

HOUSTON CONTROLS <i>Instrument, Electrical, Analytical Specialists</i>	Houston Controls, Inc Safety Management System		Doc No:	WKWATER
			Initial Issue Date	2/26/2011
			Revision Date:	Initial Version
WORKING NEAR WATER			Revision No.	0
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Preparation: Safety Mgr	Authority: Dennis Johnston	Issuing Dept: Safety	Page:	Page 1 of 7

Purpose

The purpose of this program is to provide general safety guidelines for working on or near water.

Scope

This program covers all HOUSTON CONTROLS, INC employees involved in working on or near water.

Procedure

Hazard Assessment

HOUSTON CONTROLS, INC requires a pre-task plan to be completed and signed by all members of the crew that may be working over or near water before employees may begin to work over or near water. The following items will be included:

- Discussion of work to be perform
- Review of required PPE
- Review of emergency procedures and contact numbers
- Reminder that employees with together at least in two man teams in case of man overboard emergency

Life Saving Equipment

Employees working over or near water shall be provided with a U.S. Coast Guard approved life jacket or buoyant work vest when the danger of drowning exists.

If the deck of a barge or work platform is not equipped with an OSHA-compliant railing system, employees walking or working on deck must wear a U.S. Coast Guard approved life jacket or buoyant work vest, also called a life preserver or personal flotation device (PFD). These PFDs should be fully buckled, snapped, or zipped whenever there is a hazard of falling into the water, regardless of the size of the barge. While a PFD is not required to be worn while an employee is inside an enclosed cab or equipment compartment on a barge, each employee should have a PFD accessible to them at all times. This safety precaution will allow employees the opportunity to don a PFD in a reasonable amount of time during an emergency (i.e., vessel sinking, fire, etc.).

PFDs

- An approved and readily available PFD is required to be on board the vessel for each individual on board. An immersion/exposure suit is considered to be an acceptable substitute for a PFD. All lifesaving equipment designed to be worn is required to be readily available and in serviceable condition.
- Each vessel 26 feet or longer must have at least one approved ring life buoy which is immediately available. All lifesaving equipment designed to be thrown into the water is required to be immediately available and in serviceable condition.
- An approved commercial hybrid PFD is acceptable if worn when the vessel is underway and the intended wearer is not within an enclosed space, is labeled for use on uninspected commercial vessels and used as marked and in accordance with the owner's manual.

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- An approved light is required for all PFDs and immersion/exposure suits. Also, all PFDs must have approved retro reflective material installed.
- Employees shall inspect buoyant work vests or life preservers for defects which could alter their strength or buoyancy prior to and after each use. Defective units shall not be used.

Have the necessary safety equipment to hand so it is ready for immediate use:

- Ring Lifebuoy
- 90' Buoyant Heaving Line
- Life Saving Skiff

Ring buoys will be provided and readily available for emergency rescue operations with at least 90 feet of line and the distance spaced between ring buoys may not exceed 200 feet.

At least one lifesaving skiff shall be made immediately available when employees are working over or adjacent to water. Each skiff shall be checked daily prior to work beginning to ensure the capability of the skiff to respond to an emergency.

Man Overboard Prevention

- Employees are not permitted to work alone when performing work over or near water. Employees, who will be performing work over or near water, where the danger of drowning exists, are not permitted to work alone at any time by HOUSTON CONTROLS, INC.
- Railing should be continuous around the deck. The ends should be secured with lashings or quick release slips so that you can cut or release them to recover a person from the water.
- Treat any slippery areas with either non-skid paint or stick on strips. Pay particular attention to the tops of hatches and sloping sides which become walkways when the deck is heeled.
- Use harnesses in rough weather and at night. Ensure they are adjusted to a tight fit or you can fall out of them.
- Fit suitably placed harness attachment points close to the companionway so that you can clip on before coming on deck and on both sides of the cockpit.
- Rig jackstays on both sides of the boat so that you can walk the full length of the deck without having to unclip.
- Flat webbing straps are in some ways better than wire because the wire tends to roll underfoot when you stand on it.
- Wear suitable protective clothing and a USCG approved lifejacket fitted with reflective tape and a light.

Man Overboard Response

- When you first discover that someone has fallen overboard, the most important thing to remember is DON'T PANIC!
- If the person is on a lifeline, stop the boat immediately and then recover them using the lifeline/harness as necessary.
- If you are well prepared and have practiced the drill regularly, you will automatically know how to react.
- Immediately throw a lifebuoy and attachment overboard.

