Employee Environmental, Health and Safety Handbook

EVERYONE WATCHES OUT FOR EVERYONE

Employee Environmental Health and Safety Handbook

(SSG K0200)

EVERYONE
WATCHES OUT
FOR EVERYONE

For Reference Only

Always refer to the electronic version in Command Media for the current, valid version of this document.

A Message from the Corporate Vice President and President of Ingalls Shipbuilding

Ingalls Shipbuilding is committed to a strong environmental, health and safety program. Extensive policies, procedures and processes have been established, and we've invested in significant resources, to ensure each employee is provided a safe and healthy workplace.

A shipyard is a highly dynamic work environment. Because it is constantly active and changing, it is critical that you continuously maintain a high level of situational awareness. You must recognize what is happening around you at all times and anticipate the unexpected. And if the unexpected happens, are you going to be safe? I call this being a "defensive shipbuilder."

Each of us should be mindful of our work environment and practice safe work procedures at all times during our workday. We should also hold each other accountable for working safely and be responsible for knowing the right procedure for any task we undertake.

Commitment from Ingalls Shipbuilding's management alone cannot achieve optimal safety and health in the workplace. Telling the truth about issues you see or hear and reporting any violations immediately are part of taking ownership of your work environment and being committed to a safe workplace. Your cooperation, commitment and positive attitude contribute toward the ultimate safety goal of minimum lost time hours and the overall success of our environmental, health and safety program.

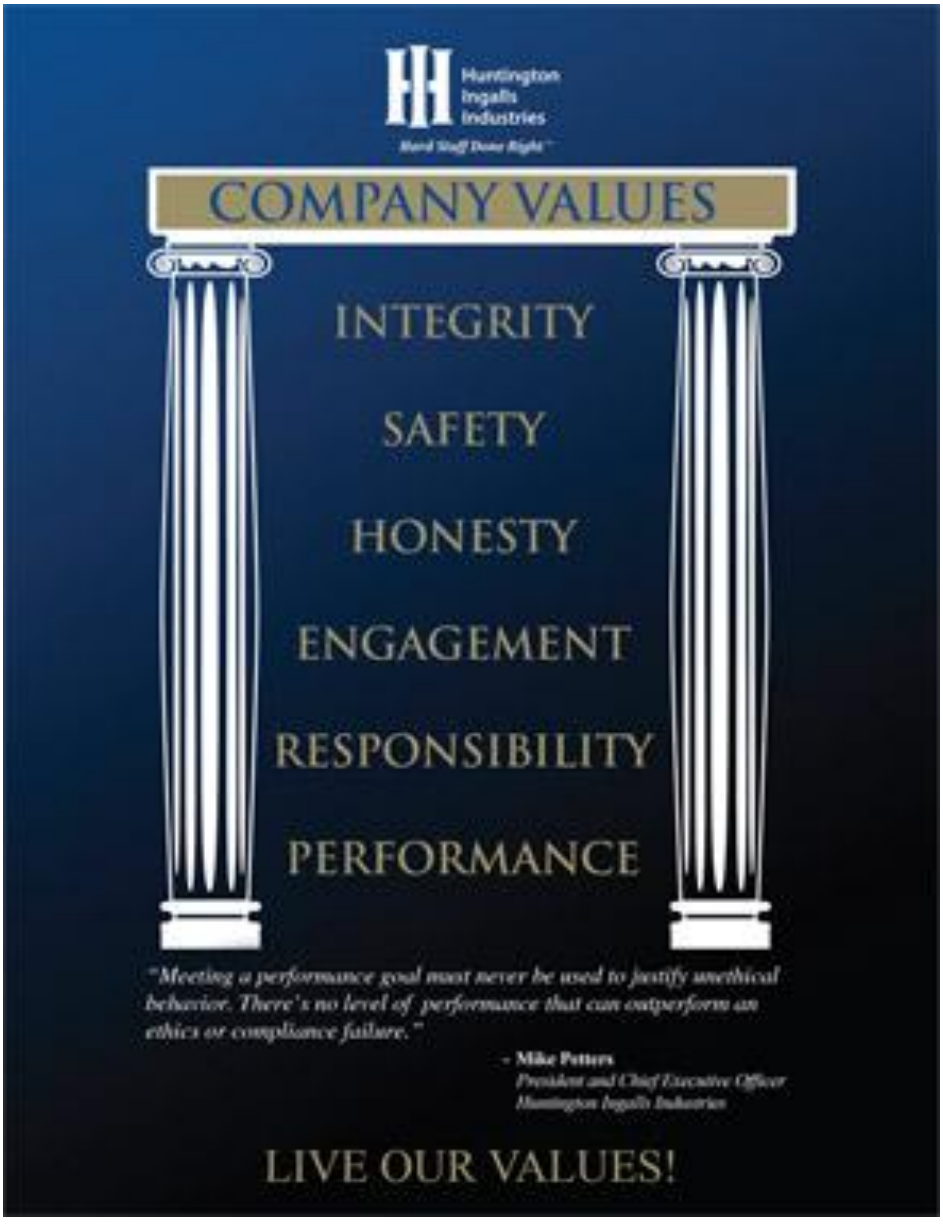
No system of administrative, mechanical or operational safeguards is complete without everyone's constant alertness, cooperation and safety awareness. All employees, subcontractors, vendors, customers and visitors must comply with our safety regulations, occupational safety and health standards and other safety directives and environmental policies.

Ingalls Shipbuilding expects each employee to know the rules stated within this handbook and use the Environmental, Health and Safety Program to develop and maintain a safe workplace.

Thank you for your commitment to continuously improving our environmental, health and safety performance, and keeping yourself and your fellow shipbuilders safe.

Brian Cuccias
President
Ingalls Shipbuilding

Ingalls Shipbuilding


Huntington
Ingalls
Industries
COMPANY VALUES
INTEGRITY
SAFETY
HONESTY
ENGAGEMENT
RESPONSIBILITY
PERFORMANCE
"Meeting a performance goal must never be used to justify unethical behavior. There's no level of performance that can outperform an ethics or compliance failure."
- Mike Petters
President and Chief Executive Officer
Huntington Ingalls Industries
LIVE OUR VALUES!

Our Priorities

- **SAFETY**. Working safely every day, in everything we do, while also looking out for our fellow employees.
- **QUALITY**. Ensuring first-time quality of our products and processes, while focusing on continuous improvement.
- **COST**. Delivering our products for the contract amount.
- **SCHEDULE**. Delivering all of our products on time during each phase of the project.

Ingalls Shipbuilding Environmental, Health and Safety Policy

- Ingalls Shipbuilding is committed to:
  - *Full compliance with laws, regulations and policies that protect people and the environment;*
  - *Prevention of pollution, injuries and illness;*
  - *Involvement of employees, customers and suppliers; and*
  - *Continuous improvement.*
- Ingalls Shipbuilding operates in a manner that is protective of the health and safety of its employees, visitors and customers that is protective of the communities in which it operates, and protective of the environment.
- Ingalls Shipbuilding strives to sustain EHS excellence by:
  - *Allocating and sustaining adequate resources;*
  - *Complying with applicable EHS laws and regulations;*
  - *Assigning EHS responsibilities with accountability;*
  - *Implementing appropriate procedures and self-governance;*
  - *Integrating EHS requirements into planning, design, and modification activities;*
  - *Responding to new and emerging EHS requirements;*
  - *Implementing waste minimization and pollution prevention programs;*
  - *Implementing injury and illness prevention programs;*
  - *Communicating with employees, customers, suppliers, the general public, law makers and regulators;*
  - *Participating in legislative and public review processes to promote EHS laws and regulations that are protective of human health and the environment;*
  - *Sharing and adopting industry best practices;*
  - *Training employees and contractors;*
  - *Participating in Huntington Ingalls Industries Environmental, Health and Safety Leadership Council initiatives;*
  - *Conducting periodic evaluation of its EHS programs; and*
  - *Continuing to improve EHS performance through process improvement initiatives.*

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EVERYONE
WATCHES OUT
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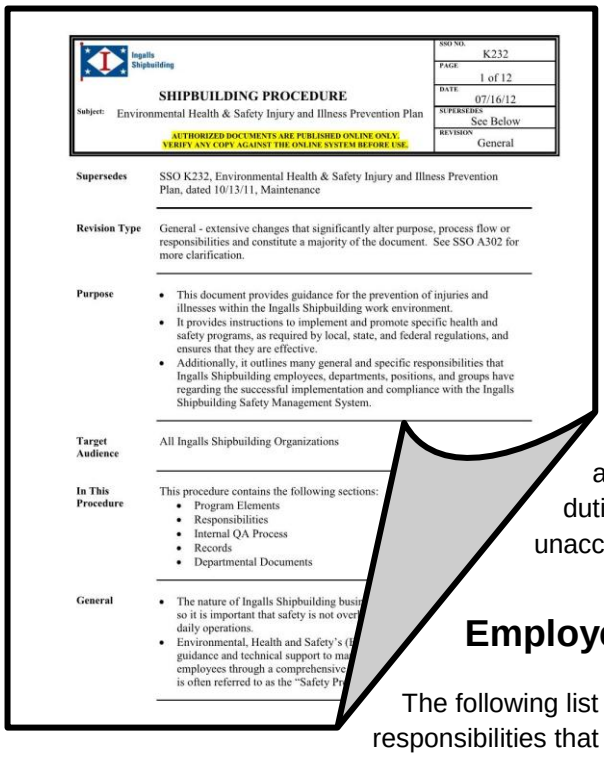
1 EHS Injury and Illness Prevention Plan (I^2P^2) and General Programs and Procedures

EHS Injury & Illness Prevention Plan (I^2P^2)

Ingalls Shipbuilding's I^2P^2 is a written program that spells out many of the procedures and responsibilities for conducting shipbuilding work in the safest manner possible. It is also an overview of our Safety Management System, commonly referred to as our "Safety Program". It describes the roles that specific shipbuilders have in interfacing with our Safety Management System, from hourly represented employees to various management teams to the EHS Department—everyone has safety responsibilities and duties.

Many elements of our Safety Management System are defined in written programs, procedures, work instructions and guidances. These documents make up our written safety program and are maintained in the Company's electronic repository for documents— called Command Media.



Ingalls Shipbuilding

SSO NO. K232
PAGE 1 of 12
DATE 07/16/12
SUPERSEDES See Below
REVISION General

SHIPBUILDING PROCEDURE

Subject: Environmental Health & Safety Injury and Illness Prevention Plan

AUTHORIZED DOCUMENTS ARE PUBLISHED ONLINE ONLY. VERIFY ANY COPY AGAINST THE ONLINE SYSTEM BEFORE USE.

Supersedes SSO K232, Environmental Health & Safety Injury and Illness Prevention Plan, dated 10/13/11, Maintenance

Revision Type General - extensive changes that significantly alter purpose, process flow or responsibilities and constitute a majority of the document. See SSO A302 for more clarification.

Purpose
- This document provides guidance for the prevention of injuries and illnesses within the Ingalls Shipbuilding work environment.
- It provides instructions to implement and promote specific health and safety programs, as required by local, state, and federal regulations, and ensures that they are effective.
- Additionally, it outlines many general and specific responsibilities that Ingalls Shipbuilding employees, departments, positions, and groups have regarding the successful implementation and compliance with the Ingalls Shipbuilding Safety Management System.

Target Audience All Ingalls Shipbuilding Organizations

In This Procedure This procedure contains the following sections:
- Program Elements
- Responsibilities
- Internal QA Process
- Records
- Departmental Documents

General
- The nature of Ingalls Shipbuilding busi
so it is important that safety is not over
daily operations.
- Environmental, Health and Safety's (
guidance and technical support to ma
employees through a comprehensive
is often referred to as the "Safety Pr

Many of the topics in this handbook are covered in more detail in their corresponding Command Media documents and have specific document identifiers to enable quickly locating the most up-to-date version. For example, the I^2P^2 program is known as (SSO K232) *EHS Injury and Illness Prevention Plan*. Anytime a shipbuilder would like to review a copy of a written safety program document, he should let his supervisor know that he would like a copy, contact his area EHS Staff representative, or call or visit the EHS (Safety) Department (ext. 2100).

All shipbuilders are responsible for preventing injuries and illness and the I^2P^2 explains the general and specific duties to eliminate conditions and behaviors that are an unacceptable risk to employee safety and health.

Employee Responsibilities

The following list contains many of the general safety and health responsibilities that employees have, but it *is not* an all-inclusive list:

- *Conduct a pre-use visual inspection of all tools, equipment, lines, cords, hoses, materials, PPE and work area.*
- *Review the EHS program procedures that are applicable to the work environment and job, and always comply with their requirements.*
- *Complete required EHS training and certification courses applicable to the work environment and job.*
- *Ask questions if ever unsure of any safety-related issue or situation.*
- *Use a STOP Badge and halt any unsafe activity, behavior or process that is observed.*
- *Wear all required PPE to control exposures within the work area.*

- *Get involved! Attend safety committee meetings and participate in corrective action activities or continuous improvement initiatives.*
- *Be aware of the location of our Hazardous Communication Program and Safety Data Sheets and understand container-labeling requirements.*
- *Report any unsafe conditions—including chemical spills and at-risk behaviors to management and/or an EHS staff member.*
- *Immediately inform management when an occupational injury or illness occurs—regardless of how slight.*
- *Conduct a "Take 5 for Safety" jobsite inspection prior to the start of the work shift.*
- *Never come to work under the influence of alcohol or controlled substances and notify management or the Medical Dept. when an illness or medication impairs your ability to perform required tasks, climb, operate any equipment or vehicles or use any hazardous materials.*
- *Do not make unauthorized repairs or modifications to Company equipment, tools or PPE.*
- *Immediately report any defective item to supervisor.*
- *Unless otherwise instructed, use only Ingalls Shipbuilding issued tools, equipment, or PPE to perform your tasks.*
- *Employee-supplied tools must be in good condition, inspected on a regular basis and approved for use by management.*
- *Always show up to work well rested, hydrated, wearing proper work apparel and not wearing jewelry.*

Compliance and Enforcement Discipline

Along with employee responsibility, comes accountability. Unsafe acts can cause disabling injuries and death; therefore, adherence to EHS requirements are closely monitored and when necessary, enforced comprehensively.

The written program for compliance enforcement is *EHS Enforcement Discipline Safety Control Program* (SSO K200). It outlines the system for conducting enforcement discipline for EHS violations. It also spells out the specific responsibilities for the EHS Executive Council, craft directors, the EHS Department and front-line supervision.

Additionally, a separate document, *EHS Enforcement Disciplinary Action Guidelines and Codes* (SSO K200A) establishes consistent guidelines for administering discipline for violations of EHS regulations. SSO K200A explains the progressive nature of violation consequences based on the severity of the infraction and if it is a repeat offense. The scale below depicts the progression from the first offense of a minor violation, which warrants a written warning, to the immediate discharge for the first offense of extremely grievous offenses.

DISCIPLINARY ACTION PROGRESSIONS

Represented Employees		Non-Represented Employees	
400 Series	1) Written warning 2) 1-day layoff without pay 3) 3-day layoff without pay 4) Discharge	**400 Series**	1) Verbal warning/Counseling or Coaching 2) First written warning 3) Final written warning. Disciplinary suspension or termination 4) Termination
300 Series	1) 1-day layoff without pay 2) 3-day layoff without pay 3) Discharge	**300 Series**	1) Written final warning notice, written final warning notice and disciplinary suspension or termination 2) Termination
200 Series	1) 3-day layoff without pay 2) Discharge	**200 Series**	1) Written final warning notice, written final warning notice and disciplinary suspension or termination 2) Termination
100 Series	1) Discharge *(NOTE: 100 Series violations require a meeting with EHS, Labor Relations, the craft department and union representatives before issue.)*	**100 Series**	1) Written final warning notice, written final warning notice and disciplinary suspension or termination 2) Termination

Along with the disciplinary consequences, SSO K200A also has a table of example violations and the administration code used for each example. Not all possible violations are listed; however, the table serves as a reference when issuing formal enforcement discipline. The entire table can be found in the appendix of this handbook.

Employee Involvement

At Ingalls Shipbuilding, there are many ways for employees to become involved in our EHS efforts. Employees may submit their EHS improvement ideas to the IDEAS Suggestion Program. They may see their suggestion implemented and be rewarded for it. Review *IDEAS Suggestion Program* (SSW W3000) for more details. However, one of the most popular employee involvement programs is the Safety Action Teams (SAT).

The Ingalls *Safety Action Team Program* (SSG K0208) was developed through the cooperative efforts of Operations, the EHS Department and the Local Union Labor Representatives. It has a mission to aid in the development of a workforce culture that encourages all employees to be actively involved in the safety and health process. The program guidelines require hourly employees to be selected by hourly employees. Union designated employee representatives perform the selection process for all Ingalls Shipbuilding facilities. One-half of the team membership is rotated annually to allow all employees the opportunity to participate as a SAT Member.

The following are many of the SAT functions:

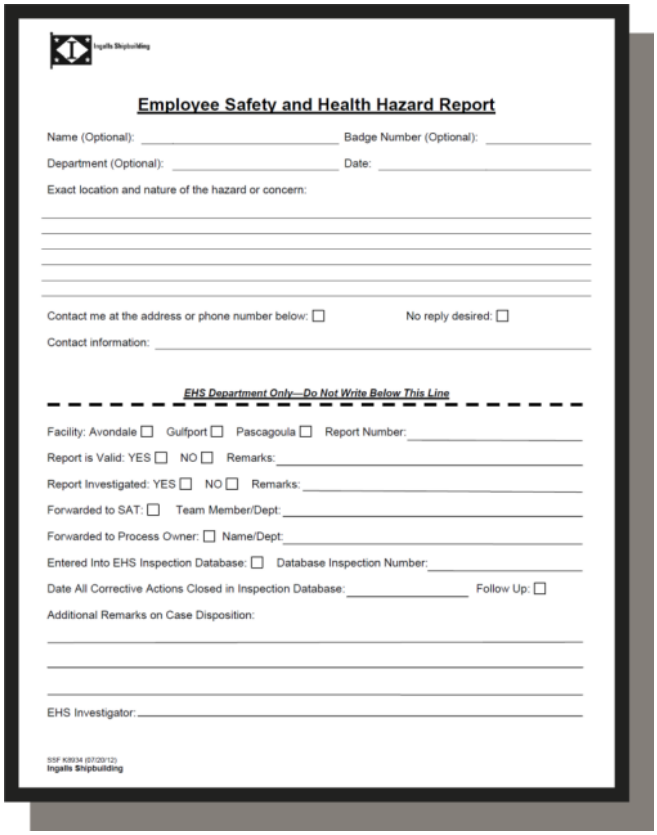
- *Focus on high injury rates in specific crafts or areas.*
- *Perform site inspections to identify environmental, safety and health conditions in their assigned areas.*
- *Discuss and suggest possible corrective actions to reduce injuries/illnesses.*
- *Encourage employees to be individually involved with reporting all safety concerns, promoting a hazard-free environment.*
- *Identify and create a rotating inspection schedule for all areas of responsibility on a quarterly basis.*
- *Document discrepancies and monitor progress to ensure items are corrected in a timely manner.*
- *Perform ergonomic surveys.*
- *Evaluate new tools and equipment, identified by Safety Engineering, which could reduce work related injuries/illnesses.*
- *Review injury trend data to identify leading injury trends in specific areas.*
- *Interview injured employees to assist in determining root cause.*
  - *Report findings to Craft or Area Directorate and Safety Engineering.*
- *Review/create Job Safety Analysis (JSA) (SSF K8383) and Work Process Improvements to advise employees of proper methods to perform tasks safely.*
- *Perform non-storm water discharge surveys with Environmental Engineering to identify possible pollutants and locations.*

Training for SATs consists of both classroom and field training. The program utilizes 24 hours of formal classroom training when new teams are created and when new members are added due to rotation. Team members that complete the training receive an OSHA Outreach Instruction 10-hour card.

Hazard Reporting

Another way that employees can actively participate in making their work environment as safe as possible is to understand and utilize the avenues for reporting unsafe conditions and at-risk behaviors. Typically, hazards should be reported by following the "hierarchy of reporting". This is a formal process for employees to communicate recognized hazards and ensure they are controlled in a timely manner.

- *If you observe a safety hazard, "fix it if you can."*
- *If you cannot correct the hazard, notify your foreman; and/or notify the party responsible for correcting the hazard.*
- *If your foreman cannot correct the hazard, notify a higher level of management, an SAT member, your area EHS staff member or the EHS Dept. at ext. 2100.*



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Employee Safety and Health Hazard Report

Name (Optional): _____ Badge Number (Optional): _____

Department (Optional): _____ Date: _____

Exact location and nature of the hazard or concern:

Contact me at the address or phone number below: ☐ No reply desired: ☐

Contact information: _____

EHS Department Only—Do Not Write Below This Line

Facility: Avondale ☐ Gulfport ☐ Pascagoula ☐ Report Number: _____

Report is Valid: YES ☐ NO ☐ Remarks: _____

Report Investigated: YES ☐ NO ☐ Remarks: _____

Forwarded to SAT: ☐ Team Member/Dept: _____

Forwarded to Process Owner: ☐ Name/Dept: _____

Entered Into EHS Inspection Database: ☐ Database Inspection Number: _____

Date All Corrective Actions Closed in Inspection Database: _____ Follow Up: ☐

Additional Remarks on Case Disposition:

EHS Investigator: _____

SSF K8934 (07/20/12)
Ingalls Shipbuilding

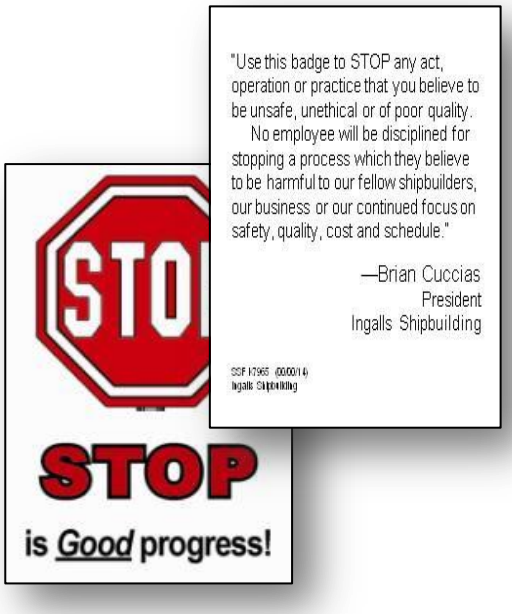
Occasionally, the normal chain of command may be ineffective. If so, the Company provides ways to register safety complaints and report jobsite hazards. Management will investigate all reports and take no retribution against the person who files it. These processes are explained in detail in *Employee Safety and Health Hazard Reports* (SSO K236). Additionally, employees may submit hazard reports ***anonymously*** by submitting an *Employee Safety and Health Hazard Report* (SSF K8934), phoning the EHS Department at ext. 2100 or phoning the Ingalls Shipbuilding Open Line at 1-877-631-0020.

The "STOP Is Good Progress" Badge

One of the most important ways for employees to correct hazardous conditions and activities before they become a serious mishap is the STOP Badge program. *STOP Is Good Progress Badge* (SSO K202) contains the full program details.

The STOP Badge is designed to empower every employee at Ingalls Shipbuilding with the ability to stop any act or process they believe to be unsafe, unethical, of poor quality, contrary to our company priorities (Safety, Quality, Cost and Schedule) or in opposition to our leadership behaviors to:

- *Seek and tell the truth;*
- *Take ownership and be accountable;*
- *Make and meet commitments, and/or*
- *Communicate openly and honestly.*



Any employee that witnesses an act or condition mentioned above has the authority and obligation to pull his STOP Badge and bring attention to the situation. No employee will be disciplined for stopping a situation that they believe to be unsafe. Any employee that feels they have received retaliation for using the STOP Badge should call the Ethics Open Line immediately at 1-877-631-0020. Retaliation is not tolerated at Ingalls Shipbuilding and will be investigated with the possible results of disciplinary action being administered up to and including discharge.

Any employee that fails to stop or acknowledge the use of the STOP Badge when used by a fellow employee shall be subject to disciplinary action in accordance with *EHS Enforcement Discipline Safety Control Program* (SSO K200).

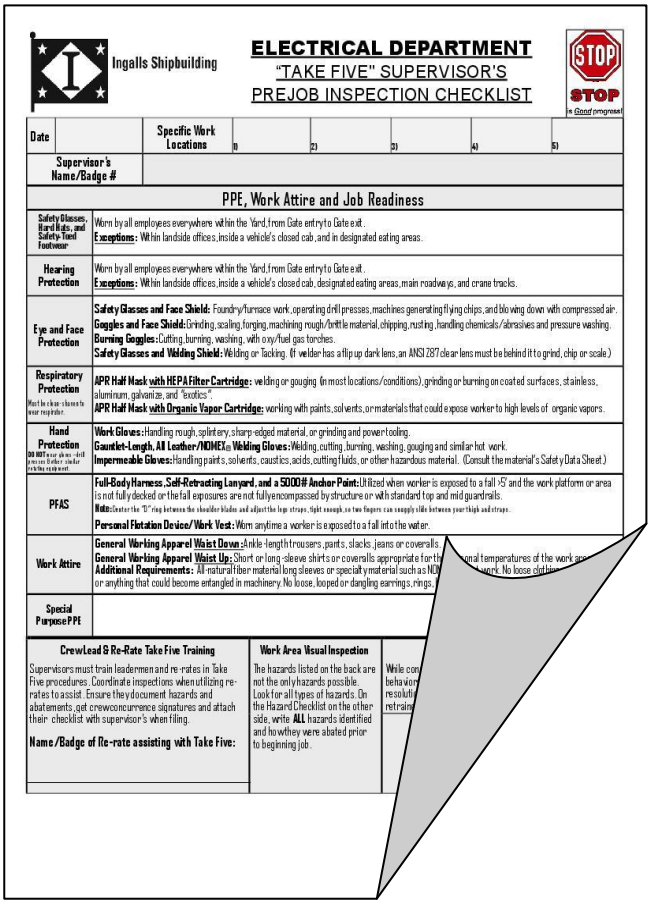
"Take Five" Prejob Inspection Program

The intent of a prejob inspection is to identify and eliminate hazards and thereby reduce the risk of injury and illness to our production workforce. Ingalls Shipbuilding's prejob inspection is described *in "Take Five" Supervisor's Prejob Inspection Program* (SSO K229). Systematic Take Five procedures are defined in *"Take Five" Supervisor's Prejob Inspection Program Process Steps* (SSG K0207).

"Take Five" is a two-segment, risk reduction initiative consisting of a *Take Five Hazard Review* as well as *Take Five Work Area Inspection,* which ensure that prior to beginning job assignments:

- *Employees are suitably equipped for work.*
- *Employees have been made aware of hazards and controls associated with specific tasks and locations.*
- *Jobsites undergo a visual inspection and hazard recognition effort by supervisors and craft employees.*
- *All observed work area hazards are abated or properly controlled and documented.*
- *Work areas are free of recognized safety hazards, or all required hazard controls are in place, and foremen and craft employees document their concurrence of such with their signatures.*

Each of the main production crafts has their own specific Take Five form. The forms list the specific personal protective equipment (PPE) required for the tasks that each craft executes. There is a full listing of all of the Take Five forms in the Appendix of this handbook.



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ELECTRICAL DEPARTMENT
"TAKE FIVE" SUPERVISOR'S
PREJOB INSPECTION CHECKLIST

STOP
is Good progress!

Date		Specific Work Locations	1)	2)	3)	4) 5)
Supervisor's Name/Badge #						

PPE, Work Attire and Job Readiness

Safety Glasses, Hard Hats, and Safety-Toed Footwear	Worn by all employees everywhere within the Yard, from Gate entry to Gate exit. **Exceptions:** Within landside offices, inside a vehicle's closed cab, and in designated eating areas.
Hearing Protection	Worn by all employees everywhere within the Yard, from Gate entry to Gate exit. **Exceptions:** Within landside offices, inside a vehicle's closed cab, designated eating areas, main roadways, and crane tracks.
Eye and Face Protection	**Safety Glasses and Face Shield:** Foundry/furnace work, operating drill presses, machines generating flying chips, and blowing down with compressed air. **Goggles and Face Shield:** Grinding, scaling, forging, machining rough/brittle material, chipping, rusting, handling chemicals/abrasives and pressure washing. **Burning Goggles:** Cutting, burning, washing, with oxy/fuel gas torches. **Safety Glasses and Welding Shield:** Welding or Tacking. (If welder has a flip up dark lens, an ANSI Z87 clear lens must be behind it to grind, chip or scale.)
Respiratory Protection Must be clean-shaven to wear respirator.	**APR Half Mask with HEPA Filter Cartridge:** welding or gouging (in most locations/conditions), grinding or burning on coated surfaces, stainless, aluminum, galvanize, and "exotics". **APR Half Mask with Organic Vapor Cartridge:** working with paints, solvents, or materials that could expose worker to high levels of organic vapors.
Hand Protection DO NOT wear gloves—drill presses & other similar working equipment	**Work Gloves:** Handling rough, splintery, sharp-edged material, or grinding and power tooling. **Gauntlet-Length, All Leather/NOMEX® Welding Gloves:** Welding, cutting, burning, washing, gouging and similar hot work. **Impermeable Gloves:** Handling paints, solvents, caustics, acids, cutting fluids, or other hazardous material. (Consult the material's Safety Data Sheet.)
PFAS	**Full-Body Harness, Self-Retracting Lanyard, and a 5000# Anchor Point:** Utilized when worker is exposed to a fall >5' and the work platform or area is not fully decked or the fall exposures are not fully encompassed by structure or with standard top and mid guardrails. **Note:** Center the "D" ring between the shoulder blades and adjust the legs straps, tight enough so two fingers can snugly slide between your thigh and straps. **Personal Flotation Device/ Work Vest:** Worn anytime a worker is exposed to a fall into the water.
Work Attire	**General Working Apparel Waist Down:** Ankle-length trousers, pants, slacks, jeans or coveralls **General Working Apparel Waist Up:** Short or long-sleeve shirts or coveralls appropriate for the [illegible] temperatures of the work area **Additional Requirements:** All natural fiber material long sleeves or specialty material such as NOMEX® work. No loose clothing or anything that could become entangled in machinery. No loose, looped or dangling earrings, rings,
Special Purpose PPE	

CrewLead & Re-Rate Take Five Training	Work Area Visual Inspection	
Supervisors must train leadermen and re-rates in Take Five procedures. Coordinate inspections when utilizing re-rates to assist. Ensure they document hazards and abatements, get crewconcurrence signatures and attach their checklist with supervisor's when filing. **Name /Badge of Re-rate assisting with Take Five:**	The hazards listed on the back are not the only hazards possible. Look for all types of hazards. On the Hazard Checklist on the other side, write **ALL** hazards identified and how they were abated prior to beginning job.	While con[illegible] behavior[illegible] resoluti[illegible] retrain[illegible]


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FOR EVERYONE

2 Emergency Action, Communication and Injury/Illness Management

Emergency Action

Ingalls Shipbuilding has a written Fire Safety Plan that covers all the actions that shipbuilders must take to ensure our safety in the event of a fire. The Fire Safety Plan defines the fire protection program for all Company facilities as well as establishes individual actions and responsibilities during emergencies. The written plan includes:

- *Identification of significant fire hazards and ignition sources.*
- *Procedures for recognizing and reporting unsafe conditions.*
- *Alarm procedures.*
- *Procedures for notifying employees of a fire emergency.*
- *Procedures for notifying fire response organizations of a fire emergency.*
- *Procedures for evacuation.*
- *Procedures to account for all employees after an evacuation.*
- *Individuals who can be contacted for further information about the Plan.*

The written Fire Safety Plan is reviewed annually and is always accessible to Company employees and on-site contractors by contacting the EHS Dept. or by accessing it in Command Media by its formal title, *Fire Safety Plan* (SSG K0400A, B, F, G and H). Comprehensive fire safety and response information is detailed in the written plan.

The occurrence of certain emergencies is cause for the immediate evacuation of facilities in a safe, orderly fashion. These emergencies include, but are not limited to, fire and/or smoke, indications of such by fire alarm, bomb threat, or loss of electrical power (blackout).

In the event of a building or a ship alarm being activated, all employees shall evacuate the building or ship and assemble at a predetermined location where supervision will account for their personnel. Supervision must then report to the response or drill coordinator at the fire truck for ship evacuations, or at the Assembly Area Emergency Leader (AEL) for building evacuations, and advise that all personnel are accounted for.

Evacuation shall immediately commence when the fire alarm has sounded or a public address announcement directing ship or building evacuations has been made. During any evacuation, *elevators are not to be used*. Evacuate using the nearest exit and the closest stairway.

Assembly areas are pre-determined by Security and the EHS Department, and are posted in buildings requiring assembly areas. However, if conditions do not favor establishment of assembly area at the designated location due to smoke, burning debris, etc., the AEL shall establish the assembly area where these hazards do not exist, but still in sight of the original area wherever possible. Smoking is prohibited in assembly areas at all times. All occupants must stay in their designated assembly areas, regardless if the alarm has stopped, and wait for further instructions. An “all clear” will be issued by the Fire Department when conditions are resolved, and no one is permitted to re-enter the building without the Fire Department’s permission.

Emergency Information and Signals

Any person discovering a fire shall immediately, if on a ship equipped with a temporary fire alarm system, activate the nearest fire alarm signal box or if on a ship equipped with ship's installed telephone and 1-MC fire alarm system, immediately dial **2211**. If a fire is confirmed, they shall advise the vessel CASCON by sound powered phone or by ship's telephone, who in turn shall immediately call the Fire Department (CASCON) by dialing **911**. The alerting party shall dispatch someone to meet the responding firefighters and quickly direct them to the fire scene.

Building Fire Alarm—*This evacuation signal consists of an intermittent siren and flashing strobe or a traditional fire bell.*

Shipboard Fire Alert Alarm—*This signal shall consist of a constant monotone sound.*

Abandon Ship Alarm—*This signal shall consist of an oscillating high-low sound accompanied by the flashing of all temporary lights and ship's service lighting onboard ship.*

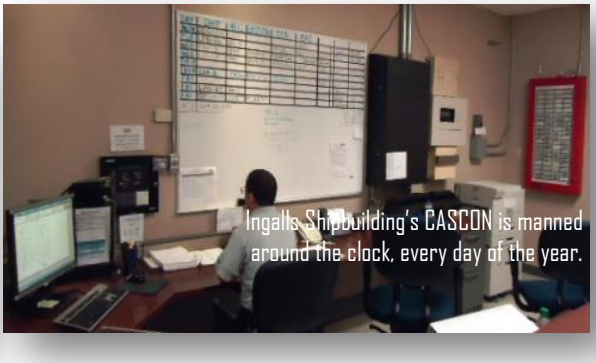
Flooding Alarm—*This signal shall consist of an automatic beep-beep sound.*

Cease Hot Work Alarm—*Notification shall be accomplished by voice announcement over the Public Address (PA) system, identifying the area of the ship where all hot work is to be immediately halted until further notice.*

Emergency Contacts

Individuals who discover a fire or other emergency on Ingalls Shipbuilding property shall immediately notify the Casualty Control Center (CASCON) by dialing ***911*** on any yard phone or **228-935-6101** on a cell phone. Activating a manual pull station will also notify CASCON. For offsite locations that do not have access to a yard phone, call local ***911*** first and then call the CASCON center using the numbers for cell phone use and supply CASCON the emergency information. Any time you are reporting an emergency the following information will be needed from the caller:

- *Nature of call (fire, medical, or HAZ-MAT)*
- *Caller name and call back number*
- *Location where the response is needed*
- *Type of injury or incident*

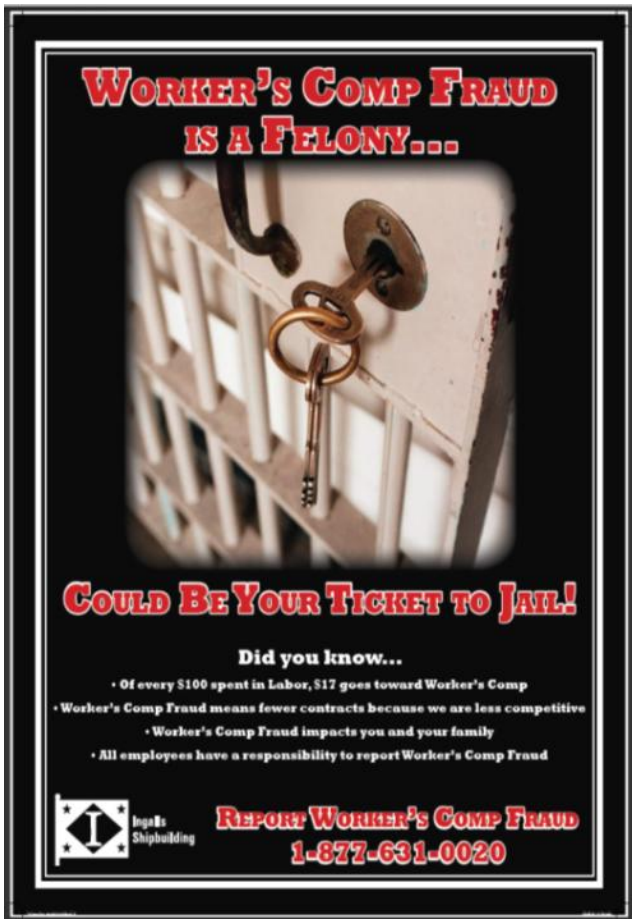


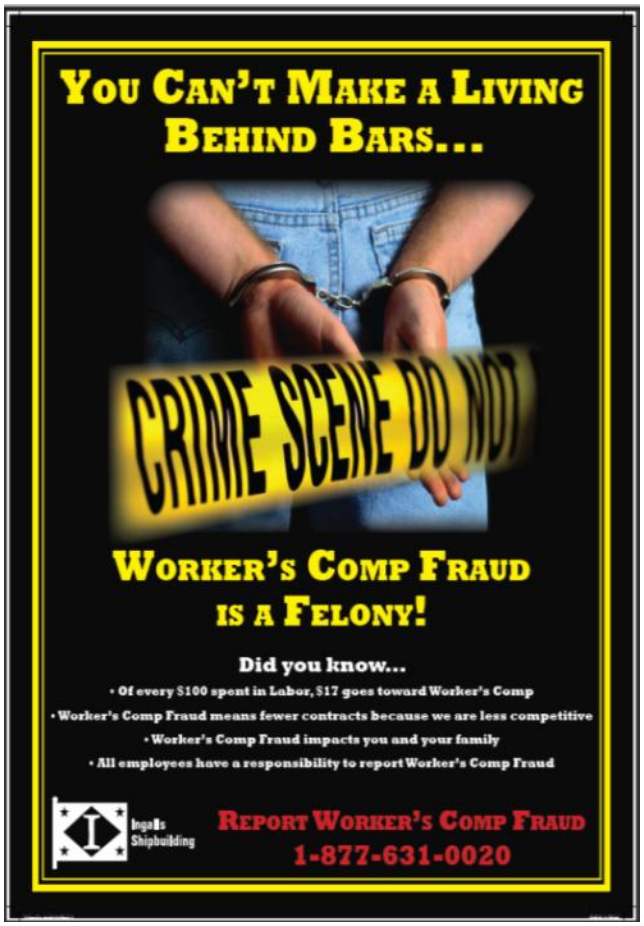
Work Related Injuries and Illnesses

If you are injured or become ill because of your job, you must:

- *Report the injury or illness to your supervisor and the Medical Department immediately.*
- *Tell them what, where, when, and how it happened.*
- *Assist in the Incident Response Team investigation of any injury or illness.*
- If complications arise from an injury or illness when you are away from the Yard, report them as soon as possible to your supervisor or the Medical Department.

Workers' Compensation benefit amounts are set by state law. If you have a problem, contact the Medical Department or our Worker's Compensation representative. Ingalls Shipbuilding uses the contract company, F.A. Richard, to administer Worker's Compensation Claims. You may request to receive (or have your personal or Worker's Comp physician receive) copies of your medical and exposure monitoring records—just contact the Medical Department.





