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1.0 Background, Scope, and Purpose

1.1 Background

Congress has established a National policy of making the Outer Continental Shelf (OCS) available to development and “subject to environmental safeguards, in a manner which is consistent with the maintenance of competition and other National needs.” (43 U.S.C. 1332(3).) The Secretary of the Interior (Secretary) administers the Outer Continental Shelf Land Act (OCSLA) provisions relating to the leasing of the OCS and regulation of mineral exploration and development operations on those leases. The Secretary is authorized to prescribe “such rules and regulations as may be necessary to carry out [OCSLA’s] provisions . . . and may at any time prescribe and amend such rules and regulations as [s]he determines to be necessary and proper in order to provide for the prevention of waste and conservation of the natural resources of the [OCS].” BSEE adopts regulations and performs offshore regulatory oversight and enforcement.

In August 2013, the U.S. Department of the Interior’s Bureau of Safety and Environmental Enforcement (BSEE) and the U.S. Department of Transportation's Bureau of Transportation Statistics (BTS) signed an Interagency Agreement (IAA) to develop and implement SafeOCS, as a voluntary program for confidential reporting of ‘near misses’ occurring on the Outer Continental Shelf (OCS). BSEE and the BTS entered into a Memorandum of Understanding (MOU) in August 2016 to allow BTS to collect equipment failure data required under BSEE rules for reporting blowout preventer (BOP) system or component failures (30 C.F.R.§ 250.730(c)) and safety and pollution prevention equipment (SPPE) failures (30 C.F.R.§ 250.803). On October 26, 2016, the BSEE director announced the expansion of the SafeOCS program beyond near miss reporting to include the confidential collection of equipment failure data pursuant to regulations 30 C.F.R.§ 250.730(c) and 30 C.F.R.§ 250.803.

Data collected by BTS under the Interagency Agreement (IAA) may only be used for statistical purposes and is therefore protected under the Confidential Information Protection and Statistical Efficiency Act of 2002 (CIPSEA) (44 U.S.C. §3501 note). This requires the following: a) only summary statistics and data analysis results will be made available to interested parties and b) micro-data on near miss incidents collected by BTS may not be used for regulatory purposes. Information submitted under this statute is also protected from release to other government agencies, including BSEE, Freedom of Information Act (FOIA) requests, and subpoena.
1.2 Scope

This document applies to submissions of safety and pollution prevention equipment failures to SafeOCS in accordance with 30 C.F.R. § 250.803. The scope has been expanded to include all American National Standards Institute (ANSI), American Petroleum Institute (API), and American Society of Mechanical Engineers (ASME) (ANSI/API Spec Q1 and ANSI/ASME SPPE-1) equipment components:

- Surface Safety Valve
- Boarding Shutdown Valve
- Underwater Safety Valve
- Surface Controlled Safety Valve
- Subsurface Controlled Safety Valve
- Subsea Safety Valve
- Gas lift shut down valves (GLSDVs)

This document establishes the criteria and provides guidance on:

- Accessing the SafeOCS data system (Section 3)
  - On-line link to the SafeOCS website
  - Creating a new account
  - Starting the online reporting process
- Reporting SPPE component failure online (Section 4)
- Reporting SPPE component failure through file notification (Section 5)
- Updating and adding files to an existing SPPE failure notification (Section 6)
- Deleting files attached to an existing SPPE failure notification (Section 7)
- Detailed instructions on how to complete the SPPE failure notification online form (Section 8)
- Conducting component investigation plus failure analysis and documentation (Section 9)
- Reporting supplemental information to support learning (Section 10)
  - Communicating information about component failures to appropriate stakeholders
- Reporting design and procedural changes (Section 11)
  - Reporting design changes
  - Reporting changes in operating and repair procedures.
1.3 Purpose

This document was developed to assist the petroleum and natural gas industry with the completion and submission of the SPPE failure notification form pursuant to regulation 30 C.F.R.§ 250.803.

Federal regulation 30 C.F.R.§ 250.803 was established to ensure accurate reporting of SPPE systems and components failure from initial notification; investigation and failure analysis; communication of failure information and lessons learned; to design, and procedural changes.
2.0 Definitions and Acronyms

