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### Safety Management Manual

**0.2 Revision History**

**Originator:** Fred J. Jones  
**Approved By:** Stewart Lamerdin

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## Safety Management Manual

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<td>Added RVSS App &amp; B references; updated wire log responsibilities.</td>
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# Safety Management Manual
## 0.2 Revision History

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<td>Updated responsibilities for manning vessel</td>
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<td>Added text to clarify the office as Ship Operations office</td>
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<td>Added text to identify who can direct operations of the crane</td>
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<td>Updated info for responsibilities of Ship Ops office</td>
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Originator: Fred J. Jones

Approved By: Stewart Lamerdin
### Safety Management Manual

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<td>403</td>
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<td>15-May-15</td>
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<td>7.3</td>
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<td>405</td>
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<td>406</td>
<td>7.5</td>
<td>15-May-15</td>
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Approved By

Stewart Lamerdin

Fred J. Jones
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<td>407</td>
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<td>Removed &quot;and switch side-to side&quot; in 7.6.4</td>
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<td>408</td>
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<td>Changed &quot;Quarterly&quot; to &quot;Annually&quot; in 7.11.5</td>
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<td>Added &quot;or recovered&quot; to text in 7.15.4</td>
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<td>Added &quot;Master&quot; to list of individuals authorized to test confine space conditions, in 7.22.4 paragraph 5.</td>
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<td>Changed &quot;hourly&quot; to &quot;once per watch&quot; in 7.26.3</td>
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<td>Updated info to reflect correct practices and procedures</td>
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<td>9.4</td>
<td>Revised flowchart diagram to a more simplified top down drawing.</td>
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<td>App A</td>
<td>Updated list of forms</td>
<td>15-May-15</td>
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<td>419</td>
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<td>Revised form to include Dynacon Traction winch and updated text to reflect correct practices.</td>
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<td>31-Aug-15</td>
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<td>434</td>
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<td>Text change for differentiating sections to be read by the crew versus shore side personnel</td>
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<td>Changed text to &quot;A sailing board, or equivalent&quot;</td>
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<td>438</td>
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<td>Added &quot;The decision to ultimately anchor the vessel rests with the Master&quot;</td>
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<td>Took out SSB radio, Fleet 77, and pigeon server address</td>
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<td>SMF 6.4.A Added new form for Small Boat Operator Certification</td>
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<td>SMF 6.4.B Changed form name to SMF 6.4.B</td>
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1.1 General

Welcome to Oregon State University’s (OSU) College Earth, Ocean, and Atmospheric Sciences (CEOAS) Ship Operations and our Safety Management System.

The OSU Ship Operations facility is located at the end of S.E. OSU Drive in Newport, Oregon, adjacent to the OSU Hatfield Marine Science Center. This facility and the associated activities will be referred to as “Ship Operations” in this manual. OSU Ship Operations is the operator of the Research Vessel Oceanus, which is owned by the National Science Foundation.

This manual is designed to describe our Safety Management System, with appropriate references to the separate Ship’s Security System. This manual is available to all personnel onboard our vessel and in the office. Employees are urged to refer to this safety manual and any other relevant procedures at any time.

1.1.2 Safety, Security, and Environmental Objectives

Documented objectives for safety, security, and environmental protection have been established and are maintained at each relevant function and level within the Ship Operations organization, both ashore and onboard the vessel. The methods used for reviewing and setting objectives rely upon various sources, including:

A. The International Safety Management (ISM) Code.
C. Other mandatory rules and regulations such as STCW, etc.
D. Applicable codes, guidelines and standards recommended by IMO, U.S. Coast Guard, American Bureau of Shipping and other maritime industry organizations.
E. Oregon State University policies and procedures.
F. The significant safety and environmental aspects of our operations.
G. The increased global threats of terrorist attacks.
H. The views of interested parties.
I. Technological options.
J. Financial, operational and business requirements.

Our procedures clearly define the responsibilities and roles for personnel who are involved in the operation of the R/V Oceanus.

The Safety and Environmental Protection Policy is the driving force for our Safety Management System. The documented objectives are consistent with the policy, including our commitment to safe and secure operation of our vessel and the prevention of pollution.
1.1.3 Programs

OSU Ship Operations has established, implemented and maintains a Safety Management System that defines programs pertinent to the Safety and Environmental Protection Policy. These programs have been developed to achieve pertinent objectives related to safe operations and protection of the ship, personnel, cargo, and the environment, taking into account the unique characteristics and operating requirements of the research vessel we operate. These programs support our documented policies and are designed to ensure that a means of achieving objectives are tracked.

Any program can be amended based upon new developments and requirements that are identified during day-to-day operations. Persons responsible for the various programs review the need for change. This ensures that specific programs, particularly the safety and environmental management program, are suitably amended in relation to new developments and requirements associated with shore-based and shipboard operations.

1.1.4 Safety Management Manual (SMM)

A documented management system is maintained in accordance with the requirements of the ISM Code. The Safety Management Manual (SMM) is arranged into sections defined by the Table of Contents. It is arranged to coincide with the elements of the ISM Code.

1.1.5 Management System Procedures

The balance of documentation contained within our management system is the coordinated effort of various individuals and departments within our operations. We believe that this adequately describes our operations regarding safety, security, and pollution prevention and that these procedures provide the support necessary to satisfy our policy.

This binder contains procedures and work instructions common throughout our company and on board the vessel. The distribution of controlled copies of this binder is spread throughout Ship Operations. The procedure for the distribution is stated in Section 11.2 Distribution of Manuals and is the responsibility of the Designated Person (DP).

1.1.6 External References

The following are external references used in developing the Safety and Security Management Systems and documentation:

A. The International Management Code for the Safe Operation of Ships and for Pollution Prevention, also known as the International Safety Management (ISM) Code, International Maritime Organization (IMO) Resolution A.741(18), adopted 4
November 1993 and amended by IMO Resolution MSC.104(73) on 5 December 2000.


D. United States Coast Guard Navigation and Inspection Circular (NVIC) 10-02, Security Guidelines for Vessels

E. International Convention for the Safety of Life at Sea (SOLAS 74), as amended.

F. International Convention on Standards of Training, Certification and Watchkeeping (STCW) for Seafarers, as amended

G. International Convention for the Prevention of Pollution from Ships (MARPOL 73/78), as amended
1.2 DEFINITIONS

1.2.1 Purpose

The purpose of this procedure is to define words, abbreviations and acronyms used in this manual.

1.2.2 Scope

The Safety Management Manual is used to set forth the Safety Management System in place at OSU Ship Operations for the safe management of the Research Vessel (R/V) Oceanus that it manages and operates. The OSU Safety Management System does not extend to other, smaller vessels managed by OSU Ship Operations though many of the same policies and procedures apply. The OSU Safety Management System does not extend to small vessels operated by OSU groups outside of OSU Ship Operations.

This procedure encompasses the words, abbreviations and acronyms found in that manual.

1.2.3 Definitions

**Administration** – The Government of the State whose flag the ship is entitled to fly. All vessels managed and operated by Oregon State University fly the flag of the United States of America.

**CAR** – Corrective Action Report

**CEOAS** – College of Earth, Ocean, and Atmospheric Sciences at Oregon State University.


**COLREGS 72** – The Convention on International Regulations for Preventing Collisions at Sea, as amended.

**Company** – The standards and codes refer to the “Company” as the provider of goods and services; the entity endeavoring to have quality systems in place (compliance with ISM). For the purposes of this manual “Company” shall mean the Ship Operations Group at Oregon State University.

**Company Security Officer (CSO)** – The individual within the company responsible for the Facility and Vessel Security Plans under the ISPS.

**Company Spill Coordinator (CSC)** – The individual within the company to be contacted in case of a Shipboard Oil Pollution event.
CMMS - Computerized Maintenance Management System

Controlled Document – Documents that are issued as a part of this Safety Management System and are traceable for revision or recall.

Customer – The standards and codes refer to the “Customer” as the receiver or purchaser of goods and services; the entity seeking goods and services from a Company with quality systems in place. For the purposes of this manual “Customer” shall mean the scientific users of the vessel operated by Oregon State University Ship Operations.

Designated Person – The person within the company ashore designated as a link between the vessel and the highest level of management in the company. The “Designated Person” who holds overall responsibility for the operation of OSU’s R/V Oceanus. This will, unless otherwise noted, be the Marine Superintendent.

Document – Informational or instructional papers, drawings or data that are released by management for distribution. Documents and data can be in the form of hard copy (paper), electronic or other media.

Document of Compliance (DOC) – A document issued to the Company which complies with the requirements of the ISM Code. A copy of this document must be carried on board the vessel subject to the ISM code that the Company operates.

IMO – The International Maritime Organization.

ISM, ISM Code – The International Management Code for the Safe Operation of Ships and for Pollution Prevention, also known as the International Safety Management (ISM) Code. The ISM Code incorporates elements of the ISO 9000 series and is focused on the safe management and operation of ships and pollution prevention.

ISO – The International Organization for Standardization based in Geneva, Switzerland

ISO 9000 Series – A series of five quality system standards (IS) 9000, 9001, 9002, 9003, 9004) designed to ensure that customer requirements for quality are met.

ISO 9002 – A quality system standard covering production, servicing and installation.

JSA – Job Safety Analysis, the process by which an employee assesses the work-related hazards associated with a specific task.

Management – The Ship Operations Marine Superintendent, his/her duly appointed delegates or, in a given situation, the senior person present with the authority to make decisions affecting the operation in progress. See “Top Management” below for more details.

Management System – A quality system and/or safety management system.

Marine Technician Group – Includes the Marine Technician Superintendent and Marine Technicians. Manages common use equipment, logistics, ship computing, shop services, information storage, scientific support, shipboard/scientific electronics support, and communications.

MARPOL 73/78 – The International Convention for the Prevention of Pollution from Ships, as amended.

NCCAR – Nonconformity Report

New Crewmember/Marine Technician – One who has never sailed on the vessel before or has not sailed on the Oceanus within the last 24 months.

Nonconformity – An observed situation where objective evidence indicates the non-fulfillment of a specified requirement. A Major Nonconformity is an identifiable deviation which poses a serious threat to personnel or ship safety or a serious risk to the environment and requires immediate corrective action. Also, the lack of effective and systematic implementation of a requirement of the ISM Code is considered a major nonconformity.

Objective Evidence – Quantitative or qualitative information, records or statements of fact pertaining to safety or to the existence and implementation of a SMS element, which is based on observation, measurement or test and which can be verified.

Observation – A statement of fact made during a safety management audit and substantiated by objective evidence.

OJT – On-the-job training.

Oregon State University (OSU) - Oregon State University is part of the Oregon University System and is a public university dedicated to research and higher education.
PI – Principal Investigator

Quality System – A management system designed with the intent of ensuring fulfillment of customer requirements.

RVOC Safety Training Manual – A manual comprised of fourteen chapters written to provide guidance and heighten awareness of both personal safety and vessel safety for seamen and scientist aboard UNOLS vessels, which is oriented towards the crew member.

RVSS - Research Vessel Safety Standards

Safety Management Audit – A systematic and independent examination to determine whether the SMS activities and related results comply with planned arrangements, and whether these arrangements are implemented effectively and are suitable to achieve stated objectives.

Safety Management Certificate (SMC) – A document issued to a ship that signifies the Company and its shipboard management operate in accordance with the approved SMS.

Safety Management Manual (SMM) – A compilation of policies, procedures and documents that defines the Company’s methods for developing and maintaining systems for quality, safety and environmental protection in accordance with the ISM Code. The manual forms the basis of a Safety Management System.

Safety Management System (SMS) – A structured and documented system enabling Company personnel to effectively implement the Company Safety and Environmental Protection Policy. Mention of the SMS in this manual shall mean the “safety management and environmental protection system” employed by the Ship Operations Group at OSU.

Safety Meetings – Formal gatherings at which attendance needs to be documented.

Ship Operations Group – Includes officers and crew of the Oceanus, Marine Technician Group and Ship Operations Office support staff. This group is under the direction of the Dean/Associate Dean of CEOAS.

Ship Operations Office – The part of the Ship Operations Group located in the Ship Operations facility at Newport, Oregon and supporting the operation of R/V Oceanus.
1.2 DEFINITIONS


**SOLAS** – The International Convention for the Safety of Life at Sea, as amended.

**STCW 95** – The International Convention on Standards of Training, Certification and Watch-keeping for Seafarers, as amended.

**System** – In this manual means the Ship Operations Group’s quality and safety management system, including environmental protection measures when used in the context of describing or referring to a management system.

**Top Management** – The SMM recognizes that the chain of command of the Marine Superintendent is to the Dean of CEOAS. Recognizing further that in fact resources for the safe execution of operations at ShipOps and on *Oceanus* derive from outside of CEOAS, for the purposes of this SMM, Top Management refers operationally to the National Science Foundation, Ocean Sciences Directorate (OCE), Integrative Programs Section (IPS).

**Traceability** – The ability to identify and track documents from the point of issue to recipient for the purpose of revision or recall.

**University** – In this manual, refers to Oregon State University of which the Ship Operations Group is the ship-operating branch. For the purpose of this system, the Ship Operations Group is considered a separate and distinct entity.

**University-National Oceanographic Laboratory System (UNOLS)** – An organization of 62 academic institutions and National Laboratories involved in oceanographic research and joined for the purpose of coordinating oceanographic ships’ schedules and research facilities.

**VSO** – The Vessel Security Officer under the ISPS Code.

**Web** – The worldwide web, the Internet

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Note: Definitions for some words and terms are given in relevant sections of this manual.
2.1.1 General

This Safety and Environmental Protection Policy is directed at the shipboard operations of the Research Vessel Oceanus, managed and operated by Oregon State University's Ship Operations. It is consistent with the safety policy of Oregon State University as a whole. This policy has been implemented and is maintained throughout OSU Ship Operations, both on the vessel and shoreside.

2.1.2 Policy

The Safety and Environmental Policy of the Ship Operations Group is established to maintain a safe working environment for all crewmembers, technicians, scientists, visitors and our equipment. We accomplish this policy by providing a Safety Management System that includes safe practices procedures and training, environmental consciousness, the timely dissemination of information and access to recognized standards.

The intent of the policy is to operate the R/V Oceanus in such a manner as to cause minimal impact on the environment in general and the marine environment in particular. Within this policy, the Ship Operations Office and the Marine Technicians group strives to comply with all applicable national and international regulations regarding the operation of our vessel.

In complying with these regulations, the R/V Oceanus maintains documented procedures regarding disposal of wastes at sea and complies with voluntary and mandatory reporting standards set forth for ballast management. The vessel is operated in such a manner as to prevent the spillage or discharge of oil or hazardous materials into the marine environment and initiates timely and adequate responses to mitigate any discharges.

We are committed to continually improve the effectiveness of our Safety Management System and the skills of all personnel, including preparing for emergencies and security incidents, through the establishment of safeguards against identified risks.

For purposes of posting there is an excerpted version that succinctly summarizes the intent of the policy. This document follows on the next page.
SAFETY MANAGEMENT MANUAL

SAFETY AND ENVIRONMENTAL PROTECTION POLICY

THE R/V OCEANUS

WILL

MAINTAIN A SAFE WORKING ENVIRONMENT

THROUGH

SAFE PRACTICES, PROCEDURES,

TRAINING,

ENVIRONMENTAL CONSCIOUSNESS

AND

PROFESSIONALISM

Stewart Lamerdin
Marine Superintendent
Designated Person

Jeffrey Crews
Master

Andrew Wogen
Marine Tech. Super.
2.2.1. Purpose

The purpose of this section is to set forth the Drug and Alcohol policy both on board the Research Vessel Oceanus and shoreside Ship Operations facilities.

2.2.2. General

The passage of the Drug-Free Workplace Act of 1988 requires the Institution, as a federal contractor, to certify that it operates a drug-free working and learning environment. Failure to comply with the terms and conditions of the Act may result in the suspension or loss of federal funds or the debarment of the Institution from receipt of any federal funds.

The Master has the legal responsibility for the safety of the vessel and all personnel on board. As such the Master has the administrative authority to enforce these rules. The Master is authorized to search any part of the vessel at any time for alcoholic beverages or controlled substances and to remove, impound, confiscate or destroy any unauthorized alcoholic beverages or controlled substances found.

2.2.3. Reference

OSU’s Drug and Alcohol Policy statement, including the legal basis from which it is derived, can be found on Oregon State University’s web site: http://fa.oregonstate.edu/gen-manual/drug-free-workplace-policy.

2.2.4. Drug Policy

The University prohibits the unlawful manufacture, distribution, dispensing, possession or use of a controlled substance in the workplace. As defined, the workplace includes any location where an employee or student is working and receiving funds from the University.

All University personnel, including students and guests, are affected by this regulation and are expected to comply as a condition of continuing their affiliation with the University. Notification of the terms and conditions of the Act are distributed to all Ship Operations personnel on an annual basis.

Crewmembers and members of the embarked scientific party are subject to drug and alcohol testing requirements found in Title 46, Code of Federal Regulations, for reasonable cause and in the event of a “Serious Marine Incident” at the discretion of the Master. (See SMM Section 9.3, “Accidents”.)

Crewmembers are also subject to random drug testing. For the purposes of random drug testing the individuals subject to random drug testing include Oceanus crew, and Ship Operations office personnel holding U.S. Coast Guard credentials, licenses or certificates of registry including the Marine Superintendent, Port Engineer and Boat Operator.
If an individual receives a positive drug test result or refuses to submit to requested drug testing, the University shall, as soon as is practicable, remove that individual from active duty and place the member on a type of leave status or terminate his/her employment. However, the University may, in its discretion, continue in active duty any person whose performance is necessary for the preservation of life or property or the protection of the environment.

If the individual is a marine crewmember and holds a license, certificate of registry, or merchant mariner credential, the University must also report any positive drug test result or refusal to take a test to the USCG Officer in Charge, Marine Inspection. A crewmember in this status faces license and/or document revocation under USCG procedures. Disciplinary action from the University is also appropriate.

If the individual affected does not hold a license, certificate of registry, or merchant mariner credential, there is no obligation to report the positive test results to the USCG (except as part of a response to a request for records by the USCG). The sole exception is in the event of a Serious Marine Incident. Employees who have positive test results are nevertheless subject to appropriate University disciplinary action.

2.2.5. Drug Counseling/Rehabilitation

In recognition that any form of drug abuse is dangerous to the health and well being of all University personnel, the University has contracted with an Employee Assistance Program provider to conduct periodic educational workshops and to provide counseling as necessary. Information is available on Oregon State University’s web site.

The University has an obligation to inform the appropriate funding agency in the event of an employee’s conviction of a drug violation in the workplace. Such notification must be within ten days of the employee’s conviction or within ten days of actual knowledge of such conviction.

The funding agency has the authority to impose sanctions on the University if, in the agency’s view, the University has not demonstrated a good faith effort to be in compliance with the Drug-Free Act. Those sanctions range from suspension of grant payments, to grant/contract terminations, to debarment. A debarred grantee or contractor may be declared ineligible to receive federal grants or contracts for as long as five years.

Questions regarding the University’s drug-free policy, including drug counseling or rehabilitation, are to be addressed to the Human Resources Office.
2.2.6 Alcohol Policy

No alcoholic beverages of any type will be permitted on University vessels with only two exceptions:

1) Cooking wines are allowed for galley use only.

2) When transiting from a foreign port, the crew or science party may relinquish purchased goods to the Master, who will keep these goods under lock and key until arrival back at the homeport where the goods shall then be removed from the vessel.

All persons, including scientific staff from other institutions and visitors, are affected and expected to abide by this regulation. Other than as excepted above, it is strictly forbidden for any person to bring any alcoholic beverages aboard the ship, or to possess any alcoholic beverage. In addition, no person may drink while on duty, or come on duty or watch under the influence of alcohol, whether at sea or in port.

By regulatory definition, a person with a blood alcohol content of 0.04 percent by volume is considered to be under the influence of alcohol.

As guidance to the Master of the R/V Oceanus, Title 33 Code of Federal Regulations, part 95.045 sets forth the following in that a crewmember:

A. Shall not perform or attempt to perform any scheduled duties within four hours of consuming any alcohol.
B. Shall not be intoxicated at any time.
C. Shall not consume any intoxicant while on watch or duty.
D. May consume a legal non-prescription or prescription drug provided the drug does not cause the individual to be intoxicated.

The University may, in its discretion, treat a positive alcohol test result or a refusal to submit to alcohol testing in the same manner as a positive drug test result or a refusal to submit to a drug test.
2.3.1 Purpose

The purpose of this procedure is to set forth a Non-smoking policy.

2.3.2 Scope

Oregon State University has a Non-smoking Policy. This policy covers all building spaces associated with Ship Operations. Smoking is permitted in designated sections on the research vessels based on approval by the Master.

2.3.3 Reference

OSU’s Non-smoking Policy statement can be found on Oregon State University’s web site.

2.3.4 General

Smoking is not allowed anywhere within the interior spaces of vessels managed or operated by the Ship Operations Group with the following exceptions:

A. Smoking is permitted only on open decks, and in well-ventilated machinery spaces.

B. During foul weather, at the Master’s discretion, smoking may be allowed in the winch room on Oceanus.

Smoking in any enclosed area will cease upon objection from any person.

Additionally, the practice of selling tobacco products to crewmembers/technical staff from bonded stores on board the University’s vessels is not allowed.

The University EAP program may provide assistance for employees who wish to stop smoking.
2.4.1 Purpose:

The purpose of this section is to set forth the Sexual Harassment policy on board the Research Vessel Oceanus, small craft operated by OSU Ship Operations and shoreside.

2.4.2 Reference:


UNOLS Research Vessel Safety Standards, Appendix ‘E’

2.4.3 Policy:

Oregon State University is dedicated to promoting and fostering a safe environment for all students, staff, and faculty. As an employer and educational institution, OSU has a responsibility to take reasonable steps to eliminate sexual harassment and sexual violence, prevent their recurrence, and to address their effects. The office charged with investigating complaints of harassment is the Office of Equity and Inclusion and the university's Title IX Coordinator.

In addition to the legal obligations to ensure that all employees and students are provided an environment free from sexual harassment and sexual violence, our broader goal is the creation of a working and learning environment that is inclusive, equitable, and seeks to value diversity. OSU is a campus community that does not condone and actively opposes sexual or gender-based violence in any form. The University provides resources for prevention, awareness, and response. OSU honors survivors of sexual harassment and sexual violence by having policies that emphasize privacy to the highest level possible. OSU is dedicated to due process and appropriate response to each case of sexual harassment and sexual violence.

Sexual harassment includes sexual or gender-based behavior that is unwanted and/or nonconsensual, and has the effect, intended or unintended, of producing harm. It includes behavior along a continuum of severity, from offensive talk to physical violence, including but not limited to rape. Underlying the continuum are the sexist beliefs and attitudes about the inferiority or lesser value of another, and a sense of entitlement and the right to impose the behavior on another. Such actions do violence to the liberty and freedom of another being. The policies, procedures, and resources below are designed to address such problem behavior. While it is critically important that we take action against such problem behavior, it is equally important that we promote the best antidote, namely, attitudes, beliefs and behavior that honor and respect the personal liberty, freedom and equality of all.
2.4.4 Resources

- **Office of Equity and Inclusion (OEI)**

  Phone: 541-737-8232  
  Location: 327/330 Snell Hall  
  Web: [Office of Equity and Inclusion (OEI)](#)  
  Hours: 8am-5pm, Monday-Friday

  The OEI accepts inquiries, formal, and informal reports of sexual harassment and sexual violence. In addition to handling grievances, the staff offers consultation and advice on what procedure is likely to have the most positive outcome.

- **Sexual Assault Support Services (SASS)**

  Phone: 541-737-7604  
  Location: 500 Snell  
  Web: [OSU Sexual Assault Support Services (SASS)](#)  
  Hours: 8am-5pm, Monday-Friday (academic year); 9am-4pm, Monday-Friday (summer)

  SASS provides confidential consultation for employees who have received a report of sexual harassment or sexual violence.

  Members of the University community who believe they are the victim of sexual harassment may also choose to seek redress through any of the following outside agencies:

  - Seattle Office  
    Office for Civil Rights  
    Central Building  
    810 3rd Avenue, Suite 750  
    Seattle, WA 98104-1627  
    Telephone: 206-684-4500  
    TTY: 206-684-4503  
    Email: [OCR.Seattle@ed.gov](#)

  - United States Department of Labor  
    Employment Standards Administration  
    Office of Federal Contract Compliance Programs  
    620 SW Main Street, Suite 411  
    Portland, OR 97205  
    Phone: (503) 326-4112
2.5 STATE-OWNED VEHICLE USE POLICY

2.5.1 Purpose

The purpose of this procedure is to set forth a policy for the use of State Owned Vehicles in association with Ship Operations and R/V Oceanus.

2.5.2 Scope

Oregon State University has a State Owned Vehicle Policy. This policy extends to the vehicles managed and maintained at Ship Operations.

2.5.3 Reference

OSU’s Motor Pool (MPL) Policy & Procedures Manual can be found on Oregon State University’s web site.

2.5.4 Appropriate Use

Fleet vehicles should be used to conduct official University or state business.

- Vehicles are not to be used for personal errands or other similar activities.
- Consuming alcoholic beverages in a University vehicle is strictly prohibited. The Motor Pool will deny vehicle privileges to any employee who violates these guidelines.
- Smoking in any University vehicle is prohibited.
- If the University vehicle is involved in an accident, please note that on the trip ticket. Failure to do so could result in forfeiture of driving privileges (see Accidents & Safety Policy on OSU’s MPL website, for more accident information.)
- Home-to-office travel can only be authorized by Marine Superintendent, and without prior authorization shall be considered vehicle misuse.
- Fleet gas purchase card (if provided) may not be used for any vehicle other than the vehicle it is issued to, nor for any other purchase.
- No children or other family members, pets or hitchhikers are permitted.
- Damage/restoration costs resulting from unauthorized or illegal use of state vehicles will be the complete responsibility of the driver.

Fleet vehicles may be operated by personnel to obtain personal meals when not in the vicinity of their normal place of duty. For example, personnel whose place of duty is normally in Corvallis may use a vehicle to obtain a meal when official business requires their attendance in Newport. During such times, personnel whose place of duty is coincident with the vehicle use may accompany those personnel who are operating the vehicle. However, fleet vehicles are not authorized for personal meals when operated by personnel in their normal place of duty.
3.1 Purpose

The purpose of this procedure is to set forth the responsibilities and authorities as they exist at Oregon State University (OSU) Ship Operations in the operation of its ISM regulated vessel. The purpose of the Safety Management System is to safely and efficiently manage and operate the R/V Oceanus.

3.1.2 Scope

The Safety Management System is required to define and document the responsibility, authority and interrelation of all personnel who manage, perform and verify work relating to and affecting safety and pollution prevention. This procedure is designed to define this responsibility and authority.

3.1.3 General

In general, safety is the responsibility of all persons. The OSU Marine Superintendent and the OSU Marine Technician Superintendent are the designated Safety Coordinators for Ship Operations. By direction of the Marine Superintendent, it is the responsibility of the Master to maintain the vessel in a safe condition.

The Marine Superintendent will act as the Designated Person (DP).

The Ship Operations office manages the day-to-day operations of the vessel. The Marine Superintendent is responsible for ensuring resources and shore-based support are provided to enable the vessel to be operated adequately and safely.

The Marine Superintendent and Marine Technician Superintendent report to OSU’s Dean of the College of Earth, Ocean, and Atmospheric Sciences (CEOAS). The Dean is defined as top management in that they both report directly to him for administrative purposes. As defined in section 1.2 of this manual, operationally Top Management refers to NSF/OCE/IPS.

Nonetheless, the Marine Superintendent and Marine Technician Superintendent are responsible for the establishment and implementation of the Safety and Environmental Protection Policy, and ensuring adequate resources for the Safety Management System in support of these policies. The Marine Superintendent and marine staff will conduct the annual Management Review as per section 12.2 of this manual.
3.2 Management Commitment

Top management is committed to the consistent implementation of our Safety Management System and to continually improving its effectiveness. This commitment is demonstrated through:

A. The continuous communication to all personnel, both ashore and shipboard, of OSU Ship Operations’ Safety and Environmental Protection Policy and the importance of meeting statutory and regulatory requirements.
B. Ensuring that safety, security, and environmental objectives are established and maintained.
C. Conducting management reviews.
D. Ensuring the availability of resources.

The Management System may be added to or modified based upon any new developments or requirements in our day-to-day operations or external regulations. This system is implemented to meet documented objectives but is also designed to be available for control of safety, security, environmental, or other issues at the discretion of management.

The implementation, control, and maintenance of the management system is in a controlled manner and is supported by documentation in order to meet specified requirements of the ISM Code and other regulatory requirements.
3.4.1 Purpose

The purpose of the procedure is to set forth policies and procedures for Oregon State University’s risk assessment program on board the R/V Oceanus. This program is intended to enhance safety at sea, prevention of human injury or loss of life, and avoidance of damage to the environment, in particular to the marine environment and to property. It is intended to be an ongoing continuous process that can address risk of both routine and unusual operations without creating “a resentful compliance mentality and reduce risk assessment to a mechanical, bureaucratic, box-ticking exercise that will do nothing to improve safety and pollution preventions” (Quoted from “ABS Guidance on the Revised ISM Clause 1.2.2.2”.)

3.4.2 Definition

Job Safety Analysis (JSA): The process by which an employee assesses the work related hazards associated with a specific task. The process includes assessing the potential physical hazards of the job, determining if there are any administrative or engineering controls that will mitigate any of the hazards, and determining the personal protective equipment (PPE) needed to prevent injury.

3.4.3 Scope

Risk assessment, in some form, applies to all activities onboard or associated with Oceanus. The degree of assessment necessary depends on the perceived dangers, the likelihood of an incident and the severity of the results of an incident. This procedure attempts to categorize activities and provide an assessment method for dealing with routine activities with an amount of risk or unusual activities not often encountered.

3.4.4 General

Activities are separated, for the purpose of this procedure, into various categories as defined below:

A. Minimal risk activities
B. Routine activities with some risk
C. Other than routine activities with an element of risk

3.4.4.1 Minimal Risk Activities

Activities for which a detailed risk assessment is unlikely to achieve an improvement in safety due to the limited risks involved, low probability of incident or limited severity of hazards.
3.4.4.2 Routine Activities

These are operational tasks that are routinely done onboard the Oceanus. These include items such as Painting, Splicing and Overboarding Science Equipment. These tasks will have a JSA performed and collected in a binder (“Established JSA’s”) that will be mandatory reading for new employees and be reviewed (at least) annually by current employees.

This will be verified by the crew acknowledging on the New Crewmember Orientation (SMF 6.2), that they have been shown the JSA procedure as well as the location of the established JSA binder, and have been instructed which JSA’s are applicable to their position. The acknowledgement of the annual review of the JSA’s by the vessel crew will be a sign off sheet (SMF 6.1). The established JSA’s included in the binder will also be reviewed during the Master’s Annual Review of the ISM. New JSA’s will be created as needed by either table top analysis of the task or by an on-site observation of the task by a supervisor. New JSA’s will include the following steps:

1. Define the Job
2. List the Hazards
3. List the Hazard Controls
4. List the Environmental Concerns
5. List the Environmental Controls
6. List the Personal Protective Equipment

New JSA’s generated will be included in the established JSA binder should it be deemed appropriate, due to a likely repeat of the task in the future.

3.4.4.3 Other than routine activities with an element of risk

These would be operational items that are new to the vessel’s crew that have a different set of hazards and safeguards than those normally associated with routine operations including overboarding of science equipment. It would also include maintenance and repair activities or other unusual or uncommon activities that involve an amount of risk that should be analyzed prior to commencing the task. For uncommon or new science operations, this JSA will be completed during the “Pre-Cruise Meeting”.

3.4.5 Responsibilities

It is the responsibility of each department head to insure that the procedures for the JSA program are adhered to in their department. The following personnel will be responsible for the JSA’s in their department.

- Deck: Chief Mate
- Engineering: Chief Engineer
- Galley: Chief Steward
- Science Operations: Marine Technician Superintendant

The Master will have overall responsibility for the JSA program.

Although it is the department head’s responsibility to administer the Job Safety Analysis, it is up to every employee to be responsible for their own safety.
4.1 Designated Person

4.1.1 Purpose

The purpose of this procedure is to set forth the individual within Oregon State University Ship Operations who is considered the "Designated Person."

4.1.2 Scope

The Safety Management System is required to establish a “designated person.” The ISM Code reads, “To ensure the safe operation of each ship and to provide a link between the Company and those on board, every Company, as appropriate, should designate a person or persons ashore having direct access to the highest level of management. The responsibility and authority of the designated person or persons should include monitoring the safety and pollution prevention aspects of the operation of each ship and ensuring that adequate resources and shore-based support are applied, as required.”

4.1.3 General

The person determined to be the “Designated Person” for Oregon State University Ship Operations is the Marine Superintendent. This is the individual who has the responsibility to ensure the safe operation of the ship and who provides the link between the company and those onboard.

The Marine Superintendent also has access to the highest level of management when that access is needed.

From time to time the Marine Superintendent may delegate to members of his staff various tasks associated with the duties of a Designated Person within the meaning of the ISM Code.

During working and non-working hours, the Designated Person shall be one of the first persons notified of a shipboard emergency by shipboard personnel. In his absence, the individual assigned to act in his behalf shall be notified. In most instances, this will be the Port Engineer.

The Designated Person will be responsible for the approval and issuance of the Safety Management Manual and any changes made to it. In this position he may delegate a coordinator to handle the routine matters associated with the maintenance of this manual.
5.1 MASTER’S RESPONSIBILITIES AND AUTHORITY

5.1.1 Purpose

The purpose of this procedure is to set forth the Master’s responsibilities and authority on the R/V Oceanus, operated by Oregon State University.

5.1.2 Responsibility

The Master is responsible for:

A. The safe and efficient day-to-day operation of the vessel.
B. Complying with the laws of navigation and the entire body of statutes that regulate ships and seagoing matters.
C. Maintaining the seaworthiness of the vessel and protecting the interests of the University.
D. Accomplishing the objective of each cruise as defined in the ‘Cruise Plan’ provided to the ship by the Ship Operations office.
E. Implementing the Safety and Environmental Protection policies of the Safety Management System as defined in this manual.
F. Motivating the crew in the observation of those policies.
G. Monitoring and reviewing the Safety Management System and reporting any deficiencies to the Ship Operations Group in accordance with other provisions of this manual.

5.1.3 Authority

OSU’s Ship Operations ensures that the Master is properly qualified for command and fully conversant with the management system prior to taking command. The Master has the full support of the Marine Superintendent in performing his duties to ensure that safety, security, and environmental concerns are conducted in accordance with our policies.

The Master is in overall command of all personnel and operations aboard the ship. His/her authority at sea is supreme and overriding. He/she has the authority and responsibility to make decisions with respect to safety, security and pollution prevention and to request assistance from the Ship Operations Group or any other appropriate source.
5.1.4 Policies & Procedures

The Master must support, implement, enforce, and be conversant with the following:

A. Safety Management System (SMS).
B. Safety Management Manual (SMM).
C. International Safety Management (ISM) Code.
D. Oil Pollution Emergency Response Plan.
E. Ballast Water Management Plan.
F. Waste Management Plan.
G. International and Federal regulations applicable to vessel operations.
H. All applicable state and local regulations.
I. All applicable OSU policies and procedures.
6.1.1 Resources

OSU’s College of Earth, Ocean, and Atmospheric Sciences Ship Operations Group provides the resources necessary for the effective implementation and continual improvement of the Safety Management System in order to enhance safety, security, and environmental performance. Resources include suitably qualified and trained personnel, including those trained to perform verification activities. Resources also include equipment, technology and financial resources.

All new hires shall meet the requirements of the applicable Position Descriptions and all statutory and regulatory requirements in force at the time of hire. This task may be delegated to another employee of Ship Operations group. Such delegation does not relieve the Ship Ops Coordinator of the responsibility to insure that each new hire meets the requirements of the position.

Position descriptions are maintained to identify the prerequisites, with regard to licensing, education, experience, skills and training, of personnel performing tasks that have an effect on operations of the vessel.

These hiring criteria are supplemented by on-the-job training, company provided training programs and special courses. Training programs are designed to ensure knowledge of the requirements and workings of the Safety Management System. The training requirements are reviewed periodically to ensure their continued effectiveness and identify any additional training needs. Refresher training is also considered within the training program.

6.1.2 Vessel Personnel

Orientations of shipboard personnel to their duties and those instructions that are essential before sailing have been defined in SMM 6.2 (New Crew Orientation). English is the language for communication both within and outside the Company. Therefore, information for working within the Safety Management System is established in English.

6.1.3 Responsibility

The responsibility of adequately manning the R/ V Oceanus ultimately rests with the Marine Superintendent in marine support employees. Coordinating with the other ShipOps office staff. Under the Marine Superintendent, it shall be the responsibility of the Ship Operations Coordinator to ensure that the vessel is staffed with properly qualified individuals. This includes that all necessary professional papers are adequate and current, and all medical evaluations and required drug testing are completed.
The Master is responsible for implementing, monitoring, and reviewing the Safety and Environmental Protection policies of the Safety Management System onboard the vessel (See section 5 of the SMM).

