



Health, Safety and Environment (HSE) Manual

2019
Revision 3

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OceanGate Inc., in fulfilling its legal obligation and its moral responsibility to provide a place of employment free from recognized hazards, has set forth this HSE Policy statement, reinforcing its commitment to maintaining a safe and healthy work environment. This HSE Policy Statement is the cornerstone of the Company's HSE management process. It is communicated openly and at every opportunity to employee, customers, vendors and subcontractors, and has equal status with other primary business objectives. Violations of this policy should be immediately brought to the attention of management.

The OceanGate HSE philosophy is that, in the performance of our work, the health and welfare of the people involved, and the protection of assets and the environment are the primary concern. NO JOB IS SO IMPORTANT THAT WE CANNOT TAKE THE TIME TO DO IT SAFELY.

The Company's HSE management hazard assessment process promotes hazard identification, assessment, control and recovery, should a loss occur. The HSE management process is intended to demonstrate to Company management, appropriate regulatory agencies, customers and other interested parties, that equipment and operations associated with the performance of work are capable of being utilized without undue risk to those involved or the environment.

We believe that incidents are caused, and therefore, can be prevented. Safety, the health of individuals involved in Company operations, incident prevention, the protection of assets and the environment is each individual's responsibility. Employees at all levels of the organization will be held accountable and responsible for preventing job related illnesses, injuries and equipment and environment losses through the diligent and consistent application of the Company's HSE management process. Employee HSE performance will be a major consideration in decision affections promotions, salary actions and continued employment.



Chief Executive Officer



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1) ACCIDENT PREVENTION PROGRAM: MANAGEMENT COMMITMENT

- A) EMPLOYEES ARE REQUIRED TO COMPLY WITH ALL COMPANY SAFETY RULES AND ARE ENCOURAGED TO ACTIVELY PARTICIPATE IN IDENTIFYING WAYS TO MAKE OUR COMPANY A SAFER PLACE TO WORK.
- B) SUPERVISORS ARE RESPONSIBLE FOR THE SAFETY OF THEIR EMPLOYEES AND AS A PART OF THEIR DAILY DUTIES MUST CHECK THE WORKPLACE FOR UNSAFE CONDITIONS, WATCH EMPLOYEES FOR UNSAFE ACTIONS AND TAKE PROMPT ACTION TO ELIMINATE ANY HAZARDS.
- C) MANAGEMENT WILL DO ITS PART BY DEVOTING THE RESOURCES NECESSARY TO FORM A SAFETY COMMITTEE COMPOSED OF MANAGEMENT AND ELECTED EMPLOYEES. WE WILL DEVELOP A SYSTEM FOR IDENTIFYING AND CORRECTING HAZARDS. WE WILL PLAN FOR FORESEEABLE EMERGENCIES. WE WILL PROVIDE INITIAL AND ONGOING TRAINING FOR EMPLOYEES AND SUPERVISORS. AND, WE WILL ESTABLISH A DISCIPLINARY POLICY TO ENSURE THAT COMPANY SAFETY POLICIES ARE FOLLOWED.
- D) THE DIRECTOR OF SAFETY FOR OCEANGATE WILL FUNCTION AS THE COMPANY'S SAFETY OFFICER AND WILL BE RESPONSIBLE FOR THE ADMINISTRATION OF THE SAFETY PROGRAM.

2) SAFETY AND HEALTH RESPONSIBILITIES

- A) MANAGER RESPONSIBILITIES
 - i) Ensure that a facility-wide safety committee is formed and is carrying out its responsibilities as described in this program.
 - ii) Ensure that sufficient employee time, supervisor support, and funds are budgeted for safety equipment, training and to carry out the safety program.
 - iii) Evaluate supervisors each year to make sure they are carrying out their responsibilities as described in this program.
 - iv) Ensure that incidents are fully investigated and corrective action taken to prevent the hazardous conditions or behaviors from happening again.
 - v) Ensure that a record of injuries and illnesses is maintained and posted as described in this program.
 - vi) Set a good example by following established safety rules and attending required training.
 - vii) Report unsafe practices or conditions to the supervisor of the area where the hazard was observed.



B) SUPERVISOR RESPONSIBILITIES

- i) Ensure that each employee you supervise has received an initial orientation before beginning work.
- ii) Ensure that each employee you supervise is competent or receives training on safe operation of equipment or tasks before starting work on that equipment or project.
- iii) Ensure that each employee receives required personal protective equipment (PPE) before starting work on a project requiring PPE.
- iv) Do a daily walk-around safety-check of the work area. Promptly correct any hazards you find.
- v) Observe the employees you supervise working. Promptly correct any unsafe behavior. Provide training and take corrective action as necessary. Document employee evaluations.
- vi) Set a good example for employees by following safety rules and attending required training.
- vii) Investigate all incidents in your area and report your findings to management.
- viii) Talk to management about changes to work practices or equipment that will improve employee safety.

C) EMPLOYEE RESPONSIBILITIES

- i) Follow safety rules described in this program, the Washington Industrial Safety and Health Act (WISHA) safety standards and training you receive.
- ii) Report unsafe conditions or actions to your supervisor or safety committee representative promptly.
- iii) Report all injuries to your supervisor promptly regardless of how serious.
- iv) Report all near-miss incidents to your supervisor promptly.
- v) Always use personal protective equipment (PPE) in good working condition where it is required.
- vi) Do not remove or defeat any safety device or safeguard provided for employee protection.
- vii) Encourage co-workers by your words and example to use safe work practices on the job.
- viii) Make suggestions to your supervisor, safety committee representative or management about changes you believe will improve employee safety.
- ix) Employee Participation

D) EMPLOYEE SAFETY MEETINGS

All employees are required to attend a monthly safety meeting held on the first Friday of each month in the shop. This meeting is to help identify safety problems, develop solutions, review incidents reports, provide training and evaluate the effectiveness of our safety program. Meeting minutes will be kept and maintained on file for one year.



3) ADMINISTRATION

A) INTERNAL AUDITING

All sites within the Company shall be audited annually with a written report issued. The purpose of an audit is to verify that the HSE Management System is functioning as intended. An audit may focus on only a portion of the HSE MS or a general comprehensive HSE audit may be carried out. An audit also involves interviews with personnel for feedback on their suggestions for further HSE improvements. An audit is based on applicable references such as governmental regulations, industry standards or Company requirements.

B) EXTERNAL AUDITING

As a part of the vendor selection and approval process, the HSE Department, depending on the findings of the standard HSE questionnaire may conduct an audit. Audit triggers, such as serious incidents, may result in a formal audit of a vendor.

C) MONITORING BY MANAGERS AND HSE STAFF

The monitoring activity should take place much more often than OceanGate standard practice on monitoring. Stated simply, monitoring involves key personnel visiting the work site for specific tours together with site supervisory staff to search for and identify hazards in the work place and to ensure that timely improvement actions are taken and closed out.

D) INSPECTIONS BY MANAGERS, HSE STAFF AND THIRD PARTIES

Inspections are more concerned with the quality, maintenance and care of the equipment and assets. Technical specialists or surveyors are sometimes used for this task. Specific checklists are developed for inspections to ensure that regulatory compliance and Company requirements are met.

4) SAFETY INSPECTIONS / AUDITS

A) COMMITMENT

OceanGate is committed to aggressively identifying hazardous conditions and practices which are likely to result in injury or illness to employees. We will take prompt action to eliminate any hazards we find. In addition to reviewing injury records and investigating incidents for their causes, management and the safety committee will regularly check the workplace for hazards as described below:

- i) HSE Site Safety Audit -- Periodic inspection team made up of members of the shop staff will do a wall-to-wall walk through inspection of the entire worksite. They will write down any safety hazards or potential hazards they find. The results of this inspection will be used to eliminate or control obvious hazards, target specific work areas for more intensive investigation, assist in revising the checklists used during regular monthly safety inspections and as part of the annual review of the effectiveness of our accident prevention program.



- ii) Periodic Change Survey -- We will assign a supervisor or form a team to look at any changes we make to identify safety issues. Changes include new equipment, changes to production processes or a change to the building structure. A team is made up of maintenance and production representatives. It examines the changed conditions and makes recommendations to eliminate or control any hazards that were or may be created as a result of the change.
- iii) Monthly Safety Inspection -- Each month, before the regularly scheduled safety meeting, the shop supervisor and safety officer will inspect their areas for hazards using the standard safety inspection checklist. They will talk to co-workers about their safety concerns. The results of the area inspection and any action taken will be posted in the affected area. Occasionally, new employees and administrative staff will be invited to conduct an area inspection. This brings a fresh pair of eyes to look for hazards.
- iv) Job Safety/Hazard Analysis -- As a part of our on-going safety program, we will use a "Job Hazard Analysis" (also known as Job Safety Analysis, JSA) form to look at each type of job task our employees do. This analysis will be done by the supervisor of that job task or a member of the safety committee. We will change how the job is done as needed to eliminate or control any hazards. We will also check to see if the employee needs to use personal protective equipment (PPE) while doing the job. Employees will be trained in the revised operation and to use any required PPE. The results will be reported to the safety committee. Each job task will be analyzed at least once every two years, whenever there is a change in how the task is done or if there is a serious injury while doing the task. JSA's can be performed by all employees. This process allows employees to observe a job task and detect unsafe actions by their fellow employees. This will allow for proactive intervention and prevention of unsafe actions through:
 - (1) Employee Involvement
 - (2) Peer-to-Peer observation
 - (3) Immediate reinforcement of safe behavior
 - (4) Group problem solving

B) HSE SITE SAFETY AUDIT

The HSE Site Safety Audit is an incident prevention tool. It can be used to identify potential hazards that are often overlooked by the employees working in the specific areas and eliminate them before the hazard becomes a near miss, incident with injury/illness, or pollution event.

- i) SCOPE: This standard shall be followed at all Company work sites.
- ii) CASE FOR ACTION: Unsafe acts and unsafe conditions are frequently overlooked by employees who may become complacent to their routine work environment. Often, employees "live with" and fail to recognize such hazards as dangerous until an incident occurs. The Site Safety Audit process is an informal Safety Committee function and involves "walk-through" inspections. Identified issues are reviewed and addressed by site leadership with an action plan for improvement produced on the Site Safety Audit Form. This information is shared with team members.



- iii) EXPECTATIONS: Site Safety Audits will be utilized on routine basis as a means to identify and correct commonly overlooked hazards.
- iv) Selected team members will be involved in the development and use of the Site Safety Audits.
- v) All individuals involved in Site Safety Audits will get specific guidance as to what to look for and why.
- vi) Provide positive reinforcement/recognition for employees who participate on Safety Committee and Site Safety Audit inspections.
- vii) Assure Supervisor accountability for correction of identified hazards.
- viii) All teams should include both contractor and service personnel during inspections. Membership should be periodically rotated to ensure total employee involvement. Discuss findings in detail during site safety meetings.
- ix) BENEFITS:
 - (1) Provides a simple way to identify hazards at the site.
 - (2) Increases hazard awareness throughout site team and third party contractors.
 - (3) Enhances employee safety awareness.
 - (4) Excellent training tool for employees.
 - (5) Enhances safety communication by providing examples of potential hazards. Identifies opportunities for improvement in safety concerning equipment utilization. Prepares employees for planned safety observations.
 - (6) Provides increased ownership in the safety process by the site team.
 - (7) Provides a systematic method of informing supervisory personnel and the Customer of unsafe conditions and potential pollution events in the working environment.
 - (8) Assigns specific responsibilities to personnel for improvement action.
 - (9) Provides documentation for positive actions taken for incident prevention in the workplace.
 - (10) Affords a line of communication for outside personnel such as the Customer safety representative, government inspectors, or others wishing to correct an unsafe condition or environmental situation.

C) SITE SAFETY AUDIT INSTRUCTIONS

A Site Safety Audit can be done using the following basic steps:

- i) Select the personnel that will be involved in the Site Safety Audit.
- ii) The Supervisor and/or the Vessel Master are in charge to coordinate the Site Safety Audit. The Project Manager and the HSE representative will assist when they are present.
- iii) It is recommended that personnel participating in the Site Safety Audit include site personnel, third party contractors, customer personnel and HSE staff. Preplanning is essential to success, therefore select an opportune time which allows for maximum participation.



- iv) The Site Safety Audit should be performed least every 30 days during operations of a vessel and may be incorporated into the monthly safety meetings.
- v) Each Action List will serve as follow-up to the previous one issued. Items still outstanding shall be re-listed and indicated as second or third listing.
- vi) When a target date for completion has not been reached, then the percentage completed should be listed to record the progress made and the reason for not reaching completion.
- vii) It is not intended for items requiring immediate corrective actions to be neglected until the list is issued. For example, if the team observes an unsafe act/condition they may initiate corrective action immediately with the first line supervisor and then list the item on the Action List as completed.
- viii) Gather all persons that will be involved in Site Safety Audit and explain the process; spend time explaining the process to the crew. Divide the crew into a minimum of two teams. Let each team select a leader. Assign each team a designated area or areas of the work site to inspect.
- ix) The teams should be created such that the personnel look at areas that they do not ordinarily work in this gives an advantage of a new set of eyes on an area and any potential hazards.
- x) Identify hazards and potential unsafe conditions:
 - (1) Dispatch teams.
 - (2) Conduct Site Safety Audit in allocated time.
 - (3) Have the inspection teams muster back at the designated area for a debriefing.
 - (4) Have each team leader discuss items found and items that were corrected during the Site Safety Audit.
 - (5) List the hazards on the Action List that were found and not corrected.
- xi) The Supervisor, Vessel Master or Base Manager should review the action item list and decide the priority and assign responsibilities for action.
- xii) Post the results of the Site Safety Audit on the site bulletin board.
- xiii) The punch list should be followed up on and updated during the next Site Safety Audit.
- xiv) Discuss findings in safety meetings.
- xv) INSTRUCTIONS FOR HSE STAFF - performing Site Safety Audits at sites:
 - (1) Have an opening conference with the Supervisor and/or Captain, plus other key personnel available as chosen by the Supervisor and Captain.
 - (2) Solicit the Superintendent and Captain to join or appoint key team members.
 - (3) Have a closing conference with Superintendent and Captain, plus key team members as decided by the Superintendent and Captain to discuss all findings that will be included in the Action List.
 - (4) The Supervisor/Captain will decide who shall take corrective actions and assign target dates for completion.
 - (5) Each site shall maintain updated Action List.



D) JOB SAFETY ANALYSIS (JSA)

i) PURPOSE

This standard provides guidance in the development of Job Safety Analysis (JSA) as a proactive incident prevention tool. JSA is an effective method of breaking jobs down into sequential tasks and identifying potential hazards associated with each task. Solutions for hazard abatement is developed that eliminate, mitigate or control exposure.

ii) SCOPE

The JSA standard is applicable at all work sites.

iii) Case for Action

Weak or non-existent job planning, hazard recognition, training, and poor communication of procedures are frequently cited causal factors in many incident and injury cases. Use of JSA as a planning and hazard effects management tool has long been recognized as a key variable for improved safety performance.

iv) Expectations

- (1) JSA should be completed for all tasks with significant risk potential, even if considered routine and for any non-routine task.
- (2) All personnel involved in the development and use of JSA will receive appropriate instruction in JSA technique.
- (3) Document and file all JSAs for review, editing, and re-use.
- (4) Always review JSA following an incident or serious near miss and revise them if necessary.
- (5) Keep JSA updated to reflect changes in equipment and operating procedures. Job site leaders will participate in JSA development and review.
- (6) When the actual job deviates from the JSA, the job should be suspended and the JSA revised and communicated, before work resumes.

v) Benefits

- (1) Effective implementation of a JSA program:
- (2) Provides a consistent approach to pre-job planning Assists in developing or improving written procedures Enhances employee safety awareness
- (3) Delivers excellent training tool for employees unfamiliar with job tasks Enhances safety communication by providing a means for pre-job instruction Identifies opportunities for possible improvements in job methods
- (4) Prepares employees for planned safety observations

E) JSA PROCEDURE

Selecting the Job for Analysis

- i) Select jobs that are not too broadly or narrowly defined. You don't want to analyze a large operation, but the jobs that make up the operation. Jobs suitable for JSA are those that contain no more than eight (8) steps and are usually those jobs assigned by a line manager, such as operating a piece of machinery, making a repair, mixing chemicals, etc. Discuss what may be relevant or occurring over the next work shift.



- ii) There is no need to re-write the JSA for each shift on a routine work task, provided the crews are the same, and the tools/procedure have not changed
- iii) When a new crew member joins then there is a need to go back over the JSA in detail, since they did not take part the first time.
- iv) Breaking the Job Down Into Steps
- v) A job should be broken down into a sequence of steps, each describing what is to be done. The breakdown should not be so detailed that an unnecessarily large number of step results or so general those basic steps are not recorded.
- vi) To determine the basic job steps, ask, what step starts the job? What is the next basic step?... and so on until the job is completed.
- vii) Record each step and verify with experienced employees the detail and order of steps is correct.
- viii) The wording of each step should begin with an action word like “remove”, “open”, “weld”, “secure”, etc.
- ix) Identify Hazards and Potential Accident Causes
- x) The purpose is to identify all hazards associated with each step both produced by the work environment and actual job procedures.
- xi) Each step should be made safer and more efficient by asking the following questions:
 - (1) Is there a danger of striking against, being struck by, or otherwise making injurious contact with an object or machinery?
 - (2) Can an employee be caught in, by, or between objects and machinery? Is there a potential for a slip, trip or fall on same level or to another?
 - (3) Can employee strain themselves by pushing, pulling, lifting, bending, or twisting?
 - (4) Are all energy sources (electrical, pneumatic, hydraulic, etc.) controlled for protection?
- xii) Record the hazard and the agent involved. For example, “struck by hammer”, “slip on wet floor”, “shock by electric motor”.
- xiii) Be specific – i.e.; don’t just say “pinch points”, say “pinch points between crane load and jacket leg”, “pinch points between conductors and a sling”, “pinch points between internal conductors”.
- xiv) Develop Solutions

The final step in a JSA is to develop a recommended safe task procedure to prevent the occurrence of incidents. The principal solutions are as follows:

- (1) Find a new way to do the job.
- (2) Change the physical condition that presents a hazard.
- (3) Change the work procedure.
- (4) Reduce the frequency (particularly helpful in maintenance and material handling).
Develop a solution for each hazard identified.
- (5) Precisely state what to do and how to do it.
- (6) Discuss the procedure in a safety meeting.
- (7) Job Safety Analysis Format: See Appendix I.



F) PRE-SHIFT SAFETY MEETING

- i) When deployed at sea, all crew should hold two (2) brief daily general safety meetings (held prior to each shift) with all personnel going on-duty. All personnel onboard (including 3rd party) should be required to attend one of these meetings per day these meetings may be part of the daily status update or other organized all hands meetings. In the event some crew members onboard work a different shift than the main crew (6 to 6 instead of 12 to 12) they must attend the regular general meeting held during their shift. Onshore base workshops and the warehouse are also to hold one meeting per shift as applicable.
- ii) The purpose of these daily pre-shift meetings is for a general review of the upcoming daily activities and review of noteworthy items from the previous shift. The topics for these meetings should be of a general nature which might affect all personnel at the site (weather conditions, planned evolutions, general scope of work for the day, etc.) This would also be the time for a Company Representative, Project Manager, General or other management personnel to comment on issues and give their input. Time spent on these meetings should be brief and generally last no more than 10 to 15 minutes.

G) PRE-WORK/TOOL BOX/JSA MEETING

- i) This type of meeting happens at the work site and is a safety huddle to ensure that proper planning has been done, including the JSA. The focus here is on safe execution of the job.

5) EMPLOYEE CORRECTIVE ACTION

A) PURPOSE

OceanGate invests considerable time and effort in each employee and values their contributions. The Company will strive to retain qualified individuals with a good work ethic. Willful violations of safety procedures and policies cannot and will not be tolerated. The following policy is designed to eliminate unsafe acts that put employees or their coworkers at risk of injury.

B) UNSAFE ACTIONS

Unsafe actions by employees will be corrected immediately and employees that refuse to comply with safety policies will be removed from the jobsite.

C) DISCIPLINARY POLICY

Employees are expected to be familiar with this manual and their roles defined within it and to use good judgment when doing their work while following established safety rules. Any employee who engages in unsafe behavior or work practices may be disciplined up to and including termination.



6) ALCOHOL, DRUG, AND WEAPONS

A) POLICY

OceanGate has a policy prohibiting employees from being under the influence of, using or possessing drugs, drug paraphernalia, alcohol or weapons on Company vessels, vehicles, or premises. Except as specifically permitted by company management, consumption of alcohol in a company facility is prohibited and it is always prohibited aboard vessels (company or client) by OceanGate employees whether on or off duty. The passage of various laws designed to curb the use of drugs and alcohol in the workplace have imposed additional requirements on the Company and its employees. This Drug and Alcohol Policy incorporates both the Company's policies and the legal requirements. The Company is committed to providing a safe, drug-free work environment for all of its employees and every attempt has been made in this Policy to balance the Company's workplace goals with legitimate employee privacy interests. As a condition of employment, all employees will abide by all terms of this Policy.

B) CONTRACT AND TEMPORARY PERSONNEL

Policy provisions regarding weapons, the use, possession or sale of drugs and alcohol and searches for such substances are applicable to contract personnel. Violations of these provisions are refusal to cooperate with implementation of this policy can result in the company's barring contract personnel from company facilities, vessels or participation in company operations.

C) WEAPON POLICY

The use or possession of any type of weapon including firearms, ammunition for firearms and explosives aboard any company vessel or company facility is prohibited. Knives and other cutting equipment are permitted for work and safety applications.

D) DRUG AND ALCOHOL LEGAL AUTHORITY

The Drug and Alcohol Policy has been developed and implemented by the Company to maintain a drug-free workplace, promote safety and efficiency aboard its vessels, in its vehicles, and on its premises and to ensure compliance with various legislation, including, but not limited to, the Drug-Free Workplace Act of 1988, regulations promulgated by the U.S. Coast Guard the Federal Highway Administration, the Department of Defense, the U.S. Customs Service, and various state agencies and the National Policy commonly referred to as "Zero Tolerance". These laws and regulations require, among other things, that vessel and vehicle owners take measures to ensure that their vessels and vehicles are free of drugs and alcohol and that employees are subject to testing for drugs and alcohol in certain circumstances.

E) DRUGS AND ALCOHOL PROHIBITED

The use, possession, distribution, dispensation, or manufacture of any drugs or drug related paraphernalia, is prohibited aboard any Company vessel, in any Company vehicle, or on any Company premises unless:

- (a) The use is limited to wine and beer and is associated with a client focused event or company celebration, and
- (b) Is consumed in controlled area by personnel not involved in operations or scheduled to be involved in operations in the next eight hours.



The term “drugs” includes any substance, lawful or unlawful, which will impair the motor senses, judgment, behavior, actions, reactions, mood, pain threshold, or thinking process of an individual. The term “drugs” specifically includes a narcotic drug, controlled substance, and marijuana (as defined in section 102 of the Comprehensive Drug Abuse Prevention and Control Act of 1970). The term “paraphernalia” includes any material or device which is commonly used, has been used, or is intended to be used in connection with the administration or other use of drugs. Adulterating or switching of any blood, urine or any other samples is prohibited.

F) IMPAIRMENT PROHIBITED

No employee will report for work and no employee shall work when impaired by any substance, whether such substance is lawful or not. The terms “impairment” and “impaired” mean that an employee is under any influence of a substance such that the employee’s motor senses (e.g. sight, hearing, balance, reaction, reflex, etc.) judgment, behavior, actions, reactions, mood, pain threshold, or thinking process is, or may reasonably be presumed to be impacted. In addition, the terms “impairment” and “impaired” mean the presence of any detectable amount of drugs in the employee’s system.

G) NOTIFICATION OF CONVICTIONS

All employees must notify the Company of any criminal drug statute convictions for a violation occurring in the workplace no later than five (5) days after such conviction.

H) SANCTIONS FOR VIOLATION OF POLICY

Any employee found in violation of any part of this Drug and Alcohol Policy shall be subject to disciplinary action, including possible termination of employment. The Company may also require satisfactory participation in a drug or alcohol abuse assistance or rehabilitation program as a condition of continued employment.

I) INSPECTIONS

For purposes of compliance with this Drug and Alcohol Policy, all employees, vendors, contractors and visitors are subject to inspection. All areas of the Company vessels, vehicles, premises, client premises, included, but not limited to, offices, employees’ lockers, work areas, common areas, and living quarters are subject to inspection. In addition, personal effects (including, but not limited to, luggage, clothing, equipment, tools and packages) delivered to or brought onto Company vessels, vehicles or premises and personal vehicles brought onto Company premises may be inspected. Such inspections may be made by any reasonable means deemed appropriate.

J) DRUG AND ALCOHOL TESTING PROGRAM

- i) Employees to be tested: All employees, regardless of their job classifications, are subject to reasonable cause testing. All employees are subject to all aspects of the testing program including pre-employment, pre-access, random, annual, reasonable cause, return to work and post-accident testing.
- ii) Collection of Specimens: Unless otherwise required by regulation, chemical testing will normally be performed on urine specimens, and breath tests will be conducted to test for the presence of alcohol.



- iii) Procedures for collecting urine specimens shall allow or individual privacy unless there is reason to believe that a particular individual may alter or substitute the specimen.

K) REASONABLE CAUSE TESTING

The Company requires any employee reasonably suspected of using dangerous drugs and/or alcohol to be tested for dangerous drugs and alcohol. Anyone tested as a result of "reasonable cause" shall be removed from further duties until the test results are received. However, crew members onboard Company vessels may continue their duties at the sole discretion of the Captain where performance of their duties is essential for the preservation of life or property or the protection of the environment. The Company's decision to test must be based on a reasonable and articulable belief that the individual has used a dangerous drug or alcohol based on direct observation of specific, contemporaneous physical, behavioral, or performance indicators of probable use. Where practicable, this belief should be based on the observation of two persons in supervisory positions.

L) EMPLOYEE INFORMED

When the company requires the testing of an individual under the provisions of this section, the individual must be informed of the fact and directed to provide specimens for chemical testing as soon as possible. In the case of a crew member on a Company vessel, this fact must be entered in the vessel's official log book. In the event that a crew member on a Company vessel refuses to provide a urine specimen when directed to do so, this fact shall also be entered in the vessel's official log book.

M) PRE-ACCESS TESTING

Some clients require that a negative result must have been received within 12 months preceding accesses to their premises.

N) PERIODIC TESTING

Certain employees are subject to periodic testing in accordance with applicable regulations. Whenever a physical examination is required by employees by regulation, a chemical test for dangerous drugs must be included as a part of the physical examination. For those individuals required by regulation to receive physical examinations on a periodic basis, the individual shall provide the result of each required chemical test at the time the individual applies for a renewal of his or her license. The individual employees are responsible for scheduling and the expenses of such physical examinations and chemical tests.

O) RANDOM TESTING

The Company may provide for the selection of employees for chemical testing for dangerous drugs and/or alcohol on a random basis. Random selection of such employees means that every member of a given population has a substantially equal chance of selection on a scientifically valid basis.



P) POST INCIDENT AND VEHICLE ACCIDENT TESTING

The Company shall ensure that all persons directly involved in a serious incident are chemically tested for dangerous drugs and alcohol in accordance with applicable regulations.

- i) The term “individual directly involved in a serious incident” is 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 a serious incident.
- ii) The term “serious incident” includes the following events:
 - (1) Any casualty or accident which is required by regulation to be reported to the Coast Guard which results in:
 - (a) One or more deaths.
 - (b) An injury to a crew member, passenger, or other person which requires professional medical treatment beyond first aid and which renders the individual unfit to perform routine vessel duties.
 - (c) Damage to property in excess of \$100,000.
 - (d) Actual or constructive total loss of any vessel subject to Coast Guard inspection or any uninspected self-propelled vessel of 100 gross tons or more.
 - (e) Discharge of oil of 10,000 gallons or more into the navigable waters of the United States or
 - (f) Discharge of a reportable quantity of a hazardous substance into the navigable waters of the United States or a release of a reportable quantity of a hazardous substance into the environment of the United States.
- iii) When the Company determines that a casualty or incident is or is likely to become a serious incident, or is likely to become a serious incident, all practicable steps shall be taken to have each individual onboard the Company vessel who is directly involved in the incident chemically tested for evidence of drug and alcohol use.
- iv) Each individual required to submit to chemical testing shall, as soon as possible, provide the following for chemical testing:
 - (1) Urine samples
 - (2) Blood or breath samples
 - (3) Both 1 & 2
 - (4) Failure of Chemical Test
- v) If an individual fails any chemical test for dangerous drugs and/or alcohol, the individual shall be removed from all duties and shall be subject to adverse personnel action, including possible termination.



Q) LABORATORY

All chemical tests for dangerous drugs, controlled substances, or alcohol shall be conducted in accordance with 49 CFR Part 40. Procedure for Transportation Workplace Drug Testing Programs, and only by a laboratory certified by the Department of Health and Human Services. Each specimen shall be analyzed for marijuana, cocaine, opiates, phencyclidine (PCP), amphetamines, and, where requested, alcohol. All specimen analysis reports shall be sent to the Chief Operating Officer (COO). A specimen which indicates the presence of a dangerous drug at a level equal to or exceeding the levels established in 49 CFR 40.24 or alcohol at a level equal to or exceeding the levels established in 33 CFR 95.020(b) shall be reported to the COO as positive. Positive reports are only reported to the Company after verification by a Medical Review Officer.

R) MEDICAL REVIEW OFFICER

The company shall designate a licensed physician as a Medical Review Officer (MRO) meeting the qualifications of 49 CFR 40.121 when required. The MRO shall review and interpret each confirmed positive test result in accordance with 49 CFR 40.27. The MRO shall give the employee affected an opportunity to discuss and explain any positive test result. If the MRO verifies the laboratory confirmed positive report, the MRO shall report the positive test result to the Human Resources Manager.

S) RETURN TO WORK

Before an individual who has failed a required chemical test may return to work, the MRO shall determine that the individual is drug-free and the risk of subsequent use of dangerous drugs by the person is sufficiently low to justify his or her return to work. In addition, the individual shall agree to increase, unannounced testing for a period as determined by the MRO of up to 60 months.

T) RELEASE OF INFORMATION

Except where required by regulation to be reported, the Company shall not release individual test results or other related information. Individual results from drug and/or alcohol tests may be released if the individual tested signs a specific authorization for the release of the results to an identified person and/or client.

U) MAINTENANCE OF RECORDS

- i) The Company shall maintain records of chemical tests which a MRO reports as "positive" for a period of five (5) years and shall make these records available to regulatory agencies as required. Records of tests reported as "negative" shall be retained for one (1) year.
- ii) The records shall be sufficient to confirm that individuals have complied with pre-employment test or random test requirements. In addition, the records shall identify the total number of individuals failing chemical tests and the number and types of drugs for which individuals tested positive.



V) EMPLOYEE REHABILITATION

The Company recognizes that substance abuse is frequently a medical problem which can be successfully treated. Prevention and rehabilitation are integral parts of this Drug and Alcohol Policy. Almost all substance abusers deny that they have a problem and ordinarily do not seek treatment voluntarily. The Company encourages voluntary drug and alcohol abuse treatment and will take strong action against the employees who do not seek treatment on their own. The Company encourages the earliest possible diagnosis and treatment for drug and alcohol abuse, supports sound treatment efforts and when feasible, the Company will assist employees in overcoming drug or alcohol use. However, the decision to seek diagnosis and accept treatment for drug or alcohol abuse is the employee's responsibility. Employees who voluntarily request the assistance of the Company in dealing with a drug or alcohol abuse problem may do so without jeopardizing their continued employment with the Company. However, voluntary requests for assistance will not prevent disciplinary action for violation of this Drug and Alcohol Policy. Employees who undergo voluntary counseling or treatment and who continue to work must meet all established standards of conduct and job performance.

W) EDUCATION AND TRAINING

The Company will provide an education program for all employees which includes the display and distribution of informational material and a community service hot-line number for employee's assistance.

X) DRUG FREE WORKPLACE NOTICE

- i) The use, possession, distribution, dispensation, or manufacture of any drugs, or drug related paraphernalia, is prohibited aboard any Company vessel, in any Company vehicle, or on any Company premises. In addition, no employee will report for work and no employee shall work when impaired by any substance, whether such substance is unlawful or not.
- ii) For purposes of compliance with this Policy, employees, vendors, contractors, and visitors are subject to inspection by the Company.
- iii) All employees must notify the Company of any criminal drug statute convictions for a violation occurring in the workplace no later than five (5) days after such conviction. As a condition of employment, all employees will abide by the Company's Drug Policy. Employees violating this Policy are subject to disciplinary action, including possible termination. A complete copy of the Company's Drug, Alcohol and Weapon Policy is available from the Human Resources Department on request.
- iv) See Appendix II for an Alcohol, Drug and Contraband Test Form

7) CONFINED SPACE ENTRY

A) PURPOSE

To ensure safeguards are in place to protect OceanGate and contractor employees against the hazards associated with working in confined spaces and to ensure compliance with Regulations.



B) APPLICATION

These guidelines will apply to all OceanGate confined space entry activities performed in shipyard operations, at sea and at associated landside operations regardless of geographic location.

OceanGate uses alternate procedures for worker entry into spaces requiring potential entry permits. Monitoring and inspection data will be used to confirm potential hazardous atmospheres are safe for entry using continuous forced air ventilation. In these circumstances, OceanGate will test the internal atmosphere of the space for oxygen content, flammable gases and vapors, and the potential for toxic air contaminants before any employee enters it.

C) RESPONSIBILITY

D) SUPERVISORS

- i) Conduct pre-job meeting with personnel to review the applicable requirements outlined in this procedure.
- ii) Ensure compliance with the requirements of this procedure during entry work.

E) EMPLOYEES

It is each employee's responsibility to become familiar with and follow the requirements outlined in this procedure while performing work in confined spaces.

F) THIRD PARTY EMPLOYEES:

In order to eliminate endangering employees of any other employer, third party employees who enter into confined spaces on OceanGate vessels or locations must be trained and follow all guidelines included in this section. OceanGate will be in charge of all personnel entering confined spaces on OceanGate property.

G) CONFINED AND ENCLOSED SPACES AND OTHER DANGEROUS ATMOSPHERES

Examples of these spaces are:

- i) Spaces that have been sealed, such as, but not limited to, spaces that have been coated and closed up, and non-ventilated spaces that have been freshly painted.
- ii) Spaces and adjacent spaces that contain or have contained combustible or flammable liquids or gases.
- iii) Spaces and adjacent spaces that contain or have contained liquids, gases, or solids which are toxic, corrosive or irritant.
- iv) Spaces and adjacent spaces that have been fumigated.
- v) Spaces containing residues of materials that create an oxygen deficient atmosphere.