2.1 Definitions
A list of definitions is provided in Appendix 1.

2.2 Acronyms

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANSI</td>
<td>American National Standards Institute</td>
</tr>
<tr>
<td>ASME</td>
<td>American Society of Mechanical Engineers</td>
</tr>
<tr>
<td>API</td>
<td>American Petroleum Institute</td>
</tr>
<tr>
<td>BOEMRE</td>
<td>Bureau of Ocean Energy Management, Regulation and Enforcement</td>
</tr>
<tr>
<td>BSDV</td>
<td>Boarding Shutdown Valves</td>
</tr>
<tr>
<td>BSEE</td>
<td>Bureau of Safety and Environmental Enforcement</td>
</tr>
<tr>
<td>BTS</td>
<td>Bureau of Transportation Statistics</td>
</tr>
<tr>
<td>CO₂</td>
<td>Carbon Dioxide</td>
</tr>
<tr>
<td>ESD</td>
<td>Emergency Shutdown</td>
</tr>
<tr>
<td>GOM</td>
<td>Gulf of Mexico</td>
</tr>
<tr>
<td>HPHT</td>
<td>High Pressure High Temperature</td>
</tr>
<tr>
<td>H₂S</td>
<td>Hydrogen Sulfide</td>
</tr>
<tr>
<td>HSE</td>
<td>Health Safety Equipment</td>
</tr>
<tr>
<td>IOGP</td>
<td>International Association of Oil &amp; Gas Producers</td>
</tr>
<tr>
<td>JIP</td>
<td>Joint Industry Project</td>
</tr>
<tr>
<td>OEM</td>
<td>Original Equipment Manufacturer</td>
</tr>
<tr>
<td>PTA</td>
<td>Pressure Transient Analysis</td>
</tr>
<tr>
<td>RCFA</td>
<td>Root Cause Failure Analysis</td>
</tr>
<tr>
<td>RWP</td>
<td>Rated working pressure</td>
</tr>
<tr>
<td>SCSSV</td>
<td>Surface Controlled Subsurface Safety Valve</td>
</tr>
<tr>
<td>SPPE</td>
<td>Safety and Pollution Prevention Equipment</td>
</tr>
<tr>
<td>SSCSV</td>
<td>Subsurface Controlled Safety Valve</td>
</tr>
<tr>
<td>SSSV</td>
<td>Subsurface Safety Valve</td>
</tr>
<tr>
<td>SSV</td>
<td>Surface Safety Valve</td>
</tr>
<tr>
<td>TFL</td>
<td>Through flowline</td>
</tr>
<tr>
<td>TSE</td>
<td>Temperature Safety Element</td>
</tr>
<tr>
<td>USV</td>
<td>Underwater Safety Valve</td>
</tr>
<tr>
<td>WCR</td>
<td>Well Control Rule</td>
</tr>
</tbody>
</table>
3.0 Accessing the SafeOCS Database

The SafeOCS Reporting System is accessed through the website of the SafeOCS program at [www.safeocs.gov](http://www.safeocs.gov). (Figure 3.1)

![SafeOCS Webpage](https://example.com)

Figure 3.1 SafeOCS Webpage

- To submit a Well Control Rule (WCR) equipment component failure notification, select the WCR button on the home page or the WCR Failure Notification tab on the main navigation bar.
- To submit a Safety and Pollution Prevention Equipment (SPPE) failure notification, select the SPPE button on the home page or the SPPE Failure Notification tab on the main navigation bar.
- To submit Industry Safety Data (ISD), select the ISD button on the home page or the Safety Event Report tab on the main navigation bar.

Since data reported to SafeOCS are confidential and protected under the Confidential Information Protection and Statistical Efficiency Act of 2002 (CIPSEA) (44 U.S.C. §3501 note), a user must register and create an account in the SafeOCS Reporting System before he/she can submit equipment failure notifications or safety event reports.
To create an account in the SafeOCS Reporting System, select the **Create an Account** tab on the main navigation bar of the SafeOCS website (Figure 3.2).

Figure 3.2: SafeOCS Account Registration page
4.0 Submitting a SPPE Failure Notification

Step 1: Login to your SafeOCS account

Provide your Email and Password to login to your SafeOCS account at the Login page for SPPE Failure Notification submission. (Figure 4.1)

![Figure 4.1: SafeOCS SPPE Reporting Login page](image_url)
Step 2: Confirm your agreement to the Confidentiality and Burden Statements

After login, the user is required to read and consent to the Burden Statement and Pledge of Confidentiality. Check the “I have read...” box and select the Continue button to continue (Figure 4.2).

Figure 4.2: POC and Burden Statement page
Step 3: Select a mode of submission

SafeOCS offers three ways to submit SPPE component failure notifications: Online, Upload, and Postal Mail (Figure 4.3). Select “Submit New SPPE Failure Notification online” tab to make a report online.

Step 4: Complete the online SPPE Component Failure Notification form
The selection of the “Submitting New SPPE Failure Notification online” will bring up the SPPE online form (Figure 4.4) for the user to complete.

Figure 4.4: SPPE Online Failure Form

Detailed instructions on how to complete the SPPE Failure Notification on-line are provided in section 8. Please refer to that section if there are questions about the meaning of or the expected values/entries for any of the data fields.
Step 5: Review, edit the SPPE Failure Notification form before submitting

It is important to review and edit the completed notification form before submitting to correct any data-entry errors. Once a notification is submitted, it will not be available for review or edit and errors made in data entries can only be corrected by submitting an update to the original notification.

Step 6: Submit the completed notification form

Submit the completed notification form by selecting the “Submit” button (Figure 4.5).

![Submit Completed Notification Form](image)

Figure 4.5: Submit Completed Notification Form

Please note:

- Only when the “Submit” button is selected, information entered in the online form is saved to the SafeOCS database and a BTS reference number is generated for the notification.
- If the user closes the online form without submitting it, all information entered in the form will be saved.
- Once a notification is submitted, it will not be available for review or edit by the user. Corrections to a submitted notification can only be achieved by submitting an update to the original notification.
When a notification is successfully submitted, a message will show on the screen of the SafeOCS website to inform the user that the notification has been successfully submitted (Figure 4.6).

