



GOVERNMENT OF THE REPUBLIC OF
TRINIDAD AND TOBAGO
MINISTRY OF ENERGY & ENERGY INDUSTRIES
CODE OF PRACTICE FOR
SUBSURFACE SAFETY DEVICES

1. **AUTHORITY**

These procedures for the use of Subsurface Safety devices are established pursuant to the authority prescribed in the Petroleum Act 1969 and in the Petroleum Regulations 1970.

2. **PURPOSE**

To shut off the uncontrolled flow of hydrocarbons from a well into the coastal and marine environment in the event of an emergency.

3. **INSTALLATION**

All tubing installations open to hydrocarbon-bearing zones shall

be equipped with subsurface safety devices that will shut off the flow from the well in the event of an emergency unless, after application and justification, the well is determined by the Ministry to be incapable of natural flowing. These devices may consist of a surface-controlled subsurface safety valve (SSSV), a subsurface-controlled SSSV, an injection valve, a tubing plug, or a tubing/annular subsurface safety device, and any associated safety valve lock or landing nipple.

4. **SPECIFICATION FOR SSSV'S**

Surface-controlled and subsurface-controlled SSSV's and safety valve locks and landing nipples installed in the coastal and marine environment shall conform to American Petroleum Institute (API) specification for subsurface safety valves. API SPEC 14A 4th Edition, November, 1979 or subsequent revisions.

5. **SURFACE-CONTROLLED SSSV'S**

All tubing installations open to a hydrocarbon-bearing zone which is capable of natural flow shall be equipped with a surface-controlled SSSV, except as specified in paragraphs 6, 8 and 9 of this section. The surface controls may be located on the site or a remote location. Wells not previously equipped with a surface-controlled SSSV and wells in which a surface-controlled SSSV has been replaced with a subsurface-controlled SSSV in accordance with paragraph 6 (ii) of this section shall be equipped with a surface-controlled SSSV when the tubing is first removed

and reinstalled. A surface-controlled SSSV is required on all wells capable of natural flow.

6. **SUBSURFACE-CONTROLLED SSSV'S**

Wells may be equipped with subsurface-controlled SSSV's in lieu of a surface-controlled SSSV provided the company demonstrates to the satisfaction of the Ministry that the following criteria are met:

- (i) Wells not previously equipped with surface-controlled SSSV's shall be so equipped when the tubing is first removed and reinstalled,
- (ii) The subsurface-controlled SSSV is installed in wells with a surface-controlled SSSV that has become inoperable and cannot be repaired without removal and reinstallation of the tubing.

7. **DESIGN, INSTALLATION, AND OPERATION OF SSSV'S**

The SSSV's shall be designed, installed, operated, and maintained to ensure reliable operations.

- (i) The device shall be installed at a depth of 100 feet or more below the seafloor within 2 days after production is established. When warranted by conditions such as unstable bottom conditions, hydrate formation, or paraffins, an alternate setting depth of the subsurface safety device may be approved by the Ministry.

(ii) Until a subsurface safety device is installed, the well shall be attended in the immediate vicinity so that emergency actions may be taken while the well is open to flow. During testing and inspection procedures, the well shall not be left unattended while open to production unless a properly operating subsurface-safety device has been installed in the well.

(iii) The well shall not be open to flow while the subsurface safety device is removed, except when flowing of the well is necessary for a particular operation such as cutting paraffin, bailing sand, or similar operations.

(iv) All SSSV's shall be inspected, installed, maintained, and tested in accordance with American Petroleum Institute Recommended Practice 14B, "Recommended Practice for Design, Installation, and Operation of Subsurface Safety Valve Systems."

8. **SUBSURFACE SAFETY DEVICES IN SHUT-IN WELLS**

New completions (perforated but not placed on production) and completions shut in for a period of 6 months shall be equipped with either

- (i) a pump-through type tubing plug;
- (ii) a surface-controlled SSSV, provided the surface control has been rendered inoperative; or
- (iii) an injection valve capable of preventing backflow.

The setting depth of the subsurface safety device shall be approved by the Ministry on a case-by-case basis, when warranted by conditions such as unstable bottom conditions, hydrate formations, and paraffins.

9. **SUBSURFACE SAFETY DEVICES IN INJECTION WELLS**

A surface-controlled SSSV or an injection valve capable of preventing backflow shall be installed in all injection wells. This requirement is not applicable if the Ministry concurs that the well is incapable of flowing. The company shall verify the no-flow condition of the well annually.

10. **TEMPORARY REMOVAL FOR ROUTINE OPERATIONS**

(i) Each wireline-or pumpdown-retrievable subsurface safety device may be removed, without further authorization or notice, for a routine operation which does not require the approval of a WO-1 and for a period not to exceed 15 days.

(ii) The well shall be identified by a sign on the wellhead stating that the subsurface safety device has been removed. The removal of the subsurface safety device shall be noted in the records as specified in paragraph 13. If the master valve is open, a trained person shall be in the immediate vicinity of the well to attend the well so that emergency actions may be taken, if necessary.

(iii) A platform well shall be monitored, but a person need not remain in the well-bay area continuously if the master valve is closed. If the well is on a satellite structure, it must

be attended or a pump-through plug installed in the tubing at least 100 feet below the mud line and the master valve closed, unless otherwise approved by the Ministry.

(iv) The well shall not be allowed to flow while the subsurface safety device is removed, except when flowing the well is necessary for that particular operation. The provisions of this paragraph are not applicable to the testing and inspection procedures.

11. **ADDITIONAL SAFETY EQUIPMENT**

All tubing installations in which a wireline- or pumpdown-retrievable subsurface safety device is installed after the effective date of this code of practice shall be equipped with a landing nipple with flow couplings or other protective equipment above and below to provide for the setting of the SSSV. The control system for all surface -controlled SSSV's shall be an integral part of the platform Emergency Shutdown System (ESD). In addition to the activation of the ESD by manual action on the platform, the system may be activated by a signal from a remote location. Surface-controlled SSSV's shall close in response to shut-in signals from the ESD and in response to the fire loop or other fire detection devices.

12. **EMERGENCY ACTION**

In the event of an emergency, such as an impending storm, a well not equipped with a subsurface safety device and which is capable of natural flow shall have the device properly installed as soon as possible with due consideration being given to personnel safety.

13. **RECORDS**

The company shall maintain records for a minimum period of 5 years for each subsurface-safety device installed. These records shall be available for review by any authorized representative of the Ministry of Energy and Energy Industries. The records to be maintained shall contain verification of:

- a. The manufacturer's design, including make, model, and type. For subsurface controlled valves, number of the spacers, size of beans, springs, and the pressure settings.
- b. The devices having been manufactured in accordance with the quality-assurance requirements API SPEC. 14A as required by paragraph 4.
- c. The completion and return of the receiving report to the manufacturer as required by ANSI/ASME-SPPE-1.
- d. The record of all configuration modifications to the certified design.
- e. Installation at the required setting depth and in accordance with the manufacturer's instructions.
- f. The identity of the personnel qualified in accordance with API RPT-2 revised October, 1975, who directed all installations

and removals.

g. The results of tests the dates of removals and reinstallations,
and the reasons for removals and reinstallations.

h. The completion and submission of all failure reports and all
investigation reports.

14 **REPORTS**

Well completion reports (DRL-5's) and any subsequent reports of
workover (WO-2's) shall include the manufacturer, the type, and the
installed depth of the subsurface-safety devices.

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