- vi) Working Inside Submersible Vessels: When work is to be performed inside submersibles, the entry hatch will remain fully open. If more than one worker is inside or the hatch is not fully open, then a ventilating fan shall be used to circulate external air or procedures for submerged operations shall apply; that is, the atmosphere will be continuously monitored and compensated and an external worker with radio communications with the inside crew will be dedicated to assist to them. No hot work, painting, soldering or other fume-producing activities shall be conducted inside submersibles unless proper engineering controls and ventilation systems are in place and/or viewing domes/ports are removed.

H) ATMOSPHERES

Oxygen Content

- i) If the space to be entered is oxygen deficient, the space must be labeled “Not Safe For Workers.”
- ii) If the space to be entered is oxygen enriched, the space must be labeled “Not Safe For Workers” and “Not Safe For Hot Work.”
- iii) Oxygen deficient or enriched atmospheres will be ventilated by mechanical means until the oxygen level in the space is maintained at or above 19.5% and below 22.5% per volume. When this is achieved, the warning signs may be removed.
- iv) No one is allowed to enter an oxygen deficient or enriched atmosphere except under the following conditions for:
 - (1) Emergency rescue.
 - (2) Short duration to install ventilation equipment necessary to start work in the space. During these conditions:
- v) The space is to be continuously monitored for oxygen content by volume. Supplied Air Positive Pressure Breathing Apparatus and other appropriate personal protective equipment (PPE) and clothing shall be worn.

I) FLAMMABLE ATMOSPHERES

- i) AN ENTRY SUPERVISOR will visually inspect the space to determine the presence of combustible or flammable liquids.
- ii) AN ENTRY SUPERVISOR will test the space prior to entry to determine the concentration of flammable vapors or gases.
- iii) Entry will not be allowed if the space to be entered has a concentration equal to or greater than 10% of the Lower Explosive Limit (LEL).
- iv) Spaces that contain at or above 10% of the LEL will be mechanically ventilated until the concentrations of flammable vapors are maintained below 10% of the LEL.
- v) Entry will not be allowed if the space to be entered contains an atmosphere equal to or greater than 10% of the LEL, except under the following conditions for:
 - (1) Emergency rescue.
 - (2) Short duration to install ventilation equipment necessary to start work in the space.



vi) During entries under these conditions:

- (1) The space will have no ignition source present.
- (2) The atmosphere in the space will be continuously monitored.
- (3) Atmospheres at or above the Upper Explosive Limit (UEL) are maintained. Supplied Air Positive Pressure Breathing Apparatus and appropriate PPE and clothing will be worn.

J) TOXIC, CORROSIVE, IRRITANT OR FUMIGATED ATMOSPHERES AND RESIDUES

- i) The shop supervisor or the Director of Marine Operations will visually inspect the space to determine the presence of toxic, corrosive, or irritant residue contaminants.
- ii) The Entry Supervisor will test the space prior to initial entry to determine the air concentration of toxic, corrosive, or irritant residue contaminants.
- iii) Entry will not be allowed if the air concentration of a material in the space exceeds the Permissible Exposure Limit (PEL), or is Immediately Dangerous to Life or Health (IDLH), The space will be ventilated by mechanical means at adequate volumes and flow rates to maintain air concentrations within the PEL or, if the contaminants have no established PELs, the concentration will be maintained below the IDLH. When this is achieved warning labels may be removed.
- iv) If a space cannot be ventilated to/within the PELs or is IDLH, Entry Supervisor must re-test the space until the hazards are no longer present.
- v) No one is allowed to enter spaces where atmospheres exceed a PEL or IDLH, except under the following conditions for:
 - vi) Emergency rescue.
 - vii) Short duration to install ventilation equipment necessary to start work in the space. During these types of entries:
 - viii) The atmosphere in the space will be continuously monitored.
 - ix) Supplied Air Positive Pressure Breathing Apparatus and appropriate PPE and clothing will be worn.



K) CLEANING SPACES AND OTHER COLD WORK

Space Preparation:

- i) Liquid residue of hazardous materials will be removed from the space prior to starting cleaning operations or cold work.
- ii) Continuous mechanical ventilation will be provided to ensure that: Flammable vapor is maintained below 10% LEL.
- iii) Toxic, corrosive or irritant vapors are maintained within PELs and below IDLH levels.
- iv) No one is allowed to enter a space if the air concentration of flammable or combustible vapors are 10% or greater of the LEL, except for:
 - (1) Emergency rescue.
 - (2) Short duration to install ventilation equipment. During these conditions: The space is to have no ignition sources present.
- v) Signs will be posted at or near a space that has contained flammable or combustible liquids or gases in bulk quantity prohibiting sources of ignition in the area, in the following locations:
 - (1) At the entrance to the space.
 - (2) In adjacent spaces.
 - (3) In open areas adjacent to those spaces.
- vi) All air moving equipment will be bonded electrically to the structure of the vessel and on land-side operations properly grounded to prevent electric discharge in the area.
- vii) Fans will have non-sparking blades and air ducts will be of non-sparking material.

L) TESTING REQUIREMENTS

- i) The Entry Supervisor will test the space to determine the concentration of flammable, combustible, toxic, corrosive or irritant vapors prior to start of work.
- ii) The Entry Supervisor will test the space periodically throughout the cleaning or cold work operations to ensure air concentrations are maintained below 10% LEL, within PELs and below IDLH levels.
- iii) Testing schedules will be determined prior to start of work dependent upon what material occupied the space. At a minimum the space will be tested four times per shift tower or as often as necessary to assure that air concentrations are maintained below 10% LEL, within PELs and below IDLH levels.
- iv) The Entry Supervisor will test the ventilation discharge area to ensure vapor discharge is not accumulating in areas with concentrations hazardous to personnel.
- v) If concentration levels hazardous to personnel are detected outside of the discharge area all work will be stopped until vapors have been dissipated or removed.
- vi) HOT WORK: No hot work can be performed in the area until the following spaces have been tested by the Entry Supervisor and no hazards exist:
 - (1) Within, on, or immediately adjacent to spaces that contain or have contained combustible or flammable gases or liquids.



- (2) Within, on, or immediately adjacent to fuel tanks that contain or have contained fuel.
- (3) On pipelines, heating coils, pump fittings or other accessories connected to spaces that contain or have last contained fuel.
- vii) The space will be tested periodically by the Entry Supervisor to ensure that the safe conditions are maintained. The space will be tested at a minimum of four times per shift, once prior to each shift beginning work or as often as necessary to assure that air concentrations are maintained below 10% LEL, within PELs and below IDLH levels.
- viii) More than one means of access will be provided in spaces unless the structure or vessel arrangement makes this impractical.
- ix) If the ventilation ducts must be placed through access openings, they must be arranged as to allow free passage by employees in at least two of the access openings.
- x) If means of ventilation cannot be accomplished without blocking access openings, employees in the space will be protected by air-line respirators.
- xi) An employee will be assigned duties outside of the space to maintain communication with employees in the space and aid them in an emergency.
- xii) Hot work cannot be performed until the following spaces and adjacent spaces have been tested by the Entry Supervisor and determined to contain no concentrations of flammable vapors:
 - (1) Dry cargo holds.
 - (2) Bilges.
 - (3) Engine room or boiler spaces.
- xiii) If the concentration of flammable vapors or gases is 10% or greater of the LEL in the space or adjacent space, Hot Work will not be allowed the space will be ventilated by mechanical means to eliminate flammable atmospheres.
- xiv) The space will be tested periodically by an ENTRY SUPERVISOR to ensure that hazard free conditions are maintained. The space will be tested at a minimum of four times per shift tower, once prior to each shift beginning work or as often as necessary to assure that air concentrations are maintained below 10% LEL, within PELs and below IDLH levels.



HAZARD	GENERAL ENTRY	SPECIAL ENTRY	*IDLH	**NO ENTRY
Flammable/ Combustible Vapors	<10% LEL	10% LEL		>10% LEL
Hot Work	10% LEL	10% LEL		
Oxygen content	19.5% - 22% by Volume	<19.5% by Volume		<19.5% by volume >22% by volume
Benzene	<1ppm	1 - <2,000 ppm	2,000 ppm	
Carbon monoxide	<50 ppm	50 - <1,500 ppm	1,500 ppm	
Hydrogen sulfide	<10 ppm	10 - <300 ppm	300 ppm	700 ppm
Ammonia	<25ppm	25 - <500 ppm	500 ppm	
NORM	*** 00.05 – 2 Mr/hr.	>2Mr/hr. or >100 Mr/7 consecutive days		

*IDLH: Entry requires same personal protective equipment as a special entry. Additional standby requirements may be required. Entry above IDLH requires Operation Manager approval.

**NO ENTRY: The Operation Manager can approve extreme emergency situations that may require rescue operations. For these situations proper positive pressure Supplied Air Breathing Apparatus must be used by all entrants.

***: Respiratory protection is required under dusty conditions.

8) ELECTRICAL SAFETY

A) CODES AND REGULATIONS

This section provides practical guidance for safeguarding personnel and property from hazards arising from the use of electricity. All applicable codes, regulations and industry recommended practices must be followed when installing, maintaining, or repairing electrical equipment.

Only qualified persons are authorized to work on electrical equipment.

Contact the HSE staff or Chief Electrician for additional information.



B) GENERAL INFORMATION

- i) All electrical hazards should be immediately safeguarded and reported to a supervisor. Safeguarding may include such actions as de-energizing, lockout, and/or placement of barricades. Precautions for working on or near electrical equipment:
- ii) Electrical equipment should always be operated and maintained according to manufacturer instructions.
- iii) Before touching any electrical equipment, personnel should: Visually inspect the grounding.
- iv) Visually inspect the equipment for damage. Check for burnt odors.
- v) Listen for unusual noise.
- vi) Determine if lockout/tagout procedures are necessary.
- vii) Electrical circuits should be de-energized before repairs are made.
- viii) Personnel must not stand directly in front of an electric panel when operating the switch. All jewelry that might come into contact with circuits must be removed.
- ix) Hands, shoes, and clothing should be dry before handling any energized electrical equipment. Avoid contact with electrical power lines, including downed power lines. Even low voltage lines present a potential for shock or electrocution.
- x) Special precautions are required when working with high voltage (greater than 600 volts). This requires the use of personal protective equipment, tools, test instruments and procedures specially designed for this purpose.

C) EQUIPMENT LABELING REQUIREMENTS

- i) All disconnecting means for equipment should be labeled to indicate their purpose and the equipment served.
- ii) Labels shall be suitable for the environment.
- iii) Equipment that starts automatically shall have a sign warning of the danger involved, such as "Danger - Automatic Start Equipment."
- iv) Safeguard any temporary power lead to operating equipment to protect personnel and to provide protection from damage.
- v) Electrical outlets – Electrical outlets should not be overloaded. Outlets should include an equipment-grounding conductor.

D) PERSONAL PROTECTIVE EQUIPMENT (PPE)

- i) Qualified persons performing tasks that present a potential hazard from shock, electrocution, and flash burn must wear the appropriate personal protective equipment (PPE) that will protect their head, face, neck, eyes, ears, body and extremities.

E) GROUND FAULT CIRCUIT INTERRUPTERS (GFCI)

- i) A GFCI provides protection from fatal electrical shock. Methods of GFCI protection are:



- (1) GFCI receptacle,
- (2) GFCI portable cord
- (3) GFCI breaker

ii) When a GFCI is used, it shall be located as close to the source of power as possible.

F) POWER HAND TOOLS

- i) The power source shall be disconnected before repairs or services are performed on power tools. Where there is danger of explosion or fire, pneumatic power tools should be used.
- ii) Portable electrical tools and equipment shall be United Laboratories (UL) listed, double insulated tools, or be grounded through a third wire in the cord. The ground wire connection shall not be defeated.
- iii) Electrical tools and equipment with damaged or inadequate insulation, defective cords, etc. shall be removed from service until repaired. Taped splices in cords are not considered properly repaired and shall not be used.

G) LIGHTING EQUIPMENT

Use of Flashlights

- i) Personnel passing through inadequately lighted areas should use a flashlight.
- ii) Flashlights used in hazardous locations must be suitable for the area's electrical classification.
- iii) Flashlights should not be used unless the outside lens or globe is in place. Servicing fixed lighting equipment - When workers servicing lighting equipment, such as replacing light bulbs or protective globes, they should:
 - (1) Be sure to first de-energize the equipment
 - (2) Use proper eye protection in case a bulb or globe breaks Carefully handle any broken glass fragments
 - (3) Properly dispose of glass fragments and lamps

H) PORTABLE GENERATORS

Portable electrical generators should be installed in non-hazardous areas. They shall be properly grounded before use.

I) FLEXIBLE CORD AND CABLES

- i) Flexible cord and cables include
- ii) Extensions cords
- iii) Extension lights
- iv) Flexible cable
- v) Cords used on portable equipment
- vi) Requirements for use - The cord and cable should be:
 - (1) Listed and labeled - (UL)
 - (2) Inspected before use



- (3) Unplugged/de-energized before handling or rolling up
- (4) Properly sized for the application
- (5) Routed to provide a minimum hazard
- (6) Unplugged by pulling on the plug, not the cord
- (7) De-energized when not in use Maintenance – Flexible cord and cables should be:
- (8) Stored when the job is completed
- (9) Destroyed and replaced if defective

J) FUSES

- i) All fuses should be of the proper type and rating Make-shift devices must not be used to replace fuses
- ii) Fuse pullers must be clean, dry and free from oil and grease to maintain their insulation

K) SAFETY INTERLOCKS AND DEVICES

- i) Safety devices shall not be bypassed or jumped without written permission from the supervisor.

L) BATTERIES

- i) The use, connecting, disconnecting and charging of storage batteries should conform to all appropriate codes.



9) EMERGENCY RESPONSE

A) EMERGENCY PLANNING

In case of fire:

- i) At Everett shop: evacuate through the nearest safe exit (Lighted exit signs at each door) and muster at southeast corner of building.
- ii) When at an offsite location: be familiar with and follow the evacuation plan for the vessel or facility.
- iii) All employees will receive training on how to use of fire extinguishers as part of their initial orientation. A fire evacuation drill will be conducted at least once a year.
- iv) If you discover a fire: Tell another person immediately. Call or have them call 911 and a supervisor.
- v) If the fire is small (such as a wastebasket fire) and there is minimal smoke, you may try to put it out with a fire extinguisher.
- vi) If the fire grows or there is thick smoke, do not continue to fight the fire.
- vii) Tell other employees in the area to evacuate.
- viii) Go to the designated assembly point outside the building. (SE corner of parking lot)
- ix) If you are a supervisor notified of a fire in your area: Tell your employees to evacuate to the designated assembly location. Check that all employees have been evacuated from your area.
- x) Verify that 911 has been called.
- xi) Determine if the fire has been extinguished. If the fire has grown or there is thick smoke, evacuate any employees trying to fight the fire.
- xii) Tell supervisors in other areas to evacuate the building.
- xiii) Go to the designated assembly point and check that all your employees are accounted for. If an employee is missing, do not re-enter the building! Notify the responding fire personnel that an employee is missing and may be in the building.

B) EMERGENCY RESPONSE PLAN

In any emergency, there may not always be time to follow all the procedures to the letter. However, responding appropriately to emergency situations will minimize injury, loss of life, and damage to personnel or property.

C) COORDINATION WITH AUTHORITIES

Emergency response planning and community right-to-know regulations require facilities to work with state emergency planning commissions and local fire departments to ensure the safety and well-being of the community in an emergency situation. For any suspected terrorist activity or spills contact the National Response Center (24/7) at: 1-800-424-8802. Facilities must:

- i) Make sure that local fire departments have current hazardous chemical lists. Furnish MSDS as required



- ii) Report incidents involving hazardous or toxic spills or releases to regulatory agencies as required.

D) WORKING WITH EMERGENCY RESPONSE TEAMS

The Facility Manager may be designated to the Emergency Response Team by the PIC (Person in Charge) of the responding emergency team.

In these cases, the project manager will be responsible for handling Company business decisions on scene.

E) EMERGENCY RESPONSE STANDARD

This section outlines the basic emergency response standard

- i) Identifying an emergency - Emergencies include any event, natural or manmade, that threatens the lives of employees or poses the possibility of damage or destruction of Company property.
- ii) Supervisor responsibility - Supervisors will: Familiarize themselves with this plan
- iii) Use it as a topic for discussion in monthly safety meetings.
- iv) In emergencies, particularly where there is damage or injury, management will take a headcount to determine whether employees are missing.
- v) Employee responsibility –
 - (1) Employees are asked to use common sense.
 - (2) Avoid panic and stay calm.
 - (3) Avoid unnecessary risk or danger simply to save equipment or facilities.
 - (4) Notify their immediate supervisors as soon as possible of the incident and any injured workers.
 - (5) Follow the instructions of supervisors and civil authorities.
- vi) Cooperation with civil authorities - Once on the scene of an emergency civil authority will take charge and direct operations.
- vii) Employees shall cooperate with civil authorities during:
 - (1) Damage assessments
 - (2) Rescue operations
 - (3) Security operations
 - (4) Investigations of incidents involving fatalities or serious injuries
 - (5) Providing plant or facility security - Additional security may be required to protect Company equipment and to keep unauthorized personnel out of the area after incidents involving:
 - (5) Damage to facilities
 - (6) Widespread destruction
 - (7) An evacuation
 - (8) The Company encourages employees to accept this assignment and to work with civil authorities to maintain order and discipline.
- viii) Refer all requests by the media to OceanGate management.



F) HANDLING BOMB THREATS

Notification - Any employee who answers the phone at any time can receive a bomb threat.

Emergency Response - It is important to recognize the call as a bomb threat and to get certain information from the caller if possible.

Step	Description
1	The employee receiving the call will note the date and time of the call and try to keep the caller engaged.
2	The employee receiving the call will note any voice characteristics of the caller, including: male or female, raspy voice, foreign accents, background noises such as cars, planes, animals, or other voices.
3	The employee receiving the call will try to find out when the bomb is set to detonate and where it is located. Keep the caller on the line as long as possible.
4	If other employees are nearby, THEN the employee receiving the call will: get their attention and write a note to them explaining that a bomb threat is being received. Ask them to notify the HSE Manager or the HR Director and his/her supervisor.
5	The HSE Manager or the HR Director will: notify proper local authorities, decide whether an evacuation of the facility is warranted, and required.

Safety requirements - Do not search for bombs or tamper with suspicious packages or articles. Local authorities are equipped and trained to do this. Do point out any suspicious articles to local authorities.

G) DEALING WITH CIVIL DISORDERS

This section outlines the safety requirements for dealing with civil disorders. Identifying Civil Disorders - Civil disorders include riots and crimes. Emergency Response - Follow this procedure as closely as possible.

Step	Action
1	Call the civil authorities as quickly as possible.
2	Notify the HSE Manager or the HR Director.
3	Seal off facilities by locking doors.
4	Comply with the perpetrators wishes and do not resist.

H) HANDLING CHEMICAL SPILLS AND GAS LEAKS

- i) This section outlines the safety recommendations for handling chemical spills and gas leaks. For more information, see the chapter on Responding to Incidents in the HSE Standards Manual.
- ii) Emergency Response - Chemical spills and gas leaks are usually local in nature. However, a serious incident can result in fires and explosions. Exercise extreme caution when dealing with chemicals and gases. Follow these guidelines, but only perform steps you have been properly trained to perform.

Step	Action
1	Identify the substance spilled or gas that is leaking.



2	Shut off the source of the spill or leak if possible. IF there is a gas leak, THEN local gas utility companies may need to be called in to shut off the gas or provide assistance.
3	Turn off all electrical equipment in the building.
4	Seal off the area of the building where the incident occurred and provide security.
5	Consult the Materials Safety Data Sheet (MSDS) for the spilled substance to review specific hazards, emergency procedures, and protective measures.
6	Initiate a clean-up of the area following the guidelines on the MSDS for that chemical.

I) RESPONDING TO AN EXPLOSION

- i) This section outlines the requirements for responding to an explosion.
- ii) Emergency Response - Explosions happen without warning, but are usually localized. Fires often result from explosions. Employees must be alert to the possibilities of additional explosions or fires, particularly if natural gas or flammable substances are involved.

Step	Action
1	Sound an alarm so all employees in the vicinity can take protective action.
2	Call 9-1-1 or your local emergency number to report the fire as quickly as possible.
3	Notify the HSE Department, who will notify appropriate management and determine whether an evacuation is necessary.
4	Take appropriate action to fight the fire without excessive risk to self or others.
5	Remove flammable substances or objects from the path of the fire.
6	Turn off all machinery, welding systems, gas and airlines in the vicinity of the fire.
7	Remove injured persons from immediate danger.
8	Provide security for the area as required.



J) RESPONDING TO EARTHQUAKES

i) There will be no advance warning of an earthquake.

The shock will be your only warning. We have bolted tall narrow storage racks to the floors, walls or to each other to provide a wide base to help reduce the potential for collapse. An earthquake drill will be conducted each year during the first week of September. In the event of an earthquake:

- (1) If you are inside a building: Drop under a desk or table, cover your head and hold on. Stay away from windows, heavy cabinets, bookcases or glass dividers.
- (2) When the shaking stops, the Operations Supervisor is to check for damage and available evacuation routes then begin an evacuation of their area to the designated assembly location. Evacuation should proceed as quickly as possible since there may be aftershocks.
- (3) Supervisors must account for each employee in their work group as quickly as possible.
- (4) First aid certified employees should check for injuries and help evacuate injured employees. Do not attempt to move seriously injured persons unless they are in immediate danger of further injury.
- (5) If a gas odor is in the building, tell a supervisor to turn off the gas at the main. Open windows.
- (6) Supervisors and first aid employees must not re-enter the building once evacuation is complete.
- (7) Do not approach or touch downed power lines or objects touched by downed power lines.
- (8) Do not use the phone except for emergency use.
- (9) Turn on a radio and listen for public safety instructions.
- (10) If you are outside: Stand away from buildings, trees, telephone and electric lines.
- (11) If you are on the road: Drive away from underpasses/overpasses. Stop in a safe area. Stay in the vehicle.



K) DEALING WITH TORNADOES

- i) Tornadoes are generally preceded by a tornado watch or warning issued by the National Weather Bureau.

Step	Action
1	Get under some sort of cover, such as a desk or a table.
2	After the tornado passes, get out of the building as soon as possible.
3	IF it is possible to get injured personnel out, THEN take them out also. Otherwise, protect seriously injured personnel from falling objects and alert the civil authorities of their location. Do not aggravate injuries. Do not search the wreckage for bodies or injured persons. Civil authorities will supervise rescue operations.
4	As soon as possible, notify the HSE Department or the HR Director and the civil authorities.
5	IF requested by civil authorities or management, THEN employees may: provide security for the facility to prevent looting, protect undamaged equipment and tools, assist the civil authorities in their rescue operations and investigations

L) DEALING WITH FLOODS

Flooding is usually not sudden. Warnings generally precede floods. Implement the following process when warnings are received or danger is recognized.

Stage	Description
1	Company employees will bring as much equipment as possible inside.
2	To whatever extent possible, Company employees will move the remaining equipment to elevated storage areas. When this is not possible, cover the equipment with water- protective coverings to prevent rust and water damage.
3	Company employees will secure all doors, windows, vents, and shutters.
4	Before the storm, management will decide whether anyone needs to remain at the facility for security purposes during the flood determine where additional precautions, including wood shoring, bracing, and sandbagging, are required
5	Employees will follow the directions of civil authorities and their supervisors, and provide security for the facility after the storm.
6	After the storm, management will assess any damage, determine how long the facility will be closed, and make plans for reopening.



M) DEALING WITH HURRICANES AND MONSOONS

This section provides guidelines for the safe evacuation of personnel and securing of Company property at corporate headquarters or districts near coastal waters in the event of a hurricane/monsoons and/or tropical storm. Use these guidelines when your coastal area is designated by the National Weather Bureau as a likely landfall site for a hurricane/monsoon or severe tropical weather.

- i) Identifying Severe Weather Conditions - The following table defines the terms frequently used by the National Weather Bureau to describe severe weather conditions.

Term	Description
Hurricane or Monsoon	A tropical cyclone with sustained winds of 74 MPH or greater. They may also produce dangerously high tides and waves.
Hurricane or Monsoon warning	A cautionary statement issued when tropical conditions are expected in a specific coastal area in 24 hours or less. Actions for protection of life and property must begin immediately when the warning is issued.
Hurricane or Monsoon watch	A cautionary statement issued when there is a threat of hurricane
Tropical storm	A tropical cyclone with sustained winds of 39-73 MPH.

- ii) Management Responsibilities: - Management will:
- (1) Make and announce all decisions regarding evacuations based on specific weather bulletins
 - (2) Apprise employees of the cautionary steps to follow to prepare for the storm
 - (3) Alert employees in advance of any necessary evacuations to allow them enough time to prepare their family and personal property for the storm
- iii) Monitoring the Storm: - In each facility, a dedicated person as appointed by the department VP will monitor the statements issued by the National Weather Bureau and broadcast the latest information regarding the position and condition of the storm over the telephone intercom on a regular basis: Every 6 hours up to the last 48 hours before evacuation Every 4 hours up to the last 24 hours before evacuation Every 2 hours during the last 24 hours before evacuation
- iv) Management will issue a Phase 1 alert when:
- (1) Your coastal area has tropical storm conditions
 - (2) The possibility exists of a tropical storm in the next 36 hours.



- v) Management will initiate the following safety procedure during Phase 1 alerts.

Step	Action
1	Determine the location of all Company employees.
2	Contact Customers to determine their planned response to the potentially severe
3	Alert location management of pending storm conditions.

- vi) Management will issue a Phase 2 alert when:

- (1) Hurricane/severe weather conditions exist and are expected in the area in the next 24 hours
- (2) The National Weather Bureau may issue a hurricane watch.
- (3) In addition to issuing the Phase 2 alert, management will implement the following procedure.

Step	Action
1	Plan the necessary preparations for equipment, vehicles, warehouses and offices.
2	Contact Customers to determine whether they have implemented their own Phase 2
3	Book required hotel rooms for any Company employees on call.

- vii) Management will issue a Phase 3 alert when:

- (1) The National Weather Service issues a hurricane warning
- (2) Hurricane conditions are expected in the area within the next 18 hours.

Management will use the following procedure to respond to a Phase alert:

Step	Action
1	Complete all storm preparations.
2	Follow any instructions from local authorities regarding evacuation of the local
3	Account for all employees on the rig or customer sites.
4	Contact Customers to verify that they are at phase three of their response plan.
5	Secure equipment, vehicles, warehouses, offices, and buildings.
6	Take all invoicing and open files out of harms way.
7	Notify all employees who will be staying at hotels during the storm of the location and contact information for their hotels.

- viii) Management issues Phase 4 alerts when:

- (1) Hurricane landfall is pending in the area within the next 15 hours
- (2) Storm surge is expected to raise water levels in the area. Respond to Phase 4 alerts using the following procedure

Step	Action
1	Inform the Area Manager of the status of the location.
2	Give contact numbers for on call personnel.
3	Contact the answering service and give them contact numbers.
4	Verify that all location personnel are off-site.



- ix) Management issues Phase 5 alerts after the storm has passed. Respond to Phase 5 alerts using the following procedure.

Step	Action
1	Key personnel and all personnel on call will return to the location to
2	Key personnel will contact their Area Managers with damage assessments.
3	Site personnel and management will determine a time for reopening the site and calling

N) SECURING FACILITIES AGAINST SEVERE WEATHER

- i) Protecting Company Property: This section outlines the guidelines for securing the facilities in case of evacuations due to severe weather. The guidelines cover:
- (1) Protecting Company property Securing vehicles
 - (2) Securing facilities Securing private offices Securing open work areas
 - (3) Securing personal work areas Securing IT equipment
 - (4) Securing Vehicles: Do not leave trucks, Company cars, or vehicles in low-lying areas.
 - (5) Even if these areas do not normally flood, the hurricane storm surge could affect the area and surrounding streets, making travel difficult in high water conditions.
 - (6) Securing Facilities: Use the following procedure to secure warehouses, shops, and manufacturing facilities against severe weather.

Step	Action
1	Secure outside areas from potentially dangerous flying debris including: wood pallets, metal siding, drums, cans, and compressed gas cylinders.
2	Secure windows with plywood to cut down on flying glass. Close all sliding
3	Lock all tool rooms and/or other rooms containing valuable tools or
4	Unplug all machines and operating equipment. Follow the shutdown procedures.
5	Turn off all lights and power sources.
6	Shut off all natural gas sources and/or fuel lines.
7	Secure the offices as instructed by "Securing private offices" below.
8	Close and lock up the facility.



(7) Securing private offices: Use the following guidelines to secure private offices from severe weather.

Step	Action
1	Raise all blinds to the top of the window.
2	Remove all loose items from the top of desks, bookcases, and other office furniture. Place these items in a drawer or under the desk. Do not remove heavy equipment such as printers and computers. Bag and tape anything that does not fit into the drawers.
3	Leave desks in place.
4	Lower the bookcases to the floor.
5	Leave chairs in the office, but move them as far from the window as possible.
6	Put all plants on the floor. Leave them in the office.
7	Take all personal items that are valuable or sentimental home.
8	When leaving, close the doors. Do not lock the offices.

Securing	Action
1	Raise all blinds to the top of the window.
2	Leave all furniture in the office.
3	Remove all items from the top of desks,
4	Wrap all remaining items in plastic bags.

(8) Securing personal work areas: Employees will use the following guidelines to secure their personal work areas

Step	Action
1	Turn off all equipment and unplug all power cords from the wall. Do not unplug the network cord from the PC or wall outlet.
2	Follow the instructions of the IT personnel to shut down, bag, and tape all PC equipment and accessories.
3	Move PCs connected to the network to a desk away from the window.
4	Bag and move all computer equipment not connected to a network from window offices to offices located in the building's interior.
5	Place all remaining equipment in plastic garbage bags. Tape the bag shut with only the necessary cables extending through the tape enclosure.
6	Turn off all lights and shut all doors to exterior/window offices.



(9) Securing PC equipment: - Information systems administrators will use the following procedure to secure all PC equipment for severe weather conditions.

This guideline requires a large number of plastic bags. Be certain to have an ample supply of plastic bags on hand at all times.

Step	Action
1	Store your most recent full system backup in a secure off-site location. IF time permits, THEN do a full system backup to preserve the systems latest data in case of damage to the file server.
2	Coordinate off-site storage with records administration.
3	IF the data stored on local PC disks is considered critical, THEN back it up on floppy disks. Store the floppies in a secure location, preferably off-site.
4	Bring down and power off your server.
5	Shut down, bag, and remove all individual PCs and/or
6	Refer to UPS manuals for proper shut down procedures for UPS units. Store them in heavy-duty "yard size" plastic garbage bags to protect them.
7	After the file server is down, have employees begin placing the remaining PC equipment in plastic bags.

O) SEVERE WEATHER GUIDELINE FOR VESSELS

Note: These guidelines are generally applicable to the defined "Tropical Storm" season in each area of operations.

- i) Each Vessel Master is expected to assume operational control of his/her area and any adjoining areas as circumstances require, or in the event of loss of communications with shore-based management.
- ii) In the absence of instructions from shore-based management, each vessel is authorized and expected to act on its own initiative in taking whatever action is necessary for the protection of personnel and property.
- iii) General: These guidelines outline the actions to be taken with regard to personnel and equipment when severe weather threatens.
- iv) All precautions should be taken in advance. Since tropical/cyclonic disturbances may take different tracks at any time, the storm is potentially dangerous as long as it is in the area.
- v) Tropical/cyclonic disturbances can intensify to hurricane/cyclone proportions in just a few hours. Early planning and coordination is extremely important.
- vi) Planning: Each vessel, prior to starting work, will establish the following: Safe Harbor OR Safe Anchorage OR Fair Weather Tow Route (FOR Barge) OR Combination
- vii) Each Project Manager, in conjunction with the Vessel Master/Superintendent, is responsible for knowing the time required for secure operations, pick-up and travel to a safe area.



viii) The frequency of weather reports will increase according to the level of alert.

ix) Prior to the local area “storm season”, each Vessel Master is to perform a severe weather housekeeping audit with attention to the following areas:

- (1) Storage of equipment such as drums, bottles, cranes, stores, etc. Pre-determination of tie-down locations
- (2) Sufficient on-hand quantities of securing equipment such as padeyes, shackles, chains, binders, turnbuckles, etc.

x) During various alert conditions, routine inspections and actions will be taken as described in the following sections. Four storm alert conditions exist, Phase One (1), Phase Two (2), Phase Three (3) and Phase Four (4).

xi) **ALERT PHASE - 1**

Signals that a storm is developing or has developed and is located within 1000 miles of the work location. Alert Phase – 1 does not alter normal offshore operations, but does trigger heightened awareness. Normal operations continue with the exception of the following actions:

xii) Inspections held to assure that equipment is secured in its normal storage area.

Equipment not needed on-board for the immediate work is sent ashore.

xiii) Inspection of watertight integrity.

xiv) Weather track map is posted in the communications centers and storm location plots started.

xv) Fuel tanks on company vehicles and equipment kept “topped-off” every day.

xvi) Emergency radios and generators tested.

xvii) Operations, which may affect the ability to start evacuation procedures, are evaluated prior to start.

xviii) **ALERT PHASE – 2**

Signals that the track and speed of a storm indicate high potential to impact operations and triggers preparations for evacuation.

Definitions:

Storm Edge: Conditions with 35-knot sustained winds or 8’ or greater wave height, whichever comes first.

Evacuation Time: The time needed to secure operations in progress, pick-up anchors, tow to safe anchorage in the case of Barge 1, proceed to safe dock or anchorage and set-up at safe anchorage. Communication between the Vessel Master/Superintendent and Diving Supervisor is critical, if applicable.

xix) The goal of Alert Phase – 2 is to be prepared to have the vessels at their designated anchorage when the storm edge reaches the operating area.

xx) Evacuation of nonessential personnel will also be considered during this phase.

xxi) **ALERT PHASE – 3**

This alert phase triggers evacuation from the operating area. It has been determined that if the storm continues on its present track, its leading edge will reach the area of operations in the time equal to the evacuation time of the spread.



xxii) ALERT PHASE – 4

Signals that the storm has passed. A general muster should be held and an inspection done for equipment or structural damage.

10) FALL PROTECTION

A) INTRODUCTION

This program applies to all personnel working at OceanGate facilities or vessels. Activities which are covered in this program include but are not limited to:

- i) Working at heights greater than 6 feet
- ii) Working on unguarded scaffolds or stairways (no handrails) Working on equipment without access to scaffolding
- iii) Working on top of unguarded structures (motor sheds, tanks, etc.). Working on elevated work platforms on forklifts or cranes, Working on slick surfaces.

NOTE: Heights below 6 feet may be covered under certain particularly hazardous circumstances such as; over machinery, moving equipment, over water or over objects posing impaling hazards.

B) OBJECTIVES

- i) Identify work sites and activities requiring fall prevention/protection measures. Eliminate the chances of a fall by the complete removal of any hazardous situation.
- ii) Minimize the effects of a fall if the hazard cannot be completely eliminated through the use of fall protection measures and thereby minimizing the injuries.
- iii) Establish minimum standards for all protection equipment and systems and their applications.