An email of Acknowledgment of Receipt will also be sent to the reporter’s email account registered with SafeOCS (Figure 4.7).
5.0 Submit a SPPE Failure Notification through file uploading

Step 1: Login to your SafeOCS account (Refer to Section 4.0 for details)

Step 2: Confirm your agreement to the Confidentiality and Burden Statements (Refer to Section 4.0 for details)

Step 3: Select a mode of submission:

Among the three modes of submission (Online, Upload, and Postal Mail), select the link “Upload PDF Form” or the link “Upload Excel Form” (Figure 5.1).
Step 4: Select and upload completed SPPE failure notifications to SafeOCS

Selecting the link “Upload PDF Form” or the link “Upload Word Form” will bring up an interface to allow the user to select and upload completed SPPE failure notifications to SafeOCS (Figure 5.2).

Upload Instructions:

- “Reporting Operator” in the interface is a required field. If the name of the operator for which you are submitting a failure notification is not in the dropdown list of the field, please select “Other” at the bottom of dropdown list, then type in the operator’s name in the pop-up text field.
- “Select File” is another required field. The “Browse” function allows the user to select and upload only one file at a time. However, multiple failure notifications can be included in one file.
- “Date of Event” is a required field. The purpose of this field is to allow operators to match their records of failure notifications submitted to SafeOCS.
When a file is successfully uploaded, a message will appear on the screen of the SafeOCS website to inform the user that notifications included in the file has been successfully submitted (Figure 5.3, with example case). An email of Acknowledgment of Receipt is also sent to the user’s email account registered with SafeOCS (Figure 5.4, with example case).

Figure 5.3 SPPE Failure Submission Confirmation

Figure 5.4: SPPE Acknowledgement of Receipt E-mail
6.0 Update and add files to an existing SPPE component failure notification

Additional information, such as pictures, graphs, detailed descriptions, or updates, can be added to the record of a notification after the original notification has been submitted. This can be done by using the **Update and Add Files** function (Figure 6.1).

![Figure 6.1: Update and Add Files page](image)
To ensure that the additional information is attached to the correct notification, the user must select the BTS reference number from the dropdown list of the BTS Reference Number field (Figure 6.2) before clicking on the “Go” button to bring up the file uploading interface.

Please note:

- To protect confidentiality, a registered user will only be able to see the BTS reference numbers of the notifications he/she submitted, unless he/she is authenticated to be the operator’s representative by a duly authorized official of the concerned operator. An operator’s representative will be able to see the BTS reference numbers of all notifications submitted under the operator’s name and add additional information to those notifications.
When the “Go” button is selected, the file uploading interface will be brought up (Figure 6.3). Clicking on the “Add files” button in the interface will bring up the libraries folder to allow the user to select files in any folder/directory that is accessible to the user’s computer. (Note: Multiple files can be selected.)

Figure 6.3: Adding Additional Documents to Existing BTS Reference number
When the selection is done, the selected files will be listed in the file upload interface (Figure 6.4). From the list, click on the “Upload” button to upload a selected file to SafeOCS. Select the “Cancel” button to delete a file from the list.

Figure 6.4: Adding Additional Documents to Existing BTS Reference number
An uploaded file can be removed by the user after it has been added to a notification (Figure 6.5).

By selecting the delete button, all uploaded files will be listed in the interface and can be deleted (removed) from the records of the notification later.

When all the selected files have been uploaded, clicking on the “Done” button will return the user to the Update and Add File interface.
7.0 Delete files attached to an existing SPPE component failure notification

The Update and Add Files function can be used to delete files that have been attached to the record of a notification. The three steps are as follows:

- At the page of the Update and Add Files interface, select the BTS Reference Number of the notification from which an attached file is to be deleted and then select “Go”. This will bring up a page similar to figure 6.5 including a list of all the files attached to the notification.
- Select the “Delete” button associated with a file to delete the file from the database.
- Select the “Done” button to return to the Update and Add Files interface.

8.0 Detailed instructions on how to complete the SPPE Component Notification online

Detailed instructions and information on completing the WCR Failure Notification Form are provided below. The failure notification form should be completed as much as possible (fields marked with an asterisk* are mandatory). After completing the form, press the ‘Submit’ button to save the data into the SafeOCS database. Data entered into the form will not be saved if the reporter leaves the webpage without pressing the ‘Submit’ button.
## 8.1 Notification Identification, Operator Data, and SPPE Detail

### Notification Record Identification Information

<table>
<thead>
<tr>
<th>Operator/Company Assigned Reference No:</th>
<th>BTS Reference No (select if assigned):</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>[Select BTS Reference ID:] ▼</td>
</tr>
</tbody>
</table>

### Operator Data

- **Date of Failure:**
- **Operator Company Name:** [Select Operator] ▼
- **Complex ID:**
- **Structure Number:**
- **API Well Number (If Applicable):**
- **Company Name Submitting Form, if different than the Operator:**

### Type of Company Submitting Form

- Production Contractor
- Other, Specify:  

### SPPE Details

- **Equipment Manufacturer:**
- **Model:**
- **Serial Number:**
- **Working Pressure:**
- **Nominal Size:**

**Provide a narrative describing any redress history for the SPPE that failed:**
SafeOCS database will automatically assign each submission with a unique identifier (BTS reference number). The system will also provide an optional data field for the operator/company-assigned reference number, if applicable.