Incident Response Team (IRT)

It is vitally important that all work-related injuries and illnesses are reported and investigated immediately to ensure the employee receives prompt medical care and so similar incidents are not repeated. To help prevent injuries and identify potentially unsafe conditions, tools or processes, there is an IRT for each vessel and shop. This team consists of management and safety personnel that review and investigate all work-related injuries/illnesses to help ensure corrective actions are implemented to prevent recurrence. The IRT written program is *EHS Investigative Services* (SSO K230).

Employees shall report all injuries/illnesses to their supervisor immediately. Some injuries do not manifest immediately (i.e. strains, welding flash) but must be reported at the time of the onset of symptoms. Should the symptoms begin after hours, the employee is encouraged to report to the Company Fire Department for treatment. In the event of a significant incident/accident or medical emergency, employees shall call 911, (CASCON) immediately so an ambulance can be dispatched and medical treatment quickly rendered.

For non-emergencies, the "owning" supervisor and injured employee shall alert the vessel or shop's IRT (especially EHS) that an injury has occurred by reporting it to the Boat Foreman's Office (on vessels), the Shop Management Office (in shops), or an IRT Field Office located throughout the Yard. If the IRT Field Office is not manned, contact information will be posted near the door.

An IRT Field Office.

The IRT make-up shall consist of:

- *Ship or Area member of management*
- *Employee's immediate supervisor and/or general superintendent*
- *Area EHS staff member*

A Ship/Shop/Area member of management over the location of the mishap shall personally respond to ***all*** IRT notifications. The IRT shall conduct an investigation of the incident/accident and document the team's findings on a *Foreman's Accident/Near Miss Investigation Report* (SSF K8355). After the IRT has assembled, normally within minutes, the injured employee shall provide the IRT with an accurate, detailed account of the incident/accident and its location. Prior to escorting the IRT to the incident/accident scene, the injured employee will assess the injury to determine if more than first aid treatment is required. Should the injury require more that first aid treatment, the injured employee shall report to the Medical Clinic with the original copy of investigation report to acquire treatment. If the injury only requires first aid, the employee will be given access to a first aid kit for self-treatment.


Investigate all mishaps.

After self-administering first aid, the employee will escort the IRT to the area where the injury occurred and assist the team with the investigation. Should the employee require treatment above first aid, the IRT will continue the investigation without the injured employee, and if needed, re-engage the injured employee upon his/her return from the Medical Clinic or from their lost time absence.

During the investigation, subject matter experts, witnesses or others associated with the incident/accident may be called upon to assist the IRT. As part of the investigation, the

IRT will identify causal factors and arrive at the ones requiring corrective actions. The IRT will issue corrective actions and implementation dates to the owning supervisor or the process owner, depending on the circumstances of the mishap, who will then be required to implement them by the deadline.

Upon completion of the investigation, the finalized investigation report with sound causal factors, corrective actions and implementation dates must be signed by the owning supervisor and superintendent and forwarded to the EHS Department. Once all associated corrective actions have been successfully implemented and verified the investigation and report will be closed.

IRT First Aid Checklist

The IRT process is designed for *minor first aid*-type injuries. Due to the nature of any particular injury, even one that would be considered minor by most people, if not properly treated, could become quite problematic. The *IRT First Aid Checklist* is a guide to help determine if an injury should be attended by the IRT process or higher levels of medical attention are warranted. The employee's supervisor should assess the injury, as soon as they are notified of it, and may use the following checklist to help in the determination.

Abrasions and Lacerations:

Is the site of the abrasion (scratch) or laceration (cut) deep or large?

If the answer is yes then the patient will need to be seen by a healthcare provider (HCP).

Is the bleeding of the site controlled after a few minutes of pressure?

If the answer is yes, then it should be ok to bandage the patient. If the bleeding is not controlled then the patient will need to be seen by a HCP.

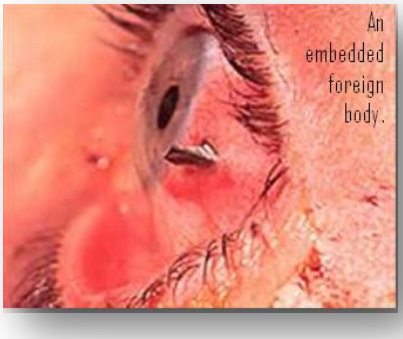
Has the patient had a tetanus vaccination within the last ten years?

If the answer is no, then the patient will need a booster vaccine. Send them to the Medical Clinic.

If the patient is assessed by the supervisor and only needs first aid then the patient should clean the wound with soap and water and apply antibiotic ointment to area. Pick the appropriate sized bandage to completely cover the site and ensure that it remains clean, dry and covered.

Foreign Bodies (splinters)

If someone thinks that he has a foreign body (splinters, metallic shavings, fiberglass, etc.) in any body part other than the eyes, they should immediately wash the area with soap and water and report to the HCP.



Eye Injuries

When an employee reports an eye injury, the employee should be sent to the Medical Clinic for cleansing and removal of the foreign body. Washing eyes by using “saline” or eyewash stations could potentially fail to remove all foreign bodies and require additional treatment. The longer a foreign body stays in the eye, the greater the chances of having an OSHA recordable eye injury.

Contusions (bruise)

How large is the contusion (bruise)?

If it is a large bruise then the patient might need to see a HCP.

How much of the body is involved?

If multiple parts of the body are involve (ex: fall from elevation to lower area) then a patient would need to see a HCP.

If a person has a *small* bruise and feels comfortable caring for the area themselves then they need to apply ice to the area for 15 minutes at a time every 2 hours for the first 24 hours, after 24 hours then the person can apply moist heat to the area.

How much pain is the patient in? Can they use the affected body part?

If the patient is in a moderate amount of pain and cannot use the affected area then they should be assessed by HCP.

Minor Aches and Pains

A non-prescription medication, such as Ibuprofen or Tylenol, can be given for minor aches and pains. The employee should always follow the directions for dosage as indicated on the bottle and never exceed recommended amounts.

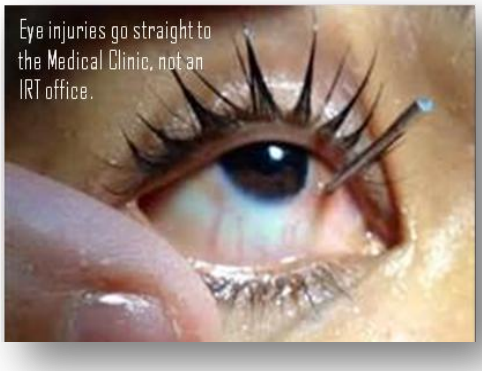
A person can also use hot or cold therapy for minor aches and pains. The patient can apply an ice pack for 15 minutes every two hours for the first 24 hours. Moist heat can be applied for 20-40 minutes at a time 24 hours after the initial injury. However, if these conservative therapies do not relieve the pain then the patient should see a HCP.

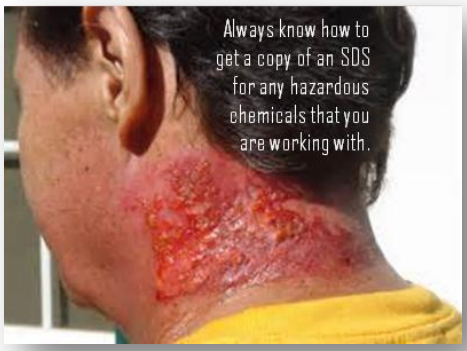
Strains and Sprains

- *Is there swelling?*
- *Can you put weight on the injured area?*
- *Is there extreme tenderness in the injured area?*
- *Are there any irregularities in the skin structure to indicate any possible fractures?*
- *Is there any discoloration?*
- *Is there any numbness or any tingling sensation in the arms or legs?*

Injuries That Always Require a Hospital Visit:

- *Eye Injuries*
- *Excessive bleeding due to large abrasions or deep lacerations*
- *Moderate to excessive pain*
- *Potential severe strains or sprains*
- *Splinters or other embedded foreign bodies*
- *Large contusions (bruises)*
- *Multiple body parts are involved*
- *Vomiting*
- *Broken or dislocated bones*
- *Whenever in doubt*





If the injury is due to exposure to a hazardous substance the foreman shall provide the Safety Data Sheet (SDS) from his department's file (if quickly at and) or provide the product name and manufacturer so CASCON can locate a copy of the SDS to aid in administering treatment.

Injuries don't just happen to other people, they can also happen to you. Safety must remain your top priority at all times!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3 Situational Awareness (SA)

Situational Awareness

The largest percent of mishaps occur due to human error and one of the most common human errors is called *Loss of Situational Awareness*. Situational Awareness (also referred to as *Situational Perception*) is the ability to recognize, by sensory cues, then process and comprehend the critical information about what is happening to (or around) you or those working near you. You then must make an appropriate decision regarding personal safety. More simply, it's knowing what is going on around you and avoiding dangerous situations. When you don't realize what you're doing or what is happening in and around your work area, you are far more likely to exhibit at-risk behaviors or allow unsafe conditions to develop. As your SA drops your risk for a mishap rises. When you maintain a high level of SA, you can readily "size up" the sights, smells, and sounds around you and then predict what could be too risky. You can then avoid potentially unsafe situations.

Clues To Diminishing SA	Examples
Confusion	Unsure if you are in the right place, using the right materials in the correct manner, or not understanding written or verbal directions.
You stop actively looking for hazards	Failing to conduct a pre-use inspection of tools, lines, and equipment. Not taking the time to read signs, warnings or procedures.
You begin using improper procedures	Beginning hot work before checking both sides of surface or removing combustibles. Not ensuring that you have "NO HOT WORK OR OPEN FLAMES" signs posted prior to painting. Not wearing required PPE.
You allow your performance to become a departure from regulations	Entering an unlit or untagged tank. Not removing combustible material prior to hot work. Building or modifying a scaffold even though you're not a Scaffold Competent Person.
You become less effective and may miss your planned work targets	Having to stop and start a task because you don't already have all of the required hazard controls in place such as lighting, ventilation, and access.
Even if you notice discrepancies or conflicting information, you fail to act on figuring out what is wrong.	You smell strong paint vapors but do not see painters or NO HOT WORK signs, so you decide to do hot work anyhow.
Ambiguity	You didn't hear everything your foremen mentioned about safety precautions during the Take Five but you ask for clarification prior to starting your job.
Fixation or Preoccupation	You are walking to your work area while talking on your phone or texting and you do not see the crane track in your path. You are thinking about upsetting personal issue at home and forget to wrench-tighten your torch line.

Clues to Losing SA

The loss of SA can evolve slowly over time, but often leaves clues or signals that it is happening. Recognizing and understanding these signals may warn of lost or diminished SA. If you find yourself having difficulty paying attention or staying on task, you may be experiencing less-than-optimal SA. Realizing your SA is not where it should be is the first step in improving it. The table to the left gives examples of clues that your SA may be slipping.

Barriers to SA

When trying to maintain SA, it is important to understand that there are barriers that can hinder concentration, scatter focus and increase risks. The behaviors that block SA are generally controllable, so it is important that everyone knows what these behaviors are.

Barriers to SA	Examples
Perception based on faulty information processing.	Acting on information based on your knowledge. When something looks similar to what you're familiar with, you may react as if it were the same. Insufficient information makes it difficult to ensure that your mental picture, which is based on past experiences as well as what you expect to see, is actually aligned with the reality of what is around you.
Excessive Motivation	Rushing to complete at task at all cost, hurrying to get to a meeting, or an all-out effort to finish before quitting time can cause you to not notice changes around you as you barrel on.
Complacency	Assuming everything is under control affects vigilance. When things are slow, tasks are routine, and/or when you have completed your task complacency can occur and you may shortcut hazard controls.
Overload	Overload causes distraction; fixation; increased errors, and high stress. Prioritizing tasks, seeking assistance, and minimizing job distractions can improve safety in conditions of overload.
Fatigue and Heat Stress	Getting plenty of sleep, eating properly, remaining properly hydrated, and adjusting work routines are ways to avoid allowing your physical health to affect your ability to concentrate on your tasks and work environment activities.
Poor Communications	The level of SA achieved is related to the level and quality of communications observed by you and those working around you. Listen carefully and take time to ensure you understand instructions. Openly and clearly communicate your intentions with those around you.

Maintaining Situational Awareness

A key component of SA maintenance is *effective communication*. Much of what we are expected to do in the workplace is based on communication, so naturally poor communication directly affects performance. The large amount of information processed by the workforce and the many necessary interactions within and between craft crews, work teams and various other departments provides the opportunity for human error. The level of SA achieved is related to the level and quality of communication. Effective work teams are alert to errors and use assertive communications to alert others to the problem.

The following table describes specific methods and examples for maintaining SA. Like any skill, practice makes perfect and the more you actively conduct these SA maintenance tips, the safer you will work.

Maintaining Situational Awareness
MAINTENANCE OF SITUATIONAL AWARENESS OCCURS THROUGH EFFECTIVE COMMUNICATION AND A COMBINATION OF THE FOLLOWING ACTIONS:
Recognize and make others aware when deviations from standard procedures start occurring. Comment clearly and specifically. Correct the process so that it follows procedures and requirements.

Maintaining Situational Awareness continued

Monitor what others working with or around you are doing. When hazards are developing or at-risk behaviors are occurring, step up and use your STOP Badge.

Provide information in advance. Don't wait to be asked! If you have information critical to the safety of the workplace, speak up!

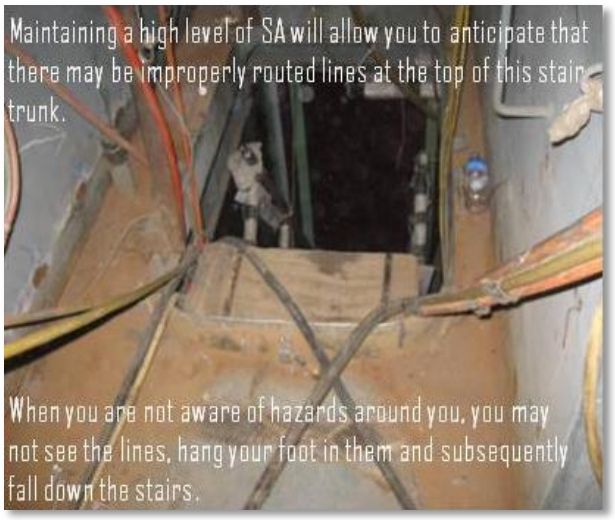
Identify potential or existing hazards. Inspect your work area before starting and conduct a pre-use inspection on all tools, equipment, leads, lines, hoses, PPE, etc. Abate all hazards before proceeding with work. Ask if you are unsure of a hazard or its control.

Demonstrate awareness of task performance. Know how your job and those of shipbuilders working around you contribute to the overall mission. Understand how job tasks may have to be managed, such as hot work and painting that must be done at separate times.

Communicate a course of action. Let those around you know where you are going or what you intend, such as having personnel move out of the way until a crane lift passes overhead.

Continually assess the situation. As your work environment changes, hazard controls may as well. Make sure that signs or barricades are still in place; ventilation and lighting are still on. Periodically re-inspect your tools and equipment.

Clarify expectations. Understand that clear expectations lead to safe work performance. The expectations that are made of you and the attention and cooperation that you expect from those you are working with are equally important.



Safety Signs

As previously established, a key component of SA maintenance is *effective communication*. Safety signs communicate critical information and quickly allow us to understand what is, or could be, happening around us and whether or not special hazard controls are needed for employee safety. Within a shipyard there are scores of important signs, each alerting shipbuilders to a caution or warning to be heeded.

The following page displays examples of some of the signs that are posted within the Yard. Compliance to safety signage is mandatory and violations will warrant enforcement discipline. Always consult with your area EHS staff member or the EHS office if unsure of the meaning or requirements of safety signage.

Safety signs used in communicating scaffolding hazards and hazard controls.

Safety signs used in communicating inert gas purging operations..

Safety signs used in communicating specific confined/enclosed space entry restrictions.

Safety signs used in communicating specific access restrictions.

Safety signs used in communicating hot work restrictions.

Safety signs used in communicating hazardous material requirements.

Safety signs used in communicating various warnings.

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4 Personal Protective Equipment (PPE)

PPE

All employees must wear personal protective equipment (PPE) whenever there is a reasonable probability it can prevent injury or illness. The overall purpose of PPE is to protect the body from exposures to the hazards associated with shipbuilding. It takes coordination from suppliers, vendors, and the Company to provide the PPE—as well as our shipbuilders to wear it to help reduce injury risks.

When potential chemical hazards exist review the appropriate SDS to determine the correct protective measures to avoid overexposure. If unsure about the equipment or clothing for a specific job consult your supervisor, a Job Safety Analysis or the EHS Dept. for help obtaining and correctly using it. Maintain all PPE according to the instructions of the manufacturer or EHS Dept. and return damaged PPE for repair or replacement.

Safety Store

There are several ways to obtain your PPE. Safety glasses, hearing protection, gloves, grinding shields and goggles can be replaced from the General Foreman's Tool Bag. Some of the more specific PPE, such as hard hats and welding shields, are available at the Safety Store. Other unique items, such as arc flash shields/suits, specialty gloves, etc., are available through your department.

The Safety Store is located east of the Stacking Hall. Here are a few reminders regarding Safety Store use:

- ***Safety Store hours are from 5:30 am to 3:00 pm Monday through Friday.***
- ***For the day shift employees, the only times you can access the Safety Store are before work, during lunch, and after work.***
- ***Second shift employees will need to arrive to work early enough to go to the store before the shift starts.***
- ***If your PPE ever needs replacement during your work shift, report directly to your supervisor for instructions***

Remember, the purpose of personal protective equipment is to reduce employee exposure to hazards when engineering and administrative controls are not feasible or not completely effective in reducing risks to acceptable levels. The Safety Store is here for the benefit of Ingalls Shipbuilding employees.

Gate-To-Gate PPE

A Gate-to-Gate PPE policy was implemented at Ingalls Shipbuilding in 2013. This means that all employees must be wearing their hardhat, safety glasses and safety-toed footwear (base PPE) as soon as they enter the Yard.

Exceptions: Within landside offices, inside a vehicle's closed cab, or in a designated eating area during lunch. Hearing protection does not have to be used when walking on the roadways or crane tracks.

PPE Conformance

- *Prescription safety glasses must bear the inscription "ANSI Z87.1" on frames and side shields.*
- *Prescription safety glasses lens must bear the manufacturer's mark with a "+" plus sign.*
- *Safety footwear must be inscribed with the ASTM F2413 conformance designation.*
- *Hard hats must be marked that they conform to ANSI Z89.1.*
- *Never perform modifications on any protective equipment; it voids the manufacturer's approval and may compromise safety performance.*
- *Employees must take care of the PPE they are issued and if lost or damaged, other than by normal wear and tear, the employee may be charged for a replacement.*

Eye and Face Protection

Eye injuries are one of the most common injuries in shipbuilding; therefore, Ingalls Shipbuilding has a comprehensive eye and face PPE program. The details are set forth in *Eye and Face Protection and Personal Protective Eye Equipment* (SSO K201). Eye and face PPE compliance is closely monitored and aggressively enforced.

Safety Glasses: *Provide minimum protection and are for general working conditions with minor dust, chips or flying particles.*

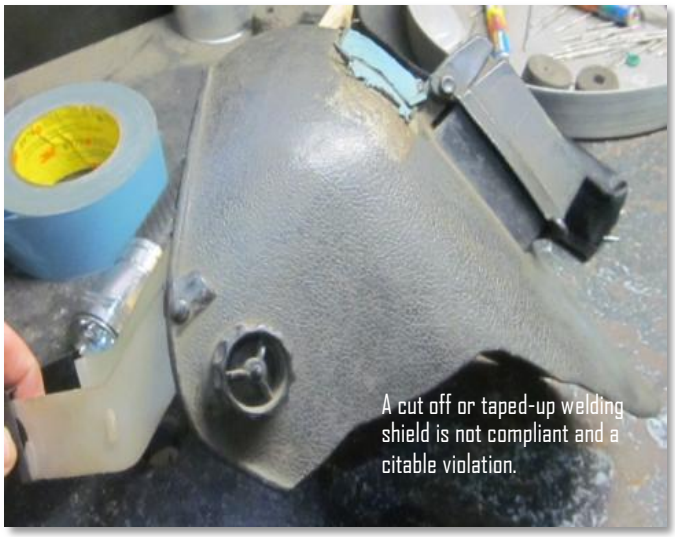
Goggles: *Provide higher impact protection and create a better barrier than safety glasses alone. Fit closer to the face than glasses and close the gap between the face and the frame that glasses' have.*

Burning Goggles: *Required when cutting with an oxygen/fuel gas torch. Burning and cutting operations produce non-ionizing light radiation such as UV. While the radiation may not be as intense as arc welding, prolonged exposure without protection can cause eye injuries. Burning goggles must have the correct shade of light filtering lens.*

Face Shields: *Guard against injuries to the face by protecting from spraying, chipping, grinding, chemicals or bloodborne hazards. Goggles or prescription safety glasses (if needed) are worn in conjunction with face shields when there is a high potential for eye exposure to projected chips, flying particles or harmful splashes. Face shield eye and face protection is critical when transferring or using hazardous chemicals. Anytime brushing or rolling paints and/or solvents, above chest-high or where splash and splatter could cover bare facial skin, face shields must be used.*

Full-Face Welding Shields: *Protects against multiple hazards. The filter lens keeps light radiation from burning the eyes while the shield protects the face from arc light, popping/flying hot metal and sparks. It must be worn with hearing protection, safety glasses and the correct shade of light filtering lens for the task being conducted. Some shields have a flip up, ANSI Z87.1 lens window that allows the dark filter lens to be raised without raising the entire welding hood. This allows use of grinders and scalers without having to switch to a grinding shield each time they must chip or grind.*

Never modify a welding shield by cutting, drilling, painting, taping, attaching materials or any other treatment. Inspect it frequently for defects or damage. When not in use, it should be stored where it will not become damaged. Do not store in the bottom of a gang box where other tools and equipment could be dropped on top of it.



Using damaged or modified PPE of any kind is a violation of EHS requirements and will be enforced in accordance with the *EHS Enforcement Discipline Safety Control Program* (SSO K200).

The following IF/THEN table defines when and what types of eye and face PPE must be worn:

Employees Engaged in the Following Tasks Shall Wear the Specified Eye/Face Protection.

If…	Then…
Grinding, scaling, forging, machining rough/brittle material, chipping, rusting, chemical handling, pressure washing, using caustics and abrasives -	• Wear face shield in addition to approved goggles or prescription safety glasses with side shields. • **NOTE**: For grinding, chipping, and scaling by welders, see the Welding section below. • **NOTE**: If wearing foam-lined, tight-fitting safety glasses such as UVEX SEISMIC™ or approved equivalent and the head strap is securely adjusted, they may serve as the goggles when grinding, chipping, scaling, forging, rusting, and similar particulate generating tasks. • **NOTE**: Foam-lined, tight-fitting safety glasses such as UVEX SEISMIC™ shall not be used as goggles for handling or using chemicals.
Foundry and furnace work, handling of molten metal, machinery operators such as drill presses, milling, needle gun cleaning, and drilling	• Wear a face shield and approved safety glasses with side shields.
Abrasive blasting	• Wear blasting hood. • Immediately after removal of blasting hood, safety glasses with side shields.
Burning and acetylene welders -	• Wear burning goggles. • Others working in area - wear safety glasses with side shields.
Welding -	• Wear welding shields and safety glasses with side shields under the welding shields. • If welding shield has a "flip up" shaded lens and a fixed American Nation Standards Institute (ANSI) Z87 clear lens, the welder can grind, chip, and scale with their welding hood down and safety glasses on underneath. • If the welder must raise the entire welding shield to grind, chip or scale, he must wear a face shield in addition to approved goggles or, prescription safety glasses with side shields. • In open areas in shops, screens shall be erected to reduce exposure of weld spatter and arc radiation to other employees.

Employees Needing Eye Protection for Working in Production Areas Shall:

If…	Then…
Needing a pair of safety glasses meeting ANSI Z87.1 requirements with side shields, (clear or amber lens meeting the requirements for working inside shops, buildings, units, modules and vessels) – **NO DARK LENSES IN LOW-LIGHT AREAS!**	• Obtain a pair from their General Foreman's Tool Bag process. • The Safety Store is an additional resource for safety glasses.
Safety glasses are lost or damaged while at work -	• Obtain a replacement pair from their General Foreman's Tool Bag process.
Safety goggles are needed for work/tasks -	• Check them out from the tool rooms located throughout the yards.
Needed by vendors, visitors, contractors for brief in-yard visits	• Safety glasses with side shields are available in the Safety Store, or approved safety cover lenses may be used over prescription eyewear.

If…	Then…
Purchasing prescription safety glasses meeting ANSI Z87.1 requirements, with side shields - **NOTE**: Wearing safety cover lenses over corrective lenses is a short-term corrective action only. If an employee is observed by EHS staff wearing prescription eyewear that is not ANSI Z87 safety eyewear with side shields in production areas: • They will be given 30 days to purchase prescription safety eyewear. • It will be documented and tracked. • They must bring the safety eyewear to the EHS office upon receipt. • They will not be allowed in production areas without prescription safety eyewear after 30 days.	• Wear approved safety cover lenses over corrective lenses until the ordered safety glasses are received. (Not to exceed 30 days.) • Bring a current prescription to the Safety Store to order. • Purchase them from the Safety Store by paying cash or by payroll deduction. • They may also be purchased privately from an outside vender; however, they must bear the markings of "ANSI Z87" or "Z87" on the frames and side shields and the manufacturer's mark with a "+" (plus sign) on the lens.
A welding shield is needed for work/tasks -	• Available in the Safety Store. • When worn out or damaged, shield or goggles shall be returned to the Safety Store and exchanged for a new one.
Burning goggles are needed for work/tasks -	• Available in the Tool Room.
A face shield and frame is needed for abrasive or corrosive work -	• Obtain shield and frame from the Tool Room. • When worn or damaged, return to the Tool Room and exchange them for a new one.

Emergency flushing stations are required whenever a person's eyes, face or body may be exposed to corrosive or caustic materials or toxic materials that can be absorbed through the skin.

- *Activities that may result in these exposures include, but are not limited to:*
  - *Spraying, transferring and mixing of paints and solvents;*
  - *Acid dipping;*
  - *Battery charging; or*
  - *Hazardous waste handling.*

- *Should there be a question as to whether an operation requires an emergency flushing station consult the:*
  - *Product label;*
  - *Safety Data Sheet (SDS); or*
  - *EHS Department.*

- *EHS must approve all stations prior to installation.*

Hearing Protection

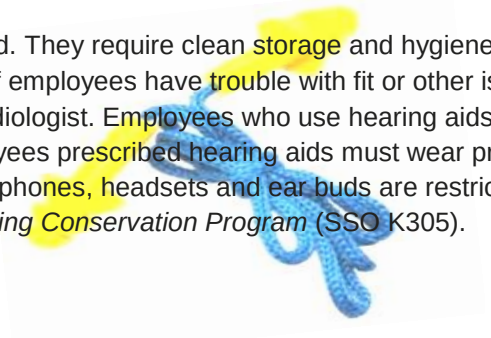
Certain shipbuilding job tasks create high occupational noise levels. This work includes, but is not limited to:

- *Chipping or grinding*
- *Blasting*
- *Arc gouging*
- *Shipfitting*
- *Operating any pneumatic tools*
- *Many types of power tools*

Hearing protection is available through all tool rooms, your supervisor or other locations throughout the Yard. There are three types available:

- *Corded Smart Fit (soft plastic)*
- *Corded Push-Ins w/Grip-Rings (foam)*
- *Ear Muffs (Safety Store)*

Hearing protection must be properly worn and maintained. They require clean storage and hygiene; washing with soapy water daily to prevent dirt and wax build-up. If employees have trouble with fit or other issues with hearing protection, they should consult the Company audiologist. Employees who use hearing aids shall not use them as ear plugs even if they are turned off. Employees prescribed hearing aids must wear proper hearing protection where required. Personal stereo headphones, headsets and ear buds are restricted for use as hearing protection. For the formal program, see: *Hearing Conservation Program* (SSO K305).



Head Protection

Approved hard hats will provide acceptable head protection if worn properly without obstructions restricting the fit. Hard hats are available at the Safety Store. Only the following items are allowed under hard hats:

- *Welder's Cap*
- *Winter Liners*
- *Paint Dept. Cloth Head Cover*
- *Ball caps are not allowed under hard hats*
- *Hoodies must be worn over hard hats—never underneath them*

Inspect your hard hat daily! Gently press the side edges of the rim inward; the hat should flex and spring back. If it is too rigid, it is no good.

Never drill holes, cut or modify hard hats. The suspension may wear out before the shell, but it can be replaced separately. Unapproved bump caps or safety "cowboy" hats, as well as metal hard hats, shall not be worn.

When/If…	Then…
Required	The Safety Store shall provide hard hats so they will meet both the color-coding and non-conductive material requirements (plastic or fiberglass).
Worn in production areas	Each hard hat shall be equipped with full suspension and headbands (additional headbands may be purchased at the Safety Store).
Damaged	Shall be replaced through the Safety Store
Lost	Shall be purchased by employee from Safety Store

For more information see: Safety Hat Requirements and Color Coding (SSO M202).

Protective Footwear

Employees must wear protective footwear to protect against the danger of foot injuries due to falling or rolling objects or objects piercing the sole. You must inspect your safety footwear prior to putting them on. Do not wear footwear that is damaged, defective, worn out or in need of repair. Do not wear safety-toed footwear that has worn out spots where the metal caps are exposed. Ensure that the soles of the footwear are not worn to the point that they lose their slip resistance or worn over so the foot/ankle are in an unnatural posture while standing. For more information see: *Protective Footwear Requirements* (SSO K203).

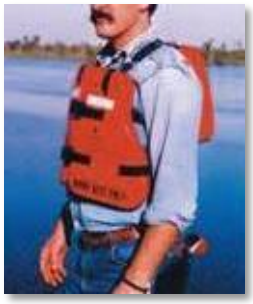
Employees working around hot work must wear safety shoes made of all leather tops. Pants legs must be worn over boot tops and without a cuff when conducting hot work. Employees exposed to irritating or corrosive substances or wet conditions shall wear impermeable (rubber, neoprene, etc) boots with a safety toe. Employees performing the following jobs must wear boots at least six inches high:

- *Welding, burning, gouging, and other hot work applications*
- *Applications involving exposures to paints, solvents and other irritating or corrosive chemicals*
- *Applications involving exposures to stagnant water or liquids*

Personal Floatation Devices

- *When working over water or near unguarded deck edges of floating vessels you must wear an approved personal flotation device (PFD).*
- *When working on scaffolding over the side of vessels afloat you must wear an approved PFD.*
- *When working near unguarded deck edges or in personnel baskets suspended over water you must wear an approved PFD.*
- *U.S.C.G. approved 30" life rings with at least 90' of line attached shall be installed aboard all vessels, barges, and floating staging, on which work is being performed.*
- *In the vicinity of each occupied floating vessel, there shall be at least one portable or permanent ladder of sufficient length to assist employees to reach safety in the event that they fall into the water.*

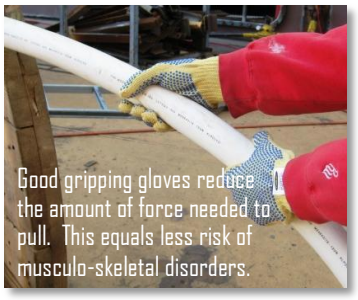
Work vests are available from the Tool Room.



Work vests must be adjusted properly and snugly fit. If they are too loose, they may separate from the wearer upon entering the water.

Hand Protection

Many jobs require special gloves for hand protection. See your foreman for specific gloves. Gloves commonly in used in shipbuilding include:



Good gripping gloves reduce the amount of force needed to pull. This equals less risk of musculo-skeletal disorders.

- **Cotton or fabric gloves**—*protect yard laborers, ship cleaners and others against dirt, slivers, chafing or abrasion.*
- **Leather welding gloves**—*Burners, welders and other employees performing hot work shall wear these gloves for protection against burns.*
- **High and low voltage gloves**—*protect trained electricians during very specific tasks*.
- **Impermeable neoprene or latex gloves**—*Painters and other chemical users wear these when handling chemicals or corrosive materials. Nurses, EMT's and porters wear them when exposed to bodily fluids.*
- **Leather work gloves**—*All craft employees involved in production work, except operating rotating machinery, should wear these. Protects against light sparks, grinding, moderate heat, flying chips and rough-edged objects.*
- **Cut resistant gloves** (Kevlar gloves)—*provided for electricians involved in stripping cables, banding and sheetmetal employees handling sharp-edged sheetmetal material*.

Gloves that were caught in a drill press.

Whenever there is a danger of gloves becoming entangled in moving parts of machinery, they shall not be worn.

Working Apparel and Personal Clothing

Wear clothing appropriate for the work being done. Do not wear loose gloves, sleeves, scarves, neckties, necklaces or other loose clothing or jewelry that can become entangled in moving machinery.

While working around machinery keep long hair confined. Head coverings must not hang loosely nor allow hair to protrude.

Skirts, dresses and tank tops are prohibited in production areas. Shirts and blouses must cover the shoulder and the midriff. Shorts are prohibited throughout the shipyard.

Loose, looped or dangling earrings, bracelets, rings or similar jewelry in are prohibited in production areas. Personal headset radios are not permitted.

Shop employees must wear ankle-length trousers, slacks or jeans. Wear long sleeve shirts and clothing made of natural fabrics (cotton, denim, leather, etc.) when performing hot work.

If you are observed working without the proper work attire for your job task, the violation will be enforced in accordance with the *EHS Enforcement Discipline Safety Control Program* (SSO K200).

Coveralls

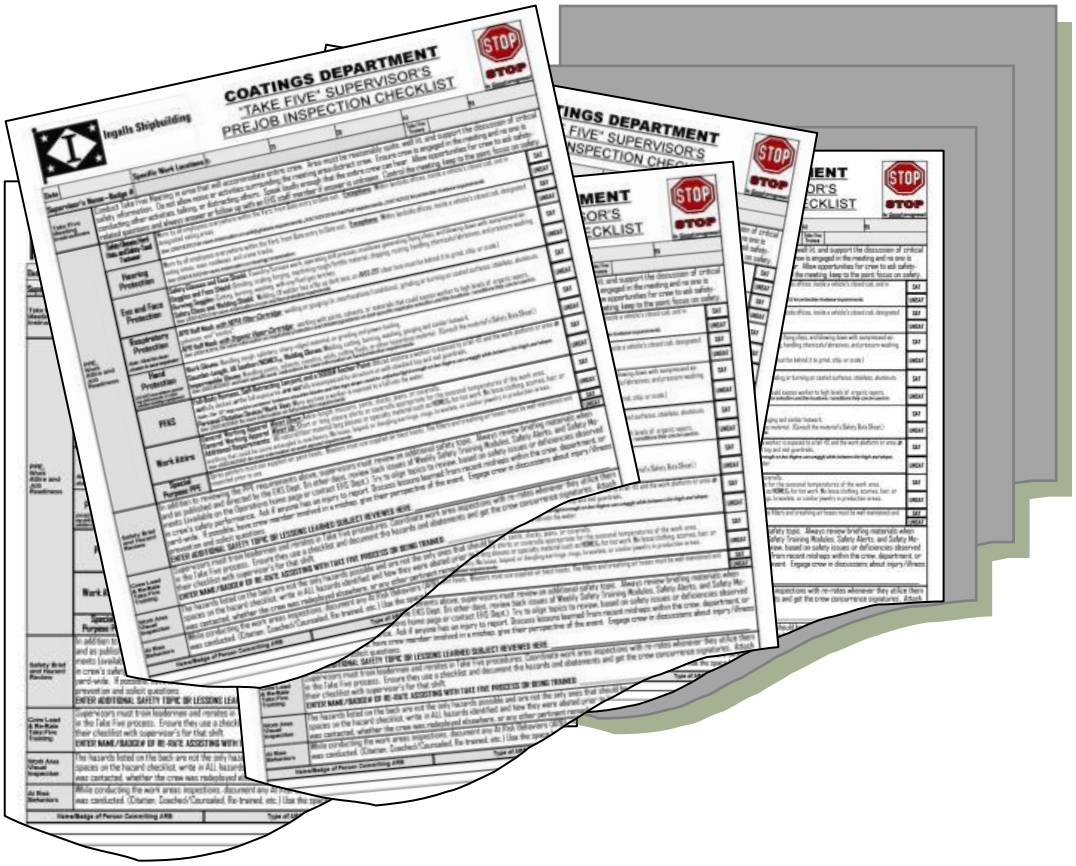
Long Sleeve Shirt

Hot work clothing must be all-natural fiber material or fire resistant material.

Full-Length Pants

PPE Requirements by Craft

Below is a section from a craft-specific “Take Five” form. Each craft’s Take Five checklist covers the required PPE for the various tasks that the craft may execute. You can review this checklist each morning during your “Take Five” Prejob Inspection or anytime by asking your supervisor for a copy. Anytime you are unsure of what PPE to use, contact an Area EHS staff member or call the EHS Dept. ext. 2100. There is a complete copy of each craft-specific Take Five form in the appendix of this handbook.



EVERYONE
WATCHES OUT
FOR EVERYONE

5 Personal Fall Arrest Systems (PFAS)

Inspecting, Wearing, and Caring for PFAS

When working 5' or higher and not protected by a fully decked and properly guard-railed work platform or you are otherwise exposed to a fall greater than 5', you must utilize a Personal Fall Arrest System (PFAS). PFAS is a full body harness, a lanyard, connecting hardware and an anchor point rated for a minimum of 5000 lbs per person attached.

PFAS is a life-critical portion of your PPE so, when it is needed, it must be damage-free. Prior to donning a safety harness, you must always inspect it and your lanyard. Any defects you find will disqualify it from use; return it to the Tool Room and show them what is wrong with it.

Proper wearing, cleaning and storage will ensure that your PFAS is in good shape and will function correctly if ever needed to stop a fall. Always be mindful of where your PFAS is stored and avoid placing it in situations that could damage or degrade its ability to function as designed.

Pre-use Inspection of Full Body Harness

- *To begin a PFAS inspection, first ensure the information tags/labels are intact and legible.*
  - *There should be one on the harness and another on the lanyard.*
  - *If the information tags/labels cannot be read—do not waste your time inspecting anything else on it! Remove it from service.*
- *Inspect the "D" ring and other hardware for cracks, burns, bends, distortion, corrosion, deep cuts and pitting.*

When inspecting the webbing, check the whole length of all straps (sides and edges) and pay close attention to heavy stitching at webbing intersections and attachments. Look for:

Shake out the straps before inspecting the harness.

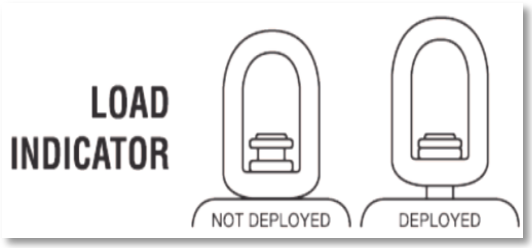
If you notice any damage or defects when you inspect your harness, it must come out of service!

- *Abrasions, cuts, tears, flat spots, permanent pinches and frayed fabric in the webbing*
- *Welding splatter, pinholes, burned spots, punctures, split/separating seams and popped or unraveled stitching.*
- *Ensure that no excessive paint, glue, grease or insulation coatings are hiding defects.*
- *Check for odd textures on the webbing fabric, stains, stiff spots or webbing that has reduced flexibility, which may indicate deterioration.*

Inspect every section of the webbing: shoulder, leg, back and chest strap.

Pre-use Inspection of SRLs

- *Ingalls Shipbuilding exclusively uses self-retracting lanyards (SRL).*
- *Any lanyard or PFAS components, other than Company-issued, must be approved by the EHS Dept. prior to use.*
- *Use the same inspection criteria for lanyard webbing as for harness webbing.*
- *Pull all of the line out and check the whole length of webbing on both sides and edges.*
- *Check the line extraction and re-traction by pulling out the full length of line and carefully let it slip back into the unit through your fingers.*
  - *DO NOT let the line freely re-reel and snap back as this can damage the unit.*
  - *If it jams on the way out, "stalls" repeatedly on the way back in or does not retract completely, remove it from service.*
- *Check line locking by pulling the line out very sharply.*
  - *The device should lock and remain locked until you relax the pull, then let it retract.*
  - *Repeat this process three times—if it does not always lock or retract normally, remove from service.*
- *Check for structural defects and corrosion.*
- *Verify no missing, altered or damaged parts; no cracks; deformations; or cuts in the housing, webbing, or snap hook.*
- *Perform a function test on the snap hook by squeezing and releasing the gate (latch) to see if automatically closes.*
- *Check the load indicator at the top of the reel to see if it has been involved in a fall; remove from service if it indicates that it has been deployed.*



Donning a Harness

Step One

- Inspect harness straps, "D" ring and labels prior to donning.
- Hold harness from back "D" ring locator pad with leg straps toward you.
- Gently shake harness to remove any twists in straps.

