

Control of Small Bore Pipe Work (or Tubing)

MAE	Loss of Containment - Operations
Hazard	Maintaining/Construction of hydrocarbon plant
Barrier	Control & installation of small bore pipe work procedure

Purpose	To ensure small bore tubing is designed, made up, installed and maintained to prevent failures leading to a loss of containment.	
Scope	<p><i>In scope:</i> All rigid small bore tubing whether permanent or temporary which carry hydrocarbons</p> <p><i>Out of scope:</i> Flexible hoses</p>	
Procedures	Small Bore Tubing Management (MRP-AI-SP-S-43) Owner: Site Manager	
Accountabilities	Action to Establish Control	Action to Maintain Control
	Develop new short form of Small Bore tubing procedure: Feb 2014 Site Manager	Quarterly – check of compliance: Electrical and Instrumentation Supervisor
Key Points	<ol style="list-style-type: none"> Competency: All personnel working on small bore tubing must successfully complete the Parker small bore tubing competency module. Procurement: We will not procure different types of small bore tubing – we have standardised on Parker. Make up of Tubing: Ensure tubing is made up according to the manufacturer's instructions (use the correct gauge) and is properly supported Large Jobs eg Shutdowns : disassemble a sample eg 10% of fittings to identify common cause failures in make up such as over tightening. Vibration: support all gauges/pipework subject to vibration (Energy Institute guidelines) 	

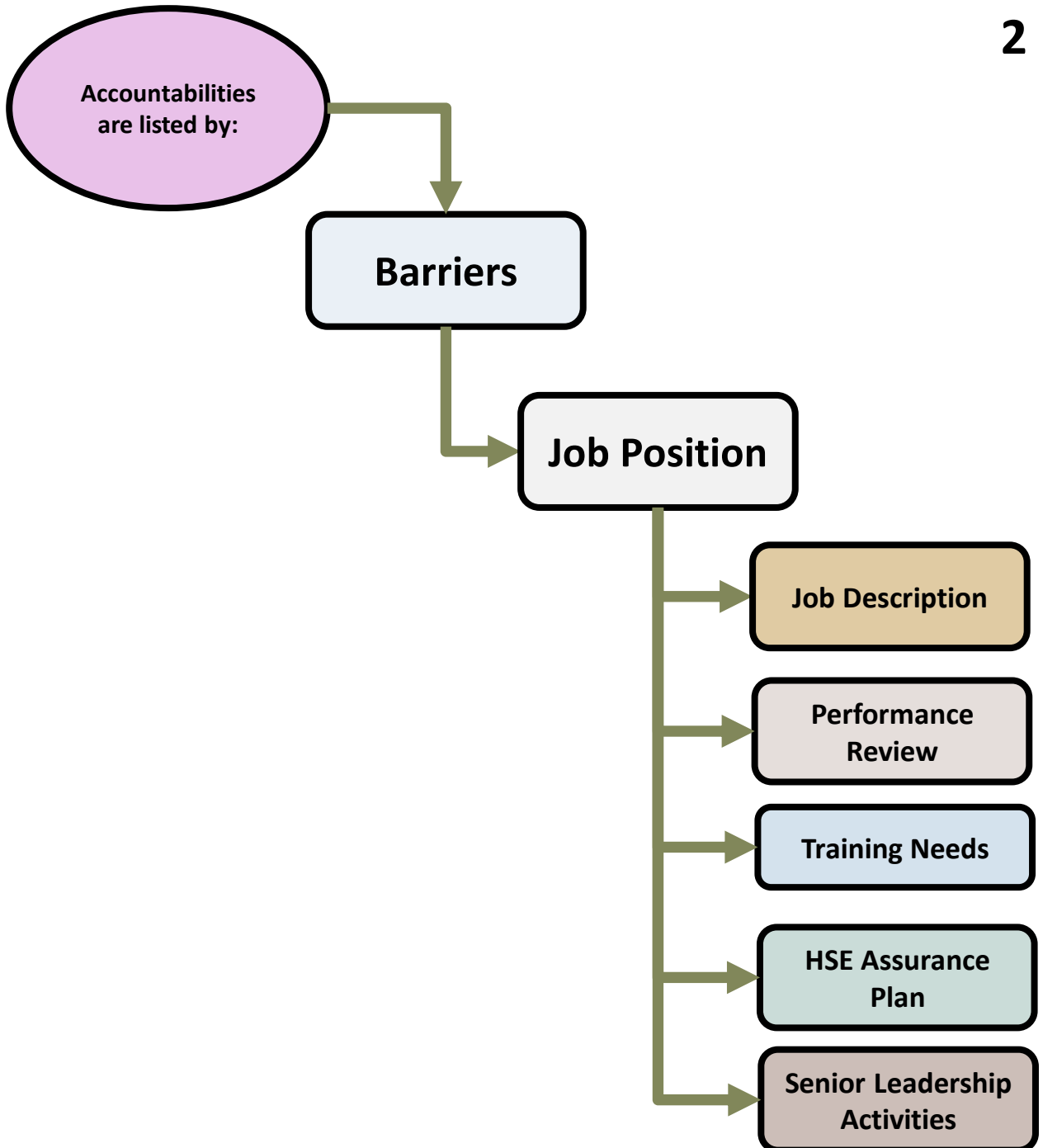
Control & Installation of Small Bore Pipe Work Procedure

Example of Incident

Barrier	What Happened	Why did this happen?
Control & Installation of small bore pipe work procedure	<p>Small bore tubing failed suddenly causing a loss of containment of high pressure gas.</p> <p>Tubing was subject to vibration from compressor, and suffered a fatigue induced failure.</p> <p>Gas did not ignite (fortunately) – it was detected by fire and gas system which resulted in a process shutdown and production loss of 8 hours production worth US\$1million.</p> <p>This was “only” a production loss but could have caused a fire or explosion!</p>	<p>Vibration tolerated – no systematic assessment of risk of loss of containment caused by vibration.</p> <p>Vibration induced failures to tubing can be predicted.</p> <p>We should:</p> <ul style="list-style-type: none">• Report vibration in process pipework. (operator’s daily walkarounds) <p>Do you know of pipework subject to vibration?</p> <p>If so, please complete a Hazard Card.</p>

Barrier Accountabilities

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What can this approach deliver?

Major incidents are rare and one of the main “defences” is to identify and carefully manage our defences or “barriers.” This guide:

- Identifies the main barriers against a major accident event (MAE) which could happen here;
- Lists the barriers (equipment, systems and processes) to prevent these things happening;
- Gives some examples of what *has* gone wrong in the past;
- Identifies the responsibilities for ensuring the barriers are designed and maintained correctly

Who should read this?

All managers and supervisors who are involved in the activities covered by the barriers

What is it for?

- It identifies the barriers, responsibilities for the barriers and gives some real examples of incidents that have occurred. They *could* occur in our operations and this information will help us prevent them.
- This information can be used in:
 - Tool box talks
 - “Active Monitoring ”by Supervisors
 - Audits and inspections
 - Competency assessments
 - HSE Assurance Program
 - Senior Managers Leadership visits

What’s does it include?

- It lists all the main barriers for the Loss of Containment Major Accident Event (MAE) which could occur and:
 - Who is responsible for *establishing* the barrier;
 - Who is responsible for *maintaining* the barrier

What it does not do:

- Replace your skills and knowledge
- The need to work safely
- To work in accordance with rules and procedures
- Ask questions if you are not sure what is correct
- Stop work if you think something is unsafe