6.1.4 Management System Awareness Training
OSU Ship Operations supports and requires training in the Safety Management System for all personnel ashore and on board. The Master or his designee ensures training in the Safety Management System for all personnel on board so that personnel in each relevant function and level are aware:

A. That conformance with Safety Management System procedures is mandatory in order to ensure consistency of operations and to facilitate identification of any weaknesses.
B. Of how their work activities may have a significant impact on safety, security, and the environment, whether actual or potential.
C. Of their roles and responsibilities in achieving conformance with Safety Management System policies, procedures and requirements, and the benefits to OSU and the community within which we operate and their responsibilities for conforming to our policies and procedures.
D. Of their roles and responsibilities in regard to emergency preparedness, security awareness and participation, and response requirements.
E. Of the potential consequences of departure from specified operating procedures and requirements.

All crew and Marine Technicians will read and review the current Safety Management Manual annually, based on date of hire. Full-time shore side personnel will read the following sections annually: 1-4, 9, 12, 13, and Appendices A & B. The review by each person will be documented on SMF 6.1 appended to this Manual. New employees will complete this review within 30 days of their initial orientation as described in SMM 6.2.

6.1.5 Familiarization Training
Procedures set forth in SMM 6.2 (New Crew Orientation) have been established, documented and maintained for ensuring that new personnel and those transferred to new assignments related to safety, security, and protection of the environment, are given proper familiarization of their duties.

6.1.6 Communications
Communications between the vessel and shore staff occurs on a daily basis. While in port, this consists of personal interactions between the shore staff and the vessel’s Master and crew. While the vessel is at sea, a daily morning report is recorded and sent to shore personnel via email or satellite. In addition to the morning report, further communications
may be made, depending on the need, in a variety of mechanisms including VHF radio, satellite phone, cellular phone, fax, and email.

6.1.7 Records

It is the responsibility of the Ship Operations Coordinator to maintain a system of training records for all employees in a computer database and in their personnel file. It is the responsibility of each employee to provide the Ship Operations office with copies of all evidence of completed training whether paid for by the University or not. The Master, or his/her designee, shall record all training completed on board the vessel resulting in a recognized qualification and file the check-off sheets in the Ship’s Record Book; copies of all such training records will be provided to the Ship Operations office.
6.2 NEW CREW ORIENTATION

6.2.1 Purpose

Every new crewmember that comes on board the R/V Oceanus is required by the Standards of Training, Certification and Watchkeeping (STCW) to receive an orientation. In addition to this orientation, there are other policies and procedures that need to be followed when a new person, including Marine Technicians, reports on board.

The purpose of this procedure is to set forth the requirements to establish a system for accomplishing this orientation and documenting that the orientation has occurred.

6.2.2 Responsibility

It is the responsibility of the Master of the vessel to establish an orientation program for every new crewmember or Marine Technician that comes on board the vessel. It is also the responsibility of the Master to maintain that program.

In establishing the orientation program, the Master may delegate the conduct of the program to others under his command. Such delegation does not relieve the Master of the responsibility to ensure that each new crewmember receives a proper orientation.

The Master or his designee will go over the OSU “New Classified Employee Orientation Checklist” with the employee and also provide a copy of their job description to them. (In the case of Marine Technicians, this will be provided by the Marine Technician Superintendent.) Copies of licenses, documents and STCW certificates will also be made by the Ship Operations office with copies to the Master.

6.2.3 General

It is important that each crewmember and Marine Technician be adequately prepared to assume his/her functions on the vessel prior to performing their shipboard duties. The requirements for this familiarization and basic safety training are contained in 46 CFR 15.1105. These regulations require that this familiarization take place prior to the new individual assuming duties on the vessel. Any new crewmember with a valid STCW Certificate can be assumed to be competent and familiar with the standard items listed below, such as donning life jackets.

A new crewmember or new Marine Technician is one who has never sailed on the vessel before or has not sailed on the Oceanus within the last 24 months.

The STCW regulations set forth that the following areas must be covered:

A. The ability to communicate with other persons on board about elementary safety matters.
B. Knowledge of what to do if a person falls overboard, if a fire or smoke is detected, or if the fire alarm or abandon-ship alarms sounds.
C. Can identify station for muster and embarkation, and emergency escape routes
D. The ability to locate and don a life jacket.
E. The ability to raise the alarm and knowledge of how to use portable fire extinguishers.
F. Can take immediate action upon encountering an accident or other medical emergency before seeking further medical assistance on board.
G. The ability to close and open fire doors, weather tight doors, and watertight doors.
H. Is familiar with the vessel’s arrangements, installation, equipment, procedures and characteristics relevant to his or her routine or emergency duties or responsibilities.

In addition to the requirements of STCW, the orientation should include:
A. Introduction to OSU specific policies such as smoking, drug and alcohol use, sexual harassment, etc.

6.2.4. Reporting

New vessel personnel orientation will be performed using a check-off list to ensure that the required areas are addressed. This list is appended as SMF 6.2.

Upon completion of the orientation check-off list, it shall be given to the Master. The Master will then be responsible to ensure that the orientation has been added into the Ship’s Record Book and provided a copy to the Ship Operations office.
6.3  CRANE OPERATIONS

6.3.1 Purpose

The purpose of this procedure is to set forth the standards for the qualifications for crane operators on R/V Oceanus.

The safety of crane operations, whether in port or at sea, is of the utmost importance.

6.3.2 Responsibility

It is the responsibility of the Master of the vessel to establish the criteria used to qualify individuals to operate cranes located on that vessel.

In establishing this qualification program, the Master may delegate the conduct of the program to others under his/her command. Such delegation does not relieve the Master of the responsibility to ensure that each individual is qualified when operating a crane. The training will normally be conducted by the Chief Mate, Second Mate or Boatswain who will direct the practical training and assessing of an operator.

6.3.3 References

A. Crane Manuals and Load Charts
B. RVOC Safety Manual
C. 46 CFR 173.001 Sub Part B (Lifting)
D. Pre-operational Crane Inspection – Crane Institute of America video
E. Hand Signal Communication – Crane Institute of America video

6.3.4 General

R/V Oceanus is equipped with a TB 60-65 marine crane manufactured by Allied Systems. The crane is man rated when equipped with an anti two block device. The crane lifting configuration is flexible with the normal use of 5/8" 8x19 EIPS, IWRC non-spinning wire rope (36,200# B.S.). The ship can provide options from single whip thru 3-part rigging covering a working load from 7,100 # thru 28,050 # static load. It is important to note that the lifting capacity is not limited by crane capacity but by heeling criteria as well as dynamic loading under certain conditions. All crane lifts at sea are therefore down rated accordingly.

The max loads permitted are shown on the Allied load capacity chart modified for Oceanus max moment as well as a sheet showing the moments at various radiiuses. The crane is fitted with a 3PS load monitoring system. This system gives the crane operator the ability to compare anticipated weights, boom angle and extension to actual measurements. This system does not calculate load capabilities but only assists operators in ensuring the load is within the capacities indicated on the load capacity chart. Before making any lift, all aspects
of the movement must be evaluated to ensure that the load does not exceed rated capacity at any point in the operation. Additional and more comprehensive information is available on the bridge (see book entitled “Crane Loading Capacity Information”). Also see 46 CFR 173.001 Sub Part B (Lifting). A copy of the load capacity chart is in the crane cab for reference. This and supplementary information is also available from the Chief Mate and Bosun.

The ship can also be equipped with a “portable” Morgan articulating crane with a 3,000# rating at 26.5 feet, and/or other portable cranes (as limited by loading and stability requirements). Manuals and load charts will be provided to the ship when any portable crane is loaded on board.

6.3.5 Operation/Training

The main crane (Allied) shall be operated by a trained and qualified member of the deck department or engineering department. They will operate under the direction of the ship’s Boatswain, Chief Mate or other qualified individual designated by the Master.

At the Master’s discretion members of the Oceanus Marine Technician Group and science party may be trained and qualified in the operation of portable cranes in addition to the personnel listed above.

New operators shall go through a training and certification process as outlined in the “Crane Operator Certification Worksheet” (SMF 6.3). Training covers the basic concepts of operation and rigging along with a comprehensive understanding of hand signals, crane controls, load charts and applied dynamics. Hands-on training usually begins dockside with observing a qualified operator together in the cab, followed by coaching of the trainee and putting him/her “through the paces.” This typically involves several hours of training including making pick-ups and placing objects as directed using all of the crane functions to the satisfaction of the Boatswain/Chief Mate.

Upon certification for dockside operations, the next phase is to become certified for crane operations at sea. Since there is no easy way to do this, the preferred method is to ease into it beginning with light sea conditions and working up to heavier weather. The philosophy is predicated on trust and following signals and direction as given from the person in charge on deck. As always, the ultimate responsibility lies with the Master in determining safe conditions for crane operations.

Note: The crane operator, at times, has a distinct advantage in being able to see better from the control position. At other times, the crane operator’s vision may be obstructed. It is of paramount importance to follow signals at all times. If the operator is confused, in doubt, uncertain or if he/she detects an unsafe condition
occuring or about to occur, it is essential that immediate action be taken to avoid danger. This will be done by hand signals, stopping or by whatever emergency measures are available.

If the operator observes others directly involved in crane operations proceeding in an unsafe manner or not in compliance with required safety gear, the responsibility of the operator will be to stop operations as soon as is safe to do so and will not proceed until corrective action has been undertaken. This applies if there are others within the operating or danger zone that must be kept clear.

6.3.6 Record

Upon completion of the above requirements to the satisfaction of the Chief Mate, “Crane Operator” qualification will be added to the Ship’s Record Book, with a copy of the completed form SMF 6.3 provided to the Ship Operations office.
6.4.1 Purpose

The purpose of this procedure is to set forth guidelines for boat operations and the qualifications for boat operators on the R/V *Oceanus*.

6.4.2 Responsibility

Boat operations are conducted at the direction of the Master. The Chief Mate shall oversee the training of operators while qualified operators give the practical instruction.

The Boatswain or other person designated by the Master is in charge of the deck during launch and recovery of boats. While a boat is underway, the boat operator is in command and responsible for the embarked personnel and safe operation of the boat.

6.4.3 General

The ship normally carries a Zodiac Rigid-Hulled Inflatable Boat (R.H.I.B.) with outboard motor as a ship’s boat. For special operations such as diving, a Zodiac inflatable with outboard motor is available with an advance request. The inflatable is normally warehoused at the OSU Ship Operations facility. The ship provides an operator as well as all required safety equipment for boat operations. The ship’s boats are intended to be used in support of the scientific effort although, at the discretion of the Master, they may be used for other purposes such as recreation as deemed appropriate.

The Boatswain or other person designated by the Master shall be responsible for inspection and run tests of the small boat on a monthly basis, and prior to deployment to ensure that the R.H.I.B. is properly inflated and ready for deployment at all times.

6.4.4 Procedures

Although not required of ship's boats, every effort will be made to maintain the ship’s boats registered with the State of Oregon. A copy of the registration will be kept on the back of the R.H.I.B. seat.

The Chief Mate will ensure that the operator has received adequate training and is certified as a boat operator. In some cases, personnel under training will be allowed to operate under supervision of a trained operator. Special care must be exercised to keep weights to a minimum during all hoisting operations so as not to over tax the lifting bridle or boatlift points.
The operator shall ensure:

A. That the boat is in proper condition, adequately inflated and seaworthy.
B. That the boat contains equipment as required by the USCG for the size motor boat being operated. The required equipment is kept in good condition and up to date and ready for immediate use. A watertight boat box is provided for those items that must be kept dry.
C. That a VHF radio is on board, fully charged and tuned to the agreed upon frequency, is turned on and ready for use.
D. That the boat is operated in a safe manner observing all applicable rules of the road.
E. That the number of persons and gear does not exceed the manufacturer’s weight limits and that the weight is evenly distributed for proper operation under the prevailing conditions.
F. That a radio check is conducted prior to getting underway from the ship, and regularly thereafter as agreed to by the bridge.

The boat operator will follow all special instructions given by the ship’s watch officer.

The Chief Mate shall be responsible for engine maintenance, both periodic and planned, whether done on board or contracted to an outside source. Requests for repairs, spares and supplies will be sent by email to the Ship Operations office. Maintenance records shall be maintained by the Chief Mate.

The Chief Mate, will be responsible for the general overall boat maintenance (except engine work) and readiness condition including providing adequate quantities of stabilized gasoline. The Chief Mate will collaborate with the Chief Engineer as needed to address maintenance and repair issues.

6.4.5 Launch / Recovery

The R.H.I.B. will be launched and recovered on the starboard or port side using the ship’s Morgan crane. Tag lines are fair lead fore and aft with positive control using cleats or other securing points.

A four-part spliced sling coupled to a single pear or sling ring led to a single lift pennant attached to the crane headache ball and hook is the preferred method for lifting. The four lift points are attached to the boat’s lift rings. Tag lines are fair lead fore and aft with positive control using cleats or other securing points. The crane operator and line handlers follow the directions of the Boatswain for launch and recovery.

The usual procedure for launching the RHIB is as follows but may be modified to suit the situation at hand:
A. The boat is raised from the deck, lifted over the bulwark rail and then swung inboard against the bulwark and made fast.
B. Gear may be loaded and the operator climbs aboard with the required safety gear and takes position on the outboard side facing the ship.
C. On signal, the boat is swung out and lowered away. Once positively afloat, the operator releases the crane hook. As the hook is being raised, the line handlers provide long leads fore and aft to keep the boat safely alongside.
D. The boarding ladder is deployed over the side. Designated persons board the boat and additional gear is passed down if needed.
E. Once all hands are seated and the motor is running, the bridge will give permission for the boat to get underway.
F. Upon recovery, the process is essentially reversed, the boat is returned to the deck and secured as before.

Note: Once the boat has been launched, the operator is in charge and responsible for all persons aboard. All lines are to be safely secured inside the boat.

The checklist appended as SMF 6.4.B will be used in small boat operations aboard Oceanus.

6.4.6 Training

To become recognized as a qualified small boat operator, the individual shall:

A. Understand the use and care of the equipment and the operations from pre-launch to recovery and securing.
B. Receive practical training that includes observation of all aspects of the operation with qualified operators, then operating with a qualified operator supervising until the trainee is ready to solo. Readiness to solo is determined by the Chief Mate.
C. Perform a practical test to demonstrate satisfactory operation of the boat.

Note: The Master and the Chief Mate reserve the right to revoke any operator’s certification if, in the opinion of either, an operator is in violation of safety standards or operating the boat in a manner which endangers personnel.

6.4.7 Reporting

Upon completion of the above requirements to the satisfaction of the Chief Mate, “Small Boat Operator” Qualification (SMF 6.4.A) will be added to the Ship’s Record Book, with a copy provided to the Ship Operations.
6.5.1 Purpose

The purpose of this procedure is to set forth the standards for A-frame and Hydro Boom operations and the qualification for training operators on the R/V Oceanus.

6.5.2 Responsibility

The operation of the A-frame and Hydro Boom in the conduct of ship’s work and training other personnel to operate it is under the direction of the ship’s Boatswain or other person designated by the Master. The ship’s A-frame and Hydro Boom are typically operated in conjunction with other equipment including, but not limited to: winches, capstan, tuggers, and the ship’s crane.

6.5.3 General

A. The A-frame is operated from a wired remote control on the starboard A-frame pedestal. The control push buttons operate the hydraulics to traverse the A-frame either in or out. The normal position for transiting and when not in use is all the way out. Standard practice when docking the ship in confined areas is to "top up" the A-frame to allow for room astern and to protect it from contact by other vessel movements.

B. The Hydro Boom is operated via a switch control at the Hydro Winch operator’s station on the 02 deck starboard. The switch operates the hydraulics to extend or retract the boom. The normal position for transiting and when not in use is fully retracted.

C. As with all other weight-handling equipment, the A-Frame and Hydro Boom are tested and certified periodically. These tests are typically scheduled during shipyard maintenance periods.

6.5.4 Qualifications

The Boatswain, or his/her designee, will train and qualify any member of the ship’s complement to operate the A-frame, and the Marine Technician for the cruise may train and qualify members of the scientific complement to operate this A-frame. Hydro Boom qualification will be in conjunction with Hydro Winch training and qualification (see SMM 6.6.2.)

6.5.5 Maintenance

The deck department maintains the A-frame and Hydro Boom structures. Periodic, scheduled lubrication is the responsibility of the deck department. The engine department maintains electrical and hydraulic components.
6.6.1  DEEP-SEA TRACTION WINCH OPERATIONS

6.6.1.1 Purpose

The purpose of this procedure is to set forth the standards for deep-sea traction winch operations and the qualification for training traction winch operators aboard R/V Oceanus.

6.6.1.2 Responsibility

Deep-sea traction winch operations are conducted with the approval of the Master. The Marine Technician Superintendent is responsible for the wire spools. A Wire Log Report shall be completed by the Marine Technicians and approved by the Chief Mate at the end of each cruise for each wire used.

6.6.1.3 General

The ship’s deep-sea traction winch is a custom built Dynacon Constant Tension Winch. The system is designed to handle a variety of wire spools including: (1) 9/16 3x19 wire, (2) 0.680 coax conducting wire and (3) 0.681 fiber optic cable. The storage spools are interchangeable with other Dynacon spools in the UNOLS fleet including those owned by Scripps Institution of Oceanography. The spools are changed out through the main deck hatch. The actual operation of the winch is described in the winch operator’s manual.

Before any deep-sea winch operation takes place, a meeting with the Marine Technician for the cruise, Master, Chief Mate and involved scientists will take place. This meeting is to identify the general plan for the operation, the maximum anticipated loads, any special considerations and, if appropriate, any procedures to deal with unusual circumstances. The Chief Mate is responsible for communicating information to the mates, Boatswain and able seaman who will be operating the winch.

The Watch Officer will determine if conditions are safe for deployment taking into consideration such issues as traffic density, visibility, wind, sea state, handling characteristics and any other relevant conditions that may be present. If in doubt, or if there are questions, the Watch Officer will call the Master for clarification. If operations are to continue, the appropriate signals will be displayed and security calls broadcast as required.

Since the winch is capable of multiple tasks, the control microprocessor offers several important and convenient options and settings that are tied in to alarms. Among these options are: speed out/in and tension limits with high and low settings. Additionally, since the winch room is unattended, a full suite of Closed Circuit Cameras and Visual Display Units are visible from the control station and bridge for operational monitoring.
The trawl operations are usually deployed through the A-Frame. Deployment can also be conducted off the starboard side or port side with additional specialized support equipment and configuration.

Procedures for rigging, handling, overboarding and recovery are tailored to the individual tasks and, as in all procedures, designed to provide as safe an operation as is prudent and reasonable. Deck set up, rigging, overboarding and recovery will be at the direction of the Marine Technician, Boatswain or Chief Mate who will instruct all participants and direct deck operations.

Once all equipment is safely aboard and secured, the power to the winch will be secured unless operations are to continue.

The fantail deck area and the winch room are secured to all nonessential personnel while all operations are being conducted.

All operations involving new equipment or unusual overboard configurations are to be pre-approved by the Marine Superintendent well in advance of the scheduled trip. Considerations are covered in SMM 7.15, Overboarding Operations.

6.6.1.4 Operation/Training

The deep-sea traction winch shall be operated by a trained and qualified member of the deck department. They will operate under the direction of the ship’s Boatswain, Chief Mate or other qualified individual designated by the Master.

New operators shall go through a training and certification process as outlined in the “Winch Operator Certification Worksheet & Checkoff List” (SMF 6.6). This training includes familiarization with all winch systems, controls and safety equipment, as well as concepts of reeving, Factors of Safety and other pertinent information.

Due to the nature of most winch operations performed on Oceanus, most hands-on training with the winches and associated equipment must be conducted underway. The operator in training will be directly supervised by the Boatswain, Chief Mate or other instructor approved by the Master until deemed Competent by the Boatswain and Chief Mate for independent operation in most evolutions.

When the Boatswain and Chief Mate are satisfied that a Competent operator has sufficient experience to properly and safely operate the winches and associated equipment in any underway evolution, the operator will be documented as Certified.
6.6.1.5 Maintenance

The lubrication and maintenance of the winch structure and related hardware and sheaves are the responsibility of the Deck Department. Mechanical, electrical and electronic issues are the responsibility of the Engine Department. The Marine Technician Group is responsible for the maintenance, repair and calibration of winch instrumentation, as well as termination of electromagnetic or fiber-optic oceanographic cables as required for specific operations.

All maintenance conducted by the ship’s crew will be recorded and the information will be entered in the deck maintenance log and Machinery History as appropriate.

6.6.1.6 Reporting

Upon completion of the above requirements to the satisfaction of the Chief Mate, the completed and signed form SMF 6.6 for “Dynacon Traction Winch” will be placed in the Ship’s Record Book, with a copy provided to the Ship Operations office.
6.6.2.1 Purpose

The purpose of this procedure is to set forth the standards for hydro (CTD) winch operations and the qualification for training hydro winch operators aboard R/V Oceanus.

6.6.2.2 Responsibility

Hydro winch operations are conducted with the approval of the Master. The Marine Technician Superintendent is responsible for the wire spools. A Wire Log Report shall be completed by the Marine Technicians and approved by the Chief Mate at the end of each cruise for each wire used.

6.6.2.3 General

The ship’s hydro winch is a Markey DESH-5 hydrographic winch that is mounted on the starboard side of the 01 deck. The winch control, as well as the control for the associated hydro boom, is located on the 01 deck. The winch is presently spooled with 0.322" EM conducting wire rope. The actual operation of the winch is straightforward and is described in the winch operator’s manual.

The Chief Mate is responsible for communicating information to the mates, Boatswain and able seaman who will be operating the winch. The Master, mates, Boatswain and able seaman are to be familiar with the procedures in the Markey DESH-5 operator’s manual for the winch as well.

The Watch Officer will determine if conditions are safe for deployment taking into consideration such issues as traffic density, visibility, wind, sea state, handling characteristics and any other relevant conditions that may be present. If in doubt or if there are questions, the Watch Officer will call the Master for clarification. If operations are to continue, the appropriate signals will be displayed and security calls broadcast as required.

Hydro winch operations are conducted using the ship’s hydro boom. The CTD deck area is secured to all nonessential personnel while all operations are being conducted.

A similar Markey COM-15 winch is co-located with the DESH-5 and may in some cases be used in place of the DESH-5 for CTD operations, or for other overboarding operations. In addition, portable winches from the UNOLS winch pool or supplied by the scientific party may be used in overboarding.

All operations involving new equipment or unusual overboard configurations are to be pre-approved by the Marine Superintendent well in advance of the scheduled trip. Considerations are covered in SMM 7.15, Overboarding Operations.
6.6.2.4 Operation/Training

The Hydro winches and hydro boom shall be operated by a trained and qualified member of the deck department. They will operate under the direction of the ship's Boatswain, Chief Mate or other qualified individual designated by the Master.

At the Master’s discretion, members of the *Oceanus* Marine Technician Group and science party may be trained and qualified in the operation of portable winches in addition to the personnel listed above.

New operators shall go through a training and certification process as outlined in the “Winch Operator Certification Worksheet & Checkoff List” (SMF 6.6). This training includes familiarization with all winch systems, controls and safety equipment, as well as concepts of reeving, Factors of Safety and other pertinent information.

Due to the nature of most winch operations performed on *Oceanus*, most hands-on training with the winches and associated equipment must be conducted underway. The operator in training will be directly supervised by the Boatswain, Chief Mate or other instructor approved by the Master until deemed Competent by the Boatswain and Chief Mate for independent operation in most evolutions.

When the Boatswain and Chief Mate are satisfied that a Competent operator has sufficient experience to properly and safely operate the winches and associated equipment in any underway evolution, the operator will be documented as Certified.

6.6.2.5 Maintenance

The lubrication and maintenance of the winch structure and related hardware and sheaves are the responsibility of the Deck Department. Mechanical, electrical and electronic issues are the responsibility of the Engine Department. The Marine Technician Group is responsible for the maintenance, repair and calibration of winch instrumentation, as well as termination of electromagnetic or fiber-optic oceanographic cables as required for specific operations.

All maintenance conducted by the ship’s crew will be recorded and the information will be entered in the deck maintenance log and Machinery History as appropriate.

6.6.2.6 Reporting

Upon completion of the above requirements to the satisfaction of the Chief Mate, the completed and signed form SMF 6.6 will be placed in the Ship’s Record Book, with a copy provided to the Ship Operations office. A separate SMF 6.6 will be completed for each winch (fixed or portable) that an operator is trained and certified on.
6.7 NON-CREW ORIENTATION

6.7.1 Purpose

Every person that comes on board the R/V Oceanus needs to have a very basic knowledge of safety. Every person needs to know what to do for the basic emergency scenarios of fire, abandon ship and man overboard. In addition that person should know the procedures for reporting an emergency situation.

The purpose of this procedure is to set forth the basic elements of safety that shall be presented to non-crewmembers on the Oceanus. Non-crewmembers may include researchers, scientists, students, observers, technicians, agency representatives, or others who are directly or indirectly supporting the scientific objectives of a sea going cruise.

6.7.2 Responsibility

It is the responsibility of the Master of the vessel to insure that non-crewmembers receive basic safety orientation on board their vessel.

This orientation may be delegated to another member of the crew to conduct. Such delegation does not relieve the Master of the responsibility to insure that each non-crewmember receives a proper orientation.

6.7.3 General

It is important that each person on board the vessel know what to do in cases of emergency. This knowledge shall be imparted to non-crewmembers in four ways: (1) Berth assignment, (2) Safety Orientation Video (available on board the vessel), (3) Safety Orientation Lecture, and (4) Initial Fire & Boat Drill.

Each person reporting on board Oceanus shall be assigned a berth. Associated with each berth (bed) is a Station Card. This Station Card designates where that person is assigned for a fire, an abandon ship or man overboard.

Before getting underway, or as soon as practicable thereafter and no more than 24 hours after departure:

A. The Chief Mate or other officer designated by the Master shall make available the RVOC Safety Video for the instruction of all non-crewmembers who have not sailed aboard a UNOLS research vessel within the last two years, and shall conduct a Safety Orientation Lecture for all non-crewmembers. The Marine Technician assigned to the cruise shall assist the Master or his designee in ensuring that all non-crewmembers assigned to the cruise are in attendance.
B. The Master shall conduct a fire and boat drill. At this fire and boat drill, all personnel will report to their designated fire station and receive instructions in what they are expected to do. This instruction includes where to assemble and what to bring. Following basic fire instruction, each person will be instructed in the basics of abandoning ship. Such instruction shall include donning of personnel flotation devices and exposure suits. It will also include basic instructions for entering life rafts and what to bring should an abandon ship be announced.

As a normal practice, non-crewmembers will receive instruction during other regularly held drills.

6.7.4 Reporting

All fire and boat drills performed on board the Research Vessel Oceanus are logged into the vessel’s official deck logbook. Each Safety Orientation Lecture shall be recorded on SMF 6.7 “Non-Crew Orientation Checklist” signed by all non-crew personnel attending and the instructing officer. The original form shall be retained by the Master for the duration of the cruise and forwarded to the Ship Operations office prior to departure; a copy of the signature page shall be retained onboard for one year from the date of the orientation.
6.8.1 Purpose

The purpose of this section is to define the need for and purposes of a Safety Meeting.

6.8.2 Scope

It is understood that many safety meetings occur on board R/V Oceanus during a given cruise or inport period, as well as among onshore personnel. Several such meetings may occur daily. For the purpose of the SMS, Safety Meetings are defined as formal gatherings at which attendance needs to be documented.

6.8.3 Background

A Safety Meeting is a general term that can apply to a number of different situations including:

- Safety Stand Downs in the event of an accident
- Safety Stand Down in order to discuss a Near Miss as defined by Annex to MS-MEPC.7/Circ.7 of the ISM Code
- Review of SMM / NCCAR changes and recommendations
- Any situation onboard that the Master or Marine Superintendent deems important enough to call an all hands meeting to discuss and document.

6.8.4 Shipboard Safety Meeting Conduct

Chapter 9.4 of this SMM defines the need for a Safety Meeting in order to disseminate NCCAR disposition and final Corrective Action implemented.

Beyond the above, and HAZREP Safety Stand downs notwithstanding, a shipboard Safety Meeting will be called at the discretion of the Master, no less than quarterly.

6.8.5 Records

SMF 6.8 will be used to document Safety Meeting Attendance. These forms will be maintained on the ship and at the office for a period not to exceed five years.
7.0.1 General

The Marine Superintendent is responsible for establishing procedures and guidelines for vessel operations to ensure compliance with state, federal, and international laws and regulations.

Employees are responsible for performing work in accordance with the Safety Management System and actively participating in the safety performance of OSU Ship Operations.

7.0.2 Operational Control

OSU Ship Operations has established procedures for shore-based and shipboard operations and activities concerning the safety and security of the ship, prevention of pollution, and preservation of the environment in support of the company’s policy.

The operations at OSU Ship Operations are carried out under controlled conditions. Controlled conditions include, as applicable:

A. The availability of information and operating criteria that defines and documents the characteristics of the service.
B. Procedures that have been established, maintained and made available where their absence could adversely affect safe operation and the protection of the environment.
C. Personnel who are properly qualified to carry out assigned tasks.
D. Compliance with mandatory rules, regulations and codes.
E. The use of suitable equipment and the availability and use of monitoring and measuring devices.
7.1.1 Purpose

The purpose of this procedure is to establish that each Master permanently assigned to R/V Oceanus shall set forth standing orders and establish the standards to which these standing orders are upheld.

7.1.2 Responsibility

It is the responsibility of the Master to establish standing orders and to ensure that all deck watch officers are aware of those orders. It is the responsibility of the deck watch officers to ensure that these orders are enforced on watch.

7.1.3 General

Every Master has his or her comfort level. This comfort level is set forth through a document referred to as standing orders.

The regular Master shall promulgate standing orders. These orders shall be reviewed, acknowledged and signed by all deck watch officers no less than annually, and at any time the standing orders are revised by the Master.

When a relief Master is assigned, he or she may amend or supplement the existing standing orders, or simply confirm that the existing orders remain in force. All deck watch officers shall review, acknowledge and sign these orders prior to assuming their first watch under the relief Master.

Any Master may, at his discretion, publish Night Orders for navigation and other operations when not in attendance in the wheelhouse. If published, all deck watch officers shall review, acknowledge and initial the Night Orders prior to assuming the watch, and shall ensure that the watch carries out these orders.

7.1.4 Reporting

The Master shall provide a current copy of the Standing Orders to the Ship Operations Office at least annually, and at any time the orders are revised. A relief Master shall provide a copy of any amended Standing Orders to the Ship Operations office at the completion of their relief.

Night Orders will be retained on board for the duration of each cruise.

New vessel personnel will review the current Master's Standing Orders as part of their initial orientation; this will be documented on SMF 6.2.
7.2 RESPONSIBILITIES OF THE DECK DEPARTMENT

7.2.1 Purpose

The purpose of this procedure is to set forth the responsibilities of the Deck Department personnel.

7.2.2 Reference

Title 46, Code of Federal Regulations 15.1111  
OSU Position Descriptions

7.2.3 Responsibility

The Chief Mate is responsible for the Deck Department. The Chief Mate reports to the Master and shall keep the Master informed of all activities of the Deck Department. In the event that one or the other Mate position is temporarily vacant, the Master shall reassign the duties of that position to appropriately qualified personnel (i.e. himself, the remaining Mate.)

7.2.4 General

The Deck Department is made up of licensed and unlicensed personnel. Each licensed officer in the Deck Department is a watchstander and has specific responsibilities aboard the vessel. Unlicensed personnel are both watchstanders and day workers. The senior unlicensed individual in the Deck Department is the Boatswain. As directed by the Chief Mate, the Boatswain coordinates the work activities of unlicensed personnel within the Deck Department while they are not on watch.

The workday for an individual is dictated by the activities that the vessel is engaged in and the STCW standards that are set forth in Title 46 Code of Federal Regulations 15.1111. In particular, the following apply:

A. Each person assigned to a navigational watch shall receive a minimum of 10 hours of rest in a 24-hour period.
B. The hours of rest required may be divided into no more than two periods, of which one must be at least 6 hours in length.
C. The requirements above need not be maintained in the case of an emergency or drill or in other overriding operational conditions.
D. The minimum period of 10 hours of rest may be reduced to not less than 6 consecutive hours as long as:
   1. No reduction extends beyond 2 days; and
   2. Not less than 70 hours of rest are provided each 7-day period.
E. The minimum period of rest required under paragraph (A) may not be devoted to watch keeping or other duties.

In addition to the responsibilities set forth in the job descriptions for each position, the specific responsibilities of the members of the Deck Department are as follows:

Chief Mate

A. Second in command of the vessel
B. Head of the Deck Department
C. Watch stander, at sea and in port
D. Chief Medical Officer
   1. Responsible for maintenance of ship’s medical facilities, ensuring all necessary medications and equipment are on board and will not exceed shelf life during the scheduled cruise.
   2. Responsible for providing medical care to all crewmembers and other persons on board.
E. HAZMAT Officer
   Responsible for the safe handling, storage and use of hazardous materials on board the vessel.
F. Safety Coordinator – ISM Compliance Officer.
G. Training Officer/Coordinator.
H. Damage Control Officer and On-scene leader in emergency situations.
I. Safety Officer
   Responsible for the condition and repair of lifesaving equipment not delegated to other departments including but not limited to lifeboats, life rafts, life rings and life jackets

Second Mate

A. Watch Stander, at sea and in port
B. Navigation Officer
   1. Maintains all navigation and radio equipment, publications, charts and prepares information for the bridge.
   2. Ensures bridge electronics, navigational aides, alarm systems and lights are in good working order.
   3. Plots voyage tracks for the Master's approval using up-to-date Sailing Directions, Coast Pilot, Light List and Tide and Current Tables.
   4. Ensures all required flags are aboard and in good condition.
C. Weather Officer
   1. Responsible for general maintenance of all weather related equipment and having adequate supplies on board at all times.
2. Sends reports and weather data to appropriate parties as needed during scientific cruises.

Boatswain

A. Watchstander at sea and Security Watch in port.
B. Maintains assigned cleaning station.
C. Handles lines and shipboard equipment.
D. Loads/Offloads stores and scientific gear.
E. Assists in scientific operations as required.
F. Operates and maintains ship’s crane, winches, boats, etc., as qualified and directed.

Other Unlicensed Deck Personnel

A. Watchstander at sea and Security Watch in port.
B. Maintains assigned cleaning station.
C. Handles lines and shipboard equipment.
D. Loads/Offloads stores and scientific gear.
E. Assists in scientific operations as required.
F. Operates and maintains ship’s crane, winches, boats, etc., as qualified and directed.
7.3 DECK EQUIPMENT RESPONSIBILITIES

7.3.1 Purpose

The purpose of this procedure is to establish departmental responsibility for the maintenance and repair of the deck structure and machinery on board the R/V Oceanus.

7.3.2 Responsibility

The maintenance of permanent deck equipment is shared by all departments in the following manner:

All deck equipment structures and related hardware will be maintained by the Deck Department. This includes greasing of moving parts, corrosion treatment and maintaining coatings.

Mechanical and electrical issues, including greasing the bearings on all electric motors, are the responsibility of the Engine Department.

The Marine Technicians group is responsible for peripheral winch equipment, such as instrumentation and CCTV monitoring, and record keeping as defined below. Where the Marine Technicians have maintenance and repair responsibility, the Ship Operations Office has financial responsibility for providing the necessary hardware and spare parts.

Load testing of this equipment in compliance with the UNOLS Research Vessel Safety Standards will be scheduled by the Marine Superintendent or Port Engineer and is generally included in routine shipyard packages.

7.3.3 General

The equipment covered in this policy includes the Markey Trawl and Hydro (CTD) Winches, the Dynacon Deep Sea Traction Winch, A-frame, the anchor windlass, the capstan, wire fair leads, overboarding blocks, wire ropes and cables, air and hydraulic tuggers, the ship’s main crane and the portable crane.

Deck Department Responsibilities

A. All exterior painting.
B. All greasing of equipment and blocks as per the manufacturer’s guidelines.

Engine Department Responsibilities

A. All hydraulic equipment.
B. All electrical equipment except as noted under the Marine Technicians responsibilities on specific equipment.
C. Mechanical maintenance and repairs.

7.3.4 Winches

A. Deck Department Responsibilities

1. Assist Marine Technicians in changing out wires.
2. Provide trained operators to support science.
3. Maintain the deep-sea winch turning blocks and all blocks supplied by the Deck Department.
5. Periodic Maintenance as specified in the winch manuals.
6. Log overboarding wire depths and tensions during operations.

B. Engine Department Responsibilities

1. Assist Deck Department in changing of winch drums.
2. Changing of levelwind gear ratios.
3. Adjust and set up systems for operation.
4. Periodic maintenance as specified in the winch manuals.
5. Maintain and repair winch control systems.

C. Marine Technicians

1. Marine Technician is responsible in ensuring wire logs are kept current.
2. Complete Wire Log Report at the end of every cruise, and for any wire shortened, transferred, retired or removed from ship.
3. Maintain and repair the closed circuit TV system.
4. Maintain and repair winch instrumentation system components.
5. Schedule and coordinate wire changes and replacements with the Marine Superintendent.

