

**EMERGENCY MEASURES FOR
PROCESS UNIT****JGS 210-120-1-42E**

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1. SCOPE

This standard practice covers the design consideration of emergency measures in petroleum refineries, chemical plants and similar plants.

This standard shall be supplemented the JOB Specification, the client's standards and intent, the licensor's instructions and related regulations.

2. WORK PROCEDURE

Regarding the concepts and contents of Process Safeguarding Flow Scheme (PSFS), Refer to JGS 210-120-1-43E.

This practice describes the design consideration of the following major emergency measures.

- (1) PRESSURE RELIEVING
- (2) ISOLATION with Emergency Shut-off Valve
- (3) DEPRESSURING
- (4) ALARM and TRIP system

The following computer programs are available for depressuring system calculations.

#DPCPS : Design valve size in depressuring - compressurising system (Gas only)

3. DESIGN**3.1 Pressure Relieving**

Of the various measures for protecting a plant from the emergency situation, pressure relieving through safety valves and discs shall be examined first.

Regarding cause and effect of pressure relieving, Refer to JGS 210-120-1-40E (PRESSURE RELIEVING DESIGN).

Regarding selection and sizing of pressure relieving devices, Refer to JGS 210-120-1-61E (PRESSURE RELIEF DEVICES).

3.2 Isolation with Emergency Shut-off Valve

This section describes the installation standards of Emergency Shut-off (Block) Valves (ESV) used for isolating the equipment from the units in an emergency.

First the following should be clarified with the client.

- (1) Client's general philosophy for safety
- (2) Reliability for sensor (application of 2 out of 3 or not etc.)
- (3) Category of ESV (local, all shut down etc.)
- (4) Inspection under operation (bypass or parallel installation)

Purpose of isolation by ESV is classified into the following.

- (1) Equipment Protection (Vessel, Tower)
- (2) Heat Off (Furnace, Steam supply)
- (3) Fluid or Seal gas Cut (Compressor, Pump), Leak Air Cut (Vacuum Pump)

3.2.1 Vessels

- (1) ESV is not always necessary to be provided on Vessel outlet line.
- (2) If both the vessel volume of liquid and fluid condition meet the following requirements, ESV shall be provided on Vessel outlet lines.

- (a) Vessel volume

This limitation should be verified with project specification.

For reference:

- Japanese HPG - Liquefied Petroleum Gas more than 100 ton
- Toxic liquid more than 30 ton
- SRC - More than 15 ton
- EXOR - More than 20 m³