C) RESPONSIBILITIES

i) HSE Manager

A Qualified HSE Manager will prepare a fall protection program that provides adequate protection of all employees on site from fall related hazards.

ii) Supervisor Responsibilities

- (1) Evaluating fall hazards and for determining how exposure to a fall can be avoided during the pre-planning phase of the activity by indicating specific fall protection measures on the JSA.
- (2) To train personnel in the use, care, and installation of the fall prevention/protection equipment.
- (3) To use appropriate hazard control measures.

iii) User Responsibilities

- (1) Each employee must be aware of the fall hazards associated with his work area. If assigned to work at elevated heights, the employee has the responsibility of using and thoroughly inspecting the personal fall protection system's anchor points, connecting means (i.e., Lanyard or device) and body holding devices (i.e., harness) prior to using the system.
- (2) Any defective components of a fall protection system must be brought to the attention of the supervisor immediately, removed from service, destroyed and discarded or repaired.

D) PROCEDURES CLIMBING & FALL PROTECTION

When working at heights, you shall be required to wear a full body harness that is adequately secured to a suitable anchor point to prevent falls. This fall protection includes:

- i) Safety harness with appropriate shock-absorbing double lanyards Inertia reels (retractable lifelines)
- ii) Safety nets Personnel lift, etc.

Note: An anchorage point is an item to tie off to that will support a weight of 5000 lbs. without fail.

E) CLIMBING AND WORKING AT ELEVATIONS GREATER THAN SIX FEET

- i) Appropriate fall protection must be used at all times while personnel are working at elevations greater than six feet above ground, on platforms or working surfaces.
- ii) Personnel climbing to or from such working surfaces should use Stairways.
- iii) Personnel using ladders to access areas over six feet should use an appropriate means of fall protection (i.e., properly secured full body harness)
- iv) Personnel should maintain 3 points of contact, with their feet and hands, on ladders at all times.



F) FIXED LADDERS MORE THAN 20 FEET

- i) Fixed ladders that are more than twenty feet in length must have: A fixed climbing cage, or preferably a ladder climbing safety device, or some other appropriate means of fall protection used by the individual climbing or working on the ladder (Full body Harness with double lanyards).
- ii) The use of a Full Body Harness with Double Lanyards should be considered the minimum protection for use while climbing ladders. If this method is used personnel must keep 3 points of contact, with their feet and hands, on ladders at all times. One lanyard should remain connected while the other is repositioned (higher or lower) using the free hand. Once it has been properly secured the employee can advance slightly then stop and reposition the other lanyard. This method should continue until the worker has safely completed his climb.

Note: The preferred method of fall protection while climbing ladders is to use either a Ladder Safety System or Inertia Real (retractable lifeline). In some situations it may be necessary to use a combination of a Ladder Safety System and a lanyard. The lanyard should be used to secure the employee while he disconnects from the Ladder Safety System and moves to a safe area away from the ladder opening. Workers should never disconnect while standing over an opening or where a fall to a lower level could occur. Ladder Safety Systems (with cable and slide assembly).
You should always use both hands when climbing a ladder.

- iii) Do not climb while holding objects. Either carry them on belt hooks or have them hoisted to you.
- iv) The connection between the device's carrier or lifeline and your harness cannot be more than 9 inches long.
- v) Connectors must be, double or triple locking type.
- vi) Be especially careful in poor weather, which can make a ladder slippery.

G) FALL PROTECTION EQUIPMENT

All vessels and work sites will have Fall Protection equipment on site. All personnel will be trained in their use and care. If any questions should arise or situations occur in which employees or supervisors are unsure about a fall protection issue, then they will contact the HSE Department for further guidance.

Under no circumstances will work at heights be performed when all personnel do not have an understanding of the fall protection requirements.

- i) A full body harness must be worn whenever fall protection is required. Safety harnesses should fit snugly and comfortably.
- ii) Safety harnesses must have shock-absorbing lanyards with a locking device to prevent unhooking.
- iii) When working at elevations where it is necessary to disengage a lanyard to move around equipment or obstacles, a double lanyard must be utilized to assure fall protection.



- iv) All equipment must be inspected before each use for excessive wear or damage. Modifications to any fall protection equipment are strictly prohibited.
- v) Safety harnesses will not be used for body positioning.
- vi) Safety belts (waist belts) must not be used for fall protection arrest systems.
- vii) All equipment must be worn in accordance with the manufacturer recommendations. Give special consideration to the strengths of anchorage points.
- viii) Questions as to the stability of an anchorage point should be directed to the Supervisor or HSE Department.

H) MAINTENANCE

- i) Frequent cleaning of the harness can be done using a mild soap and water solution.
- ii) Any time solvents or petroleum products come in contact with a harness it must be cleaned and inspected prior to use.
- iii) All harnesses will be inspected prior to each use.
- iv) Any fall protection equipment that is worn due to normal wear and tear or damaged must be destroyed so that it is no longer usable and then discarded.

I) GENERAL RULES CONCERNING FALL PROTECTION

- i) All personnel working on one of the vessels or worksites owned or operated by OceanGate will adhere to the Fall Protection standard.
- ii) Any personnel performing a work task that requires them to work 6 feet or more above a working surface shall wear fall protection.
- iii) Once above 6 feet, the employee will be tied off continuously until done and they are below the 6-foot line.
- iv) Fall Protection will consist at a minimum of a full body harness and attached lanyard with shock absorbers and self-locking snap hooks.
- v) Safety belts, harnesses, and lanyards that have been used to stop a fall must be destroyed and discarded.
- vi) During the use of fall protection, a suitable anchorage point will be used. A suitable anchorage point will be able to withstand without fail a weight of 5000 lbs.
- vii) Any pipe used for anchorage will be 3 inches OD at a minimum.
- viii) When tying off to an anchorage point, the anchorage shall be above the shoulders whenever possible.
- ix) Holes in gratings shall be covered or surrounded by an adequate guardrail.
- x) If holes are covered, the cover shall be secured to prevent the cover from moving and it shall be labeled "Hole Cover".
- xi) Oil spills and slippery spots shall be cleaned up immediately.
- xii) When tying off to an anchorage point, the anchorage shall be above the shoulders whenever possible.



- xiii) Extra precautions should be taken when walking on steel decking during wet weather.
- xiv) Personnel shall not walk or climb on piping, valves, fittings or any other equipment not designated as walking surfaces.
- xv) Stairways, walkovers or ramps shall be installed where personnel must walk or step over pipe in the course of their normal duties.
- xvi) Personnel should always position themselves properly when using tools.
- xvii) Do not climb on Xmas trees, etc. Use work stands that are designed for the specific equipment to be worked on.
- xviii) Working platforms with unprotected sides shall have permanent handrails and mid rails in place or have a temporary system in place, which provides the same level of protection as the permanent system. OceanGate does not recognize the use of controlled access zones or safety monitoring systems. Personnel must maintain 100% tie off at all times when working at heights.
- xix) When the air gap is greater than 6 feet for dive stages the tugger winch used shall be certified for personnel riding. The operations, use and preventative maintenance of the winch shall be in accordance with the manufacturers' recommendations.

J) RESCUE AFTER A FALL

- i) If a fall occurs, any employee hanging from the fall-arrest system must be rescued safely and quickly. Safe and fast rescue involves advance planning. Rescue plans should be addressed during completion of the JSA process and all parties should be aware of the plan to be used. While the specific means of rescue will differ depending on the location of the job, employees involved in working at heights or on a rescue team should be aware of the following:
- ii) Equipment that lets a victim rescue himself such as secondary fall protection, ladders, scaffolds, cages, etc., can be set up before the job in case of a slip or fall.
- iii) A system for rescue by co-workers such as rescue workers raised by winches or cranes, Man lifts for positioning rescuers, or access of rescuers by ladder or stairs should also be noted ahead of time.

Note: The personal safety of the rescuer must be maintained at all times.

K) TRAINING

All employees will receive training in fall protection at the time of hire and annually, according to the guidelines and designated completion schedule in the "OceanGate Training Manual". OceanGate will provide re-training when deficiencies in training are noted, when the work place changes or when fall protection systems or equipment change and render previous training obsolete. OceanGate will investigate all fall related incidents and changes made to the program "as needed" in order to maintain a safe environment for our employees.



11) FIRE PROTECTION - GENERAL RULES

A) REPORTING

Report all accidental fires on Company property, no matter how small, to the HSE staff. All OceanGate personnel will receive Fire Protection Training at the time of hire and annually.

B) TRAINING

Personnel expected to respond to incipient fires must be trained in the use of portable extinguishers and other designated equipment.

C) FIRE DRILLS

Fire drills must be held at regular intervals to familiarize personnel with their responsibilities in the event of a fire.

D) EVACUATION

Personnel assigned to locations where automatic extinguishing systems are employed should be instructed to evacuate enclosed buildings in the event of extinguisher discharge to prevent inhalation of the chemical.

E) TRAINED RESPONSE

Only designated and trained personnel should attempt to extinguish a fire that has advanced beyond the incipient stage.

F) FIRE PREVENTION GUIDELINES

- i) Good housekeeping is essential to fire prevention. Proper disposal of oily rags, empty paint cans, and immediate cleanup of spills and leaks, will help in eliminating fire hazards. Store all flammable (paint, solvents) in approved containers or lockers. Doors to paint lockers are to be closed when unattended.
- ii) Smoking is permitted only in designated areas within a facility or vessel. Observe the following rules where a fire or explosion potential exists.
- iii) Ignition sources, including but not limited to smoking and fire, are prohibited in or on: Areas where "No Smoking" signs are posted.
- iv) Any areas or part of a building or vessel that contains flammable liquids or where flammable liquid vapors may be present.
- v) The vicinity of vessels containing or having contained oil or other flammable liquids and/or gases.
- vi) The vicinity of a pipeline pump or other machinery or equipment transporting or containing crude oil, gas, or other flammable (combustible) liquids and/or gases
- vii) The vicinity of a current or recent leak of flammable (combustible) liquids and/or gases
The vicinity of drilling or work-over rigs In hyperbaric chambers, smoking while in bed
Note: The term "vicinity of" is defined as a minimum distance from a flammable material source. Since conditions may vary considerably, use good judgment. Local areas may have specific distances. Refer to the area's standard operating procedures for set distances.



- viii) Transport flammable materials only in approved (ex. United Laboratories UL) safety containers.
- ix) Flammable materials shall not be used as cleaning agents.
- x) When using combustibles, caution shall be exercised when working around hot surfaces. Flammable aerosols shall not be used near open flames or other sources of ignition.
- xi) The use and storage of containers of oil, kerosene, solvent, oily rags, waste, and other combustible materials near stoves, furnaces, gas fires, or other ignition sources is prohibited. Oily rags and pads shall be placed in designated, covered containers to prevent fire from spontaneous combustion.
- xii) Never use wastebaskets as ashtrays. Do not empty ashtrays into wastebaskets until the ashes have cooled.

G) FIRE CHEMISTRY

- i) Fire Triangle -- all fires require fuel, heat and oxygen coming together in a chain reaction in order for ignition to occur. Remove any of the three sides of the triangle and the fire is extinguished.
- ii) Fire Classification -- the type of fuel being consumed categorizes all fires.
- iii) Class A fires are fires involving wood and/or paper. Class B fires are fires involving flammable liquids. Class C fires are fires involving electrical systems.
- iv) Class D fires are fires involving burning metal, such as magnesium.

H) FIRE PROTECTION EQUIPMENT PORTABLE FIRE EXTINGUISHERS

- i) Use portable fire extinguishers for extinguishing incipient stage fires only. Incipient stage fires are fires in early stages of development that, in the judgment of the employee, can be extinguished with portable equipment.
- ii) Portable extinguishers shall be mounted on hangers or placed in an enclosure (cabinet) at a height required by applicable regulations to protect the bottom of the extinguishers from corrosion.
- iii) Each fire extinguisher is marked with the class of fire on which it should be used to extinguish.
- iv) Many vessels carry dry chemical extinguishers that are capable of effectively fighting Class A, B, or C fires.
- v) Class C electrical fires require special consideration. Always be sure to disconnect the source of electricity before beginning to fight electrical fires.
- vi) When operating a portable fire extinguisher, remember these simple steps: (PASS System)
 - (1) "P" Pull
 - (2) "A" Aim
 - (3) "S" Squeeze
 - (4) "S" Sweep



vii) Immediately replace all discharged fire extinguishers with a fully charged unit. Contact the

viii) HSE Department.

ix) Inspection and Maintenance of Portable Equipment

x) A monthly visual inspection and annual maintenance shall be performed.

xi) A record of monthly inspection and annual maintenance shall be attached to each unit.

xii) Extinguishers showing evidence of corrosion or physical damage shall be removed from service and replaced.

xiii) An extinguisher removed from the premises to be serviced shall be replaced immediately by a spare extinguisher.

xiv) Only qualified persons shall recharge extinguishers after use or as indicated by an inspection.

I) WATER FIRE EXTINGUISHING EQUIPMENT

i) Hose wrenches and nozzles shall be maintained and stored near the hose reels. Firewater pumps shall be operated at least once a week. Document the operation. Examine all fire hoses, nozzles, and reels at least once a month for proper operation and condition.

ii) Hoses shall be dried and returned to the proper location after being used or tested. Hose connections shall be kept greased and protective caps tightened only enough to protect the threads.

iii) Periodically operate and inspect all fire hydrants and monitors.



J) TYPES OF FIXED FIRE SYSTEMS

- i) Fire Main - the ship's fire hoses and pumping system are to be used only under the direct supervision of the Master or Chief Engineer.
- ii) Fixed CO₂ - installed in the engine room and in paint lockers and extremely effective in removing the oxygen leg of the triangle. This system is to be used only under orders and supervision of the Master. CO₂ systems are extremely hazardous to humans. CO₂ has the potential to kill by depleting all oxygen in a space.
- iii) Halon - some vessels are still equipped with halon systems, these are effective in fighting fires in closed machinery spaces. Use halon systems only under the direct orders and supervision of the Master, Mate or Chief Engineer.
- iv) Fixed Dry Chemical Systems - most likely to be found in the range hood. May be manually or automatically discharged.

K) FIRE DRILLS

- i) Fire drills shall be conducted, where required, at prescribed intervals. Document all fire drills.
- ii) Employees shall be familiar with evacuation procedures. Employees shall be familiar with and respond to all alarms.

L) FIRE FIGHTING ON A VESSEL

- i) Yell out "Fire Fire Fire" and give the type of fire and the location of the fire.
- ii) Sound the alarm - the rapid ringing of bell the ship's bell and continuous ringing of general alarm bells for a period of ten seconds identify a ship's fire alarm.
- iii) Follow the instructions of the Master.
- iv) Whether on or off duty, when the alarm sounds, immediately put on life vest and report to the Master or to your assigned station.
- v) At shore-based facilities (shop or office)
- vi) Yell out "Fire, Fire" and give the type of fire and the location of the fire. Pull fire alarm if available or use phone-address system.
- vii) Access nearest extinguisher. Operate extinguisher.
- viii) If the situation becomes unsafe, evacuate the area immediately.

M) SURVIVAL TECHNIQUES

- i) Personnel should be familiar with the following survival techniques in case of being trapped by a fire:
- ii) Be aware of the location of designated fire exits. Understand evacuation procedures at the work location. Do not use elevators. Use designated exits.
- iii) When caught in a smoke-filled area, crawl on the floor and take short breaths through your nose.
- iv) If possible, hold a cloth in front of your face.



- v) Before opening a door, hold the back of your hand close to the surface of the door to check if it is hot. If it is hot, do not open it.
- vi) If unable to safely exit a fire or smoke-filled area Proceed to a room with an outside window
- vii) Close the door to isolate the room from the smoke-filled hallway Move to a window
- viii) Signal for help
- ix) If there are any concerns or questions, refer to HSE staff for more information.

12) FIRST AID - GENERAL INFORMATION

A) TRAINEE RESPONSE

Designated employees shall be trained in first aid/CPR.

B) PROCEDURES

The basic procedures to follow in a serious or life threatening first aid incident are:

- i) Stabilize. While waiting for medical help, an employee shall perform only those procedures for which he/she has been trained to help prevent the victim's condition from worsening. When there is any doubt about the victim's condition, or if a head or back injury is suspected, the victim should not be moved unless in immediate danger.
- ii) Notify. Contact the Company HSE Department and operations.
- iii) Transport. Use ambulance/Medevac, watercraft, or if necessary, by available vehicle.
- iv) When transporting by available vehicle, attempt to notify the emergency medical service of your route so they can meet you EnRoute.

C) BLOOD BORNE PATHOGENS (INFECTIOUS DISEASES)

- i) Persons trained in first aid/CPR shall also be trained in avoiding exposure to blood borne pathogens. Universal precautions shall be taken when there is the possibility of being exposed to certain types of body fluids from other people.
- ii) First aid kits/body fluid barrier packs shall be available for those providing first aid. These packs include, but are not limited to CPR mouth barriers, disposable latex gloves, and face and eye protection.
- iii) The Company shall provide proper means of disposal for materials that are considered regulated medical waste (biohazards). Only designated employees shall handle bags or containers marked with the biohazard symbol.
- iv) Employees who have occupational exposure to blood borne pathogens shall be offered HBV vaccinations.
- v) For further information about blood borne pathogens, refer to the Company Blood Borne Pathogen Exposure Control Plan.



D) FIRST AID EQUIPMENT

- i) A first aid kit is kept in the gear cage at the shop. Also, each company vehicle and vessel are equipped with a first aid kit located in head, the glove box or under the driver's seat. These kits are checked monthly by members of the safety committee. An inventory of each kit is taped to the inside cover of the box. If you are injured, promptly report it to any supervisor.
- ii) In case of serious injury, do not move the injured person unless absolutely necessary. Only provide assistance to the level of your training. Call for help. If there is no response, call 911.
- iii) Aids/HIV and Hepatitis B are the primary infectious diseases of concern in blood. All blood should be assumed to be infectious. These diseases can both be deadly. Employees are not required to perform first aid as part of their job duties. In the event of a bleeding injury where first aid is needed, use gloves if possible, to prevent exposure to blood or other potentially infectious materials. The injured person can often help by applying pressure to the wound. Gloves and a mouth barrier for rescue breathing are available in the first aid kits. If you are exposed to blood while giving first aid wash immediately with soap and water and report the incident to a supervisor. The appropriate follow-up procedures will be initiated, including medical evaluation, counseling, Hepatitis B vaccine and blood testing of the source person if possible. For further information, refer to WAC 296-62-08001(6).
- iv) The Company approved first aid kits are provided. Employees shall know where these first aid kits are located. First aid kits shall be examined frequently and be kept fully stocked only by designated persons. Unauthorized removal of first aid equipment supplies from Company premises violates Company policy.

13) SLIPS, TRIPS & FALLS

A) GENERAL

- i) Personnel shall keep the working area clean and orderly. Tools should not be left lying on the floor or decking where they present hazards during a job or after a job is complete.
- ii) Small, loose disconnected joints of pipe or other small objects and debris shall not be left lying around in any place, particularly in areas where personnel walk.
- iii) Holes in gratings shall be covered or surrounded by an adequate guardrail. If holes are covered, they shall be secured to the surface beneath them by some positive means. The hole cover shall be labeled on the top with the words "Danger-Hole Cover-Do Not Move".
- iv) Oil spills and slippery spots shall be cleaned up immediately.
- v) Extra precautions should be taken when walking on steel decking during wet weather. Personnel shall not walk or climb on piping, valves, fittings or any other equipment not designated as walking surfaces.



- vi) Stairways, walkovers or ramps shall be installed where personnel must walk or step over pipe in the course of their normal duties.
- vii) Personnel should always position themselves properly when using tools.
- viii) Always maintain a three-point contact when stairways or ladders. This can be defined as at least three points of contact with the stairway or ladder. This could be two feet and one hand or two hands and one foot.

14) SMOKING POLICY

OceanGate Inc. provides a smoke-free environment. Smoking is prohibited throughout the workplace. This includes common areas and restrooms/heads. If you wish to smoke tobacco during your work breaks, and smoking is allowed on breaks only, please move away from the facility entrance or use a designated smoking area and pick up and dispose of your cigarette butts properly. As previously stated, being under the influence of alcohol or drugs including marijuana while on company facilities or time or while representing the company is not permitted.

15) HAND TOOLS SAFETY

This chapter outlines the standards and guidelines that ensure the safe use of hand tools.

A) SCOPE

The operating standards in this chapter apply to all Company employees. All tools used during Company operations must meet Company and customer safety standards, regardless of whether they were issued by the Company or owned by the employee.

B) INSPECTING AND MAINTAINING HAND TOOLS

This section outlines the work instructions for inspecting and maintaining hand tools.

- i) **REQUIRED INSPECTIONS:** Personnel must inspect tools before each use. In addition, the shop supervisor must inspect all hand tools once a month.
- ii) **INSPECTING HAND TOOLS**
 - (1) Check mechanical and moving parts on all tools.
 - (2) If a tool is broken or damaged, properly dispose of the item. Replace the tool as quickly as possible.

C) MAINTAINING HAND TOOLS

All tools should be kept clean. Cutting tools should be kept sharp.

D) REPAIRING HAND TOOLS

If a tool is not working properly, then notify your Supervisor. Replace or repair damaged or worn out tools as quickly as possible. Send electrical tools out for repair.

E) STORING HAND TOOLS

Store hand tools in a cabinet or room away from flammables and combustibles.

F) USING HAND TOOLS

This section outlines the work instructions for using hand tools properly. Employees must follow these guidelines to protect themselves and those around them. Personal protective equipment



- i) When using hand tools, wear the following PPE: Steel toed boots, safety glasses with side shields, coveralls, hard hat, and gloves.
- ii) Do not attempt to use tools you are not familiar with.
- iii) Only use tools for the task for which they were designed. For example, do not use a screwdriver as a chisel.
- iv) Do not use a wrench as a hammer or pry bar.
- v) Do not leave tools out after use. After using them, return them to their original location or point of issuance.
- vi) If there is ever a question about hand tools that cannot be answered on site, contact your Supervisor or any member of the HSE Staff.

16) HAZARD COMMUNICATION

A) PURPOSE

This section serves as the Company Hazard Communication Program. It provides detailed safety guidelines and instructions for receipt, use and storage of chemicals at OceanGate facilities by employees and contractors. Reference: OSHA Standard 1910.1200.

B) RESPONSIBILITIES

- i) Management
 - (1) Ensure compliance with this program
 - (2) Conduct immediate corrective action for deficiencies found in the program
 - Maintain an effective Hazard Communication training program
 - (3) Make this plan available to employees
- ii) Shipping & Receiving Supervisor and Clerks
 - (1) Ensure all received containers are properly labeled and that labels are not removed or defaced
 - (2) Ensure all shipped containers are properly labeled
 - (3) Ensure shipping department employees are properly trained in spill response.
 - (4) Ensure received Material Safety Data Sheets (MSDS) are properly distributed
 - (5) Create and maintain a Hazardous Chemical Inventory list of the chemicals used. Update this list periodically and send updates to all vessels and sites on a scheduled basis
- iii) Purchasing Agent
 - (1) Obtain, from the manufacturer, MSDS for chemicals purchased from retail sources
 - (2) HSE Department
 - (3) Assist each vessel and work site in maintaining their master list of hazardous chemicals and MSDS
 - (4) Monitor the effectiveness of the program Conduct annual audit of the program
 - (5) Monitor employee training to ensure effectiveness Keep management informed of necessary changes Ensure MSDS are available as required
 - (6) Monitor facility for proper use, storage and labeling of chemicals



- (7) Ensure MSDS are available for emergency medical personnel when treating exposed Employees.
- (8) Provide information, as requested, concerning health effects and exposure symptoms listed on MSDS
- (9) Recommend changes to facilitate effectiveness

iv) Supervisors

- (1) Maintain at each vessel and work site a master list of hazardous chemicals and MSDS specific to that site
- (2) Comply with all specific requirements of the program
- (3) Provide specific chemical safety training for employees assigned to work with them Ensure chemicals are properly used, stored and labeled
- (4) Ensure only the minimum amount of hazardous chemicals necessary are kept at work stations
- (5) Ensure up to date MSDS are readily accessible to all employees on all shifts Post MSDS at work stations routinely using potentially hazardous chemicals Implement & Maintain this written Hazard Communication Program

v) Employees

- (1) Comply with chemical safety requirements of this program
- (2) Do not attempt to handle unknown substances or chemicals that they have not been trained to handle
- (3) Report any problems with storage or use of chemical Immediately report spills or suspected spills of chemicals
- (4) Use chemicals only for specific assigned tasks in the proper manner Use PPE as required

vi) Vendors

- (1) Comply with all aspects of this program Coordinate information with the HSE Department Ensure vendor employees are properly trained
- (2) Notify the HSE Department before bringing any work specific chemicals into Company property or facilities
- (3) Monitor and ensure proper storage and use of chemicals by vendor employees

C) GENERAL PROGRAM INFORMATION

This written Hazard Communication Plan (HazCom) has been developed based on OSHA Hazard Communication Standard and consists of the following elements:

- i) Identification of Hazardous Materials Product Warning Labels
- ii) MSDS
- iii) Written Hazard Communication Program Effective Employee Training
- iv) Some chemicals are explosive, corrosive, flammable, or toxic. Other chemicals are relatively safe to use and store but may become dangerous when they interact with other substances. To avoid injury and/or property damage, persons who handle chemicals in any area of the Company must understand the hazardous properties of the chemicals.



- v) Before using a specific chemical, safe handling methods and health hazards must always be reviewed. Supervisors are responsible for ensuring that the equipment needed to work safely with chemicals is accessible and maintained for all employees on all shifts.

D) EMPLOYEE TRAINING INITIAL ORIENTATION TRAINING

- i) All new employees shall receive safety orientation training by HSE staff covering the elements of the HazCom and Right to Know Program. This will consist of general training covering:
 - (1) Location and availability of the written Hazard Communication Program Location and availability of the List of Chemicals used in the workplace Methods and observation used to detect the presence or release of a hazardous chemical in the workplace.
 - (2) The specific physical and health hazard of all chemicals in the workplace Specific control measures for protection from physical or health hazards Explanation of the chemical labeling system
 - (3) Location and use of MSDS
- ii) Job Specific Training

Employees will receive on the job training from their supervisor. This training will cover the proper use, inspection and storage of necessary personal protective equipment and chemical safety training for the specific chemicals they will be using or will be working around.
- iii) Annual Refresher Training: Annual Hazard Communication refresher training will be conducted as part of the Company continual safety training program.
- iv) Immediate On-the-Spot Training: This training will be conducted by supervisors for any employee that requests additional information or exhibits a lack of understanding of the safety requirements.
- v) Non-Routine Tasks: Non-routine tasks are defined as working on, near, or with unlabeled piping, unlabeled containers of an unknown substance, confined space entry where a hazardous substance may be present and/or a one-time task using a hazardous substance differently than intended (example: using a solvent to remove stains from tile floors).
- vi) Steps for Non-Routine Tasks:
 - (1) Step 1: Hazard Determination
 - (2) Step 2: Determine Precautions
 - (3) Step 3: Specific Training & Documentation
 - (4) Step 4: Perform Task
- vii) The Supervisor will evaluate all non-routine tasks before the task commences using a JSA in order to determine all hazards present. This determination will be conducted with quantitative/qualitative analysis (air sampling, substance identification/analysis, etc., as applicable).



viii) Once the hazard determination is made, the Supervisor will determine the necessary precautions needed to either remove the hazard, change to a non-hazard, or protect from the hazard (use of personal protective equipment) to safeguard the employees present.

E) OFF-SITE USE OR TRANSPORTATION OF CHEMICALS

i) An MSDS will be provided to employees for each chemical and each occurrence of use or transport away from the Company facilities. All State and Federal DOT Regulations will be followed including use of certified containers, labeling & marking, securing of containers and employee training.

F) GENERAL CHEMICAL SAFETY

- i) Assume all chemicals are hazardous. The number of hazardous chemicals and the number of reactions between them are so large that prior knowledge of all potential hazards cannot be assumed. Use chemicals in as small quantities as possible to minimize exposure and reduce possible harmful effects.
- ii) The following general safety rules shall be observed when working with chemicals:
 - (1) Read and understand the MSDS. Keep the work area clean and orderly. Use the necessary safety equipment.
 - (2) Carefully label Every Container with the identity of its contents and appropriate hazard warnings.
 - (3) Store incompatible chemicals in separate areas. Substitute less toxic materials whenever possible.
 - (4) Limit the volume of volatile or flammable material to the minimum needed for short operation periods.
 - (5) Provide means of containing the material if equipment or containers should break or spill their contents.

G) TASK EVALUATION

Each task that requires the use of chemicals should be evaluated using a JSA to determine the potential hazards associated with the work. This hazard evaluation must include the chemical or combination of chemicals that will be used in the work, as well as other materials that will be used near the work. Operations must be planned to minimize the generation of hazardous wastes.

H) CHEMICAL STORAGE

- i) The separation of chemicals (solids or liquids) during storage is necessary to reduce the possibility of unwanted chemical reactions caused by accidental mixing. Explosives should be stored separately outdoors. Use either distance or barriers (e.g., trays) to isolate chemicals into the following groups:
- ii) Flammable Liquids: store in approved flammable storage lockers. Acids: treat as flammable liquids.
- iii) Bases: do not store bases with acids or any other material.
- iv) Other liquids: ensure other liquids are compatible with other chemicals in the same storage location.



- v) Lips, strips, or bars are to be installed across the width of storage shelves to restrain the chemicals in case of accidental leakage.
- vi) Chemicals will not be stored in the same refrigerator used for food storage. A label on the door must appropriately identify refrigerators used for storing chemicals.

I) CONTAINER LABELS

- i) It is extremely important that all containers of chemicals are properly labeled. This includes every type of container from a 5000-gallon storage tank to a spray bottle of degreaser. The following requirements apply:
- ii) All containers will have the appropriate label, tag or marking prominently displayed that indicates the identity, safety and health hazards.
- iii) All warning labels, tags, etc. must not be defaced, maintained in a legible condition and include the name & address of the manufacturer or responsible party. Labels shall be in English and presented in the language of non-English speaking employees. Facility weekly supervisor inspections will check for compliance of this rule.
- iv) Incoming chemicals are to be checked for proper labeling.

J) EMERGENCIES AND SPILLS

- i) In case of an emergency, implement the proper Emergency Action Plan Evacuate people from the area.
- ii) Isolate the area.
- iii) If the material is flammable, turn off ignition and heat sources.
- iv) Only personnel specifically trained in emergency response are permitted to participate in chemical emergency procedures beyond those required to evacuate the area.
- v) Call for Emergency Response Team assistance if required.

K) HOUSEKEEPING

- i) Maintain the smallest possible inventory of chemicals to meet immediate needs. Periodically review stock of chemicals on hand.
- ii) Ensure those storage areas, or equipment containing large quantities of chemicals, are secure from accidental spills.
- iii) Rinse emptied bottles that contain acids or flammable solvents before disposal. Recycle unused laboratory chemicals wherever possible.
- iv) DO NOT place hazardous chemicals in salvage or garbage receptacles.
- v) DO NOT pour chemicals onto the ground.
- vi) DO NOT dispose of chemicals through the storm or other drain systems.



L) VENDORS

- i) All outside vendors working inside Company facilities are required to follow the requirements of this program. Vendors will also be required to provide this same information listed below to OceanGate. The Company will provide vendor's information on:
 - (1) Precautions to be taken to protect vendor employees Potential exposure to hazardous substances
 - (2) Chemicals used in or stored in areas where they will be working Location and availability of MSDS
 - (3) Recommended PPE
 - (4) Labeling system for chemicals
- ii) Vendors will also be required to provide copies of work specific MSDS for review prior to arriving on site.
- iii) Vendors will also provide training for Company employees which will be working in the vicinity of the vendor.

M) MSDS INFORMATION

- i) Material Safety Data Sheets are provided by the chemical manufacturer to provide additional information concerning safe use of the product. Each MSDS provides:
 - (1) Common Name and Chemical Name of the material Name, address and phone number of the manufacturer
 - (2) Emergency phone numbers for immediate hazard information Date the MSDS was last updated
 - (3) Listing of hazardous ingredients
 - (4) Chemical hazards of the material
 - (5) Information for identification of chemical and physical properties

N) HAZARDOUS CHEMICAL INVENTORY LIST

- i) All vessels and jobsites shall have a copy of all MSDS that pertain to specific material brought onboard or onsite.
- ii) These MSDS shall be maintained in one centralized master book. This master list shall be kept on the bridge or a central location as determined by the jobsite.
- iii) A copy shall also be kept in the medical facility of the vessel or jobsite.
- iv) Included in this master book shall be a complete and updated chemical inventory list. Each shop or workspace that routinely has chemicals stored or used in them shall have a copy of the specific MSDS used in that area.
- v) All employees will be trained in the location and use of these indexed lists of MSDS.
- vi) When there is a possibility of combining chemicals, which may have a reaction, the specific MSDS for those chemicals will be displayed at the work site.

O) REQUIRED INFORMATION

Chemical Users MUST KNOW Fire and/or Explosion Information



- i) Material Flash Point, auto-ignition temperature and upper/lower flammability limits
Proper fire extinguishing agents to be used
- ii) Firefighting techniques
- iii) Any unusual fire or explosive hazards
- iv) Chemical Reaction Information
- v) Stability of Chemical
- vi) Conditions and other materials which can cause reactions with the chemical
Dangerous substances that can be produced when the chemical reacts

P) CONTROL MEASURES

Engineering Controls required for safe product use
Personal protective equipment required for use of product
Safe storage requirements and guidelines

Q) HEALTH HAZARDS

- i) Permissible Exposure Limit (PEL) and Threshold Limit Value (TLV) Acute or chronic symptoms of exposure
- ii) Main routes of entry into the body
- iii) Medical conditions that can be made worse by exposure
- iv) Cancer causing properties, if any
- v) Emergency and first aid treatments
- vi) Spill & Leak Procedures
- vii) Clean up techniques
- viii) PPE to be used during cleanup
Disposal of waste & cleanup material

R) EMPLOYEE USE OF MSDS

- i) For MSDS use to be effective, employees must: Know the location of the MSDS
- ii) Check MSDS when more information is needed or questions arise
- iii) Be able to quickly locate the emergency information on the MSDS
- iv) Follow the safety practices provided on the MSDS, including PPE requirements

SIGNAGE AND LABELING EXAMPLES





17) HEARING CONSERVATION PROGRAM

This section describes the Hearing Conservation Program, which serves to prevent on the job noise induced hearing loss.

A) SCOPE

- i) These regulations apply to all Company employees and contractors under direct supervision of Company employees.
- ii) The topics included in this section include establishing the Hearing Conservation Program, conducting noise surveys, performing audiometric testing and providing employee training.

B) ESTABLISHING THE HEARING CONSERVATION PROGRAM

The purpose of this section is to establish a Hearing Conservation Program, which will aid in preventing on-the -job noise induced hearing loss. IF it has been documented that on-the -job noise exposures do not exceed an 8-hour Time Weighted Average (TWA) of 90 decibels, THEN site management may determine whether or not to implement all or parts of the following program.

