



Bureau of Safety and Environmental Enforcement

# Subsea Well Intervention

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“To promote safety, protect the environment and conserve resources offshore through vigorous regulatory oversight and enforcement.”

# BSEE Mission Statement

“To promote safety, protect the environment and conserve resources offshore through vigorous regulatory oversight and enforcement.”

# Overview

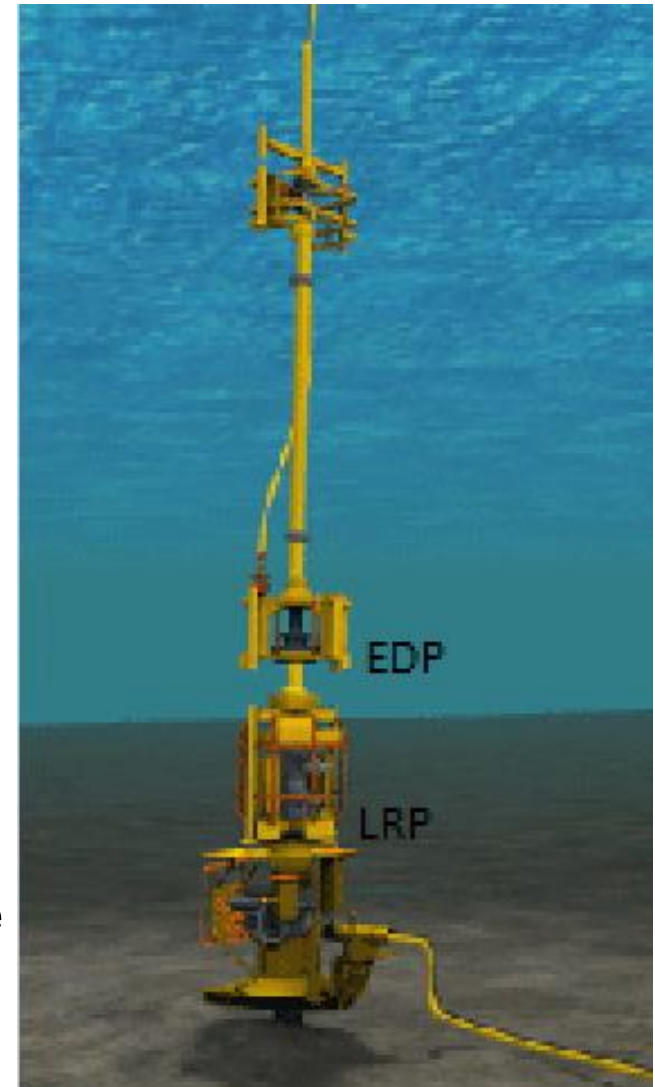
## Subsea Well Intervention

- Types of Subsea Well Intervention Units performing decommissioning in the deepwater environment.
- BSEE's requirements when utilizing a Subsea Well Intervention Unit to perform wellwork.

# Subsea Well Intervention

## Intervention Riser Systems

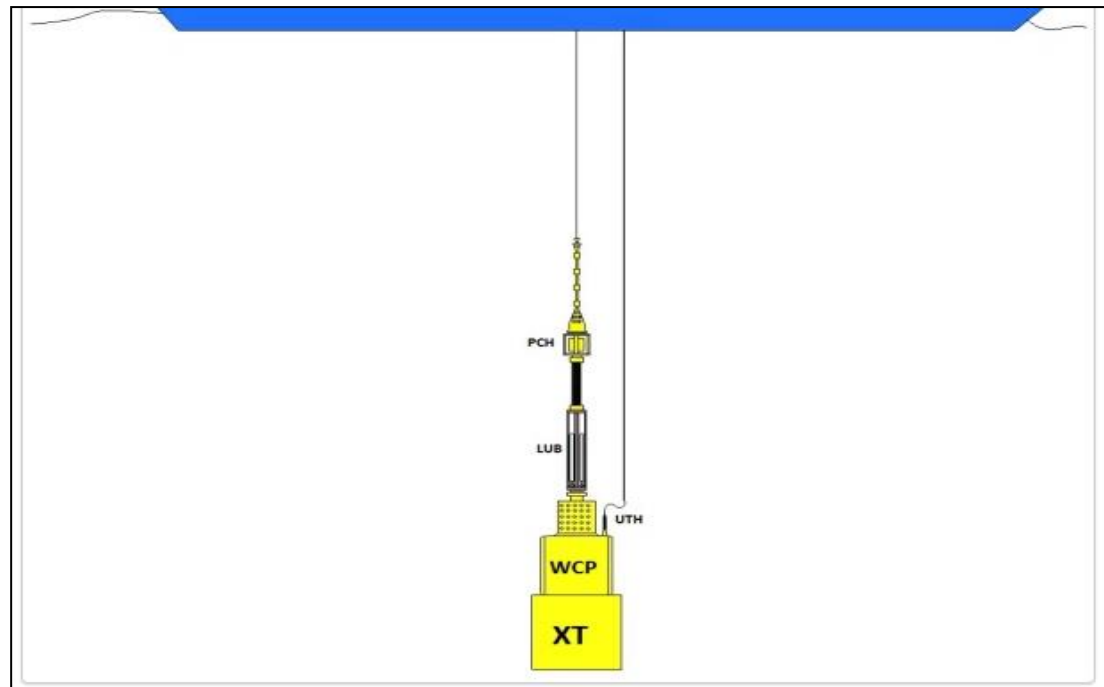
- This type of intervention unit has a surface BOP (coil tubing and/or wireline) with a subsea well control package (WCP) on top of the tree/wellhead connected via a riser.
- The WCP consists of an Emergency Disconnect Package (EDP) and a Lower Riser Package (LRP).
- The EDP/LRP is a system of valves and/or rams that will shear and seal the wellbore in case of a well control issue or drive/drift off of the vessel.



