

**APPENDIX A: Examples of Reporting of Impairments of Safety and Environmentally Critical Equipment**

Safety and/or Environmentally Critical System/Equipment	Installation/Vessel Type	Immediate Verbal Notification w/ investigation report	Written Notification w/investigation report
<b>Failure Can Contribute to an Incident or Prevents an Incident</b>			
Station Keeping System [POTENTIAL INCIDENT: COLLISION, LOSS OF WELL CONTROL, ENVIRONMENTAL]	F	Unable to stay on location in all foreseeable operating and environmental conditions due to loss of mooring, failure of dynamic positioning or failure of propulsion system	Can stay on location in all foreseeable operating and environmental conditions, but redundancy is lost
Towing systems [POTENTIAL INCIDENT: COLLISION, LOSS OF STABILITY, FATALITY, IMPAIRMENT DAMAGE TO OTHER CRITICAL EQUIPMENT]	F	Failure of towing system during a tow in the field which may result in an installation/vessel coming into direct contact with another installation/vessel	Failure of towing system during a tow outside of the field where no immediate threat is posed to other installations/vessels
Ballast System [POTENTIAL INCIDENT: LOSS OF STABILITY]	F	Total loss of ability to control stability of the installation/vessel due to failure in the ballast system	System is impaired, but there is enough redundancy available via crossover connections and redundant pumping systems etc to control stability of the installation/vessel
Watertight Integrity [POTENTIAL INCIDENT: LOSS OF STABILITY, IMPAIRMENT TO CRITICAL EQUIPMENT, ENVIRONMENTAL]	F	Hull structure is compromised in both the intact and damaged stability scenarios associated with a loss of control of the invading fluid	Hull structure is compromised in a damaged stability scenario (downflooding points are compromised)
Hydrocarbon Containment	D/P	Uncontrolled flow of hydrocarbons from a well	Uncontrolled flow of hydrocarbons from a well

(Subsea)  [POTENTIAL INCIDENT: ENVIRONMENTAL, HYDROCARBON RELEASE, FIRE/EXPLOSION, LOSS OF STABILITY (GAS)]		or a flowline which poses immediate risk to safety or the environment	or a flowline which does not pose immediate risk to safety or the environment
Hydrocarbon Containment (Topsides)  [POTENTIAL INCIDENT: HYDROCARBON RELEASE, FIRE/EXPLOSION, ENVIRONMENTAL]	D/P	Explosion, collapse or bursting of any closed vessel or associated pipework	Closed vessel or associated pipework below minimum acceptable wall thickness and/or unable to meet functionality or survivability requirements under all foreseeable normal and emergency operating conditions. The activation of a pressure safety valve on the system is also reportable.
Structural  [POTENTIAL INCIDENT: HYDROCARBON RELEASE, ENVIRONMENTAL, LOSS OF STABILITY, IMPAIRMENT TO OTHER CRITICAL EQUIPMENT, FATALITY]	F/D/P	Collapse or partial collapse of a primary, secondary or tertiary structure	Primary, secondary or tertiary structure below minimum acceptable corrosion or compromised (e.g. cracked) and unable to withstand all forces and loads it may be subjected to under all foreseeable normal and emergency operating/environmental conditions.
Piping Systems containing Hazardous Substances  [POTENTIAL INCIDENT: LEAK OF HAZARDOUS SUBSTANCE, FATALITY, MAJOR INJURY]	F/D/P	Explosion, collapse or bursting of any closed vessel or associated pipework	Closed vessel or associated pipework below minimum acceptable wall thickness. The activation of a pressure safety valve on the system is also reportable.
Rotating Machinery  [POTENTIAL INCIDENT: LEAK	F/D/P	Catastrophic internal failure of rotating machinery (e.g. pump, compressor, engine) that is not contained (i.e. has immediate	Catastrophic internal failure of rotating machinery (e.g. pump, compressor, engine) that is contained or the failure results in