7.3.5 Crane

A. Deck Department Responsibilities

1. Crane whip maintenance and replacement.
2. Terminations and fittings, including blocks used for lifting on board and all straps and other lifting accessories.
3. Supply qualified operators.
B. Engine Department Responsibilities

As defined in the General Section.

7.3.6 Anchor Windlass and Capstan

A. Deck Department Responsibilities

Inspection and maintenance of the pelican hooks, pawls, anchor chain and associated ground tackle.

B. Engine Department Responsibilities

As defined in the General Section.

7.3.7 A Frame

A. Deck Department Responsibilities

As defined in the General Section.

B. Engine Department Responsibilities

As defined in the General Section.

C. Marine Technician Responsibilities

Operation and the training of operators from the science party when necessary.

7.3.8 CTD Hydro Boom

A. Deck Department Responsibilities

Inspect, maintain, and replace shackle and block as required.

B. Engine Department Responsibilities

As defined in the General Section.
7.3.9 Reporting

A. The Chief Mate will keep a log of all deck department initiated maintenance; this log will include all other hull and structure maintenance and preservation (beyond routine cleaning and paint touch-up.,

B. The Chief Engineer will keep a log of all engine department initiated maintenance.

C. The Marine Technicians will keep a log of all overboarding wire use including maximum deployment depths and tensions, and will ensure that the “Wire Log Report” is filled out for any use of or changes in wire (shortening, transfer, retirement or removal from the ship), and distributed to the Chief Mate and Port Engineer records. The Marine Technicians will also ensure that calibrations of winch instrumentation are made and recorded.
7.4.1  Purpose

The purpose of this procedure is to establish routine check-off lists to be used in preparation for arrival and departure aboard the R/V Oceanus.

7.4.2  Responsibility

The Master is responsible for evaluating the readiness status of the vessel. This will be accomplished with the assistance of the Mates, Chief Engineer, Boatswain, Marine Technician, Chief Scientist and other personnel as directed.

7.4.3  General

33 CFR 164.25 spells out a series of performance checks between the bridge and the engine room. In addition 46 CFR 196.35-5 identifies actions to be logged.

7.4.4  Departure

In general, the procedure for getting underway under scheduled conditions follows a routine, which varies little. Once the departure time has been agreed upon between the Master and chief scientist, a sailing board, or equivalent, is posted for all hands and, if departing from Newport, the Ship Operations Office is notified. Any change in the day of departure, which will have schedule impact, must be approved by the Marine Superintendent. In out-ports, this information is conveyed via a departure report. It is always understood that the departure time may be flexible in order to accommodate a variety of unforeseen issues which may cause delay, or conversely in some cases, an early departure. In each case, every attempt will be made to adhere to the established time.

Prior to getting underway:

A. The Chief Engineer will instruct his/her department as needed to attend to the procedures required to make ready in all respects for getting underway. This includes but is not limited to:

1. Taking the time in advance to bring systems on line for testing and warm up.

2. Switching to ship’s power.

3. Testing or observing the testing of all vital systems.
4. Verifying that the vessel is in correct trim and providing the bridge with a completed tank report.

When all procedures have been completed, the Chief Engineer will report to the Master that he is ready in all respects to get underway or if not will report deficiencies in need of attention.

B. The Chief Mate and Boatswain will inspect the decks and attendant interior spaces to ensure that all gear and equipment has been properly secured. Properly secured aboard R/V Oceanus means that we are ready to proceed into storm force conditions at any time.

C. The Chief Scientist will ensure that his labs and equipment are properly secured for sea. Additionally, he will report that all members of the science party are on board and that they are ready to proceed.

D. The Second Mate will work from SMF 7.4A for departure, SMF 7.4B for arrival to ensure that all bridge and navigation systems are on line and in good order and that the requisite systems have been tested (steering/propulsion/bow thruster, etc.) The lists appended to this Manual as SMF 7.4A and SMF 7.4B are provided as examples; any checklist used should include all items required by the regulations cited in 7.4.3 above, as well as any other data or checks deemed necessary by the Master. Once completed, the Second Mate will report to the Master that the bridge is ready in all respects or report deficiencies in need of attention. After testing the ship’s bow thruster, propulsion controls, and steering on the bridge and starboard helm stations, the Master will give the command to single up all lines.

Getting underway/Sea Detail:

The actual procedure varies for each evolution depending upon the forces and conditions on hand. The Master will determine the strategy and direct the deck crew accordingly.

A. The standard crew positions for getting underway have the Master and Second Mate on the bridge, the Chief Mate on the bow, the Boatswain on the stern, and the AB’s divided between the bow and stern positions. Additional crewmembers may be used as required.

B. Once underway, the Master, when ready, will transfer control to the main console. The Chief Mate supervises and assists on the foredeck as needed but a lookout must be provided while on sea detail. One of the ABs will man the steering gear (also known as emergency steering gear), with working communications to the bridge. In
special cases or in periods of very restricted visibility, the Master may have a "bridge team" which includes the Chief Mate on the bridge to assist.

C. Once the vessel has reached the sea buoy, or other such area as deemed safe, after steering will be secured, the anchor housed, the sea detail will be secured, and the watch set. All mooring lines will be stowed prior to crossing any bar.

7.4.5 Arrival

This procedure varies to suit the prevailing conditions. In general, the arrival time is set well in advance and arrangements will have been made, either through the Ship Operations Office if arriving at Newport, or by other means such as a ship’s agent or host institution if arriving at an out-port. If arriving at a U.S. port after a foreign voyage, a pre-arrival Customs Check will be conducted to search for contraband.

A. Prior to arrival at the sea buoy or boarding a pilot, a pre-arrival test will be conducted as required to test auxiliary propulsion, steering station and bow thruster controls. As with Departure procedures above, a checklist will be used to ensure all required preparations and tests have been properly carried out prior to maneuvering. The Boatswain or Chief Mate will get permission from the bridge to make the anchor ready to let go. The sea detail will be set and after steering manned.

B. The Deck Department will range out mooring lines, rig fendering as directed and make ready heaving lines.

C. The usual practice is for the Captain or his designee to assume the duties of helmsman and to “drive” the vessel directly. Conning occurs from time to time, often when a Pilot is embarked. In most cases, the Master will dock the vessel given that he/she is more familiar with the special handling characteristics of the vessel.

   a. NOTE: The master is always encouraged to delegate docking, undocking, and other activities that require ship handling finesse to a subordinate in order to enhance professional development and to ensure the vessel’s safety in the event that the master should become incapacitated.

D. Once alongside with mooring lines evened up, the standard practice is to double up lines and rig chaffing gear.

E. Once the Master or Pilot is satisfied that the vessel is in the berth properly and as assigned, and that no further maneuvering is needed, the Master will notify the Chief Engineer of “Finished With Engine” and the sea detail will then be secured.
7.5 SHIP STABILITY POLICY

Originator: Frederick J. Jones
Approved By: Demian Bailey

7.5.1 Purpose

The purpose of this section is to establish responsibility and guidance for managing ship stability.

7.5.2 Reference

46 CFR 42.15-1(b), 46 CFR 170.110, 46 CFR 170.120(a), 46 CFR 196.12-1, 46 CFR 196.15-7, 46 CFR 196.35-5(d)

International Load Line Certificate #7529631-1622740-001 issued 06 MAR 2009.

7.5.3 Responsibilities

A. The Master will work with the Marine Superintendent to ensure that all current baseline stability data are current, accurate and available. Changes to the vessel are controlled and managed to ensure compliance with applicable regulations. This includes scheduling and conducting stability tests as necessary.

B. The Ship Operations Group will ensure that the vessel is provided with a current trim and stability booklet and such computerized systems as may be available.

C. The Master will ensure that various loads are managed so that the stability requirements are met.

7.5.4 Procedures

A. Stability calculations must be made and recorded at the beginning of each cruise or leg and at any other time the Master deems appropriate (as, for example, when significant changes in load take place).

B. Each vessel’s Trim and Stability Booklet provides instructions and information for calculating that vessel’s stability. The Master must ensure that he or she and designated Mates are instructed and competent to perform such calculations.

C. Oceanus has been provided with computerized software to facilitate stability calculations. The Master must ensure that he/she and the designated Mates are instructed in the use of this software.

D. Stability calculations, whether determined manually or by computer program, will be double-checked by confirming the drafts of the vessel at the bow and stern prior to departure.
7.5.5 Records

A. The Master is required to record in the official deck log that verification of the vessel's stability has been calculated prior to the departure of the vessel and at other times necessary to assure the safety of the vessel.

B. Calculations verifying vessel stability are required to be maintained on board the vessel for the duration of the voyage. Calculations verifying stability that are made in the computer program must be saved and retained for the voyage.
7.6 ANCHORING PROCEDURES

7.6.1 Purpose

The purpose of this procedure is to set forth guidelines for anchoring the R/V Oceanus.

7.6.2 Responsibility

The Master has overall responsibility for the ship and crew during anchoring procedures. The windlass structure and related hardware, as well as periodic lubrication (lube points identified and marked on unit), are maintained by the Deck Department. The mechanical and electrical components are maintained by the Engine Department. The decision to anchor the vessel ultimately rests with the Master.

7.6.3 Preparation

All key personnel (both Deck and Engine Departments) must be kept informed of the expected time of maneuvering and anchoring.

7.6.4 General

Oceanus is equipped with two 1500-pound Baldt anchors that are attached to 6 (port) or 7 (starboard) shots of 1” stud link chain. The chain is led through the hawse pipe to a double drum anchor winch. The chain is then led around the wildcat and into the spill pipes which empty into the chain locker. The bitter end of the chain is secured with a shear pin near the top of the chain locker with easy deck access for emergency disconnect. Under normal anchoring, only one anchor is used and given adequate swing room. The formula of 5 to 1 scope is used. Other options may be employed at the discretion of the Master depending on circumstances. The standard procedure during periodic scheduled shipyard maintenance is to range out both anchors and chain and to end-for-end the chain prior to reinstallation. A specified thickness gauging is conducted on a regular schedule to ensure continued dependability.

7.6.5 Letting Go

Using standard procedures, letting go the anchor is a controlled process typically as follows:

A. The foredeck crew will usually consist of the Chief Mate, Boatswain and one seaman. Eye protection is required to protect from flying rust and dust. PFDs and hard hats are to be worn. Gloves are recommended for use with the ratchet turnbuckle and mallet.

B. The Master will give the order to make (starboard/port) anchor ready for letting go. Confirm depth of water, type of bottom and number of shots to let out. The steps involved are:
1. Assemble tools and look over the side to make sure all is clear.

2. Turn on power to windlass.

3. Ease off on the brake for the anchor to be used. The turnbuckle & pelican hook will catch any slack.

4. Engage the wildcat and take up tension on the chain.

5. Back off on the steamboat ratchet and disconnect pelican hook.

6. Ease the chain out and stop on the signal of the Mate who will ensure that the anchor is eased out enough to allow a free descent when the brake is released.

7. Put the brake on tightly and place the pelican hook on the chain but keep it lazy.

8. Disengage the wildcat. You are now ready for letting go under controlled conditions.

9. Upon receiving the command from the bridge to let go, once again check over the side, ensure that the foredeck is clear and safe. When clear, knock the turnbuckle pelican hook off the chain with the mallet.

10. Ease off on the brake and drop the anchor under control to the bottom. Once on the bottom it will be necessary to place some pressure on the brake so that as the ship eases back, the chain pays out as needed and does not pile up upon itself. The Boatswain or seaman will call out the shots as they pass across the deck until the desired length is at the water’s edge or on deck, whereupon the brake will be fully engaged and the steamboat ratchet or "devils claw" will be placed on the chain to take the strain. Once this is done, the brake will be eased and all strain removed from the windlass.

11. Raise the black ball day shape or turn on the anchor lights, as appropriate.

12. The foredeck crew informs the bridge and stands by until it is determined that the anchor has been set and holding. The Master will set an anchor watch and the Watch Officer will ensure that the seaman makes periodic checks of the ground tackle and reports back to the Watch Officer.

13. The anchor watch will take all appropriate measures making use of available equipment to ascertain that the anchor is not dragging, will record bearings and positions on a regular basis paying special attention to changes in wind direction and speed and changes in the currents. If it is determined that the anchor is
dragging, the Master will be notified at once and the main engine, if not already running and on standby, shall be started as soon as is safe to do so and made ready. In an emergency, a second anchor shall be set to minimize dragging. Failing that, any and all measures available such as a tug or other rescue vessel(s) shall be summoned or placed on standby until the situation is under control. If under the control or direction of port authorities, they must be notified as soon as an adverse situation begins to develop.

7.6.6 Weighing Anchor

Using standard procedures, weighing the anchor is a process typically as follows:

A. Assemble foredeck crew with required gear.

B. Rig and charge the foredeck general service line to the hawse pipe and prepare to wash off mud from incoming chain.

C. Have a seaman standby the chain locker to make sure that the chain spills evenly and does not become entangled or fouled. At times, it may be required to have a seaman in the chain locker to flake out the chain. This will only be done with the permission of the officer on watch and while in direct communication with the anchor windlass operator.

D. Turn on the windlass and wait for the bridge to pass the word to "heave in."

E. Engage the wildcat.

F. Take up on chain and, with the mallet, knock off the steamboat ratchet pelican hook. The Mate or member of the foredeck crew will give hand signals to the bridge indicating the direction the chain is leading. Special attention will be paid to minimize the chain from tending across the bow by signaling the bridge right away. Inform the bridge when the chain is "up and down" and when the anchor is "aweigh." Upon sighting the anchor, inform the bridge whether it is clear or foul.

G. Heave in until the anchor is near the hawse, washing down chain and anchor continuously. The anchor is then snugged with the steamboat ratchet to avoid shock loading the anchor windlass. Lastly, drop day shape and/or switch navigation lighting as appropriate after informing the bridge.

H. Engage the steamboat ratchet and pelican hook and start taking up on the turnbuckle while easing the chain off the wildcat so that, when the turnbuckle is as tight as possible and the anchor is made fast and secure, the chain between the steamboat
ratchet and wildcat has a small catenary indicating that there is no tension on the wildcat or windlass.

I. Disengage the wildcat and engage the brake. Secure power.

J. Notify the bridge.
7.7 COMMUNICATIONS

Originator: Frederick J. Jones
Approved By: Demian Bailey

7.7.1 Purpose

The purpose of this procedure is to establish policy and procedures for operational and administrative communications between the R/V Oceanus and the Ship Operations Group. Science and personal communications are not addressed by this guidance.

7.7.2 Responsibilities

The Ship Operations Group is responsible for providing the ship with communication apparatus and equipment that meets all applicable regulations. Within the Ship Operations Group, the Marine Superintendent will have this responsibility. When changes to communication equipment or systems are anticipated, the Marine Superintendent will plan and budget for such changes.

Since Oceanus is an uninspected vessel under 300 GRT (U.S.), annual FCC inspections are not required.

Maintenance and certification of the equipment will be coordinated by the Ship Operations Group under the direction of the Marine Superintendent.

The Master is responsible for on board maintenance to the limit of the technical expertise on board. Where the requirements exceed the ship’s crew or marine technician’s capability, the Master shall report the deficiencies to the Marine Superintendent. The Master has the authority to bring in electronics service personnel in ports other than homeport to repair equipment.

The Master is responsible for conducting operational and administrative communication as indicated below.

7.7.3 Equipment

The R/V Oceanus has the full suite of GMDSS equipment required by SOLAS (voluntarily equipped.) In addition, other optional means of communications (VHF Radio, cell phone, Iridium Satellite, Fleet Broadband and HighSeas Net satellite, etc.) are also available.
7.7.4  Procedures

A. Operational Communications

The following operational communications from the vessel to the Ship Operations Group are required.

1. Departure Report
   This report is to be handed off when at home port or sent shortly after departure from any other port. The report will also be submitted within 12 hours of any change in on board complement due to personnel exchanges or medical evacuation. The report is generally sent by fax or via email. It shall include the following information, using form SMF 7.7.A:
   - Vessel Name - Departure Report
   - Time and Date of departure
   - Port of departure
   - Next scheduled port stop
   - Fuel on board
   - Lube oil on board
   - Draft marks
   - Names of persons onboard

2. Voyage Report
   This message is to be sent shortly after arrival at a port and should include the following information, using form SMF 7.7.B:
   - Vessel Name - Voyage Report
   - Cruise Number
   - Summary of Port Calls
   - Date/time of Departures
   - Date/time of Arrivals
   - Fuel used on voyage and fuel onboard
   - Dates & times of all drills, exercises and safety meetings conducted during the voyage.

3. Morning Report
   On all days away from home port the Master will provide a Morning Report to the Ship Operations Group. The Morning Report will generally be provided at approximately 0830 ship’s time via e-mail. Cellular or satellite phone, fax or HF SSB radio may be used as alternate methods if necessary.

B. General Communications
Email is the desired method of transmitting routine ship’s business between the vessel and the Ship Operations Group. However, some limitations of using this system must be kept in mind. As a general rule, routine communications will be by email and should be sent to the Ship Operations alias at shipops@lists.oregonstate.edu.

Since there is no automatic acknowledgement that an email was received by the recipient, the sender has no reason to believe it was unless a response has come back. It shall be the policy of the Ship Operations Group to respond to any email requesting assistance (e.g., parts orders) and to keep the ship informed on the progress of actions requested.

7.7.5 Weather Reports

The Master shall avail him/herself of all appropriate sources of weather information available for waters in which the ship is operating. The Master shall assure that the vessel participates in the US Voluntary Observing Ship (VOS) weather reporting project, unless operations or equipment problems preclude doing so.

7.7.6 Base Radio Stations

The Ship Operations facility in Newport operates a properly licensed base radio station for VHF FM voice communications with OSU research vessels at sea. This system is a back-up to the other modes of communications.

7.7.7 Other Emergency Communication Equipment

The R/V Oceanus is equipped with Survival Craft Radios, EPIRBS, SARTS and an SSAS and LRIT.
7.8.1 Purpose

The purpose of this procedure is to mandate that the Chief Engineer of the R/V Oceanus establish standing orders for the members of his/her department.

It is recognized that different Chief Engineers will have different levels of concern on how the department needs to operate based on personality and experience. SMM 7.8.4 specifies the minimum requirements as determined by the Master and the Ship Operations Group.

7.8.2 Responsibility

With the knowledge and approval of the Master, it is the responsibility of the Chief Engineer of the Oceanus to establish standing orders and to ensure that engineering watchstanders are aware of those orders.

7.8.3 Promulgation

The Chief Engineer will submit his/her Standing Orders to the Master for review and approval (by signature) prior to publishing to the engineering department and Ship Operations office. If a relief Chief Engineer is assigned on a voyage, he/she may amend the existing Standing Orders, or otherwise will note in writing that the existing Standing Orders will remain in effect. In either case, the Master will review and sign prior to publication.

7.8.4 Minimum Requirements

All engineers are required to be well rested, sober and alert while standing watches both underway and in port.

The engineer on watch is expected to be dressed appropriately with work shoes, work pants and a work shirt – coveralls may also be worn. The engineer will carry a flashlight at all times while on watch.

Rounds are to be done throughout the engineering spaces and around the ship checking all pressures, temperatures and machinery fluid levels. A thorough round of all engineering spaces is also expected to check bilge levels, tank levels, and to assure that all gear is secure. Hourly rounds should be sufficient as long as all machinery/equipment is in proper working order. More frequent rounds are expected during rough weather or when monitoring possible problems. Note any unusual conditions that may arise during your
watch and pass them along to the next watchstander if they require further observation or attention.

In the event of a loss of a piece of critical machinery, know the appropriate action to take to get the machinery back on line or a back-up unit running. If you do not know or are not sure, ask questions and find out how.

Critical Equipment:
- Main Engine & Clutch
- Reduction Gear
- CPP unit
- Main Electrical Power System
- Emergency Electrical Power System
- Steering System
- Fire Pump
- Bilge System
- CO² System
- Starting and Control Air Systems

Should problems arise during the watch, assess the problem quickly and calmly. Alert the mate on watch and the Chief Engineer should you need to slow the ship down and/or secure the main engine, or if the situation threatens the safety of the vessel (e.g., fire or flooding).

Watches are stood alone on the Oceanus so do not take any unnecessary risks around the machinery. You are expected to check in with the bridge watchstander or mate on watch hourly to let them know that you are safe.

All watchstanders are expected to have knowledge of all other non-critical systems on board, as you will be responsible for their safe operation while on watch.

No liquids shall be discharged overboard while in port or at sea without the knowledge and permission of the Master and the Chief Engineer. Consult the Chief Engineer before any operations which may result in an overboard discharge.

7.8.5 Reporting

Standing watch orders are left in the engine room log desk. All watchstanders shall read these standing orders. Once you have read and understand the assignments, initial next to your name. If you do not understand, you are expected to ask questions.

The Chief Engineer may also publish Night Orders for additional equipment monitoring, on-watch maintenance/repairs or any other necessary items. Night Orders will be posted at the engine room log desk. Each watchstander shall review and initial such orders (if published) on assuming the watch.
A current copy of the Chief Engineer’s Standing orders shall be provided to the Ship Operations office. A copy of any Standing Orders promulgated by a relief Chief Engineer shall be provided to the Ship Operations office with the Departure Report for the relief voyage.
7.9.1 Purpose

The purpose of this procedure is to establish the guidelines set forth for the engineers on R/V Oceanus. This designation of responsibilities is set forth in order to systematically allocate the preventative maintenance of the various engineering systems aboard the ship. This systematic allocation is intended to assist crewmembers in understanding their assigned responsibilities, ensure that the various systems on the vessel are assigned to someone for preventative maintenance, and to aid in the education of new personnel as to their responsibilities.

The Chief Engineer has the authority to direct the engineering personnel to perform any repairs or maintenance as deemed necessary. These assignments may even be made to those outside of an individual’s area of maintenance responsibility.

It is essential that the members of the engineering department remember that it is the responsibility of every member to take immediate and definitive steps to remedy a piece of equipment found in a failing condition to limit the extent of failure. This is regardless of areas of the responsibilities set forth herein.

7.9.2 Responsibility

It is the responsibility of the Chief Engineer to assign each system of the vessel to a position in the engineering department. This designation should happen by position and not by name. Individuals go on vacation and move up and down in positions. Designation by position establishes stability in the preventative maintenance program.

The regular Chief Engineer will generate the assignments of engineering responsibilities and have it adopted into the Safety Management System. As the need may dictate, the Chief Engineer may revise that list of assignments by sending a revised list in to the Ship Operations Coordinator for incorporation into the Safety Management System.

The individual assigned to perform the preventative maintenance shall refer to vendor’s technical manuals and other reference materials located on the vessel. Maintenance shall be recorded in the maintenance log by the Chief Engineer.

7.9.3 General

The following is a list of all engineering systems/components aboard Oceanus categorized by engineering position responsible for general maintenance:
7.9 RESPONSIBILITIES OF ENGINEERS

Chief Engineer

<table>
<thead>
<tr>
<th>Systems</th>
<th>Components</th>
</tr>
</thead>
<tbody>
<tr>
<td>Main Engine</td>
<td>Throttles</td>
</tr>
<tr>
<td>Generators</td>
<td>HVAC-Refrigeration S/W Piping</td>
</tr>
<tr>
<td>CP Unit</td>
<td>Lube Oil Piping</td>
</tr>
<tr>
<td>Clutches</td>
<td>J/W Piping</td>
</tr>
<tr>
<td>Bow Thruster</td>
<td>S/W Piping</td>
</tr>
<tr>
<td>Reduction Gears</td>
<td>Hydraulic Piping</td>
</tr>
<tr>
<td>Steering Gear</td>
<td>Pumps</td>
</tr>
<tr>
<td>HVAC</td>
<td>Emergency Shutoffs</td>
</tr>
<tr>
<td>Refrigeration</td>
<td>Heat Exchanger</td>
</tr>
<tr>
<td>Evaporator</td>
<td></td>
</tr>
<tr>
<td>CO2 System</td>
<td></td>
</tr>
<tr>
<td>Alarms</td>
<td></td>
</tr>
<tr>
<td>Switchboard/Electrical</td>
<td></td>
</tr>
</tbody>
</table>

Assistant Engineer (1)

<table>
<thead>
<tr>
<th>Systems</th>
<th>Components</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emergency Generator</td>
<td>Bilge Piping</td>
</tr>
<tr>
<td>Fuel Transfer Pump</td>
<td>Fuel Piping and Vents</td>
</tr>
<tr>
<td>Fuel Centrifuge</td>
<td>Grey Water Piping</td>
</tr>
<tr>
<td>Bilge/Ballast</td>
<td>Hot Water Piping</td>
</tr>
<tr>
<td>OWS</td>
<td>Compressed Air Piping</td>
</tr>
<tr>
<td>Sewage Pump</td>
<td>Heads/Showers</td>
</tr>
<tr>
<td>Rescue Boat</td>
<td>Strainers</td>
</tr>
<tr>
<td>A-Frame/Hydro Boom</td>
<td>Transducer air lock guages</td>
</tr>
<tr>
<td>Ship’s Whistle</td>
<td></td>
</tr>
<tr>
<td>Transducer Air Lock</td>
<td></td>
</tr>
</tbody>
</table>

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Assistant Engineer (2)

<table>
<thead>
<tr>
<th>Systems</th>
<th>Components</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crane</td>
<td>Sewage Piping</td>
</tr>
<tr>
<td>Air Compressors</td>
<td>Sanitary S/W Piping</td>
</tr>
<tr>
<td>Air Handlers</td>
<td>Potable Water Piping</td>
</tr>
<tr>
<td>Potable Water Pumps</td>
<td>Chill Water Piping</td>
</tr>
<tr>
<td>General Service/Sanitary</td>
<td>Fire Main Piping</td>
</tr>
<tr>
<td>Fire Main</td>
<td>Deck Drains/Vents</td>
</tr>
<tr>
<td>Boilers</td>
<td></td>
</tr>
<tr>
<td>Science Sea Water</td>
<td></td>
</tr>
<tr>
<td>Galley Equipment/Laundry</td>
<td></td>
</tr>
<tr>
<td>Anchor Windlass/Capstan</td>
<td></td>
</tr>
<tr>
<td>Bridge Wipers/Clear Views</td>
<td></td>
</tr>
<tr>
<td>Heaters</td>
<td></td>
</tr>
</tbody>
</table>

Specific responsibilities are spelled out for the deck equipment on the R/V Oceanus in SMM 7.2.
7.10.1 Purpose

The purpose of this procedure is to set forth the guidelines necessary for proper waste oil, sewage and trash management aboard R/V Oceanus.

7.10.2 Responsibility

With the knowledge and approval of the Master:

A. The Chief Engineer is responsible for management and disposal of waste oil.

B. The Chief Engineer is responsible for management, treatment and disposal of sewage.

C. The Chief Mate is responsible for management, storage and disposal of trash.

7.10.3 General

A. Waste Oil

1. Waste oil is transferred into the ship’s waste oil tank. The waste oil is then transferred to an approved shoreside facility/container/hauler for further proper disposal. All waste oil transfers are to be recorded on USCG Form CG-4602A “Oil Record Book for Ships, Part 1” maintained by the Chief Engineer and reviewed by the Master. In outlying ports, paperwork documenting the transfer of waste oil must be retained by the ship for submission to the Ship Operations Office.

B. Sewage

1. R/V Oceanus is equipped with a USCG- and IMO-approved Type II Marine Sanitation Device (MSD). Wherever practicable and/or required by law, the MSD shall be used for treatment of ship’s sewage prior to overside discharge. Local laws and regulations may prohibit any discharge even of MSD-treated sewage.

2. In port, if deemed necessary or prudent, ship’s sewage will be pumped ashore to an approved facility. This may be an approved tank, shoreside sewage discharge line or truck. The procedure will be conducted at the direction of the port authorities. Under no circumstances will untreated sewage or graywater be pumped directly over the side while in port.

3. At sea, sewage is discharged in compliance with the Federal Clean Water Act. Every effort shall be made to discharge as far out as possible. In keeping with the
law, untreated sewage shall never be discharged closer than 3 nautical miles from shore. These limits may be modified or extended to comply with local laws and regulations. Sewage may be retained on board upon the high seas for an extended period, within practical limitations, if requested by the chief scientist so as to not compromise the science work.

C. Trash

1. In port, local law or regulations generally dictate discharge of trash. Arrangements are usually made through the ship’s agent or representative acting in the interests of the ship to ensure compliance with proper procedures as set forth by the port or health authorities.

2. At sea, disposal of trash is done in accordance with the restrictions set forth in the MARPOL 73/78 ANNEX V. Trash is separated on board, plastics in one container and trash in the other. Plastics and most other trash are kept on board and properly disposed of at the port of arrival; the vessel is equipped with an industrial-grade waste compactor to minimize stowage requirements. Under no circumstances are plastics to be disposed of in the ocean or waterways. An approved "trash log" is maintained and kept on the bridge. Permission must be obtained from the watch officer before dumping of trash is allowed in order to ensure compliance with regulations or to prevent harm to the science project.

7.10.4 Records

The records required above will be retained onboard the vessel as required by law and regulation. The Designated Person will conduct a documented Management Review of these records no less than quarterly.
7.11.1. Purpose

The purpose of this procedure is to provide the correct handling of bilge and ballast waters for pollution prevention aboard R/V Oceanus.

7.11.2. Responsibility

With the knowledge and approval of the Master:

A. The Chief Engineer is responsible for all bilge and ballast handling operations.

B. The engineers on watch are assigned the duties of bilge transfer, Oily Water Separator (OWS) operations, and maintenance of systems.

7.11.3. References

Facet Bilge Water Separator CPS-3.2E+EBM 14x1 Technical Manual

7.11.4. Procedures

**Bilge Water**

All machinery space bilges are pumped to the aft main engine room bilge pocket and allowed to settle before being pumped overboard via the OWS. The OWS takes suction from the bilge pocket, separates any oil from the water, and pumps the water overboard, providing the oil content meter reads less than 15 ppm. All separated oil is discharged into the waste oil holding tank. The OWS is capable of processing approximately 3 gallons of bilge water per minute, and is configured for manual operation only.

**Ballast Water**

The procedures outlined in the Ballast Water Management Plan (BWMP) located on board the vessel shall be adhered to. The point of ballast water pollution prevention is to stop the introduction of non-native species of sea animals and plants to foreign coastal shores.

Oceanus was originally designed with a common bilge/ballast system, which presented a risk of oil contamination to ballast water discharges and of accidental overside discharge of contaminated bilge water. The system piping has been modified to provide full isolation of the bilge and ballast systems in normal operation; one crossover valve has been retained in the piping to allow emergency dewatering of machinery space bilges via the ballast, fire and/or general service pump, and is mechanically locked shut for normal operations.
Oily Water Separator

To Start:

1. Close drain valve (G).
2. Open suction valve (A).
3. Open overboard valves (B-1, B-2, B-3).
4. Open clean water inlet to Oil Content Meter (E).
5. Open sample discharge valve from Oil Content Meter (J).
6. Open clean water supply valve (K).
7. Turn main power ON.
8. Turn control switch to “MAN”.
9. Unit should start up when full of clean water; may cycle for air/oil purge one or more times on startup.

To Secure:

1. Open vent valve (F) while pump is running; close when pump stops.
2. When pump restarts, turn control switch to “O”.
3. Secure main power.
4. Close inlet valves. (Bilge suction should be closed downstream of strainer only.)
5. Close overboard valves.
6. Close clean water valves.

Log times and positions for start and stop in machinery log and Oil Record Book. Quantity discharged will be runtime (in minutes) x 3 gallons/minute.

The OWS will monitor the water and indicate oil content on the meter. As long as the output is less than 15 PPM, the unit will continuously discharge the water overside. Any higher reading will cause the unit to go into the recirculating mode until the output is back below the 15PPM range; note that this will add water to the bilge. The oil discharge mode will occur whenever the OWS has enough oil to cause the unit to discharge into the dirty oil tank, or if the pocket has been pumped below suction. Secure processing before the oil/water interface drops to the suction level, to avoid fouling the OWS.

7.11.5. Reporting

The taking on and discharging of ballast water will be recorded in the ballast water log in the engineroom and in the ship’s official log located on the bridge. OWS operations will be recorded in USCG Form CG-4602A “Oil Record Book for Ships, Part 1” maintained by the Chief Engineer and reviewed by the Master. These records will be retained onboard as required by law and regulation, and will be subject to a documented Management Review by the Designated Person no less than annually.
7.12.1. Purpose

The purpose of this procedure is to set forth the guidelines for safe operation of the fuel and lubricating oil systems (fill, transfer and service) on R/V Oceanus.

7.12.2. Responsibility

The Master is responsible for ensuring that all requirements of law regarding the safe transfer and handling of oils are satisfied. The Chief Engineer is responsible for monitoring fuel and oil tank levels on the vessel, maintaining all fuel and oil piping and machinery, transferring fuel and oil from storage to daytanks and/or end-use, and is the primary Person-In-Charge for all bunkering operations. The Chief Mate is responsible for ensuring safe deck and mooring conditions for all bunkering operations.

The Marine Superintendent and Port Engineer are responsible for scheduling all bunkering and verifying vendor compliance with all Mobile Transfer Facility requirements.

7.12.3 References

A. 33 CFR Subchapter O (Pollution)
B. MARPOL Annex VI
C. R/V Oceanus Oil Transfer Manual (January 2013)
D. R/V Oceanus Trim & Stability Booklet (Rev. C, 14 Feb 07)
E. OSU Nontank Vessel Response Plan (USCG VRPX Control #26100, Rev. 7, 20 Feb 12)
F. OSU Shipboard Oil Pollution Emergency Plan (USCG VRPX Control #15609, Rev. 7, 16 Jan 13)

7.12.4 Qualification as Person-in-Charge

The vessel’s permanent Chief Engineer is deemed qualified to serve as the primary Person-in-Charge. Relief Chief Engineers and other personnel may be qualified as follows:

A. Any licensed engineering officer, or any unlicensed engineer holding a Tankerman-PIC endorsement to their Merchant Mariner Credential, may be qualified as PIC at the discretion of the Marine Superintendent and the Master. Completion of one full bunkering evolution under the supervision of the permanent Chief Engineer will be required before qualification.

B. Crew or staff members not meeting the requirements of 7.12.4.A may be qualified as PIC at the discretion of the Marine Superintendent and the Master. Qualification will require proof of completion of a USCG-approved “Tankship – Dangerous Liquids” course (or proof of substantially similar training), and completion of two full bunkering evolutions under the supervision of the permanent Chief Engineer. A Letter of Designation meeting the requirements of 33 CFR 155.715 will be issued by the Marine Superintendent and added to the employee’s personnel file and training record.
7.12.5 Procedures

A. Fuel and Oil Bunkering:

Bunkering of fuel and lube oil may be conducted at the OSU Ship Operations facility or in outports. Oceanus has a fuel oil capacity of approximately 55,000 gallons at 95% full on all storage and day tanks, and a lubricating oil capacity of approximately 1650 gallons at 100% full on both storage tanks.

Fuel oil storage tanks will normally not be filled to exceed 95% capacity due to the risk of tank venting with thermal expansion; any transfer plan that requires filling beyond this point must be approved in writing by the Master and the Marine Superintendent. The written approval will be filed with the transfer record.

All fuel oil will be either #2 off-road/marine Diesel oil (may be red-dyed or undyed) or Naval distillate F76, and will be ultra-low-sulfur (≤15ppm.) Fuel oil samples will be drawn, sealed and recorded at all bunkerings, and retained onboard per MARPOL Annex VI.

Detailed bunkering procedures are given in the Oceanus Oil Transfer Manual; copies of this manual are available on the bridge and at the engine room log desk. A copy must be in the immediate possession and control of the Person-In-Charge during all bunkering operations.

B. Tank-to-tank Transfer:

Fuel oil is normally transferred from storage to main engine day tanks on a daily basis while underway, via a centrifugal purifier in the transfer system with a nominal delivery rate of 5 gallons/minute. A fuel oil transfer pump is provided in the system to allow transfer between storage tanks if necessary for vessel stability, and in case of purifier failure; due to this pump’s far higher delivery rate (approximately 125 gallons/minute), safety procedures identical to those used for bunkering will be observed if used.

Main engine day tanks will normally not be filled beyond 75% capacity; the generator/boiler day tank is kept at 100% by design, being fed from the main engine service returns with overflow to the main engine day tanks. (A fill line from the transfer system to this tank is provided for periods of engine non-operation.)

The emergency generator day tank is normally maintained at 75% - 95% capacity and is filled via the transfer system as required, using the purifier only. Due to the high risk of overflow, the fuel oil transfer pump will not be used for this tank except in extreme emergency.

Detailed procedures for all tank-to-tank transfer operations are provided in the Oceanus Oil Transfer Manual.

C. Service Systems:

Lubricating oil is normally struck down to the main engine and service generator crankcases on an as-needed basis, or at the direction of the Chief Engineer, by the engineer on watch. Totalizing meters are provided in all lube oil service systems to allow monitoring and tracking of oil consumption.
Lube oil and fuel oil service systems to all engines and the boiler will be maintained and operated by the Engineering department in accordance with good marine practice and manufacturer’s instructions.
7.13 PRE-CRUISE PLANNING

7.13.1 Purpose

The purpose of this procedure is to outline the tasks for pre-cruise planning.