C) REQUIRED PROTECTIVE MEASURES

In high noise areas:

- i) Minimize noise as much as possible through engineering controls.
- ii) Post “Hearing Protection Required” signs to warn employees and visitors. Wear approved hearing protection.
- iii) Use periodic noise inspections to monitor sound levels.
- iv) Supervisors may waive hearing protection requirements during periods when the TWA is below 90 decibels.

D) MINIMIZING NOISE

- i) Use engineering controls to reduce noise whenever possible.
- ii) IF engineering controls fail to reduce sound levels below acceptable levels, THEN employees must use approved hearing protection supplied by the Company to reduce sound levels.

E) USING HEARING PROTECTION

- i) Employees working in areas where the noise level is above 85/90 decibels will wear approved hearing protection. OceanGate provides a wide selection of hearing protection devices including earplugs and earmuffs.
- ii) These devices are assigned specific Noise Reduction Rating (NRA) numbers. The higher the NRA rating, the more effective the device is for reducing noise. Hearing Protection must be evaluated for the specific environment in which they will be used.
- iii) Employees will ensure effective noise reduction by fitting and sealing the plug or muff to their ear properly



F) CONDUCTING NOISE SURVEYS.

This section establishes the requirements for conducting noise surveys, including the responsibilities of the HSE Department and location supervisors, as well as the methods for conducting the surveys.

G) RESPONSIBILITIES OF THE HSE DEPARTMENT

The HSE Department or third party vendor will periodically survey the workplace for noise.

i) Responsibilities of the supervisor

Supervisors are responsible for requesting noise surveys where non-routine or maintenance operations generating noise levels suspected to exceed 90 decibels. These operations may include, but are not limited to:

- (1) Sandblasting Grinding Hammering
- (2) Working around engines or compressors.
- (3) The location supervisor or designee will maintain all records of noise surveys.

H) REQUIRED NOISE INSPECTIONS

Noise inspections are required whenever noise is increased by a change in production Process Equipment Controls.

- i) The HSE department or third-party vendor may also survey the workplace for noise whenever an area or process is suspected of having high noise volume new equipment is moved into an area.

I) PERSONAL NOISE SURVEYS

The HSE department or designee will also conduct periodic personal noise monitoring for all "high noise" job classifications. Results of these monitoring will be forwarded in writing to the employee.

J) CONDUCTING NOISE INSPECTIONS

The HSE department or designee will use approved and properly calibrated noise level devices to conduct the noise-monitoring surveys.

The surveys will include information indicating that employee's exposure may equal or exceed an 8-hour (TWA) sound level of 90 decibels.

K) RESPONDING TO SURVEY RESULTS

IF the survey results indicate noise levels greater than 90 decibels, THEN the Company must:

- i) Minimize Noise
- ii) Post signs
- iii) Issue hearing protection equipment to all personnel as described in this section.



18) HSE MANAGEMENT SYSTEM

A) GENERAL

The OceanGate HSE Management System (HSE MS) is a process that applies a quality system approach to managing HSE activities. This approach uses a cyclical process (e.g. plan, implement, assess and adjust) that takes experience and learning from one cycle and uses the results to improve and adjust expectations during the next cycle.

B) PURPOSE

The Purpose of the HSE MS Plan is to describe the continual improvement process applied within OceanGate to manage environmental, health and safety activities.

C) SCOPE

The HSE MS applies to all OceanGate operations in all business units wherever the work site might be located.

D) OBJECTIVES

- i) Reduced Injuries
- ii) Fewer incident
- iii) Reduced wastes
- iv) Lower operating costs
- v) Superior reliability
- vi) Enhanced reputation and credibility
- vii) Regulatory compliance



E) MANAGEMENT SYSTEM ELEMENTS

The HSE MS is organized around the following elements:

- i) Policy and Planning
- ii) Leadership
- iii) Hazard Identification Compliance Engineering
- iv) Implementation and Operations
- v) Supply Chain Communications
- vi) Management of Change & Operations Human Resources Emergency Response
- vii) Measurement and Checking
- viii) Incident Investigation Auditing
- ix) Management Review and Continual Improvement: Executive management will review and evaluate the effectiveness of the HSE MS on an annual basis.

F) MANAGEMENT SYSTEM VALUES

The following sections list the values for each element of the HSE MS.

- i) LEADERSHIP: At OceanGate we look to all employees to lead by example for HSE improvement. Proactive leadership is a necessary and key element for the HSE MS to succeed. Line management are charged with implementation of the HSE MS. HSE professionals provide staff assistance and services to line management and employees at all levels to help achieve the HSE objectives.
- ii) The HSE Policy Statement endorsed by the Chief Executive Officer is communicated, promoted and supported at every level of the organization.
- iii) Management and supervision shall demonstrate commitment to HSE objectives through active and visible participation, and by allocating sufficient resources.
- iv) HSE responsibilities, authorities, and accountabilities are clearly defined, communicated and carried out at all levels.
- v) HSE performance is a major component of employee, site and business unit performance appraisal process.
- vi) A system is in place to encourage employee involvement and participation in the HSE MS process.
- vii) Clear goals, objectives and targets are established for the HSE MS.



G) HAZARD IDENTIFICATION

- i) Management of hazards in the workplace is the key ingredient for the prevention of incidents or near misses.
- ii) A system is in place to identify hazards, assess their potential consequences and probabilities, and implement preventive measures.
- iii) Risk assessments are conducted periodically by qualified personnel for operations and projects to identify and address potential HSE hazards.
- iv) HSE assessments are conducted as part of the acquisition or disposal of assets, and HSE hazards are managed as part of equipment or facility decommissioning.

H) COMPLIANCE

In most cases compliance means conformity with the applicable HSE regulations from the governmental agencies that govern our business activities, and complying with the HSE specifications of our customers.

- i) A system is in place to ensure that all applicable governing HSE compliance requirements are known, and compliance is incorporated into relevant procedures and programs.
- ii) Emerging HSE compliance governmental requirements are monitored, and impacts or benefits to company operations are identified. This is primarily accomplished through membership and participation in industry associations.

I) ENGINEERING

It is often said that the best way to cure an HSE problem is to engineer the hazard out of the work process.

- i) Project management systems and procedures are documented, well understood and carried out by qualified personnel.
- ii) Design and construction of new or modified vessels, facilities or structures are based on approved design standards and practices that meet or exceed applicable regulatory requirements.
- iii) Inspection systems are established that verify that vessels, facilities, or structures meet design specifications and that construction is in accordance with the applicable standards.



J) COMMUNICATION

No other element is more important than good communication in the prevention of incidents and the safe performance of work.

- i) An HSE committee system is in place from the executive level to the work site floor level to openly discuss and action HSE improvements. Minutes of meetings are recorded.
- ii) Lessons learned from incidents within OceanGate, from industry associations, and from the governing authorities are shared with all work sites and maintained for future reference and training purposes.
- iii) A process is in place that identifies hazards associated with work tasks, assesses the risk potential, and discusses the necessary precautions to be taken with all concerned personnel.
- iv) HSE documentation and HSE performance statistics are maintained and distributed regularly to personnel via e-mail, memos or newsletters.

K) MANAGEMENT OF CHANGE & OPERATIONS

- i) All work sites, vessels, and facilities will be operated and maintained to a level that ensures HSE objectives are met.
- ii) A system is in place for development and implementation of operating, maintenance and inspection procedures.
- iii) Operations with a potential higher risk are identified and managed through application of Job Safety Analysis (JSA's) and the Permit to Work system.
- iv) Operating procedures are available, revised as required, and interfaces between operations are assessed for potential hazards.
- v) Critical alarm, control, and emergency equipment is identified, tested, and undergoing preventive maintenance at defined intervals.
- vi) A system is in place for managing both temporary and permanent operational changes. This Management of Change (MOC) process involves a designated approval authority, analysis of potential HSE implications and meets the intent of MOC industry practices and applicable regulations.

L) HUMAN RESOURCES

- i) The most valuable asset OceanGate has is its employees and every effort shall be made to take care of each employee.
- ii) Employees are empowered to take necessary action within their means to eliminate risk in the work place.
- iii) Education and ongoing skills training shall be provided in order to ensure that employees are competent at their work.
- iv) A positive behavior modification process will be established throughout the organization.



M) EMERGENCY RESPONSE

- i) The values of OceanGate mandates that when responding to an emergency situation the individual shall be cared for first and foremost, thereafter the company physical assets will be looked after.
- ii) At each site an emergency response and crisis management system is in place.
- iii) There is a program for performing simulations, exercises and drills to verify emergency response plan readiness.
- iv) A procedure is in place to ensure adequate communications with governmental agencies, medical resources, transportation services, clients, the public, and the media as applicable concerning emergency response.

N) INCIDENT INVESTIGATION

- i) The main purpose of all incident and near miss investigations is to prevent a similar recurrence.
- ii) A system is in place for reporting, investigating, analyzing and documenting all HSE incidents, regulatory compliance incidents, and significant near misses.
- iii) Incidents report findings are analyzed to ascertain where improvements to practices, standards, procedures, or systems are warranted; and used as a basis for further improvements.
- iv) A process exists to verify that corrective actions as a result of incident investigations are documented and implemented.

O) AUDITING

- i) It is important to verify that all components of the HSE MS are functioning in an effective manner and that where non-conformances are identified that they are corrected and documented.
- ii) Procedures for HSE MS audits are developed and implemented to determine if the system meets the HSE objectives and that it is based on a continual improvement cycle.
- iii) Employees at all levels are involved in the process of auditing the adequacy and support of the HSE MS.
- iv) An audit program will be published with audits performed on all sites based on the priority of risks to HSE concerns.
- v) Audit findings are analyzed with actions taken to correct non-conformances and close gaps in the system.



P) MANAGEMENT REVIEW

- i) In order to close the loop on the continual improvement process executive management reviews and evaluates the effectiveness of the HSE MS on an annual basis in January.
- ii) Annual reviews will cover audit results, HSE performances related to HSE objectives and targets set.
- iii) Review findings are documented and actions assigned where desired improvements are identified.
- iv) A system is in place to ensure resolution of the annual HSE executive review findings.

Q) RECORD KEEPING AND REVIEW

- i) Employees are required to report any injury or work related illness to their immediate supervisor regardless of how serious. Minor injuries such as cuts and scrapes can be entered into the minor injury log report more serious injuries into the "Employee's Injury/Illness Report Form".
- ii) A designated person will:
 - (1) Investigate a serious injury or illness using procedures in the "Incident Investigation" section below.
 - (2) Complete an "Incident Investigation Report" form.
 - (3) Give the "Employee's Report" and the "Incident Investigation Report" to the Safety Officer or a designated person.
- iii) The Safety Officer will:
 - (1) Determine from the Employee's Report, Incident Investigation Report, and any L&I claim form associated with the incident, whether it must be recorded on the OSHA Injury and Illness Log and Summary according to the instructions for that form.
 - (2) Enter a recordable incident within six days after the company becomes aware of it.
 - (3) If the injury is not recorded on the OSHA log, add it to a separate incident report log, which is used to record non-OSHA recordable injuries and near misses.
 - (4) Each month before the scheduled safety committee meeting, make any new injury reports and investigations available to the safety committee for review, along with an updated OSHA and incident report log.
- iv) The Office Manager will post a signed copy of the OSHA log summary for the previous year on the safety bulletin board each February 1 until April 30. The log will be kept on file for at least 5 years. Any employee can view an OSHA log upon request at any time during the year.



19) INCIDENT MANAGEMENT

A) GENERAL PRACTICES

- i) Accidents, near misses, incidents and anomalies shall be documented and tracked by the Safety Officer. Accidents involving injuries where first aid is required or extensive damages to equipment shall be reported to the appropriate authorities (Labor & Industries, ABS, USCG, etc.) as required. A full accident investigation shall also be conducted.
- ii) The importance of swiftly getting help AND informing company leadership cannot be over emphasized.
- iii) Steps to be taken:
 - (1) Survey and secure the scene.
 - (2) Call for help.
 - (3) Take personal precautions against infectious diseases.
 - (4) Victim care- ABC's, primary and secondary assessments.
 - (5) Provide the necessary first aid or medical care to your level of knowledge and competency. Record vital signs if possible and actions taken. Get patient SAMPLE history if possible (Signs/symptoms, Allergies, Medications, Past medical history, Last meal and elimination and Events leading up to injury).
 - (6) Remain with the patient until a higher authority relieves you or the scene becomes safe.
- iv) Reporting and record keeping: The SO shall track the preceding items and present a historical graph of the items for the senior management to review weekly and/or monthly. Accidents, incidents and excessive instances of anomalies or near misses shall be promptly investigated to determine if they are indicators of systemic operational risks or merely anomalies due to new personnel, or other easily identifiable causes.
- v) Roles and responsibilities
 - (1) "Safety Officer"

The Safety Officer (SO) is responsible for collecting and documenting all accidents, near misses, incidents, and anomalies that occur during OceanGate activities. The SO has the ability to postpone or cancel a dive or mission, should they find substantial circumstances regarding maintenance, operations or procedures that suggest that safety is or could be compromised. Management, the Mission Director, the SO, vessel operators, and any other relevant personnel shall evaluate the circumstances and confirm the safety of the equipment or procedures before any operations continue.
 - (2) Mission Director

The Mission Director (MD) is responsible for the coordination of site reconnaissance, mission objectives, personnel, equipment, and dive planning as required for submersible operations. During a dive, the MD shall have a general overall command of all surface operations, dive operations, communications and crews, except where a Vessel Operator (Sub Pilot, etc.) may give specific direction as to the safe operation of his/her vessel and its crew. The MD also serves as liaison between the Shore Command and on-water activities, and shall



report status updates to the Shore Command wherever necessary. Should an accident or emergency occur during a dive, it is the joint responsibility of the MD and the Sub Pilot to initiate emergency procedures as specified in the OceanGate Submersible Operations Manual ("Submersible Operations"), and if necessary, the MD shall notify the proper Authorities and rescue services as specified in the above manual and in any Operations Plan submitted for the expedition.

(3) Vessel Operator

A Vessel Operator ("Operator"), also referred to as the "Sub Pilot", "Boat Captain", or vehicle "Driver" is responsible for the proper and safe operation of his/her vessel, its crew and equipment. The Operator shall follow all Federal, State, and Local laws as applicable. It is the Operator's responsibility to follow safe and proper operation of company equipment as specified by the USCG, the Washington State DOL, and any other applicable governing bodies.

(4) Shore Command

The Shore Command (SC) person is responsible for all efforts and communications on land during submersible operations. This includes coordination with clients, researchers, facilities, the media, and other resources. In the case of an emergency, SC shall contact and coordinate with rescue personnel and authorities as determined by the Mission Director.

The roles of SO and MD may be shared. In limited circumstances, the roles of VO and MD may be shared. These circumstances shall be limited to simple dive operations in familiar locations with favorable weather and sea states.

B) INCIDENT INVESTIGATION PROCEDURE

- i) If an employee dies, is not expected to survive, or is hospitalized as a result of a work-related incident the Safety Officer will contact the Department of Labor and Industries within 8 hours after becoming aware of the incident. During weekends and evenings, the toll free notification number is: 1-800-321-6742. The Safety Officer must talk with a representative of the department. Fax and answering machine notifications are not acceptable. The Safety Officer must report: the employer name, location and time of the incident, number of employees involved, the extent of injuries or illness, a brief description of what happened and the name and phone number of a contact person.
- ii) DO NOT DISTURB the scene except to aid in rescue or make the scene safe.
- iii) Whenever there is an incident that results in death or serious injuries that have immediate symptoms, a preliminary investigation will be conducted by the immediate supervisor of the injured person(s), a person designated by management, an employee representative of the safety committee, and any other persons whose expertise would help the investigation.
- iv) The investigation team will take written statements from witnesses; photograph the incident scene and equipment involved. The team will also document as soon as possible after the incident, the condition of equipment and anything else in the work area that may be relevant. The team will make a written "Incident Investigation Report" of its findings. The report will include a sequence of events leading up to the incident, conclusions about the incident and any recommendations to prevent a similar incident in the future.



- v) When a supervisor becomes aware of an employee injury where the injury was not serious enough to warrant a team investigation as described above, the supervisor will write an "Incident Investigation Report" to accompany the "Employee's Injury/Illness Report Form" and forward them to the Safety Officer.
- vi) Whenever there is an incident that did not but could have resulted in serious injury to an employee (a near-miss), the incident will be investigated by the supervisor or a team depending on the seriousness of the injury that would have occurred. The "Incident Investigation Report" form will be used to investigate the near-miss. The form will be clearly marked to indicate that it was a near miss and that no actual injury occurred. The report will be forwarded to the office manager to record on the incident log.

C) PERSONNEL MEDICAL EVACUATIONS (MEDEVAC)

- i) On occasion a MEDEVAC may be required to provide additional medical assistance to our employees. As with all incidents, immediate documentation and notification to the on-duty HSE representative must be conducted.
- ii) The following incidents require mandatory on-shore medical evaluations:
- iii) Personnel injury or illness requiring higher medical evaluations and shall be done with consultation of a physician.
- iv) Transporting patients: When transporting by helicopter, a patient who has had a hyperbaric exposure within the last 24 hours, the altitude should be as low as possible and never exceed 1000 feet. Consultation with a diving physician should always take place for diving related medevacs.
- v) All patients requiring medical evacuation will be sent to the appropriate medical facility designated by the HSE department.
- vi) Never send incident reports in with the patient. DO send record of vitals taken and S.A.M.P.L.E. (Symptoms, Allergies, Medications, Prior History, Last meal and Events) information if possible.
- vii) Preferably e-mail or fax all pertinent information to the HSE department at the earliest possible opportunity.



viii) INFORMATION REPORTING PARTY SHOULD HAVE WHEN CALLING IN INCIDENT

- (1) Who is calling
- (2) Location/Vessel
- (3) Circumstance
- (4) Name of Injured/Ill Employee
- (5) Onset of symptoms
- (6) Description of symptoms
- (7) Response taken
- (8) Victim(s) condition
- (9) Support required

ix) Notes:

- (1) A running time log should be kept of the incident including actions taken and information provided.
- (2) Refer all requests from the media, next of kin, and authorities to the Chief Operating Officer.

D) STATUTORY REPORTING

i) PURPOSE

Various federal and state laws require incident, injury and illness reports. Company insurance carriers also require incident reports.

ii) POLICY

It is the policy of the Company to create, maintain and file incident reports as required by law.

iii) RESPONSIBILITIES

(1) Management:

- (a) Establish and maintain an effective incident-reporting program. Establish and maintain an effective record-keeping program including security controls over sensitive employee medical and exposure records.
- (b) Train all employees in the incident reporting procedures.
- (c) Train record custodians in proper record entry, maintenance and release procedures.
- (d) Conduct periodic program audits.

(2) Supervisors

Comply with the requirements of this program.

(3) Employees

Comply with the incident reporting procedures.



E) INCIDENTS (OCCUPATIONAL INJURIES/ILLNESSES)

- i) Injuries and illnesses that require reporting include those injuries and illnesses occurring on the job, which result in any of the following:
 - (1) Lost work time
 - (2) restrictions in performing job duties
 - (3) requirement for first aid or outside medical attention,
 - (4) permanent bodily damage or death.
- ii) Other incidents requiring reporting include those incidents occurring on the job which result in any of the following:
 - (1) Injury or illness.
 - (2) Damage to a vehicle.
 - (3) Fire or explosion.
 - (4) Property damage.
 - (5) Chemical releases requiring evacuation of at least the immediate spill area.
- iii) Examples of "non-reportable" injuries and illnesses include small paper cuts, common colds, and small bruises, aches and pains not resulting in work restrictions or requiring first aid or medical attention.
- iv) Near Misses

Other incidents that must be reported are those that, strictly by chance, do not result in actual or observable injury, illness, death, or property damage. The information obtained from such reporting can be extremely useful in identifying and mitigating problems before a future such event results in actual personal or property damage.
- v) Incident Reporting Procedures: For all investigation reporting procedures refer to "Incident Management".
- vi) Record Keeping

The HSE Director will maintain the required OSHA Log and Summary of (recordable) Occupational Injuries and Illnesses and the OSHA Supplementary Record of Occupational Injuries and Illnesses for each calendar year.
- vii) The required portion of the OSHA Log and Summary of Occupational Injuries and Illnesses will be posted annually during the entire month of February throughout facilities for the previous calendar year.
- viii) United States Coast Guard (USCG)

Contact the HSE Department for further details as required.



F) STOP WORK AUTHORITY POLICY AND PROGRAM OVERVIEW

- i) This program formally establishes the Stop Work Authority (SWA) of all Company employees and contractors to suspend individual tasks or group operations when the control of HSE risk is not clearly established or understood.
- ii) It is the policy of this Company that:
 - (1) All employees and its contractors have the authority and obligation to stop any task or operation where concerns or questions regarding the control of HSE risk exist,
 - (2) No work will resume until all stop work issues and concerns have been adequately addressed, and
 - (3) Any form of retribution or intimidation directed at any individual or company for exercising their authority as outlined in this program will not be tolerated.
 - (4) As with any policy, accountability for non-compliance will follow established Company procedures or contract requirements.

iii) Roles and Responsibilities

Persons in the following roles have responsibilities in support of this program:

- (1) Company employees and contractors are responsible to initiate a “stop work” intervention when warranted, support the intervention of others and properly report all “stop work” actions.
 - (2) Line Supervisors are responsible to create a culture where SWA is exercised freely, honor request for ‘stop work’, work to resolve issues before operations resume, recognized proactive participation and ensure that all “stop work” actions are properly reported with required follow-up completed.
 - (3) Senior Leaders must establish the clear expectation to exercise SWA, create a culture where SWA is exercised freely, resolve SWA conflicts when they arise and hold those accountable that chose not to comply with established SWA policies.
- iv) HSE in support of operations is responsible for monitoring compliance with the requirements of this program, maintenance of associated documents, processes and training materials, identification of trends, sharing of learnings and publication of required scorecards.
- v) Intervention Protocol
- In general terms, the SWA process involves a stop, notify, correct and resume approach for the resolution of a perceived unsafe work actions or conditions. Much like behavior based safety processes, a workforce that clearly understands how to initiate, receive and respond to a “stop work” intervention is more likely to participate. Though obvious to some, the following protocol creates an environment where people know how to act and respond.



- vi) Though situations may differ, the following steps should be the framework for all stop work interventions.

- (1) Reporting.

- All “stop work” interventions exercised under the authority of this program shall be documented as a near miss utilizing existing reporting protocols. The near miss report shall contain the words “STOP WORK” at the beginning of the incident description in order to differentiate it from traditional near miss reports.

- (2) “STOP WORK” reports shall be reviewed by line supervision in order to: Measure participation

- (3) Determine quality of interventions and follow-up

- (4) Trend common issues and identify opportunities for improvement Facilitate sharing of learnings

- (5) Feed recognition programs.

- The HSE department will regularly publish incident details regarding the number of “stop work” actions reported by location as well as details regarding common trends and learnings.

- (6) Follow-up

- It is the desired outcome of any ‘stop work’ intervention that the identified safety concerns be addressed to the satisfaction of all involved persons prior to the resumption of work.

- vii) Although most issues can be adequately resolved in a timely fashion at the job site, occasionally additional investigation and corrective actions may be required to identify and address root causes.

- viii) “Stop Work” interventions that required additional investigation or follow-up will be handled utilizing existing protocols and procedures for incident investigation and follow- up.

- ix) Recognition

- In order to build and reinforce a culture in which SWA is freely exercised and accepted, line supervisors are encouraged to positively recognize employee and contractor participation in the program.

- x) Minimally, each line supervisor should informally recognize individuals when they exercise their authority to “stop work” or demonstrate constructive participation in a “stop work” intervention. This informal recognition need be no more than an expression of appreciation for a job well done. Additionally, formal recognition of selected examples of “stop work” interventions and those responsible should be made during regularly scheduled safety meetings.

- xi) The HSE department will regularly publish selected “stop work” actions that occurred throughout the company, recognizing those responsible for their support of the SWA program and contribution to HSE continuous improvement.



xii) Training

Training regarding this SWA Policy and Program will be conducted as part of all new employee and contractor orientations. Additionally, a review of the SWA Policy shall be completed as part of all field location safety briefings and regularly in safety meetings.

xiii) Documentation of all training and reviews shall be maintained as per established procedures.

20) LADDER SAFETY

Ladders present unique opportunities for unsafe acts and unsafe conditions. Employees who use ladders must be trained in proper selection, inspection, use and storage.

Improper use of ladders has caused a large percentage of accidents in the workplace. Use caution on ladders. OSHA reference: (29 CFR 1910.25, 1910.26, and 1910.27).

A) GENERAL

- i) The following requirements apply to all ladders as indicated, including job-made ladders.
- ii) Ladders shall be capable of supporting the following loads without failure:
- iii) Each self-supporting portable ladder: At least four times the maximum intended load, except that each extra-heavy-duty type 1A metal or plastic ladder shall sustain at least 3.3 times the maximum intended load.
- iv) Each portable ladder that is not self-supporting: At least four times the maximum intended load, except that each extra-heavy-duty type 1A metal or plastic ladders shall sustain at least 3.3 times the maximum intended load.
- v) Ladder rungs, cleats, and steps shall be parallel, level, and uniformly spaced when the ladder is in position for use.
- vi) Ladders shall not be loaded beyond the maximum intended load for which they were built, or beyond the manufacturer's rated capacity.
- vii) Ladders shall be used only for the purpose for which they were designed.
- viii) Ladders placed in any location where they can be displaced by workplace activities or traffic, such as in passageways, doorways, or driveways shall be secured to prevent accidental displacement, or a barricade shall be used to keep the activities or traffic away from the ladder.
- ix) The top of a non-self-supporting ladder shall be placed with the two rails supported equally unless it is equipped with a single support attachment.
- x) Ladders shall not be moved, shifted, or extended while occupied. The top or top step of a stepladder shall not be used as a step.
- xi) Ladders shall not be placed on boxes, barrels, or other unstable bases to obtain additional height.
- xii) When ascending or descending a ladder, the user shall face the ladder.



- xiii) Each employee shall use at least one hand to grasp the ladder when progressing up and/or down the ladder.
- xiv) Cross-bracing provided on the rear section of stepladders is designed for support only and shall not be used for climbing.
- xv) Ladder Hazards include:
- xvi) Ladders with missing or broken parts.
- xvii) Using a ladder with too low a weight rating.
- xviii) Using a ladder that is too short for purpose.
- xix) Using metal ladders near electrical wires.
- xx) Using ladders as a working platform.

B) LADDER INSPECTION:

- i) Inspect ladders before each use.
- ii) All rungs and steps are free of oil, grease, dirt, etc.
- iii) All fittings are tight.
- iv) Spreaders or other locking devices are in place.
- v) Non-skid safety feet are in place.
- vi) No structural defects, all support braces intact.
- vii) Portable ladders with structural defects, such as, but not limited to, broken or missing rungs, cleats, or steps, broken or split rails, corroded components, or other faulty or defective components, shall either be immediately marked in a manner that readily identifies them as defective, or be tagged with "Do Not Use" or similar language, and shall be withdrawn from service until repaired or replaced.

C) LIMITS ON LADDER LENGTH

- i) A stepladder should be no more than 20 feet high.
- ii) A one-section ladder should be no more than 30 feet.
- iii) An extension ladder can go to 60 feet, but the sections must overlap.
- iv) On two section extension ladders, the minimum overlap for the top section in use shall be as follows:

Size of ladder in feet	Overlap in feet
Up to and including 36 feet	3 feet
Over 36 feet, up to and including	4 feet
Over 48 feet, up to and including	5 feet

- v) Extension ladders shall be equipped with positive stops, which will ensure the overlap specified in the table above.



- vi) Ladder Setup. The following instructions must be followed to prevent ladder accidents: Place ladder on a clean slip free level surface. Extend the ladder to have at least 3 feet above the top support or work area. Use the table in the section above to determine the overlap for each ladder. Anchor the top and bottom of the ladder. Place the ladder base 1/4 the height, of the ladder, from the wall when using an extension ladder.
- vii) Never allow more than one person on a ladder.
- viii) Use carriers and tool belts to carry objects up a ladder. Do not lean out from the ladder in any direction.
- ix) Do not allow others to work under a ladder when in use.
- x) Always use fall protection when working on a ladder where feet are above 6 feet. Always anchor the person before anchoring the top of the ladder.
- xi) Person should remain anchored until the ladder has been unanchored and the user is ready to come down.

D) LADDER MAINTENANCE

- i) Keep ladders clean
- ii) Never replace broken parts unless provided by the original manufacturer Do not attempt to repair broken side rails
- iii) Keep all threaded fasteners properly adjusted
- iv) Ladders are an excellent means of accessing work areas not able to be reached while working on the ground. When used properly and all safety standards are followed, they can be a very safe means of accessing work, but when used improperly, they can cause injury and even serious mishap.

21) INTRODUCTION TO LIFTING APPLIANCE AND GEAR (LAG)

The purpose of this document is to provide crane operators and associated personnel, marine and shore-based, clear, safe and unambiguous guidelines for operating cranes, winches and other lifting equipment. It will also serve as guidance for shore-based personnel involved in the purchase, rental and control of lifting equipment. This document shall be used in conjunction with relevant sections of the vessel's lifting appliance operating manuals and other OceanGate safety procedures. Other documents such as client specific procedures should also be considered. The procedures contained within this document will also be followed by personnel working ashore at all OceanGate facilities. All contractors providing services to OceanGate both onshore and offshore will also be required to use certified lifting equipment in compliance with the requirements outlined in this procedure. In addition, OceanGate personnel sending equipment offshore will follow these procedures.

A) PURPOSE AND SCOPE

To define OceanGate standard practices with respect to the following company specific rules regarding lifting equipment.



B) RESPONSIBILITIES

- i) All personnel involved with the operation and control of LAG, both onshore and offshore, are responsible for carrying out their duties in a safe and efficient manner according to the guidelines covered by this document. Specific responsibilities are outlined in the following sections.
- ii) The Director of Operations shall control all crane operations associated with sub-sea work. He shall consult with the Master or his delegate in this respect. He has the authority to order the start or termination of any sub-sea lifting operation.
- iii) Master/Pilot: The Master is responsible for the safety of the vessel and her crew at all times. The Master's authority with respect to sub-sea lifting operations will always be carried out in coordination with the Operations Superintendent and/or the Dive Supervisor. The Master shall control all other crane operations and shall coordinate with the Operations Superintendent in this respect. He has the authority to order the start or termination of any surface lifting operation.
- iv) Crane Operator: The Crane Operator is responsible for the safe operation of the crane. He is in overall control of the crane and its functions, but must rely on guidance from the Riggers. The Crane Operator must be aware of all applicable safety precautions and instructions prior to, and during crane operations. He must understand all signals used by the Riggers. He has the authority to suspend lifting operations when a situation arises, or a condition exists, where in his opinion, the safety of personnel, plant or equipment may be jeopardized.
- v) Riggers: It is the Rigger's responsibility (either Banksman or Slinger) to conduct a visual inspection prior to use of all lifting equipment associated with the lifting operation for any signs of corrosion, damage or misapplication. Equipment and cargo arriving at the vessel, offshore installation, dock location or any such other loading site may be pre-slung. This condition shall not release the Riggers from conducting visual inspections prior to the use of all rigging, including slings, shackles, pad eyes and other lifting equipment related to the lifting operation. The Riggers and Crane Operator should ensure, before the start of any lifting operation, they know and fully understand the crane signals and resolve any differences that may cause confusion. When radios are used they should agree on the use of call signs and check the link frequently. A Banksman (Signalman) controls the initial lifting and final positioning of the load.
- vi) Slinger: The Slinger is the person who "slings" the load and attaches the slings to the crane hook. He should have a thorough understanding of rigging and slinging and be fully conversant with certification requirements for all lifting equipment. He should also have the basic knowledge of the crane's capacity and radius charts.

C) LIFT POINT

The movement from the primary point of lift is usually left to the Crane Operator until it is near the positioning point when the Banksman retakes control. It is essential that the Banksman ensures that the crane hook is positioned over the "point of lift" before the load is lifted. It is the responsibility of the Banksman to ensure that the Crane Operator will have maximum control over the sideways movement of the load.



D) PREPARATION

- i) The preparation required for crane operations shall vary depending upon the type of lift to be carried out. The following list is a guide to the considerations which must be taken into account:
- ii) Initial planning must be carried out to establish the vessel's location relative to a platform, worksite, or supply vessel at the time of the lift and the status of other concurrent operations on the vessel.
- iii) All controls are to be tested at the start of each shift. Vessels must be ballasted to a suitable working draft and the trim adjusted as required. The vessel load calculator should be used for this operation.
- iv) Reference must be made to the deck loading plans to establish the set-down point if the load is to be landed on deck.
- v) The chocks, strops and lifting gear must be inspected prior to use to ensure they are correct for the lift and in good condition. All lifting gear shall be stamped or tagged with the proper information and color coded in accordance with OceanGate's procedures for the purpose of identifying the safe working load and certification status. Lifting gear that does not meet requirements outlined in this document shall not be used.
- vi) Valid documentation supporting the certification status of appropriate lifting gear will be available at its location.
- vii) Consideration shall be given to existing weather conditions and forecasts determined for the work period. Based on each vessel's capability the Vessel Master will make the decision of when wind and sea state conditions necessitate lowering all and securing crane booms.
- viii) When cranes are operated at night the Crane Operator should ensure that there is sufficient lighting for safe operation.
- ix) The load and landing area should be illuminated.
- x) It must be verified that the load to be lifted can be safely carried within the operating radius of the crane. The appropriate load rating chart must be in place and clearly visible to the operator.
- xi) The load and line out indicators shall be checked for correct operation.
- xii) The crane must be correctly rigged for the load to be lifted and tag lines connected to secure and prevent swinging of the load.

E) SIGNALS

The system of signals employed by the operating team must be clearly understood by each member. Radio communication links must be both ways and checked frequently.

- i) Proper call signs shall be established to eliminate the possibility of outside interference and consequent misunderstandings. The crane operator must respond only to signals from the appointed signaler and emergency stops from anyone at any time.



- ii) All loose equipment must be securely stowed.

F) CRANE SAFETY

Each crane is designed with a number of built-in safety features depending on its intended function (e.g. a load indicator, block to block cut-out, overload alarm, emergency stop switch etc). Reference should be made to the crane's operating and maintenance manuals for specific descriptions. These safety devices shall be checked at the beginning of each shift. An appropriate load/radius chart and "Recommended Crane Signals" chart shall be posted at a strategic point within the operator's cabin. The Operator must know how to use the load/radius chart. The weight of the hook, hook blocks, slings, hoist rope etc. shall be considered part of the load. When performing sub- sea operations it is especially important to include the weight of the hoist rope when calculating the load.

