

Attachment B.2: Overboard Handling Data Document

Primary Deployment Information:	Science Party Response
Deployment Type	
Provide a brief narrative of scientific purpose and the equipment to be deployed. Attach drawings or other documents as required to describe the nature of deployment and the OHS or other equipment used/needed to carry it out.	
Package Type	
Maximum Package Weight (in water) (lbf)	
Maximum Package Mass (weight in air) (lbm)	
Added Weight (in water) (lbf)	
Added Mass (weight in air) (lbm)	
Maximum Drag (lbf)	
Maximum Extraction Force (lbf)	
Maximum Anticipated Tension Member Deployment Length (m)	
Deployment Depth (m) / Water Depth (m) / Percent of tension member deployed length to water depth	
OHS/Components Furnished by Science Party	
Vessel Services Required	
Tension Member Type	
Maximum Tension Member Weight (in water) (lbf)	
Maximum Tension Member Mass (weight in air) (lbm)	
Tension Member ABL/SWT@FS (lbf)	
Load Mitigating Devices	

<p>exceed 75% of the water depth, with or without DP)</p>	
<p>B.2.1.6. Station Keeping – Deep Water (where the deployed length of the tension member is greater than 75% of the water depth with either intentional or high likelihood of bottom contact, with or without DP)</p>	<ul style="list-style-type: none"> • remotely operated vehicles (ROVs) • CTD/water sampler operations • elevators • standard wire coring • deep coring (Synthetic Rope) • multicorer • rock drilling • seabed laboratory placement/retrieval • steered bottom samplers (e.g., HyBIS, ARGO) • anchor-first mooring deployments

B.2.2. Application

Deployment type is a mandatory entry into the OHDD. This helps ensure the deployment requirements of the science party are clearly communicated to the operator. MCDs must also outline allowable deployment types; their inclusion helps ensure OHS/components are used in a manner consistent with their capabilities. Knowledge of the deployment type is required to select design loads and to identify regulations relevant to the design of an OHS/component. For this reason, specifications for a prospective OHS/component must elaborate on the deployment types it must accommodate.

B.3. The Overboard Handling Data Document (OHDD)

B.3.1. Description

The OHDD is a data sheet developed by the science party to communicate deployment requirements to the operator. One OHDD must be completed by the science party and submitted to the operator in advance of each cruise. The submission date should be selected in consultation with the operator.

Table B.3.1 is a sample OHDD including some examples and explanations that may be of use. A blank sample OHDD is also available in Attachment B.2. Some parameters will not apply to every deployment.

Table B.3.1 Overboard Handling Data Document

Primary Deployment Information:	Science Party Response
Deployment Type	
Provide a brief narrative of scientific purpose and the equipment to be deployed. Attach drawings or other documents as required to describe the nature of deployment and the OHS or other equipment used/needed to carry it out.	<i>e.g., "Obtain water samples and CTD data for CLIVAR." Anticipate the need to deploy a 36-bottle rosette to a depth of 6000m."</i> <i>The science party must provide MCDs for the OHSs/components they furnish.</i>
Package Type	<i>e.g., "36-bottle CTD rosette"</i>
Maximum Package Weight (in water)(lbf)	<i>Include specifics about the package if it will be furnished by the science party.</i>
Maximum Package Mass (weight in air) (lbm)	<i>e.g., "2,200 lbm"</i>
Added Weight (in water) (lbf)	<i>e.g., the weight of captured or entrained material other than water, such as mud.</i>
Added Mass (weight in air) (lbm)	<i>e.g., the mass of captured or entrained material, including water.</i>
Maximum Drag (lbf)	<i>e.g., "1,300 lbf"</i>
Maximum Extraction Force (lbf)	<i>Include if applicable and known.</i>
Maximum Anticipated Tension Member Deployment Length (m)	<i>e.g., "6000 m"</i>
Deployment Depth (m) / Water Depth (m) / Percent of tension member deployed length to water depth	<i>Required to confirm deployment type. If multiple deployments are to occur, enter the % for the deployment with the greatest ratio of deployed depth and water depth.</i>
OHS/Components Furnished by Science Party	<i>Elaborate on any OHSs/components, including tension members, the science party will furnish.</i>
Vessel Services Required	<i>Outline any vessel services required for the OHS/components the science party will furnish. e.g., electrical power, hydraulic power, or cooling water.</i>
Tension Member Type	<i>Elaborate on the required tension member construction, if known. e.g., "wire rope," "9/16 3X19 wire rope" or "0.322 EM cable."</i>
Maximum Tension Member Weight (in water) (lbf)	<i>Include specifics about the tension member if it will be furnished by the science party.</i>
Maximum Tension Member Mass (weight	<i>Include specifics about the tension member</i>