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- Raise the alarm by shouting: "MAN OVERBOARD" (Even if you are the only one left aboard, shouting "man overboard" may provide reassurance to the person in the water).
- If there are others on board, instruct a crew member to watch the person in the water and point continuously.
- Start your recovery maneuver.
- If you are the only person remaining on board, do not leave the deck as you may become disorientated and lose sight of the person in the water.
- During the hours of darkness, a white parachute flare, which will pick up the retro reflective tape on clothing/lifejacket, can be used to illuminate area.
- If you cannot see the person in the water or have any doubt about your ability to recover him/her, send a mayday call on your VHF radio.

Slips, Trips and Falls

Minimizing Hazards on Deck

- Keep all walking and working surfaces clean, dry, and unobstructed.
- Keep all areas free of debris.
- Clean up and/or report any spill immediately.
- Stack materials in a stable manner.
- Secure gear and equipment that is not in use.
- Keep stairs, doorways, walkways, and gangways free of equipment and stowed materials.
- Secure ramps during loading and offloading operations.
- Repair leaks from hoses, pipelines, and valves immediately.
- Use non-skid protective deck compound and do not paint over the non-skid compound with standard paint.
- Have de-icing procedures in place when necessary.
- Paint the perimeter and tripping hazards in a contrasting color.

Precautions in Walking

- Walk at a normal rate, keeping your hands out of your pockets.
- Slow down when moving between different surfaces.
- Do not run.
- Minimize short stops.
- Avoid sharp turns.
- Modify your way of walking to match the surface, such as an icy deck.
- Do not jump from one vessel to another.
- Do not climb on cargo, supplies, or equipment instead of using a ladder.
- Do not step on hatch covers.
- Avoid walking along the unguarded edge of a vessel.
- Watch out for reduced visibility due to poor lighting and weather conditions. If working at night, be sure there is adequate illumination (e.g., flashlight, headlight, light tower).

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Wearing Appropriate Footgear

- Wear safety shoes or boots with slip-resistant soles as appropriate.
- Keep shoes clean of mud, snow, ice, spilled liquids, and debris.

Preventing Elevated Falls

- Always maintain three-points of contact on a ladder—two hands and a foot, or two feet and a hand—so that only one limb is in motion at any one time.
- Avoid overextending the body when performing tasks such as checking sounders, checking lights, and wiring rigging, which can lead to falls from ladders.
- Falls from portable ladders are one of the leading causes of occupational fatalities and injuries. Use the following safe work practices when using ladders:
 - Use ladders only for their designed purpose (i.e., step ladders should not be used as portable rung ladders).
 - Position the ladder so that for every four feet in height, the ladder extends out from the vertical surface at the base approximately one foot.
 - Make sure that the ladder is long enough for the job—if used for access to an upper landing surface the side rails must extend at least three feet above that surface.
 - Make sure that there is proper footing to keep the ladder from slipping or sliding.
 - Tie the ladder to a secure object. Remember that the vessel(s) that the ladder is secured to can move. Use the buddy system, if possible, so that one person can hold the ladder to stop it from moving.
 - Never use portable metal ladders near energized electrical equipment (such as conductors or electric arc welding machines).
 - Keep your body near the middle of the step and always face the ladder while climbing.
 - Do not move, shift, or extend ladders while in use. Move the ladder instead of stretching or leaning to the side to reach your work.
 - Use hand lines or a tool bag/belt to keep hands free when using a ladder.
 - Fully enclosed slip-resistant footwear should always be worn when using ladders.
- An adequate guard rail should be installed or employees should wear Personal Fall Arrest Systems when work is being performed above a solid surface (e.g., to prevent falls from the deck to the dock).
- Use gangplanks with guardrails to prevent falls on the dock or pilings.
- All deck holes, openings, and hatches should be covered or guarded.
- Pigeon holes should not be used to access vessel walking or working surfaces.

Machinery and Equipment Hazards

Hazards related to the use of machinery and equipment can result in injuries to hands, feet, or limbs that become caught in moving machinery; head and other injuries from being struck by falling objects or moving equipment; and burns. Other potential hazards include getting pinned under a load; falling off equipment; and electric shock.

To reduce hazards from machinery and equipment:

- Inspect all equipment before use.

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- Maintain equipment properly. Always shut down and lockout the power source before repairing mechanical systems. Make repairs according to the manufacturer's guidelines.
- Ensure that the person using the equipment is trained in its proper use and maintenance.
- Install appropriate rails, temporary or permanent, to avoid equipment being driven off the vessel or dock.
- Ensure retaining pins are properly installed and positively secured with a keeper or locking device.
- Emergency shut-offs must be easily accessible, and sufficient guarding should be used for equipment controls.