Step Two

- Rotate harness, similar to donning a vest or jacket.
- Slip shoulder strap over left shoulder.
- Be sure to have the leg straps behind you at this point.

Step Three

- Locate the right side of the shoulder strap retainer and make sure it is not twisted in any of the straps.
- Grasp the other shoulder strap and pull it over the shoulder.
- Settle the straps comfortably and evenly over both shoulders.

Step Four

- Connect the shoulder strap retainer.
- Squat slightly, reach behind, grasp the sub-pelvic strap with thumbs and position it beneath the buttocks.
- Make sure the leg straps are not twisted.

QWIKFITT or "Parachute" Buckles

- Start end of smaller element through slightly larger mating connector.
- Push through fully.
- Check for proper connection by pulling on each end of strap.

Leg Strap Fit Check

- Use two fingers, side-by-side and slide them behind the leg strap just below the buckles.
- The fingers should drag easily but firmly against your leg on one side and the strap on the other when properly adjusted.

Step Five

- Pull each leg strap between legs and fasten the buckle.
- Adjustments should be to a snug, comfortable fit.
- Use two fingers as a "feeler gauge" to check leg strap fit.

Step Six

- Adjust the shoulder straps to be even by using the adjusting buckles on each shoulder strap.
- Check and adjust strap retainer.
- Adjustments should be to a snug, comfortable fit.

Step Seven

- Make sure "D" ring is centered between the shoulder blades.
- Utilize strap collars to hold excess lengths of straps in place.
- Best comfort and function may require minor re-adjustments until ideal fit is achieved.

Attaching the SRL


After wearing the PFAS for a while, check to ensure the "D" ring is still in the center of the shoulder blades and readjust if necessary.

- *The carabineer that connects the SRL and the "D" ring has an automatically closing barrel gate that must be inspected.*
  - *Turn the barrel, push the gate open, and then let go—the gate should close automatically and the barrel turn back to the locked position.*
- *Open the carabineer gate and attach through the SRL's top eye above the load indicator, close the gate and confirm positive connection.*
- *Open the carabineer gate, attach to "D" ring, close gate and confirm positive connection.*
- *If you attach the SRL while wearing the harness, have a coworker visually assure positive connection to the "D" ring.*

Improperly Fitted PFAS


This harness is too loose. The slack allows the "D" ring to hang well below the center of the shoulder blades.

This harness is also too loose. The slack allows the shoulder strap retainer (chest strap) to ride up the shoulder straps.

Additionally, this harness is so loose that the leg straps are hanging far too low and out of position.

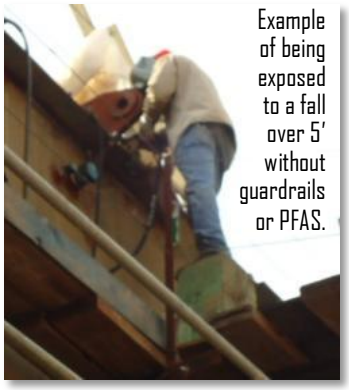
Each adjustment of the harness is dependent on the others. If one element is not adjusted correctly, it can cause other elements to fit poorly and possibly not function if deployed.

Cleaning and Storing PFAS

- *Clean entire PFAS with mild soap and water, but the SRL should only be wiped with a damp cloth.*
- *Use no chemicals, harsh detergents, abrasives or pressure washers to clean any PFAS component and never immerse an SRL in water or any other liquid.*

- *Dry the hardware with a cloth and hang harness to air dry—DO NOT use heat to speed up the drying process.*
- *Store the harness and SRL in a cool, dry, clean place, out of direct sunlight.*
- *Avoid areas where heat, moisture, light, oil and chemicals or their vapors may be present.*
- *Store SRLs with the line fully retracted.*
- *Do not store damaged PFAS next to usable equipment—return to Tool Room immediately.*
- *Do not attempt repairs of any kind.*
- *Do not store PFAS in the bottom of a gang box or where tools and material can be dropped on it.*

Use of PFAS



- *Supervisors are responsible to point out acceptable anchor points before deploying workers to elevated work locations.*
- *Fatal falls have occurred when workers temporarily disconnect PFAS from an anchorage point or unbuckled a harness. Stay tied off the entire time you are exposed to fall hazards.*
- *When floor or deck openings cannot be covered or protected by a guardrail system, PFAS must be used.*
- *The yellow SRL commonly used in the Yard cannot be wrapped around anything and attached back to itself.*
- *There are special "tie-back" lanyards that can be wrapped around a suitable anchor and hooked back into its line.*
- *The locking device on the lanyard hook must be closed 360° around the anchor.*
- *Never hook a lanyard on a plate-edge or attach it in any manner that would allow "roll out" and detachment.*
- *Always hook the lanyard overhead unless in an aerial lift or a location where there is no overhead anchorage.*
- *PFAS that has been exposed to a fall must be immediately taken out of service and given to the EHS Department.*
- *Anchorage points must support at least 5000lbs static load per person attached.*
- *Never hook two lanyards together.*
- *You **<u>can</u>** hook into the rosette rings on manufactured, modular scaffolding.*
- *Ask your supervisor or an EHS staff member if unsure of an anchor point or attachment technique.*

PFAS Rescue

If you ever experience a fall and deployment of your PFAS and you cannot immediately climb back onto the structure, then remain calm, alert any by-standers in the area, and try to pull your knees up towards your chest in a sitting-type of position.

This will help you maintain blood flow through your limbs and avoid static suspension trauma.

We have trained responders with a variety of specialized equipment to rescue you.

6 Respiratory Protection and Ventilation

Respiratory Protection

Sometimes the air in a work area becomes unfit for breathing because of the presence of dust, fumes, gases, vapors or mist. Contaminated air is made safe using respirators designed for the specific contaminant.

Ingalls Shipbuilding's written respiratory protection program is *Maintenance and Usage of Respirators and Respiratory Equipment* (SSO K204). It contains further details on the requirements associated with ensuring workers are not overexposed to airborne contaminents.

The following defines the respiratory hazards that may require the use of a respirator:

- *Oxygen Deficient Atmosphere*
- *Toxic (gas and vapor) Atmosphere*
- *Particulate Contaminated Atmosphere*
- *Any Combination of the Above*

The two main classes of respirators are:

Air Purifying Respirators (APR): *Uses filters and absorbents to remove contamination from the air drawn through them.*

Air Supply Respirators (ASR): *Furnishes breathable air needed in highly toxic or oxygen-deficient atmospheres.*

The Following Steps Shall Be Followed to Ensure the Proper Selection of Respirators.

STEP	WHO	DOES WHAT
1	Supervision	• Informs the employee of the particular hazard and the need for a respirator. • Acquaints the employee with the specific hazard involved in the work function. • Obtains specialty cartridges (ammonia, acid gas) from the Industrial Hygiene Section of the EHS Department when required, and then distributes them for use to the employee.
2	Employee	• Informs the Tool Control personnel of the specific nature of the hazard before a respirator is issued to the employee. • Presents a valid respirator fit test card to Tool Room attendant.
3	Tool Control Personnel *With EHS Department Assistance*	• Determines which respirator is necessary based on the information supplied to them by the employee when they present the Respirator Fit Test Card issued to them after their fit test. • Issues the respirator and filter/cartridges designed to protect against the particular hazard. • A respirator shall not be issued to an employee who cannot present a current Respirator Fit Test Card. • A respirator or respirator replacement cartridges shall not be issued to anyone that is not clean-shaven.

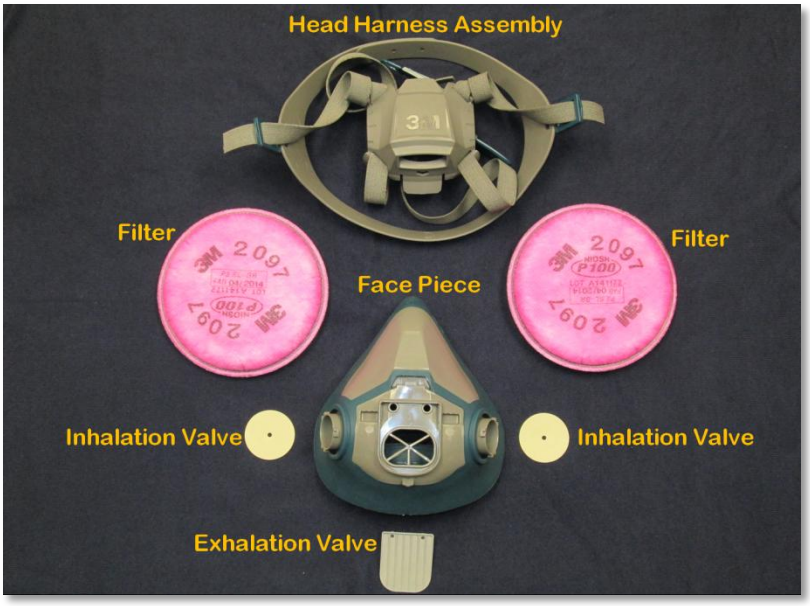
The Following Table Summarizes the Minimum Level of Respiratory Protection for Routine and Emergency Operations:

OPERATION	WHEN	MINIMUM RESPIRATOR
Abrasive Blasting	Blasting personnel	Supplied air w/ blast helmet
	Working near blasting operations for short periods	½ face APR w/ P100 Filters
	Glove box blasting operations	Respiratory protection not required
Painting	Brush or roller painting w/ organic solvent based paints	½ face APR w/organic vapor cartridges
	Spray painting	Supplied air paint hood
	Personnel working near spray operations	½ face APR w/ organic vapor cartridges and pre-filter
	Painting w/ coal tar epoxy, antifouling or polyurethane (isocyanate) coatings	Supplied air paint hood
Grinding or Scaling	All grinding on all surfaces	½ face APR w/ P100 Filters
Tack Welding (short duration) 1. Welding beads of less than 2 inches. 2. Less than 15 tack beads per hour (Also, see welding on toxic materials below)	On bare mild steel and in open areas or in enclosed/confined areas where general exhaust ventilation is used	Respiratory protection not required
Welding	All areas on bare mild steel	½ face APR w/ P100 Filters
Cutting, Heating & Burning	On bare mild steel and in open areas or in enclosed/confined areas where general exhaust ventilation is used	Respiratory protection not required
	Enclosed/confined areas where general exhaust ventilation is not feasible	½ face APR w/P100 Filters
Welding, Tacking, Cutting, Heating & Burning On Toxic Base Metals, Fillers, Coatings Containing: -Cadmium -Chromium -Copper -Lead -Nickel -Stainless steel -Zinc	Beryllium base metals, fillers and coatings that contain therein	Airline supplied respirator
	In open areas or in enclosed/confined areas where local exhaust ventilation is used	½ face APR w/ P100 Filters
	Enclosed/confined areas where general exhaust ventilation is not feasible	Airline supplied respirator
Carbon Arc Gouging On Any Metal	Carbon arc gouging in open areas with general exhaust ventilation	½ face APR w/ P100 Filters
	Carbon arc gouging in enclosed/confined areas	Airline supplied respirator
Hazardous Materials Handling and Usage	Particulates: fiberglass, mineral wool, ceramic fiber, asbestos	½ face APR w/ P100 Filters
	Liquids/Vapors: solvents, insecticides, herbicides, caustic or acid solutions	½ face APR w/ specialty cartridges issued by IH Section of the EHS Department
Rescue, Emergency Response, Fire Fighting, Confined Space Entry		Self Contained Breathing Apparatus (SCBA) in pressure demand mode or as deemed necessary by the IH Section of the EHS Department

If you are ever unsure about what type of respirator you need for a particular atmospheric hazard, contact the EHS Department at ext. 2100.

Using a Respirator

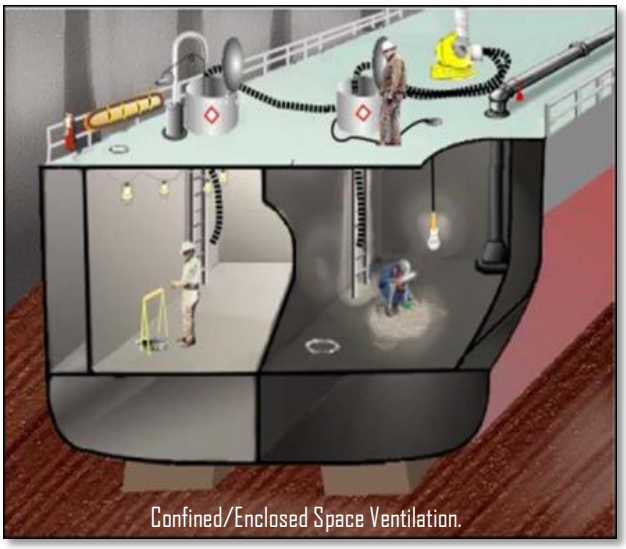
- *Prior to using a respirator, shipbuilders are required to have a respirator fit test. The test determines proper fit and size respirator required for the user. A fit test card is issued to the employee to keep and must be presented when requesting a respirator at the Tool Room. All users must be clean-shaven when reporting for the fit test and when using a respirator on the job. Fit tests must be conducted annually.*
- *Respirators must be used only for the purpose intended and no modifications to the equipment may be made. Remember: Never use a cartridge-type respirator in place of an airline respirator. Cartridge respirators filter the air you breathe; they DO NOT provide breathing air or oxygen.*
- *The three primary places to check to determine the appropriate respiratory protection for your tasks are 1) The Safety Data Sheet for the chemical you are working with, 2) The Ingalls Shipbuilding written respiratory protection program (SSO K204), or 3) Ask an EHS staff member for assistance.*
- *Respirators must be inspected prior to use and maintained in good condition.*
- *The cartridges must be replaced as necessary by the user to avoid undue resistance to breathing. Organic vapor cartridges should be replaced after approximately 4 hours or midway in an 8-hour work shift. If breakthrough is detected by smell, taste or by nose or throat irritation, cartridges should be replaced earlier.*



- *Employees are responsible for cleaning and disinfecting their equipment daily. Do not borrow respirators from others; always use your own.*
- *Users must store their respirator in a clean plastic bag in a location where it will not be damaged. Never throw a respirator in the bottom of a toolbox or gang box where heavy tools and materials can land on it and cause damage.*
- *When an airline respirator is used, the airline must be fitted with the proper pressure regulating valve and filter, which will remove oil, water and rust particles. The air intake must be from a source that is free from all contaminants. Mechanical exhaust ventilation systems must be used in addition to airline respirators to clear contaminants from the work area or to provide fresh air to the compartment.*
- *Prior to initial entry, all confined spaces which may have contained a hazardous substance, must be checked for oxygen content, combustible gases, and possibly toxicity by a shipyard competent person, industrial hygienist or marine chemist.*
- *A clean and disinfected respirator can be acquired from the tool room or exchanged when the older one has been damaged or excessively soiled.*

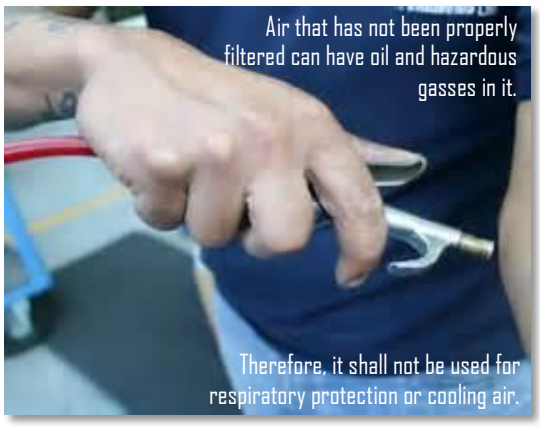
Ventilation

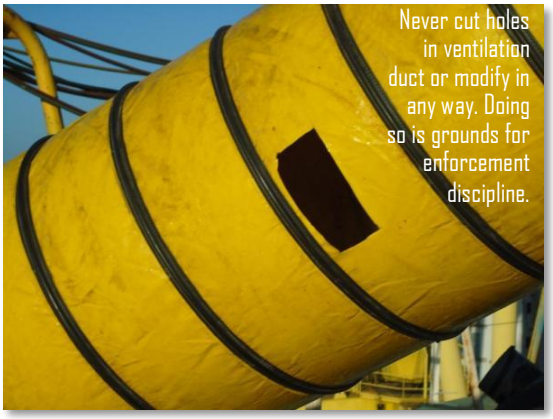
Mechanical forced air ventilation is used to add clean, fresh air to the atmosphere in a space thereby, diluting the amount of contaminants. It is also used to exhaust the contaminations out of the space. Shipbuilding makes wide-use of various blowers and fans to move air in or out of the enclosed and confined spaces of vessels and vessel sections. For more information, see: *Confined and Enclosed Spaces and Other Dangerous Atmospheres* (SSO K215), *Temporary Ventilation* (SSW M3723) and *Temporary Ventilation* (SSG M1012).


Confined/Enclosed Space Ventilation.

- *Confined/enclosed spaces must have mechanical ventilation operating before employee entry.*
- *Prior to welding inside any vessel, unit or structure, adequate mechanical forced-air **exhaust** ventilation shall be operating.*
- *Contaminated air exhausted from a space shall be discharged into the open air, away from other intake sources and away from personnel.*
- *Flammable paints, toxic solvents, acids or other hazardous materials shall not be used until adequate exhaust ventilation is operating and employees have proper respiratory equipment.*

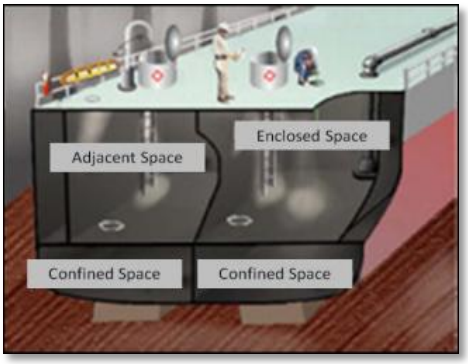
- *Before operating an internal combustion engine below decks, authorization must first be obtained from the EHS Dept. and supplied-air and exhaust ventilation shall be used to ensure that carbon monoxide levels are not at dangerous concentrations.*
- *Under no circumstances shall any employee alter ventilation, except for the Temporary Ventilation crews, unless directed by the EHS Dept.*
- *Oxygen shall not be used for ventilation purposes, comfort cooling, blowing dust or dirt from clothing or for cleaning the work area.*
- *Air hoses and/or air rings are not suitable ventilation—yard air (pressurized service air) shall not be used for ventilation or cooling.*





7 Confined and Enclosed Space Entry and Inerting Gas Safety

Confined Space General Rules



Confined Space: Any space of small size and limited access such as a double bottom tank, cofferdam, void, or other space which by its small size and confined nature, can readily create or aggravate a hazardous exposure.

Enclosed Space: A space, other than confined spaces, that are enclosed by bulkheads and overhead. This includes cargo holds, quarters, passageways and machinery and boiler spaces.

The full confined/enclosed space entry written program is *Confined and Enclosed Spaces and Other Dangerous Atmospheres* (SSO K215). For inerting gas safety, see: *Personal Gas Leak Control* (SSW M3023) and *Ships and Units Argon Purging Precautions for Pipe Welding* (SSW M3312) *and Flow Meter Setup Instructions* (SSG M3004)

The Following Precautions Must Be Followed When Working In and Around Hazardous Atmospheres:

IF…	THEN…
An employee becomes suspicious of the quality of the atmosphere of any space.	Employee should evacuate the area immediately and notify their supervisor to request an atmosphere survey by the EHS Dept.
Personnel are assigned to enter: • *Confined spaces that have been sealed.* • *Spaces that have been coated and closed up.* • *Unventilated freshly painted spaces.* • *If charged gas lines appear to have been left inside or right at the entrance of a space such as at the very beginning of an oncoming shift or appear to be unattended (>15 minutes for fuel gas & oxygen or any length of time for inerting gasses).*	• *Employees must not enter.* • *Ships Management must request an atmosphere survey by a Shipyard Competent Person (SCP) or Certified Marine Chemist (CMC) and follow all posted instructions listed on the colored entry permit tag.* • *Personnel permitted to enter only after reading and understanding all instructions on colored entry permit tag.*
Note: During a production shift, it would not be uncommon to see lines running into spaces for process tasks.	
Inert, toxic, flammable or otherwise harmful gases are released in any confined space.	• *The employee shall evacuate the area immediately.* • *Take the necessary steps to prevent personnel entry by roping off the area or posting signs, etc.* • *Request an atmosphere survey by a SCP or CMC.* • *Follow posted instructions by SCP or CMC.*

Confined Space Entry Control Requirements

Prior to entry into any space, a visual inspection of the area around the access should be conducted to ascertain if there are any conditions that could potentially contribute to atmospheric hazards within the space. Conditions that could indicate that there may be a substandard atmosphere are (but not limited to):

- *Unattended or non-wrench tightened inerting gas lines or torch lines running into the space*
- *Previous cargo of flammable/combustible materials*
- *Previous cargo toxic/corrosive/irritant material*
- *Previous cargo of organic material*
- *Freshly painted surfaces*
- *Sewage or waste water*
- *Odd smells*
- *Excessive smoke or vapor being released*
- *Previously sealed spaces*

Always remember:
Employees shall never work alone in a confined space.

If any of these conditions are observed, a Shipyard Competent Person (SCP) or Certified Marine Chemist (CMC) may need to inspect the space and require special hazard controls prior to entry. Hot work is not permitted in or on the following spaces, adjacent spaces, or other dangerous atmospheres until they have been tested by a SCP and determined to contain no concentrations of flammable vapors equal to or greater than 10 percent of the lower explosive limit:

- *Dry cargo holds*
- *The bilges*
- *The engine room and boiler spaces for which a CMC or a Coast Guard Authorized Person (CGAP) certificate is not required*
- *Vessels and vessel sections for which a CMC or CGAP certificate is not required*
- *Landside confined and enclosed spaces or other dangerous atmospheres that do not require inspection by a CMC or CGAP because they are located 25 feet or more from the hot work.*

To maintain safe working conditions, SCPs shall conduct follow-up inspections to the CMC's initial inspection at the interval specified in the *Marine Chemist Certificate*. For ***hot work*** operations, the atmosphere must be at 0% of the LEL in the areas that will be designated as "Safe for Hot Work". For Employee entry:

- *The oxygen content in air must be 20.8%.*
- *The atmosphere must be less than 10% of the LEL for painting operations or other flammable liquid processes.*
- *The atmosphere must be at 0% of the LEL for all other operations.*
- *The level of toxic, corrosive or irritant materials exposure must be within permissible limits.*
- *An area in this condition will be designated as "Safe for Workers".*

All previously sealed and reopened confined spaces shall be atmospherically tested and visually inspected by a CMC or SCP and the appropriate colored and dated entry tag affixed at the designated opened accesses prior to entry by Ingalls Shipbuilding personnel. Should an inspection reveal a change in conditions, all work will stop and the area will be evacuated until:

- *The source of the change is identified and controlled.*
- *The atmosphere is returned to a safe condition.*
- *The CMC re-inspects the area and issues a new Marine Chemist Certificate authorizing resumption of the job.*

All entrants must be trained and authorized to enter confined spaces and this training is conducted by the following:

- *In new hire orientation*
- *Through weekly safety training modules*
- *Through on-the-job-training*

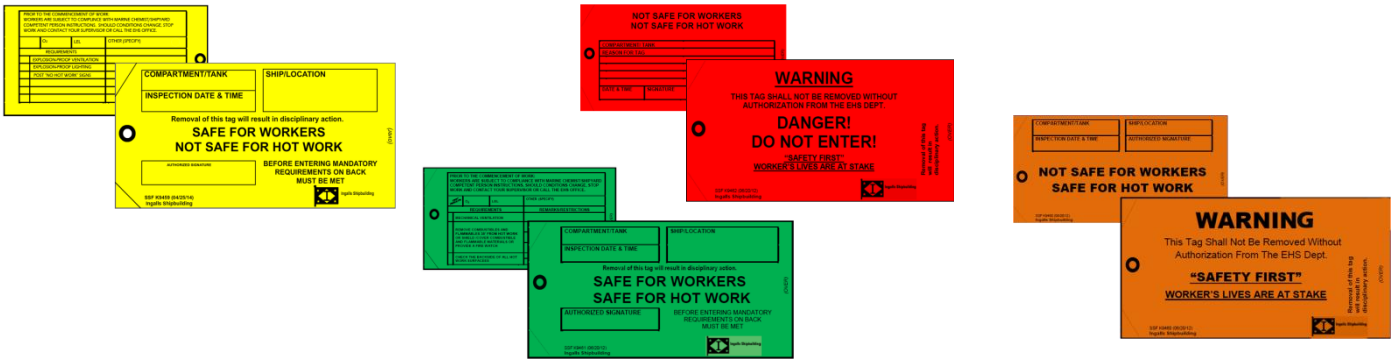
When practicable, the owner of the space shall correctly identify the space and all accesses shall bear the label or markings of the name of the space (Example: Port #2 Ballast Tank). When a space has more than one opening or access cover, at least two covers must be opened. Entrants shall read both sides of any entry permit tag, confirm the tag has a valid date and follow any requirements listed prior to entry. Proper ventilation and lighting must be installed 30 minutes prior to entry before work can begin in the space. Protective devices to prevent falls into open holes (ring guards, horseshoe guards, goal posts, flat bar, cages, etc.) shall be installed prior to entry. Lifelines and personal fall arrest systems may be required if there are fall exposures of over five feet within a space.

Confined Space Colored Entry Permit Tags

If a tag is found adrift, give it to a supervisor immediately.
The supervisor shall contact EHS for follow up.

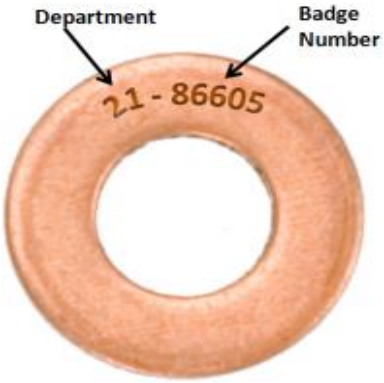
The front side of the tag identifies the space, date of test and inspection, name of person who authorized entry, and any special limitations. The green tags also identify the expiration date of the permit. The reverse side of the green and yellow tags lists the atmospheric conditions found at the time of the inspection, and lists requirements and restrictions for entry and work. Always follow all instructions on both sides of the red or orange tags.

If the tag has expired, (inspection is out-of-date), a request must be submitted to the EHS Dept. to have a SCP or CMC re-inspect, re-test, and re-tag the space. No one shall be allowed to enter the space until it has a valid tag. No one shall apply a tag except a SCP or CMC. Red or orange-tagged spaces shall not be opened without the permission of the tag issuer.



WHEN…	THEN…
An access is tagged with a **RED** tag - *Do Not Enter Tag* (SSF K9462).	NOT SAFE FOR WORKERS—NOT SAFE FOR HOT WORK
An access is tagged with a **GREEN** tag - *Hot Work Tag* (SSF K9461).	SAFE FOR WORKERS—SAFE FOR HOTWORK
An access is tagged with a **YELLOW** tag - *Cold Work Tag* (SSF K9459).	SAFE FOR WORKERS—NOT SAFE FOR HOT WORK
An access is tagged with an **ORANGE** tag - *Space Inerting Tag* (SSF K9460).	NOT SAFE FOR WORKERS—SAFE FOR HOTWORK *This tag is used when a space is inerted for hot work but entry would expose workers to the oxygen deficient atmosphere.*

Inerting Gas Safety



Everyone using an inerting gas shall have proper identification washers on their lines regardless of vessel or Yard location. When inerting gas lines are used in enclosed/confined spaces, the line shall not be left unattended with the gas supply left on. Oxygen, acetylene and propylene gas lines must be pulled back to the manifold, disconnected, and rolled up with manifold caps installed at the end of each working shift.

If in doubt about the presence of any gas in a tank, compartment, etc., contact the EHS Dept. and have the space checked by a competent person.

Welders certified to use an inerting shield gas must use a flow meter attached to the output of their supply manifold. They will also be responsible for insuring that their gas line fittings are tight and that the lines are either capped at the wire feeder end or attached securely to a wire feeder at the end of each shift. Welders will also be responsible for charging their lines and monitoring their flow meter at the beginning of their shift to determine the condition of their individual gas line.

Everyone should pay close attention to warning signs regarding purging operations. Never move, alter or modify ventilation duct that is being used for purging processes. Duct used for purging operations is yellow and shall not be used for regular mechanical ventilation applications.

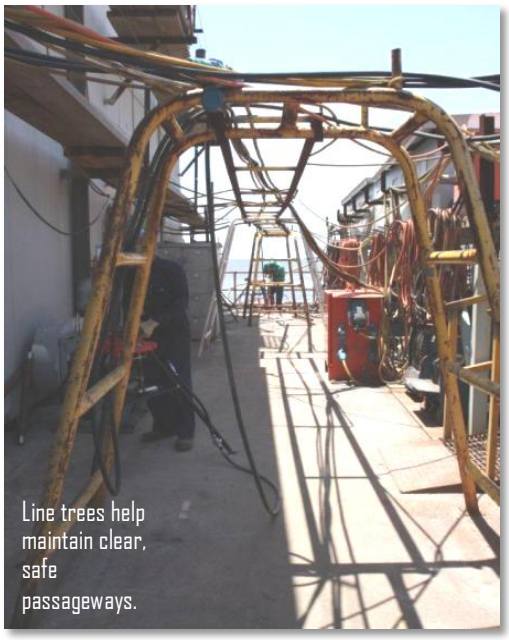
Inert gas purging operations use blowers and yellow duct.

Argon gas will displace the air in confined spaces. Special care shall be exercised to ensure proper ventilation by exhausting argon gas outside of compartments and other closed working spaces. For shipboard applications, hoses connected to fittings at the purge exit can be used to redirect gas flow away from confined work areas and to an open environment. For shop applications, exhaust fans will be used to ventilate argon gases to an open environment.

8 Line Control and Housekeeping/Shipkeeping

Line Control

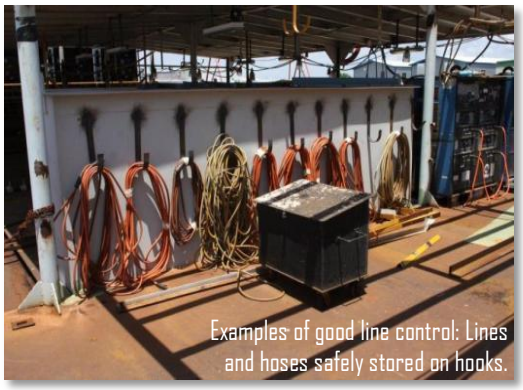
Poor line control has several negative effects—tripping and "clothes lining" injuries as well as damage to lines that can create shock and electrocution hazards. It is critical that all shipbuilders using leads, lines, cords and hoses, maintain good line control throughout their shift. The following are some of the line control requirements needed to help reduce hazards caused by lines:

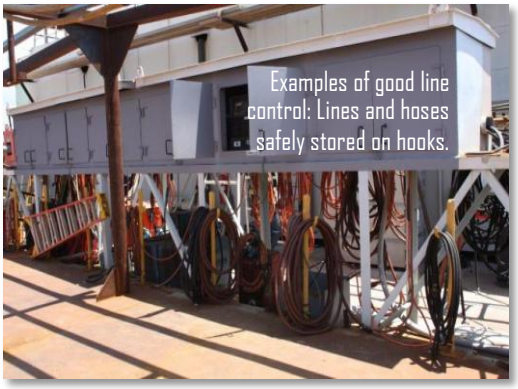

Line trees help maintain clear, safe passageways.

- *Good line control shall be maintained at all times.*
- *Ensure walkways and accesses remain clear of lines by keeping them off decks to reduce hazards.*
- *Line racks, line trees, S-hooks and J-hooks shall be used to elevate lines.*
- *Lines shall be elevated over, placed under walkways or working surfaces, or covered by adequate crossover protection.*
- *Where possible, electrical lines shall be separated from gas and fluid lines routed throughout ships and assemblies.*
- *Unused lines shall be removed from ships and assemblies.*
- *Lines shall never be supported by light cords, valve handles, or insulated pipe.*
- *Lines shall never be routed across the top of guard cables or ladders.*
- *Lines shall not be hung on or block access to manifolds, electrical equipment or fire protection equipment.*
- *All damaged lines shall be reported promptly to your supervisor and may not be used until repaired.*
- *Ventilation equipment routing is part of line control and the duct and blower/fan power cords are required to be properly routed.*
- *YOU CANNOT WALK ON LINES AND HOSES!—even if the walkway isn't a striped, designated passageway.*


Example of poor line control: Lines ran over fire equipment.


Example of poor line control: Lines ran across the face of a ladder.





Housekeeping and Shipkeeping

Each employee is responsible for cleaning up and properly disposing of the debris that he or she generates, including:

- *Food wrappers, beverage containers and food scraps.*
- *Job supplies, such as welding rod stubs, used grinding wheels and paint sticks.*

Much of the waste must be segregated for proper disposal, so place each type of waste in its designated receptacle. For instance, do not throw cardboard into a scrap metal bin. Properly store tools, equipment, and material and do not allow items, not being used immediately, to accumulate.

Never block fire protection equipment, electrical services, manifolds or emergency egress routes with anything. Do not feed stray or feral animals that make their way into the Yard. Use only designated restrooms to emit body wastes. A violation of this rule may constitute immediate termination of employment.

For more information see:
***Shipyard-Shipkeeping Practices* (SSW M1003) and *Line Control* (SSW M4002).**

9 Fire Prevention and Hot Work Operations

Fire Prevention Introduction

Of all the safety problems an employee can encounter, fire can be the most frightening. Many employees do not realize how their own actions can contribute to the risk of fire. It is imperative that all employees be aware of the risks involving hot work and the prevention measures that must be taken to prevent a fire from occurring.

Fire Related Command Media Documents

Ingalls Shipbuilding's fire protection and prevention procedures, work instructions and supplemental guidances are located in Command Media. To learn more about fire and hot work-related requirements, see:

- *Fire Protection Plan* (SSO K400)
- *Flammable Substance Shipboard Registration System* (SSO K401)
- *Fire/Safety Plan* (SSG K0400)
- *Fire Protection and Prevention Plan for Navy/Coast Guard* (SSG K0400A)
- *Facility Fire Protection and Prevention Program* (SSG K0400B)
- *Building Evacuation Procedures* (SSG K0400H)
- *Hot Work Chit System* (SSW M3021)
- *Fire Marshal Roles and Responsibilities* (SSW M3027)
- Many more process-specific procedures.

Ask your supervisor or contact the EHS Department if you need a copy to review.

Fire Terminology

To better understand fire, how it starts, and how it is sustained, shipbuilders must become familiar with the following terms and their definitions:

Hot work—*Any welding, burning, grinding or other fire/spark producing operations.*

Flash point—*The temperature at which the vapors from a combustible or flammable ignites.*

Fire retardant—*A rating meaning that the product will ignite but will not maintain combustion for more than three seconds once the heat source is removed.*

Fire watch—*An employee that has gone through the necessary training and is certified by the Company to perform the duty of observing hot work operations to prevent fires from occurring as well as extinguish incipient stage fires should one occur.*

Fire cloth—*A woven fiber cloth that is fireproof and should be used to protect equipment during hot work operations.*

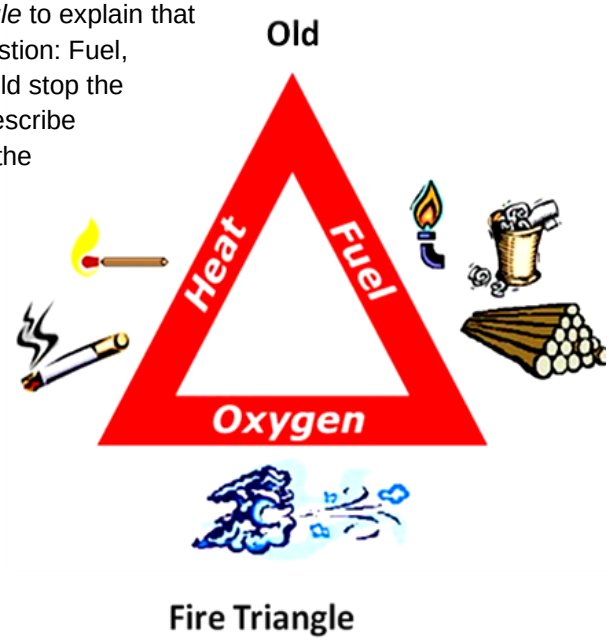
Hot work chit—*A document for authorizing a hot work operation to be conducted in a specific location on vessels.*

Combustible—*Any trash, debris, plastic, wood, or other material that will burn and has a flash point of 200°F or more.*

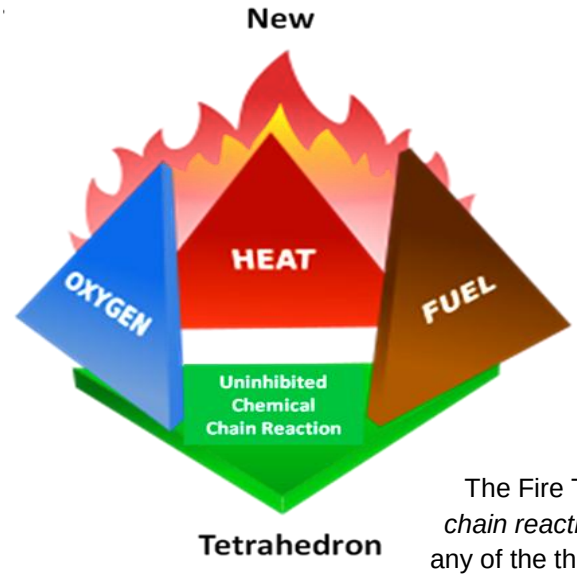
Flammable—*Any liquid, gas or solid that has a flash point of less than 200°F.*

Fire Science

For years fire science was taught using the *Fire Triangle* to explain that there must be all three sides present to sustain combustion: Fuel, Heat and Oxygen. Removing any one of the three would stop the fire. However, the Fire Triangle does not completely describe everything that occurs during fire growth—this lead to the development of the Fire *Tetrahedron*.



Fire Triangle



Tetrahedron

The Fire Tetrahedron recognizes a fourth element: *uninhibited chemical chain reaction*. Some fire suppression agents do not remove or reduce any of the three necessary components, but rather interfere with their chemical combination.

Hot Work Requirements

OSHA's 29 CFR 1915 Subpart P, *Fire Protection in Shipyard Employment*, states that combustibles must be removed at least 35' from the hot work operation. The *35-Foot Rule* is not applicable if there is a solid barrier between the hot work and the combustible material, i.e. solid bulkheads, decks or overheads without penetrations.

Hot work operators must always ensure combustibles are not in close proximity to the **opposite** side of the bulkhead, deck or overhead. If the combustibles cannot be removed, then they must be adequately protected. If unable to remove or protect the combustibles, then a fire watch must be posted.

Employee Responsibilities

Prior to performing hot work, employees and supervisors are required to perform a thorough inspection of the work area.

