



# Temporary Equipment on Offshore Installations

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DNV Energy

## Offshore Classification - Capability & Track Record

For four decades DNV has been engaged in classification and certification of mobile offshore drilling and production units built and operated world wide. With nearly half the fleet of drilling units built during the last decade to DNV class, the Society is widely recognised by the drilling industry as the provider of cost effective and highly beneficial classification services, supported by state of the art technology.

DNV has also been involved in verification of fixed and floating production units (FPUs) for more than 30 years. Currently 35 FPUs classified/certified/verified by DNV are in operation and additional 9 FPUs are under design or construction.

Today more than 150 offshore units, about 30 percent of the world's total tonnage, are classified with DNV.

This fleet is spread around the world, and DNV utilises its own global network of resource and service centres to accommodate the customers' needs. Wherever the business is, DNV's local offices have a common understanding of the classification systematics and an understanding of the specific region, its conditions and governing regulations. DNV Offshore Classification has dedicated service centres in e.g. Rio/Brazil, Houston/US, Oslo/Norway, Singapore, China, South-Korea and Japan covering all aspects from design, construction to the in-service phase. In addition DNV has more than 300 offices in 100 countries around the world. Specially worth mentioning are our site offices in Tema/Ghana, Luanda/Angola and Lagos/Nigeria.



# Temporary Equipment on Offshore Installations

The purpose of this document is to provide guidelines for handling of temporary equipment being installed on offshore installations.

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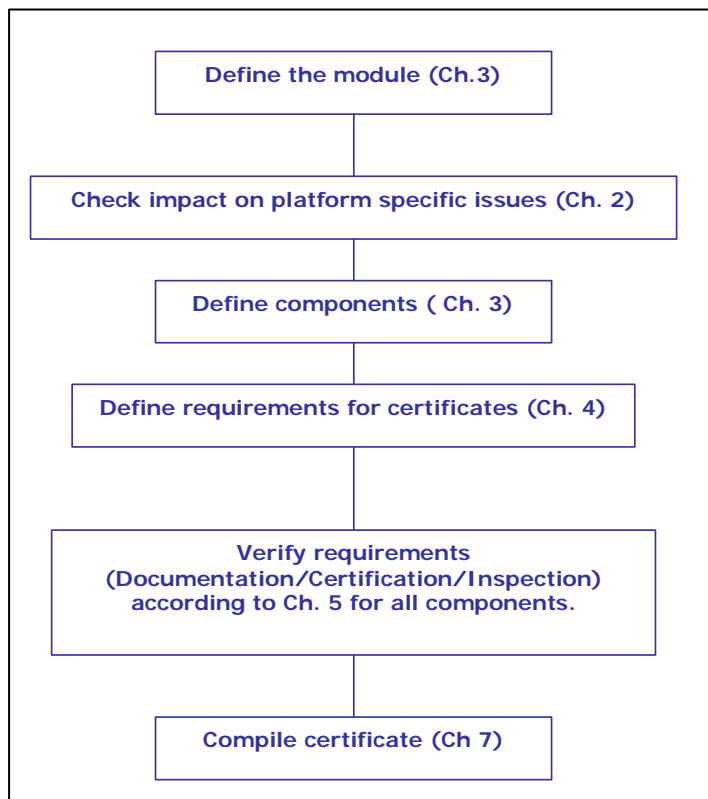
# 1 Introduction

This Guidance has been developed for enabling enhanced control of temporary equipment being delivered to fixed and mobile offshore units. The intention is that this document be widely distributed to aid service companies, drilling contractors, oil companies, vessel owners and even DNV surveyors with the difficult task of certifying and controlling temporary equipment being sent offshore.

Typical equipment modules have been given along with basic components. This document gives details of the codes and standards applicable for each component followed by the certification where this normally is required. This document does not, however, cover rig or platform specific issues, for example interface with fire & gas systems, foundation arrangements etc, as these are always different for all installations. A chapter has, however, been included giving guidance for installation considerations. ( Ref. Chapter 2.)

This document includes a "Certificate for Temporary Equipment Module" which may be issued for an installation specific system, hereafter called "Module" system. By referring to the equipment as a "Module", the goal is that the certificate will cover the whole equipment skid necessary for the project / job, the temporary equipment is being installed on the offshore unit for. An example of a Module is a cement unit, which would include components like pumps, engines, piping, control systems etc. A flow chart of the process is described in this chapter and Certification requirement for the individual components will be found Chapter 4 and Chapter 5. The individual components are to be listed in the appendix of the certificate. The certificate is not a substitute for the existing design verification report (DVR) and certificate of conformity / product certificate system. These are still required to ensure the integrity of the components from a certification point of view. Furthermore, the certificate does not substitute the requirement for design appraisal of the module from the point of view of P&ID approval, structural approval and any other drawings required for the installation.

The process of ensuring a safe and sound verification prior to shipping equipment offshore is described in the flow process chart as follows:



## 2 Considerations prior to sending the module offshore

The system or the module that are shipped offshore may have an effect on the offshore installation it will be installed. It is the responsibility of the designer of the system to advise the owner of the installations what sort of impact the installation of the module will have. The designer of the system should similarly seek information on the installation that his system is going to.

This document does not cover the interface of the module towards the installation. Such interface study should be covered elsewhere, however, some guidance of the interface study and expectations from such study are given in this section.

Typical aspects that need to be considered before the module is sent offshore are:

### System footprint

- Deck loading
- Fire protection – structural and active
- Hazardous areas created
- Escape routes that will be affected
- Environment

### Supply aspects

- Electrical – main and emergency
- Hydraulic
- Pneumatic
- Water – pot and cooling

### Return aspects

- Routing of pressure relief systems
- Drainage
- Thermal load
- Contamination of systems
- Earthing

### Safety issues

- ESD aspects
- Hot surfaces
- Comms in / Communication
- Escape routes
- Fire & Gas
- Fire dampers
- Emergency Lighting

Table 1: Guidance for interface description									
No	Module	Takes from Installation				Gives to Installation			
		HC Fluid	Pneu-matic	Elec-tric	ESD	HC Fluid	Pneu-matic	Elec-tric	ESD
1	Cement unit	Y	Y		Y	Y			N
2	Well test unit	Y		Y	Y	Y			Y
3	Cuttings handling system		Y		Y	N			N
4	ROV unit	N			Y	N			N
5	Wire line (logging) unit	N	Y		Y	N			N
6	Snubbing unit	Y/N	Y		Y	N/Y			Y
7	Coil tubing system	Y/N	Y		Y	N/Y			Y
8	Well stimulation unit	N/Y	Y	Y	Y	N/Y			Y

## 3 Temporary Modules – with Breakdown to Components

### 3.1 Cementing Unit - Module No.1

Module Breakdown (Example only):

- Diesel engine / electric motor
- Transmission gear
- Control station (for engine & pumps)
- HP pumps
- LP / Circ pumps
- Surge tanks
- Batch / mixing tanks
- HP pipework
- LP pipework
- Hoses
- Cement head
- Crossovers
- HP Valves
- LP Valves
- P-tanks
- Chemical tanks
- Relief valves
- Pulsation damper
- Lifting arrangements
- Work container
- Air pressure vessels

### 3.2 Well Test Unit – Module No.2

Module Breakdown (Example only):

- Production manifolds / trees
- Separators
- Surge tanks
- Pumps
- HP pipework
- LP piping
- Gauge tanks

- Hoses
- HP Valves
- LP Valves
- Burner booms
- Burners & head
- Slop tank for produced water
- Heat exchangers
- ESD arrangements
- Compressors
- Boilers
- Relief valves (if necessary)
- Lifting arrangements
- Work container
- Diverter manifold
- Control cabin
- Steam generator
- Chemical injection pump
- Sand filter unit
- Methanol transport tanks
- Surface test tree
- Swivels
- Degassing skid

### 3.3 Cuttings Handling System – Module No. 3

Module Breakdown (example only):

- Centrifuges
- Suction units
- Pumps
- Motors
- Conveyor unit / screw pump
- Container
- Bag systems
- Lifting arrangements
- Work container

### 3.4 ROV Unit – Module No. 4

Module breakdown (example only):

- Skid frame

- Power units
- Control cabins
- Winch
- ROV
- Motors (e.g. for winch)
- Transformers
- Power equaliser unit
- Lifting arrangement
- Control cables
- Work container

### 3.5 Wire Line (logging) Unit – Module No. 5

Module breakdown (example only):

- Control cabins
- Stuffing box
- Power unit
- BOP (Drill floor)
- Injection head
- Logging unit winch
- Diesel engine
- Electric motors
- Workshop container
- Lifting arrangement
- Blocks & sheaves in derrick
- Control system
- Lubricators & grease injection
- Chemical injection

### 3.6 Snubbing Unit – Module No. 6

Module breakdown (example only):

- Derrick
- BOP
- Workshop containers
- Control cabins
- Lifting arrangement
- Motors
- Pipe handling unit

- Jacking system
- Control systems
- Hydraulic power unit
- Compressor units
- HP crossovers
- HP Pipe
- LP pipe
- Valves
- Hoses
- Winches

### 3.7 Coil Tubing System – Module No. 7

Module breakdown (example only):

- Tubing reels
- Control cabin (inc. control system)
- Workshop container
- Power unit (diesel)
- Electric motors
- HP Piping
- LP piping
- Valves
- BOP (for drill floor)
- Injector head
- Lifting arrangement
- Mixing tanks
- Storage tanks
- Nitrogen pumping unit?
- N<sub>2</sub> transport tanks
- Stripper

### 3.8 Well Stimulation Unit – Module No. 8

Module breakdown (example only):

- Acid tanks
- HP piping
- LP piping
- Hoses
- Frac tree
- Valves

- Motors
- Diesel engine
- Surface frac tree
- Drill floor Sub

### 3.9 Miscellaneous / General – Module No.9

Module breakdown (example only):

- Individual equipment
- Loose Gear e.g. elevators
- Work container
- Winches
- Helifuel tanks
- Air compressors
- Stem generators
- Hydraulic hoses

## 4 Documentation Matrix – by Module

### 4.1 Certificate Description

**Lifting Certificate:** Suitable for offshore lifts according to DNV 2.7.1 or 2.7.2

**Pressure Test Certificate:** Test charts or test certificate giving information of pressure tests.

**Design Report:** Verification (Independent Verification Report IDVR) report issued by an independent body stating compliance with recognised standard and codes.