- i) During lifting operations, the following safety procedures shall be observed: Loads should not be allowed to pass over top of personnel.
- ii) If operations will be conducted in an unsecured public space, safe routes around the scene must be identified and areas near or under the lift will be marked with signs or "caution" tapes. If traffic cannot be routed around the scene, OceanGate personnel with communications with the crane operator will be assigned to stop and control entry to the area.
- iii) Personnel should not stand near a load that is about to be lifted.
- iv) Any openings from which guard rails or hatches have been removed for access must be roped off and safety nets must be rigged where appropriate.
- v) Due precautions must be taken when handling chemical or flammable goods. reference should be made to the Material Safety Data Sheet (MSDS) on potentially dangerous goods and the manifest shall list such products.
- vi) The Crane Operator must not raise or lower the crane hook if it is not visible, unless the Banksman indicates that it is safe to do so.
- vii) When lifting or slewing a load, it must be kept clear of obstacles, safe clearances observed at all times. Grounded loads must not be dragged.
- viii) The Crane Operator should never leave the cab unattended with a load on the hook. The crane should never be left unattended with a load in the air.
- ix) Personnel must never be allowed to ride on the load, sling or crane hook. If it is necessary to lift personnel, the correct personnel basket must be used. Personnel shall not mount or dismount the crane whilst it is in motion.
- x) Personnel not directly involved in the operation should be kept well clear.
- xi) The safe working load for any given radius must not be exceeded. For loads approaching the safe working load, the load should be raised a short distance and load stability and jib deflection checked.
- xii) The crane should not be operated if the load indicators are switched off or suspected of being faulty.



- xiii) Loads should always be lowered smoothly and at a speed such that they may be stopped without jerking.
- xiv) Do not allow the crane hook to rest in such a way that the rope becomes slack. If this should happen and the rope jumps the sheaves, stop the crane and all further operations until the ropes and sheaves have been examined by an authorized person for any damage or faults in reeving.
- xv) In the event of sudden illness, the Crane Operator should attempt to stop the crane, signal for help and remain in the cab until help arrives.
- xvi) The hook safety catch must be fitted and in good working order, especially when lifting personnel.
- xvii) Safety slings should always be used when lifting personnel.
- xviii) The Banksman must stand in a position where he is clearly visible by the Crane Operator.
- xix) All signals should be exaggerated when the light is poor.
- xx) When preparing a load for lifting, the crane hook must be kept well clear of personnel.
- xxi) A second emergency restraint line must always be attached to the upper frame of a man riding basket.
- xxii) It is the Crane Operators duty to suspend operations if he considers, for any reason, continued operations would be unsafe. He is to inform the Master of his decision.

G) CRANE COMMUNICATIONS

Control of crane operations is by means of signals from the Banksman or by VHF hand- held radio. Whenever possible, radio communications should be used. Communications between the vessel and a supply vessel during crane operations shall be by VHF radio.



H) CRANE OPERATION

- i) The Crane Operators must be aware of any diving or helicopter operations that may be in progress.
- ii) Lifts over open water shall not be permitted if submersible operations or divers are in the water without prior consultation and agreement with the Director of Operations.
- iii) Crane operations must cease when helicopters are landing or taking off.
- iv) When performing dynamic lifts (lifts made from a fixed structure onto a moving structure such as a vessel) operators must take dynamic shock loading into account. Dynamic shock loading is a sudden tension on the wire rope caused by the vessel heaving or rolling in rough seas.
- v) Dynamic shock loading is the major factor contributing to the replacement of wire rope. Stretching and breaking of rope due to dynamic shock loading results in the need for replacement. All factors contributing to dynamic shock loading such as wind and sea conditions must be considered when making a dynamic lift.

I) SUB-SEA CRANE OPERATIONS

- i) The Director of Operations shall control all crane operations associated with subsea work. Pre-planning of sub-sea crane operations is essential to ensure safety of divers and to avoid damage to sub-sea installations or equipment.
- ii) All personnel involved, including Crane Operators and Slingers, shall attend a planning meeting prior to commencement of the operation and be made fully aware of their duties and responsibilities.
- iii) The Crane Operator should be well experienced in underwater crane operations.
- iv) The Director of Operations shall satisfy himself that all safety precautions have been taken and that the relevant Divers and Supervisors are thoroughly briefed and that a Job Safety Analysis (JSA) has been performed. Due consideration shall be given to underwater obstructions, anchor chains, taut wires, transponders etc.
- v) All slings, shackles and associated equipment to be used in the operation shall be checked, particular attention being paid to ease of use by the Diver/Submersible.
- vi) The crane hook and "headache" ball should be painted a color that will provide increased visibility and full use made of light sticks and/or strobe lights to assist the Diver / Submersible in locating the load.
- vii) An efficient means of communication is of fundamental importance for sub-sea work. All communications shall be precise and unambiguous, leaving no room for doubt or confusion.
- viii) Bridge officers shall be made aware of the subsea operation and kept fully informed regarding the progress of the work.
- ix) Subsea operations must not commence without clearance from the bridge.
- x) The effect of the vessel's heave, pitch and roll on the load shall be taken into account.



- xi) Steel wire ropes regularly used for sub-sea operations are prone to corrosion and should be visually inspected prior to use and kept well lubricated.

J) TRANSFER OF MATERIAL: GENERAL

- i) All materials or cargo being transferred between ships or ship/platform will be followed by a cargo manifest.
- ii) All cargo and material transfer will be approved by the Master.
- iii) All rigging will be designed so that personnel can hook/unhook from the deck, dock or platform level. The use of appropriate length slings will prevent personnel from having to climb or use ladders to hook or unhook loads.
- iv) Vessel Transfer
 - (1) Prior to any cargo transfer, radio contact with the vessel will be established.
 - (2) Wind and sea-state conditions shall be confirmed prior to discharging or back loading of cargo.
 - (3) The crane operator and master of both vessels shall be aware of the weights of cargo to be transferred.
 - (4) When lowering to a vessel deck, the crane operator shall ensure enough slack is given in pendant and slings to allow for movement of the vessels.
 - (5) When hoisting loads off a supply vessel the crane operator must ensure that the vessel's crew has reached a position of safety well clear of the cargo handling area and has given the appropriate signal or instruction to hoist. Similar precautions should be taken when back loading cargo to a supply vessel.
 - (6) During lifting operations the crane operator shall take all necessary actions to avoid excessive impact and avert shock loading being transmitted to the crane.
 - (7) Whenever possible, loads should be hoisted or lowered over open water and not over the supply vessel deck.
- v) Cargo Transfer
 - (1) The cargo, which is to be transferred, will be properly rigged. The deck foreman will ensure that proper slings, shackles and hooks are used.
 - (2) All cargo being transferred will be fitted with taglines for the safe guidance of the cargo when the nature of the cargo requires it, for example tubular lifts or large awkward loads. Tag lines must not have knots in them and must be in good condition.

K) PLANNED MAINTENANCE

- i) The maintenance of the cranes is to be recorded in the crane book. A copy of the latest test certificate must be available at all times for examination.
- ii) Where welding repairs are carried out to steel members of the boom, pedestal, A-frame or mast of a crane, the crane is required to undergo full dynamic load testing prior to the crane being passed as serviceable. The advice of the crane manufacturers must be obtained and an approved welding procedure obtained before such work is carried out. When it becomes necessary to conduct welding repairs for cranes, the parts being welded must be independently earthed to avoid damage to the pedestal bearing due to "tracking".



- iii) A crane must not be used unless a routine inspection has been made each shift. Each crane has its own maintenance requirements; however, as a general rule the following routine checks are applicable to most cranes:
- iv) Check the security of the slew ring gear. Check anchorages.
- v) Check the proper fitting and calibration of all load/radius indicators. and warning lights.
- vi) Access ladders are in good condition. Check that all machinery is adequately guarded.
- vii) Check that walkways and platforms are free from oil grease and rubbish. Check that radio sets are functioning correctly.
- viii) Pre-Operational Checks
 - (1) Oil Levels
 - (2) Check the security of the slew ring gear.
 - (3) Check the correct alignment and free running of all ropes.
 - (4) Check the proper fitting and calibration of all load/radius indicators.
 - (5) Check the operations of all limit switches, overload switches, warning horns, brakes, and warning lights.
 - (6) Check that all machinery is adequately guarded.
 - (7) Routine Checks.
 - (8) Before daily work commences.
 - (9) Check for hydraulic oil leakage.
 - (10) Check that the wind speed is within the manufacturer's recommended limit. Check that line out meters/load indicators are operational (if fitted).
 - (11) Check helicopter warning light. Check crane hook latch.
 - (12) Check wire ropes for deterioration, damage and improper spooling. Check crane boom for damage.
 - (13) Check for loose, missing or corroded bolts, pins, keepers or cotter pins. Check all slings and shackles to be used during the lifting operation.
 - (14) Check hand signal chart is posted.
 - (15) Check load/radius chart for the configuration in use is clearly visible to the operator.

L) SHUT DOWN FOR BAD WEATHER

The steps to take when shutting down and securing the crane due to bad weather are as follows:

- (1) Ensure load, if any, is removed from the hook and the hook is raised to the highest operation position.
- (2) Place boom in boom rest chocks.
- (3) Close all doors and windows to the cab. Shut off the power supply.
- (4) Secure the hooks.
- (5) LIFTING APPLIANCES AND LOOSE GEAR General
- (6) Lifting Appliances



- (7) Lifting appliances covers all stationary or mobile cargo-handling appliances used on shore or onboard ship for suspending, raising or lowering loads or moving them from one position to another while suspended or supported (cranes, derricks, winches, wire rope etc.)

M) LOOSE LIFTING GEAR

Loose lifting gear is any gear by means of which a load can be attached to a lifting appliance, but which does not form an integral part of the appliance or load (cable slings, shackles, eyebolts, lifting beams, snatch blocks, etc).

N) CERTIFICATES FOR NEW LAG

- i) LAG items shall be received from suppliers with a "Proof of Test" certificate. In the event of one certificate covering a "batch" of lifting gear, e.g. shackles, photocopies of the original batch certificates will be acceptable, providing the supplier has also delivered an original certificate that will support and verify the validity of the photocopies.
- ii) Lifting Appliances and Lifting gear items that are delivered without original certificates or proper identification markings will not, under any circumstances, be accepted by any OceanGate location or OceanGate personnel (or worksite in the case of direct deliveries from suppliers). The vendor shall be informed immediately and an effort to resolve missing documentation or any other non-compliance should be attempted. While these efforts are in progress the equipment in question shall be quarantined as non-conforming product and will not be put into use or transported to any point of use. All quarantined equipment will remain as such until the problem is resolved. If the problem cannot be resolved the equipment will be refused and returned to the supplier at the supplier's expense.

NOTE: It is important that the preceding part of this procedure be strictly adhered to as it forms a foundation other components of the procedure are dependent upon.

O) INSPECTIONS

- i) Lifting Appliances and Loose Lifting Gear shall require a regular schedule of inspections, examinations and load tests for certification, relevant to its use. Current certification status of all lifting gear shall be maintained by the company to ensure safe operations. Any lifting appliance or loose lifting gear that does not meet the certification requirements for its use will either be, if possible, downgraded for a function with lesser requirements or it will be removed from service and secured in such a manner it cannot be used.
- ii) Planned maintenance systems shall be utilized at relevant locations to control the load testing, inspecting and recertification processes of Lifting Appliances and Loose Lifting Gear to ensure certification status.

P) COLOR CODING

- i) Lifting Appliances and loose gear shall be color coded to allow identification of its use and to indicate its recertification schedule. Cargo gear and Man-Riding gear shall be coded in such a manner that they can be distinguished from one another to avoid being misapplied.



Q) COMPANY VERIFICATION OF LAG

- i) The testing, inspecting and certification of Lifting Appliances and Loose Lifting Gear will be verified by the Company by means of Site Safety Audit, Vessel Inspections and Internal Audits. Any lifting appliance or loose lifting gear that is discovered out of compliance with requirements relative to its use will either be, if possible, downgraded for a function with lesser requirements or it will be removed from service, marked red to identify them as nonconforming product and secured in such a manner it cannot be used until compliance can be re-established.
- ii) Lifting Appliances and Loose Gear for Transfer of Cargo and Equipment Original Testing.
- iii) Every item of loose gear, before being taken into use for the first time, shall be load tested, thoroughly examined and certified by a competent person. Upon receipt at the worksite the particulars of these tests and thorough examinations shall be entered in the LAG Register. Valid documents that support certification status shall be available.
- iv) A competent person shall be appointed to be responsible for the performance of load tests and inspections and who has sufficient knowledge and experience to undertake such tests and inspections and who is acceptable to the competent authority.
- v) Thorough Examinations: Every item of loose gear shall be thoroughly examined by a competent person at least once in every twelve months. A thorough examination is a detailed visual examination which may be supplemented by other means in order to reliably conclude the safety of an item of lifting gear. The results of thorough examinations shall be entered in the LAG Register.

R) VISUAL INSPECTIONS

- i) Regular visual inspections of every item of loose gear shall be carried out by a responsible person prior to use. The visual inspection is carried out to decide whether lifting gear is safe for continued use. A record of these regular visual inspections is to be entered in the LAG Register, but entries need only be made when the inspection has indicated a defect in the item.

S) RE-TEST FOR RECERTIFICATION

- i) Re-testing and thorough examination of all lifting appliances and every item of loose gear is to be carried out:
- ii) After any substantial alteration or renewal, or after repair to any stress bearing part, In the case of cargo lifting gear, at least once in every five years.
- iii) A competent person is to be responsible for the performance of load tests and recertification. A thorough examination will be performed at the same time re-tests are conducted and may take the place of the yearly thorough examination required.
- iv) Thorough Examinations: Every item of loose gear shall be thoroughly examined by a competent person at least once in every twelve months. A thorough examination is a detailed visual examination which may be supplemented by other means in order to reliably conclude the safety of an item of lifting gear. The results of thorough examinations shall be entered in the LAG Register.



- v) Visual Inspections: Regular visual inspections of every item of loose gear shall be carried out by a responsible person prior to use. The visual inspection is carried out to decide whether lifting gear is safe for continued use. A record of these regular visual inspections is to be entered in the LAG Register, but entries need only be made when the inspection has Re-test for Recertification
- vi) Re-testing and thorough examination of all lifting appliances and every item of loose gear is to be carried out:
 - (1) After any substantial alteration or renewal, or after repair to any stress bearing part,
 - (2) A competent person is appointed to be responsible for the performance of re-tests and recertification.



T) IDENTIFICATION

- i) In order to record the tests and inspections required all lifting gear shall be marked with a unique identification code or number. This identification number and information can be applied to the item of lifting gear by means of a stamp, tag or patch or other permanently fixed device. At a minimum the following information shall be present:
- ii) Unique Identification number Safe Working Load Manufacturers Name
- iii) The identification device described above and the color coding will be acceptable for proof of certification. Valid documents supporting the validity of certification will be available at relevant locations. Lifting gear that does not bear the information above cannot be considered certified and shall not be used.
- iv) Color Coding of Lifting Appliances and Loose Gear: A standard Company-wide color coding system for all Lifting Appliances and Loose Lifting Gear will be utilized. The color code will provide a means to identify the use of the lifting gear and indicate its recertification schedule. Any equipment which is not color coded to properly indicate its current use and/or certification status should not be used and should be stowed in a secure location until necessary actions are taken to rectify the non-compliance.

U) CARGO/EQUIPMENT GEAR (NON-MAN RIDING)

Lifting appliances and loose gear used for cargo and equipment will be coded according to location and a five yearly certification schedule. The following colors shall be used: Years ending with:

0 or 5 = Blue	1 or 6 = Black	2 or 7 = Brown	3 or 8 = Green	4 or 9 = Gray
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The purpose for having the 5 year sequence is to offer a means of identifying and collecting the items according to their recertification schedule.

Each location shall be responsible for proper color coding and maintenance of its inventory. Any lifting appliance or loose lifting gear that is cited as non-compliant with requirements relative to its use will be marked red to identify it as non-conforming product and secured in such a manner it cannot be used until compliance can be re- established.

V) NON-CONFORMING LIFTING GEAR

Any lifting appliance or loose lifting gear that is cited as non-compliant with requirements relative to its use will be marked red to identify it as non-conforming product and secured in such a manner it cannot be used until compliance can be re-established.



W) CERTIFICATES AND VALID DOCUMENTS

- i) Certificates for “Proof of test” for all LAG shall include the following:
 - (1) Certificate number
 - (2) Relevant LAG identification number(s) Description of LAG
 - (3) Manufacturer’s Name Safe Working Load
 - (4) Test criteria, including Test Load
 - (5) Description of test equipment, including test equipment certification and calibration Date of test
- ii) Original Certificates shall be maintained at each worksite.

X) VALID DOCUMENTS

- i) The Company shall ensure that valid documents are available at relevant locations. Reproductions of original certificates are considered to be valid documents and may be in the form of photocopies or electronic media, providing the copy accurately duplicates the original.
- ii) LAG Register: Lifting Appliances and Lifting gear
 - A register of all Lifting Appliances and Lifting gear shall be maintained at locations using and requiring an inventory of lifting gear. Results of load tests, thorough examinations and visual inspections, when applicable, shall be entered in the LAG register. Valid documentation relevant to the LAG shall be filed with the LAG Register.

Y) NON-COMPANY OWNED LAG

- i) The Company has a responsibility for monitoring and control of equipment which is supplied by third parties. Accordingly, all lifting equipment and rigging supplied by third parties must comply with the requirements set out in this document. All third party supplied rigging must be fit for purpose and accompanied by appropriate certification.
- ii) Color coding for third party equipment is not required but such equipment must be kept separate from vessel’s equipment.
- iii) The Vessel Superintendent, or his delegate, is responsible for ensuring that subcontractor supplied equipment is fit for purpose and certified, and that it is only used for the purpose specified.

Z) INSPECTION AND SAFE USE OF LAG

The following rules should be followed:

- i) Slings which are not marked with a safe working load (SWL) must not be used.
- ii) Any wire rope sling which shows signs of damage must not be used and it should be brought to the attention of a Supervisor.
- iii) Shackles, eyebolts, hooks, or other items of lifting gear which are not marked with their safe working load (SWL) must not be used.



- iv) The angle between the legs of a sling set must be kept to a minimum and must never exceed 120 degrees. Wire rope slings should not be bent to a tighter radius than three times the rope diameter otherwise damage will occur.
- v) Packing must be used on sharp cornered loads to protect the sling. Packing must also be used to ensure the rope leaves the ferrule in as nearly a straight line as is possible to avoid local overloading and subsequent damage to the rope.
- vi) Slings: Slings must be free from defects and must have the SWL (Safe Working Load) fixed on them together with a registration number. Slings will be inspected prior to each use by a responsible person and at regular intervals relative to its use
- vii) Shackles: Shackles must be free from defects and must have the SWL (Safe Working Load) fixed on them. Shackles will be inspected prior to each use by a responsible person and at regular intervals relative to its use.
- viii) There are two types of shackles commonly used in rigging. They are anchor (bow type) shackles and chain (D type) shackles. Both should be made of forged alloy steel with either screw pins or round pins. All shackles requiring a secondary securing method e.g. bolt and pin, safety wire or tie wrap, cannot be used without the secondary device. It is prohibited to weld shackle pins to any shackle.
- ix) The following is a list of items to pay attention to when using shackles:
 - (1) Damage of any type to the shackle.
 - (2) A shackle pin should never be replaced with a bolt. A bolt cannot take the strain that a shackle pin can.
 - (3) Shackles should never be pulled at an angle because the capacity is greatly reduced. The proper identified pin for the shackle should be used whenever possible.
 - (4) Pins must be secured prior to hoisting.
 - (5) Safe Working Loads: The rating on shackles must be equal to or greater than the rating of the slings when used together.
 - (6) Shackles manufactured in China should not be used for overhead lifting due to the untested nature of this gear.
- x) All eyebolts should be made of forged alloy steel and equipped with shoulders or collars. A plain or shoulder-less eyebolt is designed for vertical loads only and will bend if pulled at an angle. Never insert the point of a hook into an eyebolt. Always use a shackle. Do not use a sling that has been reeved through an eyebolt. Attach one sling end to each eyebolt.
- xi) Pad-eyes have the potential to fail during the lifting process causing property damage and injuries. Special emphasis should be placed on pad-eyes and careful examination and inspections must be conducted prior to lifts being made. As a minimum, all pad-eyes and their attachments to the structure must be visually inspected prior to each use.
- xii) Pad-eyes shall be subject to load testing, color coding, and a thorough examination and visual inspections relative to their use.



- xiii) When the urgency of operations requires the installation of a temporary pad-eye it will be the responsibility of the Operations Superintendent to ensure that the installation is conducted by a competent person and the pad-eye is fit for purpose. Temporary pad-eyes will be removed when the function is completed. Whenever possible, temporary pad-eyes should be load tested.
- xiv) Synthetic Web Slings: Nylon lifting straps do not require documentation at the work site. A fixed patch on the nylon sling shall serve as proof of certification providing the following information is present and legible:
 - (1) Safe Working Loads (V-Vertical, C-Choking, and B-Basket) Manufacturers Name
 - (2) Acquisition Date
- xv) When synthetic web slings are used, the following precautions shall be taken:
 - (1) Nylon web slings shall not be used where fumes, vapors, sprays, mists or liquids of acids or phenolics are present
 - (2) Polyester and polypropylene web slings shall not be used where fumes, vapors, sprays mists or liquids of caustics are present.
 - (3) Web slings with aluminum fittings shall not be used where fumes, vapors, sprays, mists or liquids of caustics are present.
 - (4) Synthetic web slings of polyester and nylon shall not be used at temperatures in excess of 180°F.
 - (5) Polypropylene web slings shall not be used at temperatures in excess of 200°F.
 - (6) Utilization of rubber hoses that act as a protective cover on slings is prohibited.
 - (7) Nylon slings will not be re-certified. Nylon slings will be discarded after five years of service.
- xvi) Use thimbles in all eye fittings whenever possible. Repair or replace faulty guides or rollers.
- xvii) Make sure wire ropes are kept properly lubricated. Use only manufacturer specified lubricants designed for specific operating conditions paying particular attention to toxic/hazardous substances. Used crankcase oil should never be applied to a wire rope. It is acidic and contains metal particles that are highly abrasive. Before lubricating the wire rope, make sure it is absolutely clean and dry by using a jet of air, steam or a wire brush. If a pressure lubricator is not available, apply warm lubricant by brush or run the rope through a trough filled with warm oil to obtain maximum penetration.
- xviii) Wire rope slings should be treated with the same care as wire ropes. When not in use they should be hung up in an orderly manner on special hooks or brackets to keep them as straight as practical.
- xix) All damaged lifting equipment that is beyond repair or re-certification should be destroyed or returned to OceanGate, clearly labeled for disposal.
- xx) All damaged lifting equipment awaiting transport to shore for repair or disposal should be clearly identified with a red marking and held in a quarantined storage area separated from usable lifting equipment.
- xxi) Synthetic Web Sling: Proper care and maintenance of Synthetic Web Slings is essential to its satisfactory performance, long life and adequate safety.



- xxii) Check for local wear in the webbing. Never use slings that are cut.
- xxiii) Always use the correct sling for every job. Never overload a sling.
- xxiv) Avoid shock loading, especially in cold weather. Never use frozen slings.
- xxv) Always use protective padding where a sling passes over sharp edges or around sharp corners.
- xxvi) Do not pull slings out from under loads or drag it over obstacles. Always store unused slings in a clean, dry place.
- xxvii) Discard Criteria for Synthetic Web Slings: Synthetic web slings shall be immediately removed from service if any of the following conditions are present:
 - (1) Acid or caustic burns:
 - (2) Melting or charring of any part of the sling surface: Snags, punctures, tears or cuts:
 - (3) Broken or worn stitches, Distortion of fittings; or Discoloration/faded.
 - (4) Nylon slings will not be re-certified. Nylon slings will be discarded after five years of service.

AA) MAINTENANCE PRECAUTIONS

Before repairs, adjustments and maintenance are started on a crane, a lock-out/tag-out procedure will be incorporated and the following precautions must be taken:

- i) Hoist blocks shall be lowered to the deck.
- ii) All controls shall be in the "off" or "neutral" position. Means of starting shall be made inoperative.
- iii) Appropriate "out of service" signs should be placed at the control station.
- iv) The crane should not be put back into service until thoroughly checked and all safety devices reactivated. All maintenance equipment must be removed.
- v) Adjustments must be made to ensure correct functioning of components such as the control systems, limit devices and hydraulic system. Repairs or replacements of critical components such as the boom and pedestal shall not be made without specific repair procedures and recommendations from the manufacturer.
- vi) Repairs should be equal to or exceed original design specifications.

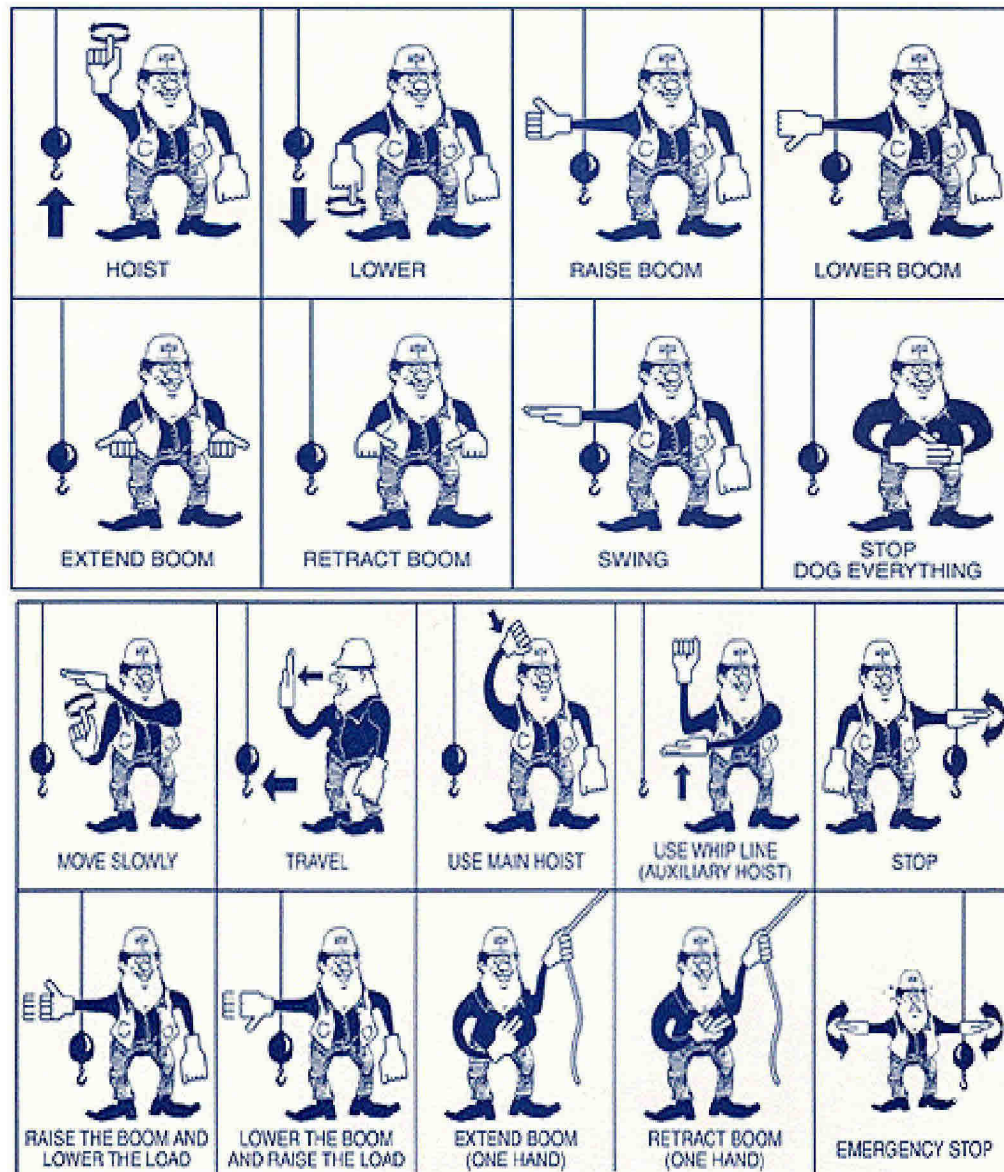
BB) TRAINING AND REQUIREMENTS FOR COMPETENT PERSON, OPERATORS AND RIGGERS

- i) Competent Person: A competent person is one who, by reason of applicable offshore and/or shore based experience, possesses the knowledge required for the performance of a specific duty or operations to be performed and the hazards involved, and is acceptable as such to the competent authority. The competent person may also be so designated after satisfactory completion of a formalized, written employer training program. Experience or training shall include instruction with the various equipment and/or types of cranes to be operated or maintained.
- ii) Crane Operator: Only the following personnel shall operate Cranes:
 - (1) Operators designated by OceanGate as Qualified.
 - (2) Trainees under the direct supervision of a qualified operator.



- (3) Maintenance, test personnel and inspectors when it is necessary in the performance of their duties provided they are accompanied by a qualified operator.
- (4) No one, other than personnel specified above should enter a crane cab with the exception of persons such as service personnel and supervisors in the performance of their duties and only when accompanied by a qualified operator.
- iii) Qualifications for Crane Operators: Operators shall meet the following physical qualifications:
 - (1) Have vision of at least 20/30 Snellen in one eye and 20/50 in the other with or without glasses and have depth perception.
 - (2) Be able to distinguish red, green and Orange, regardless of position of colors if color differentiation is required for crane operation.
 - (3) Have hearing, with or without a hearing aid, adequate for the specific operation.
 - (4) Have no history of a disabling medical condition, which may be sufficient reason for disqualification.
 - (5) OceanGate shall assure that operator qualifications are maintained.
- iv) Riggers: The Rigger shall meet the same physical qualifications as the Crane Operator and be trained according to the program outlined below.
- v) The following items will be included in the training program: Types of crane (mechanical, hydraulic, electric).
 - (1) Components of a stationary mounted crane
 - (2) Boom angle and load radius, reading a range diagram or load rating chart. Number of parts of line and relationship to rated load.
 - (3) Basic rigging and slinging
 - (4) Limitations as to the size and type of wire ropes used in boom hoist lines, pendants and load hoist lines.
 - (5) Lifting capacity of the auxiliary hook
 - (6) Lifting capacity of load and boom hoist drums
 - (7) Classes, designation, mechanics and characteristics of wire rope
 - (8) Handling of wire rope
 - (9) Guidelines for replacement of wire rope
 - (10) Wire rope slings.
 - (11) Types of boom structure (lattice, box etc...)
 - (12) Wire rope guides.
 - (13) Boom hoist limit
 - (14) Load hoist limits. Boom stops.
 - (15) All locking devices
 - (16) Anti-two block devices.
 - (17) Proper lifting and personnel transfer procedures
 - (18) Sheaves (inspection and measurement)
 - (19) Hand signals. Control markings.
 - (20) Gauges and indicators
 - (21) Inspection and test procedures

RECOMMENDED CRANE SIGNALS



22) MODEL CHECKLIST - CRANE INSPECTION

The following checklist is an example and for guidance only. It is a generic list based on common industry practice. Vessel and yard personnel should develop their own checklists specific to the equipment on site, having made reference to the crane operating and maintenance manuals. The checklist is not designed to take the place of any Planned Maintenance System in place.

FUNCTION / MAINTENANCE ITEM

- (1) Check and test all safety devices
- (2) Lubricating oil level
- (3) Coolant fluid level
- (4) Engine
- (5) Fan belt tension and condition
- (6) Fuel contamination
- (7) Air inlet filter, dry or oil type
- (8) Torque Converter and Pump Drives



- (9) Converter oil level
- (10) Proper adjustment and lubrication of pump drive assembly and couplings
- (11) Mechanical Systems Grease and oil levels
- (12) External oil leaks
- (13) Brake housings and friction bands
- (14) Clutch plates and housings
- (15) Lubricate all operating linkages and check adjustments.
- (16) Operating brakes and auxiliary holding devices for proper engagement and operation
- (17) Controls, Gauges and Indicators
- (18) Lubricate all working linkages and engine shut down devices
- (19) Proper operation of all instruments and gauges
- (20) Angle indicator
- (21) Warning devices
- (22) Load/radius chart in place and clearly visible to operator
- (23) Hydraulic Systems
- (24) Proper fluid level
- (25) Check reservoir for water before start-up
- (26) Check fittings, hoses and hydraulic components for leakage
- (27) Check winches and gear cases for proper oil level.
- (28) Confirm regular (quarterly) oil analysis records
- (29) Check filter(s) element condition
- (30) Boom and Sheaves
- (31) Check boom for cracks, dents and corrosion
- (32) Check all pin and bolt connections
- (33) Check and lubricate sheave assemblies and boom pivot points
- (34) Check hook latch
- (35) Wire Ropes
- (36) Proper lubrication
- (37) Check for damaged or worn rope
- (38) Check for proper pendant lengths
- (39) Limit Devices
- (40) Check boom limit operation
- (41) Check anti-two block system.
- (42) Check engine automatic shutdown devices.
- (43) Rotating Assembly
- (44) Check and lubricate slew bearing, pinion and gears
- (45) Check mounting bolts for damage and corrosion Check slew bearing for abnormal play.



23) MANUAL LIFTING TECHNIQUES

A) INTRODUCTION

Employees often lift equipment and materials in the normal everyday course of their jobs. By using proper lifting techniques and available equipment for heavy items, personnel can continue to do this without the problems associated with poor lifting skills. These are some general lifting guidelines to be used in everyday lifting situations.

- i) Backs should be kept strong by keeping supporting muscles in shape through proper exercise.
- ii) Before lifting, personnel should determine whether the object could be moved by some other means (mechanical device).
- iii) Employees will ask for assistance to help carry objects that are too bulky and would obscure vision. Object is within the lifter's capability. A preliminary "attempt to lift the object" will indicate this.
- iv) Footing around the object is solid.
- v) All employees will avoid lifting any objects weighing over 50lbs or more alone.
- vi) All employees are to ask for assistance when the job requires frequent lifting of anything 40lbs or heavier in weight.

B) PROPER LIFTING PROCEDURE

- i) Legs should be bent at the knees, back nearly vertical, body as close to object as possible, feet apart but not further than shoulder width.
- ii) Take a firm hold and straighten knees. Back is still straight and upright.
- iii) Pull load close to body and lean back slightly to keep center of gravity over feet. Personnel should avoid twisting body when lifting or carrying loads.
- iv) When handling material with others, all should agree on who will act as leader and give the signals. Loads should not be released until everyone is ready. Teamwork is important.

24) MATERIAL HANDLING/MOBILE EQUIPMENT

A) INTRODUCTION

Material handling is a major portion of marine and base activities and is an area with great potential for injuries. By utilizing only proper equipment and competent, trained personnel, material handling can be performed injury/incident free. The following are some general guidelines to follow when handling materials.

- i) Always make sure that the material being handled is within the weight capacity of the equipment and rigging.
- ii) All equipment and rigging must be inspected and have correct certification prior to use. At no time will defective equipment or rigging be allowed for use on any project.
- iii) It is the responsibility of the crew handling material to provide for the safety of other personnel working in the area.