- *During the inspection, employees and foremen should be looking for:*
  - *Combustible material, flammables, penetrations or holes in decks, overheads and bulkheads.*
  - *Signs posted in the area warning of other cold work jobs or flammable/hazardous environments*
  - *If other employees are performing operations in surrounding areas that could potentially increase the risk of having a fire or causing injury.*
- *The hot worker and fire watch (when one is required) shall be responsible for maintaining a safe work environment, free of combustibles and other hazards for the duration of the hot work operation, including inspection of the area involved in the hot work operation when the hot work is complete.*
- *Tool bags/boxes, plastic water coolers, personal belongings and required material for the job being performed must be protected during the hot work operation.*
- *Protection measures to be taken include removal of combustibles from the area, covering them with fire cloth or separating them from the deck or bulkhead.*
- *At the end of the shift, disconnect all oxygen and fuels gas lines at the manifold and store them in the open air and reinstall manifold caps on valve outlets:*
  - *Never leave an unattended torch line in an enclosed space for more than 15 minutes.*
  - *Never leave an unattended torch line in a confined space for any length of time.*
  - *Never store torch hoses in gang boxes or other locations that may retain gas still trapped in the lines.*

Fire Watch Requirements

A certified fire watch shall be assigned when the following conditions are present during hot work:

- *Slag, weld splatter or sparks might pass through an opening in an access or pass behind shielding material and cause a fire;*
- *Fire resistant guards or curtains are not being used to prevent ignition of combustible materials on or near decks, bulkheads, partitions, or overheads;*
- *Combustible material is closer than 35' to the hot work (including grinding) that cannot be removed, covered or shielded.*
- *Hot work is done on or near insulation, combustible coatings or sandwich-type construction that cannot be shielded, cut back or removed, or in a space within a sandwich-type construction that cannot be inerted.*
- *Combustible materials adjacent to opposite sides of bulkheads, decks, overheads, metal partitions or sandwich-type construction may be ignited by penetration, conduction or radiation from hot work.*
- *The hot work is close enough to cause ignition through heat radiation or conduction on insulated pipes, bulkheads, decks, partitions or overheads or on combustible materials or coatings.*
- *The hot work is close enough to unprotected combustible pipe or cable runs to cause ignition.*
- *A Marine Chemist or a Shipyard Competent Person requires that a fire watch be posted.*

The primary function of fire watch personnel is to safeguard life and property by closely monitoring hazardous operations and hot work operations to prevent a fire or explosion. Craft supervision shall select a suitable number of their personnel to be trained for fire watch duty and shall coordinate their training with the Training

Department. Supervision shall ensure that the appropriate training has been performed prior to job requirements. Employees shall function as a fire watch unless they have attended the training and their certification is current. (Certification expires annually).

Care and Protection Materials vs. Fire Cloth Materials

These materials are fire retardant, but they will burn. Fire cloth must be used for protection of combustibles when hot work is being done within 35' of them.

Ensure that proper protection measures have been taken prior to hot work being performed.

- *Use fire cloth to cover and protect all equipment and combustibles that cannot be removed in the area.*
- *Cover cables and lights with fire cloth.*
- *Use fire cloth or sheet metal to cover penetrations in the deck or bulkhead.*
- *Fire cloth can also be used to create a curtain or catch to prevent damage from hot work.*
- ***NOTE: Fire cloth is re-usable until it has holes in it. This product is expensive!***

Fire Extinguisher Training

The classifications for the most common fires are:

- "A"—Routine solid materials, such as wood, paper, leaves and many plastics
- "B"—Oils, fuels, solvents or other hydrocarbons
- "C"—Electrical

Never use an extinguisher for any purpose other than firefighting. Never use more than one extinguisher. If one does not extinguish the fire, leave the area and call for help. Notify the Fire Department whenever you discharge a fire extinguisher so that they can replace it with a fully charged one.

The CO2 fire extinguisher is for early stage small fires only. If you encounter a large blaze activate the nearest alarm, alert occupants, evacuate the location and notify management so that they can contact the Fire Department. Ingalls Shipbuilding generally stocks carbon dioxide CO2 and dry chemical extinguishers.

PASS Method

Use the "PASS" method for extinguishing fires.

Pull the pin from the handle

Aim the nozzle at the base of the fire

Squeeze the discharge handle

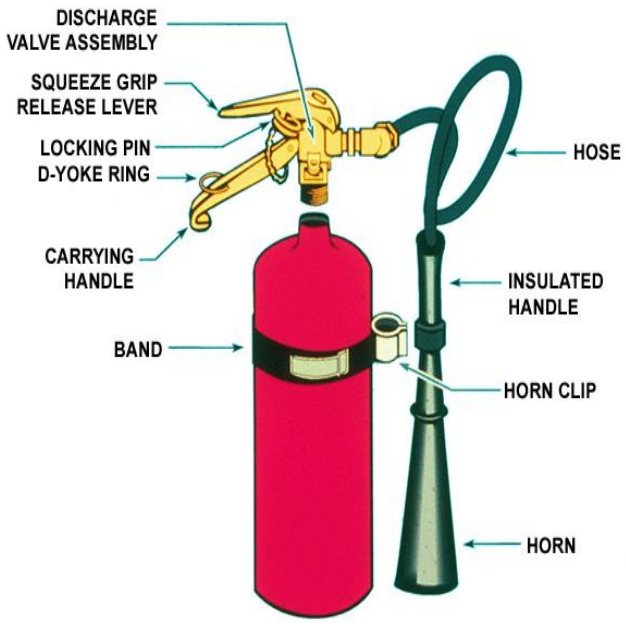
Sweep the nozzle back and forth at the base of the fire

CO^2 Extinguishers (15lb)

- *Located in most spaces of the ship*
- *Intended for small class "C" fires but can be used for small class "A" & "B" fires*
- *Effective range: 4'–6'*
- *Lasts 45 seconds with continuous use*

CO^2 Special Hazards

- *No reflash protection*
- *Displaces oxygen, DO NOT enter a compartment that CO2 has been discharged*
- *Can cause burns if allowed to remain on the skin*
- *Discharge of CO2 will build up static electricity; therefore, keep cylinder in contact with metal structure.*



Hot Work Chit System

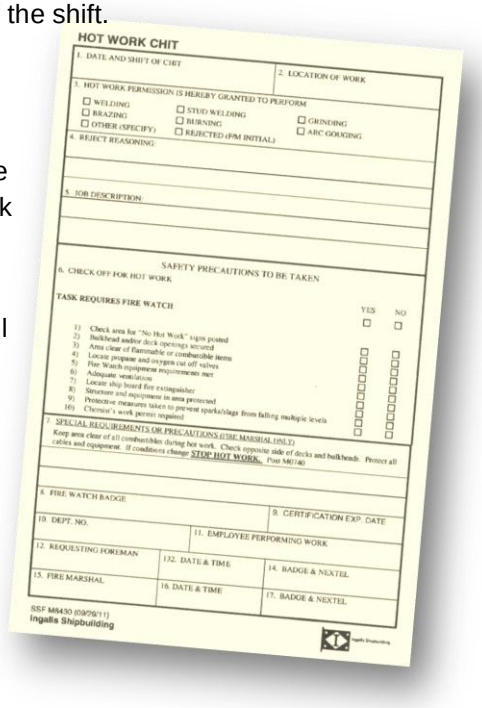
The Hot Work Chit System is in place to ensure that policies and procedures are followed during the implementation of hot work.

The Ship's Construction Manager shall ensure the Hot Work Chit process is started when the physical progress of the ship is reported as 50%. The Hot Work Chit system may be enforced prior to this milestone at the discretion of the Ship's Construction Manager.

All hot work performed on ships with physical progress of 50% complete shall be documented by the Hot Work Chit, SSF M8430. The Fire Marshal shall maintain a log of all Hot Work Chits. The chit is a three-part form. The white copy shall be posted at the work site by the Foreman after delivering the yellow copy to the Fire Marshal. The yellow copy will remain with the Fire Marshal. The pink copy will remain with the Foreman. The white copy shall be returned to the Fire Marshal at the end of the shift.

Hot work in Shop areas and construction prior to 50% physical progress will not require Hot Work Chits. Fire Marshals in these areas shall ensure that Foreman and employees are meeting the requirements of SSG K0400A and SSO K401. The applicable Fire Marshal and Shop or Ship Management shall implement Hot Work Chit process as necessary.

The Hot Work Chit shall be filled out by the employee's foreman. The Hot Work chits will then be given to the Fire Marshal. This will be accomplished by placing the chit in the Fire Marshal's folder in the Fire Marshal's office prior to the commencement of hot work. The Fire Marshal shall monitor the hot work operation to confirm that precautions are properly identified on the Hot Work Chit and that the hot work operation complies with SSG K0400A.


HOT WORK CHIT

1. DATE AND SHIFT OF CHIT
2. LOCATION OF WORK
3. HOT WORK PERMISSION IS HEREBY GRANTED TO PERFORM
☐ WELDING ☐ STUD WELDING ☐ GRINDING
☐ BRAZING ☐ BURNING ☐ ARC GOUGING
☐ OTHER (SPECIFY) ☐ REJECTED (FM INITIAL)
4. REJECT REASONING:
5. JOB DESCRIPTION:
SAFETY PRECAUTIONS TO BE TAKEN
6. CHECK OFF FOR HOT WORK
TASK REQUIRES FIRE WATCH YES NO
1) Check area for "No Hot Work" signs posted
2) Bulkhead and/or deck openings secured
3) Area clear of flammable or combustible items
4) Locate propane and oxygen cut off valves
5) Fire Watch equipment requirements met
6) Adequate ventilation
7) Locate ship board fire extinguisher
8) Structure and equipment in area protected
9) Protective measures taken to prevent sparks/slags from falling multiple levels
10) Chemist's work permit required
7. SPECIAL REQUIREMENTS OR PRECAUTIONS (FM MARSHAL ONLY)
Keep area clear of all combustibles during hot work. Check opposite side of decks and bulkheads. Protect all cables and equipment. If conditions change STOP HOT WORK. Post M0740
8. FIRE WATCH BADGE
9. CERTIFICATION EXP. DATE
10. DEPT. NO.
11. EMPLOYEE PERFORMING WORK
12. REQUESTING FOREMAN
13. DATE & TIME
14. BADGE & NEXTEL
15. FIRE MARSHAL
16. DATE & TIME
17. BADGE & NEXTEL
SSF M8430 (09/09/11)
Ingalls Shipbuilding

Hot Work Chits Are To Be Processed As Follows:

Step	Action
1	Foreman will write Hot Work Chit prior to assigning hot work to employee.
2	Foreman and employee will verify the Safety Precautions To Be Taken portion of the Hot Work Chit and provide form to the Fire Marshal prior to commencing the hot work operation.
3	Fire Marshal shall visually monitor the hot work area identified to confirm hot work precautions to be taken and/or followed are properly identified on the Hot Work Chit and the hot work operation is in the compliance with SSG K0400A.
4	If the Fire Marshal determines violations of SSG K0400A are committed, he/she will stop hot work process and notify the Foreman. The hot work process will resume when violations are corrected and verified by the Fire Marshal.
5	If for any reason correction(s) or modifications are made to an existing Hot Work Chit, one line will be drawn through the incorrect information and initialed by the person making the correction. Only the requesting Foreman or Fire Marshal is authorized to make changes/corrections to an existing Hot Work Chit.
6	The white copy of the Hot Work Chit shall be turned into the Fire Marshal's office when the hot work job is complete or at the end of the shift.
7	Foreman will coordinate continuation of hot work through shifts to support hot work process. The Fire Marshal shall retain the right to approve "thru-shifts" hot work continuation and coordinate with the following shift's Fire Marshal.

Hot work operations found to be in violation of this work instruction will be subject to disciplinary action in accordance with SSO K200A. Examples of violations are not filling out a Hot Work Chit, improperly filling out a Hot Work Chit, performing hot work operations outside the scope of the Hot Work Chit and failure to maintain a safe hot work environment.

In the event that hot work is stopped due to noncompliance with a hot work chit or changes in ship's conditions, the Fire Marshal shall reserve the right to require the Foreman to submit a new Hot Work Chit to resume hot work once the conditions are corrected and/or addressed.

"Hot Work In Progress" Sign

In order to assist with identifying hot work, the "*Caution Hot Work in Progress*" sign has been provided. The purpose of the sign is to alert other employees in the area that hot work is being performed in the compartment or area. When hot work is being performed on decks, overheads or bulkheads, a Caution Hot Work in Progress sign shall be posted at the entrance to compartments adjacent (opposite sides of the deck, overhead or bulkhead) to where the work is being performed. These signs shall be placed by the employee performing the hot work or by the Fire Watch if one is required. The signs shall be taken down when the hot work operation is complete and the area is safe for other operations, i.e. paint or flammables.

"No Hot Work" Sign

In order to assist with identifying where hot work is **not** allowed, the "*No Smoking, Hot Work, Open Flame*" sign has been provided. The purpose of the sign is to alert other employees in the area that hot work is not allowed in the compartment or area. These signs are posted when flammable operations, such as spray painting, glue operations, etc., are being conducted. Hot Work employees are responsible for making sure that these signs are not posted in the area prior to beginning their hot work operation.

These signs shall be placed by the employee performing the painting, gluing or other flammable operation and will remain in place for one full shift after the operation is completed. The unauthorized removal of these signs will result in disciplinary action up to and including discharge. If you discover these signs in the area you are wanting to perform hot work in, and the signs are out of date (meaning they have been left in the area), contact your foreman for assistance.

Performing Hot Work

While performing hot work always:

1. Periodically check work area to ensure your job function is not causing any fires.
2. Periodically check to ensure the fire barriers are still in place and are not damaged.
3. Ensure that fire barriers are kept damp.

FIRES CAUSED BY HOT WORK OPERATIONS ARE PREVENTABLE!


H
E
S
Ingalls Shipbuilding
EVERYONE
WATCHES OUT
FOR EVERYONE

10 Walking/Working Surfaces, Ladders, Scaffolding and Fall Protection

Walking/Working Surfaces

In shipbuilding there are many government regulations, Company safety rules and national consensus standards that define steps needed to avoid slip, trip and fall hazards. Some of the Occupational Safety and Health Administration's (OSHA) walk/work surface requirements are:

- 1910.22(b)(2) *Permanent aisles and passageways shall be appropriately marked.*
- 1910.22(b*) Where mechanical handling equipment is used, sufficient safe clearances shall be allowed for aisles, at loading docks, through doorways and wherever turns or passage must be made. Aisles and passageways shall be kept clear and in good repairs with no obstruction across or in aisles that could create a hazard.*
- 1915.81(a)(4) *The employer shall maintain easy and open access to each fire-alarm box, fire-call station, fire-fighting equipment and each exit, including ladders, staircases, scaffolds and gangways.*
- 1915.81 *...the employer also shall ensure that each walkway:*
  - *Provides adequate passage;*
  - *Is clear of debris, including solid and liquid wastes, that may create a hazard for employees;*
  - *Is clear of tools, materials, equipment and other objects that may create a hazard for employees;*
  - *Is clear of hoses and electrical service cords.*
  - *Place each hose and cord above walkways in a location that will prevent injury to employees and damage to the hoses and cords;*
  - *Place each hose and cord underneath walkways;*
  - *Place each hose and cord on walkways, provided the hoses and cords are covered by crossovers or other means that will prevent injury to employees and damage to the hoses and cords; or*
  - *Protect each hose and cord by other suitable means.*
- 1915.81 *While a walkway or part of a walkway is being used as a working surface, the employer shall cordon off that portion to prevent it from being used as a walkway.*
- **Working surfaces**. *Additionally, the employer shall ensure that each working surface:*
  - *Is cleared of tools, material, and equipment that are not necessary to perform the job in progress;*
  - *Is cleared of debris, including solid and liquid wastes, at the end of each work shift or job, whichever occurs first;*
- 1915.82 *The employer shall ensure that each work area and walkway is adequately lighted whenever an employee is present.*

In Ingalls Shipbuilding written procedures and work instructions, there are the following requirements and responsibilities regarding walking and working surfaces:

- *Visually inspect work area prior to starting work.*
- *Keep all aisles, passageways, stairs, ladders and other working surfaces clear of lines, tools, material and debris.*
- *Except when prevented by the vessel's configuration, all temporary working surfaces must have a 20" clear width*
- *Aisles in shops and warehouses must be clearly marked and unobstructed.*
- *All floor and deck openings, through which a person or any part of a person can pass, must be securely covered or guarded.*
- *When working below deck plates, employees shall remove only the minimum number necessary and barricade openings with "CAUTION" tape.*
- *Access to a work area must be hazard-free, the same as the work area itself.*
- *All hoses, cables, temporary fans and welding machines must be arranged in a safe, orderly manner.*
- *When routing lines, ensure that the lines are not creating slip/trip/fall hazards and that the lines are protected from becoming damaged.*
- *Any identified hazards should be abated by the employee if possible. If not, report the hazard to a foreman for abatement.*

Walking/Working Surfaces (Good/Bad Examples)

The first photo shows poor line control. Lines should never be in front of the ladder or cluttered in the area of the landing base.

The second photo shows the proper way to route lines around ladders. Always route lines behind the ladder.

The first photo shows a gap in between the two scaffold planks essentially making this two, 10" walkways. This does not meet the requirement for a 20" walkway or the requirement that "an opening through which a person or any part of a person can pass must be securely covered or guarded."

The second photo shows a proper 20" walkway.

The first photo shows pipes placed in a walkway which is dangerous to pedestrians and violates the requirement for permanent aisles in shops and warehouses to be clearly marked and unobstructed.

The second photo shows the proper way to designate and mark walkways.

The first photo shows an opening in the deck. This does not meet the requirement that "an opening through which a person or any part of a person can pass must be securely covered or guarded."

The second photo shows the proper way to secure holes and deck openings.

The first photo shows another example of poor line control. Not only are tripping hazards created, but the lines can become damaged by walking on them.

The second photo shows the proper way to route lines. Always use the line racks, hooks, and other line control equipment when routing lines.

The first photo shows lines that are not routed to utilize the provided walk-over. These lines may be traced out and the employees using them issued enforcement discipline for violating line control requirements.

Supervisors who allow their employees to practice poor line control are also subject to enforcement discipline.

Ladder Inspection

Ladders must be visually inspected prior to using them by following these **Ladder Inspection Guidelines**:

- *Begin at the bottom and ensure the feet are not damaged or show signs of unauthorized repairs.*
- *Inspect the ladder for cracks, bends and splits on side rails, rungs and steps.*
- *Check all rung-to-side rail connections, as well as hardware, fittings and accessories.*
- *Ensure all bolts and rivets are secure. Never use a ladder if they are missing or if the joints between the rungs and the side rails are not tight.*
- *Make sure the side rails and rungs are free of foreign materials such as oil and grease.*
- *For stepladders, make sure the spreader braces are not bent, are secure and working properly.*
- *Make sure the ladder is not covered with excessive paint or adhesive that could hide splits, cracks or other damage.*
- Remove ladder from service if any defects are found.

Ladder Safety Requirements

- *Ladders shall only be constructed, installed, modified or repaired by the X10 Scaffold Carpenters.*
- *When ascending or descending, the user shall always face the ladder and use both hands. Three points of contact shall be maintained at all times on ladders.*
- *Portable metal ladders shall not be used near electrical conductors nor for electric arc welding operations.*

- *Ladders shall not be placed on boxes, barrels or other unstable bases to obtain additional height.*
- *Ladders shall not be used as braces, guys or skids, or for other than their intended purpose.*
- *Ladders shall be kept free and clear of welding lines, material, debris, etc., at all times to provide safe access.*
- *Portable ladders shall be lashed, blocked or otherwise secured to prevent being displaced.*
- *The side rails of ladders used for access to any level shall extend not less than 36" above that level. When this is not practical, grab rails which will provide a secure grip for an employee moving to or from the point of access shall be installed, such as a handrail stanchion.*

- *Ladder rungs shall be parallel, level and uniformly spaced. The spacing shall not be more than 12".*
- *When sections of ladders are spliced, the ends shall be abutted and not fewer than two cleats shall be securely nailed or bolted to each rail.*
- *Ladders shall be installed with at least 7" clearance between the back of rungs and any surface or obstruction.*
- *Temporary wooden ladders over 5' shall have a green scaffold tag attached. If the ladder is not tagged, or if only the white plastic retainer is on the ladder, the ladder shall not be used. Contact the Scaffold carpenters to secure and tag the ladder.*

Ladder Safety Requirements

DO - *Inspect ladder upon receipt and before each use.*

DO - *Place ladder on a firm, level base.*

DO - *Lock spreaders with ladder open before climbing*

DO - *Climb and work in the middle of the steps (keep your belt buckle between the side rails of the ladder).*

DO - *Face ladder when ascending or descending and maintain three points of contact.*

DO - *Maintain a firm hold on the ladder.*

DO - *Keep metal ladders away from power lines or other live electrical circuits.*

DO - *Keep ladder close to work. Descend and relocate, if necessary.*

DON'T - *Climb on back section of stepladders.*

DON'T - *Stand on ladder top, first step from top or bucket shelf.*

DON'T - *Use ladders on ice, snow, mud, grease or other slippery surfaces.*

DON'T - *Climb onto a ladder from the side or from another ladder.*

DON'T - *Use a stepladder to access a structure or to step off a structure. Stepladders are for working from, not transferring on or off from other structures.*

DON'T - *Use a ladder as a brace, platform or plank.*

DON'T - *Use a ladder on a scaffold to gain additional height.*

DON'T - *Apply side load to ladder.*

DON'T - *Over-reach, push or pull anything when using a ladder.*

UNSAT

UNSAT

UNSAT

UNSAT

Scaffolding

Ingalls Shipbuilding only authorizes trained Scaffold Competent Persons to erect, alter and dismantle scaffolds and temporary staging. Never attempt to build your own scaffold or modify existing scaffolds except for simple maintenance adjustments, such as restoring the tension on wire rope guardrails by tightening turnbuckles or tightening loosened connections on temporary access ladders

Ingalls Shipbuilding uses a tagging system to advise you when a scaffold is ready to use and alert you when it is not. The tags are color-coded with the "GO" side green and the "STOP" side red. Never climb onto scaffold that has a red "DANGER" placard or one that has no tag. You will find these tags at the access points to the staging.

Even if the scaffold is "green-tagged" always inspect the scaffold before you begin the job. Make sure that the structure meets these requirements:

- *Guardrails must consist of a top rail between 45 and 42 inches high with a mid-rail one-half the height between the upper rail and the working/walking surface.*
- *Wire rope guardrails must be taut.*
- *Turnbuckle bolts are fully engaged and protrude past the nut ends.*
- *Cable eye clamps are tight.*
- *Platforms are at least 20" wide.*
- *Walking/working platforms are banded or otherwise secured to the supporting structure.*
- *Walking/working platforms are intact and not cracked, splintered or excessively charred.*
- *Access ladders are secured to prevent slippage.*
- *The scaffold includes all bracing and reinforcing members.*
- *Locking pins, bolts and nuts are in place and fully engaged.*
- *Wooden scaffold boards must be OSHA-approved fire-retardant planking.*
- *Access ladders must be installed so that employees do not have to step any more than one foot onto a platform.*
- *Never attempt to move a rolling tubular scaffold while someone is atop the platform.*
- *Always lock the casters before mounting a rolling scaffold.*
- *Employees who must use a powered adjustable scaffold, such as Spider®, must receive specialized training in its correct operation.*
- *Staging must include toeboards where tools or equipment may accidentally fall and strike workers below.*

Fall Protection

Scaffolding, staging or other work platforms 5’ or higher that are fully decked, completely encompassed by standard guard railing and have no other fall exposures are considered compliant fall protection. Any other time an employee is exposed to a fall 5’ or higher they must utilize PFAS.

Lifelines are used in some PFAS applications and require 100% tie-off at all times. Inspect lifelines to ensure they are capable of holding 5000#s static weight per person using them, they have a minimum of three cable clamps on the terminal ends and there are no holes in the stanchions below where the cable is attached. (No mid-rail hole as on a guardrail stanchion). Employees must look for special signs that are posted on some scaffolding by the Scaffold Competent Persons that state that PFAS is required—even if the scaffold appears to be complete.

Fall Protection (Aerial Lifts and Crane Baskets)

- *Employees must complete specialized training and be authorized/licensed in order to operate an aerial lift or similar equipment.*
- *Aerial lifts shall never be operated beyond their rated capacity or with more than two persons in the basket.*
- *Operators must conduct a pre-use inspection of aerial lifts prior to using them and document the inspection on an Operator’s Daily Checklist (ODCL).*
- *Any deficiencies noted must be corrected prior to use.*
- *The first thing a user must do upon entering an aerial lift or crane basket is attach their PFAS to the designated anchor points—even if they are not intending to exceed 5’ of elevation.*
- *Users of aerial lifts/crane baskets, that will be working over water, shall wear a personal floatation device in addition and on top of their PFAS.*
- *Contrary to industry practices of years past, aerial lift/crane basket users must keep their PFAS attached while over water.*

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11 Electrical Safety, Illumination, and Control of Hazardous Energy Lockout/Tags Plus (LO/TP)

Electrical Safety

Shipbuilders use electricity to power a multitude of different production processes during vessel construction. Electricity is probably the most common and the most versatile energy source in shipyards. However, if not respected and its hazards not properly controlled, it can also be one of the deadliest. Always adhere to the following guidelines and requirements to make working with and around electricity as safe as possible:

- *Ingalls Shipbuilding only permits authorized electricians and electrical technicians to repair and service electrical equipment.*
- *Assume that all electrical wires, conductors, and equipment are energized until positively determined otherwise.*
- *All light streamers and extension cords shall be equipped with three conductor cords.*
- *Electrically powered tools and equipment must be adequately grounded.*
  - *When hand-held power tools are used on temporary power circuits (extension cords) the circuit must employ a ground fault circuit interrupter (GFCI).*
- *Do not use equipment without a ground conductor unless the tool is double insulated.*
- *Do not store material in breaker boxes or other electrical cabinets.*
- *All main circuit switches must be properly labeled, identifying the locations affected by the switch.*
- *Never splice, tap into or otherwise modify electrical equipment to accommodate work tools, household appliances, makeshift heating or cooking devices or any type of unapproved apparatus.*
- *Do not bring personal electrical equipment or tools into the facility.*
- *Frequently inspect portable power tools for worn or damaged electrical cords.*

- *Homemade pig tail electric cords are prohibited*

- *Keep electrical cords clean and free of kinks.*
- *Make sure the insulation on electrical cord is in good condition.*
- *Do not drag electrical cords over hot or rough surfaces. Keep electrical cords free of grease and oil.*
- *Immediately report any electrical hazards to your foreman, area EHS staff member or Maintenance.*

Electric Shock is the physical stimulation or trauma caused by the flow of electricity through the human body. It can occur during contact with or by being near live (energized) electrical parts. An electric shock can occur without direct contact with electricity. Electrocution results when death occurs from an electric shock. The most common electric shock injury is a burn.

Electrical Shock Hazards Can Be Created By:

Defective electrical tools	Untrained or unqualified personnel attempting electrical power connections
Improper electrical phasing	Damaged wire insulation as a result of hot work processes
Inaccurate schematic drawings	Corroded connectors due to saltwater intrusion or contact
Worn or frayed electric cables	Inadequate electrical isolation, failure to test for deenergization, and improper lockout/tags-plus application
Electric cables pinched in hatches/doors	Tools and equipment not properly grounded
Electric cables struck by grinders/saws	Blind-side drilling into electrical conductors

An ***Electric Arc*** is the luminous electrical discharge that occurs when high voltages exist across a gap between conductors and current travels through the air. This situation is often caused by equipment failure as a result of poor maintenance or overuse.

An ***Arc Flash*** is the release of heat and bright intense light from an electric arc. Temperatures have been recorded as high as 35,000°F. Exposure to these extreme temperatures can burn the skin directly and cause the ignition of clothing. An arc flash can be spontaneous or result from bridging the gap between electrical contacts with a conductive object such as a tool or jewelry. Other causes may include dropped tools on energized conductors which create sparks, breaks or gaps in insulation, as well as the buildup of dust, corrosion or other impurities on the surface of an insulator, creating a fault path.

An ***Arc Blast*** is the explosive release of molten material from equipment caused by high amperage arcs. The pressure waves produced by an arc blast are powerful enough that workers can be knocked off, onto or into objects. The high pressure can cause injuries such as falls, exposure to being struck by molten metal and loose materials or equipment, ruptured eardrums and memory loss as a result of a concussion.

Illumination

Over the years in the shipbuilding industry, many injuries and fatalities have occurred because of inadequate lighting. Slips, trips and falls, electric shock and burns and the inability to exit a space are examples of the hazards created and/or made worse by improper lighting. Well-lit workplaces, whether on vessels, vessel sections or at landside areas, are essential to prevent such incidents.

Where shipyard workers are assigned tasks in a specific location within a larger area, the minimum lumens are only required where the work is being performed. However, if any part of the larger work area is used as an accessway, the minimum lighting required on vessels or vessel sections is three lumens, or five lumens at general landside areas.

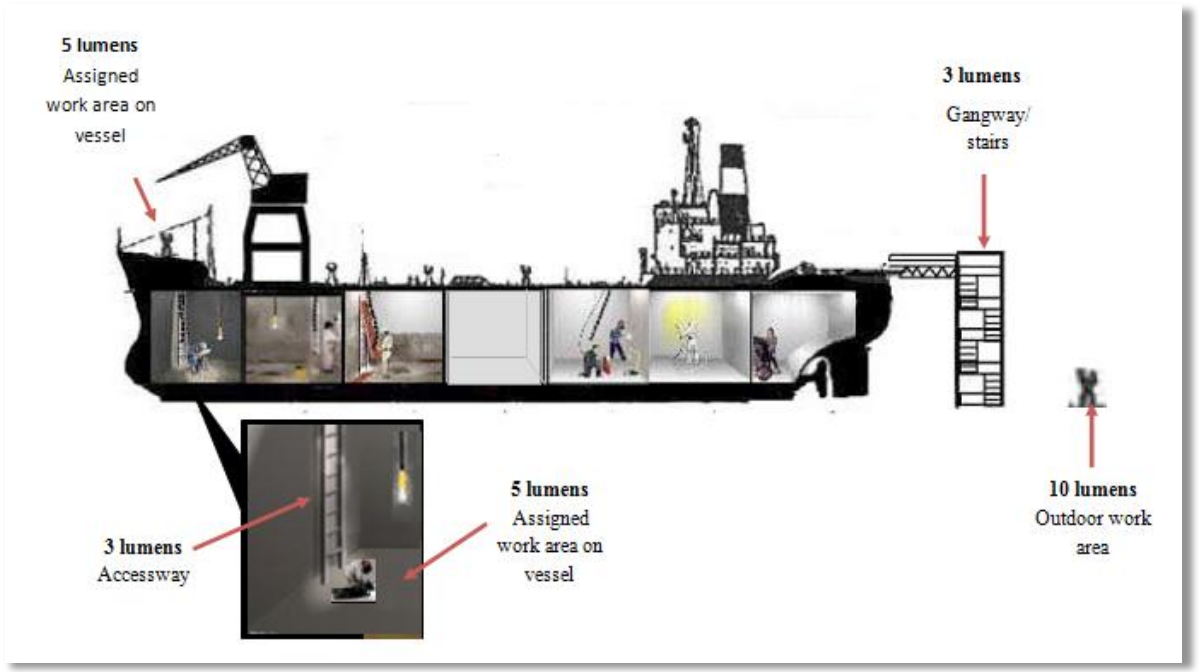
The following table outlines the minimum required lighting levels required for shipyard workers to perform their work and move between job sites safely. Elevated lighting levels, such as in landside work areas, are necessary for precision work, operating heavy equipment, and for reading and comprehending signs, warning labels and instructions.

Minimum Required Lighting Levels

Lumens	3	5	10	30
Areas of Operation	General areas on vessels and vessel sections such as: • Accessways • Exits • Gangways • Stairs • Walkways	General landside areas such as: ➢ Corridors ➢ Exits ➢ Stairs ➢ Walkways	Landside work areas such as: ➢ Machine shops ➢ Electrical equipment rooms ➢ Carpenter shops ➢ Lofts ➢ Tool rooms ➢ Warehouses ➢ Outdoor work areas	First-aid stations
		Landside tunnels, shafts, vaults, pumping stations, and underground work areas		Infirmaries
		All assigned work areas on any vessel or vessel section	Health and sanitation facilities such as: ➢ Changing rooms ➢ Showers ➢ Sewered toilets ➢ Eating or drinking areas ➢ Break areas	Offices

Out-of-service lighting needs to be promptly replaced or repaired before work or passage is permitted in that area. In walkways and passageways, traffic may need to be diverted until lighting replacement/repairs are completed.

Temporary Lighting



Where required lighting levels cannot be met by permanent lighting sources, temporary lighting may be used in combination with permanent lighting to achieve the minimum required lighting levels.

Temporary lighting must be:

- *Guarded when bulbs are not completely recessed to prevent workers from coming in contact with a hot bulb*
- *Equipped with electric cords designed with sufficient capacity to safely carry the electric load, protecting workers from hazards such as electrical shock and fire*
- *Equipped with electric cord connections and insulation that are maintained in a safe condition (e.g., free from being broken, cracked or damaged) and*

- *Grounded, through a third wire either in the cord or through a separate wire, when non-current-carrying metal parts are exposed*

Additional requirements to ensure the safety of shipyard workers include:

- *Never suspend lights or lighting stringers solely by their electric cords (e.g., from the rungs or side rails of ladders) unless they are designed to do so. Improper suspension can place tension on cords, causing them to fray, break or become otherwise damaged, which can expose workers to electrical shock or fire.*
- *Branch circuits must have over-current protection that does not exceed the rated current-carrying capacity of the cord used. Over-current protection helps prevent possible electrical and fire hazards associated with circuit overloading.*
- *When splicing is necessary, its insulation must exceed that of the original cord. This will help prevent worker injury and ignition of combustible materials should a surplus of energy or a "hot spot" occur at the splice junction.*

Emergency or Portable Lighting

Emergency or portable lights do not fall within the "temporary lighting" category and are not required to meet similar lighting levels. However, such lights are only intended for short-term use, such as evacuating a space, and must not be used to perform work tasks unless it is in addition to the already existing lighting.

Examples of such lighting may include, but are not limited to flashlights, headlamps, glow sticks and clamp/magnetic portable lights.

Portable or emergency lights are required:

- *In any dark area that does not have permanent or temporary lights;*
- *Where lights are not working;*
- *Where lights are not readily accessible; and*
- *On a vessel or vessel section where the only means of illumination are not part of the vessel or vessel section, and where natural sunlight provides insufficient illumination.*

Risk of Fire or Explosion:

- *In any area where the atmosphere contains a concentration of flammable vapors that are at or above 10 percent of the lower explosive limit (LEL), explosion-proof, self-contained temporary and portable lights must be used.*
- *All explosion-proof, self-contained temporary and portable lights must be approved by a nationally recognized testing laboratory (NRTL).*
- *Only use explosion proof or intrinsically safe lights approved for use in Class 1 Group D atmosphere to work in potentially flammable or explosive environments.*
- *Never use matches or open-flame devices for lighting purposes.*

Additional Lighting Precautions:

- *Only use portable lights that are in good condition.*
- *Never remove broken light bulbs from lighting fixtures—if replacements are required, notify a qualified electrician.*
- *Always keep light extensions out of water.*
- *Never attempt to change the bulb in an explosion-proof light. Bring the light to qualified electricians so that they can correctly reassemble and torque the globe to specifications.*

- *Keep electrical cords clear of working surfaces and walkways or other locations where they would be readily exposed to damage.*
- *Temporary lights shall have approved guards covering the bulbs at all times.*
- *Never enter a darkened area without a suitable light.*
  - *Take a flashlight into confined spaces as a backup/emergency light.*
  - *See your supervisor if you need a flashlight.*
- *In the event electrical power is lost and the lights go out, use your flashlight to exit.*
  - *If your flashlight fails, stop what you're doing and stay where you are until help arrives.*

Lockout/Tags Plus (LO/TP)

Control of Hazardous Energy (SSO K221) is the LO/TP program and contains the requirements for controlling hazardous energy. There are also work instructions and supplemental guidance documents that contain detailed requirements for LO/TP use. The LO/TP program must be complied with by all Company employees and contractors. Any employee or contractor with questions regarding LO/TP should ask for assistance from their supervisor, their area EHS staff member or contact the EHS Department.

WHO?	***Affected Employee***: An employee who normally operates or uses the equipment that is going to be serviced under LO/TP or who is working in the area where servicing is being performed under LO/TP. ***Authorized Employees***: An employee who performs one or more of the following LO/TP responsibilities: 1) Executes the LO/TP procedures; 2) Installs a lock or tags-plus system on machinery, equipment, or systems; 3) Services any machine, equipment or system under lockout/tags-plus application. ***Other Employee***: Any employee who passes through or briefly enters an area where an LO/TP system has been applied.
WHY?	***Purpose:*** The purpose of the Ingalls Shipbuilding energy control program is to establish the requirements for the application of energy isolating devices that control hazardous energy during servicing operations of machinery, equipment or systems. By controlling hazardous energy, we enhance protection of employees from injury caused by the accidental startup or energization of equipment.
WHAT?	***Lockout:*** The placement of a lock on an energy-isolating device in accordance with an established procedure, thereby ensuring that the energy-isolating device and the equipment being controlled cannot be operated until the lock is removed. ***Tag-Plus System:*** A system to control hazardous energy that consists of an energy-isolating device with a tag affixed to it and at least one additional safety measure.
WHERE?	***Gate-to-Gate:*** Anywhere shipbuilding work is being performed, regardless whether landside, vessel or vessel sections. If servicing is taking place in the shipyard and employees could be exposed to the release of hazardous energy, then LO/TP controls must be used.
WHEN?	***Servicing***: Workplace activities that involve the construction, installation, adjustment, inspection, modification, testing or repair of machinery, equipment or systems. Servicing also includes maintaining machines, equipment or systems when performing these activities would expose the employee to harm from the startup or energization of the system being serviced, or the release of hazardous energy.
HOW?	***Locks, Tags, and Devices***: Locks, tags and LO/TP devices that are used to identify and protect Authorized Employees while servicing can only be used for LO/TP purposes. Tags are standardized with a unique identity (size, color, print, or format) to indicate that there is an LO/TP application in progress. All employees, except Authorized Employees, are prohibited from attaching or removing LO/TP locks or tags and from tampering with, moving or defeating an energy-isolating device.
WITH?	***LO/TP Components***: An LO/TP system uses an energy isolating device which is secured in the safe position by a lock or a tag and an additional safety measure. Additional safety measures may include such things as blocking a control switch, blanking and bleeding lines or removing a valve handle. Ingalls Shipbuilding uses several different types of custom-designed LO/TP devices to ensure energy isolation on the unique equipment aboard Naval vessels.

Notification

Affected Employees will be notified of an LO/TP system affecting their particular area and/or equipment. Notification is made prior to applying or removing an LO/TP system and again after servicing is complete, but prior to re-energization of the equipment or system. If an Affected Employee must stay in the area, perhaps to assist the Authorized Employees, the Affected Employee must be trained to the LO/TP Tier III (Authorized Employee) level and must participate fully in the LO/TP application.

LO/TP Participation

Authorized Employees who have received proper training and have been tasked to perform servicing are the ONLY persons who will install, participate and remove the LO/TP application. Affected Employees or Other Employees are not allowed to participate in the LO/TP application or servicing.

Employee LO/TP Program Compliance

All employees are required to comply with the restrictions and limitations imposed on them during the use of lockout or tags-plus applications. No employee, upon observing that machinery, equipment or systems are secured using LO/TP applications, shall attempt to start, open, close, energize or operate that machinery, equipment or system.

Any violations of the procedures required by this program will be investigated. Any Ingalls Shipbuilding employee found to have violated these procedures will be subject to current Ingalls Shipbuilding enforcement discipline processes up to and including immediate discharge.

Any contractor, sub-contractor, vendor or their employees found to have violated these procedures may be immediately discharged from Ingalls Shipbuilding facilities, properties and/or contracts.

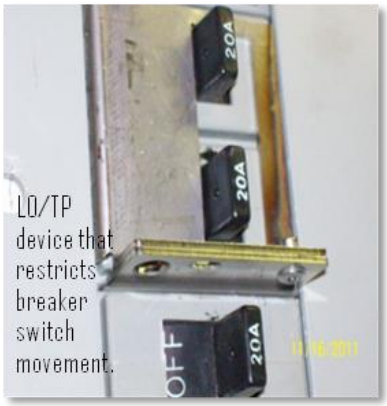
No employee shall attempt to start, open, close, energize or operate any machinery, equipment, or system when secured through LO/TP applications.