**Component Certificate:** Certificate stating compliance with standard and codes issued by an independent body.

**Works Certificate:** Certificate stating compliance with standard and codes issued by maker/manufacturer.

**IMDG Certificate:** International Maritime Dangerous Goods Code. Certificate issued by Class.Society or Flag.State.

**EX Certificates:** Certification of the electrical equipment. Copies of the certificates from the makers type testing are to be provided with the module Documentation package.

**Nomenclature for tables:**

X: Applicable

A: If / as necessary

## 4.2 Cementing Unit

Module Type	Temporary Equipment Type	Lifting Cert.	Pressure Test Cert.	Design Report	Comp. Cert.	Works Cert.	IMDG Cert.	EX Certs.	Special ID marking	Notes
Cement Unit	Diesel engine	A		A	X	X		A	X	
	Control station (for engine & pumps)	A		A		X		A		
	HP pumps		X	X	X	X			X	
	LP / Circ pumps		X			X			X	
	Surge tanks	A	X	X	X	X			X	
	Batch / mixing tanks	A								
	HP pipework		X	A	X	X			X	
	LP pipework					X				
	Hoses		X	X	A	X				
	Cement head		X	X	X	X			X	
	Crossovers		X	X	X	X			X	
	HP Valves		X	X	X	X			X	
	LP Valves		A			X				
	P-tanks	A	X	X	X	X			X	
	Chemical tanks	A					A			
	Relief valves		X	X		X			X	Calibration certificate to be available.
	Pulsation damper		X	X	X	X			X	
	Lifting arrangements	X		A	A	A			A	
Work container	X		X	X	X			X	E.g. tool box; control room; stores	

## 4.3 Well Test Unit

Module Type	Temporary Equipment Type	Lifting Cert.	Pressure Test Cert.	Design Report	Comp. Cert.	Works Cert.	IMDG Cert.	EX Certs.	Special ID marking	Notes
Well Test Unit	Production manifolds / trees		X	X	X	X			X	
	Separators	A	X	X	X	X			X	
	Surge tanks	A	X	X	X	X			X	
	Pumps		X	X	X	X			X	
	HP pipework		X	X	X	X			X	
	LP piping					X				
	Gauge tanks	A								
	Hoses		X	X	A	X			A	
	HP Valves		X	X	X	X			X	
	LP Valves		A			X				
	Burner booms	X		X	X	X			X	
	Burners & head	X	X	X	X	X			X	
	Heat exchangers		X	X	X	X			A	
	ESD arrangements			X	X	X			X	
	Compressors		X	X	X	X			X	
	Boilers		X	X	X	X			X	
	Relief valves (if necessary)		X	X		X			X	Calibration certificate to be available.
	Lifting arrangements	X		A	A	A			A	
	Work container	X		X	X	X			X	E.g. tool box; stores
	Diverter manifold		X	X	X	X			X	
	Control cabin	X		X	X	X			X	
Steam generator		X	X	X	X			X		
Chemical injection pump		X	X	X	X			X		
Sand filter unit			X		X			X		
Methanol transport tanks	X				X	X		X		
Surface test tree		X	X	X	X			X		
Swivels		X	X	X	X			X		

### 4.4 Cuttings Handling System

Module Type	Temporary Equipment Type	Lifting Cert.	Pressure Test Cert.	Design Report	Comp. Cert.	Works Cert.	IMDG Cert.	EX Certs.	Special ID marking	Notes
Cuttings handling system	Centrifuges	A	X	X	A	X		X	X	
	Suction units	A		X		X		A	A	
	Pumps		X	X	X	X			X	
	Motors			X		X		A		
	Conveyor unit / screw pump			X		X		A		
	Disposal Container	X		X	X	X			X	
	Bag systems	A		X		X				
	Lifting arrangements	X		A	A	A			A	
	Work container	X		X	X	X			X	E.g. tool box; control room; stores

## 4.5 ROV Unit

Module Type	Temporary Equipment Type	Lifting Cert.	Pressure Test Cert.	Design Report	Comp. Cert.	Works Cert.	IMDG Cert.	EX Certs.	Special ID marking
ROV unit	Skid frame	X		X		X			X
	Power units	A		X		X		A	X
	Control cabins	X		X	X	X		A	X
	Winch	A		X	A	X		A	X
	ROV					A		A	
	Transformers			A		X		A	
	Power equaliser unit			A		A		A	
	Lifting arrangement	X		A	A	A			A
	Control cables					A		A	
	Work container	X		X	X	X			X
	Control cabins	X		X	X	X			X

### 4.6 Wire Line (logging) Unit

Module Type	Temporary Equipment Type	Lifting Cert.	Pressure Test Cert.	Design Report	Comp. Cert.	Works Cert.	IMDG Cert.	EX Certs.	Special ID marking
Wire line (logging) unit	Stuffing box		X	X	X	X			X
	Power unit			X		X		X	
	BOP (Drill floor)		X	X	X	X			X
	Injection head		X	X	X	X			X
	Logging unit winch	A		X	A	X		A	X
	Diesel engine	A		A	X	X		A	X
	Electric motors			X		X		A	
	Workshop container	X		X	X	X			X
	Lifting arrangement	X		A	A	A			A
	Blocks & sheaves in derrick	X				X			X
	Control system			X		X			
	Lubricators & grease injection		X	X		X			
	Chemical injection system		X	X		X			X
Derrick	X		X	X	X			X	

## 4.7 Snubbing Unit

Module Type	Temporary Equipment Type	Lifting Cert.	Pressure Test Cert.	Design Report	Comp. Cert.	Works Cert.	IMDG Cert.	EX Certs.	Special ID marking
Snubbing unit	BOP		X	X	X	X			X
	Workshop containers	X		X	X	X			X
	Control cabins	X		X	X	X			X
	Lifting arrangement	X		A	A	A			A
	Motors			X		X		A	
	Pipe handling unit	X		X	X	X			X
	Jacking system	X		X	X	X			X
	Control systems			X		X		A	
	HP crossovers		X	X	X	X			X
	HP Pipe		X	X	X	X			X
	LP pipe					X			
	Valves		X	A	A	X			X
	Hoses		X	X	A	X			A
	Winches	X		X	X	X		A	X
Tubing reels	X		X	X	X		A	A	

### 4.8 Coil Tubing System

Module Type	Temporary Equipment Type	Lifting Cert.	Pressure Test Cert.	Design Report	Comp. Cert.	Works Cert.	IMDG Cert.	EX Certs.	Special ID marking
Coil tubing system	Control cabin (inc. control system)	X		X	X	X			X
	Workshop container	X		X	X	X			X
	Power unit (diesel)	A		A	X	X		A	X
	Electric motors			X		X		A	
	HP Piping		X	X	X	X			X
	LP piping					X			
	Valves		X	A	A	X			X
	BOP (for drill floor)		X	X	X	X			X
	Injector head		A	X	X	X			X
	Lifting arrangement	X		A	A	A			A
	Mixing tanks	A				X			A
	Storage tanks	A				X	A		A
	Nitrogen pumping unit			X		X			X
	N <sub>2</sub> transport tanks	A				X	X		X
	Stripper		X	X	A	X			X
Acid tanks	A				X	X		X	

## 4.9 Well Stimulation Unit

Module Type	Temporary Equipment Type	Lifting Cert.	Pressure Test Cert.	Design Report	Comp. Cert.	Works Cert.	IMDG Cert.	EX Certs.	Special ID marking	Notes
Well stimulation unit	HP piping		X	X	X	X			X	
	LP piping					X				
	Hoses		X	X	A	X			A	
	Mixers					X				
	Valves		X	A	A	X			X	
	Motors			X		X		A		
	Diesel engine	A		A	A	X		A	X	
	Surface frac tree		X	X	X	X			X	
	Drill floor Sub		X	X	X	X			X	
	Individual equipment					X			X	Need to define equipment scope of certification
	Loose Gear e.g. elevators	A	A	A	A	X			X	Note elevators may need individual load test certs.