7.13.2 Responsibility

Both the Marine Superintendent and Marine Technician Superintendent are responsible for this procedure. It is the responsibility of the Marine Technician assigned to the cruise to contact the Chief Scientist/P.I. to discuss scientific instrumentation needs and plans, and to communicate these to the vessel and the Ship Operations office.

7.13.3 General:

Pre-cruise planning begins when the R/V Oceanus operating schedule has been approved by UNOLS. This ideally occurs in September of the year before the operating year, but could be delayed. A study of the funded shiptime request forms will provide the initial requirements of each cruise. Some of the considerations involved could be pilotage requirements, permits to operate in marine sanctuaries, and foreign observers. Specific attention needs to be made when foreign clearances are involved since this procedure could take seven months or more. Any long lead time needs of the Chief Scientist must also be addressed.

7.13.4 Procedure

The Marine Superintendent will publish the ship’s schedule as far in advance of the operation year as possible. Refinements and updates to the schedule can be expected as final funding decisions are made. At least three (3) months prior to each cruise the Ship Operations Coordinator will remind the Chief Scientist to complete a cruise plan (form can be found on the R/V Oceanus web site). This form has an automatic distribution and will inform all concerned of the cruise requirements.

The Ship Operations Coordinator will send a copy to the Chief Scientist of the following SMM requirements that pertain to the cruise. In particular:

A. SMM 2.2 Drug and Alcohol Policy
B. SMM 7.17 CTD Operations
C. SMM 6.5 A-Frame Operations
D. SMM 7.18 Dive Operations
E. SMM 7.20 Personal Protective Equipment
F. SMM 7.21 HazMat Operations
G. SMM 7.14 Shipboard Science Operations
H. SMM 7.16 Overboarding Equipment
If necessary, one or more pre-cruise meetings will be held with the Chief Scientist, Marine Superintendent, Marine Technician Superintendent, Ship’s Master, Marine Technician assigned to the cruise, and other persons that may be involved in cruise planning. If a meeting cannot be held for logistic reasons, a conference call will be set up by the Marine Technician. This meeting and any necessary follow-up meetings should resolve cruise planning problems.
7.14 Purpose

The purpose of this procedure is to establish general guidelines for safe Shipboard Science Operations on board R/V Oceanus.

7.14.2 Responsibility

Afloat, the Master has the ultimate responsibility for safety. In the case of Science Operations at sea, the Chief Scientist shares in this responsibility. Ashore, the Marine Superintendent and the Marine Technician Superintendent are responsible for providing the Master with information and support to ensure safe operations.

The first two references below assign responsibilities directly to the Chief Scientist or Principal Investigator. On cruises with multiple PI’s, the Chief Scientist is expected to coordinate all science operations from a safety perspective.

A successful and safe cruise depends upon accurate, open and frequent communications between the Master, Marine Technician and the Chief Scientist and among the science party and the crew.

7.14.3 References

A. R/V Oceanus Cruise Planning Manual
B. Policy on Radioisotope Use Onboard OSU Vessels
C. RVOC Research Vessel Safety Standards (March 2009)

7.14.4 Procedures

Before getting underway, or as soon as practicable thereafter and no more than 24 hours after departure, the Chief Mate or other officer designated by the Master shall conduct a Safety Orientation Lecture for all non-crewmembers. The Marine Technician assigned to the cruise shall assist the Master or his designee in ensuring that all non-crewmembers assigned to the cruise are in attendance.

This briefing shall include the following elements at a minimum:

A. An introduction to safety at sea - The hazards of a moving platform.
B. Watertight integrity.
C. Fire prevention.
D. Emergency response – man overboard, fire, abandon ship.
E. Life jackets & Immersion (survival) suits.
F. Requirements for Personal Protective Equipment.
G. Shipboard drills.
7.14.4 Reporting

Each Safety Orientation Lecture shall be recorded on SMF 6.7 “Non-Crew Orientation Checklist” signed by all non-crew personnel attending and the instructing officer. The completed form shall be retained by the Master for the duration of the cruise and forwarded to the Ship Operations office when the cruise is complete.
7.15.1 Purpose

The purpose of this procedure is to describe policies on board R/V Oceanus for working with scientific equipment over the side, referred to as “Overboarding”.

7.15.2 Scope

Much of research ship time is spent performing science operations, which includes towing instruments, working gear over the side or fantail, and/or placing heavy objects on the seafloor. On Oceanus, there may be independent groups working on different projects at the same time.

7.15.3 Responsibility

All crewmembers and scientific personnel, including Marine Technicians, participating in overboarding evolutions should refer to the overboarding Job Safety Analysis (JSA) prior to performing their duties.

7.15.4 Procedures

A. Planning: Unique, first-time or one-time-only operations pose special difficulties and demand additional attention to planning.

Planning is a two-tier function:

1. Pre-cruise planning must address the general overboarding requirements. It is the responsibility of the Chief Scientist to work with Ship Operations and Marine Technician Group staff to ensure that all unusual requirements are raised and considered.
2. On board, the Overboarding JSA should be consulted for procedural and hazard analysis details.

B. Communications: Both levels of planning will have identified special communications requirements; however, communications between the person in charge on deck, the bridge watch officer and the winch operator must be clear, unmistakable and thoroughly tested prior to the beginning of operations.

C. Operations: Follow the plan. Only those with assigned duties may be on deck in the vicinity of the overboarding operations. Scientists standing by to retrieve samples must wait until the person in charge on deck gives permission before moving to the equipment.
No equipment will be put over the side or recovered until permission from the watch officer in the pilothouse is obtained. If, during launching or pickup of towed gear, it appears the propeller or rudder may be fouled, the watch officer will immediately stop the screw.

When working over the side, proper safety precautions will be observed at all times. When wearing a safety harness, life jackets and/or work vests must be worn over the safety harness. Another crewmember that is fully qualified in marlinespike seamanship shall double-check all knots.
7.16 OVERBOARDING EQUIPMENT

7.16.1 Purpose

The purpose of this procedure is to set forth standards to ensure safe overboarding equipment on R/V Oceanus and to define responsibilities to ensure that there are no injuries or loss of equipment during overboarding operations on the vessel.

7.16.2 Scope

This procedure covers the design, installation, maintenance and inspection of overboarding equipment on the R/V Oceanus.

7.16.3 Definitions

Overboarding is defined as the use of the overboarding equipment, sometimes referred to as “working over the side.”

Overboarding equipment is defined as all mechanical gear involved in removing equipment from a location on deck and lowering into the water. There are three general categories of this equipment:

A. Permanent ship’s equipment - is defined as machinery such as crane, winches, capstans, blocks and rigging regularly associated with the ship and maintained by the ship’s force.

B. Institution scientific equipment - is defined as machinery such as winches, cranes and blocks owned by OSU groups other than Ship Operations and not regularly associated with a particular ship but may be used on Oceanus. The primary example is equipment from the COAS Coring Group or Mooring Group.

C. Temporary scientific equipment - is defined as machinery such as winches, cranes, and blocks used on the ship for a short period of time, such as the duration of a scientific program. This machinery is not owned or maintained by OSU Ship Operations.

The safe working load (SWL) is defined as the maximum mass or force that a piece of equipment is authorized to support in general service when the pull is applied in-line.

7.16.4 Responsibility

The safety of all persons on board the ship is ultimately the responsibility of the Master. It is the responsibility of the Master to be familiar with the requirements of 46 CFR 189.35 (Weight Handling Gear) and UNOLS Research Vessel Safety Standards (Appendices A and B) and to ensure compliance while the equipment is on the vessel. Specific responsibilities of the Master may be designated to other officers on board. It is the responsibility of those on board to know their jobs via this procedure.
It is the responsibility of the Master to ensure that all overboarding activities are done in a safe manner.

It is the responsibility of the Chief Engineer to maintain the overboarding equipment (except blocks and loose equipment) in a safe and reliable condition. All maintenance, failures and repairs to vessel overboarding equipment is to be recorded in the vessel’s maintenance records by the Chief Engineer.

It is the responsibility of the Chief Mate to maintain in safe and working condition, and test as per Permanent Ship’s Equipment below, the blocks and loose equipment. A log is to be kept of all testing, maintenance, failures, and repairs to blocks and loose equipment.

A. Permanent Ship’s Equipment

Design - It is the responsibility of the Master to ensure that the correct equipment is used in each application and the SWL is not exceeded. It is the responsibility of the Marine Superintendent to ensure that all new equipment is designed, built and installed to the proper specifications.

Testing - It is the responsibility of the Master or his designee, to ensure that all Weight Handling Gear is tested and logged in accordance with 46 CFR 189.35 and UNOLS RVSS Apps. A & B.

B. Institution Scientific Equipment

Design - It is the ultimate responsibility of the Master to ensure that the correct equipment is used in each application and the SWL is not exceeded. It is the responsibility of the Marine Superintendent and Marine Technician assigned to the cruise to collect information proving the suitability of the equipment well in advance of planned use. It is the responsibility of the person designated by the Master (usually the Chief Mate) to ensure that the equipment is installed as planned and in a safe manner.

Testing - It is the ultimate responsibility of the Master to ensure that all Weight Handling Gear is tested when installed on the vessel and logged in accordance with 46 CFR 189.35 and UNOLS RVSS Apps. A & B. It is the responsibility of the group that owns the machinery to prove the certified rating of the equipment to the Master prior to installation on the ship. In outports or occasions of a fast turnaround, the Marine Superintendent will be responsible for ensuring in a timely manner that proper testing has been done.
C. Temporary Scientific Equipment

Mission specific and new scientific gear is regularly produced and is expected to be used on board as new demands are made by science. It is the responsibility of the equipment owners to be familiar with acceptable standards for offshore Weight Handling Equipment and to assess each new piece of gear to ensure that the proper engineering and testing has been done prior to delivery to the ship. This equipment should have a SWL rating on it or relevant documentation that describes its operating parameters. It is the responsibility of the Marine Superintendent to assess each new piece of gear to ensure that the proper engineering and testing has been done prior to delivery to the ship. The Marine Superintendent can provide assistance to the science party in evaluating or specifying equipment for offshore operations. The Master ultimately has discretionary control over the use of any equipment that is used for Handling Gear.

7.16.5 Record Keeping

The Master is responsible for maintaining a log of all weight handling gear tests in accordance with CFR’s and UNOLS RVSS Apps A & B.

The Chief Engineer will maintain maintenance logs for overboarding equipment, excluding blocks and loose equipment.

The Chief Mate will maintain a system for logging and recording all testing of blocks and loose equipment as well as the wire log.

The Marine Technician Superintendent provides records for each use of each of the overboarding wires on the ship to the Chief Mate for inclusion in the wire log. This log is to include the following information:

(a) maximum wire paid out for each cast and
(b) maximum tension applied to the wire on each cast.

At the end of any cruise and any time wire is shortened, transferred, retired or removed from the ship, a Wire Log Report will be completed by the Marine Technicians; electronic and/or hard copies will be distributed to and maintained in the Chief Mate’s records, the Marine Technicians’ records, and the Port Engineer’s office ashore.

7.16.6 Procedures

Hard hats are to be worn by any person involved in crane operations and work vests are to be worn by any person working near the rail where the risk of falling overboard exists. Safety harnesses are to be worn when the Master deems it necessary for safety.
Always obtain permission from the watch officer prior to putting anything over the side of the ship.

Ship’s stability should always be considered prior to any overboarding operation.
7.17 CTD OPERATIONS

7.17.1 Purpose

The purpose of this procedure is to outline the tasks for CTD operations aboard R/V Oceanus.

7.17.2 Responsibility

The Marine Technician Superintendent is responsible for this procedure. However, all crewmembers participating in CTD evolutions should refer to the CTD Job Safety Analysis (JSA) prior to performing their duties.

7.17.3 Definition

In the context of this procedure, the CTD is defined as the two Sea Bird 9-11+ systems including associated instruments. Separate CTD systems, such as found on the SeaSoar, are not included in this procedure.

7.17.4 General

Requests for CTD operations should first be made by the PI on the UNOLS Shiptime Request Form. After the cruise has been funded and scheduled, the PI will complete a Cruise Plan (see SMM 7.13). This plan permits the identification of ancillary instrumentation to be used and other aspects of the scientific needs of the CTD request.

7.17.5 Procedure

The Marine Technician scheduled for the cruise should review the requirements for CTD operations on the Cruise Plan and ensure that all requested instrumentation is aboard, in operating condition and appropriately calibrated. Winch wire terminations should be completed before the cruise. Any other special requirements should be discussed with the PI/Chief Scientist.

The Chief Scientist of the cruise should make known his/her plans and schedule for CTD operations at a science meeting held as soon as possible after the cruise has gotten underway. Those scientific persons that will be involved in the operation should be identified. A walk-through training session must be conducted by the Marine Technician identifying each person’s responsibility including safety outfitting and safety procedures.

Only those individuals that receive this training are to be involved in the CTD operations. Work vests and hard hats are to be worn by the CTD team on deck.
During heavy weather additional safety requirements will be required including safety harnesses.

The ship’s Marine Technician will supervise the initial CTD operations until it is clear that all participants are knowledgeable as to their responsibilities. Prior to the beginning of each cast the navigation watch officer must give permission to commence. A member of the crew will operate the winch taking instructions from the CTD team leader and maintain a winch operation log showing tensions and deployment depths. The winch operator must notify the bridge when the CTD enters the water and again when it has cleared the water. Permission to bring the CTD aboard must be requested by the winch operator. Wires should be rinsed with fresh water on the final cast of each cruise and periodically lubricated.

At the completion of the CTD operation the CTD must be secured to the deck and the Wet Lab doors returned to the closed position. The bridge is to be notified by the team leader when the operation is secured and sampling is completed and the Wet Lab door is returned to the closed position. The winch operation log will be passed to the Chief Mate at the end of the cruise and the information used to update the ship’s wire log.
7.18.1 Purpose

The purpose of this procedure is to outline the requirements for scientific diving operations aboard R/V Oceanus.

7.18.2 Responsibility

The Master is responsible for ensuring that any scientific diving planned in the course of any science mission aboard Oceanus has been reviewed and approved by the OSU Diving Safety Officer (DSO). All planned scientific diving conducted in association with the Oceanus will be at the Master’s discretion.

7.18.3 General:

A. No diving other than scientific diving will be performed aboard R/V Oceanus unless directed by the Master and approved by the Marine Superintendent.

B. All diving operations will be planned in cooperation with, and approved by, the DSO in accordance with OSU Scientific Diving policies and procedures. Further information on these policies and procedures may be found at http://oregonstate.edu/research/diving/.

7.18.4 Procedures

A. The Principal Investigator or Chief Scientist for any scheduled science mission intending to conduct scientific diving will submit all dive plans and supporting documentation to the DSO in sufficient time to allow review by the DSO (and Diving Control Board, if necessary), any changes if required, and final approval by the DSO prior to the planned departure date of the vessel.

B. Approved dive plans (including DSO signature) will be submitted to the Ship Operations office and the Master. The Master, the Marine Technician assigned to the cruise, and all other personnel required by the plan (and any additional crewmembers, at the Master’s discretion) will review the plans as part of pre-cruise planning.

C. Any change to a previously-approved plan before or after departure must be re-submitted to the DSO for change approval. If change approval is not received in writing by the time of the planned dive, the Master shall not permit the dive to proceed.

D. The Master has full and final authority to suspend or cancel any dive if, in his/her judgment, conditions (including but not limited to weather, seas, machinery or equipment) are unsafe or out of compliance with the approved plan.
7.18.5 Reporting

All approved dive plans (including any change approvals) will be retained by the Ship Operations office with other records for the cruise. Any dive activity will be logged by the deck officer on watch; the log entry will include times of commencement and completion, and any other pertinent information.
### 7.19.1 Purpose

The purpose of this procedure is to establish a system for locking out and tagging out energy systems to reduce the potential for injuries or damage due to the inadvertent operation of a system.

### 7.19.2 References

Title 29 Code of Federal Regulations 1910.147

### 7.19.3 Responsibility

It shall be the responsibility of the Master to ensure that a lockout/tag out system is in place and is being used on the Oceanus. It shall be the responsibility of the Chief Engineer to monitor the lockout/tag out system and to maintain the log used to record lockout/tag out activity.

### 7.19.4 Policy

While it is recognized that the regulations set forth in the above reference do not apply to Oceanographic Research Vessels, it provides recognized standards for a lockout/tag out system. The Oceanus shall maintain a lockout/tag out system as set forth in this procedure.

### 7.19.5 General

A lockout/tag out system is used to secure energy stored equipment in a manner that will render them safe to work on and prevent the inadvertent start up of such equipment while it is being worked on. Both parts of a lockout/tag out system are essential parts of an effective system. Vessels must incorporate both components of this system.

When a piece of equipment needs to be repaired, set up, cleaned, adjusted, cleared or rebuilt, the following sequence of events should take place:

- A. Prepare for and announce the shutdown.
- B. Turn the equipment off.
- C. Disconnect all energy sources and test for isolation.
- D. Affix lockout devices to the energy sources and tag the points of disconnect.
- E. Release stored energy.
- F. Retest to make sure the equipment is isolated.

Each vessel shall maintain a lockout/tag out log to record pieces of equipment that have been secured under this system. The individual that applied the lockout/tag out devices
must remove them from the piece of equipment. It is recognized that there are occasions when a piece of equipment may be locked out and tagged by an individual no longer on the vessel. In these cases only the Chief Engineer may remove that individual’s lockout device and tag. To insure that this is accomplished safely, individuals signing off of the vessel must review with the Chief Engineer the status of locked out and tagged pieces of equipment. When the Chief Engineer signs off of the vessel, he/she shall review the lockout/tag out lock with the relief Chief Engineer.

APPLICATION of LOCKOUT or TAGOUT DEVICES
A. Announce the shut down of a piece of equipment.
B. Prepare equipment for shut down.
C. Shut down machine or equipment; if in doubt refer to proper shut down sequence outlined in machine or equipment technical manual.
D. Disconnect the energy-isolating device.
E. Apply the LOCKOUT or TAGOUT device; make appropriate entry in the log.
F. Verify that all stored or residual energy has been dissipated.
G. Verify the isolation and de-energization of machine or equipment.

TESTING or POSITIONING of MACHINE
A. Clear the machine or equipment of tools and material.
B. Remove personnel from the machines or equipment area.
C. Remove the LOCKOUT or TAGOUT devices as specified.
D. Energize and proceed with the testing or positioning.
E. De-energize all systems, isolate the machine or equipment from the energy source, and reapply LOCKOUT or TAGOUT devices as specified.

REMOVAL of LOCKOUT or TAGOUT DEVICES
A. Inspect the work area to ensure that non-essential items have been removed.
B. Inspect and ensure that machine or equipment components are intact and capable of operating properly.
C. Check the area around the machine or equipment to ensure that all personnel have been safely positioned or removed.
D. Verify that LOCKOUT or TAGOUT devices are removed ONLY by the employees who attached them.
E. Make appropriate entry in log that the tag has been removed.

7.19.6 Reporting

The lockout/tag out log shall be the medium for recording pieces of equipment that have been locked out and tagged. The information recorded in the lockout/tag out log shall be maintained for at least one year.
7.20 PERSONAL PROTECTIVE EQUIPMENT

7.20.1 Purpose

The purpose of this procedure is to establish guidelines for the use of personal protective equipment (PPE) aboard the R/V Oceanus. To this end, all appropriate safety precautions relevant to the work at hand must be observed.

7.20.2 Reference:

UNOLS Safety Training Manual

7.20.3 Responsibility

Each individual aboard Oceanus is responsible for the use of proper protective equipment. The primary responsibility for enforcing this procedure resides with the Master, the Chief Scientist and the ship’s Department Heads. They are responsible to ensure that work in progress aboard the ship is carried out safely and efficiently.

7.20.4 Procedure

A. The Master shall establish requirements to ensure workplace safety as conditions change. Required PPE standards may be waived in an extreme emergency requiring prompt action to save life, property or to protect the environment.

B. The UNOLS Safety Training Manual discusses PPE and establishes guidelines for use.

C. At sea, all personnel working on open decks where danger of going overboard exists, working over the side, or at any other time as required by the Master must wear approved personal flotation devices (PFDs).

D. All personnel in the vicinity of vessel crane operations, including shore cranes, or under the A-frames during operations must wear approved hard hats. Proper footwear is required for those normally involved in crane and A-frame operations.

E. All personnel going aloft must wear safety harnesses and use them properly. The Master may also require safety harnesses for individuals working over the side or working on weather decks during inclement weather.

F. All personnel in machinery spaces must wear approved ear protection while engines or other devices generating high noise levels are in service.
G. Eye and face protection: All operations with bench or hand held grinders, chippers, or other tools that may cause eye hazards require eye or face protection. Eye protection may also be required in ship’s laboratories when working with chemicals. It is the responsibility of individual supervisors/leaders to make the determination and enforce the use of appropriate equipment. Full-face protectors, if required, should be provided by the Chief Scientist for science use in the labs. OSU provides prescription safety glasses for those employees who need them.

H. Personnel utilizing the vessel's work boats must wear approved personal flotation devices appropriate to the prevailing conditions, hard hats, closed footwear and clothing sufficient for the expected duration of the operation.

I. While responding to vessel emergencies and drills, all personnel must report to their muster area with their required survival gear, hat and closed footwear.

J. Persons sent to combat fire and emergencies after the initial response must be appropriately attired and equipped with fire suits and self-contained breathing apparatuses (SCBAs).

K. Respirators shall be provided for vessel personnel and used properly when necessary.
7.21.1 Purpose

The purpose of this procedure is to set forth the guidelines for handling hazardous materials on board R/V Oceanus.

7.21.2 Responsibility

It is the responsibility of the Master to see that all Hazardous Materials (HazMats) are properly handled, stowed, and marked in compliance with CFR and DOT regulations. The Chief Scientist, with the knowledge and approval of the Master, may supervise the shipboard science party to ensure that safe laboratory practices and proper chemical storage techniques are used. If the science party intends to use radioisotopes, the Chief Scientist is responsible for ensuring that the proper permits and training for the possession and use of the radioisotopes are obtained pre-cruise and that all safety precautions and procedures are observed during the cruise. The Chief Scientist is responsible for providing Material Safety Data Sheets (MSDS), neutralizing agents, absorbents, and containment material for all HazMats brought on board. It is the responsibility of the Chief Scientist to provide an inventory of these items to the Master. The Master or their designee will serve as the safety and compliance officer for the vessel.

7.21.3 References

46 CFR Subchapter U (Oceanographic Research Vessels)
46 CFR Subchapter N (Dangerous Cargoes)
33 CFR Subchapter O (Pollution)
49 CFR Subchapter C (Hazardous Materials Regulations)
Oceanus Cruise Planning Manual
(http://www.shipops.oregonstate.edu/ops/oceanus/manual.htm)
Policy on Radioisotopes Onboard OSU Vessels
(http://www.shipops.oregonstate.edu/ops/wecoma/appendix_11.pdf)

7.21.4 Pre-Cruise Planning

The Chief Scientist will:

A. Coordinate well in advance intended use of all HazMats.

B. Provide an inventory to the Master (as stated in the Oceanus Cruise Plan).

C. Collect and deliver MSDS for all HazMat materials to be used on his/her cruise.

D. Coordinate with the Chief Mate for the proper storage of HazMats.

E. Arrange for removal and disposal of all HazMats and HazMat wastes.
F. Provide neutralizing agents, absorbents, and containment materials for all HazMats to be used on his/her cruise.

G. Notify the Master when all used HazMat materials and HazMat wastes have been removed from the vessel.

7.21.5 General

All hazardous materials shall have a Material Safety Data Sheet (MSDS) on board. Chemicals will be stored in the appropriate areas as defined in 46CFR194.20 in compliance with recommended compatibility segregation standards. The quantity of chemicals for use in the laboratory should comply with the guidelines set forth in 46CFR194.05. Laboratory safety and protocol for the use of isotopes is incorporated in the Isotope User’s Manual. Ship’s hazardous stores must be stowed in compliance with 46CFR147 and 49CFR171, 172, and 176.

Response to a HazMat incident will be under the supervision and direction of the Chief Mate. A chemical spill or other HazMat incident will be included in at least one regular ship’s drill every quarter.

All waste chemicals shall be properly identified and labeled for proper disposal. All HazMat waste shall be identified and disposed of according to state and federal regulations.

7.21.6 Records

A. Material Safety Data Sheets (MSDS) will be made available on all chemicals that are classed as hazardous.
B. All incidents will be investigated and reported as required.
C. Records of periodic safety inspections, training and all drills will be maintained on the vessel. All training and drills will be reported to the Ship Operations office on the Voyage Report, or via e-mail if the vessel is inport at the OSU facility.
7.22.1 Purpose

The purpose of this procedure is to set forth policies concerning confined space entry, both at sea and in port.

7.22.2 Responsibility

It shall be the responsibility of the Master to insure that policies set forth in this procedure are followed. The Master may designate an individual to coordinate the proper training of personnel in confined space entry.

7.22.3 Definitions

A. Confined Space – A confined space is any poorly ventilated space that has limited entry and exit openings. Such spaces may lack sufficient oxygen to support life or may contain flammable liquids, and explosive or toxic gases. Examples of confined spaces on Oceanus are tanks and voids.

B. Gas Free Certificate – A gas free certificate is a document issued by a Marine Chemist stating tests were conducted and the status of a space at the time of his or her test. The certificate will also indicate the type of work that is permitted in the space (Safe for Workers, Safe for Hot Work, etc.).

C. Hot Work – Hot work are activities that involve riveting, welding, burning, grinding, or like fire-producing actions. (46CFR35.01-1(b))

D. Marine Chemist – An individual recognized by the National Fire Protection Agency (NFPA) as qualified to test confined spaces and determine their condition with respect to oxygen sufficiency, explosive vapors or toxic gases.

E. Competent Person – An individual that has been trained and qualified to conduct testing of confined spaces that have been previously tested by a Marine Chemist. This person is usually provided at a shipyard or repair facility to check the spaces daily after the Marine Chemist.

F. Safe for Workers – Means that in the space so designated: (a) the oxygen content of the atmosphere is at least 19.5% by volume; (b) toxic materials in the atmosphere are within permissible concentrations; and (c) residues are not capable of producing toxic materials under existing atmospheric conditions while maintained as directed.

G. Safe for Hot Work – Means that in the space so designated: (a) oxygen content of the atmosphere is at least 19.5% by volume, with the exception of inerted spaces, where external hot work is to be performed; (b) the concentration of flammable materials in
the atmosphere is below 10% of the lower flammible limit; (c) the residues are not capable of producing a higher concentration than permitted by (b) above under existing atmospheric conditions in the presence of fire, and while maintained as directed; and that (d) all adjacent spaces containing or having contained flammable or combustible materials have been cleaned sufficiently to prevent the spread of fire, or are satisfactorily inerted, or, in the case of fuel tanks or lube oil tanks, or engine room bilges, have been treated in accordance with the Marine Chemist's requirements.

7.22.4 General

All confined spaces should be assumed to be dangerous until proven otherwise. Such spaces must be ventilated and tested prior to entry. The possible exception to this would be to repair damage, control flooding or extinguish fires, in which case all personnel should already be wearing proper safety equipment.

It is easy to become relaxed concerning the entry into spaces that have limited ventilation. This kind of attitude has the potential for disastrous results that can cause injuries or death. This can be averted through increased awareness of the hazards of entering confined spaces and following safety precautions before any person enters that space.

Normal fresh air contains about 20.9% oxygen by volume. Oxygen is consumed by internal combustion engines, by individuals breathing in the space, and by chemical reactions such as the formation of rust or the action of bacteria decomposing organic material. Spaces should be thoroughly ventilated until the oxygen content is at least 19.5%, the minimum required to sustain life. Any space that does not have at least 19.5% should not be entered without a self-contained breathing apparatus.

All confined spaces need to be opened and ventilated prior to entry. It is preferable to ventilate confined spaces using a portable blower. This portable blower should be explosion proof; however, if a non-explosion proof device is used to ventilate a confined space, care must be used in setting up the device so that the vapors contained in the space are not drawn through the ventilating device. This can be accomplished by using the device to supply fresh air into the space and providing an alternate exhaust path for the vapors to exit from the space.

The space must be tested for oxygen content and the presence of explosive gases prior to entry. When underway or inport (with the exception of shipyards or other contractor facilities), the individuals authorized to test the conditions of a confined space and certify the space as safe shall be the Master, Chief Mate or the Chief Engineer. Equipment is maintained on Oceanus to perform these tests. It is the responsibility of the Chief Engineer to maintain the equipment in calibration per the equipment manual.
In shipyards or other contractor facilities, anytime hot work is to be performed by an outside contractor a Hot Work permit must be obtained through a Marine Chemist. Once the Hot Work Permit has been obtained, it can be maintained in force through the periodic checking of a Competent Person. Care must be taken to insure that the validity of a Hot Work Permit is maintained. A change in the condition of a space will invalidate a Hot Work Permit and will require the Marine Chemist to return to re-certify the space.

A space tested and found “Safe for Workers” is not necessarily “Safe for Hot Work.” Prior to testing, it must be decided what the test is to determine. If a space has been tested and found “Safe for Workers,” it needs to be retested prior to the performance of hot work.

Once a space has been tested, the individual determining the condition of the space may place requirements on the entry of the space. This may include, but not be limited to, continued ventilation, retesting, emergency gear on location, type of communications required, and additional cleaning. These stipulations must be followed.

A confined space should not be entered without attendance of someone outside the space. This individual must be knowledgeable in identifying warning symptoms in the actions of those in the space that something is wrong, knowing what to do if something is wrong and how to get assistance.

### 7.22.5 Reporting

The deck watch officer shall be notified anytime a confined space is being entered. This officer shall be advised as to the reason for entering the space, who tested it for entry, and how long the space will be occupied.

Any time a confined space is entered, the Chief Mate or Chief Engineer shall maintain a record of that entry. The information will be recorded on form SMF 7.22 Confined Space Entry and the evolution noted in the deck log.

The record of a confined space entry shall be maintained aboard ship for at least one year and shall extend through the safety management audit cycle to provide evidence that this procedure is being followed.

Under NO circumstance will anyone be permitted to enter a confined space unless it has been deemed safe for entry by the Chief Mate or Chief Engineer.
7.23.1 **Purpose**

The purpose of this procedure is to provide guidelines and a check list for the safe operation of the pressurized transducer well aboard R/V *Oceanus*.

7.23.2 **Responsibility**

It shall be the responsibility of the Marine Superintendent and Marine Technician Superintendent to ensure that policies set forth in this procedure are followed on R/V *Oceanus*. The Marine Superintendent may designate an individual to coordinate the proper training of personnel. The Engineering department shall be responsible for maintenance on the air lock equipment, including monitoring renewal dates for calibration.

7.23.3 **Definition**

Transducer Well – The transducer well is a pressurized air lock chamber located amidships on the centerline of the ship with access on the Platform Deck. It consists of a lock-out chamber and pressurized well and contains sea chest openings for instruments requiring access to the sea.

7.23.4 **General**

While the changing of transducers is a fairly routine operation, the potential for hazards are high. The procedures described are only to be conducted while the ship is safely and securely moored in port. Transducer well safe operations are governed by form SMF 7.23.A “TRANSDUCER WELL PROCEDURES”. This form must be completed by the operator and filed on the bridge after the completion of each operation. In the event of a discrepancy the instructions on SMF 7.23.A take precedence.

7.23.5 **Description**

R/V *Oceanus* is equipped with a Transducer room located in the box keel that can be sealed and pressurized. This is to allow ports to be opened at the bottom of the vessel for purposes of installing various types of acoustic and other transducers without putting the vessel into dry dock. The space, roughly 6 by 9 feet, allows technicians to unbolt blank covers and install transducers that are fitted to rings of a standard pattern. Upon completion of the task the room is returned to normal atmospheric pressure and the technicians can exit. The keel is approximately 18 feet below the waterline. Air pressure is maintained at approximately 8 PSI above atmospheric pressure to offset this head and prevent flooding of the compartment.
A. Preparations for Well Operations:

1. Ensure that all gauge and relief valve calibrations are current
2. Notify the following personnel of impending transducer well ops:
   a. Chief Engineer or Engineer on Watch, to ensure both air compressors are operational and on line and that no power outages are planned.
   b. Captain or Mate on Watch, to insure that there are no major loading operations going on or planned for the duration of the operation.
3. Ensure availability of necessary personnel: 2 persons inside well (at least one of them a Marine Technician or ship’s engineer experienced in airlock operations), 1 operator, 1 operator relief/messenger.
4. Ventilate space with a portable blower for a period of at least 10 minutes prior to entry.
5. Conduct a preliminary inspection of the room to ensure:
   a. All electric lights are operational.
   b. Both hatches operate smoothly and seal properly.
   c. There is no active leaking or standing water.
   d. All sealed pass-throughs out of the room are in safe condition to withstand the pressure.
   e. Make sure all gauge and relief valve calibrations are current.
   f. Verify that the air filter has been changed within the last year
   g. Test the air flow through the regulators into the space and ensure that all valves operate smoothly.
6. Collect necessary supplies and tools, connect and test sound powered telephone and radios.
7. Ensure that telephone service is available in the event of an emergency.
8. Pressurize the well to 7.75 – 7.78 psi to allow upper and lower chamber regulators to equalize and stop taking more pressure. Shut down the air for 10 minutes and take note of pressure loss. Loss should be less than 1 psi. If the loss is more than 1 psi, search for and mitigate leaks.
9. Brief operator on intended operations, including which holes are to be opened and expected duration of the operation.

B. Operation of the Air Console and Pressurizing the Room

1. Notify Watch Officer that personnel are entering the transducer well
2. With the personnel in the well and having all tools and supplies checked, test out the sound powered telephones.
3. Check for 100 PSI on the high side gauge.
4. Close the chamber entrance door and seal all dogs. The inner hatch between the airlock chamber and well should remain open.
5. Establish communication with inside personnel and do not begin air flow until their signal.

6. Slowly begin opening the air valve to start air flowing into the chamber. Check to see that the chamber door has sealed properly and that there is no leakage at the seal.

7. Check at frequent intervals for any discomfort of those inside. In case of any distress, reduce the flow rate.

8. As pressure begins to build monitor the rate to keep it at a comfortable level.

9. Inform the occupants as the pressure builds.

10. As pressure approaches 8 PSI have the occupants crack a vent petcock to ascertain when equilibrium has been reached with the water pressure.

C. In the Transducer Room:

1. Talk frequently with the air operator to keep operator informed of progress or problems.

2. When the work in the well is completed, signal the operator to begin reducing the pressure.

D. Egress from the Room Under Pressure – Emergency Exit Plan

Under certain circumstances it may be necessary for personnel to leave the pressure chamber while the port is open to the sea. This is possible because there is an airlock which allows transit out of the room. The procedure is as follows:

1. The person leaving the chamber goes into the upper chamber and secures the hatch separating the chamber from the room below. All dogs must be tightened fully.

2. The operator is informed to close the bypass valve dividing the two chambers and begins to lower the pressure in the upper chamber.

3. When the pressure is equalized with the atmosphere, the door can be opened and the transfer made.

4. To reenter, the door is secured and the upper chamber is re-pressurized. The valve connecting the 2 chambers is opened to equalize the pressure.

5. The connecting hatch can now be opened.

E. Reducing the Pressure

1. When instructed to reduce the pressure, shut off the air feed valves on the regulators and SLOWLY open the exhaust valves. Do not relieve the pressure too quickly or discomfort will result.
2. As pressure drops, inform the techs inside with each 1 PSI reduction. Be ready to take pressure up again if leaking occurs.
3. When you reach surface pressure, you can again open the door to the well.
4. The transducer should be checked very frequently for the first few hours to ensure that no leaking occurs.

F. Securing the system

1. Inform the Engineer on Watch and the Mate that operations are complete.
2. Remove all tools and material from the well.
3. Disconnect the sound powered telephones and return to storage.
4. Transducer well should be inspected after 24 hours to verify seals on installed transducers.
7.24.1 Purpose

The purpose of this procedure is to establish the guidelines to be followed when conducting a confined space rescue.

7.24.2 Responsibility

Responsibility for confined space rescues ultimately rests with the Master. The Master will usually designate an on-scene coordinator to oversee the procedure, usually the Chief Mate or the Chief Engineer.

7.24.3 General

Confined space entry shall be carried out in accordance with SMM 7.22 Confined Space Entry.

*It is paramount that the Rescue Team not become victims as well.*

If the incident occurs in port, every attempt will be made to contact shoreside assistance (911, Fire-Rescue) to assist the ship’s effort.

In an emergency, rescue from a confined space must follow a sequence of safety precautions. The object is twofold: (1) to not cause any further harm to the rescuers and (2) to remove the person to be rescued as quickly and efficiently as conditions permit. Since time is of the essence, the rescue effort (with few exceptions) will involve the use of SCBA gear and medical oxygen (if needed) for the person to be rescued. Since the rescue must be dealt with on a case-by-case basis, a determination must be made by the person in charge as to how to address the effort. Considerations would include type of space, vertical or horizontal extraction interferences, atmosphere, visibility, chemicals, gases, injury(s) to victim(s), rigging options and equipment to be used.