LO/TP Program Tags

Supervision shall ensure that all employees remain informed of the prohibition against tampering with or removing any lockout/tags-plus system and the prohibition against restarting or reenergizing any machinery, equipment or system being serviced under a lockout/tags-plus system.

Any LO/TP Tag that is found adrift or appears to have become separated from its attachment shall be brought immediately to the LO/TP Coordinator, any member of management, or an EHS Department staff member.

The tag represented below is exclusive to the LO/TP Program. LO/TP tags may be different colors; however, they will always have the "**Danger Do Not Operate**" legend on one side. The Authorized Employee, serialized control number and date will be contained on the back of the tag. Additional information and remarks may be listed as well. These are the only LO/TP tags that will be used at Ingalls Shipbuilding and may not be used for any other purpose than LO/TP program. Contractors conducting or participating in LO/TP application in Ingalls Shipbuilding facilities shall use our LO/TP program tags.



Lock Color Codes

Electricians—Red
Machinist—Blue
Pipe—Green
Foreman—Brown
All others—Black

The Maintenance Department commonly uses locks on landside work areas and follows the color-coding listed above.

Tags-Plus will primarily be used onboard vessels so locks may not be required. If locks are not used, there will be an additional safety device along with the tag.

Written Programs

The over-arching energy control written program is *Control of Hazardous Energy* (SSO K221). Additionally, three Command Media work instruction documents exist to give specific direction for Authorized Employees in the energy control procedures of Mechanical Test and Trials, Electrical Test and Trials and Facility Maintenance. These documents are:

- Facility Maintenance—*Energy Control (Lockout/Tags Plus (LO/TP)) Facilities Maintenance* (SSW N3009)
- Mechanical Test and Trials—*Shipboard Tag-Out of Mechanical Systems, Naval Surface Ships* (SSW S2102)
- Electrical Test and Trials—*Precautions and Tag-Out Procedure for Energizing and Working Shipboard Electrical Circuits* (SSW M3103)

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12 Hazard Communications (HAZCOM)

Hazard Communications Program

Hazardous materials can present themselves in many forms, for example: solids, liquids, gases, vapors, fumes, dusts and mists. The hazards these material create can be physical, such as simple asphyxiation, or chemical, as with the damaging interaction with the agent's makeup itself. From coatings to fuels to welding rods, knowing information about the products shipbuilders work with is a key in the employee protection that our Hazard Communication Program provides.

The Ingalls Shipbuilding HAZCOM Program consists of four basic parts: **(1)** a formal written program; **(2)** safety data sheets; **(3)** chemical classification and labeling; and **(4)** employee training.

1. The first part of our HAZCOM Program is a **formal written program** (SSO K214). This document outlines and details how the program works. It is located in Command Media and employees requesting a copy can notify their manager or the EHS Department.

2. Another very important piece of the HAZCOM Program is the **SDSs**. An SDS is a form generated by a hazardous substance manufacturer or distributor, which describes the characteristics of the product supplied. This is the most comprehensive source, which is readily available, to explain hazards and hazard controls associated with the chemicals that shipbuilders use or that may be present in the shipyard.

3. Another key element of HAZCOM is **hazardous substance labeling**. Signs are posted in certain work areas warning shipbuilders of possible hazards associated with the substances being used in that area. In addition, containers that hazardous materials are kept in shall be marked.

4. The last portion of the HAZCOM Program consists of **employee training**. In order for shipbuilders to work safely with chemicals, they must be educated as to the material's hazards and hazard controls. Types of training include, but are not limited to new hire orientation, *Weekly Safety Training Modules*, *Safety Alerts*, on-the-job training and Job Safety Analysis, among others.

Employees have a right to know what chemicals and hazardous materials they work with or work around, and employers have the obligation to provide this information. Anytime a shipbuilder or contractor has questions concerning a hazardous material there are several avenues to ensure that their questions are answered. Employees should ask their supervisor, area EHS staff member or a Safety Action Team member if they have questions or concerns regarding any hazardous material in the shipyard. Supervisors must maintain SDSs for the materials that their crewmembers could be exposed to and consult with the EHS Department if additional HAZCOM information is needed.

Supervisors and employees must remember that in a large shipyard there could be hazardous materials being used in different process areas and in different geographical areas of the facility. If they are newly assigned to a location or process that uses a hazardous material, they must be trained in safe storage and use, prior to beginning work with it.

The EHS Department and its Industrial Hygiene section conduct a variety of monitoring and sampling throughout the facility and review all hazardous materials introduced into the Yard. However, anytime an employee detects a visible cloud, a known or unknown odor or any other indication of the presence or release of a hazardous material, they must clear the area and report it at once.

Safety Data Sheets (SDS)

The Occupational Safety and Health Administration's (OSHA) Hazard Communication Standard (HCS) (29 CFR 1910.1200(g)), revised in 2012, requires that the chemical manufacturer, distributor or importer provide Safety Data Sheets (SDSs) (formerly MSDSs or Material Safety Data Sheets) for each hazardous chemical to downstream users to communicate information on these hazards. The information contained in the SDS is largely the same as the MSDS, except now the SDSs are required to be presented in a consistent, user-friendly, 16-section format. This chapter provides guidance to help shipbuilders, who handle hazardous chemicals, become familiar with the format and understand the contents of the SDSs.

The SDS includes such information as the properties of each chemical; the physical, health and environmental health hazards; protective measures; and safety precautions for handling, storing and transporting the chemical. The information contained in the SDS must be in English (although it may be in other languages as well). In addition, OSHA requires that SDS preparers provide specific minimum information but they may also include additional information in various section(s).

Sections 1 through 8 contain general information about the chemical, identification, hazards, composition, safe handling practices and emergency control measures, e.g., *fire fighting*. This information should be helpful to those that need to get the information quickly. Sections 9 through 11 and 16 contain other technical and scientific information, such as physical and chemical properties, stability and reactivity information, toxicological information, exposure control information and other information including the date of preparation or last revision. The SDS must also state that no applicable information was found when the preparer does not find relevant information for any required element.

The SDS must also contain Sections 12 through 15, to be consistent with the UN Globally Harmonized System of Classification and Labeling of Chemicals (GHS), but OSHA will not enforce the content of these sections because they concern matters handled by other regulatory agencies.

A description of all 16 sections of the SDS, along with their contents, is presented below in this table published by the Occupational Safety and Health Administration (OSHA):

Section 1: Identification
This section identifies the chemical on the SDS as well as the recommended uses. It also provides the essential contact information of the supplier. The required information consists of: • Product identifier used on the label and any other common names or synonyms by which the substance is known. • Name, address, phone number of the manufacturer, importer or other responsible party and emergency phone number. • Recommended use of the chemical (e.g., a brief description of what it actually does, such as flame retardant) and any restrictions on use (including recommendations given by the supplier).
Section 2: Hazard(s) Identification
This section identifies the hazards of the chemical presented on the SDS and the appropriate warning information associated with those hazards. The required information consists of: • The hazard classification of the chemical (e.g., flammable liquid, category[1]). • Signal word. • Hazard statement(s). • Pictograms (the pictograms or hazard symbols may be presented as graphical reproductions of the symbols in black and white or be a description of the name of the symbol (e.g., skull and crossbones, flame). • Precautionary statement(s). • Description of any hazards not otherwise classified. • For a mixture that contains an ingredient(s) with unknown toxicity, a statement describing how much (percentage) of the mixture consists of ingredient(s) with unknown acute toxicity. Please note that this is a total percentage of the mixture and not tied to the individual ingredient(s).

Section 3: Composition/Information on Ingredients

This section identifies the ingredient(s) contained in the product indicated on the SDS, including impurities and stabilizing additives. This section includes information on substances, mixtures and all chemicals where a trade secret is claimed. The required information consists of:

Substances

- Chemical name.
- Common name and synonyms.
- Chemical Abstracts Service (CAS) number and other unique identifiers.
- Impurities and stabilizing additives, which are themselves classified and which contribute to the classification of the chemical.

Mixtures

- Same information required for substances.
- The chemical name and concentration (i.e., exact percentage) of all ingredients which are classified as health hazards and are:
  - Present above their cut-off/concentration limits or
  - Present a health risk below the cut-off/concentration limits.
- The concentration (exact percentages) of each ingredient must be specified except concentration ranges may be used in the following situations:
  - A trade secret claim is made,
  - There is batch-to-batch variation, or
  - The SDS is used for a group of substantially similar mixtures.

Section 4: First Aid Measures

This section describes the initial care that should be given by untrained responders to an individual who has been exposed to the chemical. The required information consists of:

- Necessary first-aid instructions by relevant routes of exposure (inhalation, skin and eye contact and ingestion).
- Description of the most important symptoms or effects, and any symptoms that are acute or delayed.
- Recommendations for immediate medical care and special treatment needed, when necessary.

Section 5: Fire Fighting Measures

This section provides recommendations for fighting a fire caused by the chemical. The required information consists of:

- Recommendations of suitable extinguishing equipment, and information about extinguishing equipment that is not appropriate for a particular situation.
- Advice on specific hazards that develop from the chemical during the fire, such as any hazardous combustion products created when the chemical burns.
- Recommendations on special protective equipment or precautions for firefighters.

Section 6: Accidental Release Measures

This section provides recommendations on the appropriate response to spills, leaks or releases, including containment and cleanup practices to prevent or minimize exposure to people, properties or the environment. It may also include recommendations distinguishing between responses for large and small spills where the spill volume has a significant impact on the hazard. The required information may consist of recommendations for:

- Use of personal precautions (such as removal of ignition sources or providing sufficient ventilation) and protective equipment to prevent the contamination of skin, eyes and clothing.
- Emergency procedures, including instructions for evacuations, consulting experts when needed and appropriate protective clothing.
- Methods and materials used for containment (e.g., covering the drains and capping procedures).
- Cleanup procedures (e.g., appropriate techniques for neutralization, decontamination, cleaning or vacuuming; adsorbent materials; and/or equipment required for containment/clean up).

Section 7: Handling and Storage

This section provides guidance on the safe handling practices and conditions for safe storage of chemicals. The required information consists of:

- Precautions for safe handling, including recommendations for handling incompatible chemicals, minimizing the release of the chemical into the environment and providing advice on general hygiene practices (e.g., eating, drinking and smoking in work areas is prohibited).
- Recommendations on the conditions for safe storage, including any incompatibilities. Provide advice on specific storage requirements (e.g., ventilation requirements).

Section 8: Exposure Controls/Personal Protection

This section indicates the exposure limits, engineering controls and personal protective measures that can be used to minimize worker exposure. The required information consists of:

- OSHA Permissible Exposure Limits (PELs), American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit

Values (TLVs), and any other exposure limit used or recommended by the chemical manufacturer, importer or employer preparing the safety data sheet, where available.

- Appropriate engineering controls (e.g., use local exhaust ventilation, or use only in an enclosed system).
- Recommendations for personal protective measures to prevent illness or injury from exposure to chemicals, such as personal protective equipment (PPE) (e.g., appropriate types of eye, face, skin or respiratory protection needed based on hazards and potential exposure).
- Any special requirements for PPE, protective clothing or respirators (e.g., type of glove material, such as PVC or nitrile rubber gloves; and breakthrough time of the glove material).

Section 9: Physical and Chemical Properties

This section identifies physical and chemical properties associated with the substance or mixture. The minimum required information consists of:

- Appearance (physical state, color, etc.);
- Upper/lower flammability or explosive limits;
- Odor;
- Vapor pressure;
- Odor threshold;
- Vapor density;
- pH;
- Relative density;
- Melting point/freezing point;
- Solubility(ies);
- Initial boiling point and boiling range;
- Flash point;
- Evaporation rate;
- Flammability (solid, gas);
- Upper/lower flammability or explosive limits;
- Vapor pressure;
- Vapor density;
- Relative density;
- Solubility(ies);
- Partition coefficient: n-octanol/water;
- Auto-ignition temperature;
- Decomposition temperature; and
- Viscosity.

The SDS may not contain every item on the above list because information may not be relevant or is not available. When this occurs, a notation to that effect must be made for that chemical property. Manufacturers may also add other relevant properties, such as the dust deflagration index (Kst) for combustible dust, used to evaluate a dust's explosive potential

Section 10: Stability and Reactivity

This section describes the reactivity hazards of the chemical and the chemical stability information. This section is broken into three parts: reactivity, chemical stability and other. The required information consists of:

Reactivity

- Description of the specific test data for the chemical(s). This data can be for a class or family of the chemical if such data adequately represent the anticipated hazard of the chemical(s), where available.

Chemical stability

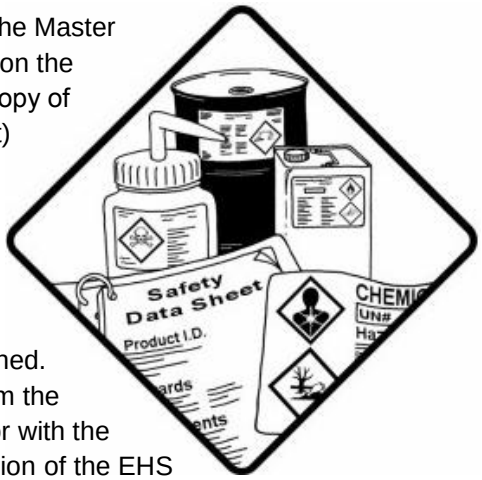
- Indication of whether the chemical is stable or unstable under normal ambient temperature and conditions while in storage and being handled.
- Description of any stabilizers that may be needed to maintain chemical stability.
- Indication of any safety issues that may arise should the product change in physical appearance.

Other

- Indication of the possibility of hazardous reactions, including a statement whether the chemical will react or polymerize, which could release excess pressure or heat or create other hazardous conditions. Also, a description of the conditions under which hazardous reactions may occur.
- List of all conditions that should be avoided (e.g., static discharge, shock, vibrations or environmental conditions that may lead to hazardous conditions).
- List of all classes of incompatible materials (e.g., classes of chemicals or specific substances) with which the chemical could react to produce a hazardous situation.

• List of any known or anticipated hazardous decomposition products that could be produced because of use, storage or heating. (Hazardous combustion products should also be included in Section 5 (Fire-Fighting Measures) of the SDS.)
Section 11: Toxicological Information
This section identifies toxicological and health effects information or indicates that such data are not available. The required information consists of: • Information on the likely routes of exposure (inhalation, ingestion, skin and eye contact). The SDS should indicate if the information is unknown. • Description of the delayed, immediate or chronic effects from short- and long-term exposure. • The numerical measures of toxicity (e.g., acute toxicity estimates such as the LD50 (median lethal dose)) - the estimated amount [of a substance] expected to kill 50% of test animals in a single dose. • Description of the symptoms. This description includes the symptoms associated with exposure to the chemical including symptoms from the lowest to the most severe exposure. • Indication of whether the chemical is listed in the National Toxicology Program (NTP) Report on Carcinogens (latest edition) or has been found to be a potential carcinogen in the International Agency for Research on Cancer (IARC) Monographs (latest editions) or found to be a potential carcinogen by OSHA
Section 12: Ecological information
Note: Since other Agencies regulate this information, OSHA does not enforce this section.
Section 13: Disposal Information
Note: Since other Agencies regulate this information, OSHA does not enforce this section.
Section 14: Transport Information
Note: Since other Agencies regulate this information, OSHA does not enforce this section.
Section 15: Regulatory Information
This section identifies the safety, health and environmental regulations specific for the product that is not indicated anywhere else on the SDS. The information may include: • Any national and/or regional regulatory information of the chemical or mixtures (including any OSHA, Department of Transportation, Environmental Protection Agency or Consumer Product Safety Commission regulations)
Section 16: Other Information
This section indicates when the SDS was prepared or when the last known revision was made. The SDS may also state where the changes have been made to the previous version. You may wish to contact the supplier for an explanation of the changes. Other useful information also may be included here.

Shipbuilders can obtain an SDS for any chemical in the shipyard. The Master Chemical List and SDS database containing all products is located on the Company's intranet or you can contact the EHS Department for a copy of any particular SDS. Additionally, each production department (Craft) must have a comprehensive file or binder of SDSs for the materials that they use.



The file needs to have a Master Chemical List and have the SDSs alphabetized so that the order of information matches their Master Chemical List. Each department is responsible for maintaining their SDS files and for updating the SDSs when new versions are published. If an SDS is missing or obsolete, they must retrieve a new copy from the SDS database. Any issues or problems regarding a specific SDS, or with the database, should be relayed to the Environmental Engineering section of the EHS Department for assistance.

Production departments must ensure that their employees are aware of their right to access an SDS for any chemical they use and be able to readily provide a copy if requested. The field training of employees on the safe handling, use and storage of any specific chemical should be conducted with the use of its SDS so employees are familiar with all associated elements, characteristics, hazards and hazard controls. The information included in the SDS should be incorporated into Job Safety Analysis sheets and used to assist in employee training. The recommended PPE listed on the SDS must be used. Contact the EHS Department if clarity or assistance is needed regarding any information provided on a SDS.

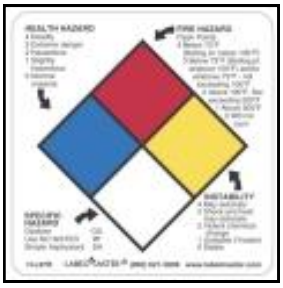
HAZCOM Labeling

Traditionally, Ingalls Shipbuilding has used National Fire Protection Association (NFPA) or the American Coating Association's Hazardous Material Identification System (HMIS) labels. Shipbuilder's have seen these labels in the shipyards for years.

HMIS Label

For the near future, shipbuilders may see both of the historical labels as well as the new labels with the GHS elements. The new labels will require that several new elements be included regardless of the chemical container on which they are affixed. Shipbuilders should expect to see the following elements on the new GHS labels:

Name, address and phone number: How to contact the chemical manufacturer, distributor or importer.

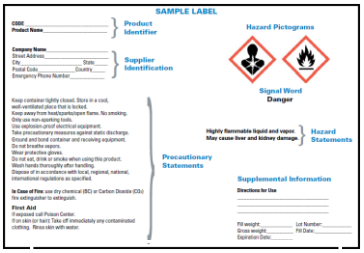


NFPA Label

Product Identifier: How the hazardous chemical is identified. This can be (but is not limited to) the chemical name, code number or batch number. The manufacturer, importer or distributor can decide the appropriate product identifier. The same product identifier must be both on the label and in Section 1 of the SDS (Identification).

Signal Word: Used to indicate the relative level of severity of hazard and alert the reader to a potential hazard on the label. There are only two signal words, "Danger" and "Warning." Within a specific hazard class, "Danger" is used for the more severe hazards and "Warning" is used for the less severe hazards. There will only be one signal word on the label no matter how many hazards a chemical may have. If one of the hazards warrants a "Danger" signal word and another warrants the signal word "Warning," then only "Danger" should appear on the label.

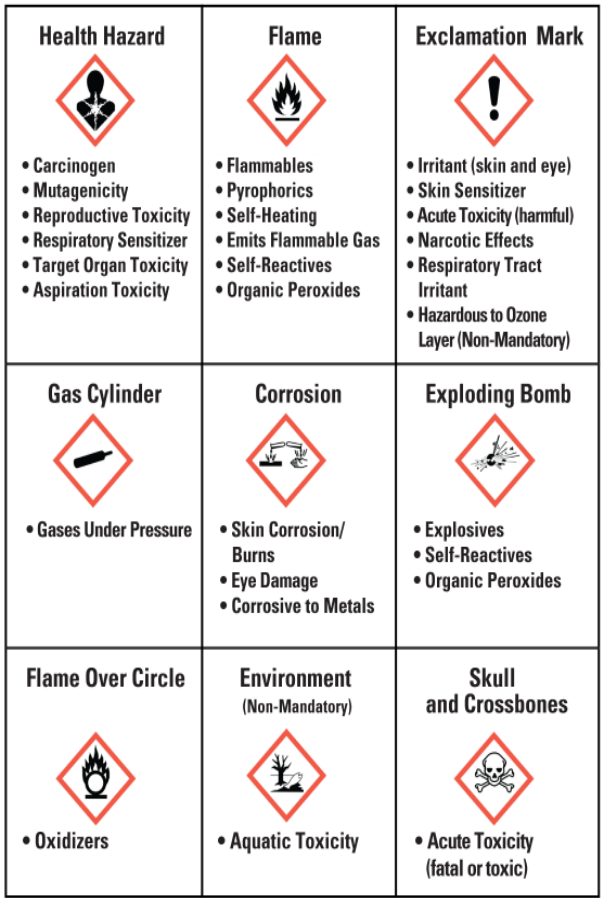
Pictograms: Are graphic symbols used to communicate specific information about the hazards of a chemical. On hazardous chemicals being shipped or transported from a manufacturer, importer or distributor, the required pictograms consist of a red square frame set at a point with a black hazard symbol on a white background, sufficiently wide to be clearly visible. A square red frame set at a point without a hazard symbol is not a pictogram and is not permitted on the label.



Sample Label Layout of New Globally Harmonized System of Classification and Labeling

The pictograms OSHA has adopted improve worker safety and health, conform to the GHS and are used worldwide. While the GHS uses nine pictograms, OSHA will only enforce the use of eight. The environmental pictogram is not mandatory but may be used to provide additional information. Workers may see the ninth symbol on a label because label preparers may choose to add the environment pictogram as supplementary information.

Most of the symbols are already used for transportation and many chemical users may be familiar with them. The following table shows the symbol for each pictogram, the written name for each pictogram and the hazards associated with each of the pictograms:



OSHA Adopted Pictograms and Hazards

It is important to note that the OSHA pictograms do not replace the diamond-shaped labels that the U.S. Department of Transportation (DOT) requires for the transport of chemicals, including chemical drums, chemical totes, tanks or other containers. Those labels must be on the external part of a shipped container and must meet the DOT requirements. While the DOT diamond label is required for all hazardous chemicals on the outside shipping containers, chemicals in smaller containers inside the larger shipped container do not require the DOT diamond but do require the OSHA pictograms.

Labels must be legible, in English and prominently displayed. Other languages may be displayed in addition to English.

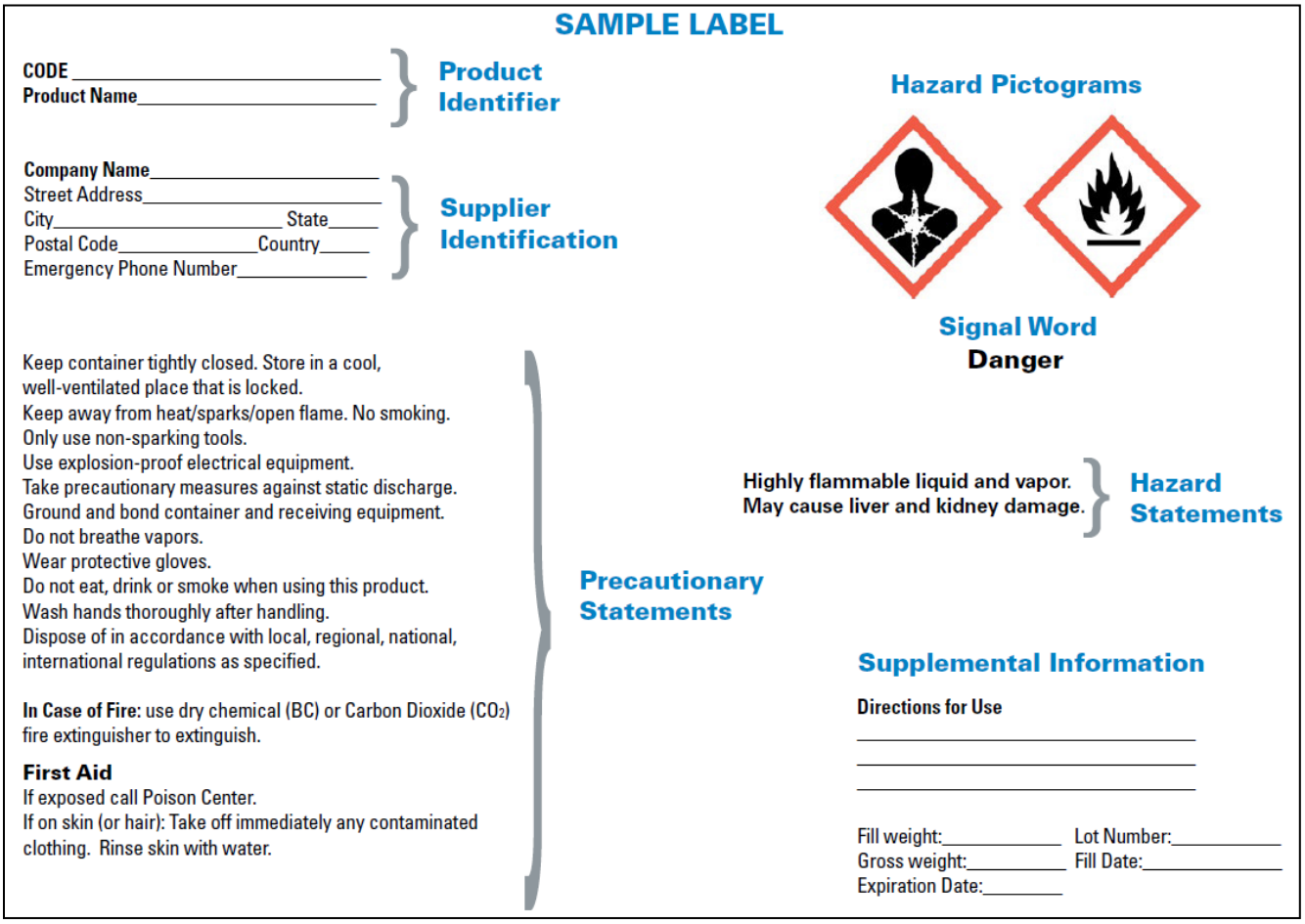
Hazard Statement(s): Describe the nature of the hazard(s) of a chemical, including, where appropriate, the degree of hazard. For example, “Causes damage to kidneys through prolonged or repeated exposure when absorbed through the skin.” All of the applicable hazard statements must appear on the label. Hazard statements may be combined where appropriate to reduce redundancies and improve readability. The hazard statements are specific to the hazard classification categories, and chemical users should always see the same statement for the same hazards, no matter what the chemical is or who produces it.

Precautionary Statement(s): Means a phrase that describes recommended measures that should be taken to minimize or prevent adverse effects resulting from exposure to a hazardous chemical or improper storage or handling. There are four types of precautionary statements: prevention (to minimize exposure); response (in case of accidental spillage or exposure emergency response, and first aid); storage; and disposal.

For example, a chemical presenting a specific target organ toxicity (repeated exposure) hazard would include the following on the label: “Do not breathe dust/fume/gas/mist/ vapors/spray. Get medical advice/attention if you feel unwell. Dispose of contents/ container in accordance with local/regional/ national and international regulations.” A forward slash (/) designates that the classifier can choose one of the precautionary statements.

In most cases, the precautionary statements are independent. However, OSHA does allow flexibility for applying precautionary statements to the label, such as combining statements, using an order of precedence or eliminating an inappropriate statement. When there are similar precautionary statements, the one providing the most protective information must be included on the label.

Supplementary Information: The label producer may provide additional instructions or information that it deems helpful. It may also list any hazards not otherwise classified under this portion of the label. This section must also identify the percentage of ingredient(s) of unknown acute toxicity when it is present in a concentration of ≥1% (and the classification is not based on testing the mixture as a whole). If an employer decides to include additional information regarding the chemical that is beyond what the standard requires, it may list this information under what is considered “supplementary information.” There is also no required format for how a workplace label must look and no particular format an employer has to use; however, it cannot contradict or detract from the required information.



An example of an item that may be considered supplementary is the personal protective equipment (PPE) pictogram indicating what workers handling the chemical may need to wear to protect them. For example, the Hazardous Materials Information System (HMIS) pictogram of a person wearing goggles may be listed. Other supplementary information may include directions of use, expiration date or fill date, all of which may provide additional information specific to the process in which the chemical is used.

Much of the information needed to ensure that a shipbuilder could properly store a material is included on the label and listed in the precautionary statements. The labels also help to locate quickly, information on first aid or emergency response if needed. However, the information on the label may not be as comprehensive as the information on the SDS. The label and the SDS should have the same precautionary statements and other information, but the SDS may go into further details. Always consult the SDS if the information needed is not on a label.

Anytime a hazardous material will be removed from its bulk-shipping container and stored in a secondary container, a label must be completed and affixed to the secondary container. If hazardous chemicals are transferred from a labeled container to a portable container that is only intended for immediate use by the same employee who performs the transfer, and it is maintained in exclusive control of that employee, no labels are required for the portable container. All other containers require labeling.

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13 Crane Operations, Powered Industrial Vehicles and Shipyard Traffic

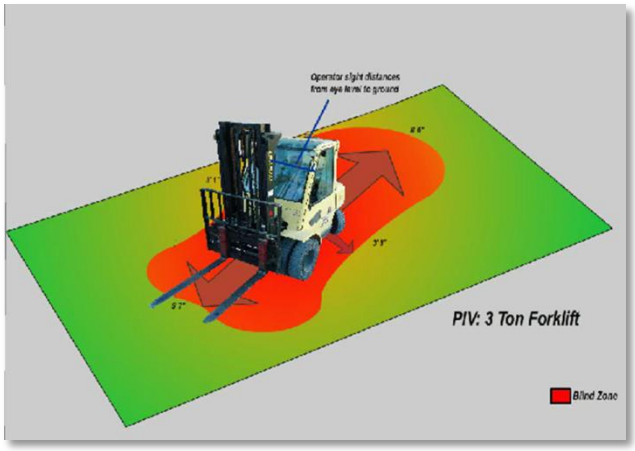
Powered Industrial Vehicles (PIVs)

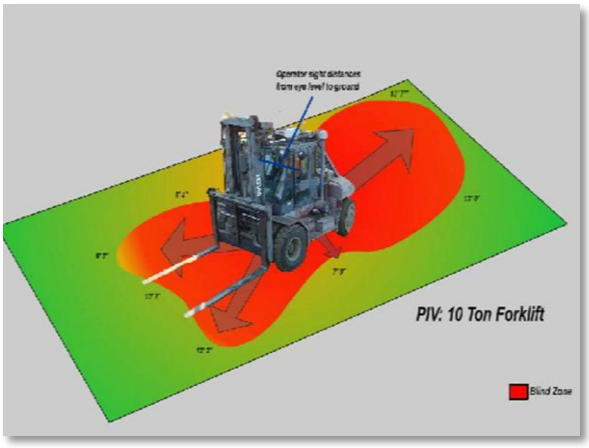
- *Employees must be trained and authorized to operate specific types of vehicles. Among these are:*
  - *Cranes*
  - *Aerial platforms*
  - *Forklifts*
  - *Skid steer loaders (Bobcats)*
- *Operators shall never load a PIV's structure, hoisting gear, rigging gear, attachments, extensions or personnel platforms beyond its rated capacity*
- *Operators must use the vehicle's daily checklist to inspect the equipment before the start of the shift. DO NOT OPERATE DEFECTIVE VEHICLES.*
- *Report all deficiencies to your supervisor and/or the Maintenance Department so that the appropriate persons can correct them.*

Working Around PIVs

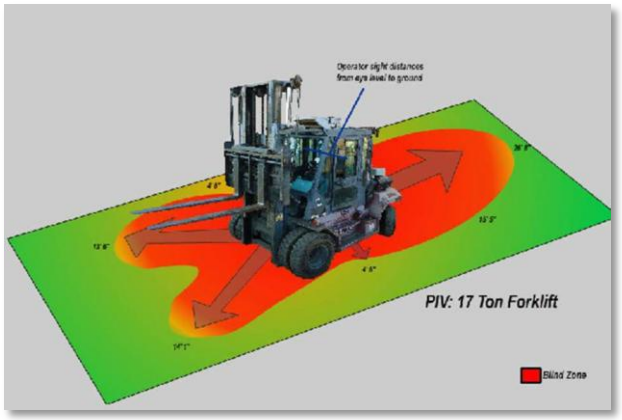
- *Employees shall never ride on a forklift or other vehicle that is not equipped with a passenger seat.*
- *Look and Listen! Always visually confirm the location and movement of a PIV when you hear a nearby backup alarm, horn, revving engine or other unique PIV sounds.*
- *Understand that a PIV is designed to brake more slowly than a normal automobile so that it can maintain its stability and not shift or spill its load.*
- *Never walk out in front of one expecting it to instantly stop just because you are a pedestrian and have the right of way.*
- *Ensure that you do not position yourself in the operator's blind spots. If you cannot see the operator's eyes directly or in a mirror—they cannot see you!*
- *Never distract a PIV operator; however, as with crane operations, anyone can signal "All Stop" to a PIV operator and they must comply.*
- *When assisting with material handling operations, never allow a forklift operator to pick up a damaged wooden pallet.*
- *Never pass or stand underneath an elevated load or empty forks.*
- *Never add "homemade" extensions or devices to the forks of a PIV. Fork extensions must be approved by the vehicle manufacturer for use on a particular vehicle.*
- *Alert an operator if you notice a problem with their machine such as leaking hydraulic fluid, lights not working, low tire, etc.*
- *Be aware of "rear-end swing out" when near a turning forklift. As a forklift turns, the back of the vehicle will swing out in the opposite direction of the turn. If you are too close, you could be struck.*
- *Never stand behind a forklift. Not all makes and models have backup alarms or an alarm may not be working.*

PIV Blind Spots





THE SHADED AREA SURROUNDING EACH VEHICLE REPRESENTS THE DANGER ZONE IN WHICH THE VEHICLE OPERATOR'S VIEW OF PEDESTRAN TRAFFIC IS GREATLY REDUCED OR OBSCURED ALTOGETHER



Crane Operations

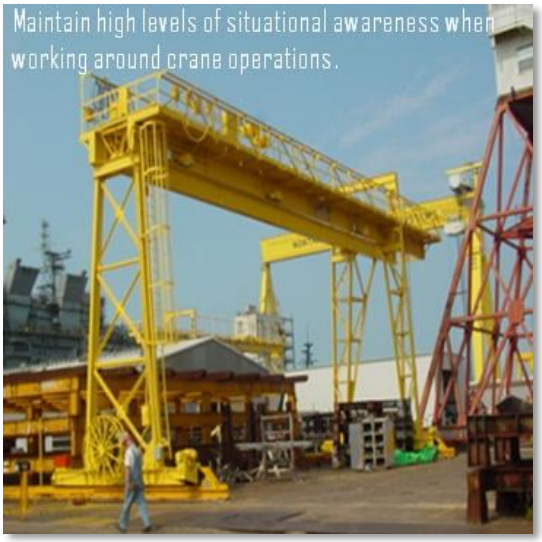
- *Operators, riggers and load handlers must be trained and authorized through the Training Dept.*
- *Riggers directing the operator must know and use the appropriate hand signals and remain within the operator's line of sight.*
- *It is everyone's responsibility to pay attention to his or her surroundings. Always maintain a high level of Situational Awareness around cranes.*
- *Pay attention to the crane's travel bell and warning horn. Make sure that you are clear of the tracks and suspended loads.*
- *Never pass underneath a suspended load.*
- *Abide by the instructions of the crane rigger.*
- *Listen to the crane riggers and crane leg walkers.*

- *They will verbally instruct you to stay clear of crane operations.*
- *Evacuate the intended path of an approaching load and remain clear of overhead loads.*
- *Crane riggers and crane leg walkers may use whistles or bullhorns to keep people away from suspended loads or moving cranes.*
- *Failure to comply with instructions from a crane rigger or crane leg walker while they are performing their job may result in disciplinary action.*

Crane Rigger Responsibilities

The Crane Rigger is responsible for:

- *Knowing the capacity of the crane and the weight of all loads being lifted.*
- *Selecting the proper equipment to attach a load.*
- *Inspecting all rigging equipment and taking any damaged equipment out of service before each use.*
- *Stopping a lift they suspect is unsafe.*
- *Verifying that the direction of the crane and the load motion is clear prior to signaling the crane to move.*
- *Controlling personnel access around suspended loads and loads about to be suspended. If circumstances interrupt a lift in progress, the crane crew shall set the load on the ground pending resumption of the job. If this is not possible and a suspended load must remain stationary for a lengthy period, riggers must barricade the area and post attendants.*
- *Not directing loads over people in the area.*
- *Verifying that the hook is directly over the load and the lift will not be side-loaded.*
- *Ensuring a crane leg walker alerts employees in the surrounding area by blowing a whistle whenever the crane is in motion and during all lifts until the load safely reaches its destination.*
- *Checking the entire area surrounding the travel path to make sure no obstacles are present.*
- *The crane rigger and/or crane leg walker shall not engage in any practice that will divert his attention while actually engaged in supporting crane operations.*
- *Whenever there is any doubt as to the safety, the rigger shall consult with the crane operator or the supervisor before handling the load.*
- *Failure of riggers to abide by these responsibilities may result in disciplinary action.*



Shipyard Traffic

The following rules and regulations regarding shipyard traffic and pedestrian safety must be closely adhered to at all times:

- *Obey all traffic signs and the standard rules of the road.*
- *The Ingalls Shipbuilding speed limits are 15 mph in main roadways; 5 mph in production areas.*
- *To ensure pedestrian safety, Ingalls Shipbuilding prohibits vehicle, including bicycles, operation during shift change (5:30 to 5:45 am and 2:30 to 2:45 pm).*
- *Drivers, operators and passengers must use seat belts or shoulder harnesses in vehicles equipped with them.*
- *Hard hats, safety glasses and safety-toed footwear are required when operating or riding in utility vehicles "mules" or golf carts.*
- *All vehicles used to transport passengers must have firmly secured seats and passengers must use those seats.*

- *No one may ride unsecured in vehicles such as pickup trucks and flatbeds.*
- *Employees may not drive unauthorized passenger vehicles into shops or other covered worksites.*
- *Bicycle operators must wear high visibility reflective vests.*
- *Never park or store material within four feet of crane/railroad tracks.*
- *Except for recharging emergency vehicles, never leave the engine running on unattended motor vehicle.*
- *Prior to operating a Utility Vehicle (UV) "Mule" or golf cart, always inspect the vehicle for defects and ensure everything is in working order.*
- *Do not operate if defects exist; arrange for repairs by the Maintenance Department.*
- *Yield to emergency vehicles and stop for pedestrians in crosswalks.*
- *Headlights shall be used from a half hour before dusk until a half hour after sunrise*
- *Keep all extremities (arms and legs) inside the vehicle.*
- *The use of cell phones is prohibited while operating a vehicle.*
- *Do not park within 4' of a crane track and never block fire equipment, electrical control panels, manifolds/valves or park anywhere that would hinder emergency response efforts.*

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14

Manual Hand Tools, Powered Hand Tools and Machine Guarding

Manual Hand Tools

Hand tools are such a common part of our lives that it may be difficult at times to remember that they present hazards that must be controlled. Manual hand tools are non-powered, but we can generate a lot of force with them. Hand tools include anything from axes to wrenches, from sledgehammers to the smallest screwdriver. Hand tools are manufactured with safety in mind; however, too often tragic accidents occur when hand tool hazards are not adequately addressed by tool users.

Prior to using any hand tool, a careful visual inspection must be conducted to ensure the tool is in a safe, well-maintained condition and ready for use. Once the user is satisfied that there are no hazards associated with the ***condition*** of the tool, they must recognize the hazards associated with the ***use*** of tool. The greatest hazards posed by hand tools result from misuse and improper maintenance. Since shipbuilders use many different types of hand tools, they must learn to recognize the hazards associated with each tool they use and the safety precautions necessary to prevent them from creating mishaps.