Date of Failure- This should indicate the date the SPPE component failed or did not perform per specification. This date will be used to access the submission in order to add or update the report.

Operator Company Name- Select the company name from the supplied dropdown list. If the name of the operator for which you are submitting a failure notification is not in the dropdown list of the field, please select “Other” at the bottom of dropdown list, then type in the operator’s name in the pop-up text field.

Complex ID- That is a series of numbers that corresponds to a particular production platform or group of platforms. The complex I.D. is a 1 to 5-digit number.

Structure Number- This is a series of numbers that corresponds to the area or block number. Area and block have multiple structures. The structure I.D. is usually a 1 to 2-digit number.

API Well Number, if applicable- API number provided by the operator. The API is usually a 12-digit number

Company Name Submitting Form, if different than the Operator- Name of the company submitting the notification.

Type of Company Submitting Form (select one)- If the production contractor is not the submitting agent, select other, then type in the company involved with the failure in the text field. (Service, OEM, Certification, etc...).

Equipment manufacturer- Free text field to input the principal agent in the design, fabrication, and furnishing of original safety and pollution prevention equipment.

Model- A free text field to enter the equipment model number of the defective component.

Serial Number- Free text field to enter the unique identifying serial number of the component.

Working pressure- A free text field to enter the standardized working pressure rating. Working pressure should be in pounds per square inch gauge (psig) units. (Ex. 5,000 psig)

Nominal size- A free text field to enter the whole and fractional size for the equipment. Nominal size should be in inches. (Ex. 2-9/16”).

Provide a narrative describing any redress history for the SPPE that failed- A free text field to include any activity involving the replacement of qualified parts. Note: should include the new installation dates and scope of repair work, if any.
8.2 SPPE Details Cont.

Please Provide the date and a narrative description of the last SPPE Test.

Date: 

Narrative:

What was the Certification Status of the Failed SPPE (select one)
- Newly Installed; certified SPPE pursuant to ANSI/API Spec 01
- Newly Installed; certified SPPE pursuant to Another Quality Assurance Program
- Previously certified under ANSI/ASME SPPE-1
- Non-Certified SPPE

Was the SPPE previously repaired, remanufactured, or subject to hot work offsite?
- Yes
- No

What type of tree was associated with the SPPE that failed? (select one)
- Dry Tree
- Subsea Tree

Which SPPE component failed? (Select all that apply)
- Valve Body
- Actuator
- Flow coupling (required for surface- or subsurface-controlled SSSV)
- Safety Lock
- Landing Nipple
- Direct hydraulic control system
- Electro-hydraulic control umbilical
- Bridge
- Ring Joints
- Ball
- Flapper
- Temperature Safety Element (TSE)
- Emergency Shutdown (ESD) System
- Valve Gate/Gast

What was the type of SPPE that failed? (Select One)
- Surface Safety Valve (SSV)
- Boarding Shutdown Valve (BSDV)
- Underwater Safety Valve (USV)
- Surface controlled SCSV
- Subsurface controlled SSCSV
- Gas Lift Shutdown Valves (GLSDV)
Please provide the date and a narrative description of the last SPPE test. A free text field to provide a description of the last test that was performed on the failed equipment including the date, criteria, outcome of test, and functional parameters prior to this failure.

What was the certification status of the failed SPPE (select one)? Newly installed equipment should be certified pursuant to ANSI/API Spec Q1 or other Quality Assurance Program. This certification is intended for companies that manufacture equipment or components used in oil and natural gas production. Certified equipment installed prior to the inception of ANSI/API Spec Q1 2013 should choose ANSI/ASME SPPE-1, if not certified, then select “Non-Certified SPPE.”

Was the SPPE previously repaired, remanufactured, or subject to hot work offsite? – Select YES/NO to indicate if Hot work was performed offsite in a shop and not on the platform. Please provide details in the redress history box.

What type of tree was associated with the SPPE that failed? – Dry Tree; Subsea Tree.

Which SPPE component failed? – Select the components involved in the reported failure. Note: the valve gate/seal is not the same as the valve body.

What was the type of SPPE that failed? – Select the type of equipment that was involved in the reported failure.
### SSSV Details

**What was the type of SSSV that failed? (Select One)**
- Tubing retrievable
- Wireline retrievable
- Through flowline (TFL)
- SSSSV retrievable
- SSSSV retrievable

**Was the SSV formerly a pump through type tubing plug?**
- Yes
- No

**If the SSSV that failed was Subsurface Controlled (SSCSV), what type was it? (Select One)**
- Valve-type SSSCV
- Tubing pressure type SSSCV
- Not Applicable

**What was the service class of the SSSV that failed? (Select One)**
- Class 1 only standard service
- Class 2 sandy service
- Class 1 and 2
- Class 3 stress cracking
- Class 3a (sulfide stress and chlorides in a sour environment)
- Class 3c (sulfide stress and chlorides in a non-sour environment)
- Class 4 mass loss corrosion service

### BDSVs, SSVs, and USVs

**What was the service class of the BDSV/SSV/USV? (Select One)**
- Class I: Performance level requirement intended for use on wells that do not exhibit the detrimental effects of sand erosion
- Class II: Performance requirement level intended for use if a substance such as sand could be expected to cause an SSV/USV valve failure

**If the SPPE that failed was a BSDV, which type was it? (Select One)**
- Automatic
- Manual BSDV
- Not Applicable

### SPPE Design Criteria

**Was the SPPE designed for High Pressure High Temperature (HPHT) conditions?**
- Yes
- No

**Was the SPPE designed for Arctic Conditions?**
- Yes
- No
What was the type of SSSV that failed? – Select the type of SSSV that was involved in the reported component failure.

