



**Australian Government**

# **PMAOPS280 Interpret process plant schematics**

**Release: 1**

# PMAOPS280 Interpret process plant schematics

## Modification History

Release 1. Supersedes and is equivalent to PMAOPS280B Interpret process plant schematics

## Application

This unit of competency covers the skills and knowledge required to interpret process plant schematics for a range of operations uses.

This unit of competency applies to operators who are required to find specific information from a schematic, mark up a schematic for their own or someone else's use, and sketch a schematic using relevant symbols as part of an explanation to another person or as an aide memoir for themselves.

This unit of competency applies to a wide range of schematics and covers all general and common symbols. It also includes those specific to the plant which is the operator's area of responsibility and any conventions which are applied by the organisation.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Pre-requisite Unit

Nil

## Competency Field

Operations

## Unit Sector

## Elements and Performance Criteria

Elements describe the essential outcomes.

Performance criteria describe the performance needed to demonstrate achievement of the element.

1	<b>Relate schematic to plant</b>	1.1	Match items on schematic with items in plant
		1.2	Determine relevant pipe and flange schedules
		1.3	Identify sizes and types of minor equipment
		1.4	Locate relevant instrument tapping points and control points
		1.5	Identify direction of flow on schematic and in plant

- |   |  |     |   |
|---|--|-----|---|
| 2 | <b>Identify points required to prepare plant</b> | 2.1 | Locate isolation and blanking points for any item of the relevant schematic |
|   |  | 2.2 | Identify drain/vent/purge points for any item on the relevant schematic     |
|   |  | 2.3 | Identify trip system elements   |
|   |  | 2.4 | Use schematic to check/develop work lists                                   |
| 3 | <b>Describe the process with a schematic</b>     | 3.1 | Use a schematic as the basis of a description of the process                |
|   |  | 3.2 | Describe the process using a manual schematic                               |
|   |  | 3.3 | Walk through process identifying all plant items in process order           |
|   |  | 3.4 | Identify key conditions/variables from a relevant schematic                 |

## Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance.

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

## Range of Conditions

This field allows for different work environments and conditions that may affect performance. Essential operating conditions that may be present (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) are included.

- Regulatory framework** The latest version of all legislation, regulations, industry codes of practice and Australian/international standards, or the version specified by the local regulatory authority, must be used, and include one or more of the following:
- legislative requirements, including work health and safety (WHS)
  - industry codes of practice and guidelines
  - environmental regulations and guidelines
  - Australian and other standards

- licence and certification requirements

All operations to which this unit applies are subject to stringent health, safety and environment (HSE) requirements, which may be imposed through state/territory or federal legislation, and these must not be compromised at any time. Where there is an apparent conflict between performance criteria and HSE requirements, the HSE requirements take precedence.

**Items**

Items on schematic/in plant include the following:

- all major plant items, such as:
  - vessels
  - columns
  - reactors
  - heat exchangers
- minor plant items, such as:
  - pumps
  - valves
  - strainers
  - filters
  - instrumentation (local and remote)

**Schematics**

Schematics are formally drawn, authorised diagrams and are hard copy or electronic.

Schematics have various names, including:

- piping and instrumentation diagram (P&ID)
- process flow diagram (PFD)
- process engineering flow (PEF)
- cause and effect diagrams/matrix

Manual schematic includes one or more of the following:

- a hand drawn sketch of the part of the process of interest
- a mark up of a formally drawn schematic

**Symbols**

Symbols and conventions used in the schematics for the relevant plant area should be used, and include of one or more of the following:

- Australian Standards symbols

- the organisation's standard symbols
- some other standard system

**Points required to prepare plant**

Points required to prepare plant include three or more of the following:

- isolations
- blank/spade/spectacle blind, breakout spool locations
- draining
- purging
- blanketing
- venting
- ventilating
- locating plant, equipment and services - above ground
- locating below ground (or otherwise obscured) pipeline and services

**Key conditions/variables**

Key conditions/variables include one or more of the following:

- normal range of process conditions, such as:
  - level
  - pressure
  - flow
  - temperature
- alarm conditions/values
- trip and emergency shutdown (ESD) values

## Unit Mapping Information

Release 1. Supersedes and is equivalent to PMAOPS280B Interpret process plant schematics

## Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=9fc2cf53-e570-4e9f-ad6a-b228ffdb6875>