CONTROLLING CHEMICAL HAZARDS

Guidance Sheet

OPERATIONS SPECIFIC **PIPELINE MANAGEMENT PIGGING**

Hazards

The process of conducting internal pipeline inspection and cleaning by running pigs is a hazardous procedure field personnel are required to perform. During a pigging operation, workers are at risk of exposure to toxic chemicals, oxygen deficient environments and flammable materials. If appropriate procedures and practices are not followed workers may also be at risk of being struck by equipment propelled by high pressure gases.

Pigging systems are designed so that the pig is loaded into the launcher, which is pressured up to launch the pig into the pipeline through a kicker line. In some cases, the pig is removed from the pipeline via the receiver at the end of each run. Workers involved in launching and retrieving pigs are at the highest risk because they may be exposed to production gases and liquids (oil, natural gas, hydrogen sulphide). If the pig is propelled by an inert (non-reactive) gas they may also be exposed to oxygen deficient atmospheres if ventilation is poor.

There are inherent risks in opening the launch or retrieval housing to atmosphere and care must be taken to ensure that the housing is depressurized prior to opening. If the housing is not completely depressurized, the pig can be ejected from the housing and operators have been severely injured when standing in front of an open pig door.

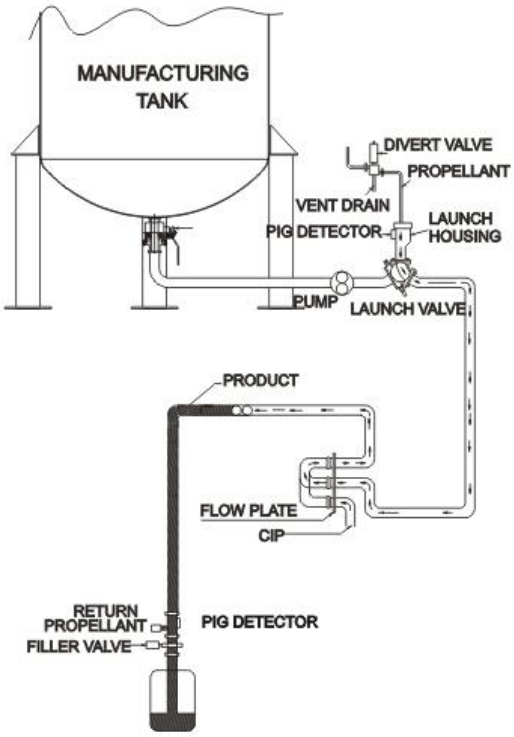
Access

Only allow access to the area by authorized staff.

Make sure other workers stand well clear of pig door when opening and other areas that may be pressurized.

Design & Equipment

- The line through which the pig travels must vent propellant if:
  - Emergency Stop (automated systems)
  - Operator request to stop pigging
  - Power or instrument air failure
- There must be a physical barrier to the pig leaving the line if it is not in the intended position when opening the launch housing.
- Propellant and production fluid venting must take the intended route (to flare if toxic or flammable gases) and not vent to the destination filler/tank.
- Ensure all valves, gauges and regulators are in proper working order before you begin the work.
- Ensure that equipment is depressurized before attempting to open it.
- Ensure all required safety and respiratory equipment is available prior to starting work.
- A wind sock and signs stating “Caution Venting H2S Gas Do Not Enter Area” should be posted if hydrogen sulfide gas is suspected.
- Review your organizations flaring procedures before you begin work.



Personal Protective Equipment

Respiratory Protective Equipment:

- Self-Contained Breathing Air: To be used when H2S may exceed 10 ppm (GS H2S and GS Respiratory Protective Equipment).
- Other respiratory protective equipment may be required depending on the chemicals present in the production stream (GS Production Fluids).

Other Personal Protective Equipment:

- Personal H2S Monitor: To be worn at all times (including truck drivers) (GS H2S Gas Monitors).
- Fire Retardant Coveralls: To be worn at all times (GS Flame Resistant Clothing).
- Chemical resistant gloves, clothing and eye protection may be required depending on the chemicals present in the production stream (GS Gloves and GS Skin Contact).
- Oxygen and LEL Monitor: If venting gases in work area.

Cleaning & Housekeeping

- Keep all work areas neat and free from debris.
- Clean up chemical spills promptly.

Information Training and Supervision

Employer responsibilities:

- Gather and provide safety data sheets on the chemicals that will be present at the workplace.
- Use the Controlling Chemical Hazards Guideline to define the required chemical management process for the work you wish completed.

Supervisor responsibilities:

- Ensure the availability of the required Guidance Sheets for chemical management.
- Ensure the availability and use of appropriate protective equipment.
- Complete and review with workers the chemical management process and the Safety Device Checklist.
- Review safe work procedures with workers before they start work.

Worker responsibilities:

- Wear appropriate personal protective equipment.
- Follow safe work procedures.
- Ensure equipment is depressurized before breaking into any lines.

SAFETY DEVICE CHECKLIST

- ❒ Gas regulators on Group Separators must be in proper working order.
- ❒ All gauges recording gas pressures on separators, gas lines, and Field Risers should be accurate.
- ❒ All flowline and header gas valves shall be in working order. Valves should be checked for free movement of open and closed position and positive shut off seal.
- ❒ The Tornado flare systems shall be in proper working order. This includes the pilot igniter and Fisher control valve.
- ❒ Check and replace any check valves that are not in working order in the by-pass lines on Field Headers.
- ❒ Gas pigging may be a two man operation for safety reasons regarding: H2S gas, high pressures, and for ease of operation.
- ❒ Confirm appropriate PPE for the substance you are dealing with.
- ❒ Hazard assessment should include the steps to prevent the formation of hydrates.
- ❒ Pig catcher/receivers should be maintained to prevent the blockage of bleed parts and the proper seal or seating of valves.
- ❒ Communication is essential between the pig launcher and receiver, so all workers are prepared and aware.
- ❒ Pig catcher/receivers should be maintained to prevent the blockage of bleed parts and the proper seal or seating of valves.