Hoists, Cranes and Derricks

Hazards of hoists include being struck by a heavy object, such as the boom or the load being moved. To reduce these hazards:

- Stay clear when a hoist is being used unless you are part of the procedure and, in which case, never stand under a load or boom with a suspended load.
- Wear personal protective equipment, such as head, foot, eye, and hand protection at all times.
- Assess the hoisting systems for structural soundness by inspecting regularly for problems with welds, rivets, chains, pulleys, lines, blocks, hooks, etc.
- Secure power blocks with a safety chain.
- Ensure that cranes in use are secured to the vessel.
- Do not try to help lift a load being hoisted.

Winches

Operating or working near winches may potentially expose employees to hazards such as body parts caught in a winch drum, being struck by a broken line or cable, and tripping over a line or cable. To reduce hazards:

- Use a device or tool, never your hand, to keep the winch line spooling properly.
- Enclose the winch drum in a cage if practical.
- Stay off the deck unless you are part of the operation.
- Never stand in, on, over, or in line with lines or cables connected to winches when they are under tension. The danger zone lies within 15 degrees of either side of a line under tension.
- Never step on or walk over the winch drum.
- Inspect the winch system regularly for problems associated with general or localized deterioration, cracked welds, and other structural, mechanical, or electrical deficiencies.
- Inspect lines and cable systems regularly, including blocks, hooks, and associated components, for signs of damage or deterioration.
- A guard should be installed between the winch operator and the connected cables to protect the operator from potential whiplash.
- Never stand in the bight of a line.

Fire Hazards

Steps that can be taken to prevent fires on board a vessel include the following:

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- Store engine fuel tanks and compressed gas tanks properly, away from sources of ignition. Only keep onboard quantities of flammable and combustible materials that are necessary for operations and maintenance. Post appropriate danger signs.
- When dealing with work that is capable of providing a source of ignition through a flame or spark (hotwork), such as welding, cutting, burning, drilling, grinding, etc., follow these precautions:
 - Ensure the space is properly tested by a qualified or shipyard-competent person and deemed safe before work is begun. (See 29 CFR 1915.7 and 1915.15.).
 - Make sure that proper fire extinguishing equipment is near the work area and that it is maintained in a state of readiness for emergency use.
- Do not leave oxygen or acetylene hoses unattended.
- Consider where sparks will fall when doing hotwork and employ a fire watch.
- Shield fuel sources to protect them from ignition sources.
- Cover openings to prevent sparks from entering.
- Stop any hotwork if you smell fuel or gas until the source has been identified and the problem fixed.
- When welding or burning on the deck of a vessel, the space below should be inspected to ensure that no flammable atmosphere or combustible materials are present.
- Use good housekeeping practices to limit the amount of clutter, debris and combustible/flammable material.

Follow these safety measures to help prevent electrical fires:

- Make sure that electrical systems are installed by a qualified marine electrician and that electrical systems are inspected regularly.
- Regularly conduct visual inspections of connections, switches and wiring, which may be subject to corrosion from saltwater and damage from use.

Fire Extinguishing Equipment

- Hand-portable fire extinguishers and semi-portable fire extinguishing systems must be of the "B" type (i.e., suitable for extinguishing fires involving flammable liquids, greases, etc.).
- Hand-portable fire extinguishers and semi-portable fire extinguishing systems must have a metal name plate listing the name of the item, rated capacity (gallons, quarts or pounds), name and address of person/firm for whom approved, and the manufacturer's identifying mark.
- Portable fire extinguishers must be inspected and weighed every six months.
- Minimum number of B-II hand-portable fire extinguishers required to be on board motor vessels: one if less than 50 tons, two if 50-100 tons, three if 100-500 tons, six if 500-1,000 tons and eight if over 1,000 tons.
- Fixed fire extinguishing systems must be an approved carbon dioxide type and must meet U.S. Coast

Ventilation

Fuel tanks and engine spaces, using fuel with a flashpoint of 110 degrees Fahrenheit or less, must be provided with adequate ventilation to remove explosive or flammable gases from the fuel tank compartment and bilges.

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Training

Employees working over or near water will be provided training on the hazards. Employees working over or near water must be adequately trained in their responsibilities and the safe work practices associated with this task and the identified hazard for the site and equipment they are working with.

Training will also be conducted on pre-task planning and hazard identification and daily equipment checks prior to beginning work.

Practice man overboard drills regularly - This can be achieved by using a fender and bucket as the casualty.