If it is determined that medical treatment is needed, either precautionary or definitive, the first effort will be on scene utilizing the ship’s resources while the officer on watch contacts M.A.S. (Medical Advisory Service) or the current medical advisory provider for further advice and treatment.

Follow-up procedures require an investigation be held in order: (1) to determine the cause of the incident that required extraction and (2) to make a determination of what can be done to prevent this from happening again.
7.24.4 Reporting

Proper entries shall be made in the deck log and all appropriate forms are to be filled out and sent to the Ship Operations office. Forms necessary may include:

A. OSU Report of Accident form.
B. Proper SAIF Corporation form.
C. USCG Report of Marine Accident, Injury or Death (CG-2692).
D. USCG Report of Required Chemical Drug and Alcohol Testing Following A Serious Marine Incident (CG2692B), if applicable.

The Marine Superintendent shall notify the National Science Foundation of the incident.
7.25.1. Purpose

The purpose of this procedure is to establish responsibilities within the Steward’s Department on board the Oceanus.

7.25.2 Responsibility

The Master is ultimately responsible for the health and safety for all personnel aboard the Oceanus. The Ship’s Cook/Steward is in charge of the Steward’s Department on board and is the direct leader of the Ship’s Assistant Cook.

7.25.3 General

The Steward’s Department is responsible for the following:

A. Food and Dry Stores
   1. Purchases.
   2. Receiving on board.
   4. Stock Rotation.

B. Planning and serving balanced and nutritious meals.

C. Sanitation of responsible areas.

D. Maintenance of responsible equipment.

E. Trash and waste disposal.

F. Emergency and First Aid response as necessary.

G. Sanitary and Personal Hygiene
   1. Practice good personal hygiene and hand washing while maintaining a neat and clean personal appearance while on duty.
   2. Perform their duties in accordance with accepted standards for safe food handling and sanitation within their work areas.
SAFETY MANAGEMENT MANUAL

7.25 STEWARD’S DEPARTMENT RESPONSIBILITIES

Originator: Frederick J. Jones
Approved By: Demian Bailey

3. Cleaning implements (scrubbers, cloths, etc.) shall be cleaned and dried when not in use or soaked in a bleach solution or other cleaning solution between uses.

4. All food service equipment shall be properly cleaned after each use including the preparation area and drink dispensers.

5. Countertop areas and equipment on the Mess Deck shall be cleaned/wiped down at least daily.

6. Tables, seats and benches shall be wiped down after each meal.

7. Mess Decks shall be swept and swabbed daily. Thorough washing of the Galley deck should occur at least weekly.

8. Mess Deck and Galley overheads and bulkheads shall be wiped down with a cleaning and disinfecting solution at least once per month.

9. Areas (decks and bulkheads) around trash receptacles should receive daily attention.

10. Prior to all port arrivals, storerooms and reefer spaces shall be cleaned and organized in preparation for inspection by port authorities and replenishment.

11. Be alert for signs of contamination or infestation by pests (insects, rodents, etc.) in Galley and Storerooms. Report such findings to the Master at once.

12. No food, galley supplies or equipment may be removed from the ship without the Master’s approval.

H. Daily Operations

1. Cooks shall be present at their workstations (Galley, Mess Deck, Storerooms, Reefers) during their normal work hours including overtime periods.

2. Serve meals promptly at posted meal times. The Master establishes meals times aboard ship.

3. Meals should be served at the proper temperatures.

4. Ensure proper stock rotation of all foodstuffs to minimize or prevent waste and spoilage.
5. Upon receiving stores and provisions, items should be dated as necessary to assist with stock rotation.

6. Maintain order in the stowage of provisions: similar items should be stored together; incompatible items should be stored away from one another.

7. Store foods at proper temperatures to prevent spoilage.

8. Wash or rinse produce as appropriate prior to serving it.

9. Ensure availability of foods (midnight rations) for after-hours diners. Leftovers from regular meals may fulfill this requirement as long as they can be made available in convenient portions and in a sanitary manner.

I. Planning

1. The Steward is responsible for inventoried food and dry stores, planning menus and preparing requisitions.

2. Requisitions shall be submitted by email or Fax.
7.26 GALLEY SAFETY

7.26.1 Purpose

The purpose of this procedure is to establish guidelines for Galley Safety.

7.26.2 Responsibility

The Cook/Steward is responsible for the day-to-day operations of his/her department. The Steward shall keep the Master informed of any possible health, safety or maintenance issues that may arise in connection with his department’s operations. The Steward is also responsible for training Assistant Cooks.

The Master or his designee is responsible for making sure that new or relief Stewards are made aware of all policies concerning the operation of the Galley.

7.26.3 General

The Stewards Department shall maintain the Galley and its other related spaces in accordance with acceptable standards. These spaces include:

A. Galley.
B. Mess Deck.
C. Passageway to Dry Lab.
D. Dry Stores.
E. Walk-in Refrigerator and Freezer.
F. Linen Lockers.

It is of the utmost importance that all sanitary and safety conditions be maintained at the highest level aboard ship. The Steward shall provide training for the Assistant Cook as required for, but not limited to, the following:

A. Personal Hygiene.
B. Equipment.
C. Ranges and Ovens (including Microwave and Toaster Oven).
D. Meat Slicer.
E. Fire Hazards and location of all fire extinguishers.
F. Cleaning/Sanitizing Chemicals.
G. Proper food preparation according to accepted standards.
H. General Galley Cleanliness and Sanitation.
I. Walk-in Refrigerator/Freezer Entry.
J. Ice Maker.
K. Soda Machine.
L. Coffee Maker.
M. Range Hood.
The Engineering Department, ensuring proper temperatures are maintained, shall monitor the following equipment once per watch (every 4 hours) during rounds:

A. Walk-in Freezer between -5° and –10 °F  
B. Walk-in Refrigerator between 35° and 40° F

It is the duty of the Steward/Assistant Cook to daily check operational temperatures of the following equipment. If any problems arise, contact the engineer on watch.

A. Galley Refrigerator between 35° and 40° F  
B. Mess Deck Refrigerator between 35° and 40°F  
C. Sanitizer Wash 156°F (minimum)  
D. Sanitizer Rinse 180°F (minimum)
7.27  DISCHARGES INCIDENTAL TO THE NORMAL OPERATION OF THE VESSEL

Originator:  Approved By:
Frederick J. Jones  Stewart Lamerdin

7.27.1  Purpose
The purpose of this procedure is to ensure compliance with the US EPA “Vessel General Permit for Discharges Incidental to the Normal Operation of Vessels” (VGP) aboard R/V Oceanus.

7.27.2  Responsibility
The Master is responsible for general compliance with the VGP. The Chief Mate, with the assistance of the Boatswain, is responsible for controlling all deck wash down and runoff discharges. The Chief Engineer, as described in SMM 7.11, is responsible for all bilge and ballast handling operations. The Master, as described in SMM 7.10, is responsible for the discharge of sewage, gray water and trash. The Marine Superintendent is responsible for requesting and maintaining authorization under the permit. The Port Engineer is responsible for dry-dock maintenance items required by the permit and the associated record keeping.

7.27.3  References
A. US EPA “Final 2013 Vessel General Permit for Discharges Incidental to the Normal Operation of Vessels (VGP).” A copy is available on the ship and can be found on: http://water.epa.gov/polwaste/npdes/vessels/upload/vgp_permit2013.pdf

B. US EPA “Final 2013 VGP Fact Sheet.” A copy is available on the ship and can be found at http://water.epa.gov/polwaste/npdes/vessels/upload/vgp_fact_sheet2013.pdf

7.27.4  Procedure
The Master, Chief Engineer, Chief Mate and Boatswain will familiarize themselves with the referenced permit as it applies to discharges from the vessel and the requirements for maintaining records of discharges. Note that the permit only limits activities in “waters of the United States” (extending to the outer reach of the 3 mile territorial sea”). The following limitations specifically apply to Oceanus:

• Vessel operators must “…minimize the introduction of on-deck debris, garbage, residue and spill…,” “…[the] presence of floating solids, visible foam, halogenated phenol compounds, and dispersants, or surfactants,” “rust (and other corrosion by-products), cleaning compounds, paint chips, non-skid material fragments, and other materials associated with exterior topside surface preservations.” “If deck washdowns or above water line hull cleaning will result in a discharge, they must be conducted with non-toxic and phosphate-free cleaners and detergents.”

• “Environmentally Acceptable Lubricants” (EALs) will be used in all oil-to-sea interfaces (specifically the Controllable Pitch Propeller system.)
7.27 DISCHARGES INCIDENTAL TO THE NORMAL OPERATION OF THE VESSEL

- Chain locker effluent should not be discharged within the area covered by the permit except as necessary for anchoring the vessel and washing the anchor and chain upon recovery.

- Firemain system discharges are allowed but limited to those where “the intake comes directly from the surrounding waters or potable water supplies and there are no additions to the discharge.”

- Graywater discharge in port must be minimized, with minimal introduction of kitchen oils. Vessel owner/operators must use phosphate free and non-toxic soaps and detergents if they will be discharged into waters subject to the VGP.

- Hull cleaning should be done in dry-dock with adequate controls on the runoff water.

- Pre-existing law regarding sewage, ballast water and oily waste discharge is also addressed under this permit. There are no new requirements in these areas, but potentially a requirement for record keeping where none previously existed (sewage).

7.27.5 Inspections and Record Keeping

Inspections and recordkeeping requirements are described in detail in section 4 of the Permit. Core requirements include:

A. The Master or a designated officer will make routine (once per week or once per voyage, whichever is more frequent) visual inspections of discharges and spaces with a potential to discharge to the sea. This inspection will be recorded as an entry in the ship’s log, including any deficiencies found.

B. Conduct a comprehensive annual self-inspection, covering all potential areas for discharge that can safely be accessed without drydocking. This inspection will be recorded as an entry in the ship’s log, including any deficiencies found.

C. All inspection records must be made available to EPA on request. An Annual Report must be filed electronically with EPA no later than 28 February following each year of operation under the VGP.

D. A drydock inspection report will be prepared by the Port Engineer documenting compliance with VGP requirements (e.g. chain locker cleaning, removal of all marine growth from the hull, etc) and must be made available to EPA on request.

E. Keep written records pertaining to covered discharges, where not already covered (e.g. ballast log, garbage log, Oil Record Book). For example, log deck and anchor washdowns, painting evolutions, sewage pumping, etcetera.
8.1.1 Purpose

The purpose of this procedure is to establish instructions concerning emergency preparedness for the R/V Oceanus.

8.1.2 References

A. Non-Tank Vessel Response Plan (NTVRP)
B. Shipboard Oil Pollution Emergency Plan (SOPEP)
C. R/V Oceanus Fire & Emergency Plan (located on the bridge)

8.1.3 Responsibilities

The responsibility of emergency preparedness rests with the Marine Superintendent. It is his/her responsibility to ensure that adequate plans are in place and personnel are adequately trained to deal with emergency situations. The Oceanus's Master is responsible for ensuring that plans have been prepared and shipboard personnel are adequately trained for emergency situations, and that the Marine Superintendent is notified of all emergencies. The Master is responsible for ensuring that the vessel has the required equipment and supplies, in sufficient quantity, to be able to react decisively to an emergency on board.

It is the responsibility of the Master to ensure that the Non-Tank Vessel Response Plan (NTVRP), Shipboard Oil Pollution Emergency Plan (SOPEP) and Fire & Emergency Plan are up to date and accurately detail the procedures to be undertaken in emergency situations. Any changes to the NTVRP or SOPEP shall be documented and sent to the Marine Superintendent for review and incorporation. Review of the NTVRP and SOPEP should be accomplished annually.

8.1.4 Shipboard Procedures

The Master shall be familiar with the contents of the NTVRP, SOPEP and the ship’s Fire & Emergency Plan, and shall have conducted training to ensure that shipboard personnel are aware of their duties in the various emergency conditions outlined in these documents.

Emergency drills shall be conducted under the direction of the Master as required by the U. S. Coast Guard and other regulations. In addition, the Master shall evaluate the adequacy of shipboard personnel to address emergency situations and shall conduct such training as deemed necessary to adequately train shipboard personnel in the various emergency situations typical to shipboard operations. At least once a quarter, a drill will be conducted and will be logged in the deck log and reported to the Ship Operations office via the Voyage Report (or via e-mail if the vessel is inport at the OSU facility.)
Emergency situations that each Master shall prepare for include but are not limited to:

- A. Fire
- B. Explosion
- C. Loss of steering
- D. Loss of main and/or emergency electrical power
- E. Grounding
- F. Flooding
- G. Collisions/Hull Damage/Excessive List
- H. Oil spill (including quarterly Qualified Individual drills.)
- I. Man overboard
- J. Abandon ship
- K. Medical emergencies/Evacuations
- L. Hazmat spills/Clean up
- M. Piracy
- N. Line-throwing appliance use

All drills, exercises and safety meetings will be documented in the deck log and reported to the Ship Operations office on the Voyage Report (or via e-mail if the ship is inport at the OSU facility when a drill, exercise or safety meeting is conducted.)

The Master shall ensure that safety equipment is maintained in a ready condition and inspected regularly to adequately ensure its readiness.

If the Master determines that additional training, equipment, or support is required to adequately prepare the vessel for any emergency stated above or otherwise, then he shall contact the Ship Operations Office with a request for support for the aforementioned resources.

### 8.1.5. Ship Operations Office Procedures

The Ship Operations Office is responsible for providing the vessel with adequately trained personnel. This shall be accomplished through the hiring process and training.

Shoreside personnel must be familiar with the NVTRP and SOPEP and ensure that they are maintained and current.

Shoreside personnel shall provide the vessel with adequate safety equipment for shipboard personnel to deal with emergency situations. The shoreside personnel shall also provide the shipboard personnel with contractor assistance in servicing safety equipment beyond the capability of shipboard personnel, such as life rafts and fixed fire suppression systems.
8.2.1 Purpose

The purpose of this procedure is to set forth the standards for security watches at ports away from Newport, also referred to as out ports.

8.2.2 Responsibility

Port watches, at ports away from Newport, Oregon, will be set by the Master and generally include an Officer of the Watch (OOW), a gangway watch and an Engineer of the Watch (EOW). The Officer of the Watch is aboard to supervise and assist as needed as well as to serve as the Master’s representative in the conduct of ship’s business. The OOW and EOW are generally in a standby status after normal working hours in out ports and are called out as required to handle situations that arise. The structure of the watch and special procedures will be dictated by security or logistical concerns on a case-by-case basis.

8.2.3 General

It is general policy to not allow anyone not having official business with the ship on board. Family members and accompanied guests are allowed on board at MarSec Level 1. Tours or guests after hours are permitted with permission from the Master or Marine Superintendent.

Port watches are not normally stood while the vessel is in her homeport of Newport, OR.

Port watches are stood in all out ports around the clock. These watches may be modified to accommodate special requirements on a case-by-case basis.

It is the institution’s policy to not employ local watchmen in foreign ports unless required to do so or if recommended by the ship’s agent. Should it be necessary to employ or post a local watchman, that person shall remain at the gangway at all times unless relieved by a ships crewmember.

It is standard practice in those ports where security is of concern to secure all doors from the inside during non-working hours to prevent intrusion. The exception is the aft entry door to the main lab. All interior doors can be opened from the inside in an emergency.

Most ports are secure. Some are not. An alert watch is the best safeguard against trouble. Remember to make frequent checks of the port side and all decks. Bright night lighting is essential. After hours, keep all doors/hatches/scuttles locked from inside providing for emergency escape (in to out). The door by the gangway should be the only door guarded and unlocked at night. The Gangway watch shall have a portable VHF radio on and tuned to the proper channel in use for emergencies.
8.3.1 Purpose

The purpose of this procedure is to establish instructions concerning Shipboard Piracy Planning for the R/V Oceanus.

8.3.2 Responsibilities

It is the responsibility of the Ship Operations Office to pass along any piracy related information received from the United States Government and its various agencies, National Science Foundation, local governments, and foreign governments and agencies, or any other competent and legitimate authority while the vessel is operating in waters infected by piracy.

It is the responsibility of the Master to ensure that anti-piracy precautions are taken when the threat of piracy is deemed to exist. Anytime the Master deems that the risk of Piracy exists, he shall promptly notify the Ship Operations Office or, if outside of normal office hours, contact the Marine Superintendent or other Ship Operations staff using the emergency contact numbers.

To reduce the exposure to piracy activities, the transit of the vessel through areas known to have experienced piracy activities shall be made during the daylight hours whenever possible. Such daylight transits reduce the element of surprise used in piracy activities and increase the detection and identification of potential piracy elements.

8.3.3 Master

The Master or his designee will conduct training to ensure that shipboard personnel are aware of their duties. If necessary, the Master will institute precautions deemed necessary to protect the vessel and all personnel onboard.

The Master may determine that additional precautions and actions beyond those in the Standing Orders are necessary to ensure vessel and crew safety, and may take action as appropriate until the danger has passed.

8.3.4 Ship Operations Office

If there is a piracy incident or the chance of piracy incident, the Ship Operations Office will work with United States Government authorities to pass information and coordinate the safe passage of Oceanus to areas where the threat is deemed not to exist.
8.4.1 Purpose

The purpose of this procedure is to establish policies and procedures concerning emergency medical evacuations on board R/V Oceanus.

8.4.2 Responsibility

The Master is responsible for the safety of the vessel as well as each and every person aboard, whether they are crewmembers or part of the scientific party. The Master is also responsible for ensuring that accurate and updated records of the patient are kept. This may be delegated to the shipboard Medical Officer if applicable. These records are extremely important when communicating to medical authorities. The Master is responsible for coordinating any medical evacuation from the vessel.

8.4.3 General

NOTE: These procedures were written under the assumption that the United States Coast Guard will be assisting in this operation. Bear in mind that Oceanus may sail beyond the availability of USCG resources and these procedures may differ depending upon who/what country is available to provide the assistance needed.

Efficient and effective medical evacuation operations are critical to saving lives. Planning involves evaluating patient location and condition, selecting an appropriate evacuation method and facility, devising a rescue plan and selecting a delivery point and a means of transport.

Requests for medical assistance can range from relaying medical advice to evacuating patients to a hospital. Each situation must be evaluated to balance the risk to the patient and the risk of the evacuation. Elements to consider include the patient’s condition, the weather, sea state, time of day, and the various alternatives in transporting the patient. There are many situations where a helicopter or boat evacuation could cause greater risk to the patient than simply monitoring the case (i.e., possible heart attack victim or spinal injury).

The Master shall communicate with our designated commercial medical advisory company to determine the severity of the illness/injury of the patient and to determine if there is a need for medical evacuation from the ship. Every means of communication can and should be utilized to facilitate any evacuation or assistance (i.e., SAT phone, radio, fax, email). In cases where there are diving injuries, the Divers Alert Network (DAN) shall also be contacted. (See page 5 of this procedure for names/phone numbers.) All attempts shall be made via direct commercial communications to contact medical authorities. The Coast Guard can be contacted, if necessary, to set up a relay between the ship and the medical
Upon notification of a medical problem, the Coast Guard may set up a phone patch from their District Office to a flight surgeon regardless of how minor the case may seem. The flight surgeon can provide guidance in determining the relative severity of a medical condition and assess the medical implications of various evacuation methods.

Evacuation methods may vary depending on whether the rescue is made in mid-ocean or close to land. Weather, tides, currents, sea conditions, shoals, reefs, or darkness may also be important factors. Medical evacuations directly from a vessel using ship-to-ship methods may include direct, raft haul, raft drift, small boat or haulaway line.

Medical evacuations by boat will normally be done with the boat coming alongside the vessel’s starboard side. The coxswain of the rescue craft will determine the course and speed required before coming alongside to make the transfer.

Occasionally, both a helicopter and a boat will be dispatched. Coast Guard helicopter evacuations will normally be accomplished using a rescue basket, stokes litter, or rescue strop.

A. The rescue basket is usually preferred, since it can be readily lowered to most surfaces and offers the greatest protection to the person being hoisted.

B. A stokes litter is used to hoist nonambulatory persons, or persons who have injuries that might be aggravated by sitting in a rescue basket.

C. The rescue strop is used only to hoist persons familiar with its proper use, for example, a military aviator. In all such cases, the rescue strop’s safety straps must be fastened.

D. Hoists may be performed by lowering the rescue device directly or by first lowering a polypropylene trail line with weight bag, which allows persons on the surface to assist in maneuvering the rescue device as it is lowered and retrieved.

8.4.4 Procedures

Once communications have been established with the Coast Guard or other emergency rescue facility, the following procedures should be followed if applicable:

All persons who will be involved in the operation should be assembled around the radio. This will ensure that everyone involved will be aware of how the operation will be
conducted. If some members of the crew cannot be spared due to duties, do the best you can to assemble the remainder.

Upon notification that a helicopter is enroute to your location, you need to make some simple preparations to maximize the safety of the hoisting operation for the patient, the vessel, and the helicopter.

A. Lower or stow all masts and booms that can be lowered. Provide a clear area for hoisting, preferably on the port side of the stern.

B. Think about the clearance of rigging lines and antennas, as well as the chosen deck area.

C. The helicopter pilot will make the final determination as to the location of the hoisting area upon arrival.

D. Plan to keep all unnecessary personnel out of the way.

E. All personnel on deck must wear PFDs and hard hats.

F. Do not take any flash photographs because they distract the helicopter crew during this demanding operation.

G. During the entire hoist operation, gale force winds are generated by the rotor system of the helicopter and are strongest directly beneath it. Ensure that all loose gear is stowed or secured so as not to pose a personnel injury hazard due to being blown around on deck, or a hazard to the helicopter's rotor system or engines.

H. Ensure that the patient is wearing a PFD, unless his/her condition absolutely prevents it.

I. The patient should be informed of any instructions of the rescue device. If a litter is used, the uppermost strap (chest strap) must be placed under the patient's arms and over the patient's chest. All other straps are to be placed over the patient's body. If a basket is used, the patient should sit in the bottom of the basket, with his/her back to one end and must keep his/her arms and legs inside the basket until the basket is brought inside the helicopter.

J. The patient should have appropriate personal identification such as a driver's license, social security card, or passport and immunization record, a record of any medication(s) administered, and a modest supply of personal items, including any prescribed medications they may be taking regularly. Use of a small soft-type bag is recommended for packing these items. It should be tied to the litter between the patient's legs, or placed in the basket with the patient. Do not tie it to the hoist cable,
hook, or steadying line. A person being hoisted should be free of any items of entanglement such as purses or luggage.

K. When the helicopter arrives in your area, change course to place the wind 30 degrees off your port bow and continue at standard speed. Once steadying up on the new heading, and after you are satisfied that you have no hazards on your radar, turn it to standby so that it does not radiate. You may turn it on again as soon as the helicopter departs the area with the patient. This new heading may be modified again at the request of the helicopter pilot upon arrival. Ensure that any heading the pilot asks for will not endanger your vessel. Advise the pilot immediately if any sea conditions or hazards exist which will limit your navigational capabilities.

L. The helicopter should provide all of the required equipment for the hoist operation and will brief you prior to commencing the operation.

M. The helicopter may first deliver an orange steadying line with weighted bags at the end. Until the hoist operation is completed, one of your crewmembers must tend this line at all times, keeping the line free from fouling.

N. The vessel's crew, using the steadying line, should guide the rescue device to the selected location on deck. On each approach, allow the rescue device to touch your vessel, to discharge static electricity. *An electrical shock hazard exists to individuals if they connect with an ungrounded helicopter hoist. Caution must be exercised when there is flammable/explosive cargo or in the vicinity of a flammable spillage. The hoist rig must be grounded clear of the spillage or tank venting area to preclude a possible fire or explosion from an electrostatic discharge.*

O. If the rescue device has to be moved to the person being evacuated, unhook it from the hoist cable. Do not move the rescue device from the hoisting area with the hoist cable still attached. **If the cable is unhooked, do not attach the hook or the cable to any part of the vessel.**

P. For everyone’s safety, the helicopter may move off to the side while the patient is prepared for the hoist.

Q. Upon signal from the vessel, the helicopter will move back over the vessel and lower the hook.

R. Allow the hook to touch your vessel to discharge static electricity, and then fasten the hook to the rescue device using the large part of the hook.

S. When everyone is ready for the hoist, have the deck crew give a vigorous thumbs up signal to the helicopter.
T. Ensure that the steadying line is tended to prevent the rescue device from swinging excessively, this is the primary reason it is being used.

U. Once the rescue device is inside the helicopter, the helicopter crew will probably discard the steadying line. You may keep it or toss it overboard, but ensure you do not foul your screw either way.

SMF 8.4 (appended to this manual) is a checklist that may used by the Coast Guard or other medical emergency personnel when gathering information for a medical evacuation. As much information as possible should be recorded and transmitted in order to establish a smooth relay of any information needed.

Medical Emergency Phone Numbers

Notify:

MedAire (602) 417-3385 voice
(480) 333-3821 fax

Divers Alert Network (DAN) (919) 684-9111 emergency number
(919) 684-2948 routine matters

U.S.CG Rescue Coordination Centers
Regional contacts for SAR emergencies

<table>
<thead>
<tr>
<th>RCC</th>
<th>Location</th>
<th>Area of SAR Coordination Responsibility</th>
<th>Phone Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pacific SAR Coordinator</td>
<td>U.S. Coast Guard Pacific Area Commander Alameda, CA</td>
<td>Overall responsibility for areas covered by RCC Alameda, RCC Seattle, RCC Honolulu and RCC Juneau</td>
<td>(510) 437-3700</td>
</tr>
<tr>
<td>RCC Alameda</td>
<td>Commander Eleventh Coast Guard District Alameda, CA</td>
<td>California and Eastern Pacific Ocean waters assigned by international convention off the Coast of Mexico</td>
<td>(510) 437-3700</td>
</tr>
<tr>
<td>RCC Seattle</td>
<td>Commander Thirteenth Coast Guard District Seattle, WA</td>
<td>Oregon and Washington</td>
<td>(206) 220-7001</td>
</tr>
<tr>
<td>RCC Honolulu</td>
<td>Commander Fourteenth Coast Guard district Honolulu, HI</td>
<td>Hawaii, U.S. Pacific Islands and waters of Central Pacific Ocean assigned by international convention (extending from as far a 6 degrees north latitude and as far as 110 west to 130 east longitude).</td>
<td>(808) 535-3333</td>
</tr>
<tr>
<td>Sector Guam</td>
<td>Commander Sector Guam</td>
<td>Guam and other U.S. territories and possessions in the far western Pacific Ocean.</td>
<td>(671) 355-4824</td>
</tr>
<tr>
<td>RCC Juneau</td>
<td>Commander Seventeenth Coast Guard District</td>
<td>Alaska, U. S. waters in North Pacific Ocean, Bering Sea and Arctic Ocean</td>
<td>(907) 463-2000</td>
</tr>
</tbody>
</table>
8.5.1 Purpose

The following procedure outlines Loss of Steering Procedures and instructions for use aboard R/V Oceanus.

8.5.2 Responsibility

It is the responsibility of the Chief Engineer to ensure that all engineering personnel respond to Loss of Steering emergencies in a timely manner, and to have adequate instructions available to handle those emergencies. The Master is responsible for the bridge personnel.

8.5.3 Procedure

For a loss of steering emergency bridge personnel shall notify the Engineer on Watch that there is a loss of steering. The vessel should come to a full stop if or when it is safe to do so and if capable, using the bow thruster to hold the vessel’s heading into current sea or wind depending on location and the proximity to hazards to navigation. The Master and Chief Engineer should be notified immediately. The bridge will be notified as soon as the problem is found or fixed. If there is a loss of steering, man the aft steering station and follow the “Emergency Steering Instructions” posted in the steering room and bridge.

Joy Stick Steering

A. Call the bridge and establish communications and ask to have the steering pump selector switch set to the Starboard (Emergency) pump. The Helmsman can do this from the breaker panel behind the aft steering station.
B. Switch the control on the Stbd pump breaker panel (Red Letter “E”) from “Remote” to “Local”. The breaker panel is aft of the Helmsman’s position.
C. Switch selector switch on the joystick box from “Bridge / Autopilot” to “Aft Joystick”.
D. Test the steering. The joystick is of the Non-Follow Up type. Watch the rudder angle indicator on the forward bulkhead.
E. Call the bridge and establish that your gyro repeater is reading correctly.
F. You are now ready to ask the bridge for a course to steer.

Wheel Steering with Power

A. Call the bridge and establish communications and ask to have the steering pump selector switch set to the Starboard (Emergency) pump. The Helmsman can do this from the breaker panel behind the steering station.
B. Place the wheel in position. Never reach between the spokes of the wheel.
C. Open the two valves with the yellow handles in front of the wheel (the two red handle valves need to be shut).
D. Test the steering. Watch the rudder indicator on the forward bulkhead.  
   Approximately ¼ turn equals five degrees of rudder.
E. Call the bridge and establish that your gyro repeater is reading correctly.
F. You are now ready to ask the bridge for a course to steer.

**Manual Steering – Without Power**

A. Call the bridge and establish communications. Have the bridge shut off both 
   steering pumps. The Helmsman can shut them off at the breaker panels behind 
   the Helmsman’s position.
B. Place the steering wheel in position. Never reach between the spokes of the 
   wheel.
C. Open the two red-handled and two yellow-handled valves forward of the wheel.
D. Test the steering. Watch the rudder indicator on the forward bulkhead. 
   Approximately nine full turns equal five degrees of rudder.
E. Call the bridge and establish that your gyro repeater is reading correctly.
F. You are now ready to ask the bridge for a course to steer.
9.1 OBSERVATIONS & NONCONFORMITIES

9.1.1 Purpose

This procedure is intended to set forth the methods for reporting, recording and analysis of Observations and Nonconformities. Using these guidelines the possible root causes of nonconformities can be determined in order to prevent reoccurrence. In addition this procedure provides for tracking the results of observations and nonconformities for presentation to management for review.

9.1.2 Responsibility

The primary responsibility for this procedure lies with each individual involved with OSU Ship Operations including members of the Marine Technician Group. The Master and department heads are responsible for ensuring the understanding of this procedure to all involved. Any crewmember, technician or member of the shore staff can report what he/she thinks to be a nonconformity. The Designated Person (DP) is responsible for tracking nonconformities and reporting results.

9.1.3 General Reporting Criteria

Definitions:

Observations – In general an Observation is the least significant condition that is entered into the system. An Observation is a finding or condition which, if left uncorrected, will likely result in a Nonconformity. An Observation could also be a condition which could result in a Hazardous Occurrence under different circumstances.

Nonconformity – A finding, discovery, incident or occurrence that has come to someone’s attention that impacts the safety of the vessel, its equipment, personnel or the environment. By its very definition, it is meant to be very broad and general, to include all nature of findings that impact safety on the vessel. This impact may even include system discrepancies and lack of recorded actions.

The categories defined above may be the result of an audit or simply the result of an individual observing his or her normal responsibilities. It is important to emphasize that the process is not to assign blame but to make for an ever-safer working environment. The usefulness of the Nonconformity system is only as good as the information that is collected. Timely investigation is imperative for the collection of this accurate information.

9.1.4 Procedure

A. The initiator shall use the procedure and flowchart articulated in SMM 9.4 for proper submission and reporting protocols.
B. Any employee shall, upon identification of an observation or nonconformity, complete Side 1 of the “Observation/Nonconformity Report – Corrective Action Request (NCCAR)” Form included in the appendix of this manual.

Examples of nonconformities are:

2. Insurance Claims.
3. Failure of an element of the documented Safety Management System.

Observations are “early warnings” of potential problems in daily operation or possible defects in the documented Safety Management System which could lead to nonconformities such as those listed above.

C. The initiator of a NCCAR shall ensure the form is filled out correctly and in the order indicated by the boxed numbers, with the exception of Item 1, which shall be filled out by the Marine Superintendent (DP). The initiator will submit the form (SMF 9.1) to their immediate supervisor.

D. An NCCAR number shall be assigned and recorded by the DP in Item 1 of the form for tracking purposes. The number shall consist of six digits. The first two digits will indicate the year such as 05, 06, etc. The next two digits will indicate the month such as 01, 02, etc. The last two will be a numerical sequence for the NCCAR’s assigned that month such as 01, 02, etc. Example: If the NCCAR was the seventh one reported in June of 2005 the number would be; NCCAR-050607.

E. The section of the current Safety Management manual which most closely addresses (or in the initiator’s opinion should address) the observation or nonconformity shall be identified by section number and title in Item 2 of the NCCAR form.

F. The reported item shall be identified as an observation or a nonconformity by checking the appropriate box in Item 3 of the NCCAR form.

G. The source of the observation or nonconformity shall be identified by checking the appropriate box in Item 3 of the NCCAR form. If the observation or nonconformity is identified from a letter, report or other document, not a part of the Safety Management System, this shall be identified in Item 3 and a copy shall become an attachment to the NCCAR form.

H. If the source of the observation or nonconformity is not supported by attached documentation, the actual description of the observation or nonconformity in Item 4 of the NCCAR form shall contain a sufficient amount of detail to identify the problem. If
appropriate, the document and clause number affected by the nonconformance shall be furnished.

I. The Initiator shall take whatever action is deemed appropriate at the time to minimize the effect of the observation or nonconformity and determine if further action is required. The determination shall be checked in the appropriate box in form Section 4.

J. If the observation or nonconformity is the result of an Internal Audit, a signature of validation shall be entered in Item 5 by the individual audited as instructed in procedure SMM 12.1 “INTERNAL AUDITING.”

9.1.5 RECORDS

“Nonconformity Report – Corrective Action Request (NCCAR)” forms are considered Management System Records. The NCCAR forms become part of the Management Review of the system.
9.2 HAZARDOUS OCCURRENCES

9.2.1 Purpose

This procedure is intended to set forth the methods for reporting, recording and analysis of Hazardous Occurrences. Using these guidelines, the possible root causes of hazardous occurrences can be determined in order to prevent reoccurrence. In addition, this procedure provides for tracking the results of Hazardous Occurrence Reports for presentation to management for review.

9.2.2 Responsibility

The primary responsibility for this procedure lies with each individual involved with OSU Ship Operations including members of the Marine Technician Group. The Master and department heads are responsible for ensuring the understanding of this procedure to all involved. Any crewmember or member of the shore staff can report what he/she thinks to be a hazardous occurrence. The Designated Person (DP) is responsible for tracking hazardous occurrences and reporting results.

9.2.3 General Reporting Criteria

A Hazardous Occurrence is an occurrence or circumstance that did not result in an injury or damage but certainly had the potential. These are often referred to as “near-misses.” A Hazardous Occurrence may be the result of an incident or simply the result of an individual observing his or her normal responsibilities.

It is important to emphasize that the process is not to assign blame but to make for an ever safer working environment. The usefulness of the Hazardous Occurrence reporting system is only as good as the information that is collected. Timely investigation is imperative for the collection of this accurate information.

9.2.4 Procedure

A. Any employee shall, upon discovery of a hazardous condition or witnessing a hazardous occurrence, complete Side 1 of the “Hazardous Occurrence Report (HAZREP)” form included in the appendix of this manual.

B. The initiator of a HAZREP shall ensure the form is filled out correctly and in the order indicated by the boxed numbers, with the exception of Item 1, which shall be filled out by the Designated Person (DP).

C. A HAZREP number shall be assigned and recorded by the DP in Item 1 of the form for tracking purposes. The number shall consist of six digits. The first two digits will indicate the year such as 05, 06, etc. The next two digits will indicate the month such as 01, 02, etc. The last two will be a numerical sequence for the HAZREPs assigned.
that month such as 01, 02, etc. Example: If the HAZREP was the second reported in July of 2008, the number would be HAZREP-080702.

D. The section of the current Safety Management manual which most closely addresses (or in the initiator’s opinion should address) the hazardous occurrence shall be identified by section number and title in Item 2 of the HAZREP form.

E. The initiator shall complete Item 4 of the HAZREP form in as much detail as possible. This should include the date and approximate time of the occurrence, the general and specific location where the occurrence took place, any witnesses to the occurrence other than the initiator, and a description of the occurrence including any relevant details.

F. The initiator shall take whatever action is deemed appropriate at the time to minimize and/or remediate the hazard and its effects. This action should be entered in Item 6 of the HAZREP form, along with any recommendations for further remediation of the hazard.

G. Any additional documentation (e.g. photographs, additional witness statements etc.) should be attached to the HAZREP form.

H. The HAZREP form shall be passed to the Master, with a copy retained by the initiator, and forwarded to the Ship Operations office with any input from the Master and/or the appropriate department head added to Item 5.

I. When any necessary corrective action has been determined and implemented, a copy of the completed form shall be provided to all parties concerned (initiator, Master and department heads.) The Master or shore-side department head will ensure that all personnel associated with the corrective action are briefed.

9.2.5 Records

“Hazardous Occurrence Report (HAZREP)” forms are considered Management System Records. The HAZREP forms become part of the Management Review of the system.
9.3 ACCIDENTS

<table>
<thead>
<tr>
<th>Originator:</th>
<th>Approved By:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Don B. Hilliard</td>
<td>Stewart Lamerdin</td>
</tr>
</tbody>
</table>

9.3.1 Purpose

This procedure is intended to set forth the methods for reporting, recording and analysis of accidents on board the R/V Oceanus. Using these guidelines the possible root causes of an accident can be determined in order to prevent reoccurrence. In addition, this procedure provides for tracking the results of accident reports for presentation to management for review.