Examples of Condition and Use Hazards:

- *Using a screwdriver as a chisel or a pry bar may cause the tip of the screwdriver to break off and fly out, hitting the user or other employees.*
- *If a wooden handle on a tool such as a hammer or an axe is loose, it may slip off and become a projectile in the work area. Similarly, when an impact is made by a tool with a splintered or cracked handle, it may sustain a catastrophic failure, allowing the head and broken handle to fly off and strike the user or another worker.*
- *A wrench with sprung jaws or its hex-edges rounded out, may slip on a nut or bolt head and cause the user to fall or lurch in the direction of the force they were applying. This can cause anything from falls to "struck against" injuries, many of which can be quite serious.*
- *Impact tools such as chisels, wedges or drift pins are unsafe if they have mushroomed heads. The mushroomed edges chip off when struck, sending sharp fragments flying into the work area.*
- *Tape around a hammer handle can hide defects such as splintering or cracking and is therefore, forbidden.*
- *If the grip teeth on the jaws of pliers are rounded down or worn out, it can allow the tool to slip causing a "struck against" injury. Additionally, it may require excessive grip-strength force from the user to get the tool to "bite," which can cause musculo-skeletal disorders and strains (ergonomic injuries).*

Hand Tool Care and Maintenance

An employer is responsible for the safe condition of tools and equipment used by its employees, regardless of the tool's origin; however, employees have the responsibility for properly using and maintaining tools. Employees must inspect all hand tools for defects before use and alert their supervision if deficiencies are found. Always store tools in a

safe place where the tool isn't damaged or it doesn't pose a hazard to others in the area.

- *Never use a damaged tool!*
- *Keep saw blades, knives, or other tools with cutting edges, clean and sharp because dull tools require excessive hand force and are more hazardous than sharp ones.*
- *Never use modified or "home-made" tools.*
- *Keep tools clean, dry and properly lubricated but do not allow lubricant to get on the tool's handle.*
- *Unless a tool is designed to be periodically adjusted, or the manufacturer allows specific repairs such as changing a broken hammer handle, never attempt to repair a tool; replace it instead.*

Basic Safety Rules for Hand Tools

- *Appropriate personal protective equipment, e.g., safety goggles, gloves, etc., should be worn to protect the user from hazards that may be encountered while using hand tools.*
- *Keep floors as clean and dry as possible to prevent accidental slips and to provide a firm, stable base while working with hand tools.*
- *When working around flammable substances, sparks produced by iron and steel hand tools can be a dangerous ignition source. Where this hazard exists, spark-resistant tools made from brass, aluminum, or another non-ferrous material is required.*
- *Use tools that are the right size and type for your job.*
- *Don't work with oily or greasy hands or slippery tool handles.*
- *Cut away from yourself when you use chisels, knives, and other sharp-edged tools.*
- *Handle sharp-edged and pointed tools with care, and always pass a sharp tool to a co-worker, handle-first.*
- *Sharp-edged tools must be directed away from aisle areas and places where other employees working in close proximity and covered when not in use.*
- *Secure all small work pieces with a vise or clamp so it does not slip under your tool.*
- *When using an adjustable tool such as a Crescent wrench or slip-joint pliers, ensure they are properly adjusted before applying force.*
- *Never apply heat to a tool unless it is specifically designed for that purpose as it can change the temper of the tool steel and its specific design characteristics.*
- *Let the tool do the work; do not try to overpower or force a tool. If it is well maintained, and by using only a sensible amount of effort, it will perform better and you will have more stable work control.*
- *Wrench handle length is designed to be the right size and strength for the tool's service requirements so never try to increase your leverage by using a "cheater" pipe or handle.*
- *Never hammer or beat with a tool that is not made for striking.*

"The greatest hazards posed by hand tools result from misuse and improper maintenance."

Safely Carrying Hand Tools

- *When you carry tools in your hands, keep sharp points or cutting edges covered and hold them away from you.*
- *Don't stuff your pockets with too many tools. When carrying many tools, use a toolbox or tool belt.*
- *Keep your toolbox, tool bucket or tool belt clean and orderly so you can easily find the tool you need without being cut or gouged.*
- *If a co-worker wants to borrow one of your tools, hand it to them; don't toss it and never free-drop a tool to a lower level.*

Powered Hand Tools

Power tools demand their users obey safe practices and maintain a high level of situational awareness for injury-free operation. All safety devices on tools and equipment must function properly. Safety devices are designed and installed on tools to control a hazard. Removing them or not ensuring they are maintained in working order can result in serious injury. The following points must be consistently followed by all power tool users:

- *Always bring the proper tools with you to your worksite.*
- *Never use a tool that you are unfamiliar with or that is not designed to perform your work task.*
- *Never use another worker's power tool without first being trained on its use.*
- *Never pick up an unattended power tool and use it. It may be there because it is damaged or missing a guard and the owner has gone to get parts or new blades/disks.*
- *Inspect all powered hand tools prior to use:*
  - *Inspect the tool's cord, plug and strain relief boot as well as the extension cord to be used.*
  - *Only authorized electricians can repair damaged cords and plugs.*
- *Electrically powered tools and equipment must be adequately grounded (unless marked as double insulated) and if used on a temporary power (extension cords), it must utilize ground fault circuit interruption (GFCI) protection.*
- *Before using pneumatic tools, inspect the airline for damage and always ensure that the crow's foot connections are secured with a safety clip or wire and the hose fittings are wrench-tightened to the tool.*
- *Never remove or alter a guard or safety device. If equipment comes with a guard, then you must use it with the guard in place and intact.*
- *Never disable a safety device or override a normal operating control switch, lever or pushbutton.*
- *On tools designed with trigger safety devices, the devices must function properly to avoid inadvertent activation if trigger is mistakenly pressed.*
- *Continuous run controls on hand-held electric tools must be disabled before these tools are placed into service.*

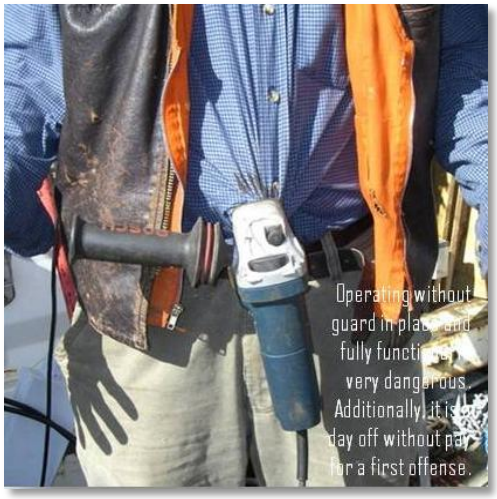
Trigger Safeties:

An often overlooked safety mechanism on grinders and other hand-held power tools is the trigger safety. The trigger safety is a small, often spring-loaded lever device that blocks the trigger from closing until a separate motion of the user's hand folds it back. This ensures that if the user sets the tool down on the deck or a work table and it rolls over or lands on the trigger that the tool will not unintentionally activate. If a grinder takes off while the user is not holding it there is a possibility that it can contact the user or bystanders causing severe injuries or damage to equipment and property.

When inspecting the trigger safety on a grinder, make sure that:

- *The trigger safety is in place. There should be a tab or lever on the trigger to block it from being pressed.*
- *That it takes two distinct motions of the hand to activate or "tuck" the safety under the trigger for the trigger to be activated.*
- *The spring on the safety has a firm tension and is not loose or coming out of its attachment.*
- *The trigger safety passes a functional test when squeezed and does not allow inadvertent activation.*

Here are two types of trigger safeties. If you are unsure of how the trigger and its safety work, ask your supervisor before using the grinder. At any time the safety does not function by stopping the trigger from activating, the tool must come out of service and be returned for repair.



Personal Protective Equipment

There are very important safety precautions you must take in order to prevent injury with abrasive wheel grinders. One of the most important is to use the correct PPE and clothing. Buckeye operators are required to use the following eye and face PPE: Safety goggles or prescription safety glasses with side shields and a full face shield.

Hand-Held Grinders "Buckeyes"

- *Ingalls Shipbuilding has numerous safety controls in place regarding the use of all grinders, including both electric and pneumatic buckeye grinders and the grinding wheels.*
- *Before each use, closely inspect your grinding wheel for cracks, nicks, or any other defects that may cause the wheel to shatter. Also, insure that the wheel fits freely on the spindle and not forced on.*
- *When in use, insure that the grinding wheel is oriented correctly at the point of work. If the wheel jams, especially the thin cutting blades, it can kick back and/or shatter.*
- *All guards are required to be in place and properly adjusted on all machines and power tools that are equipped with them.*
  - *The removal of these guards could cause serious injury and subject the operator to disciplinary action.*
  - *If you feel the guard needs to be removed because it is in the way, contact your supervisor who will give you direction. If your grinder does not have a guard installed on it or the guard has been modified, return it to the tool room where it will be replaced. These guards:*
    - *Must cover one-half (180º) of the cutting edge*
    - *Be properly aligned with the wheel*
    - *Strong enough to contain fragments if the wheel shatters*

- *Be careful when handling and storing grinding wheels as they are easily damaged.*
- *Storing wheels, especially the thin cutting blades, in gang boxes or in tool bags and then throwing tools in on top of them can cause damage.*
- *Minimal damage to these wheels can cause them to shatter.*

INSPECT THE WHEELS BEFORE EACH USE TO INSURE THAT THERE IS NO DAMAGE!

Removal of Equipment Safety Devices:

- *When tight quarters require an employee to remove a grinder's dead handle, they may only remove the handle with the approval of their foreman and only for brief duration tasks.*
  - *Guards are required on all grinder attachments exceeding 2" in diameter except when used for internal work, such as grinding or cutting inside of a pipe. This includes sanding and buffing discs.*
  - *Pencil grinders using grinding disk attachments must have a guard on them.*
- *Auxiliary handles (dead handles)are required on all:*
  - *Hand-held angle grinders*
    - *Most grinders have the ability to install the handles for right or left hand use.*
  - *½" or larger drills*
    - *The drill handles are 360° rotational and locking, so these are adaptable to most job configurations.*
  - *Any tool that is designed and manufactured with a handle.*

15 Manual Material Handling and Ergonomics

Musculoskeletal Disorders (MSDs)

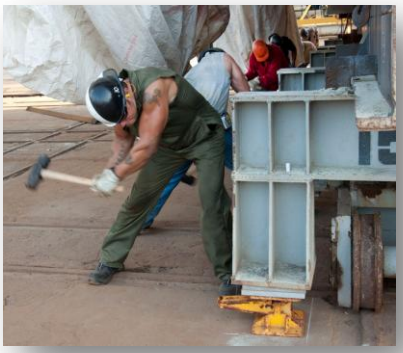
The largest injury type in shipbuilding is musculo-skeletal disorders. MSDs include:

- *Muscle strains and back injuries from repeated use or overexertion*
- *Tendonitis*
- *Carpal tunnel syndrome*
- *Rotator cuff injuries (a shoulder problem)*
- *Epicondylitis (an elbow problem)*
- *Trigger finger from repeated use of a single finger*
- *Hand-arm vibration syndrome (Vibration White Finger)*
- *Other cumulative trauma disorders*

The Maritime Industry has a higher rate of ergonomic-related injuries than General Industry and Construction.

—U.S. DOL Bureau of Labor Statistics

Early indications of MSDs include numbness, tingling, pain, restriction of joint movement or soft tissue swelling. Shipyard employees experience lower extremity MSDs, strains and sprains of the low back muscles and associated low back disorders. Moreover, hand-arm vibration syndrome, known as “vibration white finger,” is often identified among shipyard employees who use vibrating tools.



Some MSDs develop gradually over time as a result of intensive work. When the work environment requires employees to assume awkward or static body postures for a prolonged period of time, the workers may be at risk of developing MSDs. The ergonomics-related risk factors that shipyard employees are most often exposed to include:

Force—*the amount of physical effort required to perform a task (such as heavy lifting, pushing, pulling) or to maintain control of the equipment or tools.*

Repetition—*frequently performing the same motion, or series of motions, for an extended period.*

Awkward and prolonged static postures—*assuming positions that place stress on the body, such as repeated or prolonged reaching above the shoulder height, bending forward or to the side, twisting, kneeling or squatting.*

Contact stress—*pressing the body or part of the body (such as the hand) against hard or sharp edges, or using the hand as a hammer.*

Vibration—*using vibrating tools such as sanders, chippers, drills, grinders or reciprocating saws may result in fatigue, pain, numbness, increased sensitivity to cold and decreased sensitivity to touch in fingers, hands and arms. Exposure to whole body vibration may damage the joints of the skeletal system.*

Cold temperatures—*combined with the risk factors above may increase the risk of musculoskeletal disorders.*

When there are several risk factors in a job, as is often found in shipyards, there can be a greater risk of injury. Whether certain work activities put an employee at risk of injury can depend on the how long (duration), how often (frequency) and how intense (magnitude) of the employee’s exposure to the risk factors in the activity, as well as other factors. These characteristics are particularly important when considering work activities and conditions.

Each year, MSDs are one of the most pervasive and painful injuries that shipbuilders experience and they

cost our Company more than any other single injury type. However, the earlier symptoms of MSDs are reported and treatment is started, the better chance that the injury will not become a long-enduring, agonizing problem for a shipbuilder. Always notify your supervisor if you experience soreness, strains, sprains, tingling sensations, loss of range of motion or other potential signs of a MSD.

Manual Lifting and Carrying Techniques

Using poor manual lifting techniques or over lifting greatly increases the chance of sustaining a sprain or strain to the back, neck, shoulders, groin, abdomen and other body parts. Having slip/trip hazards in an area where you are carrying materials can also cause injuries. A considerable number of injured shipbuilders failed to practice safe lifting techniques or did not seek assistance before lifting or carrying heavy loads.

Many personal factors increase or decrease any individual's risk for a strain or sprain from manual material handling. Shipbuilders come in all sizes, ages, heights and physical conditioning. It is not always true that a short, slender person cannot lift much or that a large, tall person can. However, before employees are assigned to jobs requiring heavy or frequent lifting, they should be physically suited for the job. The following may contribute to the risk of a strain injury:

- *Poor physical fitness*
- *Lack of flexibility*
- *Recreational activities*
- *Emotional stress*
- *Attitude of invincibility*
- *Lack of rest*
- *Unwillingness to ask for help*
- *Poor back support when sleeping*
- *Poor posture when sitting or standing*

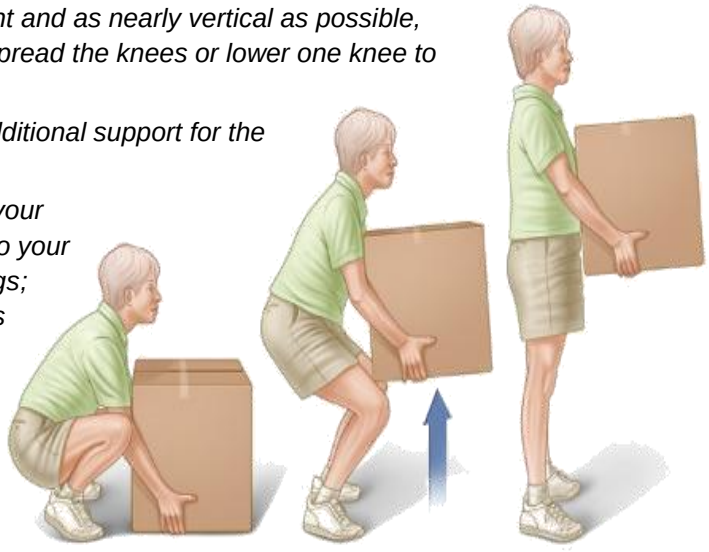
Some of these risk factors can be controlled by employees while they are away from work, but there are many other things that can be done on the job to reduce the risk of strains and sprains.

IS THE WORK AREA CLEAR ENOUGH TO LIFT AND CARRY MATERIAL?

Adequate housekeeping, line control and clear walking working surfaces are all good hazard controls that can reduce lifting/carrying strain risks. Congested areas, uneven or slippery surfaces or low hanging lines can compound the risks associated with an otherwise simple task of moving items by hand. When you slip or trip with a load in hand and try to regain your balance, you can often overexert yourself because the weight of the load is further out of position and the quick twist of the torso puts too much strain on muscles or damages discs in the spine. Before you pick the material up, always make sure that the lift/carry path is clear of obstacles and other pedestrians are not in your way.

BASIC RULES FOR LIFTING OR MOVING OBJECTS:

- *Size up the load first—if there is any doubt in your mind about your ability to lift it, do not attempt to do so alone.*
- *Make sure that your footing is secure, your balance is good and there are no foreign objects lying on the floor.*
- *Place feet shoulder-width apart, one foot slightly ahead of the other.*



- *Bend knees and squat keeping the back straight and as nearly vertical as possible, but also at a comfortable angle. If necessary, spread the knees or lower one knee to get closer to the object.*
- *Tighten your stomach muscles as you lift for additional support for the spine.*
- *Start pushing up with your legs, thereby using your strongest set of muscles. Keep the load close to your body as you come up. Lift gradually with the legs; don't jerk the load. Sudden movements such as twisting, turning or jerking can cause strains or sprains.*
- *Lift the object to the carrying position. If it is necessary to change your direction when in the upright position, be careful not to twist the body. Turn your body with changes of foot position.*
- *Vision should always be unobstructed, and if the load interferes with normal walking, help should be obtained.*
- *In putting the load down to the floor surface from a waist-high carrying position, bend the knees with a straight back, load close to the body and lower the load with the arms and leg muscles.*
- *Specially shaped objects require special handling. One person can easily roll a compressed gas cylinder on its bottom edge but it may take two people to load it on a truck, or into a rack.*
- *To carry boxes and cartons, grasp opposite bottom corners and draw the object into the body.*
- *When lifting or carrying with another person, teamwork is important. The load should be equally distributed and movements coordinated so that all persons involved start and finish the lift at the same time and perform turning movements together.*
- ***Remember!** Things not meant to be moved by hand should be carried or lifted with hand trucks, forklifts or hoisting equipment.*

HORIZONTAL DISTANCE OF LOAD FROM THE BODY

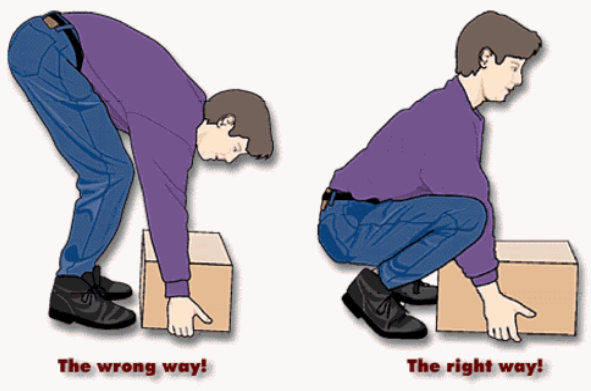
The further the load is from the center of the body, the more compressive force it puts on the vertebra and discs in the lower back as well as stress on back muscles. Always try to keep the load tight to your torso and your torso straight. When you bend over, you have the weight of the load and the weight of your torso that must be countered by the lower back muscles. Avoid twisting your torso while handling a load. A rule of thumb for the maximum horizontal distance of the load from the body is—*never lift anything past 10" from your toes, measured when standing straight up*.

POOR HAND HOLDS

Handling materials without adequate handholds increases the chance of dropping the load. It also decreases the amount of weight you can safely handle by about 10%. Without handholds, the hands and arms need more force to support the load; awkward postures are more likely if the object starts to slip or if you need to change grasp positions while lifting, lowering or carrying. In addition, when lifting objects from the floor, you will have to bend down further if there are no handles to grasp. While not all objects have handles, a good grip on the load is essential for safe carrying. Some types of gloves can improve grip; however, make sure they have a good friction surface (rubber dots or palms) and fit well or they may actually not allow you to feel the load or require excessive grip strength.

The 50-Pound Rule

Employees must observe the personal load limit of 50 pounds. However, this does not mean that all 50-pound loads are created equal nor should they be lifted and carried by one person. If an object is oddly shaped or heavier on one side you may still need two people to transport it. Additionally, the 50-pound rule is only for lifting and only when proper positioning and lifting techniques can be used. If a 50-pound object must be carried (especially up stairs) or lifted into above-chest levels, it is not a single person task. Remember, 50 pounds is the maximum allowed to be lifted by one person—it does not mean that all people, in all cases, should attempt a 50-pound lift.



Ergonomics

The Ingalls Shipbuilding written program for ergonomics is (SSO K225) *Ergonomics Program*. Because MSD injuries are one of the most common injury types we experience, it is important that all employees remain engaged in identifying opportunities to change work processes that reduce the risk of MSDs. The Safety Action Teams are active in conducting ergonomic hazard assessments and developing corrective actions and process changes to reduce worker risk. Several times a year the SATs will conduct Ergonomic RAPID Events, which are workshops that identify tasks with high MSD-risk and quickly develop and implement controls to reduce the risks.

There are things that all shipbuilders can do to take advantage of known ergonomic solutions for Shipbuilding MSD hazards. Some are prior to the task and some are during the job.

BEFORE STARTING THE JOB:

- *Workers should work with management to identify possible tasks in shipyard employment that present ergonomics-related hazards. A team should develop a plan to control tasks that put workers at risk of developing MSDs. Shipyard employees must be informed and trained on the ergonomic concerns in the workplace and ways to minimize the risk of injury.*
- *Position lights directly over a work area and/or equipment to reduce awkward neck and back positions.*
- *Identify appropriate PPE to help reduce localized pressure on the body and unnecessary fatigue.*
- *Position equipment and devices, such as point-of-use tool boards and rigging racks, within easy reach (e.g., between the knees and shoulders) to reduce awkward postures and fatigue.*
- *Identify proper worker assist devices/equipment, such as standing platforms or workbenches, that can be easily transported to the work area to reduce the amount of overhead reaching that may place stress on the body.*

DURING THE JOB:

- *Wear the appropriate PPE, including gloves (with anti-vibration properties when needed), elbow, knee and shoulder pads, and kneeling supports to reduce localized pressure on the body and reduce fatigue.*
- *Use material/equipment-handling wheeled devices such as carts, hand trucks and pallet jacks designed to transport heavy and awkward materials, tools or equipment. Applying the wheeled devices will reduce lifting, pushing and pulling forces.* ***REMEMBER: PUSHING IS PREFERED TO PULLING!***
- *Use additional material/equipment-handling devices such as drum movers, overhead cranes, conveyors, hoists/balancers, moveable containers and pulley systems to transport heavy and awkward materials, tools or equipment. Use of these devices also reduces lifting, pushing and pulling forces.*

16

Office Safety

The Basics of Office Safety

Despite common beliefs that the office provides a safe working environment, many hazards exist which cause thousands of injuries and health problems each year among U.S. office workers. Today's modern offices are substantially different from the office environment of 20 years ago. Sweeping changes have occurred in the American workplace because of new office technology and automation of office equipment. Consequently, office workers are faced with many more hazards. The leading types of disabling accidents that occur within the office are:

- *Falls*
- *Strains and overexertions*
- *Struck by or struck against objects*
- *Caught in or between objects*
- *Contact with*

Besides being a contributing factor in office mishaps, poor lighting can cause other non-acute injuries as well. Poor lighting issues can cause glare and shadows as well as vision problems such as eyestrain, fatigue and double vision. Controls to prevent poor lighting conditions include:

- *Light-colored dull finish on walls, ceilings and floors to reduce glare*
- *Regular maintenance of the lighting system*
- *Adjustable shades on windows*
- *Indirect lighting*

In an office, workers can be subjected to many noise sources, such as, video display terminals, high-speed printers, phones and human voices. Noise can produce tension and stress, as well as damage to hearing. Some of the numerous measures available to control unwanted noise include:

- *Place noisy machines in an enclosed space*
- *Use carpeting, draperies and acoustical ceiling tiles to muffle noise*
- *Adjust telephone volume to its lowest effective level*
- *Rearrange traffic routes within the office to reduce traffic within and between work areas*

Poor design and/or poor housekeeping can lead to crowding, lack of privacy, slips, trips and falls. The following are important factors related to office layout and orderliness:

- *At least 3' distance between desks and at least 50 square feet per employee*
- *Keep telephone and electrical cords out of aisles*
- *Group employees who use the same machines*
- *Office machines should be kept away from edges of desks and tables*

- *Regular inspection, repair and replacement of faulty carpets*
- *Place mats inside building entrances*
- *Proper placement of electrical, telephone and computer wiring to limit trip hazards*
- *Controls to ensure proper means of egress include:*
  - *All exit accesses must be at least 28" wide*
  - *Generally, two exits should be provided*
  - *Exits and access to exits must be marked*
  - *Means of egress, including stairways used for emergency exit, should be free of obstructions and adequately lit*
  - *Employees must be aware of exits and trained in procedures for evacuation*

A serious problem associated with office design is the potential for creating fire hazards. Another danger found in modern offices is combustible materials (e.g., furniture, rugs, fibers) which can easily ignite and often emit toxic fumes. A number of steps can be taken to reduce office fire hazards:

- *Store unused records/papers in fire resistant files or vaults*
- *Use flame-retardant materials when possible*
- *Smoke only in designated outside areas and use proper ashtrays*
- *Fire extinguishers and alarms should be conspicuously placed and accessible and remain unobstructed.*

Office materials that are improperly stored can lead to hazards such as objects falling on workers, poor visibility and fires. There are several controls, which can reduce handling and storage hazards.

- *Materials should not be stored on top of cabinets.*
- *Heavy objects should be stored on lower shelves and materials stacked neatly.*
- *Materials should be stored inside cabinets, files or lockers whenever possible.*
- *Materials must not be stored in aisles, corners or passageways.*
- *Flammable and combustible materials must be identified and properly stored.*
- *Safety Data Sheets must be provided for each hazardous chemical identified.*

Electrical accidents in an office usually occur because of faulty or defective equipment, unsafe installation or misuse of equipment. The following guidelines should be adhered to when installing or using electrical equipment:

- *Equipment must be properly grounded to prevent shock injuries*
- *A sufficient number of outlets will prevent circuit overloading*
- *Avoid the use of poorly maintained or non-approved equipment*
- *Cords should not be dragged over nails, hooks or other sharp objects*
- *Receptacles should be installed and electric equipment maintained so that no live parts are exposed*
- *Machines should be disconnected before cleaning or adjusting. Generally, machines and equipment should be locked or tagged out during maintenance.*

Defective furniture or misuse of chairs or file cabinets by office workers can lead to serious injuries. Listed here are controls related to chairs and cabinets:

- *Chairs should be designed well and regularly inspected for missing casters, shaky legs and loose parts*
- *Do not lean back in a chair with your feet on a desk*
- *Do not scoot across the floor while sitting on a chair*
- *Never stand on a chair to reach an overhead object*
- *Open only one file drawer at a time*
- *Do not locate file cabinets close to doorways or in aisles*
- *Use drawer handles to close file drawers.*

Misuse of office tools, such as pens, pencils, paper, letter openers, scissors and staplers, can cause cuts, punctures and related infections. Injuries can be prevented by following precautions when using these materials:

- *Paper cutters—Keep blade closed when not in use. A guard should be provided and fingers should be kept clear.*
- *Staplers—Always use a staple remover. Never test a jammed stapler with your thumb.*
- *Pencils, pens, scissors, etc.—store sharp objects in a drawer or with the point down. Never hand someone a sharp object point-first.*

Office Ergonomics

Workplace injuries can and do occur in the office environment. The most frequent types of office injuries are called *musculo-skeletal disorders* (MSDs) and are generally strains, sprains and other ailments of soft tissues; muscles, nerves, tendons or ligaments. These injuries can be difficult to heal, debilitating, expensive to treat and extremely painful to endure. Fortunately, all MSDs are preventable.

Repetitive Motion and Cumulative Trauma Disorders occur when muscles, tendons and nerves are required to conduct the same motions repeatedly, usually in non-neutral positions, resulting in microtraumas and eventually severe tissue damage. Swelling can develop which may press against nerves causing numbness and tingling sensations in the hands or fingers. Some people describe it by saying “my hands are going to sleep,” or they feel like “pins and needles.” Other symptoms of these disorders include weakness and limited range of motion. Reporting symptoms early can prevent serious or permanent damage to your wrist and hands.

Neck, shoulders, back, arms, wrist and hands are all high-risk targets for MSDs. Proper sitting posture and positioning of desktop equipment is important in reducing MSD risk factors. Some important points to remember in sitting at workstations and video display terminals are:

- *Adjust chair elevation so that when writing or keyboarding, the forearms are horizontal with a 90° angle at the elbows. There should be no flexion or extension at the wrists as the hands should be maintained as straight as possible from the wrists.*
- *Do not lean over the desk during extended work as this puts high stress on the back, neck and shoulders. Keep the shoulders relaxed not hunched.*
- *Sit with the thighs almost horizontal but with the knees slightly higher than the hips, even if this requires a footrest. Never let your feet hang without touching flatly on the floor or a rest.*
- *Sit as close to the desk as possible so that your arms can be supported by the desktop and you do not have to reach far to operate desktop equipment.*
- *Keep your head balanced naturally over your shoulders (not protruding in front of your body).*

- *Sit back in your chair, not on the front edge, and adjust the back of the chair for optimum support.*
- *Change your posture often. Stretch frequently throughout the day. Keep your body flexible (not rigid or fixed); static posture decreases blood flow. Don't force your body to conform to your workspace; try to conform your workspace, to your body.*




Hold each of the above stretching positions for about 5 seconds.

Always try to stretch your hands and wrists periodically through the workday. This keeps them limber and increases blood flow, which brings oxygen-rich blood to the extremities and removes wastes such as lactic acid, which can cause discomfort and lead to injury.

In addition to stretching the hands, fingers and wrists periodically throughout the shift, don't forget to stretch the neck, shoulders and back. If you spend a lot of time on the phone, consider using a headset or at least a phone prop but avoid clamping the phone between the shoulder and ear with the neck bent over.

To help avoid eye fatigue, which can affect the neck and shoulders due to straining, make sure that your computer screen is between 20" to 38" from your eyes to the screen. To avoid screen glare from windows or lighting fixtures, which adds to eye fatigue, tilt the screen from between +5° and -15° from the horizontal plane.

17 Heat Stress Prevention

Heat Stress

Heat illnesses most commonly result from a reduction or collapse of the body's ability to shed heat by sweating. When an individual generates body heat by strenuous work, especially if the environment is hot and humid, the body cools itself by perspiring and the evaporating sweat takes the heat with it. When there is a disruption of this process, overheating and heat illness may occur. Most often, the disruption occurs because the body's fluid levels become low when fluids are not replaced fast enough to compensate for the amount leaving the body through perspiration and/or urination. When the body's core temperature rises and it is experiencing heat stress, it will develop some or all of the symptoms of the two main forms of heat illness: heat exhaustion and heat stroke. Unrecognized or untreated heat stress can kill you. It will certainly make you very sick and can contribute to a separate accident because it causes unclear thinking, poor balance and weakness.

Symptoms of Heat Exhaustion

Heat Cramps—*Painful cramps indicated by muscle pain from the excessive loss of water and/or electrolytes.*

Fatigue and Weakness—*Feeling really tired regardless of the amount of exertion you have been performing. Slow or incomplete muscle response (weak feeling).*

Blurred Vision—*Difficulty focusing and possibly seeing spots, flashes and colors floating in your field of vision. It can progress into tinting or graying until fading to black upon fainting.*

Wet Skin—*Although the body is at a fluid deficit, you are still sweating as the body attempts to give up every ounce of available water in order to reduce its rising core temperature.*

Headache—*Can vary from mild to intense; however, it is usually persistent and intensifies the further into heat stress the body continues.*

Dizziness or Fainting—*Balance is effected and can continue worsening until you faint. Combined with the fatigue and vision changes you may feel sleepy and then pass out (faint).*

Irritable or Confused—*Cognitive focus depreciates and you may become frustrated or irritable. Difficulty concentrating and your "train of thought" becomes broken.*

Thirst and/or Nausea—*Mild thirst, turning to craving water, as symptoms advance. Mild nausea and stomach upset, to actually dry heaving or vomiting, as the response to heat stress progresses.*

Increased Heartbeat—*Pulse rate increases as the body attempts to increase its effectiveness in controlling its critical systems. Circulating more blood, faster, near the skin, helps cool by convection of heat into the air.*

Symptoms of Heat Stroke

Red, Hot, or Dry Skin—*The body no longer has a practical amount of fluid left to attempt to control its core temperature through perspiration. Skin feels hot and dries out.*

High Temperature—*Without effective cooling from the perspiration process, the body's core temperature climbs, metabolism runs very high and produces high fever-like temperatures.*

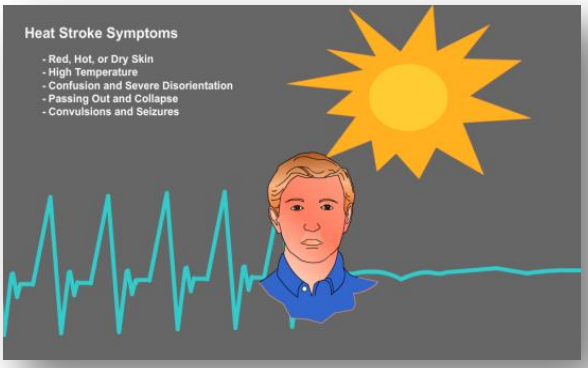
Confusion and Severe Disorientation—*Individual responses may run between confusion to complete in comprehension and continue progressing until passing out.*

Passing Out and Collapse—*You no longer possess the ability to focus or control balance. Vision fades and muscles can no longer maintain upright postures. Unconsciousness follows.*

Convulsions and Seizures—*Involuntary physical response to the critical level where heat stress has progressed.*

Contributing Factors for Heat Stress

- High heat and humidity
- Limited or no air movement over the body
- Working in direct sunlight
- Heavy or large amounts of physical exertion
- Wearing dark, heat absorbing clothing
- Tight clothes or PPE that limits air movement over the skin
- Age
- Poor physical conditioning
- Limited or no acclimation to working in heat



- Previous, recent cases of heat illness
- Inconsistent and insufficient sleep and rest
- Improper diet (high fat, and poor in nutrients, vitamins and minerals)
- Drug and alcohol abuse
- High caffeine/alcohol consumption causing dehydration
- Taking certain prescription or over-the-counter medications
- Not drinking enough pre-hydration "Pre-Work" water
- Not drinking enough rehydration "During Work" water
- Not drinking enough replenishment "After Work" water
- Not replacing electrolytes and minerals lost through perspiration
- Not taking enough/frequent breaks, out of the direct sun
- Not seeking medical attention at the onset of symptoms

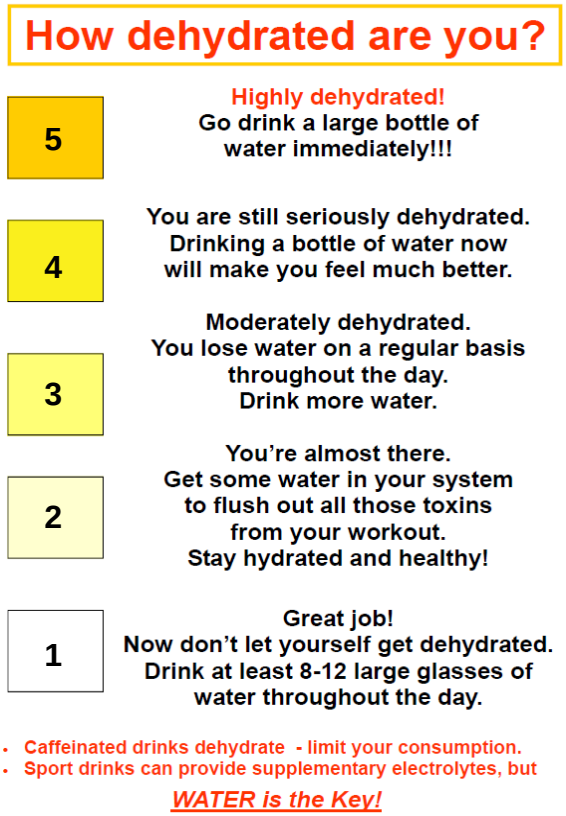
Treating Heat Stress

Anytime you are starting to feel the symptoms described above, it is very important to seek medical assistance. Remember, the symptoms can appear and progress rather quickly depending on the factors associated with the task, environment and individual. If the symptoms are mild, report them to your supervisor or carefully make your way to the Incident Response Team (IRT) office. Do not attempt walking, climbing or negotiating obstacles if you are experiencing dizziness or vision problems. If you feel that it becomes too difficult or unsafe to walk, ask a co-worker to contact your supervisor, (any manager, if supervisor is unavailable) notify the Boat Foreman or Shop Office, contact an area EHS staff

member or make a 911 call to CASCON. Always try to remove yourself from the source of the heat. Go to a shady area, near a fan or to a climate controlled space. Remove PPE and protective clothing to allow body heat to dissipate and perspiration to evaporate. If you are assisting someone experiencing heat illness symptoms, follow the previous guidance; however, if they lose consciousness, contact CASCON immediately.

Heat Stress Prevention

- It's better to drink small amounts frequently, as opposed to larger amounts less often.
- Drink even if you do not feel thirsty.
- Avoid drinks like sodas or coffee that have caffeine or alcoholic drinks—these drinks dehydrate you.
- People worry that if they drink a lot of water, they'll have to go to the bathroom more often. In fact, you'll mostly sweat it off.
- Prior to heavy work, drink plenty of water. You do not want to start out with a deficit of fluids and try to "play catch up" soon after beginning.
- When you're not at work, still drink plenty of water to help your body recover from the workday.
- Take frequent breaks during physically demanding tasks.
- Carefully consider the amount of "sport drinks" you consume. While they do replace vital electrolytes and minerals lost to heavy sweating, they are often high in sugar and salt. Balanced diets provide the proper amount of minerals for most people. Only drink "sports drinks" if you are doing an unusually high amount of sweating because of heavy exertion—not as a total replacement for water.



- If wearing PPE such as welding leathers remove them when taking a break and allow air movement to evaporate perspiration.
- Always ensure there is forced air ventilation operating when working in confined and enclosed spaces
- On "Red Flag" days, it is recommended to take breaks that are more frequent.

Urine Color Chart

If the water in the body is balanced, the urine will be a pale straw or lemonade color. When water loss from the body exceeds water intake, the kidneys need to conserve water, making the urine much more concentrated with waste products and subsequently darker in color. All personnel should monitor hydration status by noting the color and volume of urine.

Even dehydrated personnel will continue to produce urine, called "obligatory urine". When dehydration is inevitable for operational reasons, obligatory water loss in urine can be reduced by avoiding diuretics like coffee and tea.

Dark yellow urine is a sure indicator that the individual is dehydrated and that the fluid consumption must be increased. The aim is to produce urine no darker than Color #3 of the Urine Color Chart.

Urinating less than twice per day and/or producing urine darker than Color #3 in the chart indicate severe dehydration; the individual must start drinking immediately.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18 Hazardous Conditions and At-Risk Behaviors

Hazardous Conditions

During a ship's construction, shipbuilders intentionally transform their work areas as they turn raw materials into a finished vessel. Work areas in a shipyard are very dynamic and constantly changing as progress is made. Without consistent efforts to control the hazards in these ever-changing work areas, the risk for a mishap can climb to a level that practically guarantees that someone will get hurt or killed.

Maintaining a safe work environment is everyone's responsibility and everyone must help control hazards. Unfortunately, it is often a person's at-risk behavior that creates a hazardous condition. Conversly, hazardous conditions may contribute to some employees' unsafe work performance.

Housekeeping, line control and proper material storage are all things that affect everyone's ability to safely move from one area to another. Material and scrap can easily become clutter and increase the risk for slip or trip mishaps. Uncovered or unguarded holes can contribute to the chances of a fall injury. The following are examples of unsafe conditions that can expose shipbuilders to an unacceptable level of risk of injury:

The deck plate has not been replaced and has left an opening in the deck.

Material has been placed on this torch hose, which can damage it and create a fire or explosion hazard.

The strain relief has failed and allowed the cable to be pulled out exposing the wires inside of the cable.

The bulb and globe are missing creating a shock or electrocution hazard.

Inspect ladders before use. Do not use or repair damaged ladders. Remove them from service.

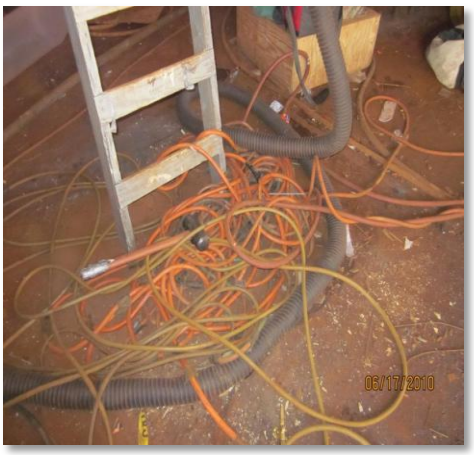
Do not work in smoke-filled spaces with inadequate ventilation.

