



DROPS
DROPPED OBJECTS
PREVENTION SCHEME

Subsea Dropped Objects

August 2010 : ALL **DROPS** Members

Because objects falling overboard from our installations and vessels are unlikely to cause injury, their consequences may often be underestimated, and many such incidents will go unreported.

Statistics show that during vessel, lifting and overside operations we are exposed to a greater risk of potential subsea dropped objects, often involving large equipment and items of significant mass.

The risk with subsea dropped objects is principally that of damage to subsea pipelines and facilities.

Where such pipelines and facilities bear hydrocarbons, any damage or breach of containment could have potentially catastrophic consequences.

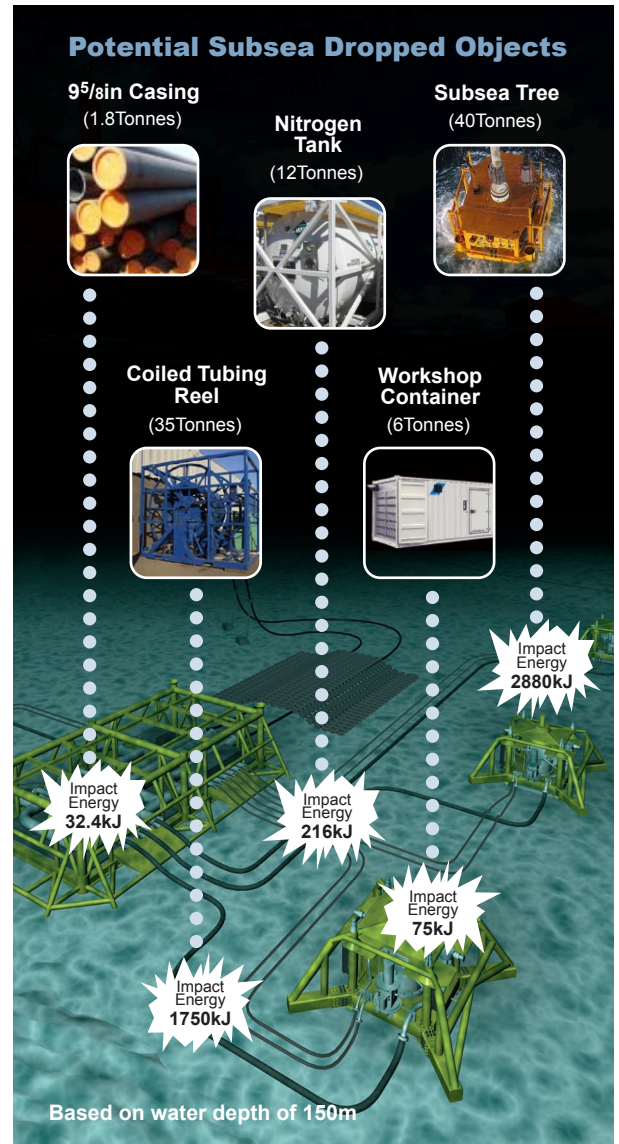
The impact energy of an object falling overboard as it hits the seafloor is influenced by several factors, including the mass (weight) and shape of the object, the water depth and prevailing currents.

As a general guide, for an object falling onto a subsea pipeline or facility:

An impact energy of less than 30kJ may cause equipment damage but is unlikely to cause a release of hydrocarbons

An impact energy of between 30kJ and 50kJ is likely to cause significant damage and a release of hydrocarbons from pipework or pipelines but subsea tree integrity would most likely be maintained

An impact energy of greater than 50kJ has the potential to significantly damage any subsea equipment and is likely to cause a release of hydrocarbons.




The table overleaf presents a broad range of equipment employed in offshore oil & gas and marine activities, highlighting the potential drop cone and angle, velocity and impact energy if the item fell overboard. These are based on a water depth of 150m.


WE NEED YOUR HELP!


During 2011, it is our intention to form a Focus Group to gather further data / knowledge of subsea dropped objects and to identify and share best practice for prevention and mitigation. If you wish to play a role in this Focus Group or if you can provide any input in terms of statistics, studies, procedures or processes please contact us at admin@dropsonline.org or call us on 01224 861811.

Potential Subsea Dropped Objects

ITEM	Weight (Tonnes)	Max Drop Cone Angle (deg)	Max Drop Radius (m)	Terminal Velocity (m/s)	Impact Energy (kJ)	
30" Casing	5.6	30	64	6	100.8	
16" Casing	2.8	30	64	6	50.4	
11.3/4" Casing	2.4	30	64	6	43.2	
9.5/8" Casing	1.8	30	64	6	32.4	
5.1/2" Tubing	2.0	30	64	6	36.0	
9.1/2" Drill Collars	3.5	30	64	6	63.0	
6" Drill Collars	2.6	30	64	6	46.8	
6.5/8" HWDP	3.3	30	64	5	41.25	
5" HWDP	2.1	30	64	6	37.8	
Well bay Protection Frame	2.5	30	64	6	45.0	
Gravel Pack Screens	11.0	45	110	6	198.0	
Gravel Infuser	2.0	30	64	6	36	
Subsea Tree	40.0	6	12	12	2880.0	
(spool tree)Tree Running Tool	13.0	30	64	10	650.0	
Tubing Hanger c/w pup joint	2.5	30	64	6	45.0	
WOCS Umbilical Reeler	10.2	30	64	10	326.4	
THRT Umbilical Reeler	9.8	30	64	10	313.6	
WOCS HPU	7.0	30	64	6	126	
Workshop Container	15.0	45	110	6	270.0	
SenTREE Panel	2.7	30	64	6	48.6	
SenTREE Workshop Container	8.0	45	110	6	144.	
Flowhead & Basket	14.0	45	110	6	252.0	
Welltest Choke Manifold	3.5	30	64	6	63.0	
Welltest Cabin	6.5	45	110	6	117.0	
Welltest Workshop	6.5	45	110	6	117.0	
Surge Tank	26.9	30	64	8	860.8	
Holding Tank	2.0	30	64	6	36.0	
Workshop Container	6.0	45	110	5	75.0	
Air Compressor	6.0	6	12	8	192.0	
Methanol/Glycol Tank	3.6	30	64	6	64.8	
Nitrogen Converter	9.0	30	64	6	162.0	
Nitrogen Tank	12.0	30	64	6	216.0	
Coiled Tubing Reel	35.0	6	12	10	1750.0	
Coiled Tubing Power Pack	12.0	6	12	10	600.0	
Coiled Tubing Control Cabin	10.0	45	110	6	180.0	
Coiled Tubing Workshop	10.0	45	110	6	180.0	
7" Tubing	0.9	30	64	6	16.2	
5" Drillpipe	1.5	30	64	6	27.0	
Sealed Container	3.5	45	110	3	15.75	
Internal Tree Cap	1.0	30	64	6	18.0	

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 An impact energy of greater than 50kJ has the potential to significantly damage any subsea equipment and is likely to cause a release of hydrocarbons.