Was the SSV formerly a pump through type tubing plug? – Select YES/NO to record whether a pump through type tubing plug used as a SSV.

If the SSSV that failed was Subsurface Controlled (SSCSV), what type was it? (Select One) – Velocity; Tubing-pressure; Not Applicable.

What was the service class of the SSSV that failed? (Select One)- Select the service class of the control system involved in the failure.

What was the service class of the BDSV/SSV/USV? (Select One)- Select the service class of the wellhead valve assembly involved in the failure.

If the SPPE that failed was a BSDV, which type was it? (Select One)- Automatic; Manual BSDV; Not Applicable. If it was not a Boarding shutdown valve, then choose N/A.

Was the SPPE designed for High Pressure High Temperature (HPHT) conditions? – Select YES/NO to record the pressure and temperature conditions. Note: HPHT environment means that one or more of the following well conditions exist: (1) The completion of the well requires completion equipment or well control equipment assigned a pressure rating greater than 15,000 psia or a temperature rating greater than 350 degrees Fahrenheit; (2) The maximum anticipated surface pressure or shut-in tubing pressure is greater than 15,000 psia on the seafloor for a well with a subsea wellhead or at the surface for a well with a surface wellhead; or (3) The flowing temperature is equal to or greater than 350 degrees Fahrenheit on the seafloor for a well with a subsea wellhead or at the surface for a well with a surface wellhead.

Was the SPPE designed for Artic Conditions? – Select YES/NO to record whether the equipment was designed for extreme cold weather conditions. (Not applicable in the GOM).
8.4 SPPE Design Criteria Cont. and Well data

Please specify the most extreme exposure conditions for which the SPPE was designed to function

- Design Pressure (PSI):

- Design Temperature (Degrees F):

- Design Flow Rate (number):

- Flow rate units: [ ] Per

- Other Design Environmental Conditions:

Well Data

Provide the information below, as applicable

What was the type of well associated with the SPPE failure? (Select One)
- Production
- Injection Well

Was the well shut in at the time of failure?
- Yes
- No

What was the last Well Test Rate? [ ] BOE/d

What was the date of the last Well Test?

What were the Environmental Conditions? (Check all that apply)
- Sand, Specify percentage [ ] %
- H₂S
- CO₂
- Other, specify:

Pressures and Temperatures

- Surface: [ ] psi / [ ] degrees F
- Bottom Hole: [ ] psi / [ ] degrees F

Under what conditions was the SPPE activated at the time of the failure? (Check all that apply)
- Activated during normal well operations
- Activated in response to an ESD
- Activated during emergency weather or other emergency conditions
- Activated during a process upset
- Activated in response to the detection of a high or a low pressure condition by a PSHL sensor located upstream of the BSDV
- Activated when the gas lift system introduced gas into the system
- Activated during a leakage test

Description of the failure

Provide a narrative description of the failure to include, but not limited to:
- as much information as possible on the operating conditions that existed at the time of the malfunction or failure
- an accurate description of the malfunction or failure
- any operating history of the SPPE leading up to the malfunction or failure (e.g. field repair, modifications made to the SPPE, etc.)
Please specify the most extreme exposure conditions for which the SPPE was designed to function. - Five fields to record the pressure, temperature, rate, units, and other operating conditions of the equipment. Note: Gas rate = Thousand Cubic Feet (MCF) or liquid rate. Liquid rate = barrels per day or velocity. Velocity = ft./sec (feet per second). Please also include water depth and other environmental conditions.

What was the type of well associated with the SPPE failure? – Select Production or Injection to specify the well type.

Was the well shut in at the time of failure? – Select YES/NO to record the well operating status prior to the failure. If the well was operating prior to the failure, select no. Note: Yes, if the well was rendered inoperative prior to actual test. E.g.- Shut in for weather related incident or for production reasons. Note: Do not select yes if the well was rendered inoperative due to testing or failure.

What was the last Well Test Rate? – Free text field to enter the last test rate. Note: The gas must be converted to Barrel of Oil Equivalency (BOE)/day and added to the oil rate for total BOE/day rate.

What was the date of the last Well Test? – Free text field to enter the last well-test date.

What were the Environmental Conditions? – Sand; H₂S; CO₂; or Other. Select the external environmental operating condition. If the environmental conditions for which you are submitting a failure notification is not listed, please select “Other” and then type in the condition in the text field.

Pressure and Temperature – Two drop down boxes; the first to select the surface pressure and temperature and the second to select the bottom hole pressure and temperature. Note: If the bottom hole lacks a gauge, then refer to the most recent pressure transient analysis (PTA) or bottom hole pressure survey available.

Under what conditions was the SPPE activated at the time of the failure? – Select the conditions involved in the failure being reported.

Description of the failure – Free text field to provide adequate information to the conditions and nature of the failure. Note: Please provide a description of the damage parts and include the leakage rate or pressure of build up if it was over the limit.
8.5 Well data Cont.