Never leave scrap or materials on a scaffold.

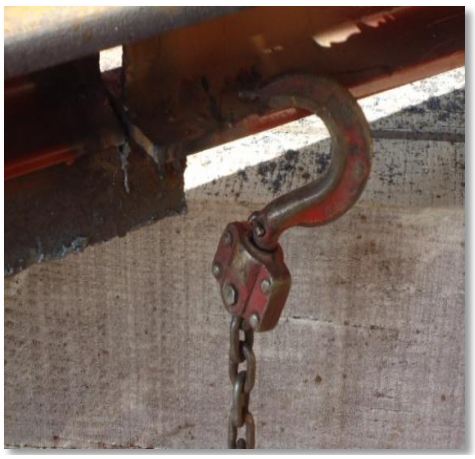
1) *Deck plates removed.* **2)** *Barricade tape torn down.* **3)** *Inadequate walkway. Employees shall not walk on the frames of the deck plate grid.*

Poor line control. Walkways must be kept clear of lines. Walking on lines will damage them and create other

1) *Walkway not at least 20" wide.* **2)** *Work platform not built by scaffold competent person.* **3)** *Guardrail only on one side.* **4)** *Improper rigging technique—Come-a-long is plate-edge hooked.*



1) *Lines and hose/duct covering the face and landing of ladder.* **2)** *Tool left out to become a tripping hazard.*



1) *Tip sprung hook.* **2)** *Hook is missing safety latch.* **3)** *Hot work damage on hook.* **4)** *Improper rigging technique (tip loading).* **5)** *Using damaged and uninspected equipment.*

Mushroomed wedge. Mushrooming tools must be dressed so they do not chip off and strike someone.

Rod left in electrode holder when not in use.

Flash panel on breaker box damaged or not fitted/secured properly. (Bowed out allowing access to internals.)

1) *Hot work above pedestrian walkway w/o posting fire watch or red "DO NOT ENTER" barricaded drop zone on ground level to keep pedestrians back.* **2)** *Combustibles not remove >35' from hot work.* **3)** *Poor line control in walkway.* **4)** *Damaged ladder/work platform left in work area.*

1) *Illegal "homemade" extension cord/unmounted receptacle* **2)** *Plug set/receptacle in water.*

Uncovered/unguarded open hole on deck.

Mechanical ventilation duct is damaged allowing contaminated air to be released where it should not be and/or reduced volume of air being exchanged.

Cracked rung on stepladder requires removing the ladder from service and discarding.

Damaged rung on wooden ladder requires removing the ladder from service and discarding or being repaired by a scaffold competent person from the scaffold carpenters.

Accumulated trash can become a fire hazard and should never be placed in an access or egress walkway.

At-Risk Behaviors (ARB)

The product of multiplying the severity (consequence) of a mishap, times the frequency the mishap occurs for a specific task, is called *risk*. Risk is a major element used to develop the Environmental, Health and Safety rules that all shipbuilders must follow. The lower the risk of a mishap for a specific task, craft, tool, work area or process—the less likely a mishap will occur.

Obviously, there is some risk inherent in everything we do, on or off the job; however, we always want to control the things we can so that risk is kept as low as possible. One of the things we can control is our personal decisions and work performance. When mishaps do not happen, property damage does not occur, schedules are maintained, quality ships are built and workers return to their families each day, healthy and injury-free.

The risk of workplace hazards causing mishaps can be greatly reduced by engineering controls, administrative controls and personal protective equipment. However, humans are capable of using or not using, all of these controls. Human activity in the shipyard is what changes raw materials into great ships, but these activities also have the ability to increase or decrease risk. When safety rules are consistently followed, risks are reduced. When safety rules are not followed, risk goes up—increasing the chance of injury.

Regarding safety, each worker is directly responsible for the actions that he or she can control and in assisting fellow shipbuilders in controlling theirs. This includes knowing the safety requirements for working in the shipyard and reminding others when necessary. The safety function of each shipbuilder's daily activities always includes using the hazard controls that are required of the job or pulling out a "STOP" badge and stopping an activity if the risk of a mishap is too high.

Within the context of occupational health and safety, the Ingalls Shipbuilding definition of at-risk behavior is as follows:

"Any employee's activities or performance within the shipyard which removes or diminishes the required engineering, administrative, personal protective equipment, or job process hazard controls that maintain a safe work environment, is an At-Risk Behavior."

Remember, many unsafe conditions are the result of an ARB. Example: a shipbuilder decides not to clean up their work area before leaving for the day and their scrap material is laying on the deck and in walkways. That is a job performance issue wherein they have executed an at-risk behavior by not keeping their work area clean as they worked. However, because of their unwanted behavior, there now is an area where uncontrolled combustibles have created a fire hazard condition.

Sometimes ARBs put the person conducting it, or those in the area, in immediate peril. Activities such as climbing on a structure without fall protection or not removing a leaking inert gas line from a confined space are examples. Whether the ARB puts a shipbuilder in imminent danger or creates a hazardous condition that could subsequently cause a mishap, ARBs are unacceptable and counterproductive to everyone's effort towards maintaining a safe shipyard.

The following photos are examples of various types of ARBs and are used for hazard recognition training. In these cases, the ARBs were observed and corrected before any shipbuilder was injured. Unfortunately, not all ARBs are intercepted before translating into serious mishaps.

1) *Hot work without sleeves.* **2)** *Using cutting torch without burning goggles.* **3)** *Hot work with only one glove.*

1) *Exposed to a fall >5' w/o fall protection.*
2) *Supervisor deployed workers to job location that did not have adequate fall protection.*

1) *Grinding with the guard removed from grinder.*
2) *Conducting hot work w/o removing combustibles 35' or more.*

Working >5' without fall protection.

1) *Working >5' without fall protection on deck edge.*
2) *Accessing structure with a stepladder.*

Not maintaining 3-point contact on ladder due to carrying item in hand. Always use a hand line to pull up tools and materials.

Exposed to fall >5' w/o fall protection.

Exposed to fall >5' w/o fall protection.

Exposed to fall >5' w/o fall protection.

1) *Not complying with sign stating, "Safety harnesses required".* **2)** *Working exposed to a fall >5' with openings in guardrail.*

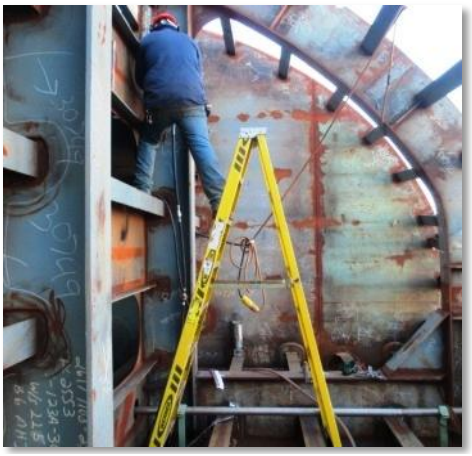
Improper use of a stepladder.

Using torch without burning goggles.

Standing on guardrail of scaffold.

Wearing ear buds instead of required hearing protection.

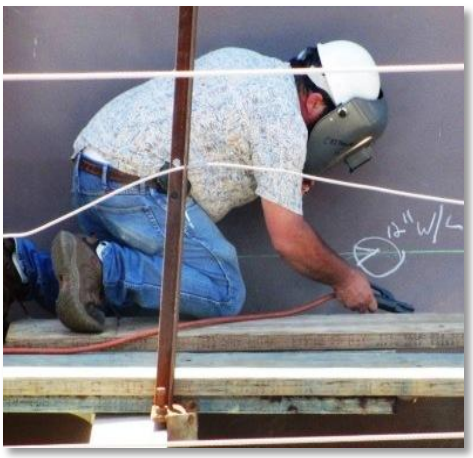
Improper use of a stepladder.



1) *Improper use of a stepladder.*
2) *Exposed to fall >5' w/o fall protection.*

1) *Standing beside lifeline but not tied off.*
2) *Not wearing harness properly. "D" ring is not centered between shoulder blades.*

1) *Using torch w/o burning goggles.* **2)** *No ear plugs.*
3) *Conducting hot work w/o wearing-gauntlet type gloves.*

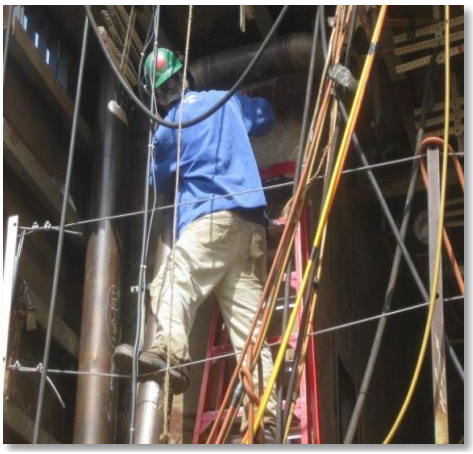


1) *Supervisor, working on a scaffold with a damaged guardrail.* **2)** *Conducting hot work w/o gloves.* **3)** *Conducting hot work w/o sleeves.* **4)** *Not wearing hearing protection.* **5)** *Conducting hot work w/o wearing 6" high safety footwear.*

Burning without wearing burning goggles.

Exposed to a fall >5' without using fall protection.

1) *Not wearing hardhat.* **2)** *Not wearing proper shield/hood.* **3)** *Improper use of a stepladder.*



1) *Improper use of a stepladder.* **2)** *Standing on guardrail.*

1) *Sitting on guardrail.* **2)** *Exposed to a fall >5' w/o fall protection or PFAS*

Operating lathe without chuck guard in place.

Grinding stainless steel without wearing a respirator.

Grinding without a guard on grinder.

Wearing PFAS improperly while operating aerial lift.

1) *Improper use of stepladder.* **2)** *Using torch with pants tucked in boots.*

Not using a proper walk/work surface to conduct work.

APPENDIX

EHS Enforcement Discipline Codes

CODE	VIOLATION DISCRIPTION
S401	Failure to wear proper safety glasses—Gate to Gate. (Except: offices, closed vehicle cabs, designated eating areas.)
S404	Failure to wear proper hard hat—Gate to Gate. (Except: offices, closed vehicle cabs, designated eating areas.)
S405	Failure to wear appropriate work attire such as, wearing muscle shirts, jewelry, shirts that expose midriff or raggedy-edged clothing during hot work.
S406	Failure to wear required safety footwear—(Gate to Gate) or for specific types for tasks such as hot work or chemical handling.
S407	Welding, burning, cutting, grinding, or any hot work without wearing proper long sleeves and/or gloves.
S408	Improperly riding in or on a vehicle such as, not wearing seatbelts as required or not seated in a proper seat.
S409	Driving during halt period in any vehicle, bicycle, etc.
S410	Unattended vehicle or mobile equipment left blocking roadway, fire lanes, or left with engine running.
S417	Failure to use safety clips or securely wire "crow's foot" connections.
S418	Failure to wrench-tighten air line fittings on pneumatic tools.
S419	Failure to deposit trash or scrap materials in proper receptacle.
S420	Using damaged ladder or improper use of ladder such as, unleveled, carrying material in hands, facing outward, standing on/straddling top, etc.
S421	Failure to ensure proper labeling requirements is met on hazardous material containers.
S422	Failure to wear hearing protection—Gate to Gate. (Except: offices, closed vehicle cabs, roadways, crane tracks, designated eating areas.)
S425	Using damaged/modified welding shield or improper use such as turning head, or shield more than 12" from face, etc.
S426	Failure to follow speed limit signs or other traffic controls in the Yard.
S427	Failure to properly store torch lines such as, inside ship/module/gang box or hung on manifolds or emergency or electrical equipment.
S428	Failure to update or remove "NO HOT WORK" signs after flammable hazards have been removed.
S431	Failure to properly wear required APR respirator for the task/material or improper use such as damaged, poor fit, or facial hair at face-seal areas.
S434	Failure to properly secure loads on trucks, trailers, and other mobile equipment prior to transporting.
S435	Failure to follow PPE requirements as prescribed in a Safety Data Sheet governing a material being used or handled.
S436	Operating vehicles or bicycles in or through areas or shops with traffic restrictions.
S437	Failure of an employee to report, properly shaven, with their respirator, to a fit test or the failure to send an employee for a fit test as required.

EHS Enforcement Discipline Codes (Continued)

CODE	VIOLATION DESCRIPTION
S442	Improperly routing leads, lines or hoses such as over guardrails, in front of ladders, in walkways, or blocking accesses.
S444	Failure to call CASCON to notify the EHS Dept. of planned paint spraying operations, or to request hot work tickets when required.
S445	Creating distractions or not participating in "Take Five," Weekly Safety Training Module, or any other safety trainings, briefings, or meetings.
S446	Failure of supervision to conduct or control "Take Five", Weekly Safety Training Module, or any other safety trainings, briefings, or meetings.
S447	Failure to provide a certified fire watch as required or failure to properly conduct fire watch duties when assigned as a fire watch.
S499	Failure to maintain safe work practices/conditions or comply with environmental, health, and safety procedures. (Other Than Serious)
	S300 Series
S301	Failure to follow requirements when constructing scaffolding, guard rails, ladders, or other engineering control-fall protection systems.
S302	Failure to wear all eye and face protection required whenever task can generate flying chips/particulates or chemical, thermal or radiant light hazards.
S304	Failure to contain or dispose of flammable/combustible materials in an approved safety can or proper container when required.
S306	Failure to use explosion-proof lights, equipment as required or failure to secure non-explosion-proof lights or equipment when required.
S307	Failure to properly utilize required supplied-air respiratory protection for the task/material as required.
S308	Failure to comply with requirements for logging/tagging flammable materials that are brought aboard a vessel.
S309	Failure to properly post signs/barricades during “No Hot Work” operations or other hazardous operations that require them such as drop zones.
S310	Running in the shipyard.
S311	Employee using equipment with improperly adjusted, impaired, damaged or missing safety devices such as, guards, trigger safeties, or interlocks.
S313	Using hand-held, portable electric tools that have switches other than a type, which must be manually held in the closed position?
S314	Unauthorized repair or working with air or gas lines that have not been properly assemble by authorized line repair/maintenance personnel.
S315	Failure to wrench-tighten all connections on inert gas or O^2/fuel gas lines from manifold to user end.
S316	Using O^2/fuel gas lines assigned to another employee with them not present.
S317	Leaving unattended torch or user end of O^2/fuel gas lines for >15 minutes in an enclosed space or for any length of time in a confined space.
S318	Failure to roll up O^2/fuel gas line, disconnect it from manifold, and properly store at end of shift.
S320	Failure to have O^2/Fuel gas lines tested within 45 days.
S321	Failure to use identification washer on inert gas lines at manifold.
S322	Failure to properly post breathing air signs on breathing air manifolds.

EHS Enforcement Discipline Codes (Continued)

CODE	VIOLATION DESCRIPTION
S323	Failure to wear life vest when working from small boats, from barges or floats without guardrails, or in aerial lifts or crane baskets over water.
S325	Working from heights >5 without engineering control-fall protection or properly utilizing personal fall arrest system (PFAS).
S326	Unauthorized construction, modification or disassembly of scaffolding or fall protection systems by a non-scaffold competent person.
S327	Improperly ascending or descending scaffolding system levels such as climbing uprights, climbing over guardrails, etc. instead of using accesses.
S329	Failure to use proper warning horns, whistles, or other devices as required when passing a load overhead.
S330	Failure to move from travel path of load or any overhead hazard when properly warned.
S331	Failure to clear tracks or travel path of load prior to traveling.
S332	Operating license-required equipment without having been issued a valid license.
S333	Working from crane basket or aerial lift without properly utilizing PFAS.
S337	Failure to ensure load is properly secured prior to hoisting operations.
S338	Failure to use proper rigging techniques or damaged, noncompliant, wrong size, or wrong capacity rigging gear during hoisting operations.
S340	Tampering with, damaging or misusing fire fighting or emergency response equipment.
S343	Failure to comply with "Posted," “Restricted Area", "Do Not Enter" signs or any other safety-critical signs, barricades, or warnings.
S346	Unauthorized moving, altering or tampering with ventilation.
S399	Failure to maintain safe work practices/conditions or comply with environmental, health, and safety procedures. (Serious)
S200 Series	
S201	Throwing objects off vessels, modules, etc. without properly securing or barricading a drop zone.
S202	Unauthorized access, work, repair, etc. on electrical wiring or equipment.
S203	Failure to disconnect inert gas lines from manifold at shift change on vessels, modules, units, etc.
S204	Tampering with, defacing or removing any precautionary warning sign or label.
S205	Failure to remain within crane lifting capacities and/or creating overload conditions.
S299	Failure to maintain safe work practices/conditions or comply with environmental, health, and safety procedures. (Willful/Repeat)
S100 Series	
S101	Failure to disconnect inert gas lines from manifold and pull them from a confined area at shift change on vessels, modules, units, etc.
S102	Failure to disconnect O^2/fuel gas lines from manifold and pull them from a confined area at shift change on vessels, modules, units, etc.
S103	An operator allowing riding the hook/load or an employee riding the hook/load.
S104	Smoking or conducting hot work in an area with "NO HOTWORK" signs posted.
S105	Supervision observed allowing employee(s) to be in an imminent danger situation without taking on-site corrective actions.
S106	Tampering with electrical lockout/tags plus systems or switchboards.
S108	Running in shipyard and fails to show badge or stops and then continues to run, etc.
S199	Failure to maintain safe work practices/conditions or comply with environmental, health, and safety procedures. (Imminent Danger)

Craft-Specific, Take Five Prejob Inspection Checklists

(SSF K9600) Coating Department

(SSF K9601) Electrical Department

(SSF K9602) Hull Department

(SSF K9603) Insulator-Joiner Department

(SSF K9604) Machinery Department

(SSF K9605) Manufacturing Services/Scaffolding Department

(SSF K9606) Pipe Department

(SSF K9607) Sheetmetal Department

(SSF K9608) Transportation and Rigging Department

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FOR EVERYONE

Ingalls Shipbuilding

COATINGS DEPARTMENT
"TAKE FIVE" SUPERVISOR'S PREJOB INSPECTION CHECKLIST

STOP
STOP
is *Good* progress!

Date		Specific Work Locations	1)	2)	3)	4)	5)
Supervisor's Name/Badge #							

PPE, Work Attire and Job Readiness

Safety Glasses, Hard Hats, and Safety-Toed Footwear	Worn by all employees everywhere within the Yard, from Gate entry to Gate exit. **Exceptions:** Within landside offices, inside a vehicle's closed cab, and in designated eating areas.
Hearing Protection	Worn by all employees everywhere within the Yard, from Gate entry to Gate exit. **Exceptions:** Within landside offices, inside a vehicle's closed cab, designated eating areas, main roadways, and crane tracks.
Eye and Face Protection	**Safety Glasses and Face Shield:** Foundry/furnace work, operating drill presses, machines generating flying chips, and blowing down with compressed air. **Goggles and Face Shield:** Grinding, scaling, forging, machining rough/brittle material, chipping, rusting, handling chemicals/abrasives and pressure washing. **Burning Goggles:** Cutting, burning, washing, with oxy/fuel gas torches.
Respiratory Protection Must be clean-shaven to wear respirator.	**APR Half Mask with HEPA Filter Cartridge:** welding or gouging (in most locations/conditions), grinding or burning on coated surfaces, stainless, aluminum, galvanize, and "exotics". **APR Half Mask with Organic Vapor Cartridge:** working with paints, solvents, or materials that could expose worker to high levels of organic vapors.
Hand Protection **DO NOT** wear gloves—drill presses & other similar rotating equipment.	**Work Gloves:** Handling rough, splintery, sharp-edged material, or grinding and power tooling. **Gauntlet-Length, All Leather/NOMEX® Welding Gloves:** Welding, cutting, burning, washing, gouging and similar hot work. **Impermeable Gloves:** Handling paints, solvents, caustics, acids, cutting fluids, or other hazardous material. (Consult the material's Safety Data Sheet.)
PFAS	**Full-Body Harness, Self-Retracting Lanyard, and a 5000# Anchor Point:** Utilized when worker is exposed to a fall >5' and the work platform or area is not fully decked or the fall exposures are not fully encompassed by structure or with standard top and mid guardrails. **Note:** Center the "D" ring between the shoulder blades and adjust the legs straps, tight enough, so two fingers can snuggly slide between your thigh and straps. **Personal Flotation Device/Work Vest:** Worn anytime a worker is exposed to a fall into the water.
Work Attire	**General Working Apparel Waist Down:** Ankle-length trousers, pants, slacks, jeans or coveralls. **General Working Apparel Waist Up:** Short or long-sleeve shirts or coveralls appropriate for the seasonal temperatures of the work area. **Additional Requirements:** All-natural fiber material long sleeves or specialty material such as NOMEX® for hot work. No loose clothing, scarves, hair, or anything that could become entangled in machinery. No loose, looped or dangling earrings, rings, bracelets or similar jewelry in production areas.
Special Purpose PPE	Spray painters must use supplied-air paint hoods. Blasters must use supplied air blast hoods. The filters and breathing air hoses must be well maintained and inspected prior to use.

Crew Lead & Re-Rate Take Five Training	Work Area Visual Inspection	At Risk Behaviors
Supervisors must train leadermen and re-rates in Take Five procedures. Coordinate inspections when utilizing re-rates to assist. Ensure they document hazards and abatements, get crew concurrence signatures and attach their checklist with supervisor's when filing. **Name/Badge of Re-rate assisting with Take Five:**	The hazards listed on the back are not the only hazards possible. Look for all types of hazards. On the Hazard Checklist on the other side, write **ALL** hazards identified and how they were abated prior to beginning job.	While conducting work area inspections, document any at-risk behaviors observed, the violator's name/badge # and the resolution that was conducted (citation, coached/counseled, retrained, etc.). Write in the space below.

Coatings Department Front Page of Take Five Inspection Checklist

Ingalls Shipbuilding

HAZARD CHECKLIST		Note the location and how findings were abated.
Walk/Work Surfaces	Work area's walk/work surfaces are free and clear of slip/trip hazards, open holes and improperly routed lines. Lines do not sag down into walkways. Passageways, egress routes and exits are not blocked. Material is properly stored so as not to become a trip hazard.	
House/Ship Keeping	Ensure work area is free and clear of trash, debris, and scrap materials. Trash bins are not full or overflowing. There is a 36" clear access to and around fire protection equipment, electrical panels and disconnects, valves, and communication equipment.	
Fall Protection	Ensure any employee working above 5-feet has adequate ladder, scaffolding, or utilizes a Personal Fall Arrest System (PFAS). Ensure lifelines are properly anchored and have 3 cable clamps on terminal ends. Ensure all PFAS anchor points are capable of holding 5000# per person. Ensure all scaffolding is complete, inspected and properly tagged.	
Electrical Safety	Ensure power and welding cables do not have damaged insulation. No exposed light sockets or broken bulbs. Exposures to energized equipment are all guarded.	
Illumination	Ensure workers have adequate lighting to safely perform tasks and where required, have emergency lighting (flashlights).	
Ventilation	Ensure there is adequate ventilation for confined space, hot work, and paint operations.	
Machine Guarding	Ensure that all power tools and machinery are equipped with proper guards. Ensure bench grinders are adjusted to 1/8" or less for the tool rest and ¼" or less for the tongue guard. Ensure trigger safeties are functional on all tools designed with them.	
LO/TP	Ensure that all employees who must participate in an LO/TP application are properly trained and documented. Ensure that if an employee could be exposed to the start up or re-energization of hazardous energy, that the equipment or system is isolated in accordance with all LO/TP requirements.	
Fire Prevention	Ensure certified fire watch is assigned where required; wearing a fire watch vest. Ensure firefighting equipment is available prior to starting hot work. Ensure all flammables and combustibles are secured and area is posted for hot work.	
Machine Operators	Confirm operators have current license on their person, conduct a pre-use inspection and document the inspection on the Operator's Daily Check List (ODCL). Ensure operators have access to blank ODCLs.	
Other Hazards	Ensure that paint pumps are properly grounded to earth ground. Ensure that the paint supply bucket is properly grounded and bonded to the paint pump.	
Other Hazards	Ensure that nonexplosion-proof lighting and equipment is removed is removed or secured prior to beginning spraying operations. Ensure eyewash station is readily available when mixing, transferring or working with paints and solvents.	
Inspection Signatures	Supervisors must conduct a visual inspection of each crewmember's work area. Crewmembers must conduct a visual inspection, themselves, prior to beginning job. When all observed hazards are controlled and all safety elements are in place, the crewmembers sign their name and prints their badge number indicating they concur that the work area is hazard-free and ready to begin work. When all crewmembers' work areas have been inspected and they have signed concurrence, the supervisor signs below indicating that the Take Five has been completed.	

Signatures	Badge no.	Signatures	Badge no.
1.)		12.)	
2.)		13.)	
3.)		14.)	
4.)		15.)	
5.)		16.)	
6.)		17.)	
7.)		18.)	
8.)		19.)	
9.)		20.)	
10.)		21.)	
11.)		22.)	

Supervisor and/or Re-rate Signature	
1.)	If there are ever questions regarding proper Take Five process performance or questions regarding any hazards, hazard controls, ARBs or corrective actions, contact the EHS staff member in your area or the EHS Department (ext. 2100).
2.)	

Coatings Department Back Page of Take Five Inspection Checklist

Ingalls Shipbuilding

ELECTRICAL DEPARTMENT

"TAKE FIVE" SUPERVISOR'S PREJOB INSPECTION CHECKLIST

STOP
STOP
is *Good* progress!

Date		Specific Work Locations	1)	2)	3)	4)	5)
Supervisor's Name/Badge #							

PPE, Work Attire and Job Readiness

Safety Glasses, Hard Hats, and Safety-Toed Footwear	Worn by all employees everywhere within the Yard, from Gate entry to Gate exit. **Exceptions:** Within landside offices, inside a vehicle's closed cab, and in designated eating areas.
Hearing Protection	Worn by all employees everywhere within the Yard, from Gate entry to Gate exit. **Exceptions:** Within landside offices, inside a vehicle's closed cab, designated eating areas, main roadways, and crane tracks.
Eye and Face Protection	**Safety Glasses and Face Shield:** Foundry/furnace work, operating drill presses, machines generating flying chips, and blowing down with compressed air. **Goggles and Face Shield:** Grinding, scaling, forging, machining rough/brittle material, chipping, rusting, handling chemicals/abrasives and pressure washing. **Burning Goggles:** Cutting, burning, washing, with oxy/fuel gas torches. **Safety Glasses and Welding Shield:** Welding or Tacking. (If welder has a flip up dark lens, an ANSI Z87 clear lens must be behind it to grind, chip or scale.)
Respiratory Protection Must be clean-shaven to wear respirator.	**APR Half Mask with HEPA Filter Cartridge:** welding or gouging (in most locations/conditions), grinding or burning on coated surfaces, stainless, aluminum, galvanize, and "exotics". **APR Half Mask with Organic Vapor Cartridge:** working with paints, solvents, or materials that could expose worker to high levels of organic vapors.
Hand Protection DO NOT wear gloves—drill presses & other similar rotating equipment.	**Work Gloves:** Handling rough, splintery, sharp-edged material, or grinding and power tooling. **Gauntlet-Length, All Leather/NOMEX® Welding Gloves:** Welding, cutting, burning, washing, gouging and similar hot work. **Impermeable Gloves:** Handling paints, solvents, caustics, acids, cutting fluids, or other hazardous material. (Consult the material's Safety Data Sheet.)
PFAS	**Full-Body Harness, Self-Retracting Lanyard, and a 5000# Anchor Point:** Utilized when worker is exposed to a fall >5' and the work platform or area is not fully decked or the fall exposures are not fully encompassed by structure or with standard top and mid guardrails. **Note:** Center the "D" ring between the shoulder blades and adjust the legs straps, tight enough, so two fingers can snuggly slide between your thigh and straps. **Personal Flotation Device/Work Vest:** Worn anytime a worker is exposed to a fall into the water.
Work Attire	**General Working Apparel Waist Down:** Ankle-length trousers, pants, slacks, jeans or coveralls. **General Working Apparel Waist Up:** Short or long-sleeve shirts or coveralls appropriate for the seasonal temperatures of the work area. **Additional Requirements:** All-natural fiber material long sleeves or specialty material such as NOMEX® for hot work. No loose clothing, scarves, hair, or anything that could become entangled in machinery. No loose, looped or dangling earrings, rings, bracelets or similar jewelry in production areas.
Special Purpose PPE	

Crew Lead & Re-Rate Take Five Training	Work Area Visual Inspection	At Risk Behaviors
Supervisors must train leadermen and re-rates in Take Five procedures. Coordinate inspections when utilizing re-rates to assist. Ensure they document hazards and abatements, get crew concurrence signatures and attach their checklist with supervisor's when filing. **Name/Badge of Re-rate assisting with Take Five:**	The hazards listed on the back are not the only hazards possible. Look for all types of hazards. On the Hazard Checklist on the other side, write **ALL** hazards identified and how they were abated prior to beginning job.	While conducting work area inspections, document any at-risk behaviors observed, the violator's name/badge # and the resolution that was conducted (citation, coached/counseled, retrained, etc.). Write in the space below.

Electrical Department Front Page of Take Five Inspection Checklist

Ingalls Shipbuilding

HAZARD CHECKLIST		Note the location and how findings were abated.
Walk/Work Surfaces	Work area's walk/work surfaces are free and clear of slip/trip hazards, open holes and improperly routed lines. Lines do not sag down into walkways. Passageways, egress routes and exits are not blocked. Work in a walkway shall be cordoned off with caution tape. Tools and material shall not be stored in designated walkways.	
House/Ship Keeping	Ensure work area is free and clear of trash, debris, and scrap materials. Trash bins are not full or overflowing. There is a 36" clear access to and around fire protection equipment, electrical panels and disconnects, valves, and communication equipment.	
Fall Protection	Ensure ladders and scaffolds are in good condition appropriate for use and tagged accordingly. Where PFAS is required, appropriate anchorage and attachment devices capable of supporting 5,000 pounds shall be used. Employees using PFAS shall be properly trained on how to use them. All elements of PFAS shall be inspected prior to each use. PFAS subjected to impact loading shall be removed from service.	
Electrical Safety	Ensure power and welding cables do not have damaged insulation. No exposed light sockets or broken bulbs. Exposures to energized equipment are all guarded.	
Illumination	Ensure workers have adequate lighting to safely perform tasks where required. All light stringers shall have GFCI protection. When working below deck, all employees shall have flashlights in good working condition.	
Ventilation	Ensure there is adequate ventilation for confined space, hot work, and paint operations.	
Machine Guarding	Ensure all power tools and machinery are equipped with guards that are properly installed. Supervision shall be contacted prior to temporary removal of a guard (buckeye, etc) in order to perform a specific task. Make sure the proper tool for the job is being utilized. Ensure trigger safeties are functional on all powered hand tools that are designed with them.	
LO/TP	Ensure that all employees who must participate in an LO/TP application are properly trained and documented. Ensure that if an employee could be exposed to the start up or re-energization of hazardous energy, that the equipment or system is isolated in accordance with all LO/TP requirements.	
Fire Prevention	Ensure certified fire watch is assigned where required; wearing a fire watch vest. Ensure firefighting equipment is available prior to starting hot work. Ensure all flammables and combustibles are secured and area is posted for hot work. Ensure compliance with the Hot Work Chit process.	
Machine Operators	Confirm operators have current license on their person, conduct a pre-use inspection and document the inspection on the Operator's Daily Check List (ODCL). Ensure operators have access to blank ODCLs.	
Other Hazards	Ensure that paint pumps are properly grounded to earth ground. Ensure that the paint supply bucket is properly grounded and bonded to the paint pump.	
Inspection Signatures	Supervisors must conduct a visual inspection of each crewmember's work area. Crewmembers must conduct a visual inspection, themselves, prior to beginning job. When all observed hazards are controlled and all safety elements are in place, the crewmembers sign their name and prints their badge number indicating they concur that the work area is hazard-free and ready to begin work. When all crewmembers' work areas have been inspected and they have signed concurrence, the supervisor signs below indicating that the Take Five has been completed.	

Signatures	Badge no.	Signatures	Badge no.
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10.)		21.)	
11.)		22.)	

Supervisor and/or Re-rate Signature	
1.)	If there are ever questions regarding proper Take Five process performance or questions regarding any hazards, hazard controls, ARBs or corrective actions, contact the EHS staff member in your area or the EHS Department (ext. 2100).
2.)	

Electrical Department Back Page of Take Five Inspection Checklist

Ingalls Shipbuilding

HULL DEPARTMENT
"TAKE FIVE" SUPERVISOR'S PREJOB INSPECTION CHECKLIST

STOP
STOP
is *Good* progress!

Date		Specific Work Locations	1)	2)	3)	4)	5)
Supervisor's Name/Badge #							

PPE, Work Attire and Job Readiness

Safety Glasses, Hard Hats, and Safety-Toed Footwear	Worn by all employees everywhere within the Yard, from Gate entry to Gate exit. **Exceptions:** Within landside offices, inside a vehicle's closed cab, and in designated eating areas.
Hearing Protection	Worn by all employees everywhere within the Yard, from Gate entry to Gate exit. **Exceptions:** Within landside offices, inside a vehicle's closed cab, designated eating areas, main roadways, and crane tracks.
Eye and Face Protection	**Safety Glasses and Face Shield:** Foundry/furnace work, operating drill presses, machines generating flying chips, and blowing down with compressed air. **Goggles and Face Shield:** Grinding, scaling, forging, machining rough/brittle material, chipping, rusting, handling chemicals/abrasives and pressure washing. **Burning Goggles:** Cutting, burning, washing, with oxy/fuel gas torches. **Safety Glasses and Welding Shield:** Welding or Tacking. (If welder has a flip up dark lens, an ANSI Z87 clear lens must be behind it to grind, chip or scale.)
Respiratory Protection Must be clean-shaven to wear respirator.	**APR Half Mask with HEPA Filter Cartridge:** welding or gouging (in most locations/conditions), grinding or burning on coated surfaces, stainless, aluminum, galvanize, and "exotics". **APR Half Mask with Organic Vapor Cartridge:** working with paints, solvents, or materials that could expose worker to high levels of organic vapors.
Hand Protection **DO NOT** wear gloves – drill presses & other similar rotating equipment.	**Work Gloves:** Handling rough, splintery, sharp-edged material, or grinding and power tooling. **Gauntlet-Length, All Leather/NOMEX® Welding Gloves:** Welding, cutting, burning, washing, gouging and similar hot work. **Impermeable Gloves:** Handling paints, solvents, caustics, acids, cutting fluids, or other hazardous material. (Consult the material's Safety Data Sheet.)
PFAS	**Full-Body Harness, Self-Retracting Lanyard, and a 5000# Anchor Point:** Utilized when worker is exposed to a fall >5' and the work platform or area is not fully decked or the fall exposures are not fully encompassed by structure or with standard top and mid guardrails. **Note:** Center the "D" ring between the shoulder blades and adjust the legs straps, tight enough, so two fingers can snuggly slide between your thigh and straps. **Personal Flotation Device/Work Vest:** Worn anytime a worker is exposed to a fall into the water.
Work Attire	**General Working Apparel Waist Down:** Ankle-length trousers, pants, slacks, jeans or coveralls. **General Working Apparel Waist Up:** Short or long-sleeve shirts or coveralls appropriate for the seasonal temperatures of the work area. **Additional Requirements:** All-natural fiber material long sleeves or specialty material such as NOMEX® for hot work. No loose clothing, scarves, hair, or anything that could become entangled in machinery. No loose, looped or dangling earrings, rings, bracelets or similar jewelry in production areas.
Special Purpose PPE	

Crew Lead & Re-Rate Take Five Training	Work Area Visual Inspection	At Risk Behaviors
Supervisors must train leadermen and re-rates in Take Five procedures. Coordinate inspections when utilizing re-rates to assist. Ensure they document hazards and abatements, get crew concurrence signatures and attach their checklist with supervisor's when filing. **Name/Badge of Re-rate assisting with Take Five:**	The hazards listed on the back are not the only hazards possible. Look for all types of hazards. On the Hazard Checklist on the other side, write **ALL** hazards identified and how they were abated prior to beginning job.	While conducting work area inspections, document any at-risk behaviors observed, the violator's name/badge # and the resolution that was conducted (citation, coached/counseled, retrained, etc.). Write in the space below.

Hull Department Front Page of Take Five Inspection Checklist

Ingalls Shipbuilding

HAZARD CHECKLIST		Note the location and how findings were abated.
Walk/Work Surfaces	Work area's walk/work surfaces are free and clear of slip/trip hazards, open holes and improperly routed lines. Lines do not sag down into walkways. Passageways, egress routes and exits are not blocked. Material is properly stored so as not to become a trip hazard.	
House/Ship Keeping	Ensure work area is free and clear of trash, debris, and scrap materials. Trash bins are not full or overflowing. There is a 36" clear access to and around fire protection equipment, electrical panels and disconnects, valves, and communication equipment.	
Fall Protection	Ensure any employee working above 5-feet has adequate ladder, scaffolding, or utilizes a Personal Fall Arrest System (PFAS). Ensure lifelines are properly anchored and have 3 cable clamps on terminal ends. Ensure all PFAS anchor points are capable of holding 5000# per person. Ensure all scaffolding is complete, inspected and properly tagged.	
Electrical Safety	Ensure power and welding cables do not have damaged insulation. No exposed light sockets or broken bulbs. Exposures to energized equipment are all guarded.	
Illumination	Ensure workers have adequate lighting to safely perform tasks and where required, have emergency lighting (flashlights).	
Ventilation	Ensure there is adequate ventilation for confined space, hot work, and paint operations.	
Machine Guarding	Ensure that all power tools and machinery are equipped with proper guards. Ensure bench grinders are adjusted to 1/8" or less for the tool rest and ¼" or less for the tongue guard. Ensure trigger safeties are functional on all tools designed with them.	
LO/TP	Ensure that all employees who must participate in an LO/TP application are properly trained and documented. Ensure that if an employee could be exposed to the start up or re-energization of hazardous energy, that the equipment or system is isolated in accordance with all LO/TP requirements.	
Fire Prevention	Ensure certified fire watch is assigned where required; wearing a fire watch vest. Ensure firefighting equipment is available prior to starting hot work. Ensure all flammables and combustibles are secured and area is posted for hot work. Comply with the Hot Work Chit process.	
Machine Operators	Confirm operators have current license on their person, conduct a pre-use inspection and document the inspection on the Operator's Daily Check List (ODCL). Ensure operators have access to blank ODCLs.	
Other Hazards	Inspect all rigging and hoisting gear prior to using and return any damaged equipment for repairs. Do not "plate edge" or tip load hooks. Ensure wedges, drift pins, etc. are free of mushroomed edges. Do not lift more than 50#s without help or hoisting equipment.	
Other Hazards	Always pull inerting gas lines out of compartment when finished. Check burning lines prior to use and ensure connections are wrench-tight. Return burning lines to manifold at the end of shift. Ensure crow's foot connections have safety pin or wire.	
Inspection Signatures	Supervisors must conduct a visual inspection of each crewmember's work area. Crewmembers must conduct a visual inspection, themselves, prior to beginning job. When all observed hazards are controlled and all safety elements are in place, the crewmembers sign their name and prints their badge number indicating they concur that the work area is hazard-free and ready to begin work. When all crewmembers' work areas have been inspected and they have signed concurrence, the supervisor signs below indicating that the Take Five has been completed.	

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10.)		21.)	
11.)		22.)	

Supervisor and/or Re-rate Signature	
1.)	If there are ever questions regarding proper Take Five process performance or questions regarding any hazards, hazard controls, ARBs or corrective actions, contact the EHS staff member in your area or the EHS Department (ext. 2100).
2.)	

Hull Department Back Page of Take Five Inspection Checklist

Ingalls Shipbuilding

INSULATOR-JOINER
"TAKE FIVE" SUPERVISOR'S PREJOB INSPECTION CHECKLIST

STOP
Is Good progress!

