or contractor shall ensure that all workers are trained in and implement the procedures developed pursuant to subsection (1).*
4. *An employer or contractor shall ensure that:*
    a. *the piping mentioned in clause (2)(a) is clearly marked to indicate that a blank has been installed; or*
    b. *the two blocking valves mentioned in clause (2)(b) or the approved safety device mentioned in clause (2)(c):*
        I. *are locked in the closed position and the bleed-off valve is locked in the open position; and*
        II. *are tagged to indicate that the valves must not be activated until the tags are removed by a worker designated by the employer for that purpose.*
5. *An employer or contractor shall ensure that a worker designated pursuant to subclause (4)(b)(ii):*
    a. *monitors the valves to ensure that they are not activated while a worker is working on the piping; and*
    b. *records on the tag mentioned in subclause (4)(b)(ii) the date and time of each monitoring and signs the tag each time the worker monitors the valves.*
6. *An employer or contractor shall ensure that any valve installed on piping mentioned in this section is clearly marked to indicate the open and closed positions.*

British Columbia OHS Regulation - Part 9 Confined Spaces

Lockout and Isolation

9.20 Blanks and blinds

1. *Unless certified by a professional engineer to provide adequate safety for the particular conditions of anticipated pressure, temperature and service, a blank or blind must be manufactured in accordance with the specifications of one of the following standards:*
    a. *ANSI Standard API 590-1985, Steel Line Blanks;*
    b. *ANSI Standard ASME/ANSI B16.5-1988, Pipe Flanges and Flanged Fittings;*
    c. *ANSI Standard ASME B31.1-1992, Power Piping;*
    d. *ANSI Standard ASME B31.3-1993, Chemical Plant and Petroleum Refinery Piping.*
2. *If a blank or blind is certified by a professional engineer, the employer must keep a record of its certification, location and conditions of service.*
3. *If required, an allowance for corrosion must be made in the design of a blank or a blind.*
4. *A blank or blind must be stamped with or otherwise indicate its pressure rating.*
5. *If a line is to be opened for disconnection or to insert a blank or a blind, written safe work procedures must be prepared and followed to prevent hazardous exposure of workers to its contents.*
6. *Visual indication that a blank or blind has been installed must be provided at the point of installation.*
7. *If required to prevent leakage, gaskets must be installed on the pressure side of blanks or blinds and flanges must be tightened to make the blanks or blinds effective.*
8. *If threaded lines are used, threaded plugs or caps must be used to blind the lines.*

9.21 Double block and bleed

If a double block and bleed isolation system is used

a. *the diameter of the bleed line must be no less than the diameter of the line being isolated, unless certified by a professional engineer,*

b. *the bleed for a liquid system must be at a lower elevation than the block valves,*

c. *all valves must be locked out in their proper open or closed position,*

d. *the downstream block valve must be checked to ensure that it is capable of safely withstanding the line pressure,*

e. *the bleed must be checked to ensure that it remains clear of obstructions while the confined space is occupied, either by continuous automatic monitoring or by manually checking within 20 minutes before worker entry, or before re-entry after the confined space has been vacated for more than 20 minutes, and*

f. *in the event of discharge from the bleed line resulting from failure of the upstream block valve, all workers must immediately exit the confined space and the space must be effectively re-isolated before a worker enters the space.*

9.22 Alternate procedures

1. *If isolation using the measures specified in section 9.18 is not practicable, the employer may implement alternate measures acceptable to the Board.*
2. *All workers affected by measures implemented under subsection (1) must be informed of the measures taken and instructed in any applicable work procedures*

9.23 Discharge area

The area of potential discharge from a disconnected line or from the bleed of a double block and bleed isolation system must be controlled to ensure that any accidental discharge will not present a hazard to workers.

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