- iv) At no time will material be lifted over another employee.
- v) All suspended material must be secured with proper means. Com-a-longs and chain-falls can be used in certain situations where another system is not practical.
- vi) Make sure the swing radius and boom clearance of equipment has adequate clearance. All transported material must be properly secured.
- vii) Operators must have current Company approved training certification for each piece of equipment they operate.
- viii) The preplanning, identification and correction of hazards prior to any mechanical lifting work is essential for the safety and health of all project employees.

B) GENERAL REQUIREMENTS

- i) Only qualified operators with approved training certification will be allowed to operate motorized equipment.
- ii) Unauthorized personnel shall not be permitted to ride on equipment.
- iii) No person shall be allowed to stand or pass under the elevated portion of any forklift or hoisted material.
- iv) Equipment shall not be driven up to anyone standing in front of a fixed object.
- v) When a forklift is left unattended, the forks shall be fully lowered, controls neutralized, power shut off, and brakes set. Wheels blocked if the forklift is parked on an incline. The forks should be lying flat or level with the deck to minimize trip hazards.
- vi) Equipment is unattended when the operator is 25 ft. or more away from the vehicle which remains in view, or whenever the operator leaves the vehicle and it is not in his view.
- vii) Brakes will be set and wheel blocks in place to prevent movement of trucks or trailers while loading or unloading.
- viii) The equipment operator will ensure sufficient headroom under overhead installations, lights, pipes, sprinkler system, etc., before operating the vehicle in these areas.
- ix) Fire aisles, access to stairways, and fire protection equipment will not be obstructed at any time.
- x) Operators will obey established speed limits and other traffic regulations at all time. Caution will be observed when traveling upon uneven or slippery surfaces.
- xi) Loaded forklifts shall travel with the forks no more than 6 – 8 inches above the ground, with the load carried low and tilted back. Forks shall not be raised or lowered while moving.
- xii) All equipment will be equipped with audible backing alarms, mirrors, seat belt, roll over protection and lights as designed by manufacturer.
- xiii) Operators will yield right of way to pedestrians, emergency vehicles, and avoid pedestrian lanes.



- xiv) A fire extinguisher in proper working order will be mounted on equipment at all times. The location of the extinguisher will allow easy access to personnel outside of the cab.

C) LOADING / UNLOADING

- i) The equipment will be operated within the safe load limits established by the manufacturer. The load will be positioned squarely upon the forks and will touch the carriage.
- ii) The forklift operator will ensure that the load is stable and centered on forks. All loose or uneven loads will be stacked or secured to prevent displacement. The mast will be tilted back to lift the load.
- iii) Ensure proper safe weight or height-to-load ratio is maintained when loading/unloading from racks or from stacked materials.

D) MOBILE CRANES

- i) The operator must take signals from only one person. However, in an emergency situation, a "Stop" signal can be given by anyone.
- ii) The operator must be physically fit and mentally alert. Should the operator show signs of illness or drowsiness, he must be removed from the crane.
- iii) The rigger is responsible for correctly attaching the load to be raised and giving the correct hand signals to the crane operator.
- iv) He must be a qualified rigger, trained in the standard hand signals and the general capabilities of the crane and rigging devices with which he is working.
- v) No lift shall be initiated without the following criteria being verified:
 - (1) Weight of the load and rigging
 - (2) Chart capacity of crane/hoist at largest radius planned.
 - (3) Paths of lift clear of obstructions.
 - (4) Crane is level and on full outriggers.
 - (5) Only standard hand signals are to be acknowledged.
- vi) Under no circumstances are loads permitted to swing over other personnel. If it is necessary to prevent personnel from entering crane-operating zones, then barricades and/or watchmen are used. Where barricades are not practical, the rigger alerts other personnel of overhead loads and to clear the swing area before loads are maneuvered.
- vii) All cranes must be fitted with a boom angle indicator and other required devices and a loading chart placed inside the crane cab where the operator can easily view it. The weight of all loads shall be known prior to any lift. The load chart is used at all times to determine radius and capabilities.
- viii) Operators allowing their cranes to tip or approach near tipping to determine capacity are grounded, retrained or removed from the job. Tipping to determine capacity is not permitted.



- ix) The hoisting of a load is made smoothly. Snatching can cause boom or cable failure. Where the weight of the load is considered close to the operating maximum, or if the compaction of the ground is suspect, the load is raised only a few inches and the crane checked for stability.
- x) Loads are not to be dragged or pulled sideways. This places side stress on the boom and overloads the crane.
- xi) Slewing of any load is performed slowly as moving too fast can throw the load out of radius, causes side loading, and risks striking adjacent objects.
- xii) A clear space of two feet is maintained between the crane body, the counter weight and any moving parts of the crane and fixed objects nearby to prevent persons being trapped and crushed when the weight swings.
- xiii) For cranes used on land, all outriggers are to be fully extended and locked when in use. All outrigger float pads must be in good condition and provided with sturdy timber sills or pads to protect the float pads and to distribute weight. Properly constructed timber sills or pads are carried on the crane and maintained in good condition at all times.
- xiv) Access roads and operating areas must have adequate ground strength to support the crane.
- xv) Where necessary, the ground must be strengthened and properly compacted or crane mats must be used.
- xvi) Prior to traveling the crane, the route must be checked and established, be aware of overhead power lines, pipelines, underground pipelines and any other obstructions.
- xvii) "Walking" with suspended loads should be avoided. Where necessary to do so, the following applies:
 - (1) Tie load to the frame of cranes.
 - (2) Personnel must not touch the load for any reason. Tag lines must be used if control is required.
 - (3) The boom must be in line with the chassis of the crane and the swing brake applied.
 - (4) In the case of hydraulic boom cranes, the boom is to be fully retracted into the traveling position.
 - (5) On the crane, where the operating controls are separate from the driver's cab, there must be an operator in the operator's cab at all times when traveling.
- xviii) An attendant must precede the crane at all times when traveling with a load.
- xix) On approaching any overhead obstruction or road crossing, the attendant stops the crane and gives the necessary signals or instructions to enable the crane to pass the obstruction or road crossing safely.

E) AERIAL LIFTS

- i) Aerial lifts are motorized work platforms that allow workers to access elevated areas in which there is no other suitable means of access.



- ii) Only qualified and authorized personnel operate the lift. A valid Company issued training certification is required to operate all aerial lift equipment.
- iii) The basket is the work platform on the aerial lift.
- iv) When traveling, the basket must always follow behind the boom and must always be in the down position.
- v) Lift controls are tested daily prior to use to determine that controls are in safe working condition. Wheel chocks are installed before using the lift in an inclined position.
- vi) When in the basket, the person must tie off the safety harness to the frame of basket.
- vii) Employees must always stand firmly on the floor of the basket, do not climb or sit on edge of the basket for a work position.
- viii) Be aware of overhead structures. To avoid entrapment from accidental upward basket movement controls may need to be locked out or de-energized.
- ix) Securing a lanyard to an adjacent pole, structure or equipment while working is not permitted. The basket is not to rest on a support for stability, but instead be self-controlled.
- x) When exiting the basket, the engine or power must be turned off, the operator's hands must be away from the controls and the operator remains in the basket at all times. At no time will the lift be repositioned away from the location until the employee is safely in the basket.
- xi) Park on flat surfaces, away from traffic where the vehicle does not block doors, pedestrian routes, aisles, exits, etc.

F) EQUIPMENT REQUIREMENTS

- i) No modifications or additions that affect capacity and safe operation shall be performed without the manufacturer prior written approval. Capacity, operation, maintenance instruction plates, tags, or decals shall be changed accordingly.
- ii) If the forklift is equipped with front-end attachments other than factory installed attachments, it will be marked to identify the attachments and show the approximate weight of the forklift and attachment combination at maximum elevation, with load laterally centered.
- iii) All nameplates and markings will be verified as being in place and maintained in a legible condition.
- iv) Preventive maintenance programs based on the manufacturer's recommendations shall be followed.



G) INSPECTION

Brakes, controls, crane hooks, wire ropes, gauges, lights, seat belts, fire extinguishers and routine operational features will be inspected to verify proper working order. This inspection will be performed before each shift. Defects when found will be immediately reported and corrected. Hoist chains should be included in a written monthly inspection for excessive wear, twists, distorted links, stretch, and condition of end connections. Overhead & Gantry cranes, Crawler & Truck Cranes that have not been in use or have been shut down/stored, must also have a thorough written inspection of all wire ropes, hooks, and moving parts prior to use. Follow-up written inspections should be conducted monthly. All certifications/written inspections should include the date of inspection, ID of equipment inspected and Signature of qualified inspector. Equipment will be removed from service any time it is found to be in need of repair, defective, or in any way unsafe. The equipment will remain out of service until it has been restored to safe operating condition.

H) TRAVELING

- i) Operators will be cognizant of the planned route and aware of areas with inadequate headroom, lighting, obstructions, and floor surface problems.
- ii) Operators will wear the same level personal protective equipment as the personnel they are directly working with.
- iii) Stunt driving, horseplay, and driving unsafe will result in disciplinary action to include loss of driving privileges.
- iv) Running over loose object on the roadway surface shall be avoided.
- v) While negotiating turns, speed shall be reduced to a safe level by means of turning the hand steering wheel in a smooth, sweeping motion.
- vi) Exercise extreme care while tilting the load forward or backward, particularly when loads are stacked high. Tilting forward with the forks elevated shall be prohibited except to pick up a load. An elevated load shall not be tilted forward except when the load is in a deposit position over a rack or stack.
- vii) When stacking, position the mast backward only enough to stabilize the load.

I) MOTOR VEHICLES AND HEAVY EQUIPMENT

- i) The parking brake must be set whenever the vehicle is parked. Equipment parked on an incline must have the wheels chocked.
- ii) No employee is allowed to ride in the back of loaded pickups, bed of dump trucks or on any piece of heavy equipment except where proper seating is provided.
- iii) No employee is allowed to sit or rest under any vehicles or piece of heavy equipment.
- iv) No employee is allowed to rest directly in front of or behind the wheels, bucket, tracks, rollers, blades, etc., of any piece of heavy equipment.
- v) All raised hydraulics is to be securely blocked while repair work is being accomplished to prevent their release and subsequent fall.



- vi) Do not back-up any vehicle or equipment when the view of the rear is obstructed. All vehicles with a permanent obstructed rear view and all equipment will be equipped with an audible backing alarm.

J) MATERIAL HANDLING AND STORAGE

- i) Passageways must be kept clear to provide access in emergencies. Employees shall use proper techniques when handling materials.
- ii) Store frequently accessed materials at waist height to minimize bending and stooping. Stored materials must not block firefighting equipment or exits from buildings.
- iii) Prior to handling materials, review JSA to identify known or potential hazards and how to avoid those hazards.
- iv) Maintain a high awareness for potential pinch points.
- v) All materials shall be stacked, racked, blocked, and interlocked to prevent sliding or collapse. Non-compatible items shall be stored separately, notably combustibles.
- vi) Materials shall not be stored on scaffolds or runways in excess of supplies needed for immediate operations.
- vii) Items which are too large, heavy, or bulky to handle safely, use mechanical means (such as a dolly or hoist, etc.) to safely manipulate the load.
- viii) Where materials and supplies are piled to a height higher than the top edge of the toe board, or screening extending from the toe-board or platform to the top of the guardrail shall be erected to protect employees below.
- ix) Good housekeeping must be observed at all times in order to prevent cluttering the area and creating tripping hazards.
- x) This standard can by no means tell you everything you need to know about materials handling. Employees can go a long way to protect themselves when performing these duties by using the information received here and good common sense. If there are any questions contact a member of the HSE Department.



25) MECHANICAL GUARDING

A) GENERAL

- i) All guards shall protect the operator and other employees from hazards such as those created by point of operation, ongoing nip points, rotating parts, flying chips and sparks.
- ii) The operating supervisors are responsible for ensuring guards are adequate and in place.
- iii) All guards will be affixed to the machine where possible and secured elsewhere if not feasible to be directly attached to the machine.
- iv) Barrier guards may be used in lieu of point specific guards where appropriate. For information concerning adequate guarding and specific types of machinery guarding, consult the HSE Department.

B) ABRASIVE WHEEL MACHINERY MOUNTING

- i) All abrasive wheels shall be checked upon installation to assure that the machine or spindle RPM speed is not greater than the safe RPM recommended for that particular wheel being installed.
- ii) The wheels shall fit freely on the spindle.
- iii) The spindle bushing, if used, must be narrower than the wheel.
- iv) Immediately before mounting, all wheels shall be closely inspected and sounded by the user (ring test) to assure the wheels' integrity. A ring test consists of the wheel being gently tapped with a light nonmetallic implement, such as the handle of a screwdriver for light wheels, or a wooden mallet for heavier wheels. If they sound cracked, i.e. no ring of a chime, they shall not be used. Fixed machines shall be securely anchored to prevent movement or tipping.
- v) Guards: Guards must be in place for each abrasive wheel and brush. The safety guard for hand grinders shall be on the grinder at all times. The included handle shall also be mounted on the grinder at all times. When moving the handle, the grinder must be unplugged.
- vi) If the guard is of the type that moves, insure it always covers that portion of disk that is next to the operator's hand.
- vii) The safety guards for fixed grinders shall cover the spindle end, nut, and flange projections and shall be mounted to maintain proper alignment and limit the wheel exposure to 90 degrees.
- viii) Wheel exposure shall not begin more than 65 degrees above the horizontal plane of the spindle. Work rests shall be used on all fixed grinding machines and will be set within 1/8 inch of the wheel.
- ix) All bench pedestal grinders must have an adjustable tongue guard with the guard being set to clear the abrasive wheel by not more than 1/4 inch.



C) FIXED ABRASIVE WHEEL MACHINERY GUARDS

The angular exposure of the grinding wheel periphery and sides for safety guards used on fixed machine stands should not exceed 90 degrees or one-fourth of the periphery. This exposure shall begin at a point not more than 65 degrees above the horizontal plane of the wheel spindle.

D) PERSONAL PROTECTION

- i) Appropriate eye and face protection (goggles/face shield) shall be available and worn when using all permanent abrasive wheel machines as well as portable grinders.
- ii) A sign shall be posted near all fixed abrasive wheel machinery noting that goggles/face shields are required.

26) MANAGEMENT OF CHANGE

A) INTRODUCTION

- i) OceanGate implements a Management of Change process on all of its worksites. This process is continuous to ensure that all significant changes are assessed to prevent environmental damage, personnel injury or equipment damage.
- ii) This process occurs at two levels.
- iii) The high level focuses on the prevention of, or contributing to, upper medium or high risk major accident events occurring through changes being implemented without proper assessment.
- iv) The low level focuses on daily activities to prevent low and lower medium risks events from occurring through changes at the vessel level.
- v) System Description. OceanGate manages changes to:
 - (1) A vessel's equipment and systems
 - (2) Onshore and offshore personnel
 - (3) HSE Management Systems
 - (4) Company procedures
 - (5) Manuals, Plans and other documentation
 - (6) Changes to Vessel Facility and Equipment
- vi) Major changes and modifications to a vessel are managed by the OceanGate Engineering Group. Changes that are required for operational or safety reasons are managed so that engineering, operations and HSE aspects of the change are considered prior to implementing the request. (Examples of major changes include upgrading of submersible systems, adding equipment, or increasing the depth rating of a hull penetration).
- vii) Low level changes to a vessel's equipment or systems are managed by the Permit to Work system. This level of change allows the vessel to continue operations after assessing the hazards of the change, reviewing appropriate Job Procedures and ensuring that the change is completed under Supervision.
- viii) Changes in Personnel: OceanGate manages the following personnel changes:



- (1) New hires
- (2) Personnel transfers OceanGate ensures that:
- (3) Competent personnel are hired to fill positions within the company.
- (4) Personnel reassigned between worksites receive the correct orientation to make them familiar with the vessel systems, procedures and operations.
- (5) There is training for personnel to enable promotion from within the company. The training programs allow for regulatory requirements.
- (6) Assessment on a case-by-case basis occurs to ensure that the best qualified and suitable personnel are placed in the relevant positions.
- (7) Competency levels are enhanced by monitoring and guiding the development of personnel through the ongoing training and performance reviews.

B) HSE MANAGEMENT SYSTEMS CHANGES

- i) Suggested changes in the components of the HSE may originate at any level of the company. The Management of Change form will be completed and the MOC process initiated.
- ii) Changes to Procedures: The procedures that govern activities on a project worksite are managed through the use of checklists developed by operations management.
- iii) The central control of operational and maintenance procedure changes ensures that the experience gained on different projects is shared.
- iv) Changes in Documentation: Changes in written procedures and other controlled documents can only be undertaken by the department that issued the original document. Suggestion for changes can originate from OceanGate personnel, its customers or contractors. The changes must go through the review process. Updates are issued to the document recipients.

27) MOTOR VEHICLES

A) GENERAL

- i) All employees who operate a motor vehicle when conducting Company business must possess a current and valid driver's license of the state where they reside, for the class of equipment operated.
- ii) Employees must notify their supervisor if their license is suspended or revoked before driving a Company vehicle or using their own vehicle for Company related purposes.
- iii) If an employee's license is suspended or revoked, operation of a motor vehicle to conduct Company business is prohibited until the employee's license is re-issued.
- iv) Any restrictions imposed upon a license must be followed by the Company driver, i.e., glasses, weight restrictions, etc.
- v) Operating a motor vehicle for Company business includes Company vehicles, rental vehicles, or authorized use of personal vehicles.
- vi) Facilities shall adopt controls to assure employees have a valid driver's license if they use motor vehicles in conducting Company business.



- vii) Failure to comply with these requirements will prohibit employees from operating motor vehicles for Company business.

B) COMMERCIAL DRIVER'S LICENSE (CDL) REQUIREMENTS

- i) Any employee that is required to drive a vehicle that falls into one of the categories below will be required to have and maintain a CDL endorsement on their driver's license:
- (1) "Class B": A single vehicle with a gross vehicle weight rating (GVWR) of more than 26,000 pounds.
 - (2) "Class A": A trailer and pull vehicle if the gross vehicle combination weight rating is more than 26,000 pounds.
 - (3) A vehicle designed to transport more than 16 persons (including the driver).
 - (4) "HAZMAT": Any size vehicle that requires hazardous material placards. Any vehicle that transports greater than 119 gallons or 1000 pounds of non-bulk hazardous material or a table 1 hazardous material (49CFR 172.101-102) or is greater than 882lbs in weight in a container larger than 119 gallons and is solid form.
- ii) Required annual physicals will be at the expense of the Company. Affected employees will be required to take the physical examination when scheduled by the Company.

C) VEHICLE MAINTENANCE

The machinery and equipment must be inspected or serviced on a routine basis. A checklist/record to document the maintenance items will be maintained and kept on file for the life of the equipment.

Equipment	Interval	Location of record
Forklift	Daily	File cabinet in the shop
2003 Dodge 3500 Truck (Silver Streak)	Monthly	Vehicle zip binder
1999 International F2510 Truck (Green Giant)	Monthly	Vehicle zip binder
1996 Bayliner 2800 boat	Monthly	Vessel zip binder
2010 King Boat Trailer (Kraken)	Monthly	Silver Streak binder
2006 Flatbed Trailer (LRT)	Monthly	File Cabinet in the shop
2008 27' Safe Boat (Vito)	Monthly	Vito binder
2010 Haulmark Trailer (Charlotte)	Monthly	Silver Streak binder

*Forklifts are required to be examined daily prior to being placed into service or after each shift if used on a round-the-clock basis.

28) OFFICE SAFETY

A) PURPOSE

This section outlines the standards and instructions for maintaining a safe office environment.

B) ORGANIZATION AND CLEANLINESS

Use the following organizational techniques:

- i) When you stack material or boxes, do not block:
- (1) Sprinkler heads



- (2) Fire exits
- (3) Fire extinguishers
- (4) Electrical control panels
- (5) Stairs

- ii) Do not leave file and desk drawers open.
- iii) Do not overload to top drawers so that files tip over. Keep heavy files in lower drawers.
- iv) Keep the following areas clean and orderly and do not block: passageways, entryways, aisles, storerooms, hallways and stairs

C) EVACUATING THE OFFICE

This section describes the information employees need to have when working in an office setting.

- i) Each employee must learn the layout of the office and location of the nearest:
 - (1) Fire alarm
 - (2) Exits
 - (3) Fire extinguisher
 - (4) Evacuation route for their work station
- ii) Evacuation Procedure: The following steps will be followed in the event of an evacuation.
 - (1) If you are wearing high heels, then remove them to avoid falling. Walk; do not run to the nearest safe exit.
 - (2) Check closed doors for temperature and smoke.
 - (3) Follow the nearest exit signs and posted evacuation instructions.
 - (4) Once outside the building, department heads will get a head count of their personnel and be prepared to give this information to the local authorities.



iii) Notes:

- (1) Never use elevators during an evacuation, always use the stairs.
- (2) If there are ever any questions about office safety or any related subjects contact any of the HSE Department representatives for assistance with developing a process that will meet individual needs.
- (3) Follow instructions from building management and appointed fire marshals.

29) PERSONNEL TRANSFERS

A) TRANSFERS

Transferring personnel between vessels and stationary objects has always been a critical operation. When done safely and properly it can be a routine operation. The following are some guidelines to follow when transferring personnel. If there are questions about this standard, you can contact the HSE department.

B) CRANES OR WINCHES USED TO RAISE OR LOWER PERSONS:

- i) Will be tested and have a current certificate for man riding.
- ii) Will be fitted with a holding brake which operates on the winding drum of approved design and geared in an approved manner directly to the winding drum and is applied manually or by other approved means.
- iii) Will be capable of a rope speed in single fall of not less than 45m/min.
- iv) The basket shall be tested every 12 months as a minimum, with a load equal to 150% of the maximum allowed. A competent person will inspect the basket prior to every use.
- v) The following rules apply to basket transfer operations :
 - (1) Transfer by basket shall be voluntary.
 - (2) Transfer between barge and a boat alongside is allowed only with the personnel basket. It is forbidden to jump from the bulwark of the barge to the vessel alongside.
 - (3) No more than four persons are allowed on the basket at one time. Correct position is standing on the ring facing inwards and gripping the rope with both hands.
 - (4) Persons riding the personnel basket shall wear an approved Type V work vest and hold securely to the outside of the basket. Life jackets, which ride high around the neck, shall not be used due to the risk of neck injury if falling from a height into the sea.
 - (5) Only small items of luggage should be positioned in the middle of the basket; the transfer of larger items of cargo by basket is prohibited; slings or cargo nets must be used.
 - (6) Hoisting and lowering should be done easily without jerks and as much as possible above water.
 - (7) Tagline shall be tended until free of all possible obstructions that it could become caught on.
 - (8) The clear area, where basket shall be lowered shall be as large as possible (20 ft x 20 ft as a guide).



- (9) There should be a tagline permanently attached to the crane hook.
- (10) A person should be on the deck of the barge and the boat to guide the basket and to assist in discharging the luggage as fast as possible.
- (11) The assistance vessel shall have a line ready to be thrown to a man falling from the basket.
- (12) When an injured person has to be transferred by basket, they shall be securely strapped into the special stretcher provided for such transfers, and be accompanied.
- (13) Personnel basket transfer is prohibited in rough sea conditions as judged by the Master/Superintendent.
- (14) The man overboard team is always prepared to rescue anyone who should fall into the water.
- (15) Permission to use the personnel basket for transfer is given by the Master/Superintendent with a delegated supervisor immediately present and in charge of the transfer operation.
- (16) One signalman shall be assigned to give signals to the crane operator.

C) BY DIRECT TRANSFER

- i) On infrequent occasions, circumstances may require that a small number of personnel make a direct transfer from vessel to vessel prior to being lifted by the personnel basket. In situations such as these the Master of the vessels concerned make the decisions as to if a direct transfer may be accomplished safely.
- ii) When a direct transfer is carried out, the following safety guidelines should be followed:
- iii) An approved life jacket or work vest shall be worn.
- iv) No transfer to be attempted until the vessel pauses momentarily in a stationary position.
- v) Transfers should be made on the lee side of the vessels.
- vi) Transfer must be made with complete concentration.
- vii) Both hands should remain free in order to grasp ladders, rungs, etc.
- viii) Transfers are to be carried out at the peak of a rise, never while the vessels are falling away.



D) BOAT TRANSPORTATION

- i) When Crew Boats are used to transport employees to offshore vessels or locations the following safe practices should be followed:
 - (1) The person in charge has the authority to refuse passage to anyone he considers to be an unsafe passenger.
 - (2) The person in charge must be notified of any explosives, flammable liquids and solids, oxidizing materials, corrosive liquids, compressed gases, poisons or radioactive materials so that special transportation provisions can be arranged.
 - (3) Under no circumstances are firearms, alcoholic beverages or illegal drugs and paraphernalia permitted aboard the boat. Persons judged by the person in charge to be under the influence of alcohol or drugs will not be transported.
 - (4) Follow the person in charge's instructions as to the loading procedures, storage of luggage and cargo, seating arrangement, manifest/sign in procedures, pollution control measures, safe conduct procedures during transit and smoking restrictions.
 - (5) Regulations require boats to be equipped with at least one lifesaving device for each person aboard. All personnel must be familiar with the location of such devices.
 - (6) All passengers are to remain seated at all times while the boat is in transit for their personal safety. Personnel should not be outside or on the deck while under way.
 - (7) Always wear a life jacket or work vest when embarking or disembarking from the boat.
 - (8) Never jump from the boat to the dock, even if you perceive it to be "short enough".
 - (9) Climb down and seek assistance with your luggage and help your fellow crewmembers disembark.



30) PROJECT RISK ASSESSMENT

A) SCOPE OF WORK

During the initial phase of job development, the scope of work is defined under the responsibility of the Project Manager (PM). Depending on the potential hazards associated with the work, a Project Risk Assessment (PRA) may be called for by the PM. The PRA will be carried out to identify and assess the potential risks, decide on mitigation methods or the need for any special safety studies. If the risks cannot be reduced to an acceptable level at this stage the task should be rejected or redefined.

B) TEAM

The makeup of the PRA Team should include, at a minimum, the following personnel:

- i) Project Manager / Customer Representative
- ii) Engineering Representative HSE Staff
- iii) Vessel Captain or Superintendent

C) EVALUATE

The PRA Team will review the scope of work to be performed and evaluate the work for potential safety, occupational health and environmental risks. The following sections provide guidelines for each step in the PRA process.

- i) Define Parameters of Task: A review of the work should be made to determine exactly what the task would involve. It should consider:
 - ii) The need for special safety studies or assessments: Whether it is immediately obvious that the task cannot be carried out safely and should be discarded. If the likely hazards cannot be reconciled at this stage then the task should be rejected or redefined.
 - iii) What personal competency requirements are needed of those who will perform the task.
- iv) Categorize Task: Once this initial examination is complete, the review group should determine into which of the following categories the task fits:
 - (1) New Task - Any task not previously performed or assessed.
 - (2) Task Previously Assessed and/or Covered by Existing Procedures – Tasks that have been previously assessed and/or are covered by procedures may not require a new PRA. Previous assessments or procedures should be reviewed for accuracy and current applicability to see if they remain valid and to identify any additional job specific controls.
 - (3) Low-risk Task – Where a task is low risk and is performed by a competent person, a worksite Job Safety Analysis (JSA) will still be necessary, however, no formal recorded PRA will be required at this level.



- v) Once the category of the task has been determined, it will be the decision of the PM to determine if a PRA is needed. The following guidelines shall be followed if a PRA is required.
 - (1) Identify Hazards: The PRA Team shall list all significant hazards and then review them to determine what foreseeable effects they could cause if not eliminated or controlled. This should be done by way of a group discussion to ensure that all members are given adequate opportunity to express their views. A record should be kept of all decisions reached.
 - (2) Identify Hazard Effect and who may be affected: Once the hazards associated with the task are established, the hazard effects (i.e. the harm which could possibly occur) and people who may be affected need to be identified and considered.
- vi) Identify Risk Rating for Initial Risks: Risk rating is a means whereby the risks associated with a particular task can be expressed as a value and so judged whether to be within acceptable limits. Risks created by each identified hazard should be evaluated according to: The worst credible severity if the hazard effects were to result. The likelihood of the hazard effects happening. The Project Risk Assessment Matrix will guide personnel in assessing the level of risk associated with the task and when the risks are too high for a task performed safely.
- vii) IDENTIFY CONTROLS: Once the risk rating has been determined, the next stage is to identify the controls that are required to reduce/control the risk.
- viii) In identifying control measures, consideration must be given to:
 - (1) The task
 - (2) The people involved
 - (3) What tools, equipment and materials are to be used.
 - (4) The working environment
- ix) The PRA Team must work through the list of hazards to specify all methods needed to control each of the risks. These measures should be based on safe working practices in order to reduce the risks to As Low As Reasonably Practicable (ALARP).
- x) Once all the controls have been identified, the following questions should be asked:
 - (1) Have all the necessary control measures been fully/effectively identified?
 - (2) Are any additional specialty personnel required to complete the task?
 - (3) Is the risk effectively controlled?
- xi) When the controls have been identified, the Project Risk Assessment Matrix should be revisited to establish the level of residual risk once these controls are in place.
- xii) An assessment of the residual risks should be made for each of the hazards on the basis that all control measures have been put in place. If the residual risk is unacceptable, additional control measures should be identified.
- xiii) If further control measures reduce the risk to an acceptable level, they should then be recorded with the new residual risk rating. If further control measures cannot reduce the risk to an acceptable level, the task must not proceed and the team must evaluate an alternative method of accomplishing this task.



- xiv) If the residual risk is acceptable and ALARP, the PRA Team will recommend that the work should go ahead, with the identified control measures in place.

D) DOCUMENTING AND RECORDING

- i) The findings of the PRA are documented on a standard form that covers the following:
 - (1) Identification of job steps
 - (2) Hazards associated with the task Initial task risk rating
 - (3) Control measures to reduce the risk Residual risk rating
 - (4) Name of assessors Date of assessment
 - (5) Approval to Proceed
- ii) On completion of the risk assessment and prior to executing the task, the appropriate level of approval should be obtained.
- iii) Approval to proceed should not be seen as a formality. Approval should ensure that a suitable and sufficient PRA has been performed and that adequate controls have been identified to reduce the risks to ALARP.
- iv) The level of approval must be commensurate with the level of risk; i.e. higher risks require more senior management approval. These approval levels must be based on the initial risks and not the residual risks.
- v) Any risk that is above a score of 4 on the Risk Assessment Matrix will require notification and approval of the HSE Steering Committee.

E) IMPLEMENT CONTROLS AND UNDERTAKE TASK

Once the team is satisfied that all the hazards have been identified and that suitable controls have been put in place, they can allow the job to start. Although controls may have been implemented, the work team should not become complacent. By monitoring on an ongoing basis, the work team should always be aware of any changes in personnel (e.g. shift change), conditions at the worksite, or if the PRA is found to be incomplete or incorrect. If it becomes necessary, they should re-assess the task and, if in any doubt, stop the work until conditions can be made safe for personnel.



F) RISK ASSESSMENT MATRIX

		Very Unlikely	Possible	Very Likely
HAZARD SEVERITY	HIGH: Medevac (LTI), fatality, property damage >\$100K,	3	6	9
	MODERATE: Recordable injury, property damage between \$10- \$100K, spill between 1-100bbl	2	4	6
	LOW: First aid, property damage <\$10K, spill of 1bbl	1	2	3
PROBABILITY OF OCCURRENCE				

Risk Scores: Low = 1,2 Moderate = 3,4 High = 6,9

31) POLLUTION CONTROL AND WASTE MANAGEMENT

A) INTRODUCTION

Each and every person onboard the vessel shall exercise due care and take adequate measures so as to prevent the occurrence of pollution from ships and to reduce the effects from pollution.

- i) Drawings of systems, equipment, etc. for the prevention of oil pollution of the sea are available for information. The drawings indicate clearly the vessel with segregated ballast tanks, slop tanks, piping, pumps, oil monitoring instruments, equipment, etc. Necessary information as to the capacity and type of separators and pumps and also information as to instruments and equipment, the volume of tanks, etc. in accordance with the requirements is also available.
- ii) Surveys and inspections to ensure compliance with the requirements of the authorities are carried out on a regular basis and the IOPP (International Oil Pollution Prevention) certificate is endorsed accordingly.

B) GENERAL INFORMATION

- i) On calm seawater, oil in small quantities will spread into a circular patch quite quickly. For example, 1 m³ of crude will spread in 10 minutes to a patch of over 150 feet in diameter with an average thickness of 0.5mm. In 100 minutes it will grow to a patch of 325 feet in diameter with an average thickness of 0.1 mm. If larger quantities are spilt on the sea or when wave motion is present, water-in-oil emulsions will be formed, resulting in a rapid increase in viscosity and a consequential reduction in spreading rate. Oil in this state appears in the form of large "islands" of several centimeters thickness, separated by clear water.



- ii) An oil layer will change and finally disappear due to evaporation, solution, oxidation and bacterial attack. High wind speed will cause a more rapid evaporation. If wind causes rough waters, the oil will disperse and emulsify more quickly. Rough weather also causes airborne dispersion as oil droplets are lost from the wave crests. The faster the oil spreads, the quicker evaporation takes place.

C) IMMEDIATE RESPONSE

- i) Evaluate the risk of ignition. If a fire hazard is found to exist, suspend all activities, which might provide a source of ignition.
- ii) Order the stand-by vessel, if available, to the windward side of the source for foaming, or for agitating the slick with water jets.
- iii) If the contamination contains vapor representing a health or fire hazard to others near its source or in its path, issue a warning to all units in the area.
- iv) If an oil spill should occur, every effort should be made by the vessel to contain the spill by available means.
- v) Immediately report the oil spill to the port authorities and the USCG or the nearest coast radio station stating the:
 - (1) Quantity and nature of the spill or the rate of leakage. Sea state and weather conditions
 - (2) Direction and speed of the oil slick Present and potential hazards
 - (3) Actions taken
 - (4) Intentions

D) PROCEDURES

- i) If the oil spill is of minor quantity, consider the necessity or possibility for clean-up operations. If a clean-up is not possible due to unfavorable conditions, notify the Customer and make out a formal report.
- ii) If clean-up operations are considered necessary and conditions allow, evaluate the feasibility of operating booms, based upon current and forecasted sea conditions in the area and the availability of oil recovery equipment. Supply manpower to auxiliary vessels and direct the operation. Keep the Customer informed of the proceedings. If necessary, request assistance in cleaning up the spill.
- iii) If conditions do not permit oil boom operations, or recovery, determine the feasibility of applying a dispersant, taking into consideration the sea state and its effect on oil dispersion. If applying dispersant is considered advantageous, consult the Operator on obtaining permission from authorities to spray. State the following:
 - iv) Quantity and nature of spill configuration of slick Speed and path of slick
 - v) Quantity and make of dispersant immediately available
 - vi) Quantity and the type of equipment required
- vii) If the size of the oil spill calls for outside assistance, inform the USCG and Customer immediately. Give all relevant information as to pertinent hazards, intentions and requirement.



viii) In the event of a major oil spill, evaluate the potential hazard and initiate actions to:
Prevent the risk of ignition.

ix) Prepare to pull-off the location Avoid ignition sources on deck Suspend all non-essential activities Warn all units in the area

x) Deploy a stand-by vessel for surveillance

E) FIRE HAZARD

Oils of low viscosity spread very rapidly. The cooling effect of the water underlying the oil is usually enough to prevent combustion from taking place. A fire hazard exists only close to the source where the layer is thick and the volatility still remains in the oil.