Specify how many cycles or hours were completed since the last preventative maintenance.
(If the SPPE was newly installed, specify how many cycles or hours were completed since the SPPE was installed.)

number of cycles or number of hours

Provide a narrative describing the general configuration of the SPPE and hydrocarbon flow path.

What factors contributed to the failure? (Select all that apply)
- Improper Design
- SPPE erroneously thought to be certified but was not
- Inadequate requalification/verification testing
- Installation was incompatible with specific design elements like subsea trees and related equipment tubing hangers, etc.
- Improper Use
- Operating conditions out of range of device
- Mechanical failure – leak
- Mechanical failure – sand cut erosion
- Mechanical failure – Corrosion (chemical - H2O or CO2)
- Mechanical failure – corrosion (atmosphere)
- Valve seat degradation
- Failed to open
- Failed to close
- Failed to contain hydrocarbons
- Failure to meet required closure timing (consider both isolation and bleed time when deciding)
- Electrical power failure
- Hydraulic power failure
- Incorrect assembly
- Valve damaged during assembly/disassembly
- Improper maintenance
- Improper repair
- Shipping damage
- Damage related to lifting or material handling
- Storm damage
- Collision damage
- Damage related to a seismic event
- Applied hydraulic pressure through wellhead seal assembly required to maintain surface-controlled SSDV in the open position exceeds MRWP of the wellhead by more than a minimum required amount
- Other, Specify:

Preliminary Root Cause (Select all that apply)
- Human Error, Personnel Skills or Knowledge
- Human Error, Quality of Task Planning and Preparation
- Human Error, individual or group decision-making
- Human Error, quality of task execution
- Human Error, quality of hazard mitigation
- Human Error, communication
- Maintenance plan and procedure
- Manufacturing defect
- Design issue
- Wear and tear
- Other, Specify:

Is a formal Root Cause and Failure Analysis recommended?
- Yes
- No
Specify how many cycles or hours were completed since the last preventative maintenance – Number field to input the amount of cycles or hours completed.

Provide a narrative describing the general configuration of the SPPE and hydrocarbon flow path. – Free text field that should clearly describe the pipe arrangement, the total number of SPPE valves, the sequence, and the flow path from the completion well to the production manifold. Note: If it is a Boarding shutdown valve, describe the number of wells and the isolation valve arrangement for each of those wells.

What factors contributed to the failure? – Select the equipment behavior, omission, event, or deficiency that sets the stage for the failure. If the contributing factor for which you are submitting a failure notification is not in the field list, please select "Other" at the bottom, then type in the cause in the supplied text field.

Preliminary Root Cause. - Select the process or events that lead to the failure. If the preliminary root cause for which you are submitting a failure notification is not in the list, please select "Other" at the bottom, then type in the root cause in the supplied text field. Note: If the choice is ‘wear and tear’, please refer to the SPPE Details section and include the installation date and shelf life of the failed component in the redress history narrative box.

Is a formal Root Cause and Failure Analysis recommended? – A formal Root Cause Failure Analysis (RCFA) includes the operator, OEM, and an inspection of the failed parts. Select yes, if the component required a RCFA.
8.6 Corrective Action

Corrective Action

What corrective action was taken related to the SPPE failure? (select all that apply)
- Adjust
- Check
- Inspection
- Modify
- Overhaul
- Rebuild
- Remanufacturer
- Repair
- Replace
- Service
- Test
- Other, Specify: ____________________________

Where was the corrective action accomplished (select one)
- Contractor's facility
- Manufacturer's facility
- On location
- Operator's facility
- Other, specify: ____________________________

If the corrective action was accomplished on location, who conducted the corrective action? (select one)
- Operator
- Contractor
- Manufacturer
- Not Applicable
- Other, specify: ____________________________

Was the failure associated with an HSE incident?
- Yes
- No

If yes, what was the type of incident? (select all that apply)
- One or more fatalities
- Injury to 5 or more persons in a single incident
- Tier 1 Process Safety Event (API 754/10GP.458)
- Loss of Well Control
- $1 million direct cost from damage of loss of facility/vessel/equipment
- Oil in the water >= 10,000 gallons (238 bbls)
- Tier 2 Process safety event (API 754/10GP.458)
- Collisions that result in property or equipment damage > $25,000
- Incident involving crane or personnel/material handling operations
- Loss of Station-keeping
- Gas release (H2S and Other) that result in process or equipment shutdown
- Muster for evacuation
- Structural Damage
- Spill < 10,000 gallons (238 bbls)
- Other, specify: ____________________________
What corrective action was taken related to the SPPE failure? - Select the corrective action taken on the platform to place the equipment back into operation. If the corrective action for which you are submitting a failure notification is not part of the list, please select “Other” at the bottom, then type in the action taken in the supplied text field.

Where was the corrective action accomplished? - Select the facility that performed the corrective action on the equipment. If the selection is not provided please select “Other”, then type in the corrective action accomplished in the supplied text field.

If the corrective action was accomplished on location, who conducted the corrective action? – Select the entity that performed the corrective action.