9.3.2 References

Title 46, Code of Federal Regulations, Part 4 (Marine Casualties & Investigations)

9.3.3 Responsibility

The Master is responsible for reporting any accident onboard to the appropriate agencies and the Ship Operations office, carrying out alcohol and drug testing in conjunction with any Serious Marine Incident, and completing all required documentation of the accident. The DP is responsible for documenting accidents within the SMS and reporting results to ensure that this important feedback process results in a safer operation of the vessel. The DP is further responsible to ensure that the Master has received adequate testing training in order to perform his duties.

9.3.4 Reporting Criteria

For the purposes of this SMS, an accident is defined as any of the following occurrences, based on the Federal definition of a Marine Casualty or Accident and associated reporting requirements:

A. Any intentional or unintentional grounding of the vessel or collision with a bridge.

B. Loss of main propulsion or primary steering, or an associated component or control system, the loss of which causes a reduction of the maneuvering capabilities of the vessel.

C. Fire, flooding or any other condition or occurrence, which affects the vessel’s seaworthiness or fitness for service.

D. Loss of life.

E. Any injury requiring professional medical treatment beyond first aid. Simply activating the Medical Advisory Service does not necessarily constitute “beyond first aid.”

F. Any occurrence not meeting any of the above criteria but resulting in damage to property in excess of $25,000.
Any incident that does not meet the above criteria will be reported as a Hazardous Occurrence (see SMM 9.2.)

9.3.5 Procedures

A. Any “Serious Marine Incident” will require drug and alcohol testing of all individuals directly involved. A Serious Marine Incident is defined under Federal law as any marine accident (see 9.3.4 above) which involves any of the following:

   1. Loss of life.
   2. Any injury requiring professional medical treatment beyond first aid.
   3. Damage to property in excess of $100,000.
   4. Discharge of 10,000 gallons or more of oil into U.S. waters.
   5. Discharge into U.S. waters or release into the U.S. environment of a reportable quantity of any hazardous substance.

An individual directly involved is defined under Federal law as “an individual whose order, action or failure to act is determined to be, or cannot be ruled out as, a causative factor in the events leading to or causing a serious marine incident.” This determination is made by the Master. A law enforcement officer may determine additional individuals to be tested.

The Oceanus is provided with breath analysis kits for alcohol testing and urine specimen collection kits for drug testing. Alcohol testing and urine specimen collection will be performed as soon as practicable following an incident, under the direct supervision of the Master. Any refusal of testing or specimen collection will be entered in the ship’s log by the Master and is admissible as evidence in any administrative proceeding.

Any positive test result for alcohol will be entered in the ship’s log by the Master, with the entry witnessed by a second officer; the individual testing positive must be informed of the entry.

Urine specimens will be forwarded for laboratory analysis as soon as practicable, as per the instructions included with the kits. The Ship Operations office will submit copies of all test results (whether positive or negative) to the U.S. Coast Guard in accordance with Federal law.

The Master will complete U.S. Coast Guard Form CG-2692B “Report of Required Drug & Alcohol Testing” and forward to the Ship Operations office via fax or e-mail.
B. Accident Reporting

1. The Ship Operations office will complete Form SMF 9.3 “Accident Report” (appended to this manual). An Accident number shall be assigned and recorded in Item 1 of the form for tracking purposes. The number shall consist of six digits. The first two digits will indicate the year such as 05, 06, etc. The next two digits will indicate the month such as 01, 02, etc. The last two will be a numerical sequence for the Accidents assigned that month such as 01, 02, etc. Example: If the accident was the second reported in July of 2008, the number would be Accident-080702

a. The section of the current Safety Management Manual which most closely addresses the circumstances of the accident shall be identified by section number and title in Item 2 of the Accident form.

If a work-related injury or illness occurs to an employee whose job is to operate or work as part of the operation on a research vessel (crewmember), they may be eligible for coverage for claims under maritime law (federal claims, rather than Oregon state Workers’ Compensation claims). This coverage would pertain to people who operate the ship, not those who are aboard to do research and have no work related to the actual operation of the ship.

Claims for crewmembers are now handled outside of the SAIF Workers' Compensation policy and are administered through a policy from Arthur J. Gallagher & Co. (AJG).

To file a Claim, the following Claims Forms must be completed:

- Personal Injury/Illness Report – to be completed by the injured employee (PDF file) (DOC file)
- Master’s Report of Injury/Illness – to be completed by manager/supervisor/captain of vessel (PDF file) (DOC file)
- Witness Statement – Personal Injury Report (if incident was witnessed, each witness should complete) (PDF file) (DOC file)

These forms should be as complete as soon as possible so that the insurance company knows the details surrounding the incident, including who was involved, what specifically occurred, where, when and how it occurred.

In addition, OSU also requires the employee have their medical provider complete the Employee Status Report form at the time of the appointment (to verify the employee’s release status), as well as completion of the online HR Advocate Public Incident Reporting form by the manager supervisor. If the manager/supervisor is unable to complete the HR Advocate Public Incident Reporting form due to limited online access,
9.3 ACCIDENTS

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<tr>
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</tbody>
</table>

contact Heidi Melton, to provide the necessary information for completion of the form in Central HR.

Completed forms should be submitted to Heidi Melton in the Office of Human Resources within 24 hours, by one of the following methods:

- Fax to 541-737-0553 – or –
- Email to Heidi.Melton@oregonstate.edu

If an emergency occurs (where someone must be transported off the vessel for treatment), contact Jeanne Matejovsky, Marine Claims Executive at 206-607-0931, with AJG’s Seattle Office for assistance directly (continue to follow up with paperwork to Heidi Melton).

9.3.6 Records

Accident Report forms are considered Management System Records. The Accident Report forms and all attached documentation become part of the Management Review of the system.

The Ship Operations office will interface with OSU on the need to submit documentation directly to the University.
9.4 CORRECTIVE ACTION

9.4.1 Purpose

The purpose of this procedure is to establish a system of correction for Observations, Nonconformities, Hazardous Occurrences and Accidents and to set forth the guidelines for their investigation and processing in order to find their root cause and provide an avenue for continued improvement. In addition this procedure provides for tracking the results of Nonconformities for presentation to management for review. When Nonconformities are corrected, they are subject to re-verification to demonstrate conformance with requirements.

The objectives of the Corrective Action System are to:

A. Reduce errors and enhance safety, security and prevent pollution.
B. Inspire more effective team work.
C. Promote job involvement.
D. Increase employee motivation.
E. Create a problem solving capability.
F. Improve company communications.
G. Promote personal and leadership development.
H. Develop Safety, Security, and Environmental awareness.

9.4.2 Scope

This procedure is applicable to all employees of OSU Ship Operations, including Marine Technicians, both shoreside and afloat.

9.4.3 Responsibility

The management of the affected departments is responsible for ensuring the understanding of this procedure and the implementation of the corrective actions required. The Marine Superintendent as the Designated Person (DP) is responsible for ensuring that Observations, Nonconformities, Accidents, and Hazardous Occurrences identified are processed and that corrective action is taken.

9.4.4 Procedure (See attached Flowchart)

A. All employees are given access to the “Nonconformity Report – Corrective Action Request (NCCAR)” and “Hazardous Occurrence (HAZREP)” forms in the appendix of this manual.

Any employee can initiate corrective action to solve a Nonconformity, request a corrective action or remediation of a hazard, address a recurring problem, or make a suggestion about an opportunity for improvement. This is done by filling out and submitting the appropriate form as described in Sections 9.1 and 9.2 of this manual.
B. The NCCAR or HAZREP is then given to the appropriate department head with any accompanying information (department forms, letters, marked up Safety Management System document, etc.). The department head checks and reviews the NCCAR or HAZREP with the employee and then passes all documentation along to the Master.

C. In the case of an accident, the Master will complete all required reports and documentation as described in Section 9.3 of this manual.

D. The Master reviews the documentation and forwards all material to the DP, via the Ship Operations Coordinator, along with his/her recommendations for corrective action if applicable, within 15 days of the initial date of the NCCAR or HAZREP.

E. The Ship Operations Coordinator will fill in Items 1 and 2 of the form, assigning an NCCAR, HAZREP or Accident number. This number is the six digit number described in Sections 9.1.4(C), 9.2.4(D) and 9.3.5(C) of this manual.

The Ship Operations Coordinator shall log the pertinent details in the Nonconformity/Corrective Action (NCCAR) Tracking System. This includes NCCAR initiation date and other details as applicable.

Next, the Ship Operations Coordinator shall file the NCCAR form under the “Open” tab in the NCCAR/HAZREP binder.

F. The Report is then passed to the DP for Corrective Action assignment, and eventual closure. Corrective action will be determined by the DP no later than 15 days from the date the NCCAR/HAZREP was received and logged by the Ship Operations Coordinator. The Corrective Action to be taken is recorded on the NCCAR, HAZREP or Accident form by the DP.

G. Corrective action should normally be implemented within 30 days of the DP's final determination and assignment for action. When closed, the DP will sign and date to close out NCCAR, HAZREP or Accident Report in Item 9 and then return to the Ship Operations Coordinator. In cases where a longer term is necessary for final implementation of corrective action (e.g. shipyard repair or modification), the DP may set an extended date; in such cases, the open NCCAR will be reviewed and noted by the DP as part of Management Review no less than quarterly.

H. The Ship Operations Coordinator will log the closed Report in the NCCAR tracking system and forward to the Master. The closed Report will be filed under the “Closed” tab in the NCCAR/HAZREP binder.
I. The process concludes with an all hands Safety Meeting as indicated by Section 6.8 of this manual. The master and crew will discuss the corrective action and review the appropriate SMM Section. This will include any extended action dates as discussed in (H) above. The meeting will be recorded as per SMF 6.8 and maintained on the ship and in the office.

J. For Flowchart – see over.
9.4 CORRECTIVE ACTION

Originator: Frederick J. Jones
Approved By: Stewart Lamerdin

Crew member or initiator drafts Observation/NonConformity on Report form SMF 9.1. Fill in Section 2 & 5.

Supervisor or Dept Head reviews & makes recommendations on Report form SMF 9.1. Fill in Section 6. If approved, process continues.

Master reviews & makes recommendations on Report form SMF 9.1. Fill in Section 7. If approved, process continues.


Designated Person (DP) determines correction action and assigns as applicable on Report form SMF 9.1. Fill in Section 8.

ShipOps Coordinator records action, due date & distributes copy of open Report form SMF 9.1.

ASSIGNEE implements correction action on Report form SMF 9.1.

Designated Person (DP) confirms corrective action taken.

Designated Person (DP) closes out report SMF 9.1. Fill in Section 10 & 11.

ShipOps Coordinator receives, logs as closed, distributes copy of closed report SMF 9.1.

Master final corrective action disseminated holds Safety Meeting. SMF 6.8 form copy sent to office, original retained on board.


ShipOps Coordinator receives copy of SMF 6.8, places in binder.

Number: SMM 9.4  Revision: 8  Effective Date: 15 May 15  Page 4 of 4
10.1.1 Purpose

The purpose of this procedure is to set forth the maintenance system for the R/V Oceanus.

10.1.2 Scope

The scope of this instruction is to provide guidance in the maintenance of the ship and equipment under the Ship Operations Office. The procedure includes both preventative maintenance and repair.

10.1.3 General

The maintenance program has several facets that work together to keep the vessel operating efficiently and dependably. The maintenance program can be divided into reactive and preventative maintenance. Both components are documented in various ways and this procedure is designed to identify the different components and the method used to document them.

A. The reactive component of the maintenance program consists of the response to the conditions emerging on the vessel due to the failure of the equipment or various components. When something breaks, it needs to be fixed. This activity is documented in the Chief Engineer’s Maintenance Log.

B. The preventative component of the maintenance program consists of scheduled or planned maintenance and oil analysis. These activities are undertaken to prevent failures before reactive maintenance has to be performed.

C. OSU Ship Operations is transitioning to a computerized maintenance management system (CMMS). It will be central to the planned maintenance activities. This electronic system features:
   - The ability to maintain an inventory record.
   - It schedules routine (planned) maintenance
   - It documents all maintenance (planned and reactive)
   - It provides service request capabilities for outside repair assistance
   - It maintains inventory and machinery histories.
   - The maintenance portion of the program automatically interfaces with the inventory portion to consume spares from inventory upon completion of maintenance activities.

Note: Until this system is functional and certified by management for operation, previous management control systems will remain in place.
1. Routine maintenance and inspections of equipment that occur on a weekly basis or less frequently will be reported to the Port Engineer and Marine Superintendent weekly. This spreadsheet will be reviewed by management and responded to early the next week if required. When functional, this reporting will be accomplished by the CMMS. This includes the inspection of safety equipment and the disassembly of equipment. Routine maintenance will be scheduled and planned based on equipment manufacturers’ maintenance instructions, prior maintenance history and/or operational experience.

2. Scheduled /planned maintenance will be conducted based on equipment manufacturers’ maintenance instructions, prior maintenance history and/or operational experience, and pierside/drydock availability periods. This may include vibration monitoring, thermal-image monitoring and/or other preventive analysis.

3. Lube oil analysis consists of periodical sampling of oil from system critical equipment and sending the samples to a laboratory for analysis. The frequency varies with the number of hours placed on the equipment and the service that the piece of equipment is engaged in. Lab analysis results will be maintained in their own log by the Chief Engineer, which may be appended to the Chief Engineer’s Maintenance Log.

10.1.4 Responsibility

Ultimately the maintenance of the vessel is the responsibility of the Master. This responsibility is delegated to each department for the efficient maintenance of the vessel. Changes of maintenance responsibilities are at the discretion of the Master.

Each department head is responsible for ensuring that all maintenance activities are documented. It is at the discretion of each department head to determine the level of maintenance activity that shall be deferred to subordinates. While the activity may be deferred, the responsibility remains with the department head. All “A” rated equipment maintenance will be recorded in the CMMS when functional or in the maintenance log.

It is the responsibility of each department head to review the recommended maintenance set forth by the manufacturer of equipment or systems under his/her control. Each department head is responsible for ensuring that all maintenance activities are documented in the appropriate maintenance log. It is at the discretion of each department head to determine the level of maintenance activity that shall be deferred to subordinates. While the activity may be deferred, the responsibility remains with the department head.
It is the responsibility of each department head to review the recommended maintenance set forth by the manufacturer of equipment or systems under his/her control.

10.1.5 Recording

Each department head must ensure that all maintenance performed by his/her department is entered in the appropriate Maintenance Log.
10.2.1 Purpose

The purpose of this procedure is to set forth the concept of critical systems and equipment within the Safety Management System.

10.2.2 Definition

Critical System or Equipment – The equipment or technical systems that the operational failure of may result in hazardous situations.

10.2.3 General

The ISM Code calls for the identification of equipment and technical systems that are considered critical and the procedures set in place to insure that these systems are adequately maintained, and that there be specific measures established aimed at promoting the reliability of such equipment or systems. These measures should include the regular testing of stand-by arrangements and equipment or technical systems that are not in continuous use.

It is recognized that all pieces of equipment are important to the proper operation of the vessel. The critical equipment and systems identified in this procedure are those felt to meet the ISM Code criteria.

Critical Equipment or Systems:

A. Main Engine and Clutch.
B. Reduction Gear.
C. CPP unit.
D. Main Electrical Power System.
E. Emergency Electrical Power System.
F. Steering System.
G. Fire Pump.
H. Bilge System.
I. CO₂ System.
J. Starting and Control Air Systems.

The vessel specific guidelines called for herein shall contain the following information about each critical component listed:
A. Operational procedures to ensure redundancy (i.e., two ship’s generators on the line while entering port).

B. Rotation of equipment (i.e., changing the lead steering pump each month).

C. Periodic tests performed on standby equipment (i.e., testing of the emergency generator).

D. The preventative maintenance schedule for the specific components. Preventative maintenance will be developed and planned based on manufacturers’ maintenance instructions, prior maintenance history and operational experience.

E. The pieces of equipment in the lube oil analysis program and the frequency of sampling.

Within this concept of critical equipment and systems is a requirement to identify critical spare parts. Once a piece of equipment has been designated as a critical piece of equipment, the spare parts associated with that piece of equipment become items that need to be identified. This shall be accomplished by determining the “minimum ordering quantity” for each spare part. Only those spare parts considered critical will have a minimum ordering level.

Any identified maintenance or repair requirement (other than planned preventative maintenance) to any critical system will be reported to the Port Engineer via e-mail within 24 hours of identification. The report will include the identified issue, the planned time and duration of the maintenance or repair to be conducted, and a list of parts needed to complete the repair.

At the completion of any maintenance or repair to any critical system, a list of spares consumed in the work will be provided to the Port Engineer by e-mail, no less than 7 days after the repair is completed, tested and the system is fully operational.

10.2.4 Responsibility

Ultimately the maintenance of the vessel rests with the Master of the vessel. This responsibility is delegated to each department for the efficient maintenance of the vessel. Department heads having equipment under their maintenance responsibility must monitor the maintenance of critical pieces of equipment. In addition, department heads must ensure that critical parts are reordered once they have been consumed.
10.2.5 Recording

Maintenance activities are to be recorded in the Chief Engineer’s Maintenance Log (or in WheelHouse system when functional). Each department head must ensure that the maintenance performed by their departments is entered in this management system.
10.3.1 Purpose

The purpose of this procedure is to ensure that Lube Oil samples are taken at a proper interval, correctly routed for analysis, and that the results reach both the Chief Engineer and the Port Engineer.

10.3.2 Responsibility

The Chief Engineer of the R/V Oceanus is responsible for the establishment and use of the ship’s Lube Oil Analysis Plan. Lube oil for all critical machinery will be sampled for analysis bi-annually, and noncritical machinery may be sampled at the discretion of the Chief Engineer.

The Chief Engineer is responsible to ensure that adequate supplies of sample kits are on board.

10.3.3 Procedure

Lube oil sampling kits are provided to the vessel by the Ship Operations Office. Sampling directions included with the kits are to be followed, and the kit is to be mailed using the pre-addressed labels in the continental United States. Special arrangements may be made by the Ship Operations Office when the vessel is overseas.

The Chief Engineer will maintain a log of sample dates for each piece of critical equipment as a spreadsheet. This log will be copied to the Port Engineer on a monthly basis. Analysis results are normally received by the Port Engineer; the Chief Engineer will receive copies from the Port Engineer via e-mail or by hand within 72 hours, and will be notified by the Port Engineer directly of any repair or maintenance recommendations based on analysis results.
11.1 Purpose

The purpose of this procedure is to define the method used to ensure holders of controlled documents have the latest revision of documents and that obsolete documents are removed from the system.

11.1.2 Responsibility

It is the responsibility of the Designated Person (DP) to ensure documents are distributed, controlled, and changed in accordance with this procedure and that obsolete documents are promptly removed from the system.

It is the responsibility of the holder of a controlled document to become familiar with the appropriate additions, changes, and/or deletions to the various manuals assigned to them.

11.1.3 Procedure

The Safety Management Manual (SMM) contains the documentation of the safety management system for OSU Ship Operations. It contains information on the Safety Management System and the procedures set forth therein. Most procedures considered important enough to be committed to writing should be contained in the SMM or referenced therein.

The distribution of the SMM is set forth in the Distribution Procedures portion of this manual, SMM 11.2. Changes to the SMM can be initiated either by the vessel crew or by the Ship Operations office staff. Changes must be sent to the Designated Person (DP) to have them incorporated in the SMM. The DP shall approve all changes to the SMM.

Once changes have been approved for incorporation into the Safety Management Manual, the changes will be sent to the individuals responsible for maintaining copies of the manual, both printed and electronic versions. These changes shall be recorded in the front of the individual manual in the revision page. These responsible individuals shall insert the changes into their manuals and report to the DP that the manuals have been changed.

Any portions of the SMM that have been made obsolete by changes shall be disposed of locally and do not need to be returned to the DP. The procedures maintained within this manual are current. The revision number of each procedure is indicated on the bottom of each page. To ensure validity of each procedure, the revision number can be cross-referenced with the revision number located by each procedure in the table of contents. If copies of individual procedures are made, then the word “COPY” must be clearly marked on each page of the procedure. It is the responsibility of each individual reading a procedure marked “COPY” to ensure they are reading the most current and valid revision.
11.2 Distribution of Manuals

11.2.1 Purpose
The purpose of this procedure is to identify the distribution of the Safety Management Manual.

11.2.2 Responsibility
It is the responsibility of the Designated Person (DP) to distribute the Safety Management Manual and all updates to allow ready access to the ship’s crewmembers and the Ship Operations staff.

11.2.3 General

The distribution of the Safety Management Manual has to maintain a balance between access and document control. The table below indicates where the original version and controlled copies of the Manual shall be located, both on board the ship and shoreside, and the person responsible for maintaining each copy. The electronic version onboard the ship will be maintained on the ships’ server as read only access and will be viewable by all crew and science personnel. A request to change this distribution shall be sent to the DP.

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<thead>
<tr>
<th>Electronic Copy Location</th>
<th>Person Responsible</th>
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<td>Marine Technician Superintendent</td>
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<table>
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<td>Ship Operations Coordinator</td>
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<tr>
<td>Oceanus - Bridge</td>
<td>Master</td>
</tr>
</tbody>
</table>

11.2.4 Distribution Process
The distribution of changes to the Safety Management Manual will occur in accordance with the process found in Figure 11.2. The Ship Operations Coordinator will conduct document change routing.
11.2 DISTRIBUTION OF MANUALS

Figure 11.2

NOTES:
1. DVD writing is not required if Network directory is backed up in other ways.
2. Individual chapter files are distributed, not the entire SMM.
12.1 INTERNAL AUDITS

12.1.1 General

A documented internal audit program and procedure has been designed, planned, implemented and managed to ensure the entire organization, including offices and the vessel covered by the Safety Management System, undergo an internal audit at least once per calendar year.

The purpose of the internal audit is to ensure that the Safety Management System is effectively maintained and implemented.

12.1.2 Internal Audit Program

The Designated Person (DP) is responsible for the establishment and maintenance of the Internal Audit program. The DP has established the procedure that defines the establishment and maintenance of the company Internal Audit Program to verify controls for Ship Operations.

The DP utilizes, at a minimum, the resources of vessel personnel, top management concerns, known Safety Management System problems, results of previous audits, and the status and importance of the activities to determine the frequency and degree to which each area is audited.

Operations that are deemed to have a greater than average impact upon safety or the environment may be audited more frequently than once each year.

The documented procedure covers:

A. The scheduling of internal audits.
B. The audit criteria, frequency, scope and methods for carrying out each audit.
C. The responsibilities of auditors and auditees, and involved or affected parties.
D. The recording and reporting of audit results.
E. The performance of corrective action.
F. The follow-up activities to verify the actions taken and the reporting of the verification results.

The management personnel responsible for the area being audited ensure that actions taken in response to any detected nonconformities are taken without undue delay to eliminate their causes.

12.1.3 Internal Audit Procedure

A. Audit Scheduling

1. An audit schedule shall be maintained to ensure that an internal audit of each unit (vessel or office) is conducted at least annually.
2. This schedule shall be developed by the Designated Person (DP), and will indicate the tentative date of the audit, which unit will be audited, which elements of the ISM Code will be addressed, and the appointed auditor(s).
3. All auditors shall be independent of the area they are assigned to audit.
4. All auditors shall have a basic understanding of the ISM auditing process and have either been part of an auditing team or have gone through an ISM audit as a department head.

B. Audit Preparation
1. Prior to the audit, the auditor(s) shall review the pertinent sections of the Safety Management Manual, Common Procedures, the Vessel Procedures (if applicable), and any previous audit reports relevant to this unit.
2. The review shall include any observations made during previous audits, a follow-up to ascertain if any previous nonconformities are still open, and any areas of emphasis set forth by the Designated Person.
3. It is recommended that the auditor(s) prepare a list of questions on the "INTERNAL AUDIT CHECKLIST" (Appendix SMF 12.1.1) or similar document to use as a guide to ensure coverage of the subjects to be audited. The checklist should be kept to a minimum length in keeping with the objectives and scope of the audit. The checklist may be filled in by hand or electronically. These shall become a part of the audit record for future audit guidance.
4. The DP shall coordinate the schedule for the audit with the assigned auditor(s) and with the Master. This coordination will ensure that the audit does not conflict with operational commitments of the unit being audited.
5. Any revisions to the schedule shall be reported to and approved by the Designated Person.

C. Audit Execution
1. After a brief meeting with the Marine Superintendent or Master, the auditor shall:
   a. Conduct an opening meeting to outline the scope and objectives of the audit as well as the methods to be used for carrying out and reporting the audit.
   b. Establish a schedule for a representative to be available in each area to be audited.
2. The audit shall be conducted with the minimum interruption of business. The auditor shall take adequate notes so that findings and observations may be accurately reported. The audit is intended to confirm the implementation of the Safety Management System and its effectiveness. Nonconformities and Observations, and the evidence for them, shall be communicated orally to the auditee as they are established.
3. The auditor(s) must take the time to properly document the findings obtained during the audit. Notes made in the audit checklists should support any Observations or Nonconformities determined.
4. The auditor shall record the Observation or Nonconformity in Sections 1 through 3 on the "NONCONFORMITY REPORT - CORRECTIVE ACTION REQUEST (NCCAR)" (Appendix). This form is designed to assist the internal auditor while conducting the audit.

5. At the closing meeting, the auditor shall present all Nonconformities and Observations to the Marine Superintendent or Master as applicable, who shall then sign a printout of each Nonconformity or Observation on the NCCAR. This signature is acknowledgment that the Nonconformity or Observation has been identified by the auditor and is not an admission of wrongdoing.

D. Audit Report
1. To assist in the preparation of the audit report, the auditor may write a brief summary report on "INTERNAL AUDIT REPORT" form (Appendix SMF 12.1.3).
2. The audit report shall include:
   a. The list of Nonconformities by number with a brief summary.
   b. All Observations noted by the auditor
      i. All Nonconformities and Observations shall specifically refer to the appropriate section of the ISM Code and/or SMM.
      ii. All Nonconformities and Observations shall be numbered using the following system:

         NC# - ISM Section – NC Letter
         01-12.2 - A
         02 - 7.0 - A Examples
         02 - 7.0 - B

3. The completed audit checklist and Nonconformity reports shall become the supporting documentation for the Audit Report. It is considered an important tool in the formulation of the next audit.

E. Follow-Up Action
1. All Nonconformities documented as a result of an Internal Audit shall be subject to tracking and follow-up activities in accordance with SMM 9.1

12.1.4 Records

The audit checklists and audit reports are considered Safety Management System records and shall be retained and readily available for future audits.
12.2 Management Review

Management reviews the Safety Management System on a regular basis to ensure its continuing suitability, adequacy and effectiveness. This review includes assessing opportunities for improvement and the need for changes to the Safety Management System, including the policy and associated objectives. More frequent reviews may be held to address corrective actions on pertinent issues and to review the effectiveness of prior corrective actions.

The ISM Code requires at least an annual Management Review; OSU will meet this requirement via a “rolling review” process involving reviews at least once per quarter, to make up a complete review of the SMS at least once per year.

The need for workspace, equipment, and other relevant items are reviewed during management review meetings with the goal of achieving continued safety and security performance. The departments and functions reporting to the management meetings are responsible for implementing the safety, security, and environmental programs promulgated by the Safety Management System.

12.2.2 Review Input

The input to the reviews held by management may include:

A. Internal and external audit reports.
B. Service performance and fulfillment of requirements, including regulatory compliance and regulatory/SMS documentation.
C. Observations, Nonconformities, Hazardous Occurrences and Accidents, both completed and outstanding.
D. Customer feedback.
E. Corrective and preventative action taken and their effectiveness.
F. Communication from interested parties.
G. Follow-up from previous management reviews,
H. Planned changes and their effects on the management system.
I. Recommendations for improvement.
J. The possible need for changes in policy, objectives, and other system elements based upon the reviewed results, changing circumstances (legislative, change of focus, etc.), and the commitment to continual improvement.

12.2.3 Review Output

The output from the review by management documents any decisions and actions related to:
B. Improvement of services.
C. Resource needs.

12.2.4 Records

Quarterly meetings will be recorded on form (SMF 6.8). The 4th quarterly meeting will be considered the Management Annual Review and will use form (SMF 12.2). These will be retained on file as part of the Safety Management System.
13.0.1. External Audits

The DP is responsible for ensuring external bodies audit the OSU Ship Operations Safety Management System in compliance with relevant regulations.

Part of this responsibility lies in ensuring the external body (currently the professional auditors of the American Bureau of Shipping) is notified whenever a shoreside or vessel external audit needs to be scheduled.

The DP ensures that nonconformities found during these audits are responded to the external auditing body within the time limits specified by these regulatory bodies, and that the approved corrective action is implemented within the specified times.

OSU Ship Operations will maintain Audit Schedules using the Google Calendar System. Critical dates will be listed on the Critical Annual Deadlines for ISM Compliance.

13.0.2. Special ISM Code Documents

The original ISM Code Document of Compliance (DOC) shall be maintained shore side at the Ship Operations office. A copy of the DOC shall be maintained on board the R/V Oceanus in the ISM manuals. The vessel shall maintain the original Safety Management Certificate (SMC) and the Ship Operations office shall maintain a copy of it.
## Appendix A – List of Forms

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OSU SHIP OPERATIONS

MASTER’S SAFETY MANAGEMENT SYSTEM REVIEW

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MASTER: ___________________________ DATE OF REVIEW: ________________

DESIGNATED PERSON: ___________________________ DATE RECEIVED: ________________

Page ___ Of ___
OSU SHIP OPERATIONS

MASTER’S SAFETY MANAGEMENT SYSTEM REVIEW

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<tr>
<th>DESIGNATED PERSON:</th>
<th>DATE RECEIVED:</th>
</tr>
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</table>

MASTER’S GENERAL COMMENTS:

SUGGESTIONS FOR IMPROVEMENT:

(Signed)_____________________________, Master, R/V OCEANUS
OSU SHIP OPERATIONS
EMPLOYEE INITIAL AND ANNUAL SMM REVIEW

Employee Name: ____________________________________________

Initial Review ___________ Annual Review _______________

<table>
<thead>
<tr>
<th>SMM Section</th>
<th>Date Reviewed</th>
<th>Initial</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chapter 1</td>
<td></td>
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<tr>
<td>Chapter 2</td>
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<tr>
<td>Chapter 3</td>
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<td>Chapter 4</td>
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<td>Chapter 12</td>
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<td>Chapter 13</td>
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<tr>
<td>Appendixes</td>
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<tr>
<td>JSA</td>
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</tbody>
</table>
OSU SHIP OPERATIONS

NEW PERSONNEL ORIENTATION
CHECK OFF LIST

Crewmember/Technician Name ______________________________  Position on Ship: __________________

Officer/Supervisor Giving Orientation ______________________________

1. ☐ Give general walk around of vessel with particular emphasis on:
   - Fire-fighting equipment
   - Fire detection equipment
   - Show location of DC lockers and indicate safety gear stowed within. Point out dry chemical and CO2 extinguishers and different uses for each.
   - Watertight door closure and remote closure mechanisms for fire boundaries and flooding
   - How to report an emergency at sea and/or in port
   - Remote fuel shutoff valve location and operating instructions
   - How to make a phone call within the ship
   - How to use the ship’s paging system

2. ☐ Show Room Assignment
   - Make certain station card coincides with station bill
   - Are PFD, exposure suit, EEBD on station?
   - Is UNOLS Safety Training Manual available?

3. ☐ Explain muster assignment
   - Identify station bills, ship’s plans, emergency signals
   - Point out that it is prudent to be familiar with other crewmember assignments as well as their own
   - Indicate requirements for personal protective equipment for fire & emergency, abandon ship and for man overboard evolutions

4. ☐ Introduce to immediate supervisor (if available)
   - Explain ship routine including required attire
   - Where to find vessel/OSU/crew information and the ship’s web site
   - Make special note of OSU’s policies on Drugs & Alcohol, Smoking, Sexual Harassment and Trash Separation
   - Review Master’s/Chief Engineer’s Standing orders as appropriate.

5. ☐ Show location of ship’s emergency medical equipment
   - Indicate trauma kit & medical kit locations
   - Eyewash station
   - First aid stations throughout the ship

6. ☐ Provide crewmember with New Classified Employee Orientation Checklist and a copy of his/her job description along with Crew Information Forms and Medical Forms. Have the completed forms returned to the Master along with copies of licenses, documents and STCW certificates.

7. ☐ Safety Management System
   - Explain the Safety Management System and show the location of the Safety Management Manual. (New personnel have 30 days from hire date to complete SMM Review.)
   - Explain Job Safety Analysis Program and Risk Assessment

______________________     ______________________     _________       __________
Signature (New Crewmember/MT)      Signature (Officer/Supervisor)             Date                   Master (initials)

Number:   SMF 6.2     Revision:   4     Effective Date:  30 Jun 15     Page 1 of 1
R/V *Oceanus* Crane Operator  
Certification Worksheet  
& Check Off List

<table>
<thead>
<tr>
<th>This Certification is for:</th>
<th>Ship's Crane: ☐</th>
<th>Portable Crane: ☐</th>
</tr>
</thead>
</table>

Name of person being certified: __________________________________________________________

Date begun: ___________ Emp ID #: ___________ Date Completed ____________

Boatswain: ___________________________ Chief Mate: ______________________

Orientation: ___________________________ Instructor Signature

1. **Terms, names, nomenclature and hand signals**
   - (y) ☐ (n) ☐ _______________________

2. **Crane Inspection**
   - a. Controls (y) ☐ (n) ☐
   - b. Wire/sheaves/spool/booms (y) ☐ (n) ☐
   - c. Slew gears & lube points (y) ☐ (n) ☐
   - d. Communications (y) ☐ (n) ☐
   - e. Safety (y) ☐ (n) ☐
   - f. Hydraulics & limits & overrides (y) ☐ (n) ☐
   - g. Boom crutching & heavy wx securing (y) ☐ (n) ☐

3. **Operations: In Port**
   - a. Pre-start visual inspection (y) ☐ (n) ☐
   - b. Anti two block inspection (y) ☐ (n) ☐
   - c. Check status and position of hook (y) ☐ (n) ☐
   - d. Start up warm up (y) ☐ (n) ☐
   - e. Boom exercises (y) ☐ (n) ☐
   - f. Crowd & whip exercises (y) ☐ (n) ☐
   - g. Slew exercises (y) ☐ (n) ☐
   - h. Pick & place exercises (y) ☐ (n) ☐
   - i. Multi function coordinated exercises (y) ☐ (n) ☐

4. **Operations while vessel is dockside:**
   - The dockside phase of the training process will be active and OJT. This is predicated on demonstrated performance during the dockside training. The above named trainee has been directed and observed to have successfully operated the ship’s crane through the required functions while the vessel was dockside and has demonstrated proficiency and competency to the satisfaction of the ship’s Boatswain/Chief Mate and is hereby certified as a Ship’s Crane Operator for dockside operations only.
   - Boatswain: ___________________________ Date_____________________
   - Chief Mate: ___________________________ Date_____________________

5. **Operations at Sea:**
   - The at sea phase of the training process will also be active and OJT. This is predicated on demonstrated performance of both dockside and at sea training. It is recognized, however, that not all persons trained dockside will have the ability to perform equally well at sea on a moving platform. In those cases or where either the operator or the Boatswain feels uncomfortable, another operator will be assigned.
   - The above named trainee has been directed and observed to have successfully operated the ship’s crane through the required at-sea functions and has demonstrated proficiency and competency to the satisfaction of the ship’s Boatswain/Chief Mate and is hereby certified as a Ship’s Crane Operator for the type crane currently installed.
   - Boatswain: ___________________________ Date_____________________
   - Chief Mate: ___________________________ Date_____________________

Number: SMF 6.3  
Revision: 3  
Effective Date: 9 Apr 12  
Page 1 of 1
**R/V Oceanus Small Boat Operator**
**Certification Worksheet**
& Check Off List

<table>
<thead>
<tr>
<th>This Certification is for:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Ship’s Small Boat:</strong> □</td>
<td><strong>User Supplied Small Boat:</strong> □</td>
</tr>
</tbody>
</table>

Name of person being certified: __________________________________________________________

Date begun: _____________________________ Date Completed ____________ _________________

Orientation:     Instructor Signature

1. Terms, names, nomenclature

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>(y) □ (n) □</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

2. Small Boat Inspection
   a. Safety Equipment (including anchor)  
      (y) □ (n) □  
   b. Remove Cowling, inspect motor components  
      (y) □ (n) □  
   c. Gauges (fuel and as equipped)  
      (y) □ (n) □  
   d. Lifting Points  
      (y) □ (n) □  
   e. Batteries  
      (y) □ (n) □  
   f. Radio  
      (y) □ (n) □  

3. Start Up:
   a. Pre-start visual inspection  
      (y) □ (n) □  
   b. Confirm fuel level and breaker status (if equip.)  
      (y) □ (n) □  
   c. Lower motor  
      (y) □ (n) □  
   d. Choke or prime engine (as necessary)  
      (y) □ (n) □  
   e. Confirm status of shifter (neutral)  
      (y) □ (n) □  
   f. Confirm status of “kill switch”  
      (y) □ (n) □  
   g. Confirm all personnel have PFD’s  
      (y) □ (n) □  

4. Operation of Small Boat:
   Demonstrate ability to:
   a. Speed up, bring the boat on plane, maintain plane, slow down safely.  
      (y) □ (n) □  
   b. Dock boat to a fixed platform (dock) and/or moving platform (ship).  
      (y) □ (n) □  
   c. Recover a floating object (fishing float or equivalent).  
      (y) □ (n) □  
   d. Make an appropriate radio call to another vessel.  
      (y) □ (n) □  

5. Certification:
   The above named person has been directed and observed to have successfully operated the ship’s (or user supplied) small boat through the required functions and has demonstrated proficiency and competency to the satisfaction of the ship’s Master (or his designee) and is hereby certified as a small boat operator for small boats associated with the R/V Oceanus and her associated science missions.