F) OIL SPILL CONTAINMENT

Unless confined by booms, even a massive oil spill is likely to turn into a very thin layer of oil on a very large area in a short time. The use of booms on the open sea to collect oil for recovery or to prevent it from spreading depends on a number of factors. Winds of 6 to 9 mph will cause dispersion of a large portion of the oil, impeding containment and retrieval. A current exceeding 1-knot will cause entrapment. Drainage of oil within the boom will occur if recovery equipment is not readily available or is not working properly. The operation of booms should be decided upon after taking into account the current and tide, the present and forecasted sea conditions and the availability of and working conditions for recovery equipment.

G) SPECIAL PRECAUTIONS NOTIFICATION

If pollution is observed in port, immediately inform the USCG and port authorities. If underway or moored in coastal waters, inform the nearest USCG office, port authorities, or radio stations. If on location, inform the Customer. The Master should offer all assistance possible to the Authorities and act fast to prevent contamination of coast and shore installations.

H) REPORT

A report must be made to the authorities in the event of oil pollution. This report must include:

- i) The identification of the source of pollution (name of ship or platform).
- ii) The geographic position, time, and date of the incident or observation.
- iii) The wind and sea conditions prevailing in the area.
- iv) The estimated quantity of spill.

32) GARBAGE

A) DISPOSAL

- i) The disposal into the sea of all plastics, including, but not limited to: synthetic ropes and plastic garbage bags is prohibited. This also applies to any other garbage including paper products, rags, glass, metal, crockery, and food products.
- ii) The vessel shall make use of garbage/trash containers and/or compactors and incinerators.



33) PERSONAL PROTECTIVE EQUIPMENT (PPE)

A) GENERAL INFORMATION

PPE establishes a barrier between the worker and the hazard but does not eliminate the hazard. PPE should be used only after consideration has been given to eliminating or minimizing the hazard by other reasonable means.

- i) All employees will receive training in PPE at the time of hire, according to the guidelines and designated completion schedule in the "OceanGate Training Manual".
- ii) OceanGate will provide re-training when deficiencies in training are noted, when the work place changes or when systems or equipment change and render previous training obsolete.
- iii) OceanGate will investigate all incidents and changes will be made to the program "as needed" in order to maintain a safe environment for our employees.

B) DEFINITIONS

PPE – Personal Protective Equipment; Items of safety equipment to be worn by the employee meant to prevent injury.

C) SUPERVISOR PPE RESPONSIBILITIES

- i) Supervisors are responsible for assessing the work site and determining if there are hazards that require PPE.
- ii) The Supervisor will do a JSA as part of the work site assessment. Additional information on Workplace Hazard Assessment for PPE. can be found at the end of this section.

D) THE EMPLOYEE'S PPE RESPONSIBILITIES

Supervisors will advise employees as to what protective equipment is required for a particular job. Personnel shall be trained in and show understanding of the use of the PPE they may be required to use. This training includes:

- i) Situations requiring PPE in their work area.
- ii) Selecting the appropriate PPE based on the potential hazards and risks involved.
- iii) Wearing the required PPE according to the manufacturer instructions.
- iv) Understanding the limitations of PPE.
- v) Properly inspecting, fitting, using, storing, maintaining PPE.
- vi) Destroying and discarding PPE that is damaged, defective, or no longer useable.

E) HEAD PROTECTION

- i) Head protection devices are provided to employees to protect them from head or other injuries that could result from hazards in their working environment. Hard hats are available from the Company.
- ii) Approved hard hats -- All hats must:
 - (1) Meet ANSI Z-89.1 standard with stamp inside hat.



- (2) Be within five years of manufacturer product production date.
 - (3) Be worn in accordance with manufacturer's specifications.
 - (4) Be inspected frequently for cracks or other signs of damage. Be replaced when showing signs of damage.
 - (5) Must not be modified in any way.
- iii) When to wear - All personnel and visitors must wear approved hard hats when they are:
- (1) In restricted areas in the shop or yard.
 - (2) In any area work site where there is a potential for injury to the head.
 - (3) Involved with any overhead lifting or crane operation.
- iv) How to wear - The hard hat must be worn so that it provides maximum impact protection. The hard hat must never be tipped forward, backward, or to either side. The hard hat must not be worn backward.
- v) The suspension system must be adjusted to the proper size. The suspension system must never be altered.
- vi) Objects must never be stored between the head and the hard-hat.
- vii) Hairstyles that make it impossible for a person to properly wear a hard hat are not permitted.
- viii) Maintenance: Use mild soap and water to clean a hard hat. Never use gasoline, solvents, or similar substances on a hard hat. Do not paint or modify the shell of a hard hat (e.g., punching holes in it for ventilation).
- ix) Only approved stickers may be placed on hard hats.
- x) Any hardhat involved in an incident in which it was struck by an object will be taken out of service and replaced.



F) EYE AND FACE PROTECTION

- i) Equipment standards - Approved eye and face protection equipment must:
 - (1) Conform to ANSI standards and be stamped "Z87" on the frame of the glasses.
 - (2) Be properly fitted and worn. Provides proper side protection.
- ii) When to wear - All personnel and visitors must wear approved eye protection when:
 - (1) They are in a location where a potential danger to the eye exists.
 - (2) At the request of a Supervisor or Company representative.
- iii) Corrective lenses (glasses) - Personnel who require corrective lenses must wear prescription safety glasses.
- iv) Approved cover glass or impact-type safety goggles, specifically designed to be worn over corrective lenses.
- v) Contact Lenses - Personnel who wear contact lenses must:
 - (1) Inform their Supervisors and co-workers that they wear contact lenses.
 - (2) Use approved eye protection equipment when necessary.
 - (3) Ensure their use is not prohibited by documented work rules.
- vi) Emergency eye wash stations: Where potentially injurious chemicals are used, emergency eyewash stations shall be provided for immediate use. Stations should be clearly marked and ready for use.
- vii) Before employees work with potential hazardous substances, they shall locate and verify the operation of emergency eyewash stations.
- viii) The HSE Department should be consulted on the specific need, type, and placement of the emergency eyewash stations.

G) HEARING PROTECTION

- i) Required use: All personnel and visitors must wear hearing protection in areas where equipment is being operated and where signs are posted that warn of excessive noise levels. Hearing protection should be worn in areas that are not posted, if
 - (1) There is a potential for elevated noise levels, such as when high-pressure gases are released.
 - (2) It is necessary to raise one's voice in order to talk to others at a distance of three feet.
- ii) Noise surveys and postings: Probable high-noise-level areas should be surveyed and if necessary warning signs posted. A survey should be made when:
 - (1) An unposted area is suspected of excessive noise levels.
 - (2) It is necessary to raise one's voice in order to talk to others at a distance of three feet.



- iii) Types of hearing protectors:
 - (1) Muffs -- fit over the ears
 - (2) Disposable ear plugs -- are placed in the ear and thrown away after use
 - (3) Reusable ear plugs -- designed for repeated use
- iv) Sanitation: The muff type and reusable type plugs must be kept clean to prevent ear disorders. Discard the disposable plugs after use.

H) RESPIRATORY PROTECTION

- i) General
 - (1) Respiratory protection shall be provided to employees based upon hazard exposure. Supervisors will be responsible for assessing and monitoring the need and type of respiratory protection. The employee shall use the provided respiratory protection in accordance with the instruction and training received.
 - (2) Where to use: Respiratory protection must be used where respiratory hazards may be encountered in the workplace. These hazards include:
 - (a) Oxygen deficiency
 - (b) Gas and vapor contaminants
 - (c) Particulate contaminants such as harmful dust, fume, chemical mist or fog, smoke, and spray
 - (d) A combination of gas, vapor and particulate contaminates Potential exposure during emergency response activities
 - (3) Training: Personnel who perform tasks or emergency response activities that may require respiratory protection equipment must be trained before using the equipment. They must understand the limitations of respirators, including their impact on communication.
 - (4) Approved respirators: Respirators must have approval by NIOSH/MSHA. Mixing components from different types of respirators or using unapproved components is prohibited. Dust masks offer some protection from large dust particles encountered during tasks such as woodworking. Their use should be considered when performing these tasks.
 - (5) Facial hair and glasses
 - The following rules apply to respiratory equipment:
 - (a) Personnel must not have facial hair that could interfere with the function of the mask.
 - (b) Before donning a respirator with a full-face piece, any head covering, glasses and foreign items in the mouth must be removed.
 - (c) If an employee has previous successful experience wearing contact lenses, the employee may wear soft or gas permeable lenses.
 - (d) Personnel who wear prescription glasses and are assigned to areas where full-face respirators may be required should be provided with a means attaching the prescription lenses to the facemask. Hooded Egress Units allow for the use of prescription glasses during emergency evacuations.
 - (e) The mask is checked for a good face seal by means of daily negative/positive fit and by a periodic qualitative check.

- ii) Guidelines



- (1) The guidelines in this program are designed to help reduce employee exposures against occupational dusts, fumes, mists, gases and vapors.
- (2) Annual evaluations of the program and work sites will be conducted by HSE Management to ensure that the provisions of the current written program are being effectively implemented and that it continues to be effective. The evaluations may consist of review of the current program, visual observations, employee interviews, audits, identification of new hazards introduced to our work sites or any other means of ensuring that OceanGate personnel are protected under the written program. Evaluations will take place at the end of each year during the annual review of the HSE Policy Manual. Updates or changes to the existing program will be made in the both the HSE manual and annual training module.
- (3) The primary objective is to prevent excessive exposure to these contaminants. Where feasible, exposure to contaminants will be eliminated by engineering controls (example, general and local ventilation, enclosure and isolation, and substitution of a less hazardous process or material.) When effective engineering controls are not feasible, use of personal respiratory protective equipment may be required. Respirators suitable for the exposure will be provided.

iii) Responsibilities:

(1) Management:

It is a management responsibility to determine what specific applications require use of respiratory equipment. Management must also provide proper respiratory equipment to meet the needs of each specific application and ensure implementation of the respiratory protection program. Employees must be provided with adequate training and instructions on all equipment.

(2) Supervisory Staff:

Superintendents, Supervisors, and foremen of each area are responsible for ensuring that all personnel under their control are completely knowledgeable of the respiratory protection requirements for the areas in which they work. They are also responsible for insuring that their subordinates comply with all facets of this respiratory program, including respirator inspection and maintenance.

(3) Employees:

It is the responsibility of the employee to have an awareness of the respiratory protection requirements for their work areas (as explained by management.) Employees are also responsible for wearing the appropriate respiratory equipment according to proper instructions and for maintaining the equipment in a clean and operable condition.



(4) HSE department:

Responsible for monitoring and assisting with the implementation and management of this standard.

iv) Identification of Respiratory Hazards

Respiratory hazards are of three main types:

- (1) OXYGEN DEFICIENT ATMOSPHERE occurs in two different ways. Oxygen can be consumed by a chemical reaction in which it is combined with other elements. An example is carbon monoxide formed as an engine runs. Also, oxygen can be displaced by another gas. If a room or vessel with normal air (approximately 21% oxygen) fills up with another gas, such as carbon dioxide or nitrogen, the amount of oxygen available for breathing will be pushed out or displaced. Oxygen deficient atmospheres are "Immediately Dangerous to Life or Health (IDLH)." Lack of oxygen affects the brain very quickly, so personnel might not be aware of what is wrong until too confused to escape.
- (2) GAS AND VAPOR CONTAMINANTS can be any of a wide range of dangerous substances, including fumes from organic solvents, and can be classed as IDLH.
- (3) PARTICULATE CONTAMINANTS are tiny particles or droplets of a material. Dust from sand and solvent vapors generated by spray painting are of particular concern.

NOTE: Material Safety Data Sheets (MSDS) must be reviewed before work begins that involves the use of any chemical, gas, vapor, and particulate contaminants.

v) Selection of Respirators

In selecting a respirator, the following factors must be considered:

- (1) Nature of Hazard
- (2) Oxygen deficient atmosphere?
- (3) Gas and vapor contaminants present?
- (4) Particulate contaminants present?
- (5) Extent of the Hazard
- (6) IDLH?
- (7) Not immediately dangerous?
- (8) Contaminants Present
- (9) Dusts?
- (10) Fumes?
- (11) Gases and vapors?
- (12) Toxic?
- (13) Concentration of Contaminants
- (14) IDLH?
- (15) Not immediately dangerous?
- (16) Work Requirements
- (17) Area to be worked?
- (18) Conditions of the work area?
- (19) Time exposure? or Area exposure? or Mobility?
- (20) In addition to these items, the limitations and characteristics of the available respirators are also selection factors.



vi) Types of Respirators

Although there are many kinds of respirators used for protection, there are two basic types: atmosphere-supplying respirators and air-purifying respirators. Atmosphere-supplying respirators provide a breathable atmosphere to the wearer independent of their immediate atmospheric environment. They are divided into two main subgroups:

(1) Self-contained Breathing Apparatus (SCBA)

The unique feature of all types of self-contained breathing apparatus is that the wearer need not be connected to a stationary air source, such as a compressor. Instead, enough breathing quality air for up to one hour is carried on the person. For this reason, this type of respirator provides protection against all types of atmospheric contaminants in any concentration that can be endured by the skin

(2) Supplied-air Respirators

The distinguishing feature of supplied-air respirators is that air is supplied from a stationary, remote source to the wearer through a hose. The air supplying respirators are divided into three types:

- (a) Hose masks supply air from an uncontaminated source through a strong, large diameter hose. There are two basic types of hose masks available. Type A hose masks have a hand or motor operated blower, a face piece, helmet or hood, and up to 300 feet of hose. Type B hose masks have no blower and require the wearer to inhale through the hose; they must have a tight fitting face-piece, and no more than 75 feet of hose.
- (b) Airline respirators all use a stationary source of compressed air delivered through a high-pressure hose. These respirators are available in demand, pressure demand, and continuous flow configurations. The respiratory-inlet covering may be a face piece, helmet, hood or complete suit. Airline respirators provide a high degree of protection, but their use is limited to atmospheres not immediately dangerous to life.
- (c) Abrasive blasting respirators are essentially air supplying respirators that have been modified by the addition of suitable covering to protect the head and shoulders against impact and abrasion by rebounding material. They are designed principally for use in abrasive blasting operations.

NOTE: No supplied-air respirator is approved for use in IDLH atmospheres. Only SCBA or supplied-air respirators with an auxiliary air supply should be used.

- (3) Air purifying respirators remove gaseous or particulate contaminants, or both, from otherwise breathable air that is inhaled by the wearer. They are of no use where an oxygen deficiency exists or in IDLH atmospheres. Air purifying respirators are divided into the following types:
- (4) Mechanical filter respirators offer respiratory protection against airborne particulate matter including dusts, mists, metal fumes, and smoke. They consist of a soft resilient full or half-mask face piece. Directly attached is one of several types of mechanical filters made up of some fibrous material which removes particles by physically trapping them as air is inhaled through the material. Mechanical filter respirators have been designed for protection against atmospheres, which are not immediately harmful. They do not protect against gases or vapor or against an atmosphere deficient in breathing air.



- (5) Chemical cartridge respirators afford protection against high concentrations of certain acid gases and organic vapors by utilizing various chemical filters to purify the inhaled air. These are "non-emergency" devices and should never be used in dangerous atmospheres.
- (6) Combination respirators use dust, mist, or fume mechanical filters plus a chemical cartridge for mechanical filters plus a chemical cartridge for dual or multiple exposure. One common job where combination respirators should be used would be spray painting.

NOTE: It should be noted that the same color-coding used for canisters is also used for cartridges.

NOTE: Contact the HSE department with any questions as to what color goes to what hazard.

vii) RESPIRATOR TRAINING

- (1) Respiratory protection will be stressed through thorough training of ALL employees, ESPECIALLY the USERS who need to wear respirators for personal protection.
- (2) Supervisors and workers alike will be taught the proper selection, use, and maintenance of respirators. All employees required to use respiratory protective equipment will be instructed in the proper use of the equipment and its limitations, and, where applicable, in rescue procedures. Supervisors will ensure that all employees on their projects have received the necessary training, including respirator inspection and maintenance, prior to use. Training will include, but not be limited to:
 - (a) The nature of the respiratory hazard and what may happen if the respirator is not used properly
 - (b) Engineering and administrative controls being used and the need for the respirator to provide added protection
 - (c) Reasons for selection of particular type of respirator Limitations of the selected respirator
 - (d) Methods of donning the respirator and checking its fit and operation Proper wearing of the respirator
 - (e) Respirator maintenance and storage
 - (f) Recognizing emergencies and understanding the proper response. Training should continually reinforce that respirators DO NOT ELIMINATE THE HAZARD. Improper use or maintenance of respirators may cause overexposure.

viii) Fitting

- (1) All Supervisors and employees will receive fitting instructions including demonstrations and practice in how the respirator should be worn, how to adjust it and how to determine if it fits properly.
- (2) While respirators are designed for maximum efficiency they cannot protect the wearer without a tight seal between the face piece and wearer. Beards and other facial hair can substantially reduce the effectiveness of a respirator. To assure proper protection for a face piece it must be checked by the wearer each time it is donned.



- (3) Corrective and safety glasses worn by employees also present a problem when fitting. Special mountings to hold glasses are available.
- (4) No one brand of respirator will fit everyone.
- (5) As a matter of policy, Supervisors will be granted full authority to require a clean shave if there is a fitting problem. Employees preferring not to comply with a request to shave may be prevented from remaining on the job-site if the supervisor feels there is potential risk.

ix) Testing

- (1) Effectiveness of the face piece fit of a respirator will be tested by a qualitative fit test. Qualitative fit testing involves introducing a harmless odorous substance into the breathing zone of the wearer, while the wearer performs tasks, which could induce face piece leakage. Not detecting the odor indicates proper fit. Testing shall be done before the employee uses a respirator and during annual training, but employees may be sent to a testing facility if that is more expedient. Any time an employee's face structure changes, i.e. an accident; a new medical questionnaire will be performed with the company physician to determine if the employee can still wear a respirator. A new fit test must be performed as well.

x) User Seal Check (Positive & Negative Pressure Check)

- (1) All employees wearing a respirator will perform a positive & negative pressure fit test prior to each use of the respirator. This fit test will be conducted as follows: Negative Pressure Check requires the respirator to be placed in the proper position on the face. Once the respirator is on, the employee will cover the inhalation valve located on the respirator cartridges with the palm of their hand. The employee will then slowly inhale. The respirator should collapse slightly. Remove hands from blocking the inlets. Do not continue to breathe in. If no inward leakage of air is detected, the fit is considered satisfactory.



xi) Positive Pressure Check

- (1) Requires the respirator to be placed in the proper position on the face. Once the respirator is on, the employee will cover the exhalation valve located on the front of the respirator with the palm of their hand. The employee should then slowly exhale until a slight positive pressure builds up. If no outward leakage of air is detected, the fit is considered satisfactory.

xii) Respiratory Protection / Fit Test Guidelines

Personnel required to be fit tested –

- (1) Permanent crew positions such as Riggers, AB, Tenders, Mechanics, Electricians and others who use chemicals or as referenced on the MSDS.
- (2) Anyone who is assigned a job which involves working in areas contaminated with harmful dusts, fogs, fumes, mists, gases, smokes, sprays, or vapors. This could include jobs such as spray painting, use of chemicals, Mixing Cement, Welding or cutting of some metals, etc.

xiii) Tracking of personnel who have been fit tested

- (1) A “Respirator Fit Test Log” (Form HSE-024) of fit tests performed should be kept at the location where fit test occurs and a copy forwarded to the HSE Dept. as they are completed. Filters/cartridges should be changed according to the NIOSH Guidelines in Section 1 of the HSE Manual or by manufacturer’s guidelines and the date of any cartridge change should also be recorded on the Respirator Fit Test Log
Fit Testing Locations and Frequency of Testing– Frequency – Before using respirators, annually or any time a change in the fit is affected by: Changes in facial structure, weight loss, or surgery. A Review of all personnel at the Submersible HQ who are due or have not completed fit testing should be made each year and arrangements made for those individuals in need of testing.

xiv) 3M FT-10 Fit Test Kits

- (1) Should be ordered and kept at the Submersible HQ for testing of current employees. A Review of all personnel onboard who are due or have not completed fit testing should be made each year during completion of scheduled Training Manual topic on “Respiratory Protection” and arrangements made for those individuals to be fit tested.

xv) Person Performing the Fit Test –

- (1) Test should be conducted at the Submersible HQ by the HSE Advisor/ Medic or person appointed by the Director of Operations.
- (2) NOTE: The fit test procedure guidelines and instructions, which are supplied with the fit test kits, meet the requirements of the OSHA Standard for Respiratory Protection 29 CFR 1910.134. Anyone can perform the fit test so long as they are done according to the guidelines provided.



xvi) Inspection and Cleaning

- (1) All respirators must be inspected for wear and breakage before and after each use.
- (2) Special attention should be given to rubber or plastic parts, which can deteriorate. The face piece, especially the face seal surface, headband, valves, connecting tube, fittings, and canister must be in good condition. Respirator inspection must include a check of tightness of connections. SCBAs will also be inspected and maintained by authorized personnel, at regular intervals.
- (3) All respirators will be thoroughly cleaned weekly by washing in a detergent solution and then sanitized by immersion in a sanitizing solution containing a bactericidal agent or by other equivalent methods. Supervisors will ensure that job-sites have adequate supplies of the appropriate solutions and that cleaning and disinfecting is accomplished after each use.

xvii) Maintenance

- (1) Maintenance will be limited to replacement of filters, cartridges and parts that are recommended by the manufacturer to be replaced under field conditions. Manufacturer's recommendations are to be strictly followed. No attempt should be made to replace components or make adjustments or repairs beyond those recommendations. Faulty or damaged or unserviceable respirators should be turned in to the shop for disposal.
- (2) The current NIOSH service-time-limit recommendations for non-powered particulate filter respirators are that filter elements should be replaced at the following frequencies:
- (3) All filters. The service life of all filters is limited by considerations of hygiene, damage, and breathing resistance. All filters should be replaced whenever they are damaged, soiled, or causing noticeably increased breathing resistance.
 - (a) N-series filters generally should be used and reused subject only to considerations of hygiene, damage, and increased breathing resistance. However, for dirty workplaces that could result in high filter loading (i.e., 200 mg), service time for N-series filters should only be extended beyond 8 hours of use (continuous or intermittent) by performing an evaluation in specific workplace settings that demonstrates: (a) that extended use will not degrade the filter efficiency below the efficiency level specified in Part 84, or (b) that the total mass loading of the filter(s) is less than 200 mg. These determinations would need to be repeated whenever conditions change or modifications are made to processes that could change the type of particulate generated in the user's facility.
 - (b) R-series filters should be used only for a single shift (or for 8 hours of continuous or intermittent use) when oil is present. However, service time for the R-series filters can be extended using the same two methods described above for N-series filters.



- (c) These determinations would need to be repeated whenever conditions change or modifications are made to processes that could change the type of particulate generated in the user's facility. P-series filters should be used and reused in accordance with the manufacturer's time/use limitation recommendations when oil aerosols are present. P-series filters should be used and reused subject only to considerations of hygiene, damage, and increased breathing resistance if oil aerosols are not present.

xviii)Storage

- (1) Respirators must be stored to protect against dust, sunlight, heat, extreme cold, excessive moisture, or damaging chemicals. Protection against any mechanical damage should also be provided. Respirators should be stored so that the face piece and exhalation valve will rest in a normal position to prevent the rubber or plastic from reforming in an abnormal shape.
- (2) For practical purposes, respirators may be stored in their original shipping container, or in bags available from the shop Supervisors will ensure that storage is accomplished in a manner befitting a life-saving device.



I) WORK AREA SURVEILLANCE

- i) Surveillance of conditions in the work area and degree of worker exposure or stress must be maintained.
- ii) Changes in operating procedures, temperature, movement of air, humidity, and work practices may influence the concentration of a substance in the work area atmosphere. These factors necessitate periodic monitoring of the air contaminant concentration. Testing should continue to assure that the contaminant exposure has not risen above the maximum protective capability of the respirators being used. If changes are noted employees may need to leave the area to wash, change cartridges or type of respirator. Employees should also leave the area anytime they detect a break-through or resistance in breathing.
- iii) Employees using SCBA or supplied-air respirators in confined spaces, where the environment is or may be immediately dangerous to life or health, must wear safety harnesses and lifelines. A second person equipped with complete protective gear must be standing by ready to help if the first worker gets into trouble. Communications must be maintained with all persons involved in the operation. Precautions must be taken so that in the event of an accident one person will be unaffected and have the proper rescue equipment to be able to assist the others in an emergency situation.

J) AIR QUALITY STANDARDS

- i) Breathing air will be supplied to respirators from cylinders or air compressors. Breathing gas will be Grade "D" air or equivalent. Breathing-gas containers must be clearly marked before using.
- ii) Air compressors supplying breathing air will be equipped in all cases with high temperature shutoff switches that will shut down the compressor engine in the event of overheating. Compressors will be situated to avoid entry of contaminated air into the system and will be equipped with IN-LINE, AIR- PURIFYING SORBENT BEDS AND FILTERS to assure breathing air quality. Filters should be labeled to indicate the date of last inspection or change out. Receivers will have sufficient capacity to enable the respirator wearer to escape from a contaminated atmosphere in the event of compressor failure or shutdown. Air from the compressor will be tested at frequent intervals for the presence of carbon monoxide or fitted with an alarm set at 10 PM.
- iii) Airline couplings will be incompatible with outlets for other gas systems to prevent accidental servicing of airline respirators with non-breathable gases or oxygen. DO NOT CHANGE OR TAMPER WITH BREATHING AIRLINE COUPLINGS OR CONNECTORS.

K) SPRAY PAINTING

- i) Employees using paint spray guns wear respirators with organic vapor cartridges or other approved respiratory protection as required by the manufacturer of the product being used.
- ii) Spray painting should be done in well ventilated areas. If spray painting is being done in a confined area, intrinsically safe ventilation and lighting must be used.



- iii) No spray painting will be permitted in the presence of flames such as acetylene torches, gas burner, welding operations, heaters, etc.
- iv) Paint solvents may only be used as a paint thinner and cleaner of painting equipment. They may not be used for personal hygiene.
- v) No coatings containing heavy metals (lead, chromate, etc.,) or cleaners containing methylene chloride will be used by the company.
- vi) REQUIREMENTS
 - (1) Spray painting will only be allowed with prior approval by the Supervisor in charge. All paint storage buildings must have explosion proof lights. Adequate hand washing facilities must be provided.
 - (2) Eye wash bottles or stations will be made readily available at the blasting and painting locations.
 - (3) The air supply must meet all the Grade D requirements, and testing criteria, of the OSHA regulation 29 CFR 1910.134 or ANSI Z-88.
 - (4) Containment barriers will be used to control the dust and overspray in blasting and painting operations.
 - (5) All local, state and federal air pollution standards will be adhered to.
 - (6) Do not attempt to clean spray tip by passing fingers over the nozzle with the trigger open.
 - (7) Avoid skin contact with solvents and paint thinners.
 - (8) Grounded Air movers should be installed with painting or blasting in poor ventilating areas.
 - (9) Machines and hoses should be inspected weekly, and all parts showing excessive wear should be replaced.
 - (10) When using paint requiring thinners, have adequate ventilation. If you feel drowsy, nauseated or dizzy, stop work and get some fresh air. If the feeling persists, see the Supervisor. Exercise strict safety rules for all paints unless labeled non-toxic. Be extremely cautious when using water solvent paint around electrical outlets or electrical units.



L) HAND PROTECTION

- i) Employees shall wear hand protection appropriate for the activity and conditions. Examples of appropriate hand protection include, but are not limited to:
- ii) Leather or leather palmed gloves when handling wire rope. Cloth gloves when handling pipe.
- iii) Chemical resistant gloves when handling acids or caustics. Rubber gloves approved for electrical work.
- iv) Insulated or heat resistant gloves when burn protection is needed.
- v) Hydrocarbon resistant gloves when using hydrocarbon based solvents, cleaning agents, or chemicals.
- vi) All employees will wear the correct type of hand protection for the hazards involved.
- vii) OceanGate has gloves available and distribution will be decided by each work site supervisor.

M) FOOT PROTECTION: MINIMUM REQUIREMENTS

- i) All safety footwear must meet ANSI Z-41.1 standard for work at following areas:
 - (1) In the shop or on customer property.
 - (2) When working in areas where there is danger of foot injuries.
- ii) Inspection and replacement: Safety footwear should be inspected periodically by the individual and Supervisor and replaced if not providing adequate protection or traction.

N) PROTECTIVE CLOTHING : WHEN TO WEAR

- i) Special protective clothing would be used during operations where potential job hazards may include:
 - (1) Exposure to hazardous materials Cuts from material handled
 - (2) Other hazards that may be produced by special operations such as short-term exposure to extreme heat or cold.

O) OTHER PERSONAL PROTECTIVE MEASURES

- i) Personnel must wear clothing suited to the work, weather and the environment in which they work.
- ii) Personnel who work around moving and rotating machinery must not wear
 - (1) Neckties
 - (2) Long hair or beads that might constitute a hazard, unless tied back or secured with a net
 - (3) Jewelry such as neck chains, rings, or earrings Gauntlet gloves or gloves that fasten around the wrist Baggy, loose or ragged clothing
 - (4) A handkerchiefs or rags tied to themselves in a way that prevents its removal by one, quick, easy pull
- iii) If clothing becomes saturated with oil, gasoline, or chemicals, the following action must be taken:



- (1) Avoid all sources of fire until clothes have been changed and the skin is washed free of oil, etc.
 - (2) Respond as prescribed by the appropriate MSDS.
 - (3) Immediately wash the exposed skin area with soap and water to prevent skin irritation, and change clothes.
- iv) Always keep in mind that PPE is the last line of defense. This means all other methods of controlling hazards have been exhausted. Always make sure it is understood how to properly use the PPE required and know the limitations of that equipment. Used properly, PPE can protect personnel from workplace hazards; used improperly it will give a false sense of security and will not provide protection when the situation arises.

34) WORKPLACE HAZARD ASSESSMENT

A) INTRODUCTION

OceanGate has completed a Workplace Hazard Assessment in accordance with CFR 1910.132(d), Appendix B to Subpart I - Non-mandatory Compliance Guidelines for Hazard Assessment and Personal Protective Equipment Selection, to assist in implementing requirements for a hazard assessment and the selection of personal protective equipment. This Hazard Assessment should be referenced by "Work Area" for all job planning processes and during JSA review. Hazard Assessments are designed to inform employees of possible hazards and the proper protective equipment to be used to reduce or eliminate those hazards. Defective or damaged personal protective equipment shall not be used.

B) CERTIFICATION OF HAZARD ASSESSMENT

The areas listed below have been evaluated and the source, hazard assessment and protection to be used to eliminate or reduce the hazard have been listed. This document is verification that a Hazard Assessment has been performed and that this is a "Written Certification of Hazard Assessment"

Note: Hard Hat, Steel Toed Footwear, and Safety Glasses with side shields are mandatory in all work areas. For additional information or reference on PPE, Hearing Protection, Respiratory Protection, Fall Protection, LO/TO, Hazard Communications and Confined Space Entry, please refer to the OceanGate HSE Manual.

For notes listed under "Protection" refer to listing at the end of this Assessment



Source	Hazard	Protection
CHEMICALS Acid and chemicals handling, degreasing, diesel	Splash Irritating mists	Exposure, use face shield. Review MSDS. See notes (3), (11) Special-purpose goggles and Respirator, review MSDS. See note (8)
DROWNING Working outside of protected areas, Rough sea conditions	Unguarded rail openings, Wave action on deck	Wear approved work vest or life jacket, Work in pairs, consider use of safety lines with harness.
DUST Woodworking, buffing, general dusty conditions.	Nuisance dust	Goggles, eyecup and cover types. Wear Respirator and review MSDS. See note (8)
ELECTRICAL Cable trays, Switchboards, relays	Exposed contacts, bare wires	Wear appropriate rubber gloves, Isolate energy sources before maintenance, confirm LO/TO, rubber mats on decks.
FALLS Climbing Ladders or stairs, elevated platforms 6' above deck	Unguarded openings, falls from heights, slippery decks, tripping hazards,	Full body safety harness w/ lanyard and double locking latch, Retractable Lifelines, Ladder safety systems, Use handrails on stairways, proper footwear and maintaining good housekeeping.
HEAT pouring or casting sockets, welding and cutting	Hot sparks, splash / hot metals, temperature exposure	Face shield, goggles, and spectacles with side protection. For severe exposure use face shield. See notes (1), (2), (3) Face shields worn over goggles. See notes
IMPACT Chipping, grinding machining, sawing, drilling, chiseling, powered fastening, riveting, Hammering and sanding.	Flying fragments, objects, large chips, particles sand, dirt, etc.	Do not remove guards from grinders, Spectacles with side protection, goggles, and face shields. See notes (1), (3), (5), (6), (10). For severe exposure, use face shield Goggles, eyecup and cover types.