## 4.10 Miscellaneous / General

Module Type	Temporary Equipment Type	Lifting Cert.	Pressure Test Cert.	Design Report	Comp. Cert.	Works Cert.	IMDG Cert.	EX Certs.	Special ID marking	Notes
Miscellaneous / General	Work container	X		X	X	X			X	
	Winches	A		X	A	X		A	X	
	Helifuel tanks	X		X		X	X		X	
	Air compressors		X	X	X	X		A	X	
	Hydraulic hoses		X	X	A	X			A	

## 5 Certification and Inspection List by Components

No.	Component / Item	Documentation Req.	Certification Req.	Inspection Req.	Comments
1	Acid tanks	IMDG Certificate. 2.5 yr intermediate cert & 5 yr. major cert. Cert. issued by Class or F.S.	<ul style="list-style-type: none"> <li>International Maritime Dangerous Goods Code, (IMDG)</li> <li>ASME section VIII : Boilers and Pressure Vessels Code</li> <li>BS 5500: Unfired Fusion Welded Pressure Vessels</li> <li>DNV Rules for Ships, Pt.4 Ch.7</li> </ul>	Internal & external inspection every 2.5 years by Class / C.A. / F.S. If relief valves fitted, these to have been calibrated at a period acceptable to the C.S. worked on, or at least in the last 2.5 years.	
2	Air compressors	See "COMPRESSORS"	See "COMPRESSORS"	See "COMPRESSORS"	
3	Bag systems (Cutting collection skid)	<ul style="list-style-type: none"> <li>Works Certificate / Test Report</li> </ul>	See comments		Bag systems may be made up of several components, inc. hydraulics / electric motors, collection crates / bags. See requirements for separate items as far as possible.
4	Batch / mixing tanks	<ul style="list-style-type: none"> <li>Works Certificate / Test Report for tank.</li> <li>Certificate for Offshore Container from C.S. if tank is to be lifted onboard vessel.</li> </ul>	<ul style="list-style-type: none"> <li>API Spec 12 F: Shop Welded Tanks for Storage of Production Liquids.</li> <li>API Std 650: Welded Steel Tanks for Oil Storage.</li> <li>BS 2654: Vertical steel welded storage tanks</li> <li>DIN 4119: Tank installation of metallic materials</li> <li>DNV Certification Note, 2.7-1</li> </ul>	In general, visual inspection every 12 months by C.S. or ICP. Load testing to be carried out after alteration of repairs with C.S or ICP. Refer to CN 2.7-1, Sec. 8 for further details.	Tanks which are to be individually lifted on to a platform should be certified as "Offshore Containers". Tanks containing hazardous substances, as listed in the IMDG Code, must satisfy the Code with respect to construction, marking and inspection.
5	Blocks & sheaves in derrick	<ul style="list-style-type: none"> <li>CG3 form / ILO Form 3 for loose gear.</li> <li>CoC / PC from C.S.</li> </ul>	<ul style="list-style-type: none"> <li>DNV Rules for Certification of Lifting Appliances</li> <li>ILO Form No. CG3: Certificate of test and thorough examination of loose gear</li> <li>API Std 8A: Specification for Drilling and Production Hoisting Equipment</li> <li>API Std. 8C: Specification for Drilling and Production Hoisting Equipment (PSL 1 and PSL 2)</li> <li>API Std. 9A: Specification for Wire Rope</li> </ul>		
6	Boilers and steam generators	<ul style="list-style-type: none"> <li>ASME / B.S. boiler certificate, signed by authorised inspector</li> <li>Certificate for Boiler from C.S.</li> </ul>	<ul style="list-style-type: none"> <li>API Std 530: Calculation of Heater Tube Thickness in Petroleum Refineries</li> <li>ASME section I: Power Boilers</li> <li>ASME section IV: Heating Boilers</li> <li>BS 1113: Water Tube steam Generating Plant</li> <li>BS 2790: Shell Boilers of Welded Construction</li> <li>NFPA 8502: Standard for the Prevention of Furnace Explosions/Implosions in Multiple Burner Boilers</li> <li>BS 5500: Unfired Fusion Welded Pressure Vessels</li> <li>DNV Rules for Ships Pt.4 Ch.7</li> <li>ISO/R 831: Rules for</li> </ul>	Internal & external inspection every 2.5 years by Class / C.A. / F.S. (Alternatively as described in standard or code) <ul style="list-style-type: none"> <li>Test of safety functions</li> </ul>	In this case they are subject to the requirements of the MODU Code or of SOLAS. In that case fixed fire extinguishing is needed, ventilation shop, fuel oil tank stop are required.

No.	Component / Item	Documentation Req.	Certification Req.	Inspection Req.	Comments
			construction of stationary boilers <ul style="list-style-type: none"> <li>TBK-1-2: General Rules for Pressure Vessels</li> </ul>		
7	BOP	<ul style="list-style-type: none"> <li>CoC / PC from C.S. This report should reference Design Verification Report from Class Society.</li> </ul>	<ul style="list-style-type: none"> <li>API Spec 6A: Wellhead and Christmas Tree Equipment</li> <li>API Spec 16A: Drill Through Equipment</li> <li>API Spec 16D: Control Systems for Drilling Well Control Equipment</li> <li>API RP 16E: Design of Control Systems for Drilling Well Control Equipment</li> <li>API RP 53: Blowout Prevention Equipment Systems for Drilling Operations</li> <li>ISO 10423: Petroleum and natural gas industries - Drilling and production equipment - Specification for valves, wellhead and Christmas tree equipment</li> </ul>	<ul style="list-style-type: none"> <li>Visual examination every 6 months.</li> <li>Function test prior to each use and on 1 week basis while in use</li> <li>Pressure test to well pressure every 2 weeks</li> <li>Hydrotest to test pressure after any alteration / repair, ref API RP 53</li> <li>Pressure test to WP at least every six months.</li> <li>Pressure test to WP after any change out of bonnets.</li> <li>Last major overhaul</li> <li>Last overpressure</li> </ul>	
8	BOP (Drill floor)	<ul style="list-style-type: none"> <li>CoC / PC from C.S. This report should reference Design Verification Report from Class Society.</li> </ul>	See BOP above		
9	Burner booms	<ul style="list-style-type: none"> <li>CoC / PC from C.S. This report should reference Design Verification Report from Class Society.</li> <li>Drawing approval letter from C.S. Fabrication report / Survey Report should be available from C.S. / I.C.P.</li> </ul>	<ul style="list-style-type: none"> <li>DNV Rules for Certification of Lifting Appliances</li> <li>ILO Form No. CG3: Certificate of test and thorough examination of loose gear</li> <li>ANSI/ASME B31.3: Chemical Plant and Petroleum Refinery Piping, for piping</li> </ul>	Visual survey prior to each use. NDT to be carried out to satisfaction of C.S. / ICP.	
10	Burners & head	<ul style="list-style-type: none"> <li>CoC / PC from C.S.</li> </ul>	<ul style="list-style-type: none"> <li>ANSI/ASME B31.3: Chemical Plant and Petroleum Refinery Piping</li> </ul>	Visual survey prior to each use.	Note: For sour service / Corrosion - hydrogen sulphide, note NACE MR0175: Sulphide Stress Cracking Resistant Metallic Material
11	Cement head	<ul style="list-style-type: none"> <li>CoC / PC from C.S.</li> <li>ASME U-1A cert. / Class pressure vessel cert. / BS5500 cert. for pressurised components.</li> </ul>	<ul style="list-style-type: none"> <li>ANSI/ASME B31.3: Chemical Plant and Petroleum Refinery Piping</li> <li>API Spec 6A: Wellhead and Christmas Tree Equipment</li> <li>ASME VIII: Boilers and Pressure Vessels Code</li> </ul>	<ul style="list-style-type: none"> <li>Visual survey prior to each use.</li> <li>Pressure test prior to use.</li> <li>Hydrotest to test pressure after any alteration / repair</li> <li>NDT / thickness measurements as required.</li> </ul>	
12	Centrifuges	<ul style="list-style-type: none"> <li>ASME U-1A cert. / Class pressure vessel cert. / BS5500 cert. for pressure vessel.</li> </ul>	<ul style="list-style-type: none"> <li>API Std 610: Centrifugal Pumps for Petroleum, Petrochemical and Natural Gas Industries</li> <li>ASME section VIII : Boilers and Pressure Vessels Code</li> <li>BS 5500: Unfired Fusion Welded Pressure Vessels</li> </ul>	<ul style="list-style-type: none"> <li>Visual survey prior to each use.</li> <li>Pressure test prior to use.</li> </ul>	Note, centrifuge could be electric or diesel driven. See separate requirements for prime mover.
13	Chemical injection pump	Works Certificate	<ul style="list-style-type: none"> <li>ANSI 73.1/2: Centrifugal Pumps</li> <li>API Std 610: Centrifugal Pumps for Petroleum, Heavy Duty</li> </ul>	<ul style="list-style-type: none"> <li>Visual survey prior to each use.</li> <li>Function test prior to use.</li> </ul>	