   Master (or designee): ________________________________ Date_____________________
   (print name)

   Master (or designee): ________________________________
   (sign name)
### Small Boat Operations Checklist

All Boat Operators will complete the following checklist and present it to the ship’s watch officer for approval prior to commencing launch ops.

**Name of Operator:** ______________________  
**Qualified:** yes ☐  no ☐

**Reason for Boat Op:**
- [ ] Training
- [ ] Testing
- [ ] Trials
- [ ] Dive Ops
- [ ] Sci Ops
- [ ] Port Ops
- [ ] SAR
- [ ] Other (Describe)

---

**To be checked off by Boat Operator**

<table>
<thead>
<tr>
<th>Item</th>
<th>Yes ☐</th>
<th>No ☐</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proper inflation?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Boat plug installed?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Required safety gear aboard?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adequate PFDs for all aboard?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Conduct radio check?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Paddles aboard?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anchor aboard (if needed)?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Orange WT box w/spares etc., on board?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>If at night, proper nav lights working?</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

If you answered ‘No’ to any of the above please explain briefly:

_______________________________________________________________________

_______________________________________________________________________

**Comments:**_______________________________________________________

_______________________________________________________________________

**Operator Signature:** _____________________________________________

**Approved by Ship’s Watch Officer:** ________________________________

---

Number:    SMF 6.4.B                      Revision:  3          Effective Date:  12 Aug 16          Page 1 of 1
# R/V Oceanus Winch Operator Certification Worksheet & Check Off List

## This Certification is for:

<table>
<thead>
<tr>
<th>Option</th>
<th>Selection</th>
</tr>
</thead>
<tbody>
<tr>
<td>DESH-5</td>
<td>☐</td>
</tr>
<tr>
<td>COM-15</td>
<td>☐</td>
</tr>
<tr>
<td>DYNACON TRACTION WINCH</td>
<td>☐</td>
</tr>
<tr>
<td>TSE</td>
<td>☐</td>
</tr>
<tr>
<td>OTHER</td>
<td>☐</td>
</tr>
</tbody>
</table>

---

Name of operator being trained: ________________________________________________________
Date orientation begun: ________________ Date orientation completed: ________________

### 1. Orientation:

- **a. Terms, names, nomenclature and hand signals**
  - (y) ☐ (n) ☐  
  - Instructor Signature

- **b. Winch Manual**
  - (y) ☐ (n) ☐  
  - Instructor Signature

- **c. UNOLS RVSS Appendix ‘A’**
  - (y) ☐ (n) ☐  
  - Instructor Signature

### 2. Winch Inspection

- **a. Controls**
  - (y) ☐ (n) ☐  
  - Instructor Signature

- **b. Wire/sheaves/spool**
  - (y) ☐ (n) ☐  
  - Instructor Signature

- **c. Fairlead gears & lube points**
  - (y) ☐ (n) ☐  
  - Instructor Signature

- **d. Communications**
  - (y) ☐ (n) ☐  
  - Instructor Signature

- **e. Safety**
  - (y) ☐ (n) ☐  
  - Instructor Signature

- **f. Spool Cameras (as applicable)**
  - (y) ☐ (n) ☐  
  - Instructor Signature

### 3. Operations:

- **a. Pre-start visual inspection**
  - (y) ☐ (n) ☐  
  - Instructor Signature

- **b. Check status and position of wire**
  - (y) ☐ (n) ☐  
  - Instructor Signature

- **c. Start up/warm up**
  - (y) ☐ (n) ☐  
  - Instructor Signature

- **d. Multi-function coordinated exercises**
  - (y) ☐ (n) ☐  
  - Instructor Signature

- **f. Tension / Depth readout**
  - (y) ☐ (n) ☐  
  - Instructor Signature

- **g. Emergency Stops (winch and boom)**
  - (y) ☐ (n) ☐  
  - Instructor Signature

### 4. Competency:

Due to the nature of most operations involving the above named Winch, this training will be primarily conducted underway in actual operation, under the direct supervision of the Boatswain, Chief Mate or other instructor approved by the Master.

The above named trainee has been directed and observed in proper and safe operation of the identified Winch to the satisfaction of the ship’s Boatswain and Chief Mate, and is deemed Competent for operation. It is recognized, however, that initial training and early experience may not be sufficient for unusual or complex evolutions. In any situation where either the operator or the Boatswain is uncertain that the operator has sufficient proficiency for a planned evolution, or if conditions require a Certified operator to meet the planned Factor of Safety for the evolution, another operator will be assigned.

Boatswain: ________________________________ Date_____________________

Chief Mate: ________________________________ Date_____________________

### 5. Certification:

Full certification is predicated on experience and demonstrated performance of winch-specific operations, both dockside and at sea. The above named trainee has been directed and observed in proper and safe operation of the above named Winch, through multiple underway evolutions, has demonstrated full proficiency and competency to the satisfaction of the ship’s Boatswain and Chief Mate and is hereby Certified as a Winch Operator for all operations.

Boatswain: ________________________________ Date_____________________

Chief Mate: ________________________________ Date_____________________

---

Number: SMF 6.6  Revision: 3  Effective Date: 15 May 15  Page 1 of 1
CHECK OFF LIST – SAFETY ORIENTATION LECTURE

1. □ Give general description and/or walk around of vessel with particular emphasis on:
   - Fire-fighting equipment. Point out dry chemical, CO₂, and class D extinguishers and different uses for each.
   - How to report an emergency at sea and/or in port.
   - How to make a phone call within the ship.
   - How to use the ship’s paging system.
   - The dangers of a vessel’s motion (including when sleeping).

2. □ Confirm room assignments and request personnel review the following:
   - Make certain station card coincides with station bill.
   - Are PFD, exposure suit, EEBD on station?
   - Is RVOC Safety Training Manual available?
   - Job Safety Analysis (JSA): when to use them and what they are.
   - All potential escape routes from berthing and science areas.

3. □ Explain muster assignments:
   - Identify station bills, ship’s plans, emergency signals and liferaft stations.
   - Point out that it is prudent to be familiar with other personnel’s assignments as well as their own.
   - Indicate requirements for personal protective equipment (PPE) for fire & emergency, abandon ship and for man overboard evolutions.

4. □ Explain ship routine, including:
   - Required and appropriate attire for work and off-hours.
   - Science party and ship’s crew duties and responsibilities for scientific evolutions.
   - Required PPE for work on deck, especially crane/A-frame/winch evolutions.
   - Make special note of OSU’s policies on Drugs & Alcohol, Smoking, Sexual Harassment and Trash Separation.
   - Where to find MSDS information.

5. □ Show location of ship’s emergency medical equipment:
   - Indicate trauma kit & medical kit locations.
   - Eyewash station.
   - First aid stations throughout the ship.

(Signature page follows)
I attended the Safety Orientation Lecture on the date shown below. I have been briefed on, understand and will comply with all elements described on Page 1 of this checklist.

<table>
<thead>
<tr>
<th>Name (print or type)</th>
<th>Signature</th>
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<tbody>
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</tbody>
</table>

Officer Conducting Orientation __________________________ Date ____________

Cruise Number: __________________________
<table>
<thead>
<tr>
<th>Departing Port, Date &amp; Cruise #:</th>
</tr>
</thead>
<tbody>
<tr>
<td>ETD at</td>
</tr>
<tr>
<td>Fresh Water Volume: (in Gallons )</td>
</tr>
<tr>
<td>Check all spaces for stowaways</td>
</tr>
<tr>
<td>Anchor ready for letting go</td>
</tr>
<tr>
<td>Charts, Tides/Currents, Binoculars &amp; Nav Tools laid out</td>
</tr>
<tr>
<td>Charts used in route planning are current and/or corrected</td>
</tr>
<tr>
<td>Ensure ship is on Generator power with Standby Gen running</td>
</tr>
<tr>
<td>Breakers on to all needed – prop control, steering system, rudder indicator etc.</td>
</tr>
<tr>
<td>Gyro running – Set Speed &amp; Latitude</td>
</tr>
<tr>
<td>Radios &amp; Sidebands on, set to required frequencies &amp; tuned</td>
</tr>
<tr>
<td>Weather Fax &amp; NavTex – On &amp; set for current stations</td>
</tr>
<tr>
<td>Reviewed weather in planned area of operation</td>
</tr>
<tr>
<td>Review all known navigational hazards in planned area of operation</td>
</tr>
<tr>
<td>GMDSS Equipment On &amp; Logged</td>
</tr>
<tr>
<td>ECS On – Heading set</td>
</tr>
<tr>
<td>ECS &amp; GP90 – Set to Auto Switch Waypoints and Correct Route Plan</td>
</tr>
<tr>
<td>ECS, Down Sounder &amp; Furuno Speed Log – Set to FEET</td>
</tr>
<tr>
<td>S-Band Radar (Port Side, Top Antenna) – Turn ON</td>
</tr>
<tr>
<td>X-Band Radar (Stbd Side, Lower Antenna) – Turn ON</td>
</tr>
<tr>
<td>Test Comms with Engine Room</td>
</tr>
<tr>
<td>Test Ship’s General Alarm &amp; Whistle</td>
</tr>
<tr>
<td>Test Running &amp; RAM lights</td>
</tr>
<tr>
<td>Set Watertight Boundaries – Check Air Lock</td>
</tr>
<tr>
<td>AIS set to U/W using Engine</td>
</tr>
<tr>
<td>Test Aft Emergency Steering</td>
</tr>
<tr>
<td>Test &amp; Time Steering Pumps 28° (Slow 21 seconds, Fast 11 seconds, Both Pumps either Slow/Fast 7 seconds)</td>
</tr>
<tr>
<td>Port Pump</td>
</tr>
<tr>
<td>Test NFU Steering</td>
</tr>
<tr>
<td>Pitch Console Station Ahead/Rev</td>
</tr>
<tr>
<td>Crane, Rescue Davit &amp; A-Frames Stowed &amp; Secured</td>
</tr>
<tr>
<td>Shore Power cable, Telephone/Data cables, Fresh Water hose, Sewage hose disconnected &amp;</td>
</tr>
<tr>
<td>All crew &amp; science personnel aboard, anyone not going on cruise is ashore</td>
</tr>
<tr>
<td>Portable gangway aboard &amp; stowed, main gangway on dock</td>
</tr>
<tr>
<td>Test Ship’s Prop. &amp; Steering Controls &amp; Bow Thruster (30 mins. before leaving)/ Center Station</td>
</tr>
<tr>
<td>Test Ship’s Prop. &amp; Steering Controls &amp; Bow Thruster (30 mins. before leaving)/ Stbd Station</td>
</tr>
<tr>
<td>Test Ship’s Prop. &amp; Steering Controls &amp; Bow Thruster (30 mins. before leaving)/ Port Station</td>
</tr>
<tr>
<td>Security on VHF 16 &amp; 13 – Contact USCG</td>
</tr>
<tr>
<td>Departure Report ready to go ashore</td>
</tr>
<tr>
<td>Comments:</td>
</tr>
</tbody>
</table>
## OSU SHIP OPERATIONS
### ARRIVAL PROCEDURES

<table>
<thead>
<tr>
<th>Arriving Port, Date &amp; Cruise #:</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ETA at</strong></td>
</tr>
<tr>
<td>Fresh Water Volume: (in Gallons)</td>
</tr>
<tr>
<td>Required reports sent in (NOA, Ballast Water &amp; Harbor or VTS)</td>
</tr>
<tr>
<td>Pertinent charts &amp; nav tools laid out</td>
</tr>
<tr>
<td>Pertinent Tides &amp; Currents printed &amp; posted</td>
</tr>
<tr>
<td>ECS – Down Sounder – Furuno Speed Log – Set to FEET</td>
</tr>
<tr>
<td>ECS &amp; GP90 – Switch Route Plan if needed</td>
</tr>
<tr>
<td>ECS &amp; GP90 – Set to Auto Switch Waypoints</td>
</tr>
<tr>
<td>Check headings correct on ECS, radars and repeaters</td>
</tr>
<tr>
<td>Call Outs 30 min. before Sea Buoy</td>
</tr>
<tr>
<td>Standby Generator fired up 30 min. before Sea buoy</td>
</tr>
<tr>
<td>Watertight Boundaries set</td>
</tr>
<tr>
<td>Anchor ready for letting go</td>
</tr>
<tr>
<td>Aft Steering Wheel installed</td>
</tr>
<tr>
<td>Aft (Emergency) Steering &amp; Repeater checked</td>
</tr>
<tr>
<td>Wing Steering cover off</td>
</tr>
<tr>
<td>Both Steering Pumps ON / Time &amp; check that both pumps are working from Console station</td>
</tr>
<tr>
<td>Both Steering Pumps ON / Time &amp; check that both pumps are working from Stbd. station</td>
</tr>
<tr>
<td>Both Steering Pumps ON / Time &amp; check that both pumps are working from Port station</td>
</tr>
<tr>
<td>Check Ship’s Prop, Steering and Bow Thruster from Console station</td>
</tr>
<tr>
<td>Check Ship’s Prop, Steering and Bow Thruster from Stbd. station</td>
</tr>
<tr>
<td>Check Ship’s Prop, Steering and Bow Thruster from Port station</td>
</tr>
<tr>
<td>Check NFU Steering</td>
</tr>
<tr>
<td>National Ensign hoisted &amp; bridge windows cleaned</td>
</tr>
<tr>
<td>Crane, A-frames &amp; Boom stowed inboard of bulwarks</td>
</tr>
<tr>
<td>Sea &amp; Anchor Detail set – Aft Steering manned &amp; ready</td>
</tr>
<tr>
<td>Security Call on VHF 16 &amp; 13</td>
</tr>
<tr>
<td>Moored – Shut down equipment – AIS on Moored</td>
</tr>
<tr>
<td>Contact VTS if needed</td>
</tr>
</tbody>
</table>

**Comments:**
OREGON STATE UNIVERSITY COLLEGE OF OCEANIC & ATMOSPHERIC SCIENCES
VOYAGE REPORT R/V OCEANUS

<table>
<thead>
<tr>
<th>CRUISE #:</th>
<th>CRUISE NAME</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

PRINCIPAL INVESTIGATOR(s):

<table>
<thead>
<tr>
<th>SUMMARY OF PORT CALLS - date/time of departures and arrivals:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
<tr>
<td>Port</td>
</tr>
<tr>
<td>Port</td>
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<td>Port</td>
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<td>Port</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>FUEL</th>
<th>LUBE OIL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Used Gallons</td>
<td>Used Gallons</td>
</tr>
<tr>
<td>On Bd. Gallons</td>
<td>On Bd. Gallons</td>
</tr>
<tr>
<td>Av/Day Gallons</td>
<td></td>
</tr>
<tr>
<td>Av/Hr Gallons</td>
<td></td>
</tr>
<tr>
<td>Av/Mile Gallons</td>
<td></td>
</tr>
<tr>
<td>Hours Sci. Work</td>
<td>Miles This Cruise</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

REMARKS: (Personnel performance, incidents, accidents, injuries, equip casualties, unsatisfactory equip performance… etc.)

<table>
<thead>
<tr>
<th>Date</th>
<th>Drills</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
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</tr>
</tbody>
</table>

Hazmat Drill: Yes  No  Date:______________ (required quarterly)  Q1  Q2  Q3  Q4

Captain:__________________________________________________Date:______________
Oregon State University, College of Earth, Ocean, and Atmospheric Sciences
DEPARTURE REPORT, R/V OCEANUS

<table>
<thead>
<tr>
<th>Cruise</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>DEPARTURE</th>
<th>Port:</th>
<th>Date:</th>
<th>Time:</th>
</tr>
</thead>
<tbody>
<tr>
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</tbody>
</table>

Next Port of Call:

<table>
<thead>
<tr>
<th>NUMBER OF PERSONS</th>
<th>Scientific Party:</th>
<th>Crew:</th>
<th>Total:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</tr>
</tbody>
</table>

Fuel on Board (Gallons): | Lube Oil on Board (Gallons):
Water on Board (Gallons): | Provisions (No. of Days):

DRAFT
Forward: | Aft: | Mean:
<table>
<thead>
<tr>
<th></th>
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<tbody>
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<td></td>
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</tbody>
</table>

Inoperative Equipment & Remarks:

SAILING LIST (Name of persons on board; include organization for non-OSU employees):

<table>
<thead>
<tr>
<th>CREW</th>
<th>SCIENTIFIC PARTY</th>
</tr>
</thead>
<tbody>
<tr>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>POSITION</th>
<th>NAME:</th>
<th>NAME:</th>
<th>INSTITUTION:</th>
<th>Function (Sci., Tech, Student, Grad. Student):</th>
</tr>
</thead>
<tbody>
<tr>
<td>Master</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Ch. Mate</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2nd Mate</td>
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<tr>
<td>3rd Mate</td>
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<tr>
<td>Boatswain</td>
<td></td>
<td></td>
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<tr>
<td>AB #1</td>
<td></td>
<td></td>
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<td>AB #2</td>
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<td>AB #3</td>
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<tr>
<td>AB #4</td>
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<tr>
<td>Ch. Eng.</td>
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<td></td>
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<tr>
<td>1 A/E</td>
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<tr>
<td>1 A/E</td>
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<tr>
<td>QMED</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electrician</td>
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<td></td>
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<tr>
<td>Cook/Stwd.</td>
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<td></td>
<td></td>
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</tr>
<tr>
<td>Messman</td>
<td></td>
<td></td>
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<tr>
<td>Other:</td>
<td></td>
<td></td>
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<tr>
<td>Other:</td>
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</table>

Master R/V OCEANUS
OSU SHIP OPERATIONS

CONFINED SPACE ENTRY

Under NO circumstance will anyone be permitted to enter a confined space unless it has been deemed safe for entry by the Chief Mate or Chief Engineer.

The following information must be known:

- Date of Entry ____________________________
- Space Entered ____________________________
- Reason for Entry ____________________________
- Expected Duration of Entry ____________________________
- Person Entering ____________________________
- Person Standing By ____________________________
- Level of Oxygen ____________________________
- Measure of Explosive Gases ____________________________
- Additional Requirements ____________________________
- Person Testing the Space ____________________________

Comments: ______________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

Approving Officer Signature: ______________________________ Date: ______________
OSU Ship Operations

TRANSDUCER WELL PROCEDURES

<table>
<thead>
<tr>
<th>Date:</th>
<th>Operation:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Person completing checklist *:</td>
<td>Position:</td>
</tr>
</tbody>
</table>

- Ensure that all gauge and relief valve calibrations are current
- Notify Chief Engineer, airlock operator and Captain or Mate on Watch of intended operations and expected duration
- Two persons available to go in the well, at least one experienced in airlock operations
- Designate a second airlock operator as relief during the operation
- Ensure that both hatches operate smoothly and seal properly
- Ventilate space for at least 10 minutes prior to entry
- Inspect transducer well for: working lights, no active leaking, all pass-throughs secured
- Ensure that both air compressors are on or One compressor is on and backup air is available from dock
- Inspect Air Control Manifold:
  - Check operation of air dump and isolation valves (Open and close)
  - Check operation of regulator valves, upper and lower in sequence (Open and close)
  - Check operation of regulator bypass valves (Open and close)
- Ensure no leaks in air supply
- Pressurize chamber to at least 7.75 psi for 10 – 20 minutes, note how much the pressure drops
- Ensure that telephone service is available in the event of an emergency
- Verify that sound powered phone and radio communications are functional. If sound powered phone is not functioning, a second set of radios on a second channel may be used.
- Ensure that all necessary tools are in the well before operations commence
- Notify watch officer when personnel are in the air lock
- Notify watch officer when personnel are out of the air lock
- Check that there has been no ingress of water after 24 hours
- Confirm date of last filter change in the transducer well has been within the last year.

Comments:__________________________________________________________________________
_____________________________________________________________________________________
_____________________________________________________________________________________

____________________________________
Signature of Person completing checklist

* Only properly trained personnel can operate transducer well – List is available on bridge.
### PATIENT INFORMATION

<table>
<thead>
<tr>
<th>Name___________________________</th>
<th>Age_____</th>
<th>Sex___</th>
<th>Nationality_____________</th>
</tr>
</thead>
</table>

Type of injury (symptoms and location):_______________________________________

When/how injury occurred:_________________________________________________

______________________________________________________________________

Medications administered (amount and type):_______________________________

______________________________________________________________________

Previous medical history (including medications):____________________________


### PATIENT VITAL SIGNS

<table>
<thead>
<tr>
<th>Temp:________</th>
<th>Airway:</th>
<th>OBSTRUCTED</th>
<th>GURGLING</th>
<th>OPEN</th>
</tr>
</thead>
<tbody>
<tr>
<td>B/P (Wrist/Neck):________</td>
<td>Resp:</td>
<td>SHALLOW</td>
<td>NORMAL</td>
<td>DEEP</td>
</tr>
<tr>
<td>Pulse:</td>
<td>NORMAL</td>
<td>WEAK</td>
<td>POUNDING</td>
<td>NONE*</td>
</tr>
</tbody>
</table>

* IF NO PULSE/RESP, IS CPR BEING CONDUCTED?  Y / N  HOW LONG?_________

<table>
<thead>
<tr>
<th>Conscious:</th>
<th>Y N</th>
<th>Ambulatory:</th>
<th>Y N</th>
<th>Eyes:</th>
<th>Dilated</th>
<th>Y N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Convulsions:</td>
<td>Y N</td>
<td>Signs of shock:</td>
<td>Y N</td>
<td>Reactive</td>
<td>Y N</td>
<td></td>
</tr>
<tr>
<td>Vomiting:</td>
<td>Y N</td>
<td>Bleeding:</td>
<td>Y N</td>
<td>Equal</td>
<td>Y N</td>
<td></td>
</tr>
<tr>
<td>Tingling Limbs:</td>
<td>Y N</td>
<td>Paralysis:</td>
<td>Y N</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Skin cond:  DRY  NML  CLAMMY  Skin color:  BLANCHED  YLW  NML  BLUE  RED

First aid kit:  Y N  Treatment given:_______________________________

Medical personnel:  DR  RN  EMT  OTHER  _______________________________

### ADDITIONAL INFORMATION FOR DIVING ACCIDENTS

<table>
<thead>
<tr>
<th>Time of accident:</th>
<th>Patient’s Height:</th>
<th>Weight:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total dives today:</td>
<td>Interval between dives:</td>
<td>Dive depth:</td>
</tr>
<tr>
<td>Dives in last 24 HRS?</td>
<td>Y / N</td>
<td>If YES, when?</td>
</tr>
</tbody>
</table>

If diver trapped:

| Amount of air left in diver’s tank? | Depth: |
| Experience of the trapped diver: | |
| Equipment available: | |
| Nature of object trapping diver: | |
| Actions being taken to free diver: | |
| Any divers and equipment in area to rescue diver: | |

### MISC INFORMATION

<table>
<thead>
<tr>
<th>Vsl LPOC/Date:</th>
<th>Vsl NPOC/ETA:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communications:</td>
<td>VHF-FM  MF/HF  CELLULAR</td>
</tr>
<tr>
<td>O/S WX – Wind:</td>
<td>/</td>
</tr>
</tbody>
</table>
## OBSERVATION/NONCONFORMITY REPORT – CORRECTIVE ACTION REQUEST (NCCAR)

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
</table>
| **1** | **NCCAR Number:** ____________  
       | **YY-MM-NC** |
| **2** | **Associated ISM Section:** ____________  
       | **Audit Reference Number:** ____________ |
| **3** | **Initiator:** ____________________________________  
       | **Date:** ______________________________  
       | **Observation:** ☐  
       | **Identified through:**  
       | **Nonconformity:** ☐  
       | External Audit ☐  
       | Internal Audit ☐  
       | Management Review ☐  
       | Departmental Report ☐  
       | Daily Operation ☐  
       | Voyage Exception ☐  
       | Customer Complaint ☐  
       | Other: _____________________ |
| **4** | **Description of Nonconformity (Or Attachment):** |
| **5** | **Initiator’s Recommendation for Corrective Action:** |
6 Department Head’s Review and Recommendations:

Department Head Signature: ____________________________ Date: ____________

7 Master’s Review and Recommendations:

Masters signature: ____________________________ Date: ____________

8 Received by Ship Operations Coordinator (initial) Date: ____________

9 Management’s Corrective Action Resolution:

Date recorded for action: ____________ Assigned to: ____________ Date action due: ____________

10 Corrective Action Implemented:

11 Confirmation of Corrective Action Taken:

Closed Out by: ____________________________ Date: ____________
### OSU SHIP OPERATIONS

**HAZARDOUS OCCURRENCE REPORT (HAZREP)**

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>HAZREP Number:</td>
<td>YY-MM-HN</td>
</tr>
<tr>
<td>2</td>
<td>Associated ISM Section:</td>
<td>Audit Reference Number:</td>
</tr>
<tr>
<td>3</td>
<td>Initiator:</td>
<td>Date:</td>
</tr>
<tr>
<td>4</td>
<td><strong>Description of Hazardous Occurrence or Condition</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Date and approximate time of occurrence</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Location:</td>
<td>Onboard</td>
</tr>
<tr>
<td></td>
<td>Specific area:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Personnel witnessing occurrence:</td>
<td>(other than HAZREP initiator)</td>
</tr>
<tr>
<td></td>
<td>Description of occurrence:</td>
<td></td>
</tr>
</tbody>
</table>

<p>| 5 | Initiator’s Recommendation for Remediation of Hazard: |</p>
<table>
<thead>
<tr>
<th></th>
<th>Department Head’s Review and Recommendations:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Department Head Signature: Date:</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Master’s Review and Recommendations:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Master’s Signature: Date:</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Received by Ship Operations Coordinator (initial)</th>
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<tbody>
<tr>
<td></td>
<td>Date:</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Management’s Corrective Action Resolution:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Date recorded for action: Assigned to: Date action due:</td>
</tr>
</tbody>
</table>

|   | Corrective Action Implemented:                  |

<table>
<thead>
<tr>
<th></th>
<th>Confirmation of Corrective Action Taken:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Closed Out by: Date:</td>
</tr>
</tbody>
</table>
Report of Accident/Illness Form

- Employee accidents: immediate Supervisor completes this form immediately.
- Non-employee accidents: OSU employee notified of injury completes this form.
- Click the "Submit by E-mail box at the bottom of the completed form to submit to the Office of Human Resources (please note, should be completed and submitted within 24 hours of Accident). Next, print a copy of the completed form for your department records.

Please designate person's status (check one field below)
Faculty/Staff  Contractor  Temporary Employee (paid by OSU)  Volunteer
Student Worker  Student  Temporary Employee (paid by temp agency)  Visitor
Other (specify): _______________________________________________________________________________________

Name of Injured:
Address (Street, City, State, Zip):
Home Phone:                                                                    Cell/Alternate Phone:
Date and Time of Accident:                                                                     Accident Location:
Brief Accident Description:
List Witnesses (include contact information):
When was accident reported to University:
Equipment or materials involved in accident:
Was the accident caused by another person not employed by OSU?             Yes             No
If yes, list name and phone number:
Describe Injury (body part & injury type):
Describe first aid or medical treatment (when; by whom?)
Completed by (please print):
Work number:                                                                                             Title:
Root Cause Analysis:
Corrective Action (to be completed for all reports): Report Date:

Below section for employee accidents only, not required for non-employee reports. Please provide additional employee information below.

Note: If medical attention sought for employee's job related injury, SAIF 801 form required within 24 hours

<table>
<thead>
<tr>
<th>University ID#</th>
<th>Is this a job related injury?</th>
<th>Yes</th>
<th>No</th>
<th>Unknown</th>
</tr>
</thead>
<tbody>
<tr>
<td>Job Title:</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Department:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Work Location:</td>
<td>OSU Main OSU Cascades HMSC</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Accident #:</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Associated ISM Section (if applicable):</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Confirm of Corrective Action Taken</td>
<td>Closed Out By:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Date:</td>
<td></td>
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</tbody>
</table>
Accident Description --continued.

List of Witnesses (include contact information) --continued.

Describe first aid or medical treatment (when; by whom?) --continued.

Root Cause Analysis --continued.

Corrective Action --continued.
Report of Accident/Illness Form Instructions

**Form to be completed by:**
- **Immediate supervisor for employee injuries**
- **OSU employee notified of any injury to non-employees**

The following list provides more detail on information to be completed on the OSU report of Accident form:

**Accident Location:** Give exact location including: room number, building or shop name. If accident occurred outside, list the nearest building and/or buildings. Refer to roads and places by exact names.

**Brief Accident Description:** In your opinion, explain in detail how the accident occurred.

**List Witnesses (include contact information):** Persons that actually witnessed the accident.

**When was the accident reported to University:** If employee accident is not reported within 24 hours of the accident, investigate why it was not reported. Remind employees that all accidents are to be reported immediately to their supervisor and no later than 24 hours after the accident.

**Equipment or materials involved in accident:** If the accident involved faulty equipment, describe what equipment was involved and what happened to the equipment. If the manufacturer is at fault, claims costs may be recovered and OSU would not be required to pay, *Save the faulty equipment*.

**Was the accident caused by another person not employed by OSU?** In your opinion, was another individual, other than an OSU employee, responsible for the accident? If so, there could be a third party claim and claims costs may be recovered from the responsible party.

**Describe injury:** Be very specific about the injury, including the body part injured (for example: left thumb, right ankle, etc…) and the type of injury (for example: cut, contusion, fracture, strain, sprain, insect or animal bite, burn, puncture, eye injury, unconsciousness, dizziness, etc…).

**Describe first aid or medical treatment (when; by whom)?** What type of medical treatment or first aid did the injured person receive and who performed the treatment.

**Corrective Action:** What issues can be addressed to minimize the chance that this accident would occur again (safety hazard in area to be addressed, possible training for employee, safety measures not taken by employee, etc…).

**Is this a job related injury:** Mark the “yes”, “no”, or “unknown” box. Answer yes that the injury was caused by work if you have first hand knowledge. If it is not apparent that the injury occurred while the employee was performing his/her duties, check “unknown”. Check “no” if you are certain the injury or illness did not occur during the course or scope of employment.

**NOTE:** worker section of the form and submitting it by fax the Office of Human Resources within 24 hours. complete the form, the supervisor is responsible for completing the employer section and as much as possible of the facility, then a SAIF 801 form must be completed within 24 hours of the treatment. If the employee is unavailable to If an employee sought medical attention from a professional (doctor, nurse, urgent care, or other medical

**Work location:** For employees – which OSU location does the person work from, if marking “other”, please specify department and location (for example, specific extension office).

Online Form available at [http://oregonstate.edu/admin/hr/benefits/roa.pdf](http://oregonstate.edu/admin/hr/benefits/roa.pdf)

E-mail completed form to heidi.melton@oregonstate.edu within 24 hours of accident.
OSU SHIP OPERATIONS

INTERNAL AUDIT CHECKLIST

<table>
<thead>
<tr>
<th>NO.</th>
<th>INQUIRY</th>
<th>REF.</th>
<th>OBSERVATIONS/REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</table>
OSU SHIP OPERATIONS

INTERNAL AUDIT REPORT

<table>
<thead>
<tr>
<th>LOCATION</th>
<th>AUDITOR(S)</th>
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TOTAL NUMBER OF NONCONFORMITIES: ______________ (See Attached Forms)

GENERAL COMMENTS AND OBSERVATIONS:

__________________________________________________________________________
__________________________________________________________________________
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__________________________________________________________________________
__________________________________________________________________________

Lead Auditor’s Signature: ___________________________ Date: ____________

Report Reviewed and Accepted by DP: ___________________________ Date: ____________

Number: SMF 12.1.3 Revision: 0 Effective Date: 02 Sep ’05 Page 1 of 1
SMS MANAGEMENT REVIEW FOR 20____

AHHEA

Annual Management Review Meeting
Agenda Template:

- Summary and followup from last Master’s review
- Summary of Customer Feedback Reports (Post Cruise Assessments) and other if applicable
- External Audit Results Review
- Internal Audit Results Review
- Master’s Review Results and discussion
- Accident Reporting
- Hazrep Reporting (or the lack of...)
- Non conformity followup. (ensure NCCARs are closed or status in known for all active NCCARs)
- JSA system review (is it working?)
- Other evidence of possible failure of the SMS (i.e what policy changes are necessary not discussed elsewhere)

Attendees:

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<th>Position</th>
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Date:________________________
# SMS MANAGEMENT REVIEW FOR 20__

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## SMS MANAGEMENT REVIEW FOR 20____

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**GENERAL COMMENTS:**

**SUGGESTIONS FOR IMPROVEMENT:**

(Signed)_____________________________________, Marine Superintendent
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Job Hazard Analysis

The process by which an employee assesses the work related hazards associated with a specific task is commonly referred to as “Job Safety Analysis” (JSA) or “Task Hazard Analysis”. The process includes assessing the potential physical hazards for the job, determining if there are any administrative or engineering controls that will mitigate any of the hazards, and determining the personal protective equipment (PPE) needed to prevent injury.

The JSA’s in this binder relate to many of the jobs that you will encounter in the course of typical operations on the Oceanus. The list of jobs referenced should not be construed as all-inclusive, but should be viewed only as representative of those tasks that personnel may encounter. The principles of job safety analysis must be applied to all tasks and it is every employee’s responsibility to do so.

You must not limit your analysis to the hazards listed for any specific job, as these lists do not identify ALL hazards, but are a guideline for hazard assessment. The consequential injuries and illnesses listed for each hazard are not comprehensive. The injuries and illnesses are only mentioned to give you an idea of the potential consequences of the hazard encountered. This also applies to the recommended PPE, as PPE above and beyond that listed may be required depending on the situation.

The Engineering Controls listed are also not comprehensive lists of control options to be found and utilized. These are provided to help you consider the engineering control options that may be available to you for the job hazards to be encountered. Take advantage of the equipment available to you and use the equipment wisely to mitigate job hazards.
Be a participant in Job Safety Analysis, not just an observer. If you have suggestions about updating or improving the existing JSA’s or creating new ones, discuss it with your immediate supervisor or the Chief Mate. This is a proactive and ongoing program designed to create and maintain a safe working environment for all of us aboard the R/V Oceanus. Your involvement and feedback are fundamental to safety.
Job Safety Analysis

Task to Be Accomplished: Access & Egress of Vessel

Potential Hazards:

- Slipping on decks or bulwarks leading to injury
- Tripping on bulwarks
- Falls from improperly secured gangways or ladders leading to physical injury or possibly drowning
- Fall injuries due to improper boarding of vessel with hands not free for self support
- Laceration from damaged hand rails or fall injury from using damaged or missing rails
- Possible fall injury from climbing damaged ladders
- Fall injury from wave action
- Falling overboard causing physical injury and possible drowning
- Poor communication during underway personnel transfers enhances potential for hazards and injury
- Temporary blindness caused from vessel floodlights
- Visibility or darkness enhances potential hazards as in the case of transferring from vessel to vessel while underway

Engineering and Administrative Controls: (Note: The following is not a comprehensive list of engineering controls available. Controls listed serve simply as a reminder that you should properly use items that may be on hand to mitigate potential hazards)

✓ Use gangways instead of crossing bulwarks
✓ Secure gangways and ladders
✓ Non-skid on decks
✓ “Always save one hand for yourself”
✓ Observe condition of access points prior to use
✓ Transfer materials by line or crane
✓ Inspect ladders prior to use
✓ Use flashlights and sufficient deck lighting when possible
Environmental Concerns:

• Dropping carried items into the water

Environmental Controls:

✓ Carry only sealed containers or wait for crane for transfer

Personal Protective Equipment: (Note: Some items may or may not be required depending on the situation, company policy, etc.)