Date		Specific Work Locations	1)	2)	3)	4)	5)
Supervisor's Name/Badge #							

PPE, Work Attire and Job Readiness

Safety Glasses, Hard Hats, and Safety-Toed Footwear	Worn by all employees everywhere within the Yard, from Gate entry to Gate exit. **Exceptions:** Within landside offices, inside a vehicle's closed cab, and in designated eating areas.
Hearing Protection	Worn by all employees everywhere within the Yard, from Gate entry to Gate exit. **Exceptions:** Within landside offices, inside a vehicle's closed cab, designated eating areas, main roadways, and crane tracks.
Eye and Face Protection	**Safety Glasses and Face Shield:** Foundry/furnace work, operating drill presses, machines generating flying chips, and blowing down with compressed air. **Goggles and Face Shield:** Grinding, scaling, forging, machining rough/brittle material, chipping, rusting, handling chemicals/abrasives and pressure washing. **Burning Goggles:** Cutting, burning, washing, with oxy/fuel gas torches. **Safety Glasses and Welding Shield:** Welding or Tacking. (If welder has a flip up dark lens, an ANSI Z87 clear lens must be behind it to grind, chip or scale.)
Respiratory Protection Must be clean-shaven to wear respirator.	**APR Half Mask with HEPA Filter Cartridge:** welding or gouging (in most locations/conditions), grinding or burning on coated surfaces, stainless, aluminum, galvanize, and "exotics". **APR Half Mask with Organic Vapor Cartridge:** working with paints, solvents, or materials that could expose worker to high levels of organic vapors.
Hand Protection DO NOT wear gloves—drill presses & other similar rotating equipment.	**Work Gloves:** Handling rough, splintery, sharp-edged material, or grinding and power tooling. **Gauntlet-Length, All Leather/NOMEX® Welding Gloves:** Welding, cutting, burning, washing, gouging and similar hot work. **Impermeable Gloves:** Handling paints, solvents, caustics, acids, cutting fluids, or other hazardous material. (Consult the material's Safety Data Sheet.)
PFAS	**Full-Body Harness, Self-Retracting Lanyard, and a 5000# Anchor Point:** Utilized when worker is exposed to a fall >5' and the work platform or area is not fully decked or the fall exposures are not fully encompassed by structure or with standard top and mid guardrails. **Note:** Center the "D" ring between the shoulder blades and adjust the legs straps, tight enough, so two fingers can snuggly slide between your thigh and straps. **Personal Flotation Device/Work Vest:** Worn anytime a worker is exposed to a fall into the water.
Work Attire	**General Working Apparel Waist Down:** Ankle-length trousers, pants, slacks, jeans or coveralls. **General Working Apparel Waist Up:** Short or long-sleeve shirts or coveralls appropriate for the seasonal temperatures of the work area. **Additional Requirements:** All-natural fiber material long sleeves or specialty material such as NOMEX® for hot work. No loose clothing, scarves, hair, or anything that could become entangled in machinery. No loose, looped or dangling earrings, rings, bracelets or similar jewelry in production areas.
Special Purpose PPE	

Crew Lead & Re-Rate Take Five Training	Work Area Visual Inspection	At Risk Behaviors
Supervisors must train leadermen and re-rates in Take Five procedures. Coordinate inspections when utilizing re-rates to assist. Ensure they document hazards and abatements, get crew concurrence signatures and attach their checklist with supervisor's when filing. **Name/Badge of Re-rate assisting with Take Five:**	The hazards listed on the back are not the only hazards possible. Look for all types of hazards. On the Hazard Checklist on the other side, write **ALL** hazards identified and how they were abated prior to beginning job.	While conducting work area inspections, document any at-risk behaviors observed, the violator's name/badge # and the resolution that was conducted (citation, coached/counseled, retrained, etc.). Write in the space below.

Insulator-Joiner Department Front Page of Take Five Inspection Checklist

HAZARD CHECKLIST		Note the location and how findings were abated.
Walk/Work Surfaces	Work area's walk/work surfaces are free and clear of slip/trip hazards, open holes and improperly routed lines. Lines do not sag down into walkways. Passageways, egress routes and exits are not blocked. Material is properly stored so as not to become a trip hazard.	
House/Ship Keeping	Ensure work area is free and clear of trash, debris, and scrap materials. Trash bins are not full or overflowing. There is a 36" clear access to and around fire protection equipment, electrical panels and disconnects, valves, and communication equipment.	
Fall Protection	Ensure any employee working above 5-feet has adequate ladder, scaffolding, or utilizes a Personal Fall Arrest System (PFAS). Ensure lifelines are properly anchored and have 3 cable clamps on terminal ends. Ensure all PFAS anchor points are capable of holding 5000# per person. Ensure all scaffolding is complete, inspected and properly tagged.	
Electrical Safety	Ensure power and welding cables do not have damaged insulation. No exposed light sockets or broken bulbs. Exposures to energized equipment are all guarded.	
Illumination	Ensure workers have adequate lighting to safely perform tasks and where required, have emergency lighting (flashlights).	
Ventilation	Ensure there is adequate ventilation for confined space, hot work, and paint operations.	
Machine Guarding	Ensure that all power tools and machinery are equipped with proper guards. Ensure bench grinders are adjusted to 1/8" or less for the tool rest and ¼" or less for the tongue guard. Ensure trigger safeties are functional on all tools designed with them.	
LO/TP	Ensure that all employees who must participate in an LO/TP application are properly trained and documented. Ensure that if an employee could be exposed to the start up or re-energization of hazardous energy, that the equipment or system is isolated in accordance with all LO/TP requirements.	
Fire Prevention	Ensure certified fire watch is assigned where required; wearing a fire watch vest. Ensure firefighting equipment is available prior to starting hot work. Ensure all flammables and combustibles are secured and area is posted for hot work.	
Machine Operators	Confirm operators have current license on their person, conduct a pre-use inspection and document the inspection on the Operator's Daily Check List (ODCL). Ensure operators have access to blank ODCLs.	
Other Hazards	Keep knives covered and stored in a safe place away from activity. Never store an uncovered knife or utility blade inside a tool bag. Always wear gloves when using a knife or utility blade. Always cut away from body. Hand knives to others by the handle; never blade-first.	
Other Hazards	Always log the glue in with Ship's Management before taking aboard a ship. Always keep glue away from heat sources, (sparks, open flames, etc.) Always maintain control of the glue container and never leave unattended. Follow all container label precautions.	
Inspection Signatures	Supervisors must conduct a visual inspection of each crewmember's work area. Crewmembers must conduct a visual inspection, themselves, prior to beginning job. When all observed hazards are controlled and all safety elements are in place, the crewmembers sign their name and prints their badge number indicating they concur that the work area is hazard-free and ready to begin work. When all crewmembers' work areas have been inspected and they have signed concurrence, the supervisor signs below indicating that the Take Five has been completed.	

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11.)		22.)	
Supervisor and/or Re-rate Signature		If there are ever questions regarding proper Take Five process performance or questions regarding any hazards, hazard controls, ARBs or corrective actions, contact the EHS staff member in your area or the EHS Department (ext. 2100).	
1.)			
2.)			

Insulator-Joiner Department Back Page of Take Five Inspection Checklist

Ingalls Shipbuilding

MACHINERY DEPARTMENT

"TAKE FIVE" SUPERVISOR'S PREJOB INSPECTION CHECKLIST

STOP

STOP

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Date		Specific Work Locations	1)	2)	3)	4)	5)
Supervisor's Name/Badge #							

PPE, Work Attire and Job Readiness

Safety Glasses, Hard Hats, and Safety-Toed Footwear	Worn by all employees everywhere within the Yard, from Gate entry to Gate exit. **Exceptions:** Within landside offices, inside a vehicle's closed cab, and in designated eating areas.
Hearing Protection	Worn by all employees everywhere within the Yard, from Gate entry to Gate exit. **Exceptions:** Within landside offices, inside a vehicle's closed cab, designated eating areas, main roadways, and crane tracks.
Eye and Face Protection	**Safety Glasses and Face Shield:** Foundry/furnace work, operating drill presses, machines generating flying chips, and blowing down with compressed air. **Goggles and Face Shield:** Grinding, scaling, forging, machining rough/brittle material, chipping, rusting, handling chemicals/abrasives and pressure washing. **Burning Goggles:** Cutting, burning, washing, with oxy/fuel gas torches. **Safety Glasses and Welding Shield:** Welding or Tacking. (If welder has a flip up dark lens, an ANSI Z87 clear lens must be behind it to grind, chip or scale.)
Respiratory Protection Must be clean- shaven to wear respirator.	**APR Half Mask with HEPA Filter Cartridge:** welding or gouging (in most locations/conditions), grinding or burning on coated surfaces, stainless, aluminum, galvanize, and "exotics". **APR Half Mask with Organic Vapor Cartridge:** working with paints, solvents, or materials that could expose worker to high levels of organic vapors.
Hand Protection DO NOT wear gloves – drill presses & other similar rotating equipment.	**Work Gloves:** Handling rough, splintery, sharp-edged material, or grinding and power tooling. **Gauntlet-Length, All Leather/NOMEX® Welding Gloves:** Welding, cutting, burning, washing, gouging and similar hot work. **Impermeable Gloves:** Handling paints, solvents, caustics, acids, cutting fluids, or other hazardous material. (Consult the material's Safety Data Sheet.)
PFAS	**Full-Body Harness, Self-Retracting Lanyard, and a 5000# Anchor Point:** Utilized when worker is exposed to a fall >5' and the work platform or area is not fully decked or the fall exposures are not fully encompassed by structure or with standard top and mid guardrails. **Note:** Center the "D" ring between the shoulder blades and adjust the legs straps, tight enough, so two fingers can snuggly slide between your thigh and straps. **Personal Flotation Device/Work Vest:** Worn anytime a worker is exposed to a fall into the water.
Work Attire	**General Working Apparel Waist Down:** Ankle-length trousers, pants, slacks, jeans or coveralls. **General Working Apparel Waist Up:** Short or long-sleeve shirts or coveralls appropriate for the seasonal temperatures of the work area. **Additional Requirements:** All-natural fiber material long sleeves or specialty material such as NOMEX® for hot work. No loose clothing, scarves, hair, or anything that could become entangled in machinery. No loose, looped or dangling earrings, rings, bracelets or similar jewelry in production areas.
Special Purpose PPE	

Crew Lead & Re-Rate Take Five Training	Work Area Visual Inspection	At Risk Behaviors
Supervisors must train leadermen and re-rates in Take Five procedures. Coordinate inspections when utilizing re-rates to assist. Ensure they document hazards and abatements, get crew concurrence signatures and attach their checklist with supervisor's when filing. **Name/Badge of Re-rate assisting with Take Five:**	The hazards listed on the back are not the only hazards possible. Look for all types of hazards. On the Hazard Checklist on the other side, write **ALL** hazards identified and how they were abated prior to beginning job.	While conducting work area inspections, document any at-risk behaviors observed, the violator's name/badge # and the resolution that was conducted (citation, coached/counseled, retrained, etc.). Write in the space below.

Machinery Department Front Page of Take Five Inspection Checklist

Ingalls Shipbuilding

HAZARD CHECKLIST		Note the location and how findings were abated.
Walk/Work Surfaces	Work area's walk/work surfaces are free and clear of slip/trip hazards, open holes and improperly routed lines. Lines do not sag down into walkways. Passageways, egress routes and exits are not blocked. Material is properly stored so as not to become a trip hazard.	
House/Ship Keeping	Ensure work area is free and clear of trash, debris, and scrap materials. Trash bins are not full or overflowing. There is a 36" clear access to and around fire protection equipment, electrical panels and disconnects, valves, and communication equipment.	
Fall Protection	Ensure any employee working above 5-feet has adequate ladder, scaffolding, or utilizes a Personal Fall Arrest System (PFAS). Ensure lifelines are properly anchored and have 3 cable clamps on terminal ends. Ensure all PFAS anchor points are capable of holding 5000# per person. Ensure all scaffolding is complete, inspected and properly tagged.	
Electrical Safety	Ensure power and welding cables do not have damaged insulation. No exposed light sockets or broken bulbs. Exposures to energized equipment are all guarded.	
Illumination	Ensure workers have adequate lighting to safely perform tasks and where required, have emergency lighting (flashlights).	
Ventilation	Ensure there is adequate ventilation for confined space, hot work, and paint operations.	
Machine Guarding	Ensure that all power tools and machinery are equipped with proper guards. Ensure bench grinders are adjusted to 1/8" or less for the tool rest and ¼" or less for the tongue guard. Ensure trigger safeties are functional on all tools designed with them.	
LO/TP	Ensure that all employees who must participate in an LO/TP application are properly trained and documented. Ensure that if an employee could be exposed to the start up or re-energization of hazardous energy, that the equipment or system is isolated in accordance with all LO/TP requirements.	
Fire Prevention	Ensure certified fire watch is assigned where required; wearing a fire watch vest. Ensure firefighting equipment is available prior to starting hot work. Ensure all flammables and combustibles are secured and area is posted for hot work.	
Machine Operators	Confirm operators have current license on their person, conduct a pre-use inspection and document the inspection on the Operator's Daily Check List (ODCL). Ensure operators have access to blank ODCLs.	
Other Hazards		
Other Hazards		
Inspection Signatures	Supervisors must conduct a visual inspection of each crewmember's work area. Crewmembers must conduct a visual inspection, themselves, prior to beginning job. When all observed hazards are controlled and all safety elements are in place, the crewmembers sign their name and prints their badge number indicating they concur that the work area is hazard-free and ready to begin work. When all crewmembers' work areas have been inspected and they have signed concurrence, the supervisor signs below indicating that the Take Five has been completed.	

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Supervisor and/or Re-rate Signature	
1.)	If there are ever questions regarding proper Take Five process performance or questions regarding any hazards, hazard controls, ARBs or corrective actions, contact the EHS staff member in your area or the EHS Department (ext. 2100).
2.)	

Machinery Department Back Page of Take Five Inspection Checklist

Ingalls Shipbuilding

MANUFACTURING SERVICES

SCAFFOLDING & TEMPORARY FAN

"TAKE FIVE" SUPERVISOR'S
PREJOB INSPECTION CHECKLIST

STOP
STOP
is *Good* progress!

Date		Specific Work Locations	1)	2)	3)	4)	5)
Supervisor's Name/Badge #							

PPE, Work Attire and Job Readiness

Safety Glasses, Hard Hats, and Safety-Toed Footwear	Worn by all employees everywhere within the Yard, from Gate entry to Gate exit. **Exceptions:** Within landside offices, inside a vehicle's closed cab, and in designated eating areas.
Hearing Protection	Worn by all employees everywhere within the Yard, from Gate entry to Gate exit. **Exceptions:** Within landside offices, inside a vehicle's closed cab, designated eating areas, main roadways, and crane tracks.
Eye and Face Protection	**Safety Glasses and Face Shield:** Foundry/furnace work, operating drill presses, machines generating flying chips, and blowing down with compressed air. **Goggles and Face Shield:** Grinding, scaling, forging, machining rough/brittle material, chipping, rusting, handling chemicals/abrasives and pressure washing. **Burning Goggles:** Cutting, burning, washing, with oxy/fuel gas torches. **Safety Glasses and Welding Shield:** Welding or Tacking. (If welder has a flip up dark lens, an ANSI Z87 clear lens must be behind it to grind, chip or scale.)
Respiratory Protection Must be clean-shaven to wear respirator.	**APR Half Mask with HEPA Filter Cartridge:** welding or gouging (in most locations/conditions), grinding or burning on coated surfaces, stainless, aluminum, galvanize, and "exotics". **APR Half Mask with Organic Vapor Cartridge:** working with paints, solvents, or materials that could expose worker to high levels of organic vapors.
Hand Protection **DO NOT** wear gloves – drill presses & other similar rotating equipment.	**Work Gloves:** Handling rough, splintery, sharp-edged material, or grinding and power tooling. **Gauntlet-Length, All Leather/NOMEX® Welding Gloves:** Welding, cutting, burning, washing, gouging and similar hot work. **Impermeable Gloves:** Handling paints, solvents, caustics, acids, cutting fluids, or other hazardous material. (Consult the material's Safety Data Sheet.)
PFAS	**Full-Body Harness, Self-Retracting Lanyard, and a 5000# Anchor Point:** Utilized when worker is exposed to a fall >5' and the work platform or area is not fully decked or the fall exposures are not fully encompassed by structure or with standard top and mid guardrails. **Note:** Center the "D" ring between the shoulder blades and adjust the legs straps, tight enough, so two fingers can snuggly slide between your thigh and straps. **Personal Flotation Device/Work Vest:** Worn anytime a worker is exposed to a fall into the water.
Work Attire	**General Working Apparel Waist Down:** Ankle-length trousers, pants, slacks, jeans or coveralls. **General Working Apparel Waist Up:** Short or long-sleeve shirts or coveralls appropriate for the seasonal temperatures of the work area. **Additional Requirements:** All-natural fiber material long sleeves or specialty material such as NOMEX® for hot work. No loose clothing, scarves, hair, or anything that could become entangled in machinery. No loose, looped or dangling earrings, rings, bracelets or similar jewelry in production areas.
Special Purpose PPE	NOTE: The Scaffolding Carpenters have a unique PFAS. They have been authorized by the EHS Dept. to use a specific harness and lanyard with "pelican" hooks or approved "wrap & tie" lanyards. All other employees must use Tool Room-issued PFAS unless specifically approved and authorized by the EHS Dept.

Crew Lead & Re-Rate Take Five Training	Work Area Visual Inspection	At Risk Behaviors
Supervisors must train leadermen and re-rates in Take Five procedures. Coordinate inspections when utilizing re-rates to assist. Ensure they document hazards and abatements, get crew concurrence signatures and attach their checklist with supervisor's when filing. **Name/Badge of Re-rate assisting with Take Five:**	The hazards listed on the back are not the only hazards possible. Look for all types of hazards. On the Hazard Checklist on the other side, write **ALL** hazards identified and how they were abated prior to beginning job.	While conducting work area inspections, document any at-risk behaviors observed, the violator's name/badge # and the resolution that was conducted (citation, coached/counseled, retrained, etc.). Write in the space below.

Manufacturing Services Front Page of Take Five Inspection Checklist

Ingalls Shipbuilding

HAZARD CHECKLIST		Note the location and how findings were abated.
Walk/Work Surfaces	Work area's walk/work surfaces are free and clear of slip/trip hazards, open holes and improperly routed lines. Lines do not sag down into walkways. Passageways, egress routes and exits are not blocked. Material is properly stored so as not to become a trip hazard.	
House/Ship Keeping	Ensure work area is free and clear of trash, debris, and scrap materials. Trash bins are not full or overflowing. There is a 36" clear access to and around fire protection equipment, electrical panels and disconnects, valves, and communication equipment. Remove unused scaffold material after job completion.	
Fall Protection	Ensure any employee working above 5-feet has adequate ladder, scaffolding, or utilizes a Personal Fall Arrest System (PFAS). Ensure lifelines are properly anchored and have 3 cable clamps on terminal ends. Ensure all PFAS anchor points are capable of holding 5000# per person. Ensure all scaffolding is complete, inspected and properly tagged. Ensure PFAS is used in aerial lifts.	
Electrical Safety	Ensure power and welding cables do not have damaged insulation. No exposed light sockets or broken bulbs. Exposures to energized equipment are all guarded. Remove damaged fans/blowers from service.	
Illumination	Ensure workers have adequate lighting to safely perform tasks and where required, have emergency lighting (flashlights).	
Ventilation	Ensure there is adequate ventilation for confined space, hot work, and paint operations. Ensure (yellow tubing) is used for inert gas purging.	
Machine Guarding	Ensure that all power tools and machinery are equipped with proper guards. Ensure bench grinders are adjusted to 1/8" or less for the tool rest and ¼" or less for the tongue guard. Ensure trigger safeties are functional on all tools designed with them.	
Scaffolding	Close off areas with barricade tape where scaffolds are being erected or taken down. Ensure toe-boards are installed when required. Fully inspect complete scaffold system before tagging it as ready for use. Ensure minimum of two cable clamps on wire rope guardrails and three clamps on lifelines.	
Fire Prevention	Ensure certified fire watch is assigned where required; wearing a fire watch vest. Ensure firefighting equipment is available prior to starting hot work. Ensure all flammables and combustibles are secured and area is posted for hot work.	
Machine Operators	Confirm operators have current license on their person, conduct a pre-use inspection and document the inspection on the Operator's Daily Check List (ODCL). Ensure operators have access to blank ODCLs.	
System-Scaffolding	Ensure that all system-scaffolding requirements are complete and inspected: horizontal & diagonal bracing, ledgers, pans, ladders, tiebacks, and ensure section columns are pinned together.	
Welding	Ensure all slag is removed from welds and welds are inspected for tie-in, penetration and proper length/amount of bead.	
Inspection Signatures	Supervisors must conduct a visual inspection of each crewmember's work area. Crewmembers must conduct a visual inspection, themselves, prior to beginning job. When all observed hazards are controlled and all safety elements are in place, the crewmembers sign their name and prints their badge number indicating they concur that the work area is hazard-free and ready to begin work. When all crewmembers' work areas have been inspected and they have signed concurrence, the supervisor signs below indicating that the Take Five has been completed.	

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Supervisor and/or Re-rate Signature	
1.)	If there are ever questions regarding proper Take Five process performance or questions regarding any hazards, hazard controls, ARBs or corrective actions, contact the EHS staff member in your area or the EHS Department (ext. 2100).
2.)	

Manufacturing Services Back Page of Take Five Inspection Checklist

Ingalls Shipbuilding

PIPE DEPARTMENT

"TAKE FIVE" SUPERVISOR'S PREJOB INSPECTION CHECKLIST

STOP
STOP
is Good progress!

Date		Specific Work Locations	1)	2)	3)	4)	5)
Supervisor's Name/Badge #							

PPE, Work Attire and Job Readiness

Safety Glasses, Hard Hats, and Safety-Toed Footwear	Worn by all employees everywhere within the Yard, from Gate entry to Gate exit. **Exceptions:** Within landside offices, inside a vehicle's closed cab, and in designated eating areas.
Hearing Protection	Worn by all employees everywhere within the Yard, from Gate entry to Gate exit. **Exceptions:** Within landside offices, inside a vehicle's closed cab, designated eating areas, main roadways, and crane tracks.
Eye and Face Protection	**Safety Glasses and Face Shield:** Foundry/furnace work, operating drill presses, machines generating flying chips, and blowing down with compressed air. **Goggles and Face Shield:** Grinding, scaling, forging, machining rough/brittle material, chipping, rusting, handling chemicals/abrasives and pressure washing. **Burning Goggles:** Cutting, burning, washing, with oxy/fuel gas torches. **Safety Glasses and Welding Shield:** Welding or Tacking. (If welder has a flip up dark lens, an ANSI Z87 clear lens must be behind it to grind, chip or scale.)
Respiratory Protection Must be clean- shaven to wear respirator.	**APR Half Mask with HEPA Filter Cartridge:** welding or gouging (in most locations/conditions), grinding or burning on coated surfaces, stainless, aluminum, galvanize, and "exotics". **APR Half Mask with Organic Vapor Cartridge:** working with paints, solvents, or materials that could expose worker to high levels of organic vapors.
Hand Protection DO NOT wear gloves—drill presses & other similar rotating equipment.	**Work Gloves:** Handling rough, splintery, sharp-edged material, or grinding and power tooling. **Gauntlet-Length, All Leather/NOMEX® Welding Gloves:** Welding, cutting, burning, washing, gouging and similar hot work. **Impermeable Gloves:** Handling paints, solvents, caustics, acids, cutting fluids, or other hazardous material. (Consult the material's Safety Data Sheet.)
PFAS	**Full-Body Harness, Self-Retracting Lanyard, and a 5000# Anchor Point:** Utilized when worker is exposed to a fall >5' and the work platform or area is not fully decked or the fall exposures are not fully encompassed by structure or with standard top and mid guardrails. **Note:** Center the "D" ring between the shoulder blades and adjust the legs straps, tight enough, so two fingers can snuggly slide between your thigh and straps. **Personal Flotation Device/Work Vest:** Worn anytime a worker is exposed to a fall into the water.
Work Attire	**General Working Apparel Waist Down:** Ankle-length trousers, pants, slacks, jeans or coveralls. **General Working Apparel Waist Up:** Short or long-sleeve shirts or coveralls appropriate for the seasonal temperatures of the work area. **Additional Requirements:** All-natural fiber material long sleeves or specialty material such as NOMEX® for hot work. No loose clothing, scarves, hair, or anything that could become entangled in machinery. No loose, looped or dangling earrings, rings, bracelets or similar jewelry in production areas.
Special Purpose PPE	

Crew Lead & Re-Rate Take Five Training	Work Area Visual Inspection	At Risk Behaviors
Supervisors must train leadermen and re-rates in Take Five procedures. Coordinate inspections when utilizing re-rates to assist. Ensure they document hazards and abatements, get crew concurrence signatures and attach their checklist with supervisor's when filing. **Name/Badge of Re-rate assisting with Take Five:**	The hazards listed on the back are not the only hazards possible. Look for all types of hazards. On the Hazard Checklist on the other side, write **ALL** hazards identified and how they were abated prior to beginning job.	While conducting work area inspections, document any at-risk behaviors observed, the violator's name/badge # and the resolution that was conducted (citation, coached/counseled, retrained, etc.). Write in the space below.

Pipe Department Front Page of Take Five Inspection Checklist

Ingalls Shipbuilding

HAZARD CHECKLIST		Note the location and how findings were abated.
Walk/Work Surfaces	Work area's walk/work surfaces are free and clear of slip/trip hazards, open holes and improperly routed lines. Lines do not sag down into walkways. Passageways, egress routes and exits are not blocked. Material is properly stored so as not to become a trip hazard.	
House/Ship Keeping	Ensure work area is free and clear of trash, debris, and scrap materials. Trash bins are not full or overflowing. There is a 36" clear access to and around fire protection equipment, electrical panels and disconnects, valves, and communication equipment.	
Fall Protection	Ensure any employee working above 5-feet has adequate ladder, scaffolding, or utilizes a Personal Fall Arrest System (PFAS). Ensure lifelines are properly anchored and have 3 cable clamps on terminal ends. Ensure all PFAS anchor points are capable of holding 5000# per person. Ensure all scaffolding is complete, inspected and properly tagged. Ensure PFAS is used in aerial lifts.	
Electrical Safety	Ensure power and welding cables do not have damaged insulation. No exposed light sockets or broken bulbs. Exposures to energized equipment are all guarded.	
Illumination	Ensure workers have adequate lighting to safely perform tasks and where required, have emergency lighting (flashlights).	
Ventilation	Ensure there is adequate ventilation for confined space, hot work, and paint operations. Ensure (yellow tubing) is used for inert gas purging.	
Machine Guarding	Ensure that all power tools and machinery are equipped with proper guards. Ensure bench grinders are adjusted to 1/8" or less for the tool rest and ¼" or less for the tongue guard. Ensure trigger safeties are functional on all tools designed with them.	
LO/TP	Ensure that all employees who must participate in an LO/TP application are properly trained and documented. Ensure that if an employee could be exposed to the start up or re-energization of hazardous energy, that the equipment or system is isolated in accordance with all LO/TP requirements. Ensure operational piping system is properly isolated/secured prior to cutting or breaking.	
Fire Prevention	Ensure certified fire watch is assigned where required; wearing a fire watch vest. Ensure firefighting equipment is available prior to starting hot work. Ensure all flammables and combustibles are secured and area is posted for hot work.	
Machine Operators	Confirm operators have current license on their person, conduct a pre-use inspection and document the inspection on the Operator's Daily Check List (ODCL). Ensure operators have access to blank ODCLs.	
Other Hazards	Inspect hoisting gear prior to using. Clamp work piece with vise grips or clamps when drilling, grinding and cutting. Hold center punch with vise grips when punching with hammer.	
Other Hazards	Always pull inerting gas lines out of compartment when finished. (Pull back to manifold.) Use proper manual lifting/carrying techniques and seek assistance for loads over 50#s or when necessary.	
Inspection Signatures	Supervisors must conduct a visual inspection of each crewmember's work area. Crewmembers must conduct a visual inspection, themselves, prior to beginning job. When all observed hazards are controlled and all safety elements are in place, the crewmembers sign their name and prints their badge number indicating they concur that the work area is hazard-free and ready to begin work. When all crewmembers' work areas have been inspected and they have signed concurrence, the supervisor signs below indicating that the Take Five has been completed.	

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Supervisor and/or Re-rate Signature	
1.)	If there are ever questions regarding proper Take Five process performance or questions regarding any hazards, hazard controls, ARBs or corrective actions, contact the EHS staff member in your area or the EHS Department (ext. 2100).
2.)	

Pipe Department Back Page of Take Five Inspection Checklist

Ingalls Shipbuilding

SHEETMETAL DEPARTMENT

"TAKE FIVE" SUPERVISOR'S PREJOB INSPECTION CHECKLIST

STOP

STOP

Is Good progress!

Date		Specific Work Locations	1)	2)	3)	4)	5)
Supervisor's Name/Badge #							

PPE, Work Attire and Job Readiness

Safety Glasses, Hard Hats, and Safety-Toed Footwear	Worn by all employees everywhere within the Yard, from Gate entry to Gate exit. **Exceptions:** Within landside offices, inside a vehicle's closed cab, and in designated eating areas.
Hearing Protection	Worn by all employees everywhere within the Yard, from Gate entry to Gate exit. **Exceptions:** Within landside offices, inside a vehicle's closed cab, designated eating areas, main roadways, and crane tracks.
Eye and Face Protection	**Safety Glasses and Face Shield:** Foundry/furnace work, operating drill presses, machines generating flying chips, and blowing down with compressed air. **Goggles and Face Shield:** Grinding, scaling, forging, machining rough/brittle material, chipping, rusting, handling chemicals/abrasives and pressure washing. **Burning Goggles:** Cutting, burning, washing, with oxy/fuel gas torches. **Safety Glasses and Welding Shield:** Welding or Tacking. (If welder has a flip up dark lens, an ANSI Z87 clear lens must be behind it to grind, chip or scale.)
Respiratory Protection Must be clean-shaven to wear respirator.	**APR Half Mask with HEPA Filter Cartridge:** welding or gouging (in most locations/conditions), grinding or burning on coated surfaces, stainless, aluminum, galvanize, and "exotics". **APR Half Mask with Organic Vapor Cartridge:** working with paints, solvents, or materials that could expose worker to high levels of organic vapors.
Hand Protection **DO NOT** wear gloves—drill presses & other similar rotating equipment.	**Work Gloves:** Handling rough, splintery, sharp-edged material, or grinding and power tooling. **Gauntlet-Length, All Leather/NOMEX® Welding Gloves:** Welding, cutting, burning, washing, gouging and similar hot work. **Impermeable Gloves:** Handling paints, solvents, caustics, acids, cutting fluids, or other hazardous material. (Consult the material's Safety Data Sheet.)
PFAS	**Full-Body Harness, Self-Retracting Lanyard, and a 5000# Anchor Point:** Utilized when worker is exposed to a fall >5' and the work platform or area is not fully decked or the fall exposures are not fully encompassed by structure or with standard top and mid guardrails. **Note:** Center the "D" ring between the shoulder blades and adjust the legs straps, tight enough, so two fingers can snuggly slide between your thigh and straps. **Personal Flotation Device/Work Vest:** Worn anytime a worker is exposed to a fall into the water.
Work Attire	**General Working Apparel Waist Down:** Ankle-length trousers, pants, slacks, jeans or coveralls. **General Working Apparel Waist Up:** Short or long-sleeve shirts or coveralls appropriate for the seasonal temperatures of the work area. **Additional Requirements:** All-natural fiber material long sleeves or specialty material such as NOMEX® for hot work. No loose clothing, scarves, hair, or anything that could become entangled in machinery. No loose, looped or dangling earrings, rings, bracelets or similar jewelry in production areas.
Special Purpose PPE	

Crew Lead & Re-Rate Take Five Training	Work Area Visual Inspection	At Risk Behaviors
Supervisors must train leadermen and re-rates in Take Five procedures. Coordinate inspections when utilizing re-rates to assist. Ensure they document hazards and abatements, get crew concurrence signatures and attach their checklist with supervisor's when filing. **Name/Badge of Re-rate assisting with Take Five:**	The hazards listed on the back are not the only hazards possible. Look for all types of hazards. On the Hazard Checklist on the other side, write **ALL** hazards identified and how they were abated prior to beginning job.	While conducting work area inspections, document any at-risk behaviors observed, the violator's name/badge # and the resolution that was conducted (citation, coached/counseled, retrained, etc.). Write in the space below.

Sheetmetal Department Front Page of Take Five Inspection Checklist

HAZARD CHECKLIST		Note the location and how findings were abated.
Walk/Work Surfaces	Work area's walk/work surfaces are free and clear of slip/trip hazards, open holes and improperly routed lines. Lines do not sag down into walkways. Passageways, egress routes and exits are not blocked. Material is properly stored so as not to become a trip hazard.	
House/Ship Keeping	Ensure work area is free and clear of trash, debris, and scrap materials. Trash bins are not full or overflowing. There is a 36" clear access to and around fire protection equipment, electrical panels and disconnects, valves, and communication equipment.	
Fall Protection	Ensure any employee working above 5-feet has adequate ladder, scaffolding, or utilizes a Personal Fall Arrest System (PFAS). Ensure lifelines are properly anchored and have 3 cable clamps on terminal ends. Ensure all PFAS anchor points are capable of holding 5000# per person. Ensure all scaffolding is complete, inspected and properly tagged.	
Electrical Safety	Ensure power and welding cables do not have damaged insulation. No exposed light sockets or broken bulbs. Exposures to energized equipment are all guarded.	
Illumination	Ensure workers have adequate lighting to safely perform tasks and where required, have emergency lighting (flashlights).	
Ventilation	Ensure there is adequate ventilation for confined space, hot work, and paint operations.	
Machine Guarding	Ensure that all power tools and machinery are equipped with proper guards. Ensure bench grinders are adjusted to 1/8" or less for the tool rest and ¼" or less for the tongue guard. Ensure trigger safeties are functional on all tools designed with them.	
LO/TP	Ensure that all employees who must participate in an LO/TP application are properly trained and documented. Ensure that if an employee could be exposed to the start up or re-energization of hazardous energy, that the equipment or system is isolated in accordance with all LO/TP requirements.	
Fire Prevention	Ensure certified fire watch is assigned where required; wearing a fire watch vest. Ensure firefighting equipment is available prior to starting hot work. Ensure all flammables and combustibles are secured and area is posted for hot work. Ensure propane bottles, Galvacon paint, etc. are logged in properly if taken onboard.	
Machine Operators	Confirm operators have current license on their person, conduct a pre-use inspection and document the inspection on the Operator's Daily Check List (ODCL). Ensure operators have access to blank ODCLs.	
Other Hazards	Inspect hoisting gear prior to using. Clamp work piece with vise grips or clamps when drilling, grinding and cutting. Hold center punch with vise grips when punching with hammer.	
Other Hazards	Always pull inerting gas lines out of compartment when finished. (Pull back to manifold.) Use proper manual lifting/carrying techniques and seek assistance for loads over 50#s or when necessary.	
Inspection Signatures	Supervisors must conduct a visual inspection of each crewmember's work area. Crewmembers must conduct a visual inspection, themselves, prior to beginning job. When all observed hazards are controlled and all safety elements are in place, the crewmembers sign their name and prints their badge number indicating they concur that the work area is hazard-free and ready to begin work. When all crewmembers' work areas have been inspected and they have signed concurrence, the supervisor signs below indicating that the Take Five has been completed.	

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Supervisor and/or Re-rate Signature	
1.)	If there are ever questions regarding proper Take Five process performance or questions regarding any hazards, hazard controls, ARBs or corrective actions, contact the EHS staff member in your area or the EHS Department (ext. 2100).
2.)	

Sheetmetal Department Back Page of Take Five Inspection Checklist

Ingalls Shipbuilding

TRANSPORTATION & RIGGING

"TAKE FIVE" SUPERVISOR'S PREJOB INSPECTION CHECKLIST

STOP
STOP
is Good progress!

Date		Specific Work Locations	1)	2)	3)	4)	5)
Supervisor's Name/Badge #							

PPE, Work Attire and Job Readiness

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Hand Protection DO NOT wear gloves – drill presses & other similar rotating equipment.	**Work Gloves:** Handling rough, splintery, sharp-edged material, or grinding and power tooling. **Gauntlet-Length, All Leather/NOMEX® Welding Gloves:** Welding, cutting, burning, washing, gouging and similar hot work. **Impermeable Gloves:** Handling paints, solvents, caustics, acids, cutting fluids, or other hazardous material. (Consult the material's Safety Data Sheet.)
PFAS	**Full-Body Harness, Self-Retracting Lanyard, and a 5000# Anchor Point:** Utilized when worker is exposed to a fall >5' and the work platform or area is not fully decked or the fall exposures are not fully encompassed by structure or with standard top and mid guardrails. **Note:** Center the "D" ring between the shoulder blades and adjust the legs straps, tight enough, so two fingers can snuggly slide between your thigh and straps. **Personal Flotation Device/Work Vest:** Worn anytime a worker is exposed to a fall into the water.
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Special Purpose PPE	

Crew Lead & Re-Rate Take Five Training	Work Area Visual Inspection	At Risk Behaviors
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Transportation & Rigging Front Page of Take Five Inspection Checklist

Ingalls Shipbuilding

HAZARD CHECKLIST		Note the location and how findings were abated.
Walk/Work Surfaces	Work area's walk/work surfaces are free and clear of slip/trip hazards, open holes and improperly routed lines. Lines do not sag down into walkways. Passageways, egress routes and exits are not blocked. Material is properly stored so as not to become a trip hazard.	
Vehicle Housekeeping	Ensure cab of mobile equipment is kept clean of trash, debris and unneeded items. Do not allow storage compartments, tool boxes, etc. to become cluttered and unorganized. Make sure that superficial oil and excessive grease is removed. Keep windshields and windows clean so as not to impair vision.	
Fall Protection	Ensure any employee working above 5-feet has adequate ladder, scaffolding, or utilizes a Personal Fall Arrest System (PFAS). Ensure lifelines are properly anchored and have 3 cable clamps on terminal ends. Ensure all PFAS anchor points are capable of holding 5000# per person. Ensure all scaffolding is complete, inspected and properly tagged.	
Illumination	Ensure workers have adequate lighting to safely perform tasks and where required, have emergency lighting (flashlights). Ensure vehicle headlights are used in low-light conditions.	
Rigging Inspection	Ensure all rigging is inspected prior to use and that all tags or labels are intact and legible. Immediately remove defective rigging from service and tag it out.	
Load Security	Ensure all loads or materials are properly secured prior to transporting. Do not use damaged pallets or cribbing. Prior to leaving drop off, ensure materials are secured after unloading or placement so they will not fall.	
Awareness and Alerting	Ensure that whistles are blown during all lifts until the load reaches its destination. Ensure the use of bullhorns on all lifts of 25T or greater to alert employees in area. Ensure that travel bells or other signal devices are working and used.	
Crane Signaling	Ensure that crane hand signals or other communication processes as defined in Company procedures are properly used as required to communicate with the operator. Operators must "All Stop" when given a "Stop" signal by anyone.	
Machine Operators	Confirm operators have current license on their person, conduct a pre-use inspection and document the inspection on the Operator's Daily Check List (ODCL). Ensure operators have access to blank ODCLs.	
Damage Reporting	Notify supervisor or EHS Department anytime there is a mishap with vehicles or mobile equipment or the failure of rigging gear while used in hoisting operations. Notify regardless if damage was from your equipment striking another vehicle or object or from being struck by someone or something else. Notify if new collision evidence is discovered during the ODCL inspection. If noticed, notify supervisor or material owner of damaged material prior to transporting it. Notify of damaged material that occurs during transportation.	
Inspection Signatures	Supervisors must conduct a visual inspection of each crewmember's work area. Crewmembers must conduct a visual inspection, themselves, prior to beginning job. When all observed hazards are controlled and all safety elements are in place, the crewmembers sign their name and prints their badge number indicating they concur that the work area is hazard-free and ready to begin work. When all crewmembers' work areas have been inspected and they have signed concurrence, the supervisor signs below indicating that the Take Five has been completed.	

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Supervisor and/or Re-rate Signature	
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Transportation & Rigging Back Page of Take Five Inspection Checklist

Ingalls Shipbuilding

EVERYONE
WATCHES OUT
FOR EVERYONE