No.	Component / Item	Documentation Req.	Certification Req.	Inspection Req.	Comments
			Chemical and Gas Industry Services <ul style="list-style-type: none"> <li>• API Std 674: Positive Displacement Pumps - Reciprocating</li> <li>• API Std 675: Positive Displacement Pumps - Controlled Volume</li> <li>• API Std 676: Positive Displacement Pumps - Rotary</li> <li>• DNV Rules for Ships Pt.4 Ch.1</li> <li>• ASME section VIII : Boilers and Pressure Vessels Code</li> </ul>		
14	Chemical tanks	<ul style="list-style-type: none"> <li>• Works Certificate / Test Report for tank.</li> <li>• Certificate for Offshore Container from C.S. if tank is to be lifted onboard vessel.</li> </ul>	<ul style="list-style-type: none"> <li>• API Spec 12 F: Shop Welded Tanks for Storage of Production Liquids.</li> <li>• API Std 650: Welded Steel Tanks for Oil Storage.</li> <li>• BS 2654: Vertical steel welded storage tanks</li> <li>• DIN 4119: Tank installation of metallic materials</li> <li>• DNV Certification Note, 2.7-1</li> </ul>	In general, visual inspection every 12 months by C.S. or ICP. Load testing to be carried out after alteration of repairs with C.S or ICP. Refer to CN 2.7-1, Sec. 8 for further details.	If tanks contain chemicals for transport, see requirements for Acid Tanks. Tanks which are to be individually lifted should be certified as "Offshore Containers". Tanks containing hazardous substances, as listed in the IMDG Code, must satisfy the Code with respect to construction, marking and inspection.
15	Compressors	Works certificate from manufacturer	<ul style="list-style-type: none"> <li>• API Std 617: Centrifugal Compressors for Petroleum, Chemical and Gas Industry Services.</li> <li>• API Std 618: Reciprocating Compressors for Petroleum, Chemical and Gas Industry Services</li> <li>• API Std 619: Rotary Type Positive Displacement Compressors for Petroleum, Chemical, and Gas Industry Services</li> <li>• API Std 672: Packaged, Integrally Geared Centrifugal Air Compressors for Petroleum, Chemical, and Gas Industry Services</li> <li>• DNV Rules for Ships Pt.4 Ch.5</li> <li>• ISO 13707: Reciprocating compressors</li> </ul> See requirements for DIESEL or ELECTRIC MOTOR, or turbine depending on prime mover.	<ul style="list-style-type: none"> <li>• Safety systems to be tested on 6 month basis.</li> <li>• Visual survey prior to each use.</li> <li>• Function test prior to use.</li> </ul>	Certification for compressor depends on use. If compressor to be connected to main rig systems, Class to be consulted. Note for well testing independent air compressors should be provided.
16	Container	<ul style="list-style-type: none"> <li>• Certificate for Offshore Container from C.S. if tank is to be lifted onboard vessel.</li> </ul>	<ul style="list-style-type: none"> <li>• DNV Certification Note, 2.7-1</li> </ul>	In general, visual inspection every 12 months by C.S. or ICP. Load testing to be carried out after alteration of repairs with C.S or ICP. Refer to CN 2.7-1, Sec. 8 for further details.	If a container is fitted out to contain equipment the requirement of SOLAS/MODU Code would apply to the following aspects: <ul style="list-style-type: none"> <li>a) structural fire protection</li> <li>b) fire diction</li> <li>c) fire extinguishing</li> <li>d) closing of ventilation</li> <li>e) remote closing of fuel supply to the container</li> <li>f) remote shut down of the equipment in the container</li> </ul>
17	Control cabin	<ul style="list-style-type: none"> <li>• Certificate for Offshore Container from C.S. if tank is to be lifted onboard vessel.</li> </ul>	<ul style="list-style-type: none"> <li>• DNV Certification Note, 2.7-1</li> <li>• DNV Certification Note, 2.7-2</li> </ul>	In general, visual inspection every 12 months by C.S. or ICP. Load testing to be carried out after alteration of repairs	

No.	Component / Item	Documentation Req.	Certification Req.	Inspection Req.	Comments
		<ul style="list-style-type: none"> <li>Certificate for Offshore Service Container from C.S. (i.e. 2.7-2)</li> </ul>		with C.S or ICP. Refer to CN 2.7-1, Sec. 8 for further details.	
18	Control cables	<ul style="list-style-type: none"> <li>Type Approval certificate from C.S.</li> </ul>	<ul style="list-style-type: none"> <li>IEC-79; 332; 92.3; 34</li> <li>DNV OS-C201</li> <li>DNV Rules for Ships Pt.4 Ch.8</li> </ul>	<ul style="list-style-type: none"> <li>Visual survey prior to each use.</li> <li>Test of safety functions</li> </ul>	
19	Control station (for engine & pumps)		See comments	<ul style="list-style-type: none"> <li>Visual survey prior to each use.</li> <li>Function test prior to use.</li> </ul>	No specific requirements for control stations for TFE.
20	Control systems		See comments	<ul style="list-style-type: none"> <li>Function test prior to use.</li> </ul>	Depends on type of system. The requirements will normally be given after a review of the system by the Independent Certifying Authority, or Class Society. (
21	Conveyor unit / screw pump	<ul style="list-style-type: none"> <li>Works certificate</li> </ul>	<ul style="list-style-type: none"> <li>DNV OS-D201: Electrical Installations</li> <li>DNV Rules for Ships, Pt.4 Ch.8</li> <li>IEC-79; 332; 92.3; 34</li> </ul>	<ul style="list-style-type: none"> <li>Visual survey prior to each use.</li> <li>Function test prior to use.</li> </ul>	No specific requirements for conveyor / screw unit. Ex ratings Shut down systems
22	Crossovers	<ul style="list-style-type: none"> <li>CoC / PC from C.S.</li> <li>Works certificate from manufacturer</li> </ul>	<ul style="list-style-type: none"> <li>ANSI/ASME B31.3: Chemical Plant and Petroleum Refinery Piping</li> <li>API RP 14E: Design and Installation of Offshore Production Platform Piping Systems</li> <li>API RP 17B: Flexible Pipe</li> <li>API Spec 6A: Wellhead and Christmas Tree Equipment</li> </ul>	<ul style="list-style-type: none"> <li>Visual survey prior to each use.</li> <li>Pressure tested prior to use.</li> </ul>	
23	Derrick	<ul style="list-style-type: none"> <li>CoC / PC from C.S.</li> </ul>	<ul style="list-style-type: none"> <li>API Spec 4F: Drilling and Well Servicing Structures</li> <li>API RP 4G: Maintenance and Use of Drilling and Well Servicing Structures</li> </ul>	<ul style="list-style-type: none"> <li>Visual survey prior to each use</li> <li>NDT as required.</li> <li>Bolts to be checked if applicable.</li> </ul>	
24	Diesel engine	<ul style="list-style-type: none"> <li>CoC / PC from C.S.</li> <li>Survey report referencing relevant regulations from I.C.P.</li> </ul>	<ul style="list-style-type: none"> <li>ISO 3046/1: Reciprocating Internal Combustion Engines</li> <li>NFPA No 37: Stationary Combustion Engines and Gas Turbines</li> <li>DNV Rules for Ships Pt.4 Ch.3</li> <li>EEMUA publication 107: Recommendations for the protection of diesel engines for use in zone 2 hazardous areas</li> <li>API 7C-11F: Recommended Practice for Installation, Maintenance, and Operation of Internal-Combustion Engines</li> </ul>	<ul style="list-style-type: none"> <li>Visual survey prior to each use.</li> <li>Function test prior to use.</li> <li>Test of safety functions</li> </ul>	Extent of function test depends on Zone diesel is installed in.
25	Diverter manifold	<ul style="list-style-type: none"> <li>CoC / PC from C.S.</li> </ul>	<ul style="list-style-type: none"> <li>ANSI/ASME B31.3: Chemical Plant and Petroleum Refinery Piping</li> <li>API Spec 6A: Wellhead and Christmas Tree Equipment</li> </ul>	<ul style="list-style-type: none"> <li>Visual survey prior to each use.</li> <li>Pressure tested prior to use.</li> </ul>	
26	Drill floor Sub	<ul style="list-style-type: none"> <li>Works certificate from manufacturer</li> </ul>	<ul style="list-style-type: none"> <li>API Spec 5C:</li> <li>API Spec 5D: Specification for Drill Pipe</li> <li>API Spec. 7: Specification for Rotary Drill Stem Elements</li> </ul>	<ul style="list-style-type: none"> <li>Visual survey prior to each use.</li> </ul>	
27	Electric motors	<ul style="list-style-type: none"> <li>Certificate for Electric Motor from C.S. if motor <math>\geq 300</math> kVA.</li> </ul>	<ul style="list-style-type: none"> <li>DNV OS-D201: Electrical Installations</li> <li>DNV Rules for Ships, Pt.4 Ch.8</li> <li>IEC-79; 332; 92.3; 34</li> </ul>	<ul style="list-style-type: none"> <li>Visual survey prior to each use.</li> <li>Function test prior to use.</li> </ul>	