OF HAZARDOUS SUBSTANCE, FATALITY, MAJOR INJURY]		potential for fatality or major injury) or results in production shut-in or drilling suspension	production shut-in or drilling suspension
Well Barrier Elements  [POTENTIAL INCIDENT: LOSS OF WELL CONTROL; SUBSEA HYDROCARBON RELEASE; IMPAIRMENT TO CRITICAL EQUIPMENT]	D/P	Any well barrier element, defined by NORSOK D-010, that has failed and is unable to function as an acceptable well barrier	Any well barrier element, as defined by NORSOK D-010, that is compromised but still able to maintain its functionality
Lifting Equipment  [POTENTIAL INCIDENT: ENVIRONMENTAL, HYDROCARBON RELEASE, FIRE/EXPLOSION, LEAK OF HAZARDOUS SUBSTANCE, FATALITY, IMPAIRMENT TO CRITICAL EQUIPMENT]	F/D/P	Collapse, overturning, or failure of any load bearing part of a lift or hoist, crane or derrick, mobile powered access platform, personnel transfer device or forklift or the failure of any part of a container, lifting device or loose lifting gear which results in an uncontrolled lowering of a load	Compromised integrity of a lifting system or failure of a safety system of lifting equipment that does not result in an uncontrolled lowering of a load
Failure of Equipment at Height  [POTENTIAL INCIDENT: HYDROCARBON RELEASE, FATALITY, MAJOR INJURY, IMPAIRMENT TO CRITICAL EQUIPMENT]	F/D/P	Failure of both primary and secondary retention of equipment at height resulting in a dropped object	Failure of either the primary and/or secondary retention of equipment at height which does not result in a dropped object
Diving Equipment  [POTENTIAL INCIDENT: FATALITY OR MAJOR INJURY]	DV	Failure of life support equipment, including control panels, hoses and breathing apparatus which has the potential for fatality or major injury of a diver.	Degraded performance of life support equipment which has the potential for at least a lost/restricted workday injury.
Hazardous Area Classification	D/P	Failure of equipment such that it can not	Failure of equipment such it can not prevent

of Equipment [POTENTIAL INCIDENT: FIRE/EXPLOSION]		prevent ignition in a hazardous atmosphere and it is required for production or drilling to resume safely	ignition in a hazardous atmosphere but can be isolated
Heating, Ventilation and Air Conditioning System [POTENTIAL INCIDENT: FIRE/EXPLOSION]	D/P	Positive or Negative Pressure is not able to be maintained in accordance with hazardous area classification or performance requirements of temporary safe refuge	Impairment which results in personal comfort issues but does not affect ability to maintain hazardous area classification or temporary safe refuge
Physical Environmental Monitoring Equipment [POTENTIAL INCIDENT: IMPAIRMENT/DAMAGE TO CRITICAL EQUIPMENT]	F/D/P	Equipment can not measure or detect physical environmental conditions and there is no backup equipment/procedures in place or redundant systems	Equipment is unable to measure or detect physical environmental conditions but backup equipment/procedures are in place or there are redundant systems
Power Generation, Distribution and Management [POTENTIAL INCIDENT: IMPAIRMENT/DAMAGE TO CRITICAL EQUIPMENT, FATALITY, MAJOR INJURY, FIRE]	F/D/P	Failure of emergency power generator, failure of UPS system or failure of emergency lighting on demand and there is no redundancy. An electrical short circuit, ground fault or arc flash resulting in a fire or has potential for fatality or major injury.	Failure of emergency power generator, failure of UPS system or failure of emergency lighting on demand for which there is redundancy. An electrical short circuit, ground fault or arc flash with potential to result in a fire or has potential for at least a lost/restricted workday injury.
GENERAL [POTENTIAL INCIDENT: AS DETERMINED BY THE INSTALLATIONS SAFETY CASE OR IS CONSIDERED A BARRIER TO PREVENTING ANY INCIDENT]	D/P	The critical equipment or system can not meet its performance requirement for meeting its functionality, availability/reliability or survivability criteria in accordance with the installation's safety plan (i.e. the equipment or system is required to meet the installation's target levels of safety)	The critical equipment or system has degraded performance requirements but is still able to meet functionality, availability/reliability or survivability criteria.