- PFD
- Safety Shoes
- Flashlight
Job Safety Analysis

Task to Be Accomplished: Anchoring

Potential Hazards:

- Impact injuries from releasing the pelican hook with the sledge
- Damage to equipment due to runaway chain from improper windlass operation
- Eye injury from flying debris
- Entanglement with chain leading to injury or possibly death
- Hazardous situation rising from lowering or raising the anchor prior to receiving bridge orders to do so
- Visibility / Darkness may enhance potential for hazards
- Entanglement with chain in the chain locker, should it be necessary for a crewman to flake it out

**Engineering and Administrative Controls:**  (Note: The following is not a comprehensive list of engineering controls available. Controls listed serve simply as a reminder that you should properly use items that may be on hand to mitigate potential hazards)

- Familiarity with Anchoring Procedures outlined in the SMM
- Properly trained deck crew and windlass operator
- Situational awareness by all crew on the anchoring detail, particularly in regard to chain movement and wave action
- Sufficient lighting of the foredeck during anchoring operations
- Good and clear communications with the bridge so as to drop or raise the anchor at the correct time
- Sufficient personnel (with communications to windlass operator) below when there is a need for someone to flake the anchor chain in the chain locker

**Environmental Concerns:**

- 

**Environmental Controls:**
Personal Protective Equipment:  *(Note: Some items may or may not be required depending on the situation, company policy, etc.)*

- Eye Protection
- Hard Hat
- PFD
- Work gloves, preferably of a type that is less prone to get snagged in gear
- Safety shoes
- Ear protection
- Proper work clothing for deck work
Job Safety Analysis

Task to Be Accomplished: **Confined Space Entry**

**Potential Hazards:**

- Asphyxiation due to lack of oxygen
- Slipping hazard due to water tank coatings
- Inhalation injury from breathing toxic vapors
- Fire/Explosion danger from accumulation of flammable vapors or liquids
- Impact injuries from fall and tripping hazards in tanks
- Chemical exposure causing corrosive injuries or skin irritation
- Darkness will enhance potential for hazards

**Engineering and Administrative Controls:** *(Note: The following is not a comprehensive list of engineering controls available. Controls listed serve simply as a reminder that you should properly use items that may be on hand to mitigate potential hazards)*

- Use of SMM section on “Confined Space Entry” and completion of SMF 7.22
- “Marine Chemist Certification” for safe tank or confined space entry
- Frequent monitoring of space atmosphere by competent person
- Use mechanical ventilation
- Use intrinsically safe flashlights
- Use standby person or tank entry attendant
- Competent person training
- Know confined space entry procedures
- Maintain tank interior ladders

**Environmental Concerns:**

- 

**Environmental Controls:**

- ✓
Personal Protective Equipment:  (Note: Some items may or may not be required depending on the situation, company policy, etc.)

- Hardhat as required per situation
- Eye protection such as splash goggles when splash hazard exists
- Nitrile gloves as needed
- Safety Shoes
- Coveralls or other appropriate work clothing (no short pants)
- Explosion proof flashlights
- Ear protection as required per situation
- Respirator, as required
Job Safety Analysis

Task to Be Accomplished: Crane Operations

Potential Hazards:

- Overhead loads leading to potential head injury or crushing injury to personnel
- Falling overboard
- Crushing injury from A-Frame/ bulkhead pinch points
- Entanglement in a suspended line or bight of line on deck
- Tripping on deck cleats/padeyes of Main and 01 Deck
- Wave and swell action enhance potential for hazards
- Equipment shifting in an unpredictable manner increases potential for injury
- Property damage from suspended equipment striking the ship
- Standing in crane operator blind spots
- Experiencing external distractions or interruptions may enhance potential hazards
- Lack of adequate communication may enhance potential hazards
- Deploying or recovering before everyone is notified and ready, particularly the bridge officer
- Climbing into cab of crane especially when u/w in rough seas
- Slipping on wet Main Deck
- Improper rigging of gear being lifted
- Improper reeving of block
- Ensure that Load being lifted is within SWL of Crane Radius and Load Capacity Chart

Engineering and Administrative Controls: (Note: The following is not a comprehensive list of engineering controls available. Controls listed serve simply as a reminder that you should properly use items that may be on hand to mitigate potential hazards)

- Familiarity with the SMM sections “Overboarding Operations” and “Overboarding Equipment”
- Properly trained crane and/or winch operator
- Spotting crane in selected location for entering and exiting crane cab.
✓ Adequate use of tag lines to control equipment
✓ Clear and proper communications between everyone involved
✓ Proper footwear when working on deck
✓ Properly trained personnel on rigging methods
✓ Good housekeeping on deck
✓ Situational awareness
✓ Familiarization with proper usage of reeving block
✓ Familiarization with Crane Load Capacity Chart

Environmental Concerns:

• Hydraulic oil spills from hydraulic system
• Items falling off load into water

Environmental Controls:

✓ Maintaining hydraulic system and keeping watch for leaks
✓ Vessel spill response equipment kept ready
✓ Proper securing of load

Personal Protective Equipment: (Note: Some items may or may not be required depending on the situation, company policy, etc.)

➢ Eye Protection
➢ Hard Hat
➢ PFD
➢ Work gloves, preferably of a type that is less prone to get snagged in gear
➢ Safety shoes
➢ Work clothing appropriate for outside deck work
Job Safety Analysis

Task to Be Accomplished: CTD Deployment / Recovery

Potential Hazards:

• Tripping on CTD Deck Cleats/Padeyes
• Pinching between Wet lab W/T door and CTD
• Slipping on wet deck of CTD deployment area
• Pinching / Crushing injury when deploying or recovering the rosette
• Increased seas and winds result in unstable platform for CTD deployment and recovery
• Falling overboard
• Tag line binding on cleat
• Electric shock from energized wet equipment

Engineering and Administrative Controls: (Note: The following is not a comprehensive list of engineering controls available. Controls listed serve simply as a reminder that you should properly use items that may be on hand to mitigate potential hazards)

✓ Properly trained CTD team as per the “CTD Operations” section in the SMM
✓ Situational Awareness, particularly awareness of vessel movement
✓ Proper footwear when working as part of the CTD deployment/recovery team
✓ Good teamwork among those deploying or recovering the rosette
✓ Opening water tight door in Wet Lab as bailout area
✓ Good communication among all parties involved in the deployment / recovery. (Watch Officer on the bridge, CTD Team, A.B. operating the winch / squirt boom)
✓ Tethered personnel involved in deployment/recovery team
✓ Walk through training in proper usage of tag lines
✓ Don’t energize wet equipment and confirm proper grounding
✓ Insure power is secured to CTD prior to deployment or recovery

Environmental Concerns:

• Hydraulic fluid into the water from DESH-5 or COM-15 winch/squirt boom hydraulics
Environmental Controls:

- Proper maintenance of hydraulic pipes and chafing gear
- Vessel Spill Containment Gear

Personal Protective Equipment:  *(Note: Some items may or may not be required depending on the situation, company policy, etc.)*

- Hard Hat
- PFD
- Work gloves
- Appropriate work clothing for deck work
- Appropriate footwear for deck work
- Lifelines / Tethers as the situation requires
Job Safety Analysis

Task to Be Accomplished: Draw/Lift Bridge Operations

Potential Hazards:

- Ship making contact with the lift portion of the bridge
- Personnel injuries as a result of falling debris should contact occur
- Damage to property of both the ship and bridge from contact

Engineering and Administrative Controls:  (Note: The following is not a comprehensive list of engineering controls available. Controls listed serve simply as a reminder that you should properly use items that may be on hand to mitigate potential hazards)

- Clear knowledge of the height of lift needed for Oceanus
- Clear communication with the bridge tender to verify that the lift is of sufficient height to allow Oceanus to safely pass under
- Master’s Standing Orders outlines the policy for ensuring good communication with the bridge tender to verify the needed clearance and the height of the lift, and that the needed height has been reached before proceeding

Environmental Concerns:

- Potential for debris / pollutants to go into the water from a bridge allision

Environmental Controls:

- Vessel spill containment equipment

Personal Protective Equipment:  (Note: Some items may or may not be required depending on the situation, company policy, etc.)

- None
Job Safety Analysis

Task to Be Accomplished: **Emergency Repairs**

**Potential Hazards:**

- Head injury from overhead obstructions such as chain falls, come-a-longs, etc.
- Entanglement with moving machinery parts during repair operations
- Possible chemical exposure from free flowing liquids
- Hearing damage due to noise
- Burns from hot machinery and associated lube oils and coolant
- Shifting heavy equipment in a seaway causing potential crushing injury or impact injury
- Wave and swell action may enhance potential hazards leading to injury
- Pinch injury from improper tool use or use of tools in cramped situations
- Damaged or exposed electrical panels possibly leading to electric shock
- Slips caused by oil, chemicals, water, etc. on deck
- Potential for injury is enhanced by poor lighting
- Tripping over gear spare parts or tools on deck
- Falls from elevated areas or from engine room decks into the bilge

**Engineering and Administrative Controls:** *(Note: The following is not a comprehensive list of engineering controls available. Controls listed serve simply as a reminder that you should properly use items that may be on hand to mitigate potential hazards)*

- Install guards on machinery
- Employ spill clean-up equipment in emergency repair work area
- Lockout/Tagout
- Portable lighting
- Diamond plate, expanded metal or non-skid
- Extra line to immobilize gear in seaway
- Use wooden or metal wedges to immobilize equipment
- Secure damaged gear in a seaway
- Maintain repair site safety watch
Environmental Concerns:

- Potential for discharge of oil or hazardous material during emergency fluids transfers

Environmental Controls:

- ✔ Vessel spill containment equipment

Personal Protective Equipment:  (Note: Some items may or may not be required depending on the situation, company policy, etc.)

- ✔ Hardhats/bump caps as required per situation
- ✔ Eye protection required as per situation
- ✔ Nitrile gloves as needed
- ✔ Ear protection as needed
- ✔ Coveralls or other appropriate work clothing
- ✔ Safety shoes
- ✔ Work gloves as needed
- ✔ PFD
- ✔ Fall protection equipment as needed
Job Safety Analysis

Task to Be Accomplished: Forklift Operations

Potential Hazards:

- Blind spots and forks not visible to the driver causing potential for collision or injury to those close by
- Physical injury due to pinch points caused by loads not adequately secured or stabilized
- Load too heavy for the forklift creating potential load loss or forklift instability
- Impact with overhead items such as electrical wires and cargo bay openings
- High centering the forklift causing load instability
- Driving over electrical power leads and fuel hoses causing damage and subsequent injuries
- Lack of communication between driver and signalman will enhance potential for hazards
- Persons around you may not be aware of you intent causing the possibility of injury to those people
- Forklift traveling at high rate of speed enhances the magnitude of some hazards with potential for injury
- Pinch points around forks and load can cause crushing injuries
- Modified forks causing forklift instability and/or misuse of forklift thereby enhancing potential hazards and injury
- Visibility – darkness enhances the potential of hazards

Engineering and Administrative Controls:  (Note: The following is not a comprehensive list of engineering controls available. Controls listed serve simply as a reminder that you should properly use items that may be on hand to mitigate potential hazards)

- Regular forklift inspections
- Maintain line of sight with driver
- Use 2 people in forklift operations where forklift operator is working with restricted visibility
- Communicate thorough standard forklift hand signals
- Use sufficient straps, chains, turnbuckles, etc for proper securing of loads
Only forklift certified personnel are permitted drive the forklift
Maintain slow speed with all loads
Install back up signal on forklift and verify proper operation

Environmental Concerns:

- Forks piercing drums of oil, or other cargo packaging

Environmental Controls:

- Spill containment equipment available for cargo operations

Personal Protective Equipment: *(Note: Some items may or may not be required depending on the situation, company policy, etc.)*

- Eye Protection
- Hard Hat
- PFD
- Work gloves, preferably of a type that is less prone to get snagged in gear
- Fall protection when possibility of fall hazard is encountered
- Safety shoes
- Ear protection in noisy environments
Job Safety Analysis

Task to Be Accomplished: Fueling Operations

Potential Hazards:

- Fire due to accumulation of flammable vapors or liquids
- Explosive dangers from inadvertently pressurizing tanks
- Asphyxiation through lack of ventilation
- Chemical burns or irritation with skin contact
- Eye injury from fuel splash
- Hand injuries due to pinch points in hose connections
- Head injury from possible overhead obstruction by fuel hose
- Slipping hazard posed by diesel fuel on deck
- Falling overboard during connection causing possible impact injury and/or drowning
- Hose and/or connection breakage due to wave action or wake may cause impact injury
- Back strain due to heavy lifting
- Spill resulting from multiple tasks

Engineering and Administrative Controls: (Note: The following is not a comprehensive list of engineering controls available. Controls listed serve simply as a reminder that you should properly use items that may be on hand to mitigate potential hazards)

- Fuel transfer procedures as outlined in the SMM and “Oil Transfer Procedures Manual”
- Posted “No Smoking” area
- Ventilation blower
- Hose suspension and securing
- Designated PIC and job specific assistants
- Ensure tank vents are functioning
- Cordon off transfer area
- Completion of DOI prior to transfer
- Secure crane use whenever possible
Environmental Concerns:

- Fuel spill
- Distractions during fueling operation ultimately causing fuel tank overflow and spill
- Fuel overflow due to miscommunication or error

Environmental Controls:

- Absorbent pads, pillows, booms, etc., immediately available for use
- Containment at connections
- Scupper plugs, vent bags, etc.

Personal Protective Equipment: *(Note: Some items may or may not be required depending on the situation, company policy, etc.)*

- Hardhat/bump caps as required per situation
- Eye protection, such as splash goggles when splash hazard exists
- Nitrile gloves as needed
- Safety shoes
- Coveralls or other appropriate work clothing
- PFD for near deck edge work
- Respirator, if needed
Job Safety Analysis

Task to Be Accomplished: **Galley Maintenance & Cooking**

Potential Hazards:

- Burns due to hot grease and hot cooking pans, utensils, grill, steam and hot dishwashing water, etc.
- Galley fire
- Falls due to greasy galley deck
- Lacerations from sharp utensils during cooking and dishwashing
- Lacerations from broken glass
- Injury from improper use of garbage disposal
- Impact, puncture or laceration injuries from cooking utensils, pots, pantry goods, etc., not secured in heavy weather and/or in swell
- Exposure to excessive head due to lack of ventilation resulting in possible heat exhaustion
- Unsanitary conditions causing propagation of pests
- Back strain from heavy lifting
- Improper disposal of expired and/or old food stuffs leading to propagation of pests
- Insufficient sanitation of cooking utensils, pans, work space, etc. increasing potential for illness
- Blood borne pathogens

**Engineering and Administrative Controls:** *(Note: The following is not a comprehensive list of engineering controls available. Controls listed serve simply as a reminder that you should properly use items that may be on hand to mitigate potential hazards)*

- ✓ Separate containers for sharp utensils when dishwashing
- ✓ Training in proper use of garbage disposal
- ✓ Clean grease traps
- ✓ Frequent removal of galley trash from the vessel
✔ Use ventilation fans for galley stove, cooking and cleaning
✔ Secure containment for pots, pans, utensils, etc., during rough weather or heavy swell
✔ Maintain galley fire extinguisher
✔ Maintain separation of cleaning agents
✔ Clean mop heads
✔ Buddy system for heavy lifts such as for large sacks of flour
✔ Use thermometers to monitor hot items
✔ Blood pathogen protocols
✔ Properly functioning water heater

Environmental Concerns:

• Improper disposal of waste overboard
• Garbage bags of inadequate construction
• Improper use of cleaning agents

Environmental Controls:

✔ Vessel Garbage Discharge Plan and log
✔ Use environment friendly cleaners
✔ Use heavy duty garbage bags
✔ MARPOL requirements

Personal Protective Equipment:  (Note: Some items may or may not be required depending on the situation, company policy, etc.)

➢ Protective non-skid footwear
➢ Appropriate clothing for galley operations
➢ Sanitary rubber gloves
➢ Hot pads and/or cooking mitts
➢ Cooking apron
Job Safety Analysis

Task to Be Accomplished: **Jackstaff Raising and Lowering**

**Potential Hazards:**

- Injury or death due to falling jackstaff
- Injury to personnel from overstressed load handling equipment breaking
- Falling Overboard

**Engineering and Administrative Controls:** *(Note: The following is not a comprehensive list of engineering controls available. Controls listed serve simply as a reminder that you should properly use items that may be on hand to mitigate potential hazards)*

- Use of hardhats during lowering process
- Use of a lifejacket while sitting on or leaning over the bow
- Proper analysis of weather conditions and selection of weather conditions conducive to a safe operation
- Use extra care in lowering and raising the mast to avoid bouncing the mast at its natural frequency
- Properly inspect come-along before using and inspect all attachment points and associated load handling equipment (shackles)
- Do not walk under any portion of the ‘footprint’ where the jackstaff may fall while raising/lowering

**Environmental Concerns:**


**Environmental Controls:**

- 

**Personal Protective Equipment:** *(Note: Some items may or may not be required depending on the situation, company policy, etc.)*
- Fall protection
- Work shoes
- Appropriate work clothes
- Work gloves
- Eye protection
- Hard Hat
Job Safety Analysis

Task to Be Accomplished: **Line Splicing**

Potential Hazards:

- Puncture wounds from sharp objects such as fids, wire and marlin spikes
- Blunt trauma injuries from splicing mallets, 2 lb. sledge, etc
- Abrasive injuries from deck grit
- Lacerations from use of cutting tools
- Fall injuries caused by sea incursion on deck
- Back injury from heavy lifting and maneuvering of mooring lines

**Engineering and Administrative Controls:** *(Note: The following is not a comprehensive list of engineering controls available. Controls listed serve simply as a reminder that you should properly use items that may be on hand to mitigate potential hazards)*

- Use of hack saw or blunt pointed cutting tools versus the use of conventional knives
- Use storage bucket for fids, marlin spikes, saws, etc.
- Splice with partner if appropriate
- Avoid use of anything larger than a 2 lb. sledge
- Maintain workplace watch for sea incursion when splicing underway
- Maintain sufficient help on hand to transport line on deck

**Environmental Concerns:**

- Improper disposal of splice cuttings, old line ends, tape, etc.

**Environmental Controls:**

- Proper disposal of garbage / wastes as per MARPOL regulations

**Personal Protective Equipment:** *(Note: Some items may or may not be required depending on the situation, company policy, etc.)*

- PFD for near deck edge or underway splicing on the weatherdeck
- Hardhats
- Eye protection, such as safety glasses
- Safety shoes
- Appropriate work clothing for deck work
Job Safety Analysis

Task to Be Accomplished: Vessel Mooring

Potential Hazards:

- Back strain due to heavy lifting and/or other abnormal body motion or overextension
- Sharp items caught in line fibers causing puncture wounds and lacerations
- Head injuries from heaving lines
- Falling overboard
- Crushing injuries due to pinch points on bitts and winches
- Entanglements of legs in bights in the line
- Tripping hazards from gear on deck
- Snap back on broken lines causing impact injuries
- Danger zones, such as that presented by snap-back from broken lines or lines jumping over tops of bitts
- Lack of communication enhances the potential for hazards
- Darkness and limited visibility will enhance the potential for hazards
- Flying debris from old worn lines or from material entangled in lines may cause eye injury
- Puncture wounds from improper use of pike poles

Engineering and Administrative Controls: (Note: The following is not a comprehensive list of engineering controls available. Controls listed serve simply as a reminder that you should properly use items that may be on hand to mitigate potential hazards)

- Employ flood lights
- Maintain sufficient personnel for back up when line handling
- Maintain sufficient working distance from bitts
- Be aware of line movement under strain
- Identify and be aware of danger zones
- Remove unnecessary gear from deck

Environmental Concerns:
• Oil soaked line dipping in the water

Environmental Controls:

✓ Remove oil soaked line from service

Personal Protective Equipment: (Note: Some items may or may not be required depending on the situation, company policy, etc.)

➢ PFD
➢ Hardhat
➢ Eye protection as required per situation
➢ Safety shoes
➢ Work gloves and appropriate work clothing as required per situation
➢ Ear protection as required per situation.
Job Safety Analysis

Task to Be Accomplished: Overboard Equipment Deployment and Recovery (“Overboarding”)

Potential Hazards:

- Overhead loads leading to potential head injury or crushing injury to personnel
- Entanglement of personal gear leading to falling overboard (i.e. whistle lanyards)
- Crushing injury from A-Frame pinch points
- Entanglement in a suspended line or bight of line on deck
- Wave and swell action enhance potential for hazards
- Equipment shifting in an unpredictable manner increases potential for injury
- Property damage from suspended equipment striking the ship
- Standing in crane operator blind spots
- Experiencing external distractions or interruptions may enhance potential hazards
- Lack of adequate communication may enhance potential hazards
- Line or cable in water being caught in the propulsion system
- Deploying or recovering before everyone is notified and ready, particularly the bridge officer

Engineering and Administrative Controls: (Note: The following is not a comprehensive list of engineering controls available. Controls listed serve simply as a reminder that you should properly use items that may be on hand to mitigate potential hazards)

- Familiarity with the SMM sections “Overboarding Operations” and “Overboarding Equipment”
- Properly trained crane and/or winch operator
- Properly trained personnel on deck
- Adequate use of tag lines to control equipment
- Clear and proper communications between everyone involved
- Good housekeeping on deck
- Situational awareness
Environmental Concerns:

- Hydraulic oil spills from hydraulic system

Environmental Controls:

- Maintaining hydraulic system and keeping watch for leaks
- Vessel spill response equipment

Personal Protective Equipment: (Note: Some items may or may not be required depending on the situation, company policy, etc.)

- Eye Protection
- Hard Hat
- PFD
- Work gloves, preferably of a type that is less prone to get snagged in gear
- Safety shoes
- Work clothing appropriate for outside deck work
Job Safety Analysis

Task to Be Accomplished: **Painting**

**Potential Hazards:**

- Toxic vapors in work space causing respiratory problems and illness
- Skin contact with paints and solvents of carrying toxicity leading to skin irritation or more serious damage
- Eye contact with paints and solvents may lead to eye injury – potential for eye injury may be enhanced when wearing contact lenses
- Fire potential due to proximity of heat sources
- Potential fall injury when working in elevated areas
- Danger of falling overboard when painting in deck edge areas
- Asphyxiation due to displacement of oxygen in confined spaces
- Possible incompatibility of paints and solvents to other chemicals found in the workspace producing toxic vapors or other dangerous materials
- Eye, skin and inhalation injuries from flying debris when operating needle guns, scaling equipment and grinders
- Vibration from needle guns and scaling equipment causing hand and arm injuries

**Engineering and Administrative Controls:** *(Note: The following is not a comprehensive list of engineering controls available. Controls listed serve simply as a reminder that you should properly use items that may be on hand to mitigate potential hazards)*

- ✓ Prohibit painting in confined spaces or near open flames
- ✓ MSDS for paints and solvents
- ✓ Remove chemicals from the area to be painted

**Environmental Concerns:**

- Paint and solvent spills
- Improper disposal of contaminated rags, drop cloths and worn out paint brushes and/or roller sleeves
Environmental Controls:

- Placement of paint and solvent contaminated items in approved waste containers
- Spill prevention by use of drop cloths and plugging scuppers / freeing ports
- Use cans of paint that are less than ½ full to minimize spillage at the work station
- Minimize the amount of paint in roller pans

Personal Protective Equipment: (Note: Some items may or may not be required depending on the situation, company policy, etc.)

- Eye protection, such as safety glasses for painting and safety goggles and face shields for chipping and grinding
- Respirator when painting or as required by MSDS
- Hardhat
- Fall protection gear for all elevated projects
- PFD for underway or hull painting
- Appropriate work clothing and gloves that provide sufficient barrier against skin contact with toxic paints, solvents and abrasions
- Ear protection
Job Safety Analysis

Task to Be Accomplished: Small Boat Operations

Potential Hazards:

- Potential for physical impact or crushing injuries from hoisted boat
- Trip and fall injury due to deck obstructions
- Entanglement of personal gear leading to falling overboard (i.e. whistle lanyards)
- Entanglement of legs in bight of lines
- Head injuries from headache ball attached to rescue boat lifting strap
- Letting lines go prior to coxswain’s word could potentially result in overturning the small boat. This could lead to injury or possible drowning as well as equipment damage
- Poor communication between crane operator, line handlers, coxswain and bridge enhances the potential for hazards and injury
- Stalled outboard engine could cause a hazardous situation
- Falling out of small boat could result in injury or possible drowning
- Improperly secured Jacobs ladder when boarding small boat
- Slipping on sponson when boarding small boat from Jacobs ladder

Engineering and Administrative Controls: (Note: The following is not a comprehensive list of engineering controls available. Controls listed serve simply as a reminder that you should properly use items that may be on hand to mitigate potential hazards)

- Properly trained crane operator
- Properly trained small boat operator/coxswain
- Annual servicing of small boat outboard engine
- Monthly exercise of small boat engine
- Familiarity with SMM section 6.4 and completed Small Boat Operations Checklist SMF 6.4
- Tag lines of sufficient number and length
- Good housekeeping to eliminate deck clutter
- Situational awareness
- Good and clear communication, use of radios and hand signals
Proper maintenance of outboard engine

Sufficient number of personnel when launching and retrieving small boat

Trained personnel on properly securing Jacobs ladder to bulwarks for embarkation

Station deck personnel at embarkation area to help load personnel into small boat.

Environmental Concerns:

- Oil or gasoline spills to the water

Environmental Controls:

- Ensuring proper connection of gas cans and gas can caps
- Vessel spill containment

Personal Protective Equipment: (Note: Some items may or may not be required depending on the situation, company policy, etc.)

- PFD
- Hardhat with chinstraps
- Safety shoes
- Work gloves as needed
- Eye protection
- Appropriate work clothing for deck work
Job Safety Analysis

Task to Be Accomplished: Start Up & Shut Down

Potential Hazards:

- Corrosive injuries or skin irritants from chemical exposure
- Head injury from overhead obstructions
- Slippery, oily decks, ladder wells and handrails enhances potential for fall injury
- Entanglement in moving machinery
- Toxic gases or vapors accumulating in engine room causing inhalation hazards
- Insufficient oxygen in engineering spaces leading to possible asphyxiation
- Excessive heat causing heat exhaustion and heat stroke
- Injury due to inadvertent start up of machinery
- Fire from accumulating flammable gases or pooling flammable liquids
- Visibility / Darkness enhance potential for hazards
- Electric shock hazard from exposed electronics and electrical equipment
- Noise from engine room machinery leading to hearing loss
- Back injuries from lifting heavy deck plates
- Blunt trauma or crushing injuries from heavy machinery objects
- Pinch points from tool use causing hand injury

Engineering and Administrative Controls: (Note: The following is not a comprehensive list of engineering controls available. Controls listed serve simply as a reminder that you should properly use items that may be on hand to mitigate potential hazards)

- Maintain clean engine room with active housekeeping for engine spaces
- Install machinery guards for movable parts
- Use ventilation and exhaust blowers
- Keep electric panels closed and secure
- Maintain fire extinguishers
- Maintain fixed fire extinguishing system
- Lockout/Tagout
Employ rubber mats fronting the main switchboard
Install diamond plate or expanded metal deck grating

Environmental Concerns:

- Overboard discharge of fuel during topping off procedures

Environmental Controls:

✓ Vessel spill containment equipment

Personal Protective Equipment: (Note: Some items may or may not be required depending on the situation, company policy, etc.)

- Eye protection when splash hazard exists
- Ear protection
- Safety Shoes
- Coveralls or other appropriate work clothing
- Nitrile gloves as required per situation
Job Safety Analysis

Task to Be Accomplished: Transducer Well Operations

Potential Hazards:

- Dangerous Atmosphere
- Overhead loads leading to potential head injury or crushing injury to personnel
- Falls from well ladders
- Leaking flange allowing water ingress
- Injury from lifting heavy items in the transducer well

Engineering and Administrative Controls: (Note: The following is not a comprehensive list of engineering controls available. Controls listed serve simply as a reminder that you should properly use items that may be on hand to mitigate potential hazards)

- Familiarity with the SMM section 7.23 “Transducer Well Operations”
- Only properly trained personnel involved in transducer well operations
- Airtight seals checked prior to personnel occupying the space
- Minimum of two people in pressurized transducer well, at least one will have prior experience in transducer well operations
- Primary and Secondary Engineer available
- Notification of all necessary parties that transducer well operations will be occurring
- Clear, proper and continuous communications during operations
- Proper ventilation prior to occupation
- Thorough and frequent checks for flange leaks during depressurization
- Use of proper lifting techniques and equipment
- Good housekeeping in transducer well work area
- Situational awareness
- Strict adherence to the transducer well operation SMF 7.23

Environmental Concerns:

- Items dropped out the open transducer well into the water
Environmental Controls:

✓ Ensure care is used when handling items over the open transducer well

Personal Protective Equipment: *(Note: Some items may or may not be required depending on the situation, company policy, etc.)*

- Eye protection
- Ear plugs
- Work gloves
- Safety shoes
- Appropriate work clothing
Job Safety Analysis

Task to Be Accomplished: **Transfer of Stores & Supplies**

**Potential Hazards:**

- Falling overboard causing impact injury and possible drowning
- Head injury due to overhead obstructions
- Injuries occurring when transiting bulwarks
- Dropping heavy loads causing foot and leg injury
- Back strain from improper lifting of heavy loads
- Impact and fall injuries when transiting vessel points of egress / access

**Engineering and Administrative Controls:** (Note: *The following is not a comprehensive list of engineering controls available. Controls listed serve simply as a reminder that you should properly use items that may be on hand to mitigate potential hazards*)

- Use forklifts and cranes whenever possible
- Loose stores should not exceed 40 lbs.
- Properly rig gangways
- Latch hatches open during stores and supply transfer operations
- Use most spacious points of egress / access
- Use buddy system for heavier supplies

**Environmental Concerns:**

- Dropping hazardous materials into the water
- Potential spill of hazardous materials during transfer

**Environmental Controls:**

- Containment area established for hazardous and/or petroleum based supplies prior to stowage
Personal Protective Equipment: *(Note: Some items may or may not be required depending on the situation, company policy, etc.)*

- Hardhat
- Work gloves for handling frozen goods and/or as needed
- Safety shoes
- Approved work clothing
Job Safety Analysis

Task to Be Accomplished: Underway Engine Room Maintenance & General Operations

Potential Hazards:

- Corrosive injuries and skin irritants due to chemical exposure
- Possibility of head injury from overhead obstructions enhanced due to vessel motion
- Chance of fall injuries due to slippery oily decks, ladder wells and handrails may increase due to vessel motion
- Back injury from lifting or supporting machinery in a seaway
- Inhalation hazard from accumulation of toxic gases or vapors
- Entanglement in moving machinery due to loose clothing
- Asphyxiation hazard due to insufficient oxygen
- Excessive heat causing heat exhaustion of heat stroke
- Fire from accumulated flammable vapors or liquids
- Visibility reduction due to smoke, oil mists, etc., and darkness due to insufficient lighting enhance possibility of hazards
- Wave action and/or swell enhance potential hazards
- Hearing loss from engine room noise
- Burns from hot machinery
- Injury from tool use
- Sewage exposure causing illness
- Eye injury from flying debris such as particulate from motor windings
- Liquid hose or pipe ruptures causing a variety of injury depending on liquid type or temperature
- Crushing injury when maintaining hydraulic rams and other equipment
- Electric shock due to contact with exposed electrical equipment and electronics in a seaway
Engineering and Administrative Controls: (Note: The following is not a comprehensive list of engineering controls available. Controls listed serve simply as a reminder that you should properly use items that may be on hand to mitigate potential hazards)

- Maintain clean engine room
- Install machinery guards
- Use ventilation and exhaust blowers
- Keep electrical panels closed and secure
- Maintain fire extinguishers
- Maintain fixed fire extinguisher system
- Always one hand for yourself
- Employ rubber mats fronting main switchboard
- Use volt-ohm meter to test electrical circuits
- Employ lifting gear such as come-a-longs chain falls, lifting straps, etc.
- Install diamond plate or expanded metal deck grating
- Secure chain falls or other lifting equipment
- Lockout/Tagout

Environmental Concerns:

- Discharge of fuel and oil during topping off procedures

Environmental Controls:

- Vessel spill containment equipment
- Dedicated personnel to transfer procedure

Personal Protective Equipment: (Note: Some items may or may not be required depending on the situation, company policy, etc.)

- Eye protection as required per situation
- Ear protection
- Safety shoes
- Nitrile gloves as required per situation
- Hardhat as required per situation
Ø Work gloves as needed
Ø Coveralls or other appropriate work clothing
Job Safety Analysis

Task to Be Accomplished: **Vessel Cleaning**

**Potential Hazards:**

- Fall injuries when cleaning upper exterior areas
- Head injuries from over head obstructions
- Falling overboard during exterior cleaning leading to impact injuries and possibly drowning
- Splashing of cleaning agents into the eyes
- Incompatible cleaning agents creating toxic gases causing inhalation injuries
- Accumulation of toxic vapors in enclosed spaces causing inhalation injuries
- Slippery decks leading to possible fall injury
- Chemical exposure causing skin irritation of corrosive injuries
- Blood born pathogens leading to physical illness

**Engineering and Administrative Controls:** *(Note: The following is not a comprehensive list of engineering controls available. Controls listed serve simply as a reminder that you should properly use items that may be on hand to mitigate potential hazards)*

- ✓ Material safety data sheets (MSDS) for all chemicals
- ✓ BBP (Blood Born Pathogen) protocol
- ✓ Ventilation blowers
- ✓ Do not mix cleaning agents
- ✓ Apply nonskid to decks
- ✓ Maintain adequate labeling on cleaner containers

**Environmental Concerns:**

- Toxic chemicals spilled into the water

**Environmental Controls:**

- ✓ Use environmentally friendly cleaners
Personal Protective Equipment: (Note: Some items may or may not be required depending on the situation, company policy, etc.)

- Work gloves and/or nitrile gloves as needed
- Eye protection when splash danger exists
- Hardhat for cleaning exterior areas
- PFD for cleaning exterior areas
- Fall protection for cleaning elevated areas where fall hazards exist
- Safety shoes
Job Safety Analysis

Task to Be Accomplished: **Welding, Cutting & Grinding**

**Potential Hazards:**

- Placement of leads or hoses near pinch points may lead to severed leads or hoses with subsequent injuries
- Hazardous material makeup of work project- lead based paint, asbestos, etc. increasing possible inhalation hazard
- Fire or inhalation hazard due to proximity to flammables or hazardous chemicals
- Gas bottles not secure enhance potential to bottle gauges and valves possibly resulting in fire or impact injuries
- Fire and/or heat radiation leading to burns
- Bilge fire caused by sparks, slag and other hot flying debris
- Potential for injury due to inadvertent start up of machinery
- Fire may result from hose leaks
- Electrical shock or fire when using worn out welding leads
- Lack of ventilation in confined spaces may produce an accumulation of toxic gases leading to inhalation injury
- Back strain from heavy lifting of plate steel, pipe, etc.
- Loose pressure gauges on bottles may cause inhalation injury or fire
- Lack of awareness of activity in work space may enhance hazard potential
- Abrasions due to grinding
- Flying debris sparks, slag etc. from welding or grinding may cause eye injury or burn injury
- Hearing loss from excessive noise
- Inadvertent grounding of welding leads causing electrical shock
- Inhalation hazard from dust
- Arm and hand injuries from vibration
- Grinding wheel fracture causing laceration, abrasion or eye injury
Engineering and Administrative Controls:  (Note: The following is not a comprehensive list of engineering controls available. Controls listed serve simply as a reminder that you should properly use items that may be on hand to mitigate potential hazards)

- Employ compressed gas procedures
- Frequently inspect hoses and welding leads
- Frequently inspect hoses with installed inline check valve at torch head
- Remove hazardous chemicals and flammables from work space
- “Hot Work Permit”
- Remove hazardous materials from the work project
- Use bottle racks
- Use ventilation blowers for confined spaces
- Post fire watch during and after hot work
- Have fire extinguisher nearby
- Employ leather blankets
- Use bottle wrench
- Maintain sufficient assistants to minimize possibility of heavy lift injury
- Lockout/Tagout
- Install and maintain guards on grinder

Environmental Concerns:

- Production of toxic gases
- Noise

Environmental Controls:

- Ventilate toxic gases away from crew in proximity to welding/cutting project
- Notify crew of potential high noise condition in project area

Personal Protective Equipment:  (Note: Some items may or may not be required depending on the situation, company policy, etc.)

- Eye and face protection
- Fire resistant jacket, welding apron, etc.
- Leathers
- Welding gloves
- Hardhat as appropriate
- Ear protection as required per situation
- Respirator
- Safety shoes
Job Safety Analysis

Task to Be Accomplished: Working Aloft

Potential Hazards:

- Injury or death due to fall while climbing / working aloft
- Injury or fall from unexpectedly energized equipment aloft
- Injury to personnel or damage to personnel below from dropped items coming from aloft
- Stranding potential if fall happens while wearing a fall restraint device

Engineering and Administrative Controls: (Note: The following is not a comprehensive list of engineering controls available. Controls listed serve simply as a reminder that you should properly use items that may be on hand to mitigate potential hazards)

- Proper use of fall restraint device (Required)
- Lockout / Tagout prior to going aloft
- Use care in climbing, don’t rush
- Use bucket to heave tools, etc. to work area if practical
- Use extra care in handling items while aloft to avoid dropping items
- Keep area below the work area clear of personnel
- Have spotter below to keep watch on person climbing aloft

Environmental Concerns:

- 

Environmental Controls:

- ✓
Personal Protective Equipment: *(Note: Some items may or may not be required depending on the situation, company policy, etc.)*

- Fall protection
- Work shoes
- Appropriate work clothes
- Work gloves
- Eye protection
- Hard Hat
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