Was the failure associated with an HSE incident? – Select YES/NO to record if this was a Health Safety Equipment (HSE) incident. If Yes, select the type of incidents. “Other” may be selected to specify the type of incident in the supplied text box not included in the provided list.
9.0 Investigation and Failure Analysis

In the event of a component failure it is important to conduct an effective investigation and failure analysis in order to identify the causes (i.e., physical, human, and systemic) and root cause(s) of a failure. This will establish a knowledge base that the industry can use to instill safety and improve equipment/component reliability.

There are several major approaches to investigation and failure analysis that are used within the industry. Any one of these approaches should be selected in order to verify the root cause and identify the causes (physical, human, or systemic) of the failure.

The scope of any investigation and analysis related to the equipment/component failure must be based on factual information (e.g. hose failure, valve leaking in closed position).

9.1 Failure Causes

As part of the investigation and failure analysis process, three types of causes are identified. These are: physical, human factor, and systemic causes.

9.1.1 Physical Causes

The consequence, manifestation, or results determined through evidence that have influenced or triggered a component failure. Examples include corrosion, fatigue, excessive stress, erosion, rupture, etc.

9.1.2 Human Factor Causes

These are related to human activities that have contributed to the failure of a system or component. Identifying and understanding the contribution of human factors during component failure investigations will improve corrective action identification and component performance. Examples include maintenance error, failure to follow procedures, etc.
9.1.3 Systemic Causes

These are related to any system or process activity rather than other specific isolating factors, including failures in the procedures used to execute the work.

**NOTE:** If the failure is part of a wider event, then the appropriate investigative procedure may need to be followed IN ADDITION to the creation of the report on component failure.

9.2 Investigation and Failure Analysis

This section presents the two types of investigation and failure analysis.

- Failure Cause Known
- Root Cause Failure Analysis

**NOTE:** If an investigation fails to sufficiently determine the root cause(s) of the failure, then analysis can proceed to a RCFA.

If the root cause is known, then this information is submitted to SafeOCS.

The Failure Notification Form can be updated (as needed) during the investigation and analysis process. The document can be uploaded, along with additional information, using the SafeOCS unique reference number or identifier that was assigned to the original Failure Notification Form.

9.3 Failure Cause Known

The failure cause is known if a failure scenario was conducted and the conditions that lead to the failure were carefully observed and described. A failure scenario is the process in which all the possible sequence and combination of events, conditions, and system states leading to the failure were identified.

9.3.1 Example of Failure Cause Known

A valve damaged during installation normally can be easily categorized as Failure Cause Known. It is important to report such issues, because if this were to escalate to a systemic/reoccurring event, then it may warrant a change to the design or installation/maintenance procedures.
9.3.2 Resources

The Production/Senior Subsea Engineer should discuss what happened with another technical member of crew to determine:

- What happened?
- How it happened?
- Why it happened?

A description of the event and other appropriate information should be provided on or with the Failure Notification Form.

9.3.3 Closure

The investigation is considered closed when the failure cause is known and the information is provided. The system will process the resubmittal, thus fulfilling the regulatory requirement. Cases that do not show a failure cause known are discussed next under Root Cause Failure Analysis Required (RCFA) (9.4).

If the Failure Notification Form has previously been submitted as “final”, it may still be modified or updated as appropriate. Just attach any supporting documentation using the unique reference number or an equivalent unique identifier that was assigned to the original Failure Notification Form by the SafeOCS system.

9.4 Root Cause Failure Analysis Required (RCFA)

The RCFA (sometimes called a formal root cause failure analysis) is a more detailed investigation requiring more time and resources to complete. The result of the RCFA can be used to correct specific problems and prevent reoccurrence, for instance: OEM product bulletins, equipment owner maintenance system changes, etc.

9.4.1 Physical Evidence

In many instances, component failures are field repairable, though there may be cases when a replacement assembly is readily available. In such an event, the physical evidence of the failed component is provided. Photographs, dimensions, sketches, and written reports can be submitted as further evidence of the investigation.
9.4.2 Resources

Typically, an RCFA includes at least one SME, one or more appropriate representatives from the OEM, a suitably qualified third party, and/or the operator.

The RCFA report should include the causes (physical, human, and systemic) and the contributing factors for the failure occurrence.

9.4.3 Closure

The incident can be considered closed when the component failure report in the database is updated (closing the initial report) and the final report is published. A Failure Notification Form that has either been modified or updated must include the necessary documentation supporting the identified cause(s) and attached using the unique reference number or equivalent unique identifier.

10. Compliance

Pursuant to 30 C.F.R.§ 250.803, a failure report shall be generated for SSVs, BSDVs, GLSDVs and USVs contained in section 10.20.7.4 of ANSI/API Spec. 6A and section 7.10 of ANSI/API Spec. 14A and Annex F of ANSI/API RP 14B for SSSVs within 30 days after the discovery and identification of the failure. To facilitate the accomplishment of this responsibility, this guidance document established protocols governing the reporting and subsequent investigations of a safety and pollution prevention equipment failure incident.

11. Capture and Share Lessons Learned

When developing protocols for identifying, investigating, reporting, and maintaining records of incidents and failures, it is important that each of these events serves multiple purposes. For instance, proper investigation and reporting assists OEM’s and owners identifying problematic areas and weaknesses that can be improved ensuring equipment safety and reliability.