No.	Component / Item	Documentation Req.	Certification Req.	Inspection Req.	Comments
		<ul style="list-style-type: none"> <li>Works certificate and Type Approval Cert. if <math>\geq 100</math> and <math>&lt; 300</math> kVA.</li> <li>Works certificate if <math>\geq 10</math> and <math>&lt; 100</math> kVA.</li> </ul>			
28	ESD arrangements		<ul style="list-style-type: none"> <li>API RP 14C: Recommended Practice for Analysis, Design, Installation, and Testing of Basic Surface Safety Systems for Offshore Production Platforms</li> <li>API RP 53: Blowout Prevention Equipment Systems for Drilling Wells</li> <li>DNV OS-A101: Safety Principles &amp; Arrangements</li> </ul>	<ul style="list-style-type: none"> <li>Function test prior to use.</li> </ul>	
29	Gas turbine	<ul style="list-style-type: none"> <li>CoC / PC from C.S.</li> <li>Certificate for Gas Turbine from C.S.</li> <li>Works Certificate if acceptable to I.C.P. / C.S.</li> </ul>	<ul style="list-style-type: none"> <li>API Std 616: Gas Turbines for Petroleum, Chemical, and Gas Industry Services</li> <li>ANSI B133.4: Gas Turbine Control and Protection Systems</li> <li>ISO 2314: Gas Turbine Acceptance Tests</li> <li>ASME PTC 22: Gas Turbine Power Plants</li> <li>NFPA No 371975: Stationary Combustion Engines and Gas Turbines.</li> <li>DNV Rules Ships Pt.4 Ch.3</li> </ul>	<ul style="list-style-type: none"> <li>Visual survey prior to each use.</li> <li>Function test prior to use.</li> </ul>	
30	Gauge tanks	<ul style="list-style-type: none"> <li>Works Certificate / Test Report for tank.</li> <li>Certificate for Offshore Container from C.S. if tank is to be lifted onboard vessel.</li> </ul>	<ul style="list-style-type: none"> <li>API Spec 12 F: Shop Welded Tanks for Storage of Production Liquids.</li> <li>API Std 650: Welded Steel Tanks for Oil Storage.</li> <li>BS 2654: Vertical steel welded storage tanks</li> <li>DIN 4119: Tank installation of metallic materials</li> <li>DNV Certification Note, 2.7-1</li> </ul>	In general, visual inspection every 12 months by C.S. or ICP. Load testing to be carried out after alteration of repairs with C.S or ICP. Refer to CN 2.7-1, Sec. 8 for further details.	Tanks which are to be individually lifted should be certified as "Offshore Containers". Tanks containing hazardous substances, as listed in the IMDG Code, must satisfy the Code with respect to construction, marking and inspection.
31	Generator (Electric)	<ul style="list-style-type: none"> <li>Certificate for Electric Generator from C.S. if generator <math>\geq 300</math> kVA.</li> <li>Works certificate and Type Approval Cert. if <math>\geq 100</math> and <math>&lt; 300</math> kVA.</li> <li>Works certificate if <math>\geq 10</math> and <math>&lt; 100</math> kVA.</li> </ul>	<ul style="list-style-type: none"> <li>DNV OS-D201: Electrical Installations</li> <li>DNV Rules for Ships, Pt.4 Ch.8</li> <li>IEC-79; 332; 92.3; 34</li> </ul>	<ul style="list-style-type: none"> <li>Visual survey prior to each use.</li> <li>Function test prior to use.</li> </ul>	
32	Heat exchangers	<ul style="list-style-type: none"> <li>CoC / PC from C.S.</li> <li>Works certificate from manufacturer if pressure <math>&lt; XXX</math> bar.</li> </ul>	<ul style="list-style-type: none"> <li>API Std 661: Air Cooled Heat Exchanger for General Refinery Services</li> <li>DNV Rules for Ships Pt.4 Ch.7</li> <li>TEMA R: Heat Exchanger Tubing</li> </ul>	<ul style="list-style-type: none"> <li>Visual survey prior to each use.</li> <li>Pressure tested prior to use.</li> </ul>	
33	Tanks diesel	IMDG Certificate. 2.5 yr intermediate cert & 5 yr. major cert. Cert. issued by Class or F.S.	International Maritime Dangerous Goods Code, (IMDG)	Internal & external inspection every 2.5 years by Class / C.A. / F.S. If relief valves fitted, these to have been calibrated at a period acceptable to the C.S. worked on, or at least in the last 2.5 years.	

No.	Component / Item	Documentation Req.	Certification Req.	Inspection Req.	Comments
34	tanks Helifuel	IMDG Certificate. 2.5 yr intermediate cert & 5 yr. major cert. Cert. issued by Class or F.S.	<ul style="list-style-type: none"> <li>International Maritime Dangerous Goods Code, (IMDG)</li> </ul>	Internal & external inspection every 2.5 years by Class / C.A. / F.S. If relief valves fitted, these to have been calibrated at a period acceptable to the C.S. worked on, or at least in the last 2.5 years.	
35	HP Hoses	<ul style="list-style-type: none"> <li>Works certificate if under XXX Bar</li> <li>PC / CoC if &gt; XXX Bar</li> </ul>	<ul style="list-style-type: none"> <li>API RP 17B: Flexible Pipe</li> <li>API Spec 16A: Specification for Drill Through Equipment</li> <li>API Spec 6A: Wellhead and Christmas Tree Equipment</li> <li>NACE MR0175: Sulphide Stress Cracking Resistant Metallic Material</li> <li>API Spec 7K: Specification for Drilling and Well Servicing Equipment</li> <li>API Spec 16C: Specification for Choke and Kill Systems</li> <li>API Spec 17B: Recommended Practice for Flexible Pipe</li> </ul>	<ul style="list-style-type: none"> <li>Visual survey prior to each use.</li> <li>Pressure tested prior to use.</li> </ul>	Note: For sour service / Corrosion - hydrogen sulphide, note NACE MR0175: Sulphide Stress Cracking Resistant Metallic Material
36	HP Pipe	<ul style="list-style-type: none"> <li>PC/CoC if thickness of wall &gt; 25.4 mm (1 inch); ; ;</li> <li>Piping for compressed gases where <math>p</math> (bar) x <math>V</math> (m<sup>3</sup>) of associated pressure vessel &gt; 1.5 kNm</li> <li>PC/CoC if design temperature &gt; 400 °C</li> <li>PC/CoC if longitudinally welded pipes and all spools in systems of high importance</li> <li>PC/CoC if piping for compressed gases where <math>p</math> (bar) x <math>V</math> (m<sup>3</sup>) of associated pressure vessel &gt; 1.5 kNm</li> <li>PC/CoC if piping for systems requiring continuous operation or for which failure of piping is considered critical (e.g. main hydraulic and gas piping for heave compensation systems)</li> <li>Works certificate if other than those mentioned above and piping for systems</li> </ul>	<ul style="list-style-type: none"> <li>ANSI/ASME B31.3: Chemical Plant and Petroleum Refinery Piping</li> <li>API RP 14E: Design and Installation of Offshore Production Platform Piping Systems</li> <li>API RP 17B: Flexible Pipe</li> </ul>	<ul style="list-style-type: none"> <li>Visual survey prior to each use.</li> <li>Pressure tested prior to use.</li> </ul> Check the last NDT of the threaded areas of the pipe during the last maintenance period.	Note: For sour service / Corrosion - hydrogen sulphide, note NACE MR0175: Sulphide Stress Cracking Resistant Metallic Material