# Subsea Well Intervention

## Riserless Intervention Systems

- This type of intervention unit contains a well control package (WCP), wireline lubricator (LUB) and pressure control head (PCH) located on top the subsea tree/wellhead (XT).
- The WCP is a system of valves/rams utilized for well control purposes. The package will shear and seal the wellbore in case of a well control issue or drive/drift off of the vessel.



# Subsea Well Intervention

## BSEE Requirements for Subsea Well Intervention Units

- Subsea Well Intervention Units are in retrospect considered BOPs per Subpart G
- The following documentations are currently being requested and reviewed by BSEE:
  - Description of Intervention system and System Components
  - Schematic Drawings
  - Third Party Certifications
  - Description of emergency systems
  - Third Party Shearing Verification
  - Stump & Initial On-Bottom Testing Procedures

# Subsea Well Intervention

## Description of Intervention System and System Components – 250.731(a)

- BSEE is requesting the following descriptions to be included:
  - Pressure ratings of WCP equipment;
  - Proposed WCP test pressures (include both surface and corresponding subsea pressures);
  - Control fluid volumes needed to close, seal, and open each component;
  - Control system pressure and regulator settings needed to achieve an effective seal of each ram/valve under MASP as defined for the operation;
  - Number and volume of accumulator bottles and bottle banks (include both surface and subsea bottles);
  - Accumulator pre-charge calculations (include both surface and subsea calculations);
  - All locking devices; and
  - Control fluid volume calculations for the accumulator system (include both the surface and subsea volumes).





# Subsea Well Intervention

## Third Party Certifications – 250.731 (c)

- Third Party Certification must verify:
  - Test data demonstrates that the shear rams/valves will shear at water depth as required in 250.732.
    - Must be submitted on the initial permit.
  - WCP was designed, tested, and maintained to perform under the maximum environmental and operational conditions anticipated to occur at the well.
    - May be submitted in subsequent revised permit.
  - Accumulator system has sufficient fluid to operate the intervention system without assistance from the charging system.
    - May be submitted in subsequent revised permit.



# Subsea Well Intervention

## Additional Third Party Certification – 250.731(d)

- Third Party Certification must verify:
  - WCP system is designed and suitable for the specific equipment on the rig/vessel and for the specific well design.
  - WCP system has not been compromised or damaged from previous service.
  - WCP system will operate in the conditions in which it will be used.
- This must be submitted and approved by BSEE before any well work can begin and may be submitted in a subsequent revised permit.



# Subsea Well Intervention

## Description of Emergency Systems – 250.731(e)

- The permit must include a description of all emergency functions including a listing of the functions with the sequences and timing.
- If utilizing a DP vessel, the system must have an autoshear, deadman and emergency disconnect system (EDS).
- If utilizing a moored vessel, the system must have an autoshear and a deadman system.



# Subsea Well Intervention

## Third Party Shearing Verification – 25.732(b)

- BSEE is requesting the following shearing data to be third party verified:
  - Shear Testing
  - Pressure Integrity Testing
    - Must be conducted immediately after the shear
    - Pressure test must hold for 30 minutes at the working pressure of the WCP.
  - Calculations
    - Include all piping/wire that will be utilized during the operation under MASP at the mudline.
    - Include all piping/wire sheared during shear test under MASP at the mudline.



# Subsea Well Intervention

## Stump Test and On-Bottom Procedures

### Stump Test Procedure Requirements

- A full pressure test is required to MASP + 500 at the mudline.
- All ROV hot stab functions must be function tested with visual verification of closure.
- Must function test deadman and autoshear and EDS systems with visual verification of closure.



### Initial On-Bottom Test Requirements

- A full pressure test is required to MASP + 500 at the mudline.
- Must function test and verify closure of at least one set of rams/valves through an ROV hot stab. Verification of closure must be done with a pressure test at MASP + 500 taken at the mudline.
- Must function test the deadman system and verify closure of at least one set of rams/valve. Verification of closure must be done with a pressure test at MASP + 500 taken at the mudline.

# Subsea Well Intervention Compliance worksheet

- All intervention units will be vetted through a worksheet which compares the system to relevant Subpart G regulations.
- Any regulation not met must have a requested alternate compliance with reasonable justification and/or a requested departure.

	A	B	C	D
1	Intervention System Name:			
2	Permitted Well:			
3	Submittal Date:			
4	Evaluated By:			
5		Need wording for eliminating sections of Subpart G due to ops		
6	Regulation number	Regulations/Req	Regulation being met?	Comments/Justifications
7	<b>§250.701</b>	<b>May I use alternate procedures or equipment during operations?</b>		
8		Is an alternate compliance being requested?	Yes	This entire unit is an alternate compliance to the regulations. See responses below identifying and discussing the alternate compliance
9	<b>§250.702</b>	<b>May I obtain departures from these requirements?</b>		
10		Is a departure being requested pertaining to this well intervention unit?		There may be a departure request on the unit.
11	<b>§250.712</b>	<b>What rig unit movements must I report?</b>		
12	712(a)	You must report the movement of all rig units on and off locations to the District Manager using Form BSEE 0144, Rig Movement Notification Report. Rig units include MODUs, platform rigs, snubbing units, wire-line units used for non-routine operations, and coiled tubing units. You must inform the District Manager 24 hours before:	N/A	COA
13	712(a)(1)	The arrival of a rig unit on location;	N/A	COA

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