Pursuant to 30 C.F.R.§ 250.803, it is important that lessons learnt from component failures are shared with the appropriate industry stakeholders.
12. Reporting Design and Procedural Changes

Pursuant to 30 C.F.R.§ 250.803, changes in design and operating procedures (resulting from a failure) that were not submitted as part of the Failure Notification reporting process must be submitted to SafeOCS within 30 days. This information should include the unique reference number assigned by the SafeOCS system or an equivalent unique identifier established when the Failure Notification Form was originally submitted.

For questions contact SafeOCS
www.safeocs.gov
1-844-OCS-FRST (1-844-627-3778)
APPENDIX 1. DEFINITIONS

API Well Number
A well identifier assigned, as defined in API (American Petroleum Institute), by the appropriate state or federal regulatory agency.

Boarding Shutdown Valve
A valve, usually within 10 feet of a boarding pipeline riser (from a subsea well, flowline, or pipeline), that shuts off flow when closed. It is usually automatically operated and designed to close upon loss of power.

Complex ID
Unique Bureau of Ocean Energy Management, Regulation and Enforcement (BOEMRE) identifier assigned to a single structure or a group of structures connected by a walkway.

Corrective Action
An action, which is taken to correct a failure and restore equipment functionality.

Dry Tree
Surface assembly of valves, spools, pressure gauges, and chokes fitted to the wellhead of a completed well to control production, located on the deck of the production platform.

Failure
A condition that prevents the component from operating as designed. Improper performance of a device or equipment item that prevents completion of its design function.

Formal Root Cause Failure Analysis (RCFA)
A comprehensive systematic investigation process undertaken to identify the root cause of a component failure or other effect.

Gas Lift Shutdown Valves (GLSDV)
A valve used in a gas-lift system to control the flow of lift gas into the production tubing conduit. The gas-lift valve is located in the gas-lift mandrel, which also provides communication with the lift gas supply in the tubing annulus. Operation of the gas lift valve is determined by preset opening and closing pressures in the tubing or annulus, depending on the specific application.

Hot-Work
Work that involves heat at temperatures above the hydrocarbon flash point (ex. welding, grinding).

Injection Well
A well in which fluids are injected into the reservoir rather than produced from it, the primary objective typically being to maintain reservoir pressure.

Maximum Allowable Working Pressure
The highest operating pressure allowable at any point in any component during normal operation or disrupted conditions.
Operator Company
The operator or operating company named as the designated operator of the well associated with the SPPE.

Preventive Action
An action to address a failure’s cause to prevent reoccurrence.

Production
The phase of oil and gas operations involved with well fluids extraction, separation, treatment, disposal, measurement, and sale.

Production Contractor
A company hired by the Operator to manage and operate their equipment.

Rated Working Pressure
The maximum internal pressure that the equipment is designed to contain or a design operating condition.

Redress History
The equipment history of any activity involving the replacement of qualified parts.

Root Cause
The cause (condition or action) that begins a cause/effect chain and ends in the equipment component failure. If eliminated, it would prevent the reoccurrence of the event (under investigation) and similar occurrences.

SPPE
The process or control equipment whose primary function is safety or the prevention of pollution in offshore oil and gas operations. SafeOCS captures failure data for the six specific SPPE components.

Structure Number
Unique Bureau of Ocean Energy Management, Regulation and Enforcement number assigned to a specific structure within a complex.

Subsea Tree
An assembly of valves, spools, pressure gauges and chokes fitted to the wellhead of a completed well to control production located on the seafloor.

Subsurface Controlled subsurface safety valve (SSCSV)
A downhole safety valve designed to close automatically in an emergency. There are two basic operating mechanisms: valves operated by an increase in fluid flow and valves operated by a decrease in ambient pressure.

Subsurface Safety Valve
A device whose designed function is to prevent uncontrolled well flow when closed.
**Surface Controlled subsurface safety valve (SCSSV)**
A downhole safety valve that is operated from surface facilities through a control line strapped to the external surface of the production tubing.

**Surface Safety Valve**
The valve which contains the wellstream and shuts off flow when closed. The SSV is usually operated by actuator that is designed to close the SSV upon command or loss of power.

**Through flowline (TFL)**
Pertaining to treatments performed on subsea wells where the fluids and associated pump-down equipment, such as plugs or darts, are pumped through the flowline normally used for production fluids.

**Tree**
an assembly of valves, gauges, and chokes mounted on a well casing head, used to control the production fluid and flow of oil, water, or gas.

**Tubing-pressure-type SCSSV**
A type of valve designed to close when tubing pressure drops below a pre-set level referenced by a pneumatically charged container in the SCSSV.

**Tubing retrievable**
Type of subsurface safety valve that is run and retrieved as part of the production tubing string.

**Underwater Safety Valve**
Automatic valve assembly (installed at an underwater wellhead location) which contains the well stream and shuts off flow. The USV is typically operated by an actuator that causes the surface safety valve to open when power is supplied and to close automatically when power is lost or released.

**Velocity-type SCSSV**
A type of valve designed to close when high well-effluent velocity causes a pressure differential across a bean (orifice) in the valve in excess of the design differential chosen by the installer.

**Well Shut-in**
A well which is capable of producing, but is isolated with closed valves and not presently producing.

**Wireline retrievable**
Type of safety valve in which the principal components can be run and retrieved by wireline or slickline.