LIGHT and/or RADIATION- Welding: Electric arc Welding: Gas Cutting, Torch brazing, Torch soldering Glare	Optical radiation, poor vision, irritating mists	Welding helmets or welding shields. Typical shades: 10-14. See notes (9), (12) Welding goggles or welding face shield. Shades: gas welding 4-8, cutting 3-6, brazing 3-4. See note (9) Spectacles or welding face- shield. Typical shades 1.5-3. See notes (3), (9) Spectacles with grinding machining, woodworking, sawing, drilling, chiseling, powered fastening,, riveting, hammering and sanding. shaded or special-purpose lenses, as suitable. See notes (9), (10) Special-purpose goggles and Respirator, review MSDS. See note (8)
NOISE Engine exhausts, power units, cranes, winches, tools	High noise levels	Wear proper hearing protection, limit duration of time in area, post warning signs.
PINCH POINTS Air tuggers, cargo containers, pipe, slings and rigging, sheet metal, grinders	Rotating machinery, container covers, pipe and equipment	Wear proper work gloves, use tag lines, avoid contact. Secure pipe.
SHARP ITEMS Cutting, chopping, food preparation, food disposal	Knives, cutting / slicing equipment, garbage disposals	Wear Kevlar gloves; keep knives in safe location when not in use. Do not place hands or non food items into disposal. Do not use sticks or other items to push food into disposal. Goggles, eyecup and cover types. Use rubber gloves
STRUCK BY Crane or winch operations, rough sea conditions	Suspended or moving loads, shifting loads, falling objects	Hard hats, steel toed boots, safety glasses. Avoid pinch points and do not get between or under suspended loads.
VENTILATION Vent fans, fumes	Inoperable fans, open containers	Ensure proper operation of vent fans and wiring. Keep all flammables in closed containers, Check atmosphere O2



- i) Notes referenced under "Protection" column:
- (1) Care should be taken to recognize the possibility of multiple and simultaneous exposure to a variety of hazards. Adequate protection against the highest level of each of the hazards should be provided. Protective devices do not provide unlimited protection
 - (2) Operations involving heat may also involve light radiation. As required by the standard, protection from both hazards must be provided
 - (3) Face shields should only be worn over primary eye protection (spectacles or goggles)
 - (4) As required by the standard, filter lenses must meet the requirements for shade designations in 1910.133(a) (5). Tinted and shaded lenses are not filter lenses unless they are marked or identified as such
 - (5) As required by the standard, persons whose vision requires the use of prescription (Rx) lenses must wear either protective devices fitted with prescription (Rx) lenses or protective devices designed to be worn over regular prescription (Rx) eyewear
 - (6) Wearers of contact lenses must also wear appropriate eye and face protection devices in a hazardous environment. It should be recognized that dusty and/or chemical environments may represent an additional hazard to contact lens wearers. Caution should be exercised in the use of metal frame protective devices in electrical hazard areas
 - (7) Atmospheric conditions and the restricted ventilation of the respirator can cause lenses to fog. Frequent cleansing may be necessary. Wear the proper respiratory protection for the chemical or condition. Refer to HSE dept. if needed.
 - (8) Welding helmets or face shields should be used only over primary eye protection (spectacles or goggles)
 - (9) Non-side shield spectacles are available for frontal protection only, but are not acceptable eye protection for the sources and operations listed for "impact."
 - (10) Ventilation should be adequate, but well protected from splash entry. Eye and face protection should be designed and used so that it provides both adequate ventilation and protects the wearer from splash entry
 - (11) Protection from light radiation is directly related to filter lens density. See note (4). Select the darkest shade that allows task performance



35) PROCESS SAFETY MANAGEMENT

A) PURPOSE

Process Safety Management (PSM) refers to OSHA Standard 29 CFR 1910.119. It contains regulations that are intended to minimize the incidents, and/or mitigate the consequences of certain highly hazardous chemical releases, fires, and explosions. These regulations may apply to certain work sites where OceanGate is a contractor.

B) SCOPE

The PSM Standard affects all work locations which maintain or possess any of the following substances:

- i) Natural gas hydrocarbons in excess of 10,000 pounds. Hydrogen sulfide in excess of 1,500 pounds.
- ii) Systems which use ammonia in excess of 10,000 pounds. Systems which use chlorine in excess of 1,500 pounds.
- iii) Others per 1910.119 Hazardous Chemicals Index.

C) ELEMENTS

The PSM Standard contains essentially fourteen elements covering process safety related matters. The elements are:

- i) Employee Participation Process Safety Information Process Hazard Analysis Operation Procedures Training
- ii) Contractors
- iii) Pre-startup Safety Review Mechanical Integrity
- iv) Safe Work Practices (including Hot Work Permit) Management of Change
- v) Incident Investigation
- vi) Emergency Planning and Response Compliance Audits
- vii) Trade Secrets

Any questions concerning process safety management can be directed to the HSE department



36) WORKSHOP SAFETY

A) GENERAL

- i) All storage areas must be kept free of materials that can cause tripping, fire, explosion, or pest harborage. Aisles, stairways, walkways and loading platforms must also be kept free of such materials.
- ii) Gasoline and any other highly volatile material must not be stored in a warehouse. Appropriate outside storage should be provided. Large quantities of paint and thinners should also be stored outdoors or in approved lockers. Lockers must be labeled to identify the paint and thinner contents.
- iii) Allowable floor and platform loading must be determined by authorized professional personnel and prominently posted. Do not exceed loads that are posted or otherwise stated. Do not exceed OSHA safe loading limit requirements. A nonskid surface should be provided on ramps and walkways where there is danger of slipping.
- iv) Bins and racks should be spaced and located to allow safe access to material. Make provisions for safe access to material on high shelves.
- v) When storing heavy objects, such as fittings, in bins, place strips across the lower part of the bin to keep the fittings from rolling out.
- vi) Fire extinguishers shall be placed to insure proper coverage.
 - (1) Every 75 Feet for normal coverage.
 - (2) Every 50 feet in areas where flammable or combustible materials are stored.

B) FORKLIFTS AND PALLET STORAGE

- i) The operator must be fully qualified, certified and become thoroughly familiar with the forklift before using it. Also the following shall be followed:
- ii) Forklifts should be visually inspected daily for conditions adversely affecting the safety of the vehicle. If the forklift is used around the clock, it should be inspected after each shift.
- iii) A daily inspection of the forklift shall be performed and kept on file in the warehouse office.
- iv) Each forklift should carry the nameplate showing its weight and rated capacity. Each forklift should have a horn or other warning device loud enough to be heard above other local noise. This horn should be sounded when leaving or entering a building or when approaching blind corners. Forklifts should be equipped with a back up warning signal.
- v) **LOADING:** Never overload the forklift
- vi) Material must be piled securely on the pallet at all times. Round objects such as pipe or drums must be blocked or secured so they cannot roll. Before lifting, be sure that the load is stable and properly balanced.



vii) UNLOADING: Always lower the load slowly, a sudden stop may cause the forklift to tilt forward. Be sure stacked materials are not top heavy. When placing or picking up pallets, do not unbalance the stack.

(1) Never stack material in roadways or aisles.

(2) Employees other than the operator must stand clear of the forklift while it is being used to stack or remove material.

C) OPERATION

i) The operator must not permit anyone to ride on any part of the forklift.

ii) Do not use gasoline or diesel powered forklifts in small buildings without proper ventilation.

iii) When a forklift is left unattended, the fork should be fully lowered, controls in neutral, power shut off and brakes set. If parked on an incline, wheels should be blocked.

iv) Never drive over objects lying on floors. Such material may cause damage to the forklift and may shift or topple the load.

v) When driving with or without a load, keep the forks four to six inches above the ground.

vi) When following another forklift, keep at least ten feet behind. Do not travel abreast of another forklift.

vii) Avoid sudden stops and starts as they may cause skidding or topple the load.

viii) If the load obstructs forward view, the operator must travel with the load trailing. Avoid carrying loose material on forks. Use pallets whenever possible.

ix) Never stand under loads

x) Gasoline or diesel powered forklifts must be refueled outside buildings with the engine shut off and brakes set.



37) WATER SURVIVAL

A) GENERAL

- i) Authorized Personnel - Only authorized personnel are allowed on Company offshore vessels/facilities.
- ii) Safety Orientation - All new hires and persons visiting a vessel for the first time must receive a safety orientation.
- iii) Swimming - Swimming from Company facilities or property for recreation is prohibited.

B) PERSONAL FLOTATION DEVICES (PFD) REQUIREMENT

- i) A PFD must be:
 - (1) Approved
 - (2) The correct type for the individual, situation, and service
 - (3) Fastened fully when worn
- ii) Approved PFD's
 - (1) Type I - Life Preserver
 - Kapok or Fibrous glass must provide a minimum buoyant force of 25 pounds (adult) or 16.5 pounds (child)
 - Unicellular plastic foam must provide a minimum buoyancy force of 22 pounds (adult) or 11 pounds (child). This type is the most effective of all types in rough water.
 - (2) Type II - Buoyant Vest or Buoyant Device
 - Kapok or Fibrous glass buoyant vest must provide a minimum buoyant force of 16 pounds (adult), 11 pounds (medium child), or 7 1/4 pounds (small child).
 - A Unicellular plastic foam or unicellular polyethylene foam buoyant vest or any other buoyant device must provide a minimum buoyant force of 15 1/2 (adult), 11 pounds (medium child) or 7 pounds (small child). This type is normally sized for ease of emergency donning.
 - (3) Type III - Buoyant Vest or Buoyant Device
 - Minimum Buoyant force of 15.5 pounds (adult), 11 pounds (medium child), or 7 pounds (small child). Type III is the most comfortable and is recommended in areas of probable quick rescue.
 - (4) Type IV - Buoyant Cushion or Ring Buoy
 - Minimum buoyancy of not less than 16 1/2 pounds for ring life buoys, 18 pounds for foam cushions, and 20 pounds for any other device (kapok and fibrous glass).
 - This type is designed to be grasped and held by the user until rescued as well as to be thrown to a person who has fallen overboard.



(5) Type V - Work Vest Only

Unicellular plastic foam and provides a minimum buoyancy force of 17 1/2 pounds. This type is designed as a work vest only, and must be marked accordingly. It is not approved for use on recreational boats.

iii) When to use a PFD?

As a minimum, each individual must wear an approved Type III or Type V PFD when:

- (1) Transferring material or personnel to and from marine transportation (i.e. vessel to vessel, swing rope, personnel basket)
- (2) Working alone on small platforms (1 to 3 well structures) Working beneath decks or outside protective handrails Working over water near unguarded edges

iv) PFD for Facilities

- (1) Manned facilities, where personnel are routinely accommodated for more than 12 hours a day, must be equipped with Type I PFD for the number of personnel the facility is designed to accommodate.
- (2) Unmanned facilities must be equipped with Type I PFD for each person who comes aboard the facility.

Reference: For more information on personal flotation devices, refer to the Code of Federal Regulations, 33 CFR 144 or contact the HSE department.

v) Fall Protection

A full body harness, shock-absorbing lanyard, and personal flotation device (PFD) must be worn when working above water and outside protective handrails. A double lanyard may be required.

C) EMERGENCY PROCEDURES REQUIREMENTS

- i) Life raft/Survival Craft Readiness – Vessels and facilities having emergency life rafts or survival craft or capsules must conduct scheduled inspections, preventive maintenance, and emergency procedure drills. Required documentation must be maintained at the facility.
- ii) Emergency Procedures Orientation - All personnel must be familiar with fire, emergency, and abandonment procedures. Emergency, fire, and abandonment procedures must be posted in all living quarters of facilities and vessels. All new personnel must have an orientation on emergency procedures during their initial day of assignment to facility or vessel.
- iii) Abandonment Plan - Each platform or vessel with living quarters must have an emergency plan for safe abandonment in the shortest time practical. This plan should be included in the Station Bill and all personnel should be instructed in the procedures contained in the plan.
- iv) Abandonment from a facility or vessel by jumping into the water is hazardous and should be done only if there is no other means of escape.
- v) Water Entry From a Height

These procedures should be followed if it is necessary to jump into the water from a facility or vessel:

- (1) Remove your safety hard hat.



- (2) Put on and firmly secure your PFD. Get as close as possible to the water.
- (3) Look to see that your targeted landing area is clear of personnel, protruding objects and other debris.
- (4) Secure your PFD by clamping your free arm across your chest and grasping the shoulder strap of the PFD.
- (5) Protect your mouth and nose by placing the palm of your hand directly over your mouth and pinch your nose shut with your thumb and forefinger.
- (6) Look directly ahead at the horizon and stand straight.
- (7) Take a deep breath and jump feet first. Keep your body erect and your ankles crossed. DO NOT DIVE!!

D) WATER SURVIVAL ACTIONS

This topic contains information on abandonment of a platform, facility or vessel under certain emergency conditions. Personnel should be knowledgeable in water survival techniques.

Water Survival Steps with a PFD - Follow these steps upon entering the water with a PFD:

- i) Orient yourself in the water, then move away from any vessels
- ii) Look for rescue equipment and listen for instructions.
- iii) Let rescuers come to you. Avoid swimming a distance if possible because survival may depend on conserving energy.
- iv) Water Survival Steps without a PFD - Follow these steps upon entering the water without a PFD:
 - v) Turn your back to the wind or waves keep your head out of the water and swim using a breaststroke.
 - vi) In the event of an oil or fuel fire on the water, swim under the water.
 - vii) Before you surface, use your hands to splash a breathing hole above your head. Surface with your eyes closed, take a deep breath and re-- submerge feet first.
 - viii) Keep your head up and out of the water when swimming in oil and debris.
 - ix) Push oil and debris away from you by crossing your hands in front of you. Sweep your hands to the side as you swim forward with a modified breast stroke. Protect your eyes, ears and mouth.
 - x) In cold water conserve your body heat to prevent immersion hypothermia by minimizing your movements.
 - xi) If PFD has a whistle , use accordingly to highlight your location during heavy seas and in restricted visibility (night).

E) RESCUE ACTION FOR PERSON OVERBOARD

Alarms and Procedures - Person overboard procedures must be posted and all individuals must be familiar with these procedures.

- i) A person overboard alarm is an audio alarm and/or a verbal announcement made over the PA system or on a bull horn.



- ii) Rescue of a Person Overboard - Follow these steps to rescue a person overboard:
Shout out loud "Man Overboard"
- iii) Keep a visible line of sight using your eyes and point in the direction of the person overboard while someone sounds the alarm. Drop a ring buoy or other flotation device down to the person overboard. This device should mark the spot if the person submerges.
- iv) If the device must be thrown, be sure it does not hit the person overboard.
- v) If you reach out to a person overboard, secure yourself in such a way that you
- vi) Do not lose your balance and fall overboard.

F) SURVIVAL CRAFT SURVIVAL CRAFT EQUIPMENT

- i) All personnel must become familiar with the use and operation of survival gear and emergency instructions posted onboard survival craft.
- ii) Survival craft emergency equipment must never be tampered with or removed except for servicing or inspection.
- iii) Keep the fuel tanks at least 3/4 full at all times.
- iv) Required survival craft equipment and supplies must be inspected and maintained.
- v) Reference: For additional information on survival equipment and requirements, refer to the Code of Federal Regulation, 46 CFR 108 and 33 CFR 144. Launching Survival Craft
- vi) When the abandon facility alarm sounds, go to your assigned survival craft as per the facility's Station Bill. Put on a PFD, seat yourself, and fasten the seat belt.
- vii) Start the engine before the survival craft is launched.
- viii) Ensure the doors of the survival craft are secure before the launch has begun.
- ix) Remain seated and follow instructions of the survival craft commander. Do not remove seat belt or PFD until instructed to do so by the survival craft commander.
- x) Do not touch the cable release latch until the craft is floating in the water.
- xi) Note: If the launch is a drill, pull out an extra 8-10 feet before releasing the survival craft.
- xii) Towing is only permitted by using the towing eyes located on the outside walkway.
- xiii) Never tow a capsule-type survival craft by securing a line to the top due to risk of capsizing the craft.
- xiv) Retrieving the Survival Craft
 - (1) Ensure that limit switches on the docking platform are working before any retrieval of the craft is made.
 - (2) During the retrieval of a survival craft, ensure that the outside arrows are lined up together before placing cable in the hook.



- (3) Always stop the winch after the survival craft clears the water and check the condition of the cable on the drum. If no grooves are jumped, proceed with the hoist.

38) WELDING AND CUTTING

A) PURPOSE

To establish Safe Welding Areas (SWA) to reduce risks associated with welding operations and to comply with Section 29 CFR1910.252 and NFPA Standard 51 B.

- i) A Permit to Work (PTW) will be issued for all welding operations outside a SWA in accordance with PTW procedures.
- ii) A PTW is required for any cutting or welding in the SWA on vessels or equipment that contain flammable gases or toxic materials.
- iii) The SWA at the Everett shop is the screened booth near the SE door. If deployed, a facility layout showing the SWA will be available in the field.
- iv) The Vessel Captain / Master is responsible for inspecting and authorization of welding and cutting operations. The minimum precautions to be taken will be noted on the Permit To Work form.
- v) The Supervisor shall ensure personal protective devices are available and used in accordance with the sections below and established OceanGate personal protective equipment procedures.

B) REQUIREMENTS

- i) The SWA shall be separated from liquids and materials that will burn.
- ii) Separation may be achieved through a distance greater than 35 ft. or by a fire-resistant wall.
- iii) If a firewall is necessary it shall be adequate to protect the welding operation from all sources of flammables and to confine sparks.
- iv) The floor shall be dirt, solid steel, or concrete.
- v) Where provided, the roof and walls should be constructed so as to prevent the collection of vapors.
- vi) Where the welding area is partially enclosed, it shall be open on one side or adequate mechanical ventilation needs to be provided.
- vii) The SWA should be accessible by the vessel crane or other materials handling device(s).
- viii) A minimum of two 20 pound type BC dry chemical fire extinguishers should be available to the SWA. A water hose reel and a 150 lb. wheeled unit should also be available to the SWA.
- ix) The SWA shall be cleaned of welding and cutting waste after each use. The SWA shall not be used for general storage and shall be kept free of materials that will burn.



- x) The SWA will be approved by the Supervisor or Vessel Master. The SWA on vessels and barges shall also be approved by the USCG.
- xi) Welding and cutting in areas outside of the SWA requires the use of a fire watch.
- xii) If Welding or cutting cannot be performed in a safe area or cannot be shielded to complete the job in a safe manner then the welding or cutting will not be performed.

C) MAINTENANCE AND OPERATING REQUIREMENTS

- i) Only qualified personnel shall make repairs to cutting and welding equipment. Operators should report defects or safety hazards and discontinue use of equipment until the hazard has been corrected.
- ii) Welding machines shall be:
 - (1) Maintained in good mechanical condition. Equipped with drip pans.
 - (2) Grounded to the work.
 - (3) Kept clean with all closures and guards in place. Shutdown and attended during refueling operation.
 - (4) Equipped with spark arrestors (diesels) and air intake shutdown device. Located as remote as practical from sources of flammable fluids.
 - (5) Shutdown when emergency signal operates or fire water system loses pressure.
 - (6) Connected to the facility Emergency Shutdown Station, if practical.
- iii) Welding cables shall be:
 - (1) Kept coiled on the unit except when in use.
 - (2) Inspected for insulation and joint deterioration each time uncoiled from the machine. Harmful damage will be repaired prior to use.
 - (3) Maintained without joints or splices to the extent practical. Splices will be made with special cable connectors having at least equivalent insulation to the original covering.
 - (4) Routed so as to avoid crossing over equipment, vessels, sumps and drip pans.
 - (5) Connected directly to the object being welded.
- iv) Oxygen and acetylene
 - (1) Oxygen and acetylene bottles shall be properly secured upright chained in a safe location. Oxygen and acetylene must be stored at least 20 feet from any highly combustible material. Bottles must be separated by at least 20 feet or divided by a noncombustible barrier at least 5 feet high having a fire resistance rating of at least one-half hour.
 - (2) Hoses shall be in good condition, leak free and equipped with appropriate gauges, fittings, check valves, regulators and back flash protection. Fittings shall be free of oil or grease.
- v) Neither oxygen nor acetylene shall be used to fill or pressure test vessels or piping.
- vi) Hoses shall be routed so as to avoid crossing over equipment, vessels, sumps and drip pans.
- vii) Cylinder valve covers shall be in place except when in use. When cylinders are not connected and in use, the safety cap shall be in place.



viii) Gauges shall be protected from falling objects.

ix) An acetylene cylinder outlet valve that becomes clogged with ice or becomes frozen needs to be thawed with warm water. Never use a flame.

D) VENTILATION OF WELDING OPERATIONS

i) To the extent practical, all welding and flame cutting operations will be conducted in open well-ventilated areas.

ii) Welding Type Operations in Confined Spaces need to be conducted in accordance with "Hot Work" and "Confined Space Entry" procedures. (See Section 8.3 Confined Space Entry)

iii) Use exhaust ventilation when heating metals containing lead, cadmium, mercury, beryllium, chromium or zinc.

iv) Use airline respirators when heating metals containing beryllium.

v) Welders working in confined spaces shall wear respirators unless adequate ventilation is provided. Respirators provide protection against welding fumes and heavy metals.

vi) Airline respirators are required for beryllium.

vii) Other personnel exposed to the same atmosphere as the welder shall wear the same protection.

viii) Internal or external (preservative) coatings such as paints and degreasing solvents shall be assumed to be flammable and/or toxic. Prior to welding, the coating will be stripped back a sufficient distance from the area to be heated to prevent vaporization of the material.

ix) Oxygen shall not be used for ventilation, cooling, pressure testing, cleaning, or as a substitute for breathing air.

x) Oxygen/Acetylene cylinders used in confined spaces should be secured and valves closed when not in use.

E) TRAINING

i) Fire watchers must be trained in the use of fire extinguishing equipment, have it readily available, and be familiar with the facilities for sounding an alarm in the event of a fire.

ii) They shall watch for fires in all exposed areas.

iii) They should extinguish fires only when they are obviously within the capacity of the equipment available, or otherwise sound the alarm.

iv) Fire watch shall be maintained for at least a half hour after completion of welding or cutting operations to detect and extinguish possible smoldering fires.

v) Welders and Cutters should be suitably trained in the safe operation of their equipment and the safe use of the process.

vi) First Aid equipment shall be available at all times.



- vii) Personnel in charge of the oxygen or fuel-gas supply equipment, including generators, and oxygen or fuel-gas distribution piping systems shall be instructed and judged competent for the work by their employers. Rules and instructions covering the equipment shall be readily available.
- viii) Workmen assigned to operate or maintain arc welding and cutting equipment shall be acquainted with the requirements of 29 CFR 1910.252 (a) (b) and (c) and 29 CFR 1910.254
- ix) If gas shielded arc welding is done they must be familiar with the American Welding Society Standard A6-1-1966.

39) DIVE OPERATIONS

A) ROLE AND RESPONSIBILITIES

- i) The Primary roles that will be filled on most dive operations are:
 - (1) Mission Director (MD) – Responsible for all mission planning, execution and post dive documentation (entering of squawks and dive data). Mission Director shall typically not be involved in vessel or equipment operation during a mission.
 - (2) Submersible Pilot – Responsible for the safe operation of the submersible including all pre and post dive checks. The Submersible pilot reports to, and takes direction from, the MD with the exception of submersible safety related items.
 - (3) Vessel Captain – Responsible for the safe operation of their particular vessel (e.g. Vito, or tenders). All vessel captains report to, and shall follow the orders of, the MD unless to do so would potentially cause and unsafe situation.
 - (4) Platform Operator – The platform operator is responsible for the launch platform and its operation. Once permission to lift or descend is issued it is incumbent on the platform operator to ensure that the sequence is proceeding nominally and if not to decide whether to terminate the sinking or surfacing operations.

B) DIVE PLANNING

- i) Dive plans shall be the responsibility of the Mission Director in consultation with the submersible pilot and captains of any required vessels.
- ii) Prior to any manned subsea operations, including those where a submersible is empty but where divers are likely to be in the water, a formal dive plan shall be issued a minimum of 8 hours before the scheduled operation. This dive plan shall be of a format and content as determined by the Director of Marine Operations. The plan shall, at a minimum, include the list of participants, key frequencies, expected weather, dive schedule, risk assessment and emergency contact information.
- iii) Manned dives shall not be scheduled in situations where it is not highly likely that the submersible and support equipment will be ready in time for operations without extreme efforts (work days of more than 12 hours) of any dive participant or support personnel.
- iv) No vessel captain or submersible pilot or mission director shall have worked more than 12 hours in the preceding 24 hours before a scheduled mission.



- v) No dive shall be scheduled that would involve a duty day of more than 12 hours. In cases of long duration dives/operations a backup crew may be substituted in mid mission.
- vi) Dive plans shall be posted and/or made available to the entire company as appropriate.
- vii) Hard copies of the plan shall be available for key dive participants. In lieu of hard copies, a digital version may be used, but must be confirmed that they are accessible prior to and during dive operations.
- viii) Failure to produce a dive plan within 8 hours of a mission shall be considered a "Strike".

C) DIVE EXECUTION

- i) The Mission Director shall be in charge of monitoring, directing, modifying and potentially cancelling a dive operation.
- ii) The MD is responsible for confirming that all checklists are completed for all procedures and equipment prior to commencing operations the checklists shall include at a minimum:
 - (1) Platform – Inspection and operational checks
 - (2) Submersible – External, internal and pre-dive checks
 - (3) Support vessels – Inspection and operational checks
- iii) Any mission participant can call for a stop work/"stopski" for the team to reassess the safety of a particular action or event. The MD may delay this only if to pause a process would in itself cause a safety problem.
- iv) The MD shall track anomalies from the beginning of the mission. If there are more than 15 it shall be considered a "Strike".
- v) A Risk Index of more than 48 shall be considered a "Strike".
- vi) The MD shall cancel dive operations when it is determined that an unsafe situation exists or is likely to occur.
- vii) If there are a total of 3 or more "strikes" the MD shall cancel the dive operation.

D) POST DIVE TASKS

- i) The MD shall make sure that:
 - (1) Post dive brief will be as soon as feasible after dive, preferably in conference room or somewhere alike. All participants are invited and may share any and all pertinent information they may have.
 - (2) All squawks and dive summary data are entered into the vessel log.
 - (3) Unique events and data collected for clients/researchers is handed off to them as appropriate.
 - (4) Any incident or accident reports and investigations are submitted or commenced.
 - (5) All vessels and systems are prepared for storage or recharge.



E) MINIMUM REQUIREMENTS FOR SUBMERSIBLE TITAN TO COMMENCE DIVE

- i) The submersible pilot shall ensure the following minimum requirements are met before commencing a dive.
 - (1) Both Ictineu 150 volt batteries at minimum of 80%.
 - (2) 24 volt house batteries at minimum of 25 volts.
 - (3) Main oxygen level at minimum of 2200 psi.
 - (4) Reserve oxygen level at minimum of 2500
 - (5) HPA minimum of 5,000 PSI if dive is less than 1,000 meters.
 - (6) HPA minimum of 10,000 PSI if dive is greater than 1,000 meters.
- ii) At the discretion of the pilot, the following list is acceptable to be inoperable before or during a dive.
 - (1) 2 of 4 external lights.
 - (2) Sonar if visibility is greater than 10 meters.
 - (3) Interior lights
 - (4) Acoustic monitoring system if dive is less than 2,500 meters.
 - (5) No tracking if dive less than 30 meters and a float is attached to submersible.
 - (6) Electric drop weight system if dive is less than 30 meters.
 - (7) DVL if CTD and Sonar are operational.

F) COMMUNICATIONS AND TRACKING OF SUBMERSIBLE

- i) The MD shall ensure the following
 - (1) Tracking vessel will attempt to stay above the submersible at all times, excluding submersible surfacing procedures.
 - (2) Communications checks will be done every 15 minutes for submersible and every other vessel engaged in operations.
 - (3) Submersible will initiate first set of communications, and all following will be done by MD.
- ii) Missed communications protocol
 - (1) 15-minute comm. Check missed (note as missed comm.)
 - (2) 30-minute comm. Check missed (note as lost comm.)
 - (3) 45-minute comm. Check missed (note as lost sub) additional 15 minutes will be given for appropriate action to be taken.
 - (4) Internal contacts and backup personnel will be called following 1 hour of no communication plus required surface time from last known or assumed bottom depth of location.
 - (5) Additional 3 hours of local surface search will be done before contacting outside emergency personnel, unless circumstances merit a shorter delay.
 - (6) A grid search pattern will be done by surface vessels as directed by MD.

G) TOWING CONFIGURATION AND PROTOCOL

- i) Any new Tow vessel shall be inspected and a test of the tow configuration will be performed prior to dive operations.



- ii) "SHORT TOW OPS" (Less than 100 feet) will only be used in calm seas .
- iii) "LONG TOW OPS" (Greater than 100 feet) anywhere outside of marina.
- iv) If using a tow vessel with a single screw propulsion system or less than 40 feet in length, a second tow vessel will be required for open ocean operations.
- v) Offshore operations shall have at least 2 vessels not in tracking or tow position.
- vi) MD and captain of tow vessel shall determine once near site the set and drift accompanied by estimated time necessary to do final dive and platform checks, in order to successfully dive on desired location. At this point the tow vessel will run with predominant swells to minimize motion on platform. When not transferring personnel tow speed shall be as close to swell speed as possible.

H) PLATFORM CONFIGURATION AND PROTOCOL

- i) Platform buoyancy will be tested after out of water transport to any new location or with any new configuration and ballasted to 100-200 pounds negative.
- ii) Near shore or close proximity to possible grounding locations will require an anchor / chain and line to be present and readily available on deck.
- iii) Minimum of 2 persons shall be present on platform while towing with crew inside of submersible.
- iv) Minimum operating depth of platform in open water will be 10 meters.
- v) Minimum pressure in platform will be 150 PSI in all ballast supply tanks.
- vi) Platform will have a completed predive a minimum of 8 hours prior to dive.
- vii) Platform final checks will be performed 15 minutes prior to reaching dive site.
- viii) Platform support vessel will be towed astern at 10 meters for use in crew transfers and emergency transfers.
- ix) Sinking and raising of platform will be done under slow forward tow to keep submersible in locked position.
- x) Once submersible has left platform for dive and descends past 100 meters, the platform will be raised to deck wash and equipment will be stowed for towing.



40) GLOSSARY

Term	Description
Accident	Instance where injuries occur requiring medical attention, damage is caused to equipment not owned by OceanGate, or where the incident requires reporting to an authority (USCG, L&I, insurance, etc.). In this case a full accident investigation shall occur as soon as possible and the appropriate authorities (e.g. ABS, USCG, DOT etc) shall be notified as required.
Anomaly	Any deviation from standard or expected performance, procedure, system setup that would not be expected in a “perfect” situation. Anomalies can be as small as a dive member showing up late to a mission, a delay of more than 15 minutes in any planned step, or even a missing piece of required apparel (e.g. pen, knife etc.).
Antipodes	A manned submersible measuring 15’ LOA x 7.5’ beam x 8’ draft, capable of taking one (1) Pilot and four (4) crew to a depth up to 1000fsw.
Client	Person(s), company or organization whom utilizes OceanGate’s assets, personnel or services either by hire, charter or voluntarily means.
Cyclops 1	A manned submersible measuring 22’ LOA 8.5’ beam 8’ draft capable of (1) pilot and (4) four crew to a depth of 1,640 fsw.
Cyclops 2/Titan	A manned submersible measuring 22’ LOA 8.5’ beam 8’ draft capable of (1) pilot and (4) four crew to a depth of 13,200 fsw.
DOL	Department of Licensing; varies per state
DOT	U.S. Department of Transportation
Green Giant	A four-axle flatbed truck (make: International), with a PTO and hydraulic lifting crane.
HPA	High Pressure Air source (180 to 3,000 psi)
Incident	Situation involving minor injuries (those requiring first aid equipment), major unintended deviations from operational plans/procedures, near misses of a potential accident or where damages to equipment were sustained. Some items in this category are: Uncontrolled surfacing Uncontrolled descents Collisions Broken/snapped tow equipment Small controlled fires or major electrical shorts (requiring system or wiring repairs) Minor flooding Entanglements of sub or surface equipment
Kraken	A 28’ motor/vessel (make: Bayliner Classic); typically used by OceanGate for surface support of submersible operations.
LRT	OceanGate’s submersible dry-dock, designed for the Launch, Retrieval and Transport of Submersible.
MEL	Missing Equipment List. List identifies all equipment that can be inoperative/unavailable for a given dive operation. Unless an item is on the MEL any missing/failed item on a submersible must be fixed/installed prior to dive operations. Failure of an item during a dive that is not on the MEL shall be a cause for dive termination.
MSDS	Material Safety Data Sheet



Near Miss	Situation where an accident or incident was narrowly avoided including: Any anomaly found during a pre-dive check Nearly missed collisions Near injuries
OSHA	Occupational Safety and Health Administration
PFD	Personal Floatation Device
PPE	Personal Protective Equipment
RISK INDEX	A score (from 0-100) that incorporates a diverse potential risk increasing situations such as poor weather, night operations, new locations or new crew. The index is used to focus the team's attention to risk increasing components. The MD may be able to reduce the Risk Index through several actions such as adding a co-pilot, changing time, or doing a test dive prior to open water operations.
SCUBA	Self-Contained Underwater Breathing Apparatus
STOPSKI	A 5 minute delay in operations that shall be inserted before a major action is taken, such as commencing dive operations, lifting of manned vessels or other life critical activity. A Stopski is a means of slowing a potentially fast paced completion focused operation and permitting all members to review their particular equipment or role to ensure all systems are safe and ready for "launch".
STRIKE	A major deviation or major problem encountered during a dive operation including during pre-dive preparations that is significant, but not by itself worthy of mission cancellation. Examples of strike are: weather worse than forecast, delays of more than one (1) hour from plan, last minute substitutions of key personnel in dive operations, failures of equipment within MEL guidelines, last minute unscheduled configuration changes.
USCG	United States Coast Guard
VITO	An ex USCG 24' safeboat with twin outboard engines used for marine operations and support.

41)APPENDICES

APPENDIX I

JOB SAFETY ANALYSIS FORM

Date:	Vessel/Location	Observer Name



Activity	Safe	Unsafe	Comments
Eye protection			
Hand protection			
Ear protection			
Head protection			
Foot protection			
Fall protection			
Housekeeping			
Trip Hazards			
Lifting technique			
Tool usage			
Tag lines			
Rigging equipment			
Crane signals			
Lifting equipment			
Permit to work			
Pinch points/struck by			
Scaffolds			
Respirator			
Personal Flotation Device			



APPENDIX II

ALCOHOL, DRUG AND CONTRABAND TESTING INFORMATION

Collection Facility	Name:	
	Address:	
	Phone Number:	
	Contact Person:	

Testing Laboratory	Name:	
	Address:	
	Phone Number:	
	Contact Person:	

	Substance	Screen Level	Confirmation Level
	Cocaine	300 ng/ml	150 ng/ml
	Phencyclidine (PCP)	25 ng/ml	25 ng/ml
	Marijuana (THC)	50 ng/ml	15 ng/ml
	Opiates	2000 ng/ml	2000 ng/ml
	Amphetamines/ Methamphetamines	1000 ng/ml	500 ng/ml
	Barbiturates	500 ng/ml	200 ng/ml
	Benzodiazepines	300 ng/ml	300 ng/ml
	Methadone	300 ng/ml	300 ng/ml
	Propoxyphene	300 ng/ml	300 ng/ml
	Alcohol	Trace: 0.02	0.04 gm/dl



**APPENDIX III
SAFETY AUDIT FORM**

Supervisor:		Date:	
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Participants:	

Hazards Identified	Corrective Action	Target Date



APPENDIX IV HAULING / TOWING VEHICLE CHECKLIST

For load:

- ☐ Heavy items loaded first?
- ☐ Fuel/flammables/compressed gases considered?
- ☐ Valuables/ fragile items loaded in to cab?
- ☐ Load tied securely for high wind/speed?
- ☐ Mirrors adjusted?

For land tow:

- ☐ Trailer tire inflation checked?
- ☐ Safety chains attached?
- ☐ Trailer lights checked?
- ☐ Trailer brakes checked (as applicable)?
- ☐ Load strapped down thoroughly?
- ☐ Engine/lower unit (as applicable) raised?

For Water Tow:

- ☐ Tow Line rated for minimum two times expected load?
- ☐ Line and/or heave compensation for shock loading?
- ☐ Tow attached points enough for tow load?
- ☐ Floats or other method of ensuring tow line does not get sucked into propellers?
- ☐ Tow/RIAM signals and lights?
- ☐ Captain rated/trained for towing?
- ☐ Anchor on tow vessel in case of tow line break?
- ☐ Tow break and tow procedures briefed?