in air) (lbf)	<i>if it will be furnished by the science party.</i>
Tension Member ABL/SWT@FS (lbf)	<i>Include specifics about the tension member if it will be furnished by the science party.</i>
Load Mitigating Devices	<i>e.g., render-and-recover and/or weak link along with proposed set values. This must be included if the science party will furnish an OHS, component, or package that features such a device.</i>

B.4. Structural Design Criteria

B.4.1. General

OHS and their components should be designed and analyzed in accordance with a USCG-recognized classification society or professional standard; if a criterion in §§ B.4.2 thru B.4.7 is more conservative, it shall supersede that criterion in the chosen standard unless a special case is granted per 46 CFR § 198.35-11 by the USCG MSC (see § B.4.6).

B.4.2. Principal, Secondary, and Worst Case Loading Scenarios

The deployment type(s) and the most adverse loading scenario(s) must be considered when analyzing or designing an OHS/component.

Because it's rare for a single component to comprise an overboard handling system, these loading scenarios should be used to evaluate components, including the science package and that portion of the ship attached to the OHS, as a completely integrated system. Each loading scenario is defined by a line tension and line of action (direction) at the overboarding sheave (if an OHS) or exit sheave (if a component with one), or at another appropriate location.

B.4.2.1. Principal Loads

Principal loads are those that occur under ideal conditions, and during the principal phase of a deployment.

B.4.2.2. Secondary Loads

Secondary loads are those that might occur when conditions are other than ideal. These might occur due to a deviation from ideal vessel attitude, vessel heading, vessel position, scientific package position, or any other parameter.

B.4.2.3. Worst-Case Loads

Worst-case loads are loads unlikely to occur, but quite likely to cause equipment or personnel casualties. Surprise entanglement with a submerged object might, for example, lead to overloading and damage to an OHS. Because of their serious nature, worst-case loads should be defined in consultation with the operator. Load mitigating devices should be identified and used to prevent their occurrence whenever possible.

B.4.3. Ultimate Design Tension (UDT)

The UDT is the line tension at which a component begins to yield, or otherwise fail. When determining the UDT for a fixed component, calculations must encompass, at a

Attachment B.11: OHDD Example

Primary Deployment Information:	Science Party Response
Deployment Type	<i>Deep Water Towing</i>
Provide a brief narrative of scientific purpose and the equipment to be deployed. Attach drawings or other documents as required to describe the nature of deployment and the OHS or other equipment used/needed to carry it out.	<i>Towing a sub bottom profiler to exam water column properties.</i>
Package Type	<i>Edge Tech Sub Bottom Profiler, Tow Fish</i>
Maximum Package Weight (in water) (lbf)	<i>350</i>
Maximum Package Mass (weight in air) (lbm)	<i>500</i>
Added Weight (in water) (lbf)	<i>0</i>
Added Mass (weight in air) (lbm)	<i>0</i>
Maximum Drag (lbf)	<i>180</i>
Maximum Extraction Force (lbf)	<i>0</i>
Maximum Anticipated Tension Member Deployment Length (m)	<i>1000</i>
Deployment Depth (m)/ Water Depth (m) /Max %	<i>475 / 500 / 95%</i>
OHS/Components Furnished by Science Party	<i>Tension Member</i>
Vessel Services Required	<i>A-Frame</i>
Tension Member Type	<i>0.322 EM</i>
Maximum Tension Member Weight (in water) (lbf)	<i>474</i>
Maximum Tension Member Mass (weight in air) (lbm)	<i>573</i>
Tension Member ABL/SWT@FS (lbf)	<i>11,600/2,320 @5.0</i>
Load Mitigating Devices	<i>None</i>