No.	Component / Item	Documentation Req.	Certification Req.	Inspection Req.	Comments
37	HP pumps	<ul style="list-style-type: none"> <li>Works certificate if under XXX Bar</li> <li>PC / CoC if &gt; XXX Bar</li> <li>What is the relation</li> </ul>	<ul style="list-style-type: none"> <li>API Std 610: Centrifugal Pumps for Petroleum, Petrochemical and Natural Gas Industries</li> <li>API for Piston Pumps at 5K, 10K or 15K</li> </ul>	<ul style="list-style-type: none"> <li>Visual survey prior to each use.</li> <li>Pressure tested prior to use.</li> <li>Certification for safety Valve</li> <li>Relief line to be directed safely towards the deck</li> <li>Date of the last major inspection/overhaul</li> </ul>	See separate requirements for prime mover.
38	HP Valves	<ul style="list-style-type: none"> <li>CoC / PC from C.S. if valve body of welded construction with ANSI rating &gt; 600 lbs</li> <li>Material Traceability Reports for specific valve &amp; works certificate if acceptable to C.S. / I.C.P. and valves designed and manufactured in accordance with recognised standards</li> <li>CoC / PC from C.S. if specified yield strength &gt; 345 MPa (50 000 psi), or tensile strength &gt; 515 MPa (75 000 psi)</li> </ul>	<ul style="list-style-type: none"> <li>API Std 600: Bolted Bonnet Steel Gate Valves for Petroleum and Natural Gas Industries</li> <li>ASME B16.34: Valves, Flanged, Threaded and Welding End</li> </ul>	<ul style="list-style-type: none"> <li>Visual survey prior to each use.</li> <li>Pressure tested prior to use.</li> </ul>	
39	Hydraulic hoses	<ul style="list-style-type: none"> <li>Works certificate if under 207 Bar</li> <li>PC / CoC if &gt; 207 Bar</li> </ul>	<ul style="list-style-type: none"> <li>DNV OS-D101: Marine &amp; Machinery Systems &amp; Equipment</li> <li>API</li> <li>ISO/EN</li> </ul>	<ul style="list-style-type: none"> <li>Visual survey prior to each use.</li> <li>Pressure tested prior to use.</li> </ul>	See also HP Hoses
40	Injector head	<ul style="list-style-type: none"> <li>CoC / PC from C.S.</li> <li>ASME U-1A cert. / Class pressure vessel cert. / BS5500 cert. for pressurised components.</li> </ul>	<ul style="list-style-type: none"> <li>API Spec 6A: Wellhead and Christmas Tree Equipment</li> <li>ANSI/ASME B31.3: Chemical Plant and Petroleum Refinery Piping</li> <li>IEC-79; 332; 92.3; 34</li> <li>API RP 5C7: Coiled Tubing Operations in Oil and Gas Well Services First Edition</li> </ul>	<ul style="list-style-type: none"> <li>Visual survey prior to each use.</li> <li>Pressure tested prior to use.</li> <li>Function test prior to use.</li> </ul>	
41	Jacking system		<ul style="list-style-type: none"> <li>DNV Rules for Certification of Lifting Appliances</li> <li>DNV OS-</li> </ul>	<ul style="list-style-type: none"> <li>Visual survey prior to each use.</li> <li>Function test prior to use.</li> </ul>	Jacking system may be electric or hydraulic.
42	Lifting arrangement	<ul style="list-style-type: none"> <li>CG3 form / ILO Form 3 for loose gear.</li> <li>CoC / PC from C.S. if necessary.</li> </ul>	<ul style="list-style-type: none"> <li>DNV Rules for Certification of Lifting Appliances</li> <li>ILO Form No. CG3: Certificate of test and thorough examination of loose gear</li> </ul>	<ul style="list-style-type: none"> <li>Visual survey prior to each use.</li> <li>NDT as required by C.S.</li> </ul>	
43	Logging unit winch	<ul style="list-style-type: none"> <li>CoC / PC from C.S.</li> <li>Survey report from C.S. / I.C.P.</li> <li>Works Certificate from manufacturer depending on Class of vessel.</li> </ul>	<ul style="list-style-type: none"> <li>DNV Rules for Certification of Lifting Appliances</li> </ul>	<ul style="list-style-type: none"> <li>Visual survey prior to each use.</li> <li>NDT as required by C.S.</li> </ul>	See separate requirements for prime mover.
44	Loose Gear e.g. elevators	<ul style="list-style-type: none"> <li>CoC / PC from C.S.</li> <li>Survey report</li> </ul>	<ul style="list-style-type: none"> <li>API Spec 8A: Specification for Drilling and Production Hoisting</li> </ul>	<ul style="list-style-type: none"> <li>Visual survey prior to each use.</li> <li>Last load test to</li> </ul>	

No.	Component / Item	Documentation Req.	Certification Req.	Inspection Req.	Comments
		<ul style="list-style-type: none"> <li>from C.S. / I.C.P.</li> <li>Works Certificate from manufacturer depending on Class of vessel.</li> </ul>	<ul style="list-style-type: none"> <li>Equipment <ul style="list-style-type: none"> <li>API Spec 8C: Specification for Drilling and Production Hoisting Equipment (PSL 1 and PSL 2)</li> <li>API RP 8B: Recommended Practice for Procedures for Inspections, Maintenance, Repair, and Remanufacture of Hoisting Equipment</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>be documented</li> </ul>	
45	LP / Circ pumps	Works certificate	<ul style="list-style-type: none"> <li>API Std 610: Centrifugal Pumps for Petroleum, Petrochemical and Natural Gas Industries</li> </ul>	<ul style="list-style-type: none"> <li>Visual survey prior to each use.</li> <li>Function test prior to use.</li> </ul>	
46	LP pipe	Works certificate from manufacturer	<ul style="list-style-type: none"> <li>ANSI/ASME B31.3: Chemical Plant and Petroleum Refinery Piping</li> <li>API RP 14E: Design and Installation of Offshore Production Platform Piping Systems</li> <li>API RP 17B: Flexible Pipe</li> </ul>	<ul style="list-style-type: none"> <li>Visual survey prior to each use.</li> </ul>	Note: For sour service / Corrosion - hydrogen sulphide, note NACE MR0175: Sulphide Stress Cracking Resistant Metallic Material
47	LP Valves	<ul style="list-style-type: none"> <li>CoC / PC from C.S. if valve body of welded construction with ANSI rating &gt; 600 lbs</li> <li>Material Traceability Reports for specific valve &amp; works certificate if acceptable to C.S. / I.C.P. and valves designed and manufactured in accordance with recognised standards</li> <li>CoC / PC from C.S. if specified yield strength &gt; 345 MPa (50 000 psi), or tensile strength &gt; 515 MPa (75 000 psi)</li> </ul>	<ul style="list-style-type: none"> <li>API Std 600: Bolted Bonnet Steel Gate Valves for Petroleum and Natural Gas Industries</li> <li>ASME B16.34: Valves, Flanged, Threaded and Welding End</li> </ul>	<ul style="list-style-type: none"> <li>Visual survey prior to each use.</li> </ul>	
48	Lubricators & grease injection	<ul style="list-style-type: none"> <li>CoC / PC from C.S.</li> <li>ASME U-1A cert. / Class pressure vessel cert. / BS5500 cert. for pressurised components.</li> </ul>	<ul style="list-style-type: none"> <li>API Spec 6A: Wellhead and Christmas Tree Equipment</li> <li>NACE MR0175: Sulphide Stress Cracking Resistant Metallic Material</li> <li>ANSI/ASME B31.3: Chemical Plant and Petroleum Refinery Piping</li> <li>ASME section VIII : Boilers and Pressure Vessels Code</li> </ul>	<ul style="list-style-type: none"> <li>Visual survey prior to each use.</li> <li>Pressure tested prior to use.</li> <li>Function test prior to use.</li> </ul>	
49	Methanol transport tanks	IMDG Certificate. 2.5 yr intermediate cert & 5 yr. major cert. Cert. issued by Class or F.S.	<ul style="list-style-type: none"> <li>International Maritime Dangerous Goods Code, (IMDG)</li> </ul>	<p>Internal &amp; external inspection every 2.5 years by Class / C.A. / F.S.</p> <p>If relief valves fitted, these to have been calibrated at a period acceptable to the C.S. worked on, or at least in the last 2.5 years.</p>	Tanks which are to be individually lifted should be certified as "Offshore Containers". Tanks containing hazardous substances, as listed in the IMDG Code, must satisfy the Code with respect to construction, marking and inspection. Fire fighting requirements for the contents? Particularly applicable to methanol!
50	Mixing tanks	<ul style="list-style-type: none"> <li>Works Certificate / Test Report for</li> </ul>	<ul style="list-style-type: none"> <li>API Spec 12 F: Shop Welded Tanks for Storage of Production Liquids.</li> </ul>	In general, visual inspection every 12 months by C.S. or ICP.	Tanks which are to be individually lifted should be certified as "Offshore