<b>System Which Detects an Incident</b>			
Fire & Gas Detection System	F/D/P	Full loss of fire and/or gas detection system or full loss of fire and gas detection panel	Fire Zone Impairment or Gas Zone Impairment where system is partially unavailable and unable to perform its intended function (e.g. automatic activation of fire suppression and/or emergency shutdown)
Toxic or H <sub>2</sub> S Gas Detection Systems	F/D/P	Full loss of Toxic or H <sub>2</sub> S gas detection system	Impairment where system is partially unavailable and unable to perform its intended function
General Alarm System	F/D/P	Full loss of general alarms and alerting system	Impairment resulting in system being partially unavailable
Leak Detection Systems	F/D/P	Loss of leak detection system in an area for which there is no redundancy	Loss of leak detection system in an area for which there is redundancy
Process/Drilling Control Systems	D/P	Loss of monitoring, control or alarm systems for which there is no redundancy	Loss of monitoring, control or alarm systems for which there is redundancy
<b>System Which Controls or Mitigates an Incident</b>			
Passive Fire Protection	F/D/P	Impairment to an entire fire rated boundary of an area	Missing or ineffective passive fire protection where part of a system is unable to meet survivability requirements in an event of a fire
Blast Protection	D/P	Impairment which affects the overall blast rating of a wall	Degraded blast rating which affects a small portion of the overall blast protection
Pressure Relief System	F/D/P	Failure of a pressure relief valve when placed in demand in which the integrity of the system it protected is now compromised	Failure of a pressure relief valve during testing for which there is no redundancy provided

Emergency Shutdown System	D/P	Complete failure of the system to operate on demand, either automatically or manually	Failure of the system to shutdown all equipment as per design due to some technical failure
Blowdown and Flare System	D/P	Complete failure of the system to operate on demand to blowdown the entire hydrocarbon inventory and flare off the inventory	Partial failure of the system when placed on demand during operation or testing or the failure of the system to blowdown the contents in the time required
Drain System	D/P	Complete failure of the system to drain hydrocarbons to a safe location or failure of the system in preventing a spill or unauthorized discharge to the environment.	Partial failure of the system in draining hydrocarbons to a safe location or that may result in a spill or unauthorized discharge to the environment.
Active Fire Protection	F/D/P	Failure of a firewater pump or other supply system or failure of an active fire protection system in an area for which no active fire protection redundancy is provided	Degraded performance of a firewater pump, failure of a deluge skid or monitor for which other means of active fire protection redundancy is provided
Disconnect Systems	D/P	System is unable to disconnect	Partial impairment to the system where the system is able to disconnect but is unable to do so within its intended performance requirement
Helicopter Deck	F/D/P	Helideck or Refueling System is impaired	There is partial impairment to lighting, refueling or other equipment on the helideck which results in degradation but is still able to be used
Communication Systems (Public Address or External Communications)	F/D/P	Failure of a system for which no redundancy is provided	Failure of a system for which redundancy is provided
Escape (egress routes)	F/D/P	Means to provide safe escape from an area and/or to provide safe egress to	Normal escape/egress routes are impaired but there is sufficient other means to provide alternate access

		evacuation stations is compromised	
Breathing apparatus	F/D/P		Malfunction of breathing apparatus while in use or in testing as a preliminary to use
Lifesaving Appliances	F/D/P	Impairment which results in a lifesaving appliance being taken out of service and results in additional mitigations to be put in place until repairs are undertaken	Partial impairment to the system where a lifesaving appliance is taken out of service for longer than expected to meet its target reliability.
Standby Vessel	SBV	Impairment which compromises the standby vessel's capability to perform all of its duties, taken into consideration the minimum required equipment needed for the role it is performing. (e.g. Two FRC's for vessels engaged in Dual Standby)	Impairment to critical equipment that does not affect the standby vessel's capability to perform all of its duties but in which redundancy is lost
Passenger Craft (Vessel or Helicopter)	PC	Impairment which compromises the integrity or emergency preparedness of the passenger craft	Impairment to critical equipment that does not affect the passenger's craft capability to perform all of its duties but in which redundancy is lost
Support Craft (Vessel)	SC	Impairment which compromises the vessel's capability to maintain stationkeeping	Impairment to critical equipment that does not affect stationkeeping but in which redundancy is lost or there is a power loss that may affect its capability

**NOTES:**

- **All other impairments to Critical Equipment (including any alarms that have been inhibited) shall be listed on the periodic (e.g. daily reports, weekly) reports to the Board and, as applicable, to the Certifying Authority.**
- **All unrevealed critical failures to detection and control systems as a result of planned or unplanned testing are to be reported in periodic reports regarding the integrity of the installation and this data should be used to validate the reliability/availability of**

associated safety critical systems. Systems unable to meet performance criteria must be improved or maintenance frequencies increased to meet target levels of safety.

- **INDEX FOR INSTALLATION/VESEL TYPE:**

- **F – for floating installation or vessel**
- **D – for drilling installation**
- **P – for production installation**
- **DV – for diving installation**
- **SBV – for standby vessel**
- **PC – for passenger craft**
- **SC – for support craft**