No.	Component / Item	Documentation Req.	Certification Req.	Inspection Req.	Comments
		<ul style="list-style-type: none"> <li>tank.</li> <li>Certificate for Offshore Container from C.S. if tank is to be lifted onboard vessel.</li> </ul>	<ul style="list-style-type: none"> <li>API Std 650: Welded Steel Tanks for Oil Storage.</li> <li>BS 2654: Vertical steel welded storage tanks</li> <li>DIN 4119: Tank installation of metallic materials</li> <li>DNV Certification Note, 2.7-1</li> </ul>	Load testing to be carried out after alteration of repairs with C.S or ICP. Refer to CN 2.7-1, Sec. 8 for further details.	Containers". Tanks containing hazardous substances, as listed in the IMDG Code, must satisfy the Code with respect to construction, marking and inspection. Fire fighting requirements for the contents?
51	Motors	See ELECTRIC MOTORS	See ELECTRIC MOTORS	See ELECTRIC MOTORS	
52	N <sub>2</sub> transport tanks	IMDG Certificate. 2.5 yr intermediate cert & 5 yr. major cert. Cert. issued by Class or F.S.	<ul style="list-style-type: none"> <li>International Maritime Dangerous Goods Code, (IMDG)</li> </ul>	Internal & external inspection every 2.5 years by Class / C.A. / F.S. If relief valves fitted, these to have been calibrated at a period acceptable to the C.S. worked on, or at least in the last year.	Tanks which are to be individually lifted should be certified as "Offshore Containers". Tanks containing hazardous substances, as listed in the IMDG Code, must satisfy the Code with respect to construction, marking and inspection.
53	Nitrogen pumping unit		<ul style="list-style-type: none"> <li>API Std 610: Centrifugal Pumps for Petroleum, Petrochemical and Natural Gas Industries</li> </ul>	<ul style="list-style-type: none"> <li>Visual survey prior to each use.</li> <li>Function test prior to use.</li> </ul>	
54	Pipe handling unit	<ul style="list-style-type: none"> <li>CoC / PC from C.S.</li> </ul>	<ul style="list-style-type: none"> <li>DNV Rules for Certification of Lifting Appliances</li> </ul>	<ul style="list-style-type: none"> <li>Visual survey prior to each use.</li> <li>Function test prior to use.</li> <li>Load test if required</li> </ul>	
55	Power equaliser unit	<ul style="list-style-type: none"> <li>Works Certificate / Test Report for tank.</li> </ul>	<ul style="list-style-type: none"> <li>DNV OS-D201: Electrical Installations</li> <li>DNV Rules for Ships, Pt.4 Ch.8</li> <li>IEC-79; 332; 92.3; 34</li> </ul>	<ul style="list-style-type: none"> <li>Visual survey prior to each use.</li> <li>Function test prior to use.</li> </ul>	Often used for giving "clean" power to an ROV skid.
56	Power unit	See "DIESEL ENGINE" or "ELECTRIC MOTOR" or "GENERATOR"	See "DIESEL ENGINE" or "ELECTRIC MOTOR"	<ul style="list-style-type: none"> <li>Visual survey prior to each use.</li> <li>Function test prior to use.</li> </ul>	
57	Pressure Vessels / Accumulators	<ul style="list-style-type: none"> <li>CoC / PC from C.S.</li> <li>ASME U-1A cert. / Class pressure vessel cert. / BS5500 cert. for pressurised components.</li> </ul>	<ul style="list-style-type: none"> <li>ASME section VIII : Boilers and Pressure Vessels Code</li> <li>BS 5500: Unfired Fusion Welded Pressure Vessels</li> </ul>	<ul style="list-style-type: none"> <li>Visual survey.</li> <li>Pressure test if necessary.</li> </ul>	
58	Production manifolds / trees	<ul style="list-style-type: none"> <li>CoC / PC from C.S.</li> <li>ASME U-1A cert. / Class pressure vessel cert. / BS5500 cert. for pressurised components.</li> </ul>	<ul style="list-style-type: none"> <li>API Spec 6A: Wellhead and Christmas Tree Equipment</li> <li>ANSI/ASME B31.3: Chemical Plant and Petroleum Refinery Piping</li> </ul>	<ul style="list-style-type: none"> <li>Visual survey.</li> <li>Pressure test.</li> </ul>	Note: For sour service / Corrosion - hydrogen sulphide, note NACE MR0175: Sulphide Stress Cracking Resistant Metallic Material
59	P-tanks	<ul style="list-style-type: none"> <li>ASME U-1A cert. / Class pressure vessel cert. / BS5500 cert.</li> </ul>	<ul style="list-style-type: none"> <li>ASME section VIII : Boilers and Pressure Vessels Code</li> <li>BS 5500: Unfired Fusion Welded Pressure Vessels</li> <li>DNV Rules for Ships Pt.4 Ch.7</li> </ul>	<ul style="list-style-type: none"> <li>Internal &amp; external visual survey.</li> <li>Pressure test prior to use.</li> </ul>	
60	Pulsation damper	<ul style="list-style-type: none"> <li>ASME U-1A cert. / Class pressure vessel cert. / BS5500 cert.</li> </ul>	<ul style="list-style-type: none"> <li>ASME section VIII : Boilers and Pressure Vessels Code</li> <li>BS 5500: Unfired Fusion Welded Pressure Vessels</li> <li>DNV Rules for Ships Pt.4 Ch.7</li> </ul>	<ul style="list-style-type: none"> <li>Visual survey.</li> <li>Pressure test.</li> </ul>	
61	Pumps	<ul style="list-style-type: none"> <li>Works certificate</li> </ul>	<ul style="list-style-type: none"> <li>ANSI 73.1/2: Centrifugal Pumps</li> <li>API Std 610: Centrifugal Pumps for</li> </ul>	<ul style="list-style-type: none"> <li>Visual survey.</li> <li>Function test if necessary.</li> </ul>	

No.	Component / Item	Documentation Req.	Certification Req.	Inspection Req.	Comments
			Petroleum, Heavy Duty Chemical and Gas Industry Services <ul style="list-style-type: none"> <li>API Std 674: Positive Displacement Pumps - Reciprocating</li> <li>API Std 675: Positive Displacement Pumps - Controlled Volume</li> <li>API Std 676: Positive Displacement Pumps - Rotary</li> <li>DNV Rules for Ships Pt.4 Ch.1</li> </ul>		
62	Relief valves	<ul style="list-style-type: none"> <li>Works certificate</li> </ul>	<ul style="list-style-type: none"> <li>ASME section VIII : Boilers and Pressure Vessels Code</li> <li>BS 5500: Unfired Fusion Welded Pressure Vessels</li> <li>DNV Rules for Ships Pt.4 Ch.7</li> <li>API Std. 527: Relief Valves</li> </ul>	<ul style="list-style-type: none"> <li>Visual survey.</li> <li>Function test if necessary.</li> <li>Pressure test.</li> <li>Review of reports on checking/settings</li> </ul>	
63	ROV	<ul style="list-style-type: none"> <li>Works certificate / bill of materials listing report from service company</li> </ul>	No specific requirements	<ul style="list-style-type: none"> <li>Visual survey prior to each use.</li> <li>Function test prior to use.</li> </ul>	Note, ROV's installed in hazardous areas are to be rated for the area if they are powered up there. Otherwise, ROV must only be powered when submerged.
64	Sand filter unit	<ul style="list-style-type: none"> <li>CoC / PC from C.S.</li> <li>ASME U-1A cert. / Class pressure vessel cert. / BS5500 cert. for pressurised components.</li> </ul>	<ul style="list-style-type: none"> <li>ASME section VIII : Boilers and Pressure Vessels Code</li> <li>BS 5500: Unfired Fusion Welded Pressure Vessels</li> <li>API Std 527: Seat Tightness of Pressure Relief Valves</li> <li>ANSI/ASME B31.3: Chemical Plant and Petroleum Refinery Piping</li> </ul>	<ul style="list-style-type: none"> <li>Visual internal and external survey.</li> </ul>	Note: For sour service / Corrosion - hydrogen sulphide, note NACE MR0175: Sulphide Stress Cracking Resistant Metallic Material
65	Separators	<ul style="list-style-type: none"> <li>ASME U-1A cert. / Class pressure vessel cert. / BS5500 cert.</li> </ul>	<ul style="list-style-type: none"> <li>ASME section VIII : Boilers and Pressure Vessels Code</li> <li>BS 5500: Unfired Fusion Welded Pressure Vessels</li> <li>DNV Rules for Ships Pt.4 Ch.7</li> </ul>	<ul style="list-style-type: none"> <li>Visual survey.</li> <li>Pressure test to max WP</li> <li>Thickness measurements</li> </ul>	
66	Skid frame	<ul style="list-style-type: none"> <li>Certificate for Offshore Container from C.S.</li> <li>Works certificate if the frame is not considered for transport of goods.</li> </ul>	<ul style="list-style-type: none"> <li>DNV Certification Note, 2.7-1</li> </ul>	In general, visual inspection every 12 months by C.S. or ICP. Load testing to be carried out after alteration of repairs with C.S or ICP. Refer to CN 2.7-1, Sec. 8 for further details.	
67	Steam generator	<ul style="list-style-type: none"> <li>ASME U-1A cert. / Class pressure vessel cert. / BS5500 cert. for pressurised components.</li> <li>Certificate for Boiler from C.S.</li> </ul>	<ul style="list-style-type: none"> <li>ASME section IV: Heating Boilers</li> <li>BS 1113: Water Tube steam Generating Plant</li> <li>BS 2790: Shell Boilers of Welded Construction</li> <li>ASME section VIII : Boilers and Pressure Vessels Code</li> <li>BS 5500: Unfired Fusion Welded Pressure Vessels</li> <li>DNV Rules for Ships Pt.4 Ch.7</li> <li>ISO/R 831: Rules for construction of stationary boilers</li> <li>TBK-1-2: General Rules for Pressure Vessels</li> <li>API Std 527: Seat Tightness of Pressure Relief Valves</li> </ul>	Internal & external inspection every 2.5 years by Class / C.A. / F.S. If relief valves fitted, these to have been calibrated at a period acceptable to the C.S. worked on, or at least in the last 2.5 years. <ul style="list-style-type: none"> <li>Test of all safety functions as realistic as possible</li> <li>Check settings of safety relief valves</li> <li>Opening up of valves</li> <li>Test of safety functions</li> </ul>	See comments about boilers

No.	Component / Item	Documentation Req.	Certification Req.	Inspection Req.	Comments
68	Storage tanks	<ul style="list-style-type: none"> <li>Works Certificate / Test Report for tank.</li> <li>Certificate for Offshore Container from C.S. if tank is to be lifted onboard vessel.</li> </ul>	<ul style="list-style-type: none"> <li>DNV Certification Note, 2.7-1</li> </ul>	In general, visual inspection every 12 months by C.S. or ICP. Load testing to be carried out after alteration of repairs with C.S or ICP. Refer to CN 2.7-1, Sec. 8 for further details.	Tanks which are to be individually lifted should be certified as "Offshore Containers". Tanks containing hazardous substances, as listed in the IMDG Code, must satisfy the Code with respect to construction, marking and inspection.
69	Stripper	<ul style="list-style-type: none"> <li>CoC / PC from C.S.</li> </ul>	<ul style="list-style-type: none"> <li>API RP 53: Blowout Prevention Equipment Systems for Drilling Wells</li> <li>API Spec 6A: Wellhead and Christmas Tree Equipment</li> <li>API RP 5C7: Coiled Tubing Operations in Oil and Gas Well Services First Edition</li> </ul>	<ul style="list-style-type: none"> <li>Visual survey.</li> <li>Pressure test</li> </ul>	Note: For sour service / Corrosion - hydrogen sulphide, note NACE MR0175: Sulphide Stress Cracking Resistant Metallic Material
70	Stuffing box	<ul style="list-style-type: none"> <li>CoC / PC from C.S.</li> </ul>	<ul style="list-style-type: none"> <li>API Spec 6A: Wellhead and Christmas Tree Equipment</li> </ul>	<ul style="list-style-type: none"> <li>Visual survey.</li> <li>Pressure test</li> </ul>	Note: For sour service / Corrosion - hydrogen sulphide, note NACE MR0175: Sulphide Stress Cracking Resistant Metallic Material
71	Suction units	<ul style="list-style-type: none"> <li>Works certificate / Test report</li> </ul>	See comments	<ul style="list-style-type: none"> <li>Visual survey.</li> </ul>	No specific requirements. Vacuum unit / pump should be certified / documented.
72	Surface frac tree	<ul style="list-style-type: none"> <li>CoC / PC from C.S.</li> </ul>	<ul style="list-style-type: none"> <li>API Spec 6A: Wellhead and Christmas Tree Equipment</li> <li>ANSI/ASME B31.3: Chemical Plant and Petroleum Refinery Piping</li> </ul>	<ul style="list-style-type: none"> <li>Visual survey.</li> <li>Pressure test</li> </ul>	Note: For sour service / Corrosion - hydrogen sulphide, note NACE MR0175: Sulphide Stress Cracking Resistant Metallic Material
73	Surface test tree	<ul style="list-style-type: none"> <li>CoC / PC from C.S.</li> </ul>	<ul style="list-style-type: none"> <li>API Spec 6A: Wellhead and Christmas Tree Equipment</li> <li>ANSI/ASME B31.3: Chemical Plant and Petroleum Refinery Piping</li> </ul>	<ul style="list-style-type: none"> <li>Visual survey.</li> <li>Pressure test</li> </ul>	
74	Surge tanks	ASME U-1A cert. / Class pressure vessel cert. / BS5500 cert.	<ul style="list-style-type: none"> <li>ASME section VIII : Boilers and Pressure Vessels Code</li> <li>BS 5500: Unfired Fusion Welded Pressure Vessels</li> <li>DNV Rules for Ships Pt.4 Ch.7</li> </ul>	<ul style="list-style-type: none"> <li>Internal &amp; external visual survey.</li> <li>Pressure test if necessary.</li> </ul>	
75	Swivels	<ul style="list-style-type: none"> <li>CoC / PC from C.S.</li> </ul>	<ul style="list-style-type: none"> <li>API Spec 6A: Wellhead and Christmas Tree Equipment</li> <li>ANSI/ASME B31.3: Chemical Plant and Petroleum Refinery Piping</li> </ul>	<ul style="list-style-type: none"> <li>Visual survey.</li> <li>Pressure test</li> </ul>	Note: For sour service / Corrosion - hydrogen sulphide, note NACE MR0175: Sulphide Stress Cracking Resistant Metallic Material
76	Transformers	<ul style="list-style-type: none"> <li>Certificate for Electric Transformer from C.S. if transformer ≥300 kVA.</li> <li>Works certificate and Type Approval Cert. if ≥100 and &lt;300 kVA.</li> <li>Works certificate if ≥10 and &lt;100 kVA.</li> </ul>	<ul style="list-style-type: none"> <li>IEC 60092-303: Electrical Installations in Ships Part 303: Equipment - Transformers for Power and Lighting</li> <li>IEC 60726: Dry-Type Power Transformers</li> <li>DNV OS-D201: Electrical Installations</li> <li>IEC 185: Current transformers</li> <li>IEC 186: Voltage Transformers</li> </ul>	<ul style="list-style-type: none"> <li>Visual survey prior to each use.</li> <li>Function test prior to use.</li> </ul>	
77	Transport Tanks – non hazardous	<ul style="list-style-type: none"> <li>Certificate for Offshore Container from C.S.</li> </ul>	<ul style="list-style-type: none"> <li>DNV Certification Note, 2.7-1</li> </ul>	In general, visual inspection every 12 months by C.S. or ICP. Load testing to be carried out after alteration of repairs with C.S or ICP. Refer to CN 2.7-1, Sec. 8 for further details.	

No.	Component / Item	Documentation Req.	Certification Req.	Inspection Req.	Comments
78	Tubing reels	<ul style="list-style-type: none"> <li>CoC / PC from C.S.</li> </ul>	<ul style="list-style-type: none"> <li>ANSI/ASME B31.3: Chemical Plant and Petroleum Refinery Piping</li> <li>API RP 5C7: Coiled Tubing Operations in Oil and Gas Well Services First Edition</li> </ul>	<ul style="list-style-type: none"> <li>Visual survey prior to each use.</li> <li>Function test prior to use.</li> </ul>	
79	Valves	<ul style="list-style-type: none"> <li>Works certificate from manufacturer</li> </ul>	<ul style="list-style-type: none"> <li>API Std 600: Bolted Bonnet Steel Gate Valves for Petroleum and Natural Gas Industries</li> <li>ASME B16.34: Valves, Flanged, Threaded and Welding End</li> </ul>	<ul style="list-style-type: none"> <li>Visual survey prior to each use.</li> </ul>	
80	Winch	<ul style="list-style-type: none"> <li>Works Certificate for non-lifting purpose</li> <li>PC / CoC for man-riding equipment</li> <li>PC / CoC for lifting purposes</li> </ul>	<ul style="list-style-type: none"> <li>DNV Rules for Lifting Appliances</li> </ul>	<ul style="list-style-type: none"> <li>Visual survey prior to each use.</li> <li>Function test prior to use.</li> <li>NDT &amp; load test as required.</li> <li>Who supplies offshore with the information as to what strength needs to be present on the deck and the strength of the bolts which hold the winch down?</li> </ul>	
81	Work container	<ul style="list-style-type: none"> <li>Certificate for Offshore Container from C.S. if tank is to be lifted onboard vessel.</li> </ul>	<ul style="list-style-type: none"> <li>DNV Certification Note, 2.7-1</li> <li>DNV Certification Note, 2.7-2</li> <li>Test of safety functions</li> </ul>	In general, visual inspection every 12 months by C.S. or ICP. Load testing to be carried out after alteration of repairs with C.S or ICP. Refer to CN 2.7-1, Sec. 8 for further details.	

## 6 Temporary Equipment Module Certificate (Sample)



### 1. TEMPORARY EQUIPMENT MODULE CERTIFICATE

INSTALLATION / VESSEL :  
 DNV ID NO. :  
 VESSEL OWNER / DUTY HOLDER :  
 MODULE DESCRIPTION :  
 SUPPLIER :  
 MAIN SERIAL / TAG NO. :  
 LOCATION :

**Introduction:**

At the request of the above mentioned supplier, the undersigned surveyor to Det Norske Veritas carried out a survey on the equipment listed below based on this guidance, destined for the above mentioned offshore installation.

**Equipment covered by this Certificate:**

*See Appendix to Certificate.*

**Limitations of Certificate / Equipment:**

2. Maximum working pressure:
3. Temperature range:
4. Lifting limitations:
5. Flow restrictions:
6. Heat intensity restrictions:

**Validity of the Certificate:**

The certificate is valid for ... months.

**Comments:**

This module certificate does not cover the interface or hook up to the installation it is intended.

The following assumptions are made:

7. Equipment is installed in an area in which it is classified for, e.g. zone 1, zone 2, safe area.
8. Equipment installed onboard is maintained in accordance with a planned maintenance programme.
9. Equipment must be fit for purpose for the operation it is to be used for.
10. Equipment which is to be operated outside the approved specifications must be re-evaluated and certified if necessary by Class Society or ICP
11. Seafastening of the equipment on the installation (where necessary) is not covered.
12. ESD of the system is not covered

\_\_\_\_\_  
 Surveyor

\_\_\_\_\_  
 Place & Date

## CERTIFICATE APPENDIX

**EQUIPMENT COVERED BY THIS CERTIFICATE:**

<u>Item No.</u>	<u>No. of Pieces</u>	<u>Equipment Description</u>	<u>Certification Type</u>	<u>Certificate No.</u>
<u>1</u>				
<u>2</u>				
<u>3</u>				
<u>4</u>				
<u>5</u>				
<u>6</u>				
<u>7</u>				
<u>8</u>				
<u>9</u>				
<u